



SCHOOL OF  
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# Measuring Informal Institutions with Google Trends

Master Thesis

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## Abstract

Informal institutions are believed to be especially determinant in institutional change, as argued by both old and new institutional economic theory. However, due to the complexity of quantifying them, they are rarely measured. In this study, I examine how well one can capture informal institutions by using Google Trends. I create an index over informal institutional quality (IIQ), proxied by 66 Google Trend topics with worldwide coverage. The topics are linked to eight proposed institutions determinant for change. In addition to well-researched informal institutions such as equality, individualism, trust, hierarchy, and unionization, I propose financial literacy and homogeneous preferences as core informal institutions. I find that there is a highly significant correlation between IIQ and GDP. I also find a strongly significant association between IIQ and R&D expenditure. Homogeneous preferences show to warrant faster GDP growth. Out of the measured institutions, financial literacy shows to have the strongest association with GDP, entrepreneurship and R&D expenditure. There is an association between IIQ and government size and a negative correlation between IIQ and the Gini coefficient. IIQ also correlates negatively with poverty headcount. Overall, the IIQ returns similar results against the dependent variables as established measures over formal institutional quality. This supports my claim that informal institutions can be captured using Google Trends.

**Keywords** Informal institutions, quality of institutions, R&D, financial literacy, development

**JEL Codes** A13, G53, O17, O31, O43

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## 1. Introduction

Institutions define the rules of the game in every society. As described by North (1990, p. 3), institutions shape incentives and constraints which form the actions of the players in society. *Formal* institutions are the predefined rules which create the system in a country. They incorporate markets, law, property rights, governmental organizations and authorities, which keep order by enforcing the rules. *Informal* institutions fill the voids where formal rules are unable to cover all contingencies (Helmke & Lewitzky, 2004, p. 730). They consist of cultural customs and patterns which are formed by heritage and social interactions (North, 1990, p. 37). They stem from unwritten rules, which are recognized, obeyed out of free will and enforced by social conduct.

Several attempts have been done to capture the quality of institutions. International Country Risk Guide (ICRG), is the most established measure over the institutional quality of formal institutions. It is similar to the framework of Knack and Keefer (1997, pp. 5-6) which covers risk of expropriation, repudiation, law and order, corruption and quality of bureaucracy. It assesses formal institutional properties from 0 to 100 with the score of 100 symbolizing perfect institutions and thus very low risk, while low scores symbolize very high risk (ICRG, 2014). The framework has shown a positive effect between formal institutional quality and growth (Rodrik, 1999; Berggren et. al, 2012; Acemoglu et. al., 2001). However the ICRG is mainly aimed at international investors and common criticism revolves around the risk of it not being fully able to incorporate domestic issues, should such problems not coincide with challenges encountered by foreign investors (Williams & Siddique, 2008, p. 6). On the other hand, one could argue that it is incomplete, not because domestic issues are being misinterpreted, but rather because the framework only allows for an assessment of formal institutions, and that the quality of informal institutions thus is left unexplored.

Informal institutions play an important role, because they tend to be equally efficient as formal institutions in defining rules of the game and setting up incentives and constraints for players. As argued by both old and new institutional theorists, it is in fact the informal institutions that are determinant in the process of change (Bush, 1987, pp. 1099-1109; Acemoglu et. al, 2005, pp. 463-464; North, 1997, pp. 6-9; Ostrom, 1990, pp. 139-142). Individuals and firms need to have clear incentives to produce, trade and create innovation. Simultaneously, their safety needs to be insured and their property rights need to be protected by clear-defined boundaries to ensure minimal

interruption in productivity. Thus, the efficiency of economic exchange is, at least to a certain extent, a function of institutional quality. Working economic institutions encourage factor accumulation, innovation and have the ability to secure an efficient allocation of resources. However, when markets are discouraged, counteracted or simply ignored, misallocation of resources occurs, which contributes to inefficiency (Acemoglu et al, 2005, p. 389). The implications are clear: institutions are defined and determined by society and should thus be considered as endogenous. If societies fail to develop and produce growth, they have, at least to some extent, failed institutions.

“Getting the institutions right” (Rodrik, 2008, p. 184) is a widely-known phrase suggesting that once correctly identified, institutions can be transformed from wrong to right. Conducts that are unfavorable for economic development can be replaced by efficient processes which support and induce growth. The processes of institutional change are largely value-driven and usually very sluggish, unless players are willing to form new tools in order to adopt a new reality (Bush, 1987, p. 1093). Boettke (2008, p. 333), argues that the rigidity of institutions today is a function of how agents interpreted given institutions in the previous time period. This argument allows for a historical interpretation of the evolution of institutions and the concept of *path dependency*, meaning that the consequences of historical events and specific circumstances lead to a preferred path after which society chooses to solve for inefficiencies (North, 1990, p. 94). It implies that the equilibrium path of change will always revolve around specific patterns which society uses when facing challenges. On the other hand, one can argue that the historical path itself does not necessarily produce *equilibrium* institutions, as new knowledge and insights come with natural progress, and the rationale of adhering to such information could shift equilibrium away from the historical path. If the country is path-dependent on an institutional structure based on traditional values, we can assume that the process of change will be more rigid. However, I will argue that countries that are path-dependent on instrumental values have a more efficient process of change and will be more prone to utility-maximize within the institutional boundaries.

## 1.1 Purpose, approach and limitations

The purpose of this study is to determine how well informal institutions can be framed by using Google Trends and what insights such a framework can bring to the understanding of institutional quality. The approach is semi-deductive. It deductively originates from well-established theory, but I also inductively propose previously untried institutions which I argue are crucial for the understanding of informality. The framework allows for a quantitative assessment, but I will also use the opportunity to qualitatively analyze the findings with support from theory. Within the boundaries of time and size that come with a master's thesis, this study will focus solely on informal institutions and such properties that can be directly linked to economic development and institutional change.

## 2. Theory

This chapter covers the theoretical foundation of informal institutional quality. The first two subchapters address the theoretical definition and conceptual understanding of institutions. Subchapters 2.3 and 2.4 cover theory related to the mechanisms of institutional change, which acts as a foundation for my assessment of informal institutional quality. 2.5 provides a literature review over informal institutions and how measuring of these has been conducted in previous research. In 2.6 and 2.7, I support my decision to propose financial literacy and homogeneous preferences as institutions of interest for this study.

### 2.1 What are institutions?

It is important to stress that the definition of institutions in the context of institutional economics differs from the context of which it is used in daily speech. We usually refer to banks, universities and government organizations as institutions. Yes – they are all institutions, but the theory of institutional economics also incorporates all established practice as institutions, even if it is not organized or formalized. The role of institutions is to simultaneously constrain and enable behavior (Hodgson, 2006, p. 3). The main concept around rules and laws, is to ensure security and safety so that ideas can be achieved and realized. Institutions thus form incentives and constraints which will determine what actions individuals make in society (North, 1990, p.3). The rules of the game are not always formalized, and it is not the lawmakers that create institutions. Instead social structure makes up institutions (Wells, 1970, p. 3). For instance: There has been a worldwide recognized custom, (at least pre-Covid), to shake hands upon greeting. The handshake is rarely regulated in the code of law, however refraining from shaking hands when initiated by the other party would be a breach of social conduct, which would immediately affect the relationship.

Voigt & Kiwit (1998, p. 85) propose a taxonomy of institutions in five types: 1) Conventional institutions, 2) Ethical institutions, 3) Customs and etiquette, 4) Formal private rule, 5) Public rule. The first four are considered *internal* and the fifth *external*. Conventional institutions are those which are deeply rooted within ourselves and always played in *nash equilibrium* – meaning they are so traditionally warranted that we have no reason to deviate. For instance, we use our language like everyone else and have no incentive to create new grammatical rules (Voigt, 2018, p. 5). Ethical



institutions stem from religious commandments and incorporate a Nash equilibrium, not necessarily where the highest payoff is, but rather because it is the “right thing to do” (Voigt & Kiwit, 1998, p. 86). Conventional and ethical rules are self-enforced. However, customs are enforced by societal control. Assume we ride a full public transport when an elderly person enters. According to worldwide recognized custom, we should give our seat to the elderly person. However if we do not, we might be sanctioned by other passengers (with worldly reprimands or ostracism) as our actions go against social context. The fourth type; formal private rules, incorporate contractual agreements and public rule includes written law. Public rule is considered external as breaching it is sanctioned by the state. We, as players, are not part of the sanctioning process (ibid, p. 87).

*Formal institutions* consist of formally regulated rules which create what we refer to as the *system*. Organizations and authorities play a role of enforcing the rules. Formalized concepts such as property rights or markets make up the institutions. *Informal institutions* revolve around the first three internal institutions proposed by Voigt & Kiwit (1998) and make up for incomplete formal rules. They are widely recognized as norms, oftenly created outside the public eye, and their origins are unclear (Helmke & Lewitzky, 2004, p. 730). Informal institutions thus create the systematic patterns of conduct that lawmakers are unable to do.

Summarized – if institutions are the rule of the game as proposed by North (1990, p. 3), then formal institutions make up systematic official components of the game, while informal institutions provide the social structure of the game.

## 2.2 Institutional quality

The definition of institutional quality can be interpreted in different ways. Rodrik (2007, p. 15) argues that good institutions need a formal structure to protect property rights, enforce contracts, provide free markets, incentives and debt sustainability. This is similar to the view of ICRG and Knack & Keefer (1997, pp. 5-6) which defines the institutional quality by the rule of law, bureaucracy, corruption, risk of expropriation and government risk of repudiation. Rodrik (2007, p. 16) does however add that there is no direct correspondence between the function of the institutions and their form. Institutions can therefore be differently designed and reformed through different

processes in each country to maximize the advantage of local opportunities. As such, institutions can incorporate the same function in both a formal and informal setting.

North (1990, p. 3) and his view of institutions as rules of the game in every society, play a central role in how institutional quality should be understood in this study. Given that institutions provide incentives and constraints, rational players are assumed to use incentives to utility-maximize, only to be limited by constraints. As such, institutional quality will be a product of what the players can achieve within the boundaries of the institutional setting. Note that it is not necessarily the objective incentives or constraints that form these boundaries, but rather the player's own perception of reality that decides what beliefs to act upon (North, 1997, p. 7). Thus, we need to account for different levels of imperfect understanding of reality and the presumptive deadweight loss which occurs when players are taking sub-optimal actions as a result of not fully understanding how to utility-maximize within the rules of the game. This can only be mitigated by reducing uncertainty to a minimum level within the institutional structure, both formally and informally. In other words: the lower the uncertainty, the better the institutional quality.

### 2.3 Equilibrium institutions

We continue to assume that institutions are endogenous, as they are determined by collective choices, and chosen because they incentivise or control something of interest for the individuals in society. Given that all individuals have homogeneous preferences, the equilibrium institutions will be equal to the unanimous preference of the individuals. However, this rarely happens in reality. It is more likely that individuals have heterogeneous preferences which lead to conflicts of interest. Acemoglu et. al. (2005, p. 390) argue that whatever preference will prevail, depends on which group is in possession of political power. This implies that institutions do not necessarily have to be optimal, unless the optimal path is also arbitrated by those with political power. The distribution of political power is described as *de jure* and *de facto* (ibid, p. 391). *De jure*, being the regulatory institutional power dictated by political power, which is also determinant for the distribution of resources in society. *De facto*, being the truly influential power on society, as it depends on the distributed resources and has the possibility to challenge institutional structures and *de jure* power.

Acemoglu et. al. (2005, pp. 421-428) present four different views over how institutions evolve. According to the first view, societies adopt institutions that offer the most efficiency according to their needs. This view originates from the *Coase theorem*, (Coase, 1960, p. 4), and implies an existence of well-defined property rights and negligible transaction costs. Agents thus form efficient institutions between themselves, because they possess bargaining power to adjust for indifferences or externalities. Secondly, there is the view of *ideological conflict* over what institutions to form (Acemoglu et. al, 2005, p. 424). Institutional structures change over time, but in addition to the Coase theorem, we also incorporate a democratic component in this view, implying that only such institutions that have proven themselves well in the beliefs of the majority will prevail. This view differs from Coase because the bargaining process is longer and more rigid. As such, adjustment to equilibrium will lag until one side is proven to be right. On a more positive note, it also rules out that society would ever choose disequilibrium or even worse: a path that would prove itself to be directly hurtful. The third view is the one of *incidental happenings*, meaning institutions are produced by chance rather than rational processing (ibid, p. 425). It has a more sceptical attitude towards the institutional structure and as such, any institutional process is believed to follow a random walk. The fourth view, and also the most widely applied and recognized, is the one of *social conflict*. According to this view, institutions are neither randomly or optimally constructed, but instead formed by the interest of agents who happen to access power. These individuals will seek to utility-maximize their own personal interests by using the power they possess. Their aim will not be to improve the institutional structures in order to enhance productivity, but rather seize rent from the existing structure. *Rent-seeking behavior* denotes the acts of seizing income flows, as opposed to creating income flows (*profit-seeking*). Rent-seeking can be conducted by firms when they aim resources at securing monopoly power by different acts of lobbyism or legal processes against competitors instead of intensifying the competition by developing their products. It can also be conducted by bureaucrats who use their position to collect rent when creating favorable opportunities for the paying agents (Hindriks & Myles, 2013, p. 404).

Efficiency requires a process of optimization to minimize transaction costs (Williamson 1979, p. 234). As such, rent-seeking bureaucrats will have interest in preventing any such processes in order to maintain their possibilities of securing a slice of the total transaction. A double-negative effect occurs when the carousel of rent-seeking becomes a lucrative activity, not only for the bureaucrat, but also for productive and talented individuals, who direct their efforts at seizing rent such as engaging in lobbyism or bribery, instead of aiming their human and physical capital at profit-seeking activity

(Weil, 2013, p. 301). In the short-term, both bureaucrats and agents associated with the bureaucrats will be better off, however it hurts long-term development as any natural processes of optimization will be impeded. The cost of inefficiency will be borne by society. When rent-seeking bureaucrats form institutions after what secures them the most power and rent, equilibrium institutions will be far from the social optimum, and only follow the interest of those in power (Acemoglu et. al, 2005, p. 427). Summarized, the Coase view and ideological view reflect a productive process of adjusting to institutional equilibrium. The incidental view does not fully recognize equilibrium institutions. The view of social conflict is strictly counterproductive as it is in the interest of the rent-seeking bureaucrat to maintain weak property rights and shift equilibrium away from the social optimum.

As argued in chapter 2.1, it is important to stress that equilibrium institutions are formed by how the rules of the game are interpreted by the agents, rather than by objective incentives and constraints. Aoki (2001, p. 11) argues that equilibrium institutions are a product of *equilibrium beliefs*, meaning that equilibrium will occur once the information sets of the agents lead to repeated actions and choices where no player has incentives to deviate. Equilibrium institutions will thus be equal to the *Nash equilibrium*. Nash equilibrium is central to game theory and describes how one specific strategy will always be played in a game, since the strategy is optimal even when considering the actions of other players. In the context of institutions, equilibrium occurs when all players honor the constraints and fully use the incentives it provides without deviating, as doing so maximizes the payoff for both themselves and everyone else (Osborne, 2004, p. 20). This is repeated as long as the beliefs about the incentives and constraints together with other players' actions remain unchanged.

## 2.4 Institutional change

If we assume that institutions are formed by equilibrium beliefs, what happens when beliefs change? Aoki (2001, p. 239) argues that if agents start to question the usefulness of the existing set of rules, they will try to revise and adopt new strategies that deviate from what's expected. This search for new strategies will cause deviation from the Nash equilibrium and be irrational at first glance, as the payoffs from challenging the institutional pattern is unknown. Once the players expand their repertoire of actions, a gap between aspiration and achievement occurs, and the situation finds itself in a temporary disequilibrium (ibid, p. 240). At the same time, the players might deviate from the Nash equilibrium, not necessarily because they are irrational and seek a new truth, but rather because

they have new information, or at least new beliefs, which points towards a higher payoff if strategies are revised. As such, one could argue that the situation does not necessarily constitute a disequilibrium, but rather a continuous shift to new equilibria. Innovation is endless and usually happens within the boundaries of the institutions, since technological progress is expected and much of the progress already is accounted for in the institutional framework. It does nevertheless produce occasional revolutionary changes for daily life which come unanticipated and affect the perception of how societal structures should be interpreted and handled. This is referred to as *creative destruction* (North, 2005, p. 20) and describes how new, more efficient processes, replace the old. As a result of this, one can argue that information sets change, which produce new beliefs and thus move institutions to new equilibria. In other words, a shift in equilibrium beliefs creates a new social understanding that is reflected in the institutions. This shift is usually sluggish due to the *rigidity of institutions*.

The process of institutional rigidity can be largely explained with the ceremonial-instrumental dichotomy which separates ceremonial values from instrumental values (Junker, 1982, p. 145). *Ceremonial values* are traditionally rooted and originate historically from religious commandments. They create a behavioral foundation as they incorporate perceptions of how to relate to traditional rules. Ceremonial values lay ground for identities – be it national or religious – yet in a world of secular beliefs, the association to religion is weaker and sometimes even non-existent. Ceremonial values do nevertheless incorporate structural rules of action, for instance how an individual should relate to society and its entities. Central to ceremonial values is the creation of hierarchy and status which defines different roles amongst different types of individuals, such as variance in social class (ibid, p. 150). *Instrumental values* denote the code of practical conduct, in particular which tools to use when dealing with societal challenges (Bush, 1987, p. 1080). Instrumental values are practical, dynamical and shift largely by innovation. They take on accessible insights and knowledge in order to form the instrumental toolbox. Instrumental values are less rigid than ceremonial values, since ceremonial values depend on *habit formations* – patterns of behavior that seem natural to all players (ibid, p. 1077). Socially accepted behavior is internalized in the ceremonial values, and instrumental values are encapsulated after the ceremonial rules of conduct. *Encapsulation* describes the process of adjusting the institutional path to a new equilibrium when values shift in order to adopt a new reality. Encapsulation processes are usually very sluggish and can be future-binding or past-binding. *Past-binding* processes take the longest, since innovation gets delayed due to the players' fear that the change would interrupt familiar habits (ibid, p. 1094). Past-binding rigidity can be most easily

described as a cultural lag and involves scepticism and frustration over innovation which delays the encapsulation process. *Future-binding* processes are the opposite and describe how agents successfully campaign for innovation before it is introduced. By doing so, they prepare the players for the change so that they welcome the innovation instead of being suspicious. This is called *rationalization*, and leads to an early encapsulation of values when successful (ibid, p. 1095).

According to Bush (1987, pp. 1101-1107), institutional change can be of both progressive and regressive nature. *Progressive* change occurs when agents find a way to utility-maximize given their new equilibrium beliefs, thus letting instrumental actions replace ceremonial patterns of conduct. As such, agents increase their reliance on instrumental values and successfully break down inefficient constraints previously derived by ceremonial dominance. Bush (1987, p. 1104) argues that the phases of institutional adjustment start with agents questioning and elaborating with ceremonial conduct to encapsulate new knowledge. This leads to encapsulation of innovation and the learning process generates a displacement of ceremonial patterns by instrumental values, permitting further elaboration within the boundaries of what is learned in the process. Thus, the *knowledge fund* is allowed to grow and will continue to grow. *Regressive* change is when ceremonial warranted patterns of behavior impede the evolution of change by distorting instrumental processes (ibid, p. 1100). As opposed to the progressive process of change, regressive change enhances ceremonial dominance. It is not necessarily rational and shifts equilibrium institutions away from what could be instrumentally feasible.

While Bush (1987) represents the old institutional perspective with a sole focus on informal institutions, North (1994 b, p. 1) represents the school of new institutional economics and argues that institutions create a frame – be it formal or informal, which is either implemented by political decisions or by market forces. While the view of Bush mainly outlines institutional change as a structural process in society, North argues that it is predominantly caused by *entrepreneurship*, and commenced from the very moment entrepreneurs identify opportunities (ibid, p. 4). It is the entrepreneur's personal vision that ignites the change, but the main driver is the competition over scarce resources (ibid, p. 22). The remainder of the institutional adjustment is assumed to rely on *path dependency* (ibid, p. 7).

Path dependency is produced by both mental models of agents and existing organizations and covers the tradition of handling change. The way beliefs and institutions have been constructed in the past

will influence choices made today (North, 2005, p. 21). Societies which have chosen a flexible path will handle change differently than those who usually meet challenges with suspicion. The mental models of the agents show the direction. The way to handle change today should thus be equal to the way institutional change has been handled previously. This is very similar to the view of Boettke et al. (2008, p. 344), where the institutional rigidity today is the function of the rigidity from the previous time period, discounted for the actual change.

Boettke et al. (2008, p. 336-345) categorize institutional rigidity in the following three segments based upon their stickiness, varying from most to least rigid: Indigenously introduced endogenous institutions (*IEN*), indigenously introduced exogenous (*IEX*), and foreign-introduced exogenous institutions (*FEX*). *IEN* institutions stem from cultural customs, practices and values of indigenous people. These are the most culturally rooted informal institutions and have a connection to local conditions. *IEN* institutions are deeply traditional and act as glue to the institutional structure since they are value-based and constitute parts of the national identity (ibid, p. 339). *IEX* institutions, on the other hand, denote formal constraints imposed by an indigenous authority which regulates common practice. *IEX* institutions can be informal and consist of societal enforcement, but their main characteristic revolves around being exogenously imposed on the indigenous entity. They do however have a fairly strong legitimacy as they have connection to local conditions and concern the life of the people indigenously, but they are never in total harmony with the *IEN* institutions (ibid, p. 340). As such, inconsistencies occur between the formal and informal structure, and one can argue that the institutional system thus becomes dissonant, unless the *IEN* and *IEX* institutions are based upon strictly homogeneous preferences which allow for an incorporation of *IEN* institutions within the *IEX* structure. It is however important to note the following: Had the informal institutional structure been in perfect understanding by the public, society would never feel the need of indigenously formalizing institutional constraints. As such, *IEX* institutions are a product of conflicting preferences within the informal indigenous institutional setting. There are however successful *IEX* institutions, and those have the property of being well-connected to *IEN* institutions (ibid, p. 343). The same can be said about the process of institutional change: Successful *IEX* institutions converge over time with *IEN* institutions, which creates a new institutional equilibrium. This is similar to the process of *FEX* institutions, which are imposed from outside the indigenous cultural sphere. They share the characteristics of the *IEX*, and can be highly successful if adopted in values and cultural conduct. They do nevertheless have a history of repeatedly being rejected by the host country since they are constrained by the *IEN* institutions and the national identity (ibid, p. 344).

This can partly illustrate why international help or foreign aid to developing countries becomes less efficient than one could anticipate. Societies simply do not understand them fully, nor do they completely trust their structure and intent. Combined, it has a hampering effect on both institutional quality and change as the properties of the FEX lack the glue to stick.

All four theorists emphasize similar properties as drivers to institutional change, although differently described. The argument by Boettke et. al. (2008, p. 344) that successful change must have support from the IEN institutions coincides with the views of Bush (1987), Aoki (2001) and North (1990, 1994, 2005). The foundation of IEN institutions carries the same characteristic as the one proposed by Voigt & Kiwit (1998) for the first three types of internal institutions: conventional, ethical and custom. However, IEN institutions mainly consist of habit formations and carry much of the same properties as ceremonial values, just as IEX and FEX institutions can be described as instrumental, or at least instrumentally warranted. The description of IEX and FEX institutions often not being well-connected with IEN and thus lacking the glue to stick, can be described as the result of failed rationalization or past-binding processes, where instrumental values are not adopted because of ceremonial dominance. The proposed convergence of IEX and IEN institutions (Boettke et. al. 2008, p. 343), is similar to the process of progressive change, described by Bush (1987, p. 1104) where successful encapsulation merges ceremonial and instrumental values, thus welcoming innovation and allowing the knowledge fund to grow by continuous adjustments. The process of elaborated institutional boundaries, endlessly adjusted to meet new equilibria, is further expanded with the help of Aoki (2001). Agents act on new information sets and intentionally deviate from the Nash equilibrium in search for new equilibrium strategies. North's view (1990, 1994, 2005) is that this is entrepreneurship and that change will be a product of the entrepreneur's ability to rationalize for the innovation and break through despite the scarcity of resources. The entrepreneur will face a larger challenge if society is path dependent on past-binding institutions rather than future-binding.

## 2.5 Capturing informal institutions

There have been numerous contributions to institutional economics on how to understand and assess informality. As argued by Ostrom (1996, p. 208), the main challenge of quantifying informal institutions is identifying them, as they might be so deeply rooted in daily life that they become invisible to both the in-group and any outsiders who might attempt to observe them. The challenge of finding ways to establish and quantify informal institutions opens up for creativity. Voigt (2018, p.



12-19), proposes the use of experiments to capture internal institutions, as it has an advantage of observing interactions based on real payoffs, rather than surveyed attitudes. In other words, it tells what actions players actually take, not what actions they believe that they would take. This measure is therefore more reliable and accurate than the World Value Survey, which is popularly used for this purpose. Park (2018, p. 15) argues that subjective measures such as surveys should be considered as complements in empirical studies, but mostly rely on measures that can capture factual behavior, such as experiments, historical records and other objective proxies.

Relying on Google Trends as proxies carries the immediate benefit of not relying on surveys, but also tracing decisions which base on real payoffs. Prado-Román et. al. (2021, p. 666), have compared search statistics before every election in the USA and Canada since 2004, and found that the search metrics always have been able to predict the real winner. This implies that proxy variables from Google Trends, at least to some extent, have the ability to capture real-time preferences and to intuitively predict real actions of the players, as opposed to surveyed answers.

A popular way of quantifying informal institutions from previous studies is using the variable of *trust*, largely by proxying survey data on how large a share of the population believes that other people can be trusted. The logic of this is simple, according to Rothstein (2000, p. 14): Good institutions have the instrumental ability to punish traitors that breach law and conduct, or perform such non-cooperative acts that they lose their trustworthiness. If such punishment is instrumentally feasible, fewer people will deviate from expected conduct and as a result, more people will be trustworthy, thus more people will perceive others as trustworthy. Bergh & Bjørnskov (2011, p. 14) establish that social trust is connected to the size of the welfare state. Their proxies include pronoun-drop, which tells if the language allows for addressing others by not using the pronoun, existence of monarchical institutions and average temperature in the coldest months, as history tells that individuals in colder countries to a larger extent have had to trust others in order to survive. Bergh & Bjørnskov (2011, p. 1) argue that it is not necessarily the welfare states that create trust, but rather that trusting populations are more likely to sustain welfare states of bigger sizes. Welfare states do need tax contributions from the population to survive and will suffer if the free-riding problem gets too big. The size of government has however proven to be hampering growth, where a ten percent increase in government size is expected to slow down growth by 0.7 percent (Bergh & Bjørnskov, 2020, p. 654).

Welfare states, especially in developed countries are often associated with a tradition of trade unions. Barth et al (2020, p. 1924), partly explain this by suggesting that an increased level of unionization leads to higher productivity at firm level. This is consistent with the view of Addison & Hirsch (1989, p. 81), describing how firms respond to wage premiums by increasing efficiency and productivity. However, it is important to stress that *unionization* in an informal context covers *all networking activities* that are instrumentally warranted by groups of individuals who carry homogeneous preferences over a certain issue, be it work. As such, the institution of unionization not only incorporates labor union affiliation, but also informal patterns of social exchange. This includes organized reciprocity and informal association with groups of interest (Cropanzano & Mitchell, 2005, p. 875). Such unions might resemble the structure of trade unions, however this study's framework neither determines the level of formalization, nor the bargaining power these groups would have in society.

Williamson & Kerekes (2011, p. 565) propose hierarchy and egalitarianism as proxies for informal institutions. Hierarchy is defined by cultural acceptance of unequal power structures and the authors argue that hierarchic societies obstruct the possibility to secure property rights, while egalitarian societies emphasize equality. The equality parameter is often instrumentalized by the use of the Gini coefficient (Lerman & Yitzhaki, 1984, p. 364), and it is widely believed that better institutional quality causes a more equal wealth distribution. Findings from Chong & Gadstein (2007, p. 464) support this, however the association from inequality to institutional quality dominates the reverse. It is thus more likely that inequality contributes to worsen the institutional quality and that well-needed institutional change never gets applied due to rent-seeking behavior or other opportunities which make decision-makers refrain from implementing reforms, since they might believe they would personally be worse off by allowing for change.

Another informal institution measured by Williamson & Kerekes (2011, p. 562) is individualism. Their view of individualism follows the description of the individualist society established by Hofstede et. al. (2010, p. 92), as a society in which the ties to other individuals are loose and limited. Everyone is expected to look after their own interests and only care about themselves or their immediate family members. With individualism comes the search for personal fulfillment, freedom and challenge to achieve new accomplishments. This is the opposite to collectivism, in which society lacks the instrumental tools to meet personal needs, instead relying on the loyalty of the collective to ensure necessary protection. The distinction and transition between community (*gemeinschaft*) and

society (*gesellschaft*) is described by (Tönnies, 1957), in which the collective community is based on tradition, care and reciprocity, while the individual society is based on rational conduct with utility-maximizing individuals. While the *gemeinschaft* only relies on loyalty and reciprocity, the *gesellschaft* consists of contractual agreements and mechanical tools to improve self-fulfillment. By using an internal survey by IBM employees, Williamson & Kerekes (2011) conclude that the level of individualism positively correlates with the ability to secure property rights within a country.

## 2.6 Financial literacy

In addition to the informal institutions mentioned in chapter 2.5, I propose Financial literacy as an institution of interest for this study. Education is widely considered as a societal and economic institution (Meyer, 1977; Thomas, 1965; Kromydas, 2017). Formally, the functions of schools and universities provide necessary educational capital as a basis for professional life and societal participation. Cognitive abilities are based on codified knowledge, which is acquired in the formal educational system and tacit knowledge, which stems from experience and social capital (Ferrante & Sabatini, 2007, p. 6). Financial literacy is a result of both codified and tacit knowledge and describes the individual's ability to understand personal finances and the mechanisms of the economic system. It can thus be viewed as the individual's capability to make rational choices and optimize their financial decisions (Altman 2013, p.12).

If we assume that all players have equal financial literacy, they will all adopt similar strategies as they are rational and seek to utility-maximize within the rules of the game. However, if financial literacy varies, the strategies and outcomes of the game will be different. Different levels of financial literacy lead to divergent perceptions of risk, reward and utility. This is supported by Al-Tamimi & Kalli (2009, p. 515), who discover that financial literacy has a significant effect on the individual's investment preferences, as factors such as self-image coincidence and emotions become less relevant, the higher the level of financial literacy observed.

As such, it is reasonable to believe that asymmetric financial literacy will follow the logic of asymmetric information between players and benefit those with the most ability to utility-maximize on rational ground. This also implies that countries with financially illiterate populations will struggle to optimize investment decisions on both macro and micro level. The accumulation of capital will likely be distorted and the countries will likely fall behind in developing efficient patterns

of trade with countries that hold populations of higher financial literacy. Not least, can low levels of financial literacy allow for inefficiency related to rent-seeking activity in the public sector as the inability to understand the economic processes might give bureaucrats a higher degree of freedom to conduct such activities.

Educational capital provides a possibility to create innovation necessary for development and raise the quality of life. As such, the knowledge capital of the populations strongly affects economic growth (Hanushek & Woessmann, 2020, p. 180). Education, be it codified or tacit, thus constitutes an institution. Higher institutional quality in the context of financial literacy thus implies that utility-maximization is reached more efficiently and that equilibrium beliefs revolve around a higher degree of accurate information, which allows for more rational financial decisions.

## 2.7 Homogeneous preferences

The next informal institution I propose for the study is homogeneous preferences. High levels of societal homogeneity shows a strong and positive influence on economic development. High levels of polarization, however, weakens development in both the short, medium and long run (Rodríguez-Pose & von Berlepsch, 2019, p. 873). The underlying reason for this is that diversity raises the incentives to engage in rent-seeking activities, which undermines the efficiency of the total economic structure (Easterly & Levine, 1997, p. 1206). Another implication of divergent preferences in society is that they lead to insecurity. This affects the level of trust, the function of property rights and curbs public sector performance, not least by forming extreme political parties, undermining collective action and reducing obedience of law (La Porta et. al., 1999; Keefer & Knack, 2002; Platteau & Seki, 2007).

Assuming that a country is perfectly homogeneous, there is no room for internal conflicts. There is perfect understanding and hence no uncertainty. One could argue that the unanimity of preferences guarantees that the institutions in a perfectly homogeneous society always are played in equilibrium. When preferences unanimously shift, the institutional change is instant and efficient. Attempts of rationalization remain unchallenged. Given that the nature of change is progressive, the process becomes beneficial for the country. Homogeneous preferences have played a crucial role in the economic development of Poland, where unanimous preferences over increased liberty have mobilized efforts towards entrepreneurship and cooperation with the west (Johansson, 2021, p. 5).

I argue homogeneous preferences are institutions, since they both constrain and enable behavior. The level of homogeneity determines the level of societal certainty. In perfectly homogeneous societies, the rules of the game stand clear. Boundaries and incentives have the same meaning for all individuals. In perfectly heterogeneous societies, there is full uncertainty and the rules of the game are interpreted differently by all players. As such, homogeneity allows for consistency, as all actions can be played in Nash equilibrium due to the perfect understanding of equilibrium beliefs.

## 3. Framing Informal Institutional Quality (IIQ)

### 3.1 Methodology

My framework, henceforth *IIQ*, rates the institutional quality of countries according to the ceremonial-instrumental dichotomy, from 0 being perfectly intrinsic and 10 being perfectly instrumental. In other words: low scores indicate strong ceremonial dominance, whilst high scores reflect a high adaptability to instrumental values. Countries that return a low score will likely suffer from past-binding institutional processes, as adherence to ceremonial values slows down rationalization and fails to move equilibrium institutions towards improved institutional quality. Countries with high numbers will likely be more efficient and have less rigidity in their institutional structure, which allows for quicker adjustments to new institutional equilibria.

I assume that different levels of informal institutional quality will lead to different types of online search patterns. Hence, we should be able to tell the temperature of the institutional quality in the given country from the observed search metrics. Quantifying these variables opens up for comparison against economic statistics and looking for associations between institutional quality and different types of economic development.

In order to quantify the ceremonial or instrumental dominance of a given country, I propose eight informal institutions which constitute the index: *Financial literacy, equality, individualism, trust, hierarchy, acceptance of rule, homogeneous preferences* and *unionization*<sup>1</sup>. The data to support each institution is gathered from Google Trends, where multiple search *topics* are linked to every proposed institution. Each topic consists of a multitude of underlying related search terms. It covers national, regional and dialectal differences, different descriptions of the same issues, synonyms and misspellings of words. The use of topics instead of search words, makes it possible to include a variety of relevant searches related to the subject of interest which is automatically assessed with the help of artificial intelligence (AI). Thus, the algorithm can follow patterns of behavior and detect new relevant search trends to incorporate in the topics. Also, Google Trends automatically adjusts the popularity of searches against the total number of users in the given country, so the results are less

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<sup>1</sup> Unionization is widely used in literature as a formal institution, when measuring actual union affiliation and bargaining power of labor. In the context of this study, unionization focuses on patterns of social exchange, including organized reciprocity and informal association to groups of interest. See Chapter 2.5, p. 17 for further explanation.

likely to be biased because of country size or language popularity. Additionally, duplicate searches by the same person are eliminated (Google, 2021). The trend is later reported on a worldwide level and specifically by country, which makes it possible to construct an index. High readings reflect peak interest and low numbers indicate the opposite. The score is based on relative strength for the topic in the given country. To be able to compare, only topics that are recognized worldwide are considered in the study.

I start with proposing 140 topics that could possibly capture human behavior and reflect the interests and needs of the population. Applying the taxonomy of Voigt & Kiwit (1998) the proxies are a mix of conventions, ethics and etiquette to be able to incorporate all types in the informal index. To be sure about the validity of the data, I control for disambiguation and reproduce the search for the given topic in eight different languages. In several cases, topics have to be dismissed from the study as they fail to reproduce the same result when in another language, because of evident disambiguation or because they fail to show worldwide coverage. The framework finally narrows down to 66 search topics which can be linked to the eight proposed institutions. The scoring of topics in the IIQ either follows Google Trends or the inverse of the Google Trends scoring. It follows when the topic is indicative of instrumentally warranted patterns of behavior or progressive institutional change, and is inverted when reflecting on past-binding processes and ceremonial dominance. A higher value in the IIQ or in each separate underlying institution always denotes higher levels of instrumentality. The IIQ together with the full institutional scoring can be found in Appendix. The institution-specific results consist of the average from the underlying proxies. The IIQ is both equally-weighted and weighted by category for the purpose of robustness checks. I will refer to the equally-weighted index as the IIQ. It provides the most important and accurate result as it gives equal weight to all underlying proxies. Thus, we prevent institutions linked to fewer underlying proxies to outweigh the remaining.

As a final measure, I compare the IIQ against seven already established measures of formal institutional quality (World Bank, 2020; Fraser Institute, 2020; Transparency International, 2020). This provides an opportunity to evaluate whether institutional quality can be captured both formally and informally, how much these measures follow or deviate from the IIQ and how they are associated with the dependent variables.

## 3.2 Data

The following dependent statistical variables are selected with basis in the theoretical framework and added from World Bank (2021); *Business entries per capita*, *GDP (PPP)*, *GDP (growth)*, *Government size*, *Poverty count*, *R&D expenditure*, *Property rights revenue* and the *Gini coefficient*. Countries with insufficient data in any of these fields are removed from the study, why the final selection of countries to the IIQ amounts to 65. Subsequently, I try the dependent variables against the eight independent informal institutional variables and against both the equally-weighted and average-weighted IIQ indices. I use linear regressions and test for heteroscedasticity using the model of Breusch & Pagan (1979, p. 1289).

P-values are reported after testing for heteroscedasticity and amount to  $p < 0.01$  \*\*\*,  $p < 0.05$  \*\* and  $p < 0.1$  \*. In order for the hypotheses not to be rejected, the regressions need to show a robust p-value (\*\* or higher) and pass the test for heteroscedasticity. If tried against the IIQ, they need to produce significant results against both the equally-weighted and category-weighted IIQ indices.

## 3.3 Independent variables – IIQ institutions

Table 3.1 Google Trends topics used as IIQ proxies

Financial Literacy	Equality	Individualism	Trust	Hierarchy	Acceptance of Rule	Homogeneous Preferences	Unionization
Bankruptcy	LGBT	Egoism	Safety	Director	Code of law	Cultural	Labour
Deductible	Coming out	Friendship	Threat	Management	Corruption	appropriation	Unemployment
Mortgage	Gay Pride	Retirement home	Honor	Working class	Bribery	Racism	Unemp. benefit
Financing	Abortion	Parental leave	Respect	Education	Discipline	Hate speech	Salary
Pension	Birth control	Customer service	Honesty	Handshake	Respect	Election fraud	Minimum wage
Price / earnings	Women's rights	Review	Sick leave	Etiquette	Child support	Snap election	Work
ETF	Marriage	Airbnb		Dress code	Lawyer	No confidence vote	
SPAC	Divorce	Tinder		Loyalty			
Morningstar	Rape	Vacuum robot		Patriotism			
Yahoo Finance	Life insurance	Swimming pool		Religion			
		Psychotherapy		Belief			



### 3.3.1 Acceptance of rule

The first informal institution to be covered in the IIQ is *acceptance of rule*. I use the definitions by Acemoglu et. al. (2005, p. 349) for de jure and de facto power. As perfect institutions come with no uncertainty, perfect acceptance of rule implies that there is no discrepancy between de facto power and de jure power. Acceptance of rule describes how well society understands the formal rules of the exogenously imposed institutions. The more the inconsistency, the stronger the fallout between the two. A low understanding of exogenously imposed constraints implies a discrepancy between de jure and de facto power.

The first topic to be included as a proxy is *code of law*. It incorporates searches related to the legal system and laws. I extend the insights by allowing for even wider topics and include searches on *law* which include obedience of law, the consequences of breaching and interest in law-related searches in general. I also include the topics *corruption* and *bribery* to capture searches which reflect on issues related to corruption and rent-seeking behavior. The topics of *discipline* and *respect* relate to acceptance of informal rules and a more ethical aspect of acceptance of rule, which mirrors ceremonial values. Topics which show instrumentality relate to *child support* and *lawyers*. Searches related to child support mirror a standard of regulated financial support for children, which is instrumentally warranted. Searching for lawyers, opinions about lawyers and services related to law, indicates a higher degree of instrumentality in society as rules are formalized and the legal system is trusted to exogenously impose constraints and settle disputes.

### 3.3.2 Equality

The equality measure is primarily designed to pick up the dominance of ceremonial values within the household. As such, focus lies on gender equality and valuing both genders equally in terms of decision-making and economic opportunities. I also include topics which would be indicative of tolerance for sexual minorities. *LGBT*, includes searches relevant for each of the minorities, LGBT rights and social events. *Coming out* denotes searches around the process of coming out as a sexual minority. *Gay Pride* denotes searches around the Pride parade and similar festivals around the globe. These three topics are unarguably more popular in progressive countries where the institutional framework allows for a certain degree of freedom for LGBT individuals. My next topics revolve

around women's rights and to what extent the institutions allow for women to decide over their own lives and bodies. *Abortion* and *birth control* serve as proxies for women's rights to decide over their own body. I also add the topic of *women's rights* which covers searches related to the work of securing women's rights and overall uncertainties over what rights women might have in different circumstances. The ability for a woman to choose a partner will be reflected in the topics of *marriage* and *divorce*. Marriage, because it becomes a topic of interest in countries where the institutions impose constraints on women over which partner to choose. Divorce, because search interest peaks in countries where the process of divorce is legally and financially challenging, if not impossible. The same logic follows for the topic of *rape*. Searches are likely to peak in countries where external institutions fail to maintain justice and safety for women, whether in public or within the boundaries of the household. Finally, the topic of *life insurance* covers equality from a financial perspective between partners. In equal households, both earners depend on each other and will seek to insure the life of the partner to maintain the current standard of living in the event of one income being lost pre-retirement. Hence, high readings of life insurance indicate equality.

### 3.3.3 Financial literacy

I take the view that financial literacy is instrumentally warranted and that search topics which demand a certain level of financial literacy will be a useful indicator of the instrumentality of the country. The first topic, *bankruptcy*, includes searches related to insolvency, the legal process of bankruptcy, foreclosure and similar. While high levels of searches related to bankruptcy obviously reflect on the amount of bankruptcy in the given country, it also reflects on the complexity of the financial system. Next, I use the topic of *deductible*, which includes insurance-related searches. I assume that countries with instrumental dominance have a more mature insurance market, where the demand for insurance is high. The topics of *mortgage* and *financing* reflect on the demand for loans. Searches related to comparing interest rates and conditions of borrowing, as well as securing financing for investments reflect on financial literacy. The topic of *pension* includes searches related to pension and retirement savings. I further add five topics as proxy to cover financial markets: *Price / earnings*, *ETF*, *SPAC*, *Morningstar* and *Yahoo Finance*.

### 3.3.4 Hierarchy

Central to ceremonial values is the master-servant relationship between individuals which defines their social status (Juncker, 1982, p. 150). In other words: the stronger the ceremonial dominance, the more evident the hierarchy becomes. The first proxies I use, reflect on the hierarchy at workplaces: *Director* and *management*. I also account for search topics related to social class, being *working class* and *education*. I also try to capture social class by incorporating topics which would be indicative of low social capital, i.e. searches that are conducted to learn about manners. These include: *handshake*, *etiquette*, *dress code*. I also include the ethical proxy of *loyalty against others*. I also add *patriotism* to account for ceremonial values associated with the relationship to one's home country. The last proxies I use to capture hierarchy, relate to the hierarchy of humanity in relation to divinity. I use the topics for *religion* and *belief*. Note that these topics are proven to show results worldwide and include religious searches related to all religions.

Next, I invert the index so that countries which show high signs of hierarchy are denoted with a low score, while countries with low patterns of hierarchy return higher values in the IIQ.

### 3.3.5 Homogeneous preferences

In order to achieve optimal efficiency in the process of change, society needs to agree over what actions to take. Homogeneous preferences allow for efficient institutional change, as equilibrium institutions will amount to the joint preferences of the individuals. As argued by the view of ideological conflict, optimal institutions are formed by society itself, determined by a democratic process and will prevail only if they become useful for the majority (Acemoglu et. al, 2005, p. 424). This implies that conflicting ideological views might slow down the process of institutional change. To proxy homogeneity, I address variables that would indicate heterogeneity and related conflicts that might arise. I include topics which cover numerous searches related to *cultural appropriation*, *racism* and *hate speech*. I also include proxies which would cover heterogeneous and conflicting political views, such as discontent with political rule. The proxies I choose cover *election fraud*, *snap election* and *vote of no confidence*.

Note that the above are proxies for heterogeneous preferences. As I search for homogeneity, I will invert the scores and award high readings with a lower score in the index, and vice versa.

### 3.3.6 Individualism

In order to measure the level of individualism, I assume that countries with strong ceremonial dominance will have more in common with the collective community. Individuals from these countries will, while searching the web, associate egoism with something negative, and rely on friends and family to cover for such contingencies that formal institutions would warrant in an instrumentally dominant society. The first topic I choose is *egoism*. I also include the topic of *friendship*. As these two proxies reflect an inverse result, I invert the scoring of the two topics to fit the scale from ceremonial to instrumental. The next proxy topic I include is *retirement home*. In ceremonially dominated countries, the family serves as a main institutional provider for elderly care, but instrumental countries have systems which allow for professional care of the elderly. I also include the topic of *parental leave*, which is assumed to be a stronger topic of interest in instrumentally dominated countries which have designated rules and incentives in combination with parental leave. A higher popularity for searches on parental leave are assumed to reflect a higher flexibility to individual solutions in the parental insurance. Furthermore, I elaborate with the individual's search patterns in order to maximize the utility of consumption. I suggest *customer service* and *review*. Regarding individual utility-maximization, peer-to-peer services play an interesting role in cutting out the middleman, thus lowering the cost for buyers and enabling individuals to profit from sharing what they own. I use *Airbnb* to proxy for this, which offers travel to buyers and rental income to property owners. The next tech-related topic is the dating application *Tinder*. The swipe-based platform mirrors high levels of individualism and also high levels of instrumentality, which can be put in contrast to the most ceremonial pattern of dating: arranged marriage. In order to maximize the individual's utility of not conducting house work, several technical innovations offer the possibility of automated house duties such as vacuum cleaning, lawn mowing and food cooking. I include the topic of *vacuum cleaning robots*, which will serve as a proxy for the instrumental acceptance of using robots for household work. Sports and recreation for personal well-being are covered by the proxy of *swimming pool*, which covers searches from nearby swimming pools to services related to personal swimming pool ownership. One could argue that the searches for swimming pools would be largely weather related in favor of warm countries, but the findings from the study imply an even distribution in relative strength between cold and warm countries. The last proxy to be used is *psychotherapy*.

### 3.3.7 Trust

I address trust by searching for proxies related to both personal and trust towards the system. The first topic to capture trust is the issue of *safety*. If searches on safety return peak interest, we can assume that the individual is concerned with safety, or at least interested in the topic due to some kind of concern. High safety-related searches imply higher levels of insecurity and the results are therefore inverted. The next topic of interest is *threat*. It incorporates various searches which can be linked to the individual's feeling of threat. The same logic of inverted scoring applies to this proxy. A somewhat more philosophical topic that I add under trust is the issue of *honor* and *respect*. Google manages to sort out disambiguations, and includes punishment for disrespect and rituals and crimes conducted in the name of honor. I fail to use the question if other people can be trusted, due to shortage of data. I do however find similar reasoning in the topic of *honesty*, which covers searches related to questioned honesty towards other members in society, politicians, government employees and more. The last topic is *sick leave*, which represents trust towards governments and employers. It captures the instrumentally warranted health insurance, but also searches related to calling in sick.

### 3.3.8 Unionization

As addressed in Chapter 2.5, unionization covers different kinds of organized reciprocity and affiliations to groups of interest, not necessarily by the means of trade unions. This implies that countries with low union affiliation still might score high for unionization if the patterns of social exchange exist in an informal context. I start with the *labour* topic, which includes searches around the affiliation of workers. Furthermore, I add topics which are able to pick up instrumental tools connected to the loss of work: *unemployment* and *unemployment benefit*. Next, I propose the topic of *salary* which captures utility-maximization in a professional context, such as comparisons and searches for statistics and recommendations about wages. In countries where formal union affiliation is low and collective bargaining isn't applied, salaries are ensured by the *minimum wage*. I include it as a proxy. The last topic I add is the least specific of all; *work*. It captures searches around careers, seasonal working opportunities and other informal affiliations with organized reciprocity in a more professional context.

### 3.4 Methodological criticism

One might argue that the use of search metrics might expose the study to risk in regards to its validity. A strong argument against the method would be that specific searches only incorporate a fraction of the subject of interest. Also, search metrics usually lack the ability to tell why the search is conducted. The search itself only reflects on the popularity of a specific term, but does not tell much about preferences of the searching individual. Hence, selecting the right topics – not words, as underlying proxies, is crucial, as the use of single search words as proxies would expose the study to the risk of human error and selection bias. The use of topics allows for extensive coverage of a wide range of contingencies and it has the ability to measure and evaluate the topic of interest retroactively to incorporate a wider insight in the subject, as it accounts for misspellings and related terms. It is inarguably more reproducible than equivalent surveying attempts as it omits the reliability concern related to responders' subjective interpretation of surveyed questions and presumptive skewness in the selection of participants. It does also allow for highly reliable results and a valid comparison through time as we are able to find data input dating back to 2004. What does need to be addressed, however, are the several aspects of internet censorship in select countries. One, being rules of defamation, which hold Google responsible for search results that can be interpreted as defamatory of the specific country, thus forcing the algorithm to filter out certain results, as in the case of Israel (Global Freedom of Expression, 2015). This could theoretically affect the results, should the topics not include the same underlying search variables for all countries. The problem is however mitigated as Google filters out the results after the search words are typed. As such, search input (which is what I measure), is unaffected and leaves no reliability or validity concern. Another concern is the extreme internet censorship imposed by the government of China officially blocking access to Google as a search engine (Lu, et. al, 2017, p. 1). In addition, the restriction scheme, which is commonly referred to as the *Great Firewall*, also blocks non-Chinese social media accounts. This includes Tinder, which I use as one of the proxies for individualism. Why I still choose to include China in the study, is simply the magnitude of use despite the government-imposed restrictions. Taneja & Wu (2014, p. 22) find that the Great Firewall does not isolate the Chinese public to any significant extent, in large part due to the extensive use of filter-circumvention techniques, such as VPN and other similar technology. This is widely accepted and indigenously established by previous practice of content piracy, picking up TV signal spillovers and information smuggling. While the use of VPN technically implies foreign IP addresses, the domestic site is still accessed as the users search for local results by

the use of their local language. The same can be applied to the use of social media and Tinder: it is simply circumnavigated by accessible technology on the mainland.

Another validity concern lies in the interpretation of data, the main being the regression as subject to assumptions of homoscedastic disturbances and fixed coefficients (Breusch & Paegan, 1979, p. 1287). It is therefore mandatory to test for heteroscedasticity in order to rule out false positive correlations and skewed p-values. I solve for the uncertainty by performing tests for heteroscedasticity before accepting any of the hypotheses.

A study on correlations always carries the risk that it will return positive correlations for non-causal relationships. All causal relationships are associational, but not all associational relationships are necessarily causal. We want to establish whether the independent variables affect the dependent variables, however we can only show that regressions suggest that the independent variables do so. The use of proxy variables also raises a concern in that correlating measurement errors amongst independent variables might be interpreted as signs for regression coefficients. (Achen, 1985, p. 310). The risk arises when two or more proxies which contain measurement error account for the same underlying variable. The implications are that unclear proxies incorrectly will come with asymptotic coefficients, given that the errors of measurement are fairly positive. I mitigate this risk by distinguishing between the underlying topics and deselecting such topics that would be indicative of any of the other institutions. Having said that, one could still argue some variables to some extent might remain indicative of multiple institutions. Life insurance is one of the proxy variables incorporated in the equality institution, as households in equal societies have more equal wages and need to protect labor income cash flows to reduce uncertainty which is derived from the possibility of pre-retirement death. (Campbell, 1980, p. 1156). In equal households, both earners are dependent on each other and will need to insure the life of the other to maintain current standards of living in case one income is lost pre-retirement, as opposed to only having the male insured in households with unequal earnings (Gandolfi & Miners, 1996, p. 691). As such, the demand for life insurance will be higher in equal countries. Hence, high readings on the search topic of life insurance reflect a higher demand for the service in the given country. On the other hand, it could also be indicative of financial literacy, with the reasoning that populations with high financial literacy demand the product, while populations with low financial literacy would have less knowledge that such a product exists, or at least not demand it to the same extent.

The use of proxy variables poses a challenge in that some of the topics might be unfair to poorer countries. The topics of concern are Airbnb, Tinder and vacuum cleaning robots. All these are worldwide established efficient tools which help the individual to be efficient and self-fulfilling, however they are associated with quite high purchasing barriers in that technology such as smartphones and / or Wi-Fi must be owned before these tools can be fully utilized. As such, one can argue that these products will be accessible to a larger share of the population in rich countries, and thus award higher scores for individualism to countries where technological progress already has developed well. Having said that, this only concerns 3 variables out of 10 linked to the individualism institution and 3 out of 66 for the total index. As such, any slight bias in these numbers will have little to no effect on the total scoring. Furthermore, all three technical innovations are distributed and sold worldwide. Users who conduct Google searches will likely already possess a sufficient material standard, internet connectivity and a smartphone. As Google Trends identifies peak interest by the amount of searches in relation to the total number of users in the given country, the entire amount of individuals in the country will not affect the results of the study, only the share of individuals that actively use Google searches and the pattern of their actions, which means that divergent shares of individuals with internet access does not impose neither a reliability or validity problem.

Overall, proxy variables are widely used in attempts to quantify certain informal institutions, but they do not pass uncriticized. Voigt (2018, p. 10) argues that many of the indicators used as proxies are not well-suited for the purpose of the studies of institutional quality. The main objection revolves around the reliance on survey data, as high readings of variables such as trust, can be results from both internal and external institutions, or a combination of both. Thus, the driver of institutional quality is left unknown. Another objection Voight (2018, p. 11) has, is the use of surveying institutions. Questions, such as in World Value Surveys, are aimed at beliefs. Beliefs are not institutions as they lack the glue to stick, however equilibrium beliefs do lay a foundation for informal institutions.

In this study, I cannot with certainty rule out the influence of external institutions on the results. Nor can I rule out that the search topics pick up weaker properties than intended. I do however rely on the versatility of AI to provide more accurate readings from these complex variables than we could expect from human effort.



## 3.5 Hypotheses

	<b>Hypothesis</b>	<b>Null hypothesis</b>
<b>H1</b>	There is a correlation between GDP performance and IIQ	There is no correlation GDP performance and IIQ
<b>H2</b>	GDP performance can be linked to the quality of specific institutions	GDP performance can not be linked to any specific institutions
<b>H3</b>	GDP growth can be linked to homogeneous preferences	Homogeneous preferences and GDP growth can not be linked
<b>H4</b>	There is a correlation between IIQ and R&D expenditure	There is no correlation between IIQ and R&D expenditure
<b>H5</b>	IIQ correlates with government size	IIQ does not correlate with government size
<b>H6</b>	Government size correlates with trust	Government size does not correlate with trust
<b>H7</b>	Specific institutions are associated with property rights revenue	There is no association between property rights revenue and specific institutions
<b>H8</b>	The level of entrepreneurship is linked to specific institutions	There is no link between entrepreneurship and specific institutions
<b>H9</b>	Specific institutions can be linked to the level of wealth distribution (Gini coefficient)	Specific institutions can not be linked to the level of wealth distribution (Gini coefficient)
<b>H10</b>	IIQ is negatively associated with wealth distribution (the lower the Gini coefficient, the higher the institutional quality)	IIQ is not associated with wealth distribution
<b>H11</b>	IIQ is negatively associated with poverty (the higher the IIQ, the lower the poverty count)	IIQ is not associated with poverty

## 4. Results

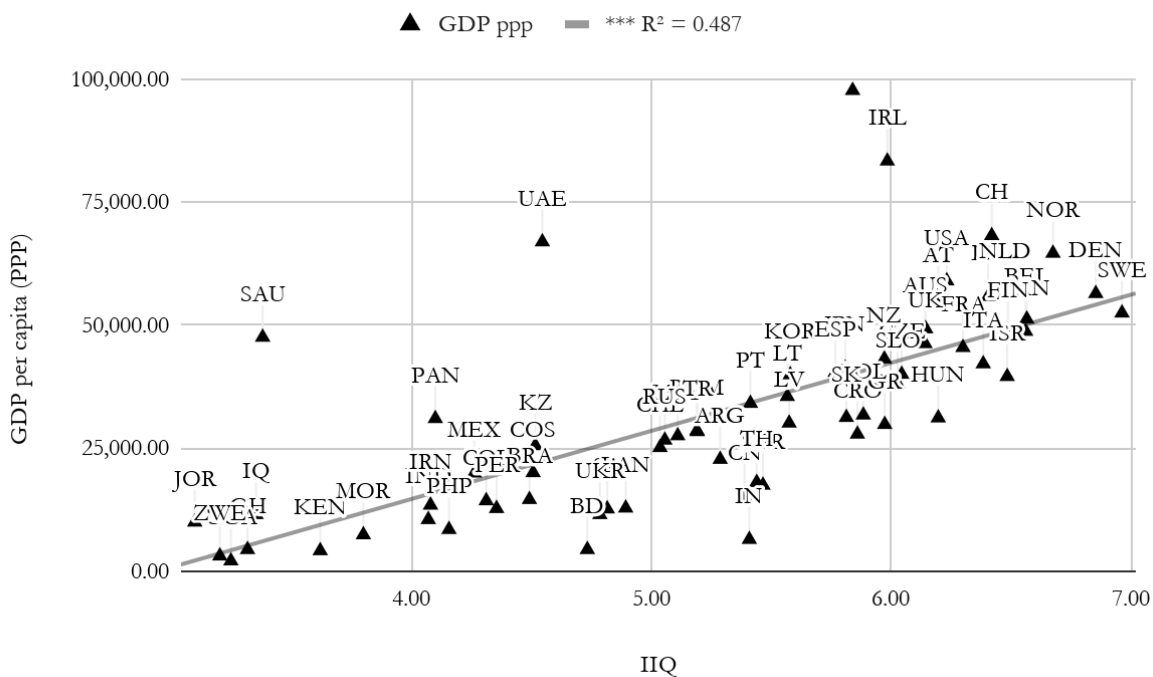


Figure 4.1

I begin with testing the relationship between the IIQ and GDP per capita. As seen from figure 4.1, there is an evident correlation between informal institutional quality and GDP per capita. As the IIQ is based on the ceremonial-instrumental dichotomy, countries scoring 5 or above should be interpreted as more instrumentally efficient. Countries averaging 5 or less should be viewed as largely intrinsically constrained, thus being more pessimistic to processes of institutional change than higher scoring countries. As can be seen from the full IIQ framework presented in Appendix, all countries return a score between the numbers of 3 and 7, apart from occasional high readings regarding specific institutions such as Iceland (equality), Denmark (acceptance of rule), China (homogeneous preferences), Canada (financial literacy) and Norway (unionization). The significance value amounts to  $p = 0$  \*\*\* with an adjusted R<sup>2</sup> of 0.49. I therefore reject the null hypothesis and accept **H1** by concluding that GDP performance strongly correlates with informal institutional quality.

Table 4.1 IIQ (equally weighted proxies) and economic development

	GDP per capita (log)	Poverty headcount	R&D Expenditure	Gini (log)	Government size (log)	Business density (log)	Property rights revenue (log)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>IIQ (EW)</b>	0.620*** (0.08)	-4.049*** (1.53)	0.747*** (0.09)	-0.109*** (0.02)	0.124*** (0.04)	0.616*** (0.13)	-0.473** (0.23)
<b>Constant</b>	6.841*** (0.47)	24.955*** (8.93)	-2.615*** (0.44)	4.142*** (0.12)	2.137*** (0.24)	-2.382*** (0.70)	3.527** (1.35)
<b>Observations</b>	65	65	65	65	65	65	65
<b>R-squared</b>	0.593	0.223	0.497	0.303	0.174	0.206	0.071

All logs refer to the natural logarithm. Robust standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The next hypothesis (**H2**) suggests that specific institutions would be especially associated with GDP output. I regress GDP against the eight measured institutions as independent variables, which can be seen in table 4.2. I conclude that GDP correlates with acceptance of rule and financial literacy at the highest significance level. Homogeneous preferences and individualism correlate with GDP at the medium significance value. The results are satisfactory and I accept **H2**.

High homogeneous preferences (7 <)	Low homogeneous preferences (< 7)
China, Russia, South Korea, Thailand, Poland, Chile, India, Bangladesh, Japan and other	Israel, Sweden, UK, Canada, South Africa, Denmark, USA, Australia, Netherlands and other
(2004-2020) Average GDP growth 34.20 %	(2004-2020) Average GDP growth 20.53 %
Median GDP growth 32.24 %	Median GDP growth 12.99 %

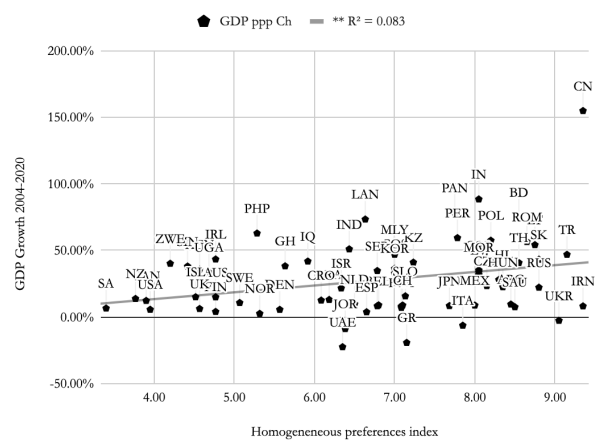


Figure 4.2

When testing for homogeneous preferences and the association with GDP growth, I find evidence that countries with high scores of homogeneous preferences are growing faster than those with more heterogeneous preferences. Especially evident is that the highest scoring country in the homogeneous

preference index – China, also denotes the undoubtedly fastest GDP growth. The same can be observed in many countries which have completed a transition in the measured period, such as South Korea, Romania and Poland. The correlation is weak with an adj. R2 of 0.08, but it does pass the test for heteroscedasticity and I accept **H3** at a medium level of significance ( $p = 0.027^{**}$ ).

Table 4.2 Specific institutions and economic development

	GDP per capita (log)	Poverty headcount	R&D Expenditure	Gini (log)	Government size (log)	Business density (log)	Property rights revenue (log)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>finlit</b>	0.166*** (0.06)	-1.09 (0.74)	0.244*** (0.08)	0.019 (0.02)	-0.014 (0.03)	0.13*** (0.02)	0.124 (0.17)
<b>equal</b>	0.128 (0.08)	-3.072*** (1.14)	0.109 (0.09)	-0.072* (0.04)	-0.016 (0.05)	-0.107 (0.18)	-0.136 (0.29)
<b>indi</b>	0.143** (0.06)	0.353 (0.86)	-0.074 (0.10)	-0.005 (0.03)	0.021 (0.04)	0.363*** (0.12)	-0.037 (0.16)
<b>trust</b>	-0.05 (0.05)	1.116 (0.74)	0.016 (0.08)	-0.038** (0.02)	-0.002 (0.03)	-0.096 (0.10)	0.405*** (0.13)
<b>hier</b>	-0.038 (0.09)	1.221 (0.99)	0.101 (0.10)	0.001 (0.03)	0.035 (0.05)	0.101 (0.13)	-0.532* (0.27)
<b>rule</b>	0.187*** (0.07)	-2.997*** (1.00)	0.237** (0.09)	0.002 (0.03)	0.084** (0.04)	0.1 (0.12)	-0.313 (0.20)
<b>homog</b>	0.160** (0.07)	-2.833*** (1.00)	0.038 (0.06)	-0.008 (0.02)	-0.022 (0.04)	-0.008 (0.15)	0.135 (0.19)
<b>union</b>	-0.04 (0.04)	1.028* (0.58)	0.177*** (0.06)	-0.026** (0.01)	-0.019 (0.02)	-0.148 (0.11)	-0.175 (0.21)
<b>Constant</b>	6.645*** (0.57)	38.794*** (11.11)	-3.194*** (0.70)	4.243*** (0.25)	2.420*** (0.39)	-0.72 (1.46)	4.583 (2.81)
<b>Observations</b>	65	65	65	65	65	65	65
<b>R-squared</b>	0.692	0.546	0.635	0.421	0.247	0.332	0.206

All logs refer to the natural logarithm. Robust standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Next, I address the potential association between institutional quality and R&D expenditure. The regressions clearly show that both are strongly correlated with an adj. R2 at 0.50 and  $p = 0^{***}$ . What can be additionally observed, is the highly significant association between R&D expenditure and financial literacy, which shows to be the strongest institution of the IIQ constituents in regards to R&D. Acceptance of rule and unionization also show to significantly correlate with research and development. I conclude that R&D is largely warranted by institutional quality and accept **H4**.

The association between institutions and government size allows for new insights. According to the results in Table 4.1, government size is positively correlated with IIQ<sup>2</sup>. It confirms the proposed hypothesis **H5**. The correlation is somewhat weak and amounts to 0.17 adj R2, however with a high significance value of  $p = 0.007$  \*\*\*. I reject the null hypothesis and accept **H5**. What is interesting, however, is the results from running specific institutions against government size. Following previous research on the effect of trust on government size, it would be reasonable to assume that the findings of this study will confirm the relationship. The first regressions support this assumption, however the institution of trust fails the test for heteroscedasticity and returns an insignificant p-value, which is why the null hypothesis is accepted for **H6**. What does return a significant value is the correlation between government size and acceptance of rule which correlates at adj. R2 0.21 and  $p < 0.05$ .

Trust does stand out when compared against the revenue from property rights. It is the only institution to show highly significant correlation  $p = 0$  \*\*\* with this dependent variable, although the correlation is very weak with adj. R2 at 0.05. Bear in mind that the weakness of the correlation raises questions regarding its validity. It does nevertheless imply that there needs to be an institutional prerequisite for property rights to be fully utilized. Trust can provide this function if property rights are honored by all players in society and the mutual belief is that they will serve society well. The highly significant p-value leads me to accept **H7**.

One of North's biggest contributions to institutional economics is the definition of entrepreneurship as a motor to growth (North, 1994 b, p. 4). Hypothesis **H8** seeks to find what constituents of the IIQ that can be linked to entrepreneurship, if any. I regress the IIQ and its underlying institutions against *business density*. I find that entrepreneurship is significantly connected to individualism, but particularly associated with financial literacy<sup>3</sup>. The variables correlate at adj. R2 0.16 with  $p = 0$  \*\*\* which accounts for perfect significance.

Financial literacy does repeatedly return robust results and stands out as one of the most illustrative components of the IIQ index. While examining the association between informal institutions and wealth distribution, which is denoted by the Gini coefficient, I conclude that financial literacy even plays a role in the distribution of wealth. The findings return slightly higher significance after

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<sup>2</sup> See Appendix 1.3 for scatterplot.

<sup>3</sup> See Table 4.1 and Appendix 1.3 for scatterplot.

robustness tests than those of trust and unionization<sup>4</sup>. Hence, **H9** can be accepted in that specific institutions show association with the Gini coefficient. As suggested by **H10**, the relationship between the entire IIQ index and the Gini coefficient confirms a negative association in Table 4.1, meaning that the lower the Gini coefficient, the higher the institutional quality. I reject the null.

<b>High financial literacy (5 &lt;)</b>	<b>Medium financial literacy (3.50 – 5)</b>	<b>Low financial literacy (&lt; 3.50)</b>
Canada, Singapore, USA, Sweden, Iceland, South Korea, Italy, Finland, Switzerland, Australia, Japan and other	Poland, India, France, UAE, South Africa, Russia, Mexico, China, Argentina, Malaysia, Czech Republic, Sri Lanka and other	Brazil, Saudi Arabia, Turkey, Uganda, Kazakhstan, Romania, Indonesia, Portugal, Greece, Philippines, Ukraine and other
(2004-2020) Average GDP per capita (PPP) \$ 54 240	(2004-2020) Average GDP per capita (PPP) \$ 27 730	(2004-2020) Average GDP per capita (PPP) \$ 17 253
Median GDP per capita (PPP) \$ 50 292	Median GDP per capita (PPP) \$ 26 668	Median GDP per capita (PPP) \$ 12 507
Average R&D expenditure 2.45 % of GDP	Average R&D expenditure 1.01 % of GDP	Average R&D expenditure 0.63 % of GDP
Median R&D expenditure 2.12 % of GDP	Median R&D expenditure 0.92 % of GDP	Median R&D expenditure 0.67 % of GDP
Average new businesses per 1000 people 10.60	Average new businesses per 1000 people 4.51	Average new businesses per 1000 people 1.98
Median new businesses per 1000 people 6.77	Median new businesses per 1000 people 3.09	Median new businesses per 1000 people 1.36

Figure 4.3

Further testing also provides evidence for **H11** in that informal institutions guide a way for reduction of poverty. *Poverty headcount ratio*, which measures the amount of people within a country living at a daily income of \$1.90 or less, correlates negatively with IIQ at p-value 0\*\*\* and an adjusted R2 of 0.22<sup>5</sup>. I reject the null and accept **H11**. All countries with high poverty headcount > 10 % score below 5 in the IIQ index except India. Particularly low levels of equality, acceptance of rule and homogeneous preferences show the strongest association with extreme poverty.

<sup>4</sup> See Table 4.2.

<sup>5</sup> See Table 4.2 and Appendix 1.3

Table 4.3 Correlation between institutions

	FINLIT	EQUAL	INDI	TRUST	HIER	RULE	HOMOG	UNION	IIQ EW
FINLIT	1.00								
EQUAL	0.65	1.00							
INDI	0.74	0.72	1.00						
TRUST	0.26	0.57	0.40	1.00					
HIER	0.31	0.62	0.43	0.76	1.00				
RULE	0.56	0.60	0.60	0.58	0.50	1.00			
HOMOG	-0.41	-0.12	-0.49	0.23	0.23	-0.20	1.00		
UNION	0.24	0.05	0.21	0.02	-0.16	0.38	-0.47	1.00	
IIQ EW	0.75	0.87	0.82	0.74	0.75	0.80	-0.12	0.19	1.00

As seen from the correlation matrix, a few of the institutions do correlate strongly, such as hierarchy and individualism, hierarchy and trust, individualism and financial literacy. As the hierarchy variable is inverted, the correlations rather suggest that the absence of hierarchy correlates with individualism and trust. I assume this is reasonable and not necessarily a result of measurement error. The same can be applied to the level of financial literacy and individualism. Financial literacy is expected to be high in countries with high educational standards and highly skilled populations. Instrumental values, such as career and self-fulfillment are strong in individualist societies, so any correlation between financial literacy and individualism should be expected, and not necessarily indicate that two proxies would be indicative for the same underlying variable.

When comparing against other indices of formal institutional quality (see Table 4.4), I find that the results from the IIQ framework highly resemble results from the formal indices. This supports my claim that institutional quality could be captured by addressing informal institutions, but also that it can be instrumentalized by the use of Google Trends. What is also noticeable when looking at the correlation against the dependent variables is that the IIQ returns a slightly stronger association with R&D than the formal indices, which would indicate that the IIQ index is slightly more intuitive in regards to human capital.

Table 4.4 Correlation between dependent variables, formal institutional quality and IIQ

	Formal institutional indices								Dependent variables						
	IIQ	CPI	WGI	EFI	EIUC	GICR	ICRG	VoDP	BIZ	GDP	GOV	POV	R&D	PROP	GINI
<b>IIQ</b>	1.00														
CPI	0.75	1.00													
WGI	0.81	0.93	1.00												
EFI	0.55	0.72	0.82	1.00											
EIUC	0.65	0.93	0.86	0.70	1.00										
GICR	0.84	0.92	0.92	0.71	0.84	1.00									
ICRG	0.68	0.94	0.85	0.68	0.88	0.86	1.00								
VoDP	0.73	0.93	0.93	0.71	0.86	0.86	0.81	1.00							
BIZ	0.28	0.26	0.26	0.25	0.37	0.30	0.26	0.27	1.00						
GDP	0.62	0.64	0.62	0.49	0.56	0.59	0.60	0.56	0.29	1.00					
GOV	0.34	0.32	0.25	0.07	0.30	0.31	0.27	0.33	0.03	0.27	1.00				
POV	-0.44	-0.37	-0.42	-0.31	-0.29	-0.35	-0.34	-0.35	-0.11	-0.47	-0.18	1.00			
R&D	0.57	0.53	0.50	0.35	0.51	0.53	0.49	0.49	0.26	0.63	0.44	-0.31	1.00		
PROP	-0.09	0.02	0.04	0.05	0.01	0.04	-0.08	0.07	-0.04	-0.08	-0.01	-0.03	-0.11	1.00	
GINI	-0.29	-0.30	-0.26	-0.23	-0.24	-0.24	-0.41	-0.23	0.03	-0.46	-0.21	0.39	-0.39	0.19	1.00

**Explanation of labels in the correlation matrix above****IIQ Informal institutional quality (this study)**

CPI	Corruption Perceptions Index 2020 Global Scores (Transparency International, 2020)
WGI	The Worldwide Governance Indicators, 2020 Update (World Bank, 2020)
EFI	Economic Freedom Index (Fraser Institute, 2020)
EIUC	Economist Intelligence Unit Country Ratings (Transparency International, 2020)
GICR	Global Insight Country Risk Ratings (Transparency International, 2020)
ICRG	PRS International Country Risk Guide (Transparency International, 2020)
VoDP	Varieties of Democracy Project (Transparency International, 2020)
BIZ	Density of business registrations (World Bank, 2021)
GDP	GDP per capita (PPP) (World Bank, 2021)
GOV	Government size (World Bank, 2021)
POV	Poverty headcount (World Bank, 2021)
R&D	R&D Expenditure (World Bank, 2021)
PROP	Property rights revenue (World Bank, 2021)
GINI	Gini coefficient (World Bank, 2021)



## 5. Analysis

One might argue that the level of a country's instrumentality only tells us about its adaptability to change, not necessarily the true quality of institutions. It will describe the efficiency of rationalization and the magnitude of progressive change, however unless we see institutional change from the view of ideological conflict, the change itself does not necessarily mean we meet new equilibrium. Having said that, it is unarguably evident from the results that countries with higher scores in the IIQ, possess a higher ability to utility-maximize within the boundaries of the game, thus allowing for higher levels of entrepreneurship, stronger output and lower wealth inequality.

The fact that the index is constructed according to the ceremonial-instrumental dichotomy might explain that it returns perfectly significant numbers and a strong correlation against R&D. As instrumental values promote institutional change, research and development plays a crucial role in determining in which direction the change is supposed to happen. The IIQ encourages R&D, however the progress of R&D also amplifies IIQ. In many ways, R&D is very illustrative of the process of institutional change. As argued by Bush (1987), institutional change is initiated when agents question and elaborate with familiar habits in order to broaden the knowledge fund. As innovation is the goal of research and development, R&D becomes the very forge where this process is initiated. If R&D is well established in society, it unfolds effective future-binding encapsulation processes, as members of society recognize innovation and welcome associated developments. Countries become path dependent on innovation and will form equilibrium beliefs which are warranted by instrumental values. Creative destruction (North, 2005, p. 20) denotes the process when innovation becomes so revolutionary that it replaces old patterns with new standards. While this is hard to quantify, we can assume such processes are more efficient in an environment where innovation is encouraged.

If we continue to assume that institutions are formed by equilibrium beliefs, it is crucial to account for different views on how to interpret the institutional quality within countries. Following the four views of institutions proposed by Acemoglu et. al (2005), I argue all of the proposed views can be applied in this study, but it might make the most sense if we use them in different institutional contexts.

Beginning with the highest performing institutions of the IIQ<sup>6</sup> (with a score of 6, or above) the Coase Theorem tells us that equilibrium institutions are formed and adjusted between agents to adjust for indifferences. The institutional landscape is self-enforcing and there are no conflicts between de jure and de facto power. Agents will coordinate their optimal outcomes and create an institutional framework to be able to utility-maximize within the applied boundaries. The constraints serve a purpose which is accepted by the players, and the formalization of rules does not exceed what's necessary in order to provide safety and freedom. Thus, IEX and FEX institutions never exceed what is warranted by IEN institutions. There will be sufficient room for formal institutions but society will emphasize the functions of informal institutions. This coincides with Williamson (2009, p. 377) where weak formal institutions in combination with strong informal institutions are found to warrant the most positive effects on economic development.



Figure 5.1

The view of ideological conflict best describes the progress of countries scoring between 5 and 6 in the IIQ. It accounts for higher rigidity, as a new equilibrium path must be warranted by the majority after being proven to work. Unlike the highest scoring countries, the countries in this quadrant rely

<sup>6</sup> See Appendix 1.1 for full scoring

on government creation and enforcement (Williamson, 2009, p. 376). This implies a process of formalization, which comes with higher transaction costs and further delays the adjustment to institutional optimum. The view of ideological conflict rules out that society would ever choose disequilibrium, and one can thus explain the rigidity with the bureaucratic process of choosing and formalizing path. IEX and FEX institutions answer to the strength of IEN institutions, however some of the exogenously imposed institutions are too many and thus the institutional potential is impeded. The strength of the informal institutions however warrants future-binding processes of change, but the countries lag behind the highest scoring countries in terms of innovation, as *de jure* power is stronger and the process of rationalization becomes more sluggish due to higher levels of enforcement.

The selection of countries in the second-lowest quadrant (IIQ 4 – 5, see Figure 5.1) denote countries where IEN institutions are superior to the exogenously imposed institutions. They are ceremonially dominated by habit formations, however processes of change shift between progressive and regressive. The weakness of institutions is associated with low self-enforcement and low government-enforcement (ibid, p. 377). I argue that the view of incidental happenings (Acemoglu et. al, 2005) is the most accurate to apply here. The relationship between *de jure* and *de facto* power is best described as unclear, as both are weak. The adjustment to institutional equilibrium might follow a random walk, however the weakness of constraints also warrants quicker institutional adjustments and higher adoptability of innovation than those of the lowest quadrant.

In the lowest quadrant, we find countries so ceremonially dominated that they systematically reject FEX institutions, however the indigenous imposition is hard. High levels of government-enforcement add unnecessary constraints to an already weak informal institutional structure. One can assume that the majority of rationalization processes are past-binding and result in regressive change. The high level of hierarchy and low levels of trust imply that the institutional structure incentivises rent-seeking. *De facto* power dictates *de jure* power, not the other way around. While obedience of rule is high, reasonably due to heavy enforcement, I simultaneously observe low numbers for acceptance of rule. As such, the institutions appear to be formed by agents in search of maximizing their own access to power and the view to be applied is the one of social conflict (Acemoglu et. al, 2005). Equilibrium institutions are thus not a function of societal preferences, but rather the interest of the rent-seeking bureaucrats.

The introduction of homogeneous preferences as an institution, denotes a significant relationship with GDP growth. However, it is reasonable to question the causality of the relationship. Yes, the correlation is significant, but many of the fastest growing countries also happen to be in transition or relatively underdeveloped. Especially interesting is the negative correlation between homogeneous preferences and the other institutions incorporated in the IIQ<sup>7</sup>. It shows that homogeneous preferences decline once instrumental values in society increase, not the opposite. As such, homogeneity might just as well be a function of the low integration with the rest of the world, not necessarily a driver of growth. Assuming there is a catching up-effect which is unwarranted by institutional quality, the convergence with other countries will lead to higher integration and lower homogeneity. As homogeneity warrants an efficient transition, the efficiency might decline with integration. Although results on homogeneous preferences indicate that homogeneity makes it easier to achieve institutional change, the relatively weak (although highly significant) correlation suggests that the foundation of homogeneous preferences is too weak by itself to instrumentally warrant change. It is inevitably helpful in achieving necessary change and growth, however it needs to be accompanied by other institutions to reach an optimal outcome. This can be applied to many of the variables tested in the study: they are weak in solitude, however combined, they are able to warrant necessary progress.

This very reasoning can be applied to financial literacy which serves as a significant explanatory variable for entrepreneurship. It implies that despite high levels of individualism and equality, entrepreneurship does not necessarily drive development, unless it is supported by the competence on how it should be exercised. Overall, financial literacy proves to be a particularly strong variable in assessing informal institutional quality against many of the dependent variables. It is nevertheless crucial to not overinterpret the causal effects. For example, the association between financial literacy and R&D does not necessarily imply that higher levels of financial literacy in society will warrant higher R&D expenditure. High financial literacy might help individuals better understand the contribution by research and development to the economy, but the relationship can also relate to the overall standard of education. If society consists of highly skilled individuals, they will have a higher financial literacy as a result of their educational level. The supply of highly skilled professionals will subsequently enable innovation. As such, it will be wise for society to invest in R&D as the supply of

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<sup>7</sup> See Table 4.3: Correlation between institutions (p. 38)

skilled manpower will ensure higher return on investment. Financial literacy might thus not act as a driver for R&D expenditure, but it still serves as a valuable indicator of institutional quality.

In addition to causal inference, there are several contingencies involved with the process of measuring institutions which should be addressed. I have been forced to rule out a majority of the underlying proxies which I originally planned to link to these institutions, as I have solved for disambiguation and other issues related to language and scarcity of data. I cannot rule out that the results would have been indicative of other findings, had these proxies only been accessible. Nevertheless, I have managed to find 66 proxy variables. It is not the amount I originally had in mind, but the amount is diverse enough, should any of these variables be flawed.

The intertwinement between trust and government size, which has showed particularly strong association in several studies (Bergh & Henrekson, 2011; Bergh & Bjørnskov, 2011, Bergh & Bjørnskov, 2020), neither shows to correlate with the same strength, nor to return as robust values, while measured through the IIQ. This obviously raises concerns over the accuracy of the trust variable in the IIQ. One particular difference between the measurement of trust is that the studies mentioned above focus on trust between individuals, while the proxies in the IIQ are strongly related to general perceptions of trust towards the collective, or the system. I have tried to incorporate proxies which would capture trust between individuals, however I have been forced to deselect many of these proxies due to scarcity of data and failed multi-language reproducibility. As such, there is reason to believe my results would have been more consistent with the studies of Bergh et. al., had other proxies been used.

At the same time, my framework returns results similar to the ICRG and all other indices over formal institutional quality<sup>8</sup>. When observing the overall scores against the formal institutional indices<sup>9</sup>, I find that countries with very low formal institutional quality also return low readings for IIQ, however higher than their formal equivalent. Although this discrepancy is technical, it supports the fact that countries with strong ceremonial values to a higher extent reject IEX and FEX institutions. Thus, indigenously warranted patterns of social exchange dominate exogenously imposed constraints and hamper the process of institutional change. Amongst countries which seem to reject exogenously

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<sup>8</sup> See Table 4.4: Correlation between dependent variables, formal institutional quality and IIQ (p. 39)

<sup>9</sup> See Appendix 1.4: Total scoring: IIQ against formal indices

imposed institutions, I notice especially high readings on homogeneous preferences. While I have argued that the usefulness of homogeneous preferences declines as a country adopts higher degrees of instrumental values, countries with strong ceremonial dominance seem to rely on homogeneity to accomplish institutional change in the absence of instrumentality. The embracement of change through future-binding processes is internally rooted in instrumental countries, but unaccustomed in countries with ceremonial dominance. As such, ceremonial countries are more dependent on the process of rationalization to be successful. If the change is unanimously supported, the shift to new institutional equilibrium is efficiently rationalized. However, if there are conflicting views and no instrumentality, institutions will be played in disequilibrium which leads to a vicious circle with further rejection of IEX and FEX institutions. The same reasoning would explain why countries with high instrumental values return very high formal institutional quality: the internal acceptance of exogenously imposed institutions makes the population embrace IEX and FEX institutions to a similar degree as the IEN institutions, thus relying on the function of associated incentives and constraints rather than the informal preferences of the indigenous group.

Overall, the strong relationship between IIQ and established measures on formal institutional quality indicates that it is highly likely that institutional quality can be accurately captured by focusing on informal institutions and that the proxies of this study are not too far-fetched. The use of Google Trends thus provides a useful toolbox which is able to pick up institutional change and dynamically incorporate shifting institutional equilibria.

## 6. Conclusion

Any attempt to measure informal institutions should be able to tell what actions players in society take, as opposed to what actions they hypothetically believe they would take. Crucial to the framing of informal institutions is thus relying on measures with the ability to capture actual behavior rather than surveyed attitudes. I argue that Google Trends provides one of the most objective solutions to this matter. I do not guarantee that my index of informal institutional quality (IIQ) or Google Trends would be entirely freed from bias, however the process of measuring informal institutions is complex and the sensitivity of artificial intelligence gives us a unique possibility to detect many of those internal contingencies that Ostrom (1996) argues often are left unnoticed.

My 66-proxy framework has been able to capture eight institutions of interest. Six of these are widely considered in previous research; equality, acceptance of rule, hierarchy, individualism, trust and unionization. The two additional institutions are inductively proposed by myself; financial literacy and homogeneous preferences. My findings suggest that there is a strong and highly significant association between IIQ and GDP per capita. Particular institutions that show a strong relationship with GDP performance are financial literacy and acceptance of rule.

I find evidence that countries with high scores of homogeneous preferences are growing faster than those with mainly heterogeneous preferences, although economies which denote strong homogeneous preferences are mainly developing or transitional. The importance of homogeneous preferences does however decline as countries adopt higher degrees of instrumental values. I argue this is because countries with strong ceremonial dominance must rely on homogeneity to accomplish institutional change in the absence of instrumental tools necessary to shift institutional equilibria.

One of the main findings of this study is the strong relationship between IIQ and R&D expenditure. The two are perfectly significant and highly positively correlated. It supports the theory of Bush (1987), in that institutional change is ignited when agents question familiar habits in order to widen the knowledge fund. With innovation being the goal of research and development, institutional quality warrants effective future-binding encapsulation processes, as members of society confide in associated progress and welcome innovation. Financial literacy shows the highest significance and the strongest relationship to support R&D expenditure.

Following the wide-established definition of entrepreneurship as a motor to growth (North, 1994), I conclude that individualism shows high significance in relation to new business density, but the strongest relationship is once again denoted by financial literacy. It implies that despite high levels of equality and individualism, entrepreneurship does not necessarily act as a motor of economic development, unless it can be supported by the knowledge of how it should be exercised.

A widely-established principle in institutional economics following the topic of entrepreneurship is the existence of property rights. If the rules of the game are clear, agents avoid uncertainty and use the incentives to utility-maximize within the institutional boundaries. I conclude that trust is significant in its association with property rights revenue, implying that utility-maximization is connected to the level of trust towards the institutional structure.

I conclude that there is a highly significant relationship between IIQ and government size. The strongest institution to support government size is acceptance of rule. Furthermore, I discover that wealth distribution, denoted by the Gini coefficient, is negatively associated with the IIQ, and that decreases in wealth inequality correspond to increases in financial literacy, trust and unionization.

The issue of extreme poverty is widely believed to be a product of flawed institutions. I conclude that there is a negative relationship between IIQ and extreme poverty, which supports this claim. Particularly flawed acceptance of rule, low levels of equality and low readings of homogeneous preferences show the strongest association with extreme poverty.

The IIQ framework has proven to return results which resemble those from established indices on formal institutional quality, however a stronger association between IIQ and R&D expenditure indicates that the IIQ might be better in intuitively capturing human capital. It nevertheless supports my claim that it is possible to measure institutional quality by addressing informal properties. Google Trends thus serves as a justifiable provider of insight on institutional quality.

This study adds on to research in institutional economics and I hope it can bring deeper insight into informal institutions' role in the process of change and also allow for future consistency in comparative studies of institutional quality between countries. Perhaps it can be complementary to already established measures of formal institutional quality.



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## Appendix

### 1.1 Informal institutions index

	FINLIT	EQUAL	INDI	TRUST	HIER <sup>10</sup>	RULE	HOMOG	UNION <sup>11</sup>	IIQ CW <sup>12</sup>	IIQ <sup>13</sup>
<b>Argentina</b>	3.55	4.71	4.57	4.97	6.77	4.94	8.45	5.30	5.41	<b>5.29</b>
<b>Australia</b>	6.93	5.52	7.69	3.88	5.35	7.29	4.77	7.13	6.07	<b>6.14</b>
<b>Austria</b>	3.98	6.09	5.80	6.63	7.73	7.36	6.80	5.30	6.21	<b>6.20</b>
<b>Bangladesh</b>	1.78	4.18	3.05	5.83	5.68	5.51	8.55	6.80	5.17	<b>4.73</b>
<b>Belgium</b>	6.79	5.45	6.96	4.93	6.80	7.29	6.78	7.93	6.62	<b>6.57</b>
<b>Brazil</b>	2.38	4.13	3.60	3.55	6.99	4.96	6.18	4.33	4.51	<b>4.49</b>
<b>Canada</b>	8.44	6.28	8.20	3.68	5.44	7.11	3.90	8.50	6.44	<b>6.56</b>
<b>Chile</b>	4.37	4.4	4.10	4.02	6.61	4.77	8.30	3.65	5.03	<b>5.04</b>
<b>China</b>	3.80	4	3.14	5.68	6.57	6.47	9.35	7.50	5.81	<b>5.39</b>
<b>Colombia</b>	4.32	4.57	3.37	2.70	4.77	3.26	8.05	3.63	4.33	<b>4.31</b>
<b>Costa Rica</b>	4.01	4.08	3.81	3.60	5.78	4.21	7.00	3.38	4.48	<b>4.51</b>
<b>Croatia</b>	3.81	5.37	5.60	7.08	6.85	6.46	6.08	6.98	6.03	<b>5.86</b>
<b>Czechia</b>	3.68	5.59	6.83	7.90	7.02	4.21	8.15	5.53	6.11	<b>6.04</b>
<b>Denmark</b>	5.73	5.61	7.45	6.95	7.21	8.36	5.57	9.33	7.02	<b>6.85</b>
<b>Finland</b>	6.51	5.82	6.01	7.75	7.05	6.80	4.77	8.03	6.59	<b>6.49</b>
<b>France</b>	4.64	6.11	7.27	5.12	6.25	7.11	7.08	7.58	6.39	<b>6.30</b>
<b>Ghana</b>	2.19	3.48	2.72	1.33	3.35	3.20	5.63	6.98	3.61	<b>3.32</b>
<b>Greece</b>	3.38	5	5.44	6.98	7.54	7.76	7.15	5.68	6.11	<b>5.97</b>
<b>Hungary</b>	2.93	6.66	6.18	7.23	7.62	7.23	8.35	2.75	6.12	<b>6.20</b>

<sup>10</sup> The hierarchy variable should be interpreted that high values on hierarchy indicate fairly low patterns of hierarchy within the observed country, in other words: it is inverted.

<sup>11</sup> The unionization variable covers social exchange in any form of unionization, not only the instrumental function of trade or labor unions. As such, countries like Saudi Arabia and UAE, which do not usually allow labor unions, still receive high scores because of the strength of informal networks and homogeneous groups of professionals, both expats and locals.

<sup>12</sup> Category-weighted IIQ index, where each institution weighs the same regardless of the amount of underlying proxy variables.

<sup>13</sup> Equally weighted IIQ index, where all underlying proxies weigh equally much. This is the one I refer to as the IIQ index.

<b>Iceland</b>	5.94	8.13	6.99	5.23	5.86	7.36	4.52	6.05	6.26	<b>6.40</b>
<b>India</b>	4.73	4.31	4.36	4.98	6.25	5.34	8.05	7.20	5.65	<b>5.41</b>
<b>Indonesia</b>	2.35	4.96	3.06	3.87	3.90	3.64	6.43	6.90	4.39	<b>4.07</b>
<b>Iran</b>	2.74	3.83	2.47	3.47	3.51	4.34	9.35	6.60	4.54	<b>4.08</b>
<b>Iraq</b>	1.36	2.62	1.30	2.53	4.85	4.83	5.92	6.50	3.74	<b>3.35</b>
<b>Ireland</b>	5.55	6.29	7.63	4.57	5.56	5.90	4.77	7.05	5.91	<b>5.98</b>
<b>Israel</b>	5.79	6.27	6.60	6.45	6.42	7.76	6.33	6.68	6.54	<b>6.48</b>
<b>Italy</b>	6.07	6.06	6.52	5.52	7.70	6.17	7.85	3.48	6.17	<b>6.38</b>
<b>Japan</b>	5.52	5.46	3.25	5.43	7.03	5.90	7.68	8.68	6.12	<b>5.81</b>
<b>Jordan</b>	1.81	2.13	1.65	2.38	2.28	5.53	6.38	6.83	3.62	<b>3.10</b>
<b>Kazakhstan</b>	2.72	5.56	3.30	3.25	6.22	3.36	7.23	4.93	4.57	<b>4.52</b>
<b>Kenya</b>	2.16	2.83	4.20	2.67	4.15	3.04	4.57	7.20	3.85	<b>3.62</b>
<b>Latvia</b>	3.38	4.94	4.85	5.93	7.15	5.26	8.05	6.60	5.77	<b>5.58</b>
<b>Lithuania</b>	3.68	5.82	5.55	6.28	5.80	5.41	8.75	3.48	5.60	<b>5.57</b>
<b>Malaysia</b>	4.86	4.71	5.60	3.47	4.39	4.96	7.00	7.28	5.28	<b>5.11</b>
<b>Mexico</b>	3.74	3.95	3.02	3.15	5.65	3.77	8.00	2.88	4.27	<b>4.26</b>
<b>Morocco</b>	2.23	3.25	2.50	1.60	4.25	5.09	8.05	6.13	4.14	<b>3.80</b>
<b>Netherlands</b>	5.86	6.65	7.45	4.47	6.58	7.23	6.50	6.23	6.37	<b>6.47</b>
<b>New Zealand</b>	5.51	6.01	8.15	4.32	5.40	7.41	3.77	5.90	5.81	<b>5.97</b>
<b>Norway</b>	5.15	6.43	6.59	6.60	7.40	7.83	5.32	9.48	6.85	<b>6.68</b>
<b>Panama</b>	4.09	3.83	3.67	2.43	4.91	2.73	7.75	3.18	4.07	<b>4.10</b>
<b>Peru</b>	4.74	3.83	3.15	3.15	5.41	3.94	7.78	2.50	4.31	<b>4.36</b>
<b>Philippines</b>	2.52	4.75	5.58	1.27	4.24	3.27	5.28	6.83	4.22	<b>4.16</b>
<b>Poland</b>	4.83	5.27	4.84	7.80	6.88	5.63	8.20	4.30	5.97	<b>5.88</b>
<b>Portugal</b>	2.89	4.89	6.06	3.20	7.75	5.43	7.08	5.60	5.36	<b>5.41</b>
<b>Romania</b>	2.47	4.67	3.64	5.47	7.02	6.50	8.65	4.65	5.38	<b>5.19</b>
<b>Russia</b>	3.68	6.01	3.75	3.15	6.49	3.91	8.80	5.00	5.10	<b>5.06</b>
<b>Saudi Arabia</b>	1.84	2.52	2.01	2.23	2.54	5.00	8.50	6.68	3.91	<b>3.38</b>
<b>Serbia</b>	4.24	5.04	4.21	7.03	6.22	5.73	6.78	6.20	5.68	<b>5.47</b>
<b>Singapore</b>	8.11	5.46	7.59	2.73	4.69	5.30	4.42	7.20	5.69	<b>5.84</b>

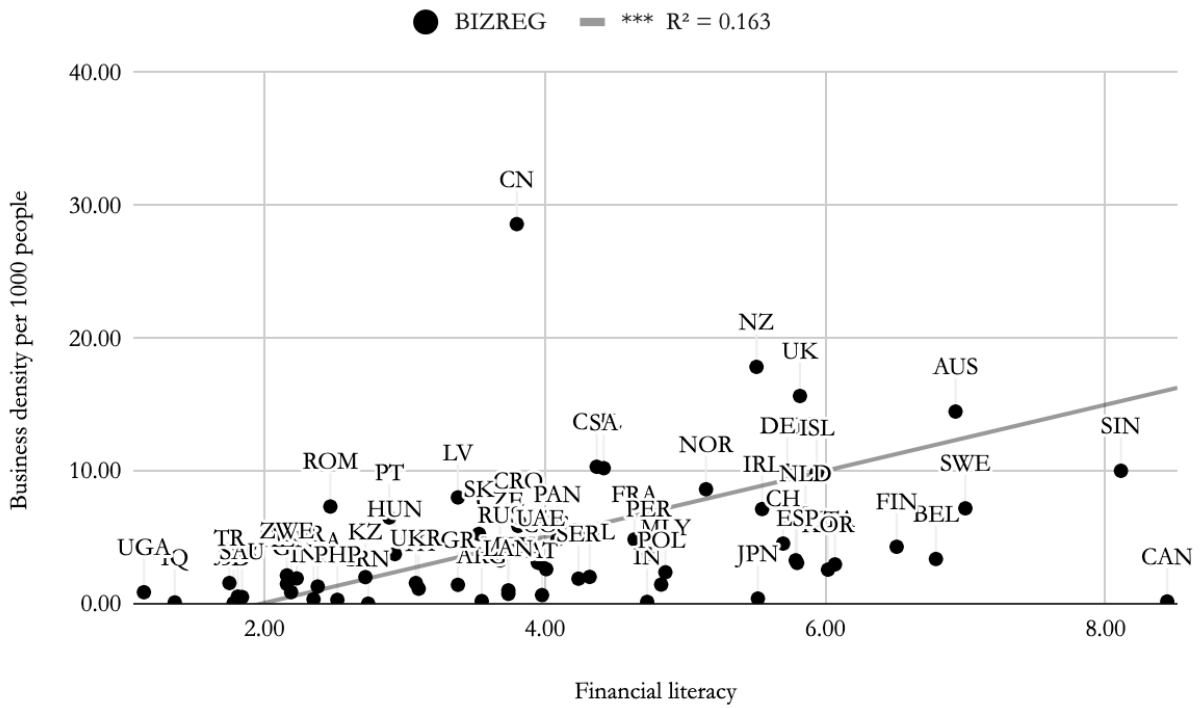
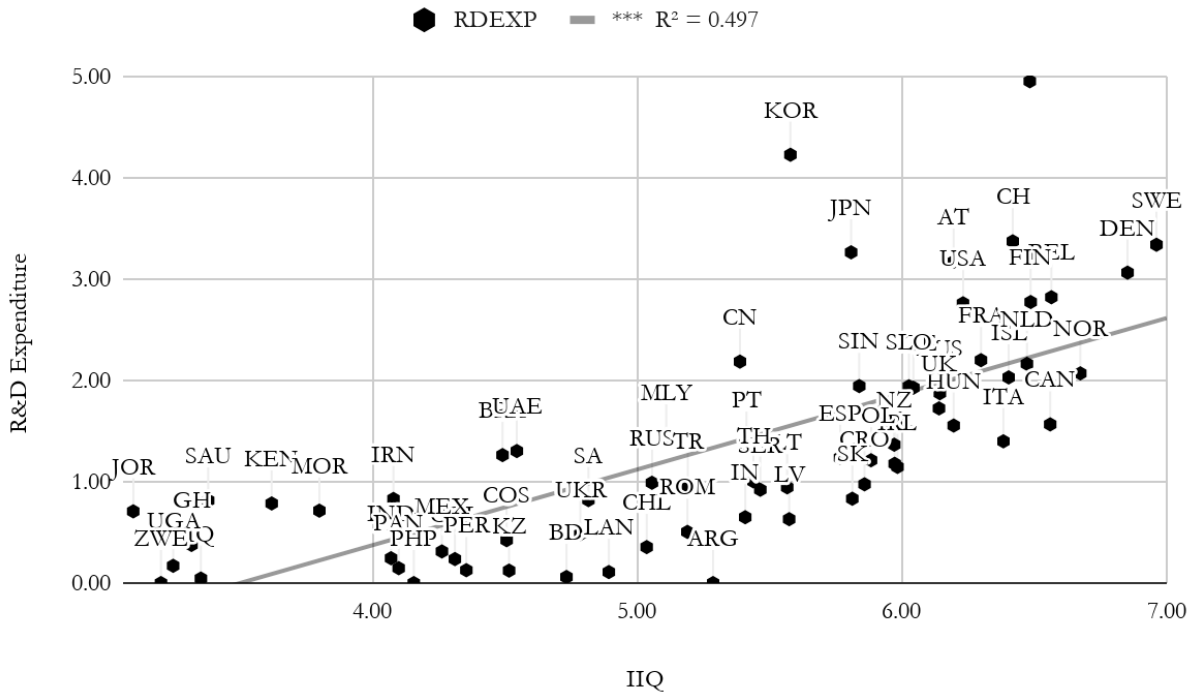


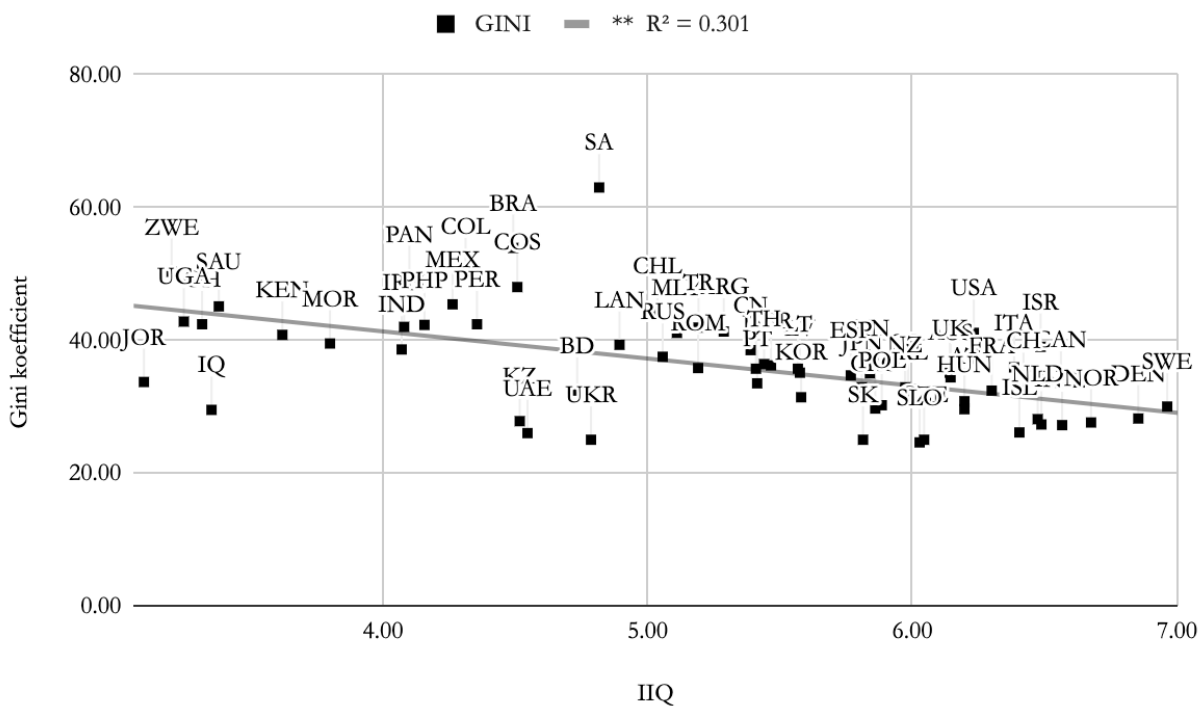
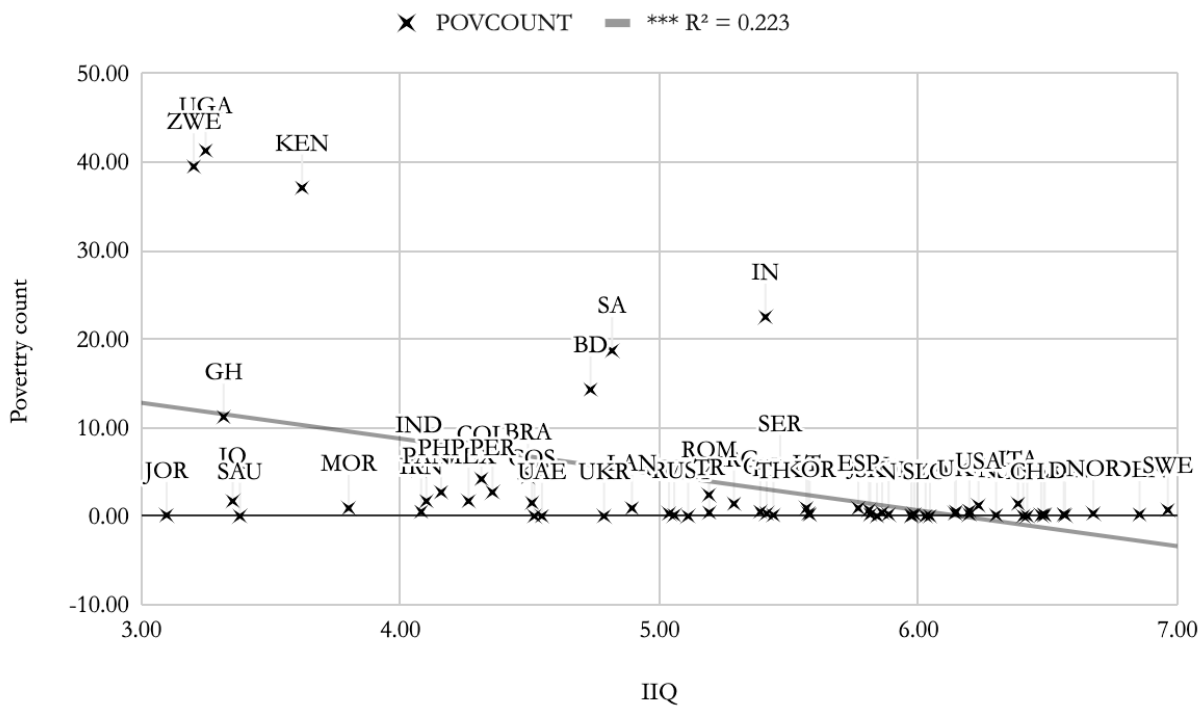
<b>Slovakia</b>	3.53	4.96	6.71	7.18	7.48	3.79	8.80	3.63	5.76	<b>5.81</b>
<b>Slovenia</b>	3.95	5.74	6.18	6.68	7.21	5.77	7.13	6.08	6.09	<b>6.03</b>
<b>South Africa</b>	4.42	3.88	7.04	2.88	5.01	4.53	3.40	7.05	4.78	<b>4.82</b>
<b>South Korea</b>	6.02	5.64	3.79	3.60	6.14	6.20	7.00	7.48	5.73	<b>5.58</b>
<b>Spain</b>	5.80	5.52	5.63	4.47	6.94	5.30	6.65	4.93	5.65	<b>5.77</b>
<b>Sri Lanka</b>	3.74	4.04	3.67	4.73	5.80	5.86	6.63	6.73	5.15	<b>4.89</b>
<b>Sweden</b>	7.00	6.37	7.50	6.63	7.67	7.53	5.07	7.28	6.88	<b>6.96</b>
<b>Switzerland</b>	5.70	5.96	6.02	6.08	7.05	7.06	7.10	7.13	6.51	<b>6.42</b>
<b>Thailand</b>	3.10	6.46	3.71	5.88	5.92	5.11	8.55	7.43	5.77	<b>5.44</b>
<b>Turkey</b>	1.75	4.16	3.88	5.33	6.44	6.90	9.15	7.43	5.63	<b>5.19</b>
<b>Uganda</b>	1.14	2.34	2.78	2.62	4.68	3.04	4.68	7.28	3.57	<b>3.25</b>
<b>Ukraine</b>	3.08	5.57	3.10	4.05	6.36	3.39	9.05	4.55	4.89	<b>4.79</b>
<b>UAE</b>	3.97	3.88	5.11	2.62	4.01	4.96	6.35	7.05	4.74	<b>4.55</b>
<b>UK</b>	5.82	6.58	7.87	4.17	5.90	6.93	4.57	5.70	5.94	<b>6.14</b>
<b>USA</b>	7.93	5.84	7.15	3.72	5.16	7.30	3.95	8.73	6.22	<b>6.23</b>
<b>Zimbabwe</b>	2.16	2.66	3.60	1.78	3.29	2.73	4.20	7.28	3.46	<b>3.20</b>

## 1.2 Descriptive statistics

	FINLIT	EQUAL	INDI	TRUST	HIER	RULE	HOMOG	UNION	IIQ CW	IIQ EW
<b>Mean</b>	4.20	4.97	5.00	4.57	5.89	5.51	6.78	6.16	5.39	5.27
<b>Standard Error</b>	0.21	0.15	0.23	0.22	0.17	0.19	0.20	0.21	0.12	0.13
<b>Median</b>	3.97	5.04	4.85	4.47	6.22	5.43	7.00	6.68	5.65	5.44
<b>Mode</b>	3.68	3.83	6.18	3.15	7.21	4.96	8.05	7.28	7.02	6.20
<b>Standard Deviation</b>	1.73	1.24	1.85	1.78	1.34	1.51	1.61	1.66	0.95	1.04
<b>Sample Variance</b>	2.98	1.53	3.41	3.16	1.79	2.29	2.59	2.76	0.91	1.09
<b>Kurtosis</b>	-0.37	-0.11	-1.18	-1.01	-0.04	-1.03	-0.93	-0.39	-0.89	-0.77
<b>Skewness</b>	0.42	-0.34	0.03	0.12	-0.74	-0.12	-0.35	-0.46	-0.42	-0.49
<b>Range</b>	7.30	6.00	6.90	6.63	5.47	5.63	5.95	6.98	3.56	3.87
<b>Minimum</b>	1.14	2.13	1.30	1.27	2.28	2.73	3.40	2.50	3.46	3.10
<b>Maximum</b>	8.44	8.13	8.20	7.90	7.75	8.36	9.35	9.48	7.02	6.96
<b>Sum</b>	272.89	323.13	325.09	296.90	382.95	358.26	440.97	400.10	350.04	342.83
<b>Count</b>	65.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00
<b>Largest(1)</b>	8.44	8.13	8.20	7.90	7.75	8.36	9.35	9.48	7.02	6.96
<b>Smallest(1)</b>	1.14	2.13	1.30	1.27	2.28	2.73	3.40	2.50	3.46	3.10
<b>Confidence Level(99%)</b>	0.57	0.41	0.61	0.59	0.44	0.50	0.53	0.55	0.31	0.34

### 1.3 Scatterplots over IIQ and correlating dependent variables





## 1.4 IIQ in comparison with formal indices of institutional quality

Country	CPI <sup>14</sup>	WGI <sup>15</sup>	EFI <sup>16</sup>	EIUC <sup>17</sup>	GICR <sup>18</sup>	ICRG <sup>19</sup>	VoDP <sup>20</sup>	FIQ (avg)	IIQ
Argentina	42	57	57.8	37	35	41	48	4.54	5.29
Australia	77	98	82.3	72	71	76	76	7.89	6.14
Austria	76	97	78	72	71	76	75	7.78	6.20
Bangladesh	26	31	60.4	20	22	41	17	3.11	4.73
Belgium	76	91	75.6	72	71	76	77	7.69	6.57
Brazil	38	55	65.6	37	35	32	42	4.35	4.49
Canada	77	98	81.7	90	71	84	76	8.26	6.56
Chile	67	85	79.6	72	59	67	75	7.21	5.04
China	42	50	62.1	37	47	32	46	4.52	5.39
Colombia	39	55	67.1	37	47	41	48	4.78	4.31
Costa Rica	57	79	76.2	55	59	41	66	6.19	4.51
Croatia	47	75	73.6	55	47	50	56	5.77	5.86
Czechia	54	87	78.1	55	59	50	61	6.35	6.04
Denmark	88	99	81	90	83	98	78	8.82	6.85
Finland	85	99	77.6	72	83	93	77	8.38	6.49
France	69	90	74	72	71	67	72	7.36	6.30
Ghana	43	62	66.5	55	47	50	38	5.17	3.32
Greece	50	73	67.1	37	59	41	57	5.48	5.97
Hungary	44	73	74.4	55	59	50	43	5.70	6.20
Iceland	75	98	77.1	72	83	78	77	8.00	6.40
India	40	57	65.6	37	47	41	41	4.70	5.41
Indonesia	37	56	73.9	37	35	50	26	4.49	4.07
Iran	25	23	48	20	35	24	18	2.76	4.08
Iraq	21	14	56.1	20	10	24	21	2.37	3.35
Ireland	72	95	81.3	55	71	76	75	7.51	5.98
Israel	60	78	76.2	55	59	55	67	6.43	6.48
Italy	53	78	75.1	37	59	50	64	5.94	6.38
Japan	74	94	78.8	72	71	67	75	7.60	5.81
Jordan	49	57	76.2	55	35	50	43	5.22	3.10

<sup>14</sup> Corruption Perceptions Index 2020 Global Scores (Transparency International, 2020)

<sup>15</sup> The Worldwide Governance Indicators, 2020 Update (World Bank, 2020)

<sup>16</sup> Economic Freedom Index (Fraser Institute, 2020)

<sup>17</sup> Economist Intelligence Unit Country Ratings (Transparency International, 2020)

<sup>18</sup> Global Insight Country Risk Ratings (Transparency International, 2020)

<sup>19</sup> PRS International Country Risk Guide (Transparency International, 2020)

<sup>20</sup> Varieties of Democracy Project (Transparency International, 2020)

<b>Kazakhstan</b>	38	52	71.2	20	47	58	17	<b>4.33</b>	<b>4.52</b>
<b>Kenya</b>	31	40	68.4	20	35	41	40	<b>3.94</b>	<b>3.62</b>
<b>Korea</b>	61	85	76.9	55	59	62	71	<b>6.72</b>	<b>5.58</b>
<b>Latvia</b>	57	84	78.9	55	59	41	68	<b>6.32</b>	<b>5.58</b>
<b>Lithuania</b>	60	89	81	55	59	50	69	<b>6.61</b>	<b>5.57</b>
<b>Malaysia</b>	51	71	75.8	55	59	41	54	<b>5.81</b>	<b>5.11</b>
<b>Mexico</b>	31	47	72.1	37	22	24	35	<b>3.83</b>	<b>4.26</b>
<b>Morocco</b>	40	52	67	37	35	50	43	<b>4.63</b>	<b>3.80</b>
<b>Netherlands</b>	82	99	78.2	90	83	85	77	<b>8.49</b>	<b>6.47</b>
<b>New Zealand</b>	88	100	85.3	90	83	93	77	<b>8.80</b>	<b>5.97</b>
<b>Norway</b>	84	100	76	90	83	85	78	<b>8.51</b>	<b>6.68</b>
<b>Panama</b>	35	64	78	37	35	32	39	<b>4.57</b>	<b>4.10</b>
<b>Peru</b>	38	58	77.6	37	35	49	44	<b>4.83</b>	<b>4.36</b>
<b>Philippines</b>	34	50	74.3	37	35	41	28	<b>4.28</b>	<b>4.16</b>
<b>Poland</b>	56	79	70.4	55	47	50	72	<b>6.13</b>	<b>5.88</b>
<b>Portugal</b>	61	91	76	55	59	67	67	<b>6.79</b>	<b>5.41</b>
<b>Romania</b>	44	68	78.3	37	47	41	38	<b>5.05</b>	<b>5.19</b>
<b>Russia</b>	30	41	67.4	20	35	24	25	<b>3.46</b>	<b>5.06</b>
<b>Saudi Arabia</b>	53	55	63.1	55	22	59	49	<b>5.09</b>	<b>3.38</b>
<b>Serbia</b>	38	59	70.5	37	35	32	28	<b>4.27</b>	<b>5.47</b>
<b>Singapore</b>	85	91	86.5	90	83	85	77	<b>8.53</b>	<b>5.84</b>
<b>Slovakia</b>	49	82	76.3	55	59	59	59	<b>6.28</b>	<b>5.81</b>
<b>Slovenia</b>	60	89	73.3	55	71	59	60	<b>6.67</b>	<b>6.03</b>
<b>South Africa</b>	44	65	67.3	55	47	50	46	<b>5.35</b>	<b>4.82</b>
<b>Spain</b>	62	84	77.3	55	59	59	76	<b>6.75</b>	<b>5.77</b>
<b>Sri Lanka</b>	38	57	68.8	37	35	32	44	<b>4.45</b>	<b>4.89</b>
<b>Sweden</b>	85	99	75.8	90	83	93	77	<b>8.62</b>	<b>6.96</b>
<b>Switzerland</b>	85	100	84.3	90	83	85	77	<b>8.63</b>	<b>6.42</b>
<b>Thailand</b>	36	54	67.5	37	35	32	20	<b>4.02</b>	<b>5.44</b>
<b>Turkey</b>	40	46	66.2	37	47	41	26	<b>4.34</b>	<b>5.19</b>
<b>Uganda</b>	27	38	75.5	37	22	24	25	<b>3.56</b>	<b>3.25</b>
<b>Ukraine</b>	33	41	60.6	20	35	41	26	<b>3.67</b>	<b>4.79</b>
<b>UAE</b>	71	78	70.5	72	47	67	72	<b>6.82</b>	<b>4.55</b>
<b>UK</b>	77	94	80.8	90	71	85	74	<b>8.17</b>	<b>6.14</b>
<b>USA</b>	67	89	82.2	90	71	72	70	<b>7.72</b>	<b>6.23</b>
<b>Zimbabwe</b>	24	17	51.2	37	22	15	20	<b>2.67</b>	<b>3.20</b>