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# Explaining Economic Growth: The Role of Cultural Variables

by

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## **Abstract**

**Current economic growth theories have unexplained parts, and do not take into account cultural variables at national levels. Since economic life happens in a social context, this paper investigates further how the norms and goals of a society affect economic development. The paper gives an overview of earlier research on cultural variables and economic growth. Variables which are identified as important are religion, social capital, political preferences, attitudes towards institutions, and Hofstede's cultural variables. The paper also tests earlier findings empirically, and find that general trust in a society is significant for economic growth, supporting findings from social capital theory. In addition, increased religiosity and power distance is found to be negatively associated with economic development, while individualism is positively associated. However, these relationships are not strong.**

## **Foreword**

My goal when I started writing this thesis was to investigate economic growth theory from new angles. From the start of my studies, economic differences between nations and possible explanations of economic growth have increasingly caught my interest.

Having lived in culturally different countries, I could also not resist to observe how culture interacts with economic behaviour and outcomes at the micro level. This made me curious about the possibility that culture could affect economic outcomes at national levels. This subject may be easy to generalize about, but surprisingly challenging to back up with evidence. Reading about cultural variables such as those of Hofstede, gave even more motivation to investigate this.

During the writing, the ideas of culture became even more questioned, and I discovered soon that a study of this may open a wide range of different approaches. Therefore, it has been a continuous challenge to focus and limit the approach, and further testing of empirical results is needed to give more weight to conclusions. Hopefully, the result still constitutes a fruitful investigation for the reader.

I would like to express my gratitude to my advisor, Professor Eirik Vatne at the Department of Economics at NHH, for patiently being a source of constructive input.

I would also like to thank my wife Safriani, for understanding that thesis writing sometimes has high alternative costs in the form of lost time for other activities, as well as for continuous support and encouragement during the writing.

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# 1 Introduction

Over the last century, the level of aggregate production in countries, or their economic level, have reached stages far beyond those expected in the beginning of the 20<sup>th</sup> century. In addition, the levels vary greatly between countries. For example, GDP per capita in Norway was more than 17 times larger in 2001 than in 1870. In the same period, GDP per capita in India was less than 4 times larger, and India is still regarded as a developing country (Maddison, 2003). South-East Asian countries like South Korea, Singapore, Hong Kong and Malaysia have experienced a transition from being relative poor countries to have high GDP levels per capita, and are referred to as growth miracles.

Naturally, the connection between the differences in economic wealth over the world is economic growth. Given the difference in economic growth and its changing nature, it has been a significant task for economists to theorize and explain causes behind economic growth. Current theories have linked economic growth to macroeconomic factors such as capital, labour, infrastructure and trade, and the list can be expanded further. What is common for these factors is that they can be affected through governance and economic policies. Capital, for example, can be increased by introducing barriers for capital export, or by giving incentives to the population to increase savings. Technological levels can be affected through education policies, and trade can be increased by relaxing import and export barriers.

However, little attention has been given to factors that are less quantifiable, or “soft” factors. Broadly viewed, since all nations once were similar in terms of capital, labour, technology and policy (e.g. monarchy), there must have been factors that led to an accelerated economic growth in some countries and less in others. An important framework for explaining national competitive advantage, which is highly significant for economic growth, is developed by Porter (1990) and incorporates several factors that must be present to gain competitive national advantage. However, he does not explain why or how these factors emerge in the first place.

Considering this, there should be room for investigating other explanations for economic growth that are less linked to macroeconomic factors, but which are still on a national level. National culture has been mapped by several studies, but is seldom linked to economic growth and wealth. Part of the reason is that culture is hard to quantify. A short definition of culture may be “shared values and beliefs” (Casson and Godley, 2000), but culture encompasses many aspects which can be analysed separately. Since Weber first published his work about “the Protestant Ethic and the Spirit of Capitalism”, there have been many more attempts to investigate culture and economic behaviour. Other studies, such as Hofstede (1980), have showed that certain elements of culture are correlated to economic growth and wealth for selected countries, though the focus of his work is culture, not economics.

The objective of this thesis is to examine the role of cultural variables in economic growth, both through direct effects and through interaction with other variables which are conducive for growth and development.

This objective may be analysed qualitative or quantitative. As culture is largely described in qualitative terms, it is natural to describe its effects on economic growth also in qualitative terms. On the other hand, economic growth is largely analysed quantitatively. Therefore, quantitative method will be of much value to analyse the objective, since it makes comparisons with other economic growth theories more viable. The thesis will therefore consist of three parts.

Part I will approach the objective for the thesis in more detail, as well as discuss, define and limit the concepts of culture and economic development for further discussion.

Part II will start with a presentation of theories of economic growth. Subsequently, it will compare and contrast research on culture and economic growth in a literature review, based on elements discussed in Part I. The point of view is both historically and theoretically. The last section of this part will discuss Hofstede’s theories of culture in detail and how these may relate to economic growth.

Part III will attempt a quantitative approach to the objective, by analysing data of economic growth and cultural variables which have been selected based on the literature review. The objective of this analysis is to empirically test earlier research on a few cultural variables, using other data sources and time series, but similar methods.

The analysis shows that variables which are identified as important for economic growth are religion, social capital, political preferences, attitudes towards institutions, as well as Individualism, Uncertainty Avoidance and Long-Term Orientation from Hofstede's cultural variables. In addition, the empirical analysis finds that general trust in a society is significant for economic growth, supporting findings from social capital theory. In addition, increased religiosity, and Power Distance is found to have a negative effect on economic development, although the relationships are weak. Individualism is found to have a positive effect on economic development, but this relationship is also weak.



## **PART I**

### **2 Culture as an Approach to Economic Development**

Although several general theories have been developed in search of explaining economic growth, few of them take into account the social, psychological and behavioural patterns that characterize the societies in question. Culture has often been used as a denominator for these patterns. Such explanations are, in the academical economic literature, largely dismissed because they are difficult to quantify and generalize.

Although the role of culture is an academically important issue in for example management theory, it is not an issue that is much considered in economics. Since culture is an imprecise concept, it is often treated as a residual element in growth explanations, after the major variables such as capital, technology and politics have been accounted for (Casson and Godley, 2000). However, there is also a possibility that culture is an exogenous variable that may have a direct effect on one or more of these, as politics and institutions.

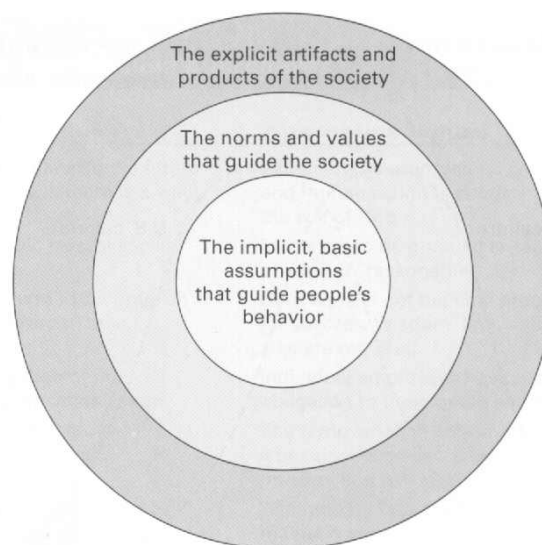
Another reason that culture is imprecise, is that the term “culture” may be used in very different contexts. For example, persons may be referred to as more or less “cultural”, usually meaning educated. On the other hand, the task of many anthropologists is to describe tribal culture in developing societies, assessing these as having a “strong” culture. However, for the purpose of this thesis, it should be clear that any society is as “cultural” as another. Therefore, culture needs to be further defined.

One simple definition of culture is “shared values and beliefs” (Casson and Godley, 2000). This means that culture is knowledge that forms values, creates attitudes, and influences behaviour. According to Hodgetts, Luthans and Doh (2006), culture have the following characteristics: It is learned, shared, transgenerational, symbolic, patterned and adaptive.

A different and broader definition, posed by Hofstede and Hofstede (2005a), is that culture is a “mental software”. This refers to each person’s pattern of thinking, feeling and potential acting that is learned throughout the lifetime. This is established during early childhood, and these patterns must be unlearned before the person is able to learn something different. The second learning process is also more difficult than the first. As such, culture is a set of mental programs that indicates how persons act in a given situation. Culture is acquired in the social environment in which a person grows up, and is collected within the family, neighbourhood, school, and workplace. It also varies within a social environment, for example between different social classes.

It is important to distinguish between the ways culture is referred to. In some countries, particularly Western, culture is perceived as something civilized or refined, or something that is connected with education, art and literature. In this sense, a person may be referred to as more or less cultural. On the other hand, culture as mental software is something that encompasses a broader group of people, and may be defined as “the collective programming of the mind which distinguishes the members of one group or category of people from another” (Hofstede and Hofstede, 2005a). A definition of culture often used in an economic context, is “the social conventions and individual beliefs that sustain Nash equilibria as focal points in repeated social interactions or when there are multiple equilibria” (Tabellini, 2008).

More specifically, culture exists on several layers, where some are observable and some are not (Hodgetts et al., 2006). Figure 2.1 is an example of this, and shows a circle where each layer of culture is increasingly difficult to observe. The outer layer of the circle contains cultural artefacts that are directly observable, like language



**Figure 2.1: Cultural Layers**

and food. The next layer contains the norms and values of the society, and provides a guidance for its members of how to behave. Behaviour is observable, and these norms can normally be explicitly described by members of a society. The inner layer contains the basic, implicit assumptions in a culture that govern behaviour, and this is only indirectly observable through peoples' behaviour. However, members of the society can not always explicitly articulate these assumptions. It follows that the inner layer is the most fundamental and most difficult to change, since members of a culture often take them for granted or natural, and not as a part of their culture.

Next, how can culture be related to economic outcomes? To view it the other way, there is a tendency by economists of viewing economic activity as a part of life with its own laws, separated from the rest of the society (Fukuyama, 1995). In this view, the economy is an environment where people come together to satisfy their selfish needs and desires before retreating back to their "real" social lives. But in modern societies, economic activities requires social collaboration of human beings, for example through organisations. Following this view, sociologists have long argued that cultural norms pervade economic life and that the latter can not be understood apart from them (Fukuyama, 2003). Granovetter (2005) also argues that markets described by economists in themselves presuppose shared norms, as they presume for example that people exchange goods rather than rob from each other. Moreover, economists may assume that individuals behave in a rational pattern, but what decides whether they behave rational or not? Indeed, the term "rational" may also be culturally determined. Neoclassical economic theory rests on a simple model of human nature which says that humans are rational utility-maximizing individuals (Fukuyama, 1995). This may be hard to defend when it comes to cases such as idealistic and voluntary work, or fighting in wars. Actions like these may be due to goals like recognition, religion, justice, prestige, honour, and are thus harder to include in a simple utilitarian-maximizing model. It is therefore hard to separate culture from economic behaviour, and there is a need to further discuss how culture affects society in a way that may give different economic outcomes.

On a individual level, culture decides the values of members in a society and thereby has effect on objectives they pursue (Casson and Godley, 2000). This may relate to issues such as individual's goal for standard of living or the well-being of the family.

This has implications in terms of economic behaviour. Moreover, it is difficult to believe that whole societies always behave in deterministic and rational patterns, and more importantly, that all societies would display the same set of reactions to a given situation, i.e. their ways of thinking in economic terms are similar. An extreme example is if a society places no value in saving or in material wealth, other than that necessary for covering basic needs. It is difficult to imagine that the economy of this society will experience a huge, sustained growth. Hence, on the macro level, culture may affect economic outcomes indirectly by regulating basic economic factors such as exchange, savings and investment.

Culture manifest itself in the way that societies organize themselves and behave (Casson and Godley, 2000). This may have an effect on important economic determinants such as ethics, morale, and thereby laws, institutions and thereby corporate structure, political systems and thereby governance. These issues do not come naturally in any society, they arise because the societies decide to form them. The way they are formed and interpreted may be influenced by culture, since these issues vary across societies. For example, Landes (1999) argues that differences in prosperity of the countries in the colonized “New World” was due to the fact that they were colonized by settlers with different mindsets, values and goals, resulting in different ways of organizing the new societies. The settlers did not bring with them large quantities of tools, machines or capital, so other factors than those traditionally causing prosperity would need to play a role.

As values are shared in a culture, they may be partly observed in the moral systems that prevail in a society. Religion is an important aspect of moral system as this affects many values and is shared among the members (Fukuyama, 2003). Religion is much discussed in the way that it affects economic behaviour and moral systems. For example, corruption is found to be lower in Protestant countries (Svensson, 2005), indicating that moral values in these countries affects the corruption level. A well-known point of view raised by Weber (1930) is that religious ethics which affects work ethics, will have a strong effect on wealth building. Whether religion is important or not, the moral systems will undoubtedly have an effect on how a society organizes economic life. As Guiso, Sapienza and Zingales (2006) argue, Adam Smith viewed *The Wealth of Nations* related to his arguments in *A Theory of Moral*

*Sentiments*, thus indicating a causality from ethics to morale and a significance to economic development.

Apart from affecting the individual's choices, culture may also decide the way societies are organized in terms of institutions. This is important for the way institutions arise and function in a society. It is clear that strong and well-functioning institutions is necessary for economic development, such as institutions for democracy and rule of law (Rodrik, 2004). For example, the Christian church as a religious institution has had decreasing power throughout history. This may be due to cultural changes in Christian societies, as cultural norms put less weight on spiritual life. As the institutions function in various ways in different countries, these differences may be partly due to the values that each culture possesses.

Equally important to economic prosperity are political systems and governance (Hagen et al., 1999). For example, Landes (1999) proposes that different views and interpretation of political ideas such as democracy and imperialism explains part of the economic advantage that European nations took over the Asian nations, which also had the potential to grow economically. These differences in political systems might not have developed if they were not rooted in the cultural preferences of the society. A larger tolerance for authority could also be part of the reason why Chinese emperors had more power over the population and ruled longer than European counterparts. This political system inferred, among other things, the cultivation of markets and mass use of technology (Landes, 1999). In the same manner, there may be cultural reasons for why democratic ideals developed in Europe. The ideas for modern democracy were developed in France (i.e. the French Revolution), and the first instances of democratic ideas were developed in Greece, thousands of years earlier. Hence, there may be possibilities for culturally bounded political systems, and that some countries or regions are culturally more feasible for political changes than others.

As demonstrated by Hofstede and Hofstede (2005a), culture also exists on several different levels. For example, culture may be at a national, regional, institutional, ethnic, gender, generation and social level. For the purpose of this thesis, the national level of culture will be most interesting, since economic growth is usually measured at

a national level, and countries are more easily compared with each other than for example regions. However, the existence of a nation does not necessarily mean that a clear national culture exists. Therefore, the ethnic level may also be of importance, especially in multicultural countries. Much of the research that is done on culture and economic growth refers to the national level of culture. Therefore, national cultural differences need to be further defined.

Human societies have existed for at least 10 000 years, but in most of this time, these societies have not been organized in nations or even less, countries with borders. The invention of nations as political units, to one which every human belongs to, is a recent phenomenon in human history (Hofstede and Hofstede, 2005b), and former colonies are descendants of that era. In the colonial period, borders between the colonies were lined up according to the colonial powers, and did not always correspond to the cultural diversion of the local population. Hence, borders were often a result of a political consolidation rather than a cultural. Therefore, nations should not be easily equalled to societies. Especially in Africa, there are several examples of nations that contain different cultures.

In nations that have existed for some time, there may also be a process of integration which may act as a reinforcer of the common culture. This process often refers to things like national language, national history, symbols, heroes, literature, and national political system (Hofstede, 2001). Though this process usually emphasizes the two outer layers in Figure 2.1, it is a considerable force for achieving cultural homogeneity in countries. The degree of cultural homogeneity may still vary significantly between countries. Nevertheless, this integrative process makes it possible to treat culture at a national level, and to assume that it exists some level of homogeneity in the national culture.

There may also be strong forces within a nation that fight for distinguishing their own identity, or even to make their own independent nation. Such movements show that they may consider their own culture as significantly different from the national culture. In this respect, it makes sense to emphasize the ethnic culture as opposed to the national culture. This shows that a nation may not have a distinctive national culture, it is rather a mixture of two or more ethnical cultures. In the research based on

national culture, this a clear caveat that may hide important cultural differences within a nation.

However, Hofstede and Hofstede (2005b) argue that using national culture has a clear advantage in research on economic growth. A reason is that economic data is widely available on a country basis, and this makes such research more convenient than studying homogeneous societies. The caveat mentioned above is still valid, and therefore caution should be exercised when interpreting data from multicultural countries. In addition, if data can be separated by the cultural level of the society, this should be done.

### **3 What is Economic Development?**

As explained earlier, differences in the economic level or GNP of countries are huge. However, it is valid to ask if this automatically means that countries with a low GNP are less developed than countries with a higher GNP, or why we are interested in investigating changes in GNP. The reason may often be that we are interested in positive changes in a country's condition. For the purpose of this thesis, there is a need to clarify exactly what development is, and what a positive change in a country's condition actually means.

Initially, we assume that a positive change is a target for development, and that development will mean a better life for individuals. Hence, we need to clarify what a better life means. A better life is often related to the concept of happiness. Hagen and Pedersen (1999) approach this issue by viewing how an individual assesses situations. If an individual prefers situation A instead of B, it follows that the individual is happier in situation A. This leads to a view where satisfying one's preferences makes an individual happier, which gives a better life. However, if satisfying preferences gives a negative effect on others, e.g. obtaining a car by stealing one, it follows that this is not always a correct approach. The total effect on all individuals needs to be evaluated.

In addition, it is problematic to assume that preferences that have a negative effect on an individual, leads to more happiness. An example is buying a product which has unknown serious side effects. Thus, it may be assumed that satisfying preferences is a necessary, but not sufficient condition of a better life. It also follows that it is difficult to regard one set of preferences as better than any other, and that an approach to a better life needs to be pluralistic.

An economical approach to a better life, or happiness, is material wealth. However, this is not an approach that follows from economic theory (Hagen et al., 1999). It is still valid to ask how material wealth relates to happiness as described above. If an individual's income increases, this income can be used for buying things according to the individual's preferences, for example better food, larger house, more clothes etc.



Hence, the increased income has increased the possibility for the individual to satisfy his or her preferences, which according to the discussion above is necessary for a better life. In addition, this is a pluralistic approach, as the individual may use the income for any set of preferences.

A criticism of this approach is that many things that lead to happiness, can not be bought for money. Still, a better income does not necessarily make someone less able to pursue non-material goals. This may also vary according to the income level, since increased income may be more important for poor countries than for rich countries. However, according to the discussion above, it is difficult to find a better measurement of happiness than increased income. For the purpose of this thesis, material wealth will therefore be regarded as an indicator that leads to a better life.

The next question is how material wealth can be described and compared. As the total material wealth increases in a society, it may be unevenly distributed. If a small part of the population increases its wealth, but the majority's wealth is decreasing, it is difficult to assess the total positive effect. Hagen and Pedersen (1999) present two approaches to this. If wealth is increased for a part of the population and nobody has reduced wealth, the change is a Pareto-improvement. Another approach is to desire a positive change in total wealth where a Pareto-improvement is possible, but not necessary. However, for a development process, it is difficult to measure the effect on every individual, and equally difficult to assess Pareto-improvement.

In national development questions, it is often focused on various indexes which describe certain conditions of a country or area. Since this thesis mainly will discuss national indexes, these need to be described further. A main concern is whether an index should be interpreted generally or specifically. Two main types of indexes exist (Hagen et al., 1999). A partial index tries to describe change in one dimension of a country's condition, and a general index tries to describe the overall condition of a country.

An example of a general index is the Human Development Index (HDI), developed by the United Nations in 1990. The index is based on life expectancy at birth, education level, and living standard, measured by gross national product (United Nations

Development Programme, 2006). The index is thus built from three partial indexes. A problem with HDI is when these partial indexes change in opposite directions, cancelling out their individual effects on HDI. A country may thus improve its health standard while worsening its education level, while appearing to have no development changes, since HDI remains constant. It also follows that the calculation of HDI places an explicit price on its three dimensions, as health and education may be measured relatively to GNP. In a development debate for a specific country, it is hard to place an exact weight or price on any of the three dimensions. However, a strength of HDI is that the three indexes empirically often moves in the same direction (Hagen et al., 1999).

A typical example of a partial index is the gross national product, or GNP. GNP may be defined as “the value of final goods and services produced by the people of a country over a given year, valued at market prices” (Ray, 1998). Although it only concerns an economical dimension of development, this index relates closely to the discussion above about income as a measure of a good life. Ray (1998) argues that although GNP does not treat all dimensions of development, it acts as a fairly good proxy for most aspects of development. Therefore, it has been of major interest in development research and a starting point for this thesis.

There are several problems when using GNP to measure economic development. First, there are no market prices for many public services, such as education and public health care. In this case, the production value is used, equalling to costs as stated in public budgets. The problem with this approach is that it does not take the efficiency of public services into account, as the output and quality of public sector contribute much in development issues. Second, GNP does not measure the informal economy, such as domestic work and work that illegally avoid tax.

Since GNP measures the value of domestic production, the production carried out by foreign factories and labour in the country is included. This production does not necessarily contribute to a country’s development. For example, some countries use tax subsidies to attract foreign companies, and profits may be transferred abroad. Gross Domestic Product, or GDP, takes these considerations into account, and is

defined as GNP less income and salaries to foreigners, plus income to national workers abroad (Hagen et al., 1999).

In addition, since GNP concerns gross values, capital depreciation is not accounted for. Net National Product, or NNP, is thus GNP less capital depreciation. The negative effects on the country's environment are neither measured by GNP, as this is another form of capital depreciation.

A practical problem of comparing GNP is that we need market values for every country's GNP. However, no country is a part in every international market, and for some products there is no international market. An approach to this is to convert each country's GNP to a common currency, for example US\$. However, this implies that no currency can be over- or undervalued. Another approach is to measure GNP relatively to the average income in each country, which means that GNP must be adjusted for purchase parity.

A main problem of using GNP for measuring economic development is that it does not measure distribution of income. For example, extreme wealth may be concentrated to a small elite, while the majority of the population lives in poverty. Most people would argue that a redistribution of this wealth would imply better conditions in this country, especially if the focus is to help the poor. However, there is little empirical evidence that growth in GNP makes the distribution of income worse. (Hagen et al., 1999). In addition, there is evidence that redistribution of income is easier achieved in countries with a fast growing GNP.

Therefore, for the purpose of this thesis, GNP will be regarded a good measure of overall material wealth, and growth in GNP will be regarded as a positive change for a country's population.

## PART II

### 4 Theories of Economic Growth

Before the relationship between culture and economic growth is further examined, there is a need to investigate standard theories which try to explain the nature of economic growth. Hence, the following will provide brief explanations of earlier and current theories, and discuss these in relation to cultural factors.

#### 4.1 The Harrod-Domar model

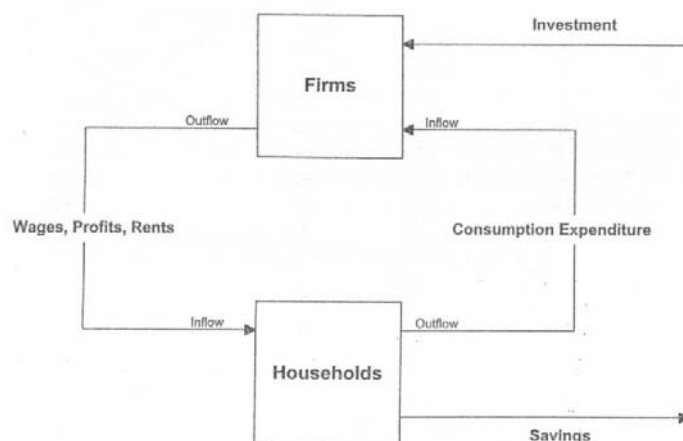
The Harrod-Domar model is one of the earlier models of economic growth, and is based on the idea that future wealth is a result of savings that are invested today (Ray, 1998). Investment makes firms able to increase their production capacity by accumulating capital goods, and the economy grows. Figure 4.1 summarizes the concept.

The Harrod-Domar equation is expressed as

$$\frac{s}{\theta} = g + n + \delta$$

where  $s$  is the savings rate,  $\theta$  is capital-output ratio,  $n$  is population growth rate,  $\delta$  is the depreciation rate and  $g$  is thus the rate of per capita growth.

Figure 4.1: The Harrod-Domar Model



For our purposes, it is plausible that savings are more influenced by culture than the other parameters. Therefore, savings can be treated as the main parameter for economic growth in the Harrod-Domar model, by directly giving the basis for investment needed to replace and expand depreciated capital goods.

## 4.2 The Aggregate Production Function and the Solow Model

To start again, economic growth means an accumulation of output as a result of various factors. The aggregate production function describes basically two of these factors (Burda and Wyplosz, 2005). An economy's capital stock  $K$  and employed labour  $L$  produce the total output of an economy, or its GDP:  $Y = F(K,L)$ . The Cobb-Douglas production function

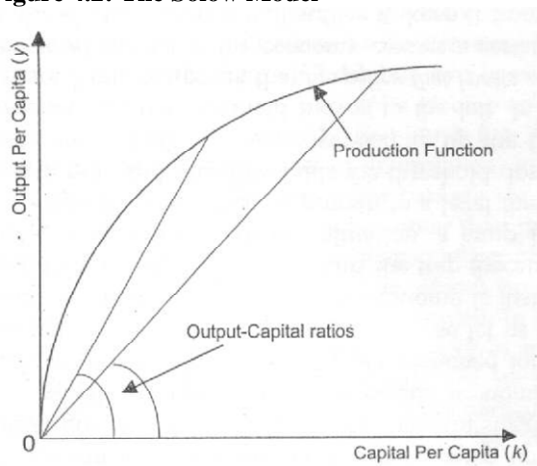
$$Y = K^\alpha L^{(1-\alpha)}$$

shows diminishing marginal productivity and constant returns to scale.

The Solow model depicts the production function with diminishing return in relation to capital and labour, shown in Figure 4.2. The return of capital is high with a high labour supply, and vice versa.

According to the model, the economy will settle at a steady state, where the capital per capita  $k$  is constant. This is due to the combined effect of population growth  $n$  and diminishing returns of production. Savings have only an effect on the income level, and not on the income growth.

Figure 4.2: The Solow Model



Because of diminishing returns in the production function, we should observe more capital flowing to poorer countries, where the return is higher, and less capital flowing to rich countries, where the return is lower. This is not the case. By the same reason, the model predicts that low-income countries should grow faster than high-income countries, and that the latter can not increase their growth rate. Empirically, many low-income countries tend to have low and non-increasing growth rates, while many high-income countries have increased their growth rate.

Returning to the Cobb-Douglas production function, there is thus still an unexplained part when growth is accounted for, even after the Solow model has introduced population growth. This unexplained part is called multifactor or total factor productivity, and is a factor that affects the three other sources of growth in terms of productivity. Thus, the production function in Cobb-Douglas form becomes

$$Y = AK^\alpha L^{(1-\alpha)}, \text{ where } A \text{ is total factor productivity.}$$

Importantly, A is not a factor of production in itself. It is sometimes simplified referred to as technology. In growth accounting, it may be referred to as the Solow residual. As the examples in

**Figure 4.3: The Solow Decomposition, 1913-1987, average annual growth rates**

Country	GNP	Contribution of inputs	Residual
France	2.6	1.1	1.5
Germany	2.8	1.4	1.4
Netherlands	3.0	2.0	1.0
UK	1.9	1.2	0.7
Japan	4.7	3.0	1.7
USA	3.0	2.0	1.0

Figure 4.3 show, this residual may explain up to 50% of growth rates. Therefore, although the Solow model can predict the effects of growth in total factor productivity, it can not explain what determines this growth.

Thus, there is a substantial unexplained part of neo-classical growth theory after capital and labour has been accounted for, and investigating the total factor productivity is thus an important object when discussing cultural factors in economic growth. Viewing the size of this residual may indicate how much cultural factors play a role. For example, there are many claims that the growth miracles of South-East Asia from 1960 to mid-1990 was due to the cultural environment such as Confucian values. However, Steigum (2004) argues that growth accounting indicates that increase in labour force explains most of the accelerated growth. This was due to the fact that countries in South-East Asia had large reserves of underutilized labour reserves because of population growth and demographic changes, and this would only contribute temporarily to the total growth rate.

A feature of both the Harrod-Domer model and the Solow model is that they treat the parameters as exogenous, i.e. determined outside the model. Therefore, they can be

affected by policies to achieve a desired growth rate. However, the parameters may be endogenous, i.e. affected by the various states of the growth process. For example, savings may be higher in a country with high income per capita.

### **4.3 Endogenous Growth Theory**

In endogenous growth theory, it is assumed that the total factor productivity is not exogenous (Burda and Wyplosz, 2005). In addition, new factors such as human capital, knowledge and infrastructure are introduced. Human capital comes from knowledge which increases the productivity of labour. Now, the aggregate production function becomes

$Y = A F(K,L,H)$  , where H is human capital.

The total factor productivity now affects human capital, and an important addition to total factor productivity is knowledge, which may come in the form of education

For our purposes, the fact that non-tangible, human assets is a part of growth theory, is also an indication that cultural factors may also be a part of the explanation. The term “knowledge” may be interpreted as something inherent in each worker which affects productivity. Although culture is not something that is taught like knowledge, it is also an intangible, human factor that may affect the productivity of each worker.

### **4.4 The Economic Environment**

There are also several factors in the economic environment which may affect the processes of growth mentioned above. These are for example peace or stability, political system, health, geography and resources (Burda and Wyplosz, 2005). For our purposes, political system is the most interesting in discussing cultural factors. For example, a cultural preference for single-party systems may cause less probability for democratic systems. However, since most of these environmental factors are exogenous, they will not be discussed in detail in relation to culture.

Institutions may have an important effect on economic growth (Rodrik et al., 2002). They may stimulate growth by being effective, but they may also hamper growth by being extractive, corrupt or slowing down company start-up and expansion. Therefore, bureaucratic quality is often introduced as an important determinant for economic growth, and this is of importance for our purpose since culture may affect the establishment and working of institutions.



## **5 Research on Culture and Economic Growth**

After examining the standard approaches to economic growth, it is possible to examine research on culture and economic growth specifically. The following section is a literature review of earlier and current research on links between culture and economic growth. This is done in order to get an overview of the current stand and directions on the issue, as this topic may have many different approaches. For example, discussions can be made on the links between economic growth factors and a specific culture, or on a specific cultural aspect and how it may affect a society in general, supposingly giving it an advantage in economic terms over other societies. In addition, the viewpoints are not always formulated as explicit theories.

Following the discussion in chapter 2, culture may have an effect on economic development through various channels. These were

- Law, morale, ethics and religion
- Consumer preferences
- Social capital
- Politics and governance
- Social networks
- Institutions and organizations
- Hofstede's variables

Due to limitations of this thesis, I will select some of these to review further. The next section will therefore focus on religion, social capital, politics, institutions, and Hofstede's variables in an analysis of their relationship to economic development.

## **5.1 Religion**

Religion is an important aspect of culture. They are closely related due to the fact that religion offers a clear set of values, and these are in high degree shared among its followers (Guiso et al., 2006).

Historically, Landes (1999) argues that a distinct feature of Medieval Europe was the split between secular and religious, which allowed the kings to pursue secular goals such as wealth building and technological invention. This contrasted the view in the Islamic Countries, which did not separate between the secular and the religious, which again meant that religious authorities in Islamic countries had more power than in secular societies.

In addition, he argues that religions linked to the Judeo-Christian tradition had three specific traits feasible to economic development. One is the respect for manual labour, which is also regarded as a penalty for original sin. The second is the subordination of nature to man, contrasted to animistic beliefs. The third is the sense of linear time. This contrasted the view in other societies of time as cyclical.

A classic work on religion and economics is Weber (1930) with “The Protestant Ethic and the Spirit of Capitalism”. He argued that the Calvinist doctrine of predestination, rather than inducing quietism, made the believers take active part in showing their status in terms of worldly accumulation and commerce. The Puritanism created a specific work ethic, which meant that work was valuable and a mean in itself, instead of something that is only carried out to achieve a result. This was opposed to the Aristotelian-Catholic ideal that one should acquire only as much wealth as one needed to live well. In addition, he argued that Protestant believers were more prone to trust and delegate to individuals outside the family unit, thus being able to create organizations which did not rely on family relations. In addition, the Protestant ethic favoured savings and investment more than the Catholic ideal.

The theory has received substantially critic, where an important one is that Catholic societies developed capitalism and were wealthier earlier than the Protestant countries

(Fukuyama, 2003), and it was the Counterreformation that started to put constraints on the economic environment. Viewing Weber's thesis more in detail, Hansen (1963) argues that the theory is incomplete, because it does not show a clear link between religion and economic development. Weber's goal was not to write about religion, dogmas or spirituality, but on the actions and practical matters that led to economic outcomes. The Protestant ethic was only a probable cause of these actions that Weber assumed, and neither did he ascribe significance to religion per se, but to actions. Another failure of Weber was to ascribe the scientific progress to the Protestant ethic. Hansen (1963) argues that Catholics were even more concerned with science, but Protestants were most interested in applied science, such as tools and technology, in order to make work more productive.

Thus, Weber focused on the rational behaviour of individuals, but did not demonstrate the causality from Protestant ethics to actions. It follows that any other physiological mechanism leading to the same actions, would be equally important. Thus, Weber was largely correct that religious or ideological motivation may be an important prerequisite for economic development, but these can happen in any given social system. Other examples of these mechanisms which has the same outcome is communism in the Soviet Union or reformist Muslims in Indonesia (Hansen, 1963).

For other religions, there are various views. In discussing Asian religions, Rigg (2002) shows that Buddhist economists argue that Western economics is artificial. This is because it constructs rational solutions to human condition which is, in most part, irrational. Buddhist economics, on the other hand, attempts to integrate moral and ethical considerations into the study of economics, and lastly bring a holistic vision to economics. Buddhism is not contrary to Protestant ethics as it does not condemn poverty or wealth. However, what is significantly different is the way that Buddhism focuses on acquiring and using the wealth, where there are clear ethical considerations and limitations. In this sense, Buddhism can be said to have mostly impact on consumption and consumer preferences.

For Islamic economies, the teachings may oppose many aspects of Western economic thinking. Islam is not only a religion, but a complete way of life, with clear rules for economic life. In the Islamic teaching, economics is governed by strong ethical rules,

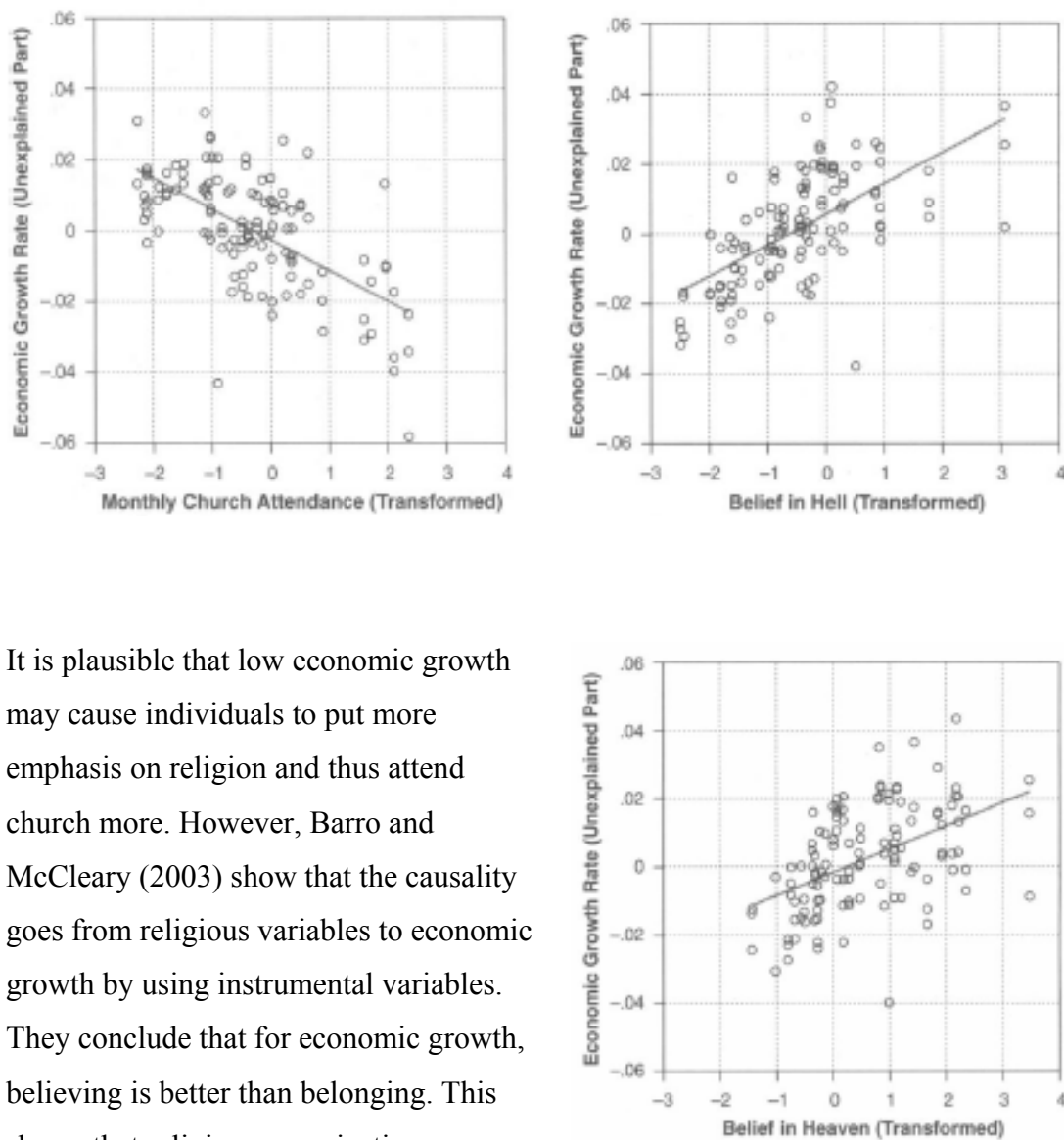
and the ideal is to be altruistic, just, moderate in action, and socially responsible (Rigg, 2002). Equally to Buddhism, it holds that believers should not exploit others and to be moderate in consumption. More specifically, Islam stresses social security by levying a wealth tax, and that it is immoral to take or give interest. Islamic economy has had some results in terms of development, especially in South-East Asia. In Indonesia, there are several religiously motivated organizations which have contributed to social development (Rigg op.cit). In the case of Malaysia, Islam has been used actively by the government to promote development (Rigg op.cit). Still, this is more a case of political action rather than something that has religious or cultural motivation. In addition, it will only work in a specific cultural setting.

The question is if Islamic economics create growth. One concern is the extent to which most religious economics, Islam included, view issues like poverty and redistribution as zero-sum games (Rigg op.cit), and how they focus on redistribution instead of growth to solve this. Moreover, the practice of risk-sharing instead of interest-giving might cause people to put their savings at excessive risk. In fact, Kuran (2001) argues that the main purpose of Islamic economics is not to improve economic performance or give guidance in the marketplace, but have other, political reasons. One of these is that the term “Islamic economics” partly originated to stimulate cultural autonomy, and has only been active since the 1940s (Chapra, 2000). This way, Islamic economics is used only to signify that this way of thinking is incompatible with other schools of economics, and thus creates a cultural distance between the Muslim believers and others. A sign of this is that the use of teachings in economic policy has been limited in Iran and Pakistan, which are the two countries that have gone furthest into putting Islamic economics into practice (Kuran, 2001).

Confucianism is a philosophy more than a religion, but still holds shared values and beliefs whose teachings has been virtually unchanged. It has been widely debated to what degree Confucianism has been a cause for the “Asian Miracle” and the notion of “Asian Tigers” (Hofstede and Bond, 1988). Confucianism may appear to be some of the reason why many Asian countries has managed to achieve high rates of economic growth, while avoiding many of the perceived social costs of progress such as rising crime, disintegrating families, hooliganism and rampant individualism.

There are several empirical studies of religion and economic performance. Barro and McCleary (2003) have regressed variables of religion with economic growth for 59 countries. They find that increased church attendance reduce economic growth, while increase in some religious beliefs like heaven, hell and afterlife increase economic growth, as shown in Figure 5.1. Reasons proposed for this is that stronger religious beliefs stimulate growth because they help sustain specific individual behaviors that enhance productivity. They also propose that increased church attendance may be taken as a proxy for the influence of organized religion on laws and regulations that influence economic behavior.

**Figure 5.1: Relationships between Economic Growth and Religious Variables**



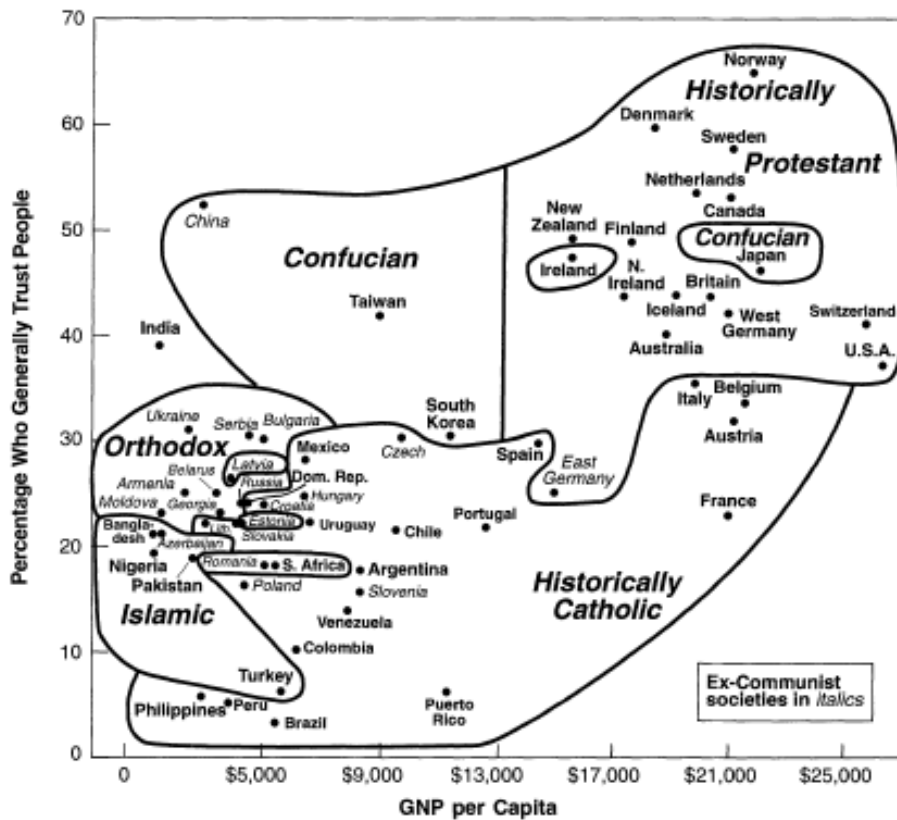
It is plausible that low economic growth may cause individuals to put more emphasis on religion and thus attend church more. However, Barro and McCleary (2003) show that the causality goes from religious variables to economic growth by using instrumental variables. They conclude that for economic growth, believing is better than belonging. This shows that religious organization may

have an opposite effect than individual religious values. As the latter is closer to the definition of culture, this supports the notion that the cultural aspect of religion could be beneficial for economic growth.

Blum and Dudley (2001) show that the difference in economic growth in Protestant and Catholic cities in Europe at the start of the Industrial Revolution, is inconsistent with standard growth theories. They do not find evidence that the Protestants worked harder or saved more, but they propose that the Protestant cities of Northern Europe were able to take advantage of increased trade possibilities because of information networks, i.e. Protestants were able to honor contracts with unknown people better than Catholics. A proposed reason for this is that Protestants rejected the Catholic sacrament of penance, and thus had a higher cost of defecting from contracts. This supports Weber's thesis to some extent, and is also related to the discussion in chapter 5.2 of trust which reduces transaction costs.

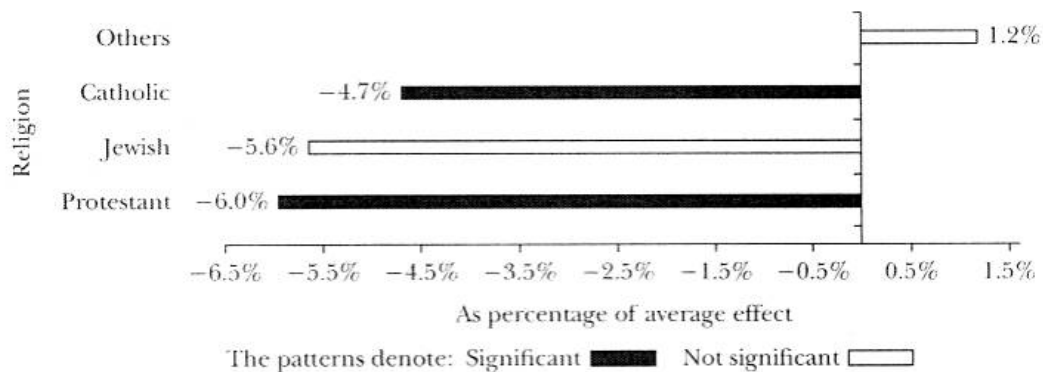
Interestingly, Inglehart and Baker (2000) has studied the relationship between religion and trust in the modern period for 65 societies. As shown in Figure 5.2, Catholic countries possess less interpersonal trust than Protestant countries. This holds true even for the same levels of economic development. Of the 10 societies with lowest trust, 8 are Catholic and none are Protestant. However, they find no difference in trust between Catholics and Protestants within a given society.

Figure 5.2: Interpersonal Trust and Economic Development, by Religious Tradition



Lastly, Guiso, Sapienza and Zingales (2006) have surveyed preferences by religious affiliation in USA. Figure 5.3 suggests that religious affiliation have a significant effect on preferences for income redistribution carried out by tax policy. This may have implications for voting behaviour and political preferences.

Figure 5.3: Religion and Preferences for Income Redistribution



## **5.2 Social Capital**

Social capital is a serie of traits inherent in a population that may be beneficial for or inhibit economic growth by affecting it indirectly (Fukuyama, 1995). The name social capital refers to the notion of capital in traditional growth models. Social capital can therefore be interpreted as a part of the human capital embedded in these models.

Social capital theory questions the standard microeconomic issue of humans acting out of self-interest only. According to Fukuyama (1995), economic activity also depends of the functioning of a civil society, and is not undertaken separated from individuals' social lives. This is because economic activity requires social collaboration, and also because economic activity is undertaken for non-monetary and non-material goals such as recognition, identity, status and dignity.

Fukuyama (1995) also argues that societies and countries are different in their ability to form and develop organizations. Since economic activity is undertaken in groups, i.e. organizations, rather than by individuals, the societies that are most able to create functional organizations will experience most economic growth. Functional in this respect means innovative and productive. This specific ability to “associate spontaneously” gives the society social capital and thus economic growth. Putnam, Leonardi and Nanetti (1993) has a wider definition of social capital, which includes all social organization, norms and networks that can improve the efficiency of a society.

The ability and manner to form organizations is due to one main factor, which is the level of trust in the society. All societies have trust, but it is directed towards different groups. In low-trust societies, trust is mainly conferred within the family or close networks. This means that most organizations are small and involve family members. In high-trust societies, individuals are able to trust those not belonging to the family or a close network. Thus, it is easier to cooperate and form efficient organizations in high-trust societies, since relatively unknown members are allowed to join the organization. For example, relatively small countries such as Holland and Sweden have a history of large, long-standing organizations, whereas relatively large



countries, such as China or India, have a history of many smaller, family-owned organizations. Fukuyama (1995) also argues that a high level of trust makes it possible for parties to make decisions that are not profitable in the short term, but gives stability and economic rewards in the long term. Roth (2009) defines three levels of trust: Thick trust, which is trust in family networks, interpersonal or generalized trust, and systematic or institutional trust. Of these, interpersonal trust is mostly used when examining trust and economic growth, since this is an overall indicator of social cohesion in a society.

Since cultural traits are older than political systems and change less frequently, Fukuyama (1995) argues that it is the cultural, in this respect social, traits that causes growth. A political system such as democracy and capitalism will only work properly if it coexists with certain premodern cultural traits that make the system function. These traits are reciprocity, moral obligation, duty, as well as the abovementioned trust.

Lack of social capital, i.e. trust, does not mean that some societies or cultures can not experience economic growth. This only means that the lack of this capital must be compensated by other forms of capital or investment. In this way, countries with lower social capital may have extra costs in the form of increased legal expenses (i.e. lawyers and courts), or the state must take an active role to create and own large enterprises, since private entrepreneurs are not able to create them.

An example of high-trust society is USA, which was able to create many large organizations from an early period (Fukuyama, 1995). This is because immigrants formed networks and associated in various organizations from early on, although the legal and political systems were less developed. USA is also an example that diminishing trust put an extra tax on the society in the form of increased costs to the legal system. An example of low-trust society is Taiwan, which has on average smaller organizations than for example USA (Fukuyama op.cit).

Dinda (2008) defines social capital broader, “containing the social norms and networks that generate shared understandings, trust and reciprocity, which underpin co-operation and collective action for mutual benefits”. He argues that trust is

empirically linked to economic growth through schooling. This is due to the fact that schooling, especially primary schooling for poor people, increases the level of trust. As shown in Figure 5.5, extra years of schooling increases the level of trust, while Figure 5.4 suggests that the level of trust causes increase in economic growth. By examining this link, his evidence concludes that each extra year of schooling may provide additional growth rate for an economy from 0.13% to 0.22 % through creating trust.

Figure 5.4: Trust and Economic Growth

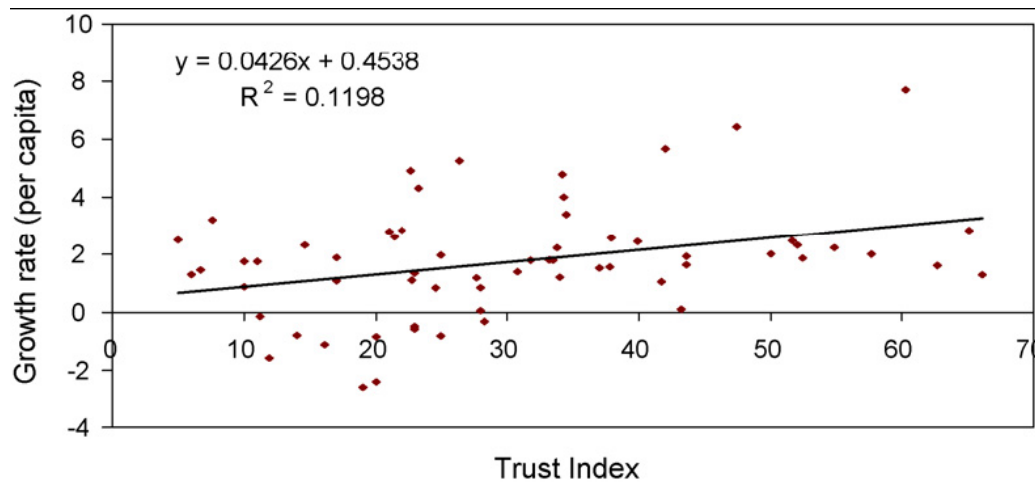
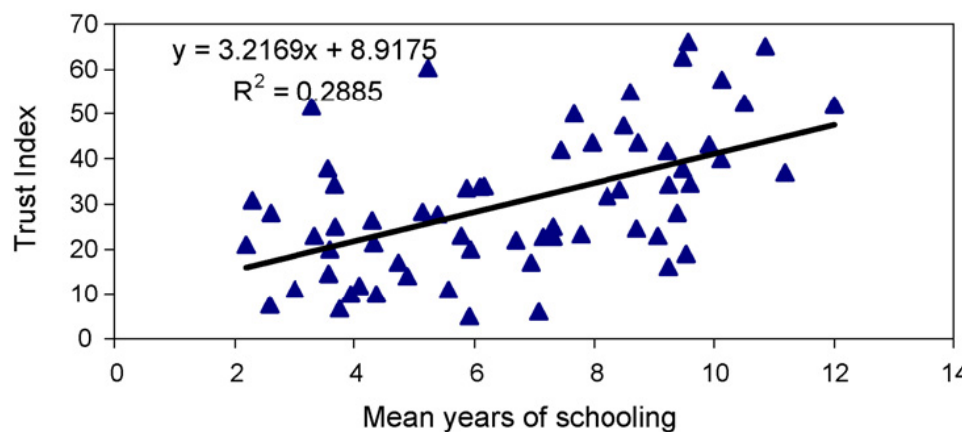


Figure 5.5: Mean Years of Schooling and Level of Trust



Social capital is linked to culture in the way that it consists of specific traits or values inherent within a specific group. It also shows that different cultures in the same country can have social capital as long as they share same traits, as the example of

USA shows. In this way, multiculturalism does not have to signify that the society can not perform well economically, and this questions to which extent trust is a cultural variable. However, there are also several examples of how specific groups perform different economically than other groups in a society, such as Chinese, Indian and Jewish Diasporas in various countries. These cases of Diasporas strengthen the social capital theory, since Diasporas usually are affected by the same political and economical factors as the local populations. However, in the case of Diasporas, it is possible that thick trust (trust in family networks) and not interpersonal trust plays a larger role. Although social capital mainly concerns the level of trust in a society, Fukuyama (1995) also states that the ability to form networks is closely related to trust, and does not investigate the causality between these factors.

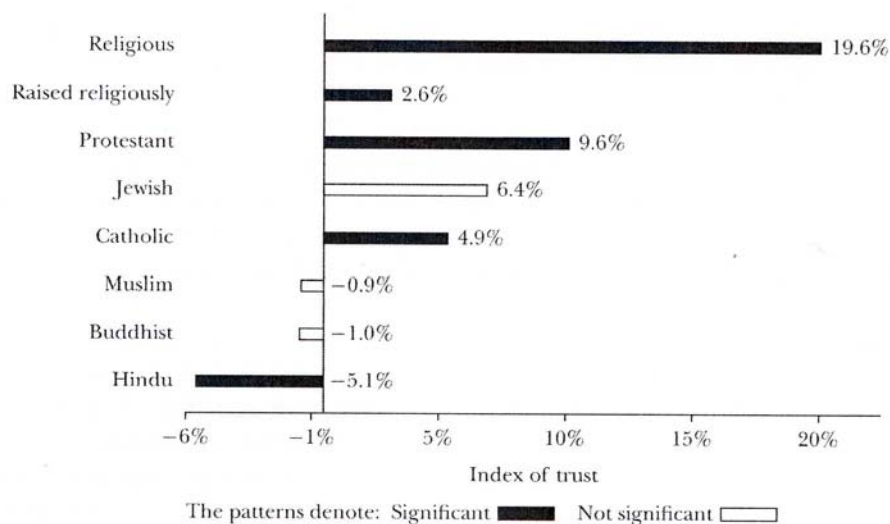
Moreover, the notion of “social capital” could be applied to any society or culture which experiences relatively high economic growth without external stimulus such as state intervention. Therefore, it is important to state that the basis of social capital is reduced to a single trait, which is trust. It may be difficult to establish causality between trust and economic growth, as trust can not be observed directly and is difficult to measure. Fukuyama (1995) uses the ability to create organizations, pooled investments and willingness to give credit as factors which measure the level of trust in a society.

It is still vital to show that there is a clear functioning between trust and economic performance. Links between trust and economic action is more precisely indicated by Gambetta (2003), who argues that trust is “the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action”. This may thus be easier to incorporate into economic models. Roth (2009) argues that increased trust simply reduces the transaction costs in economic systems. If these are part of the production costs, the production function gives that high-trust societies should produce a higher output than low-trust societies. Guiso, Sapienza and Zingales (2006) point out that trust is important when transactions include an unknown counterpart, the transaction takes place over a period of time, and legal protection is imperfect. On the micro level, trustworthy individuals will have a comparative advantage in becoming entrepreneurs, because many of their contracts may be incomplete and rely on trust. Putnam, Leonardi and Nanetti (1993) describe four links

between trust and economic performance: i) it facilitates coordination and cooperation for mutual benefit, ii) it solves dilemmas of collective action, iii) it reduces the incentives for opportunism, and iv) it reduces egoism.

Guiso, Sapienza and Zingales (2003) has studied how trust may vary with different cultural variables. Figure 5.6 shows how trust is affected by religion, after controlling for demographic variables such as health, gender, age, education, social class and income. For example, they find that if a person defines himself or herself as “being religious”, it raises the level of trust by 19,6 %. Persons who define themselves as Protestants are also more likely to have more trust in others than those who define themselves as Hindus.

**Figure 5.6: Effect of Religion on Trust**



In Guiso, Sapienza and Zingales (2006), they examine the effect of ethnic background on trust, for individuals living in USA with a different ethnic background than Great Britain. As Figure 5.7 shows, only those with background from the Scandinavian countries have significantly higher trust in others than the average, while several other ethnic backgrounds have significantly lower trust in others than the average. More interestingly, Figure 5.8 shows that there is a positive correlation of 0.6 between the level of trust for an ethnic background and the trust level for the actual country. They conclude that this supports the idea that trust is a cultural component, and that both culture and trust is transmitted to generations over time, although the population

changes its environment. They also conclude that evidences show that there is causality from culture and trust to economic outcomes, and not vice versa.

Figure 5.7: Effect of Ethnic Background on Trust

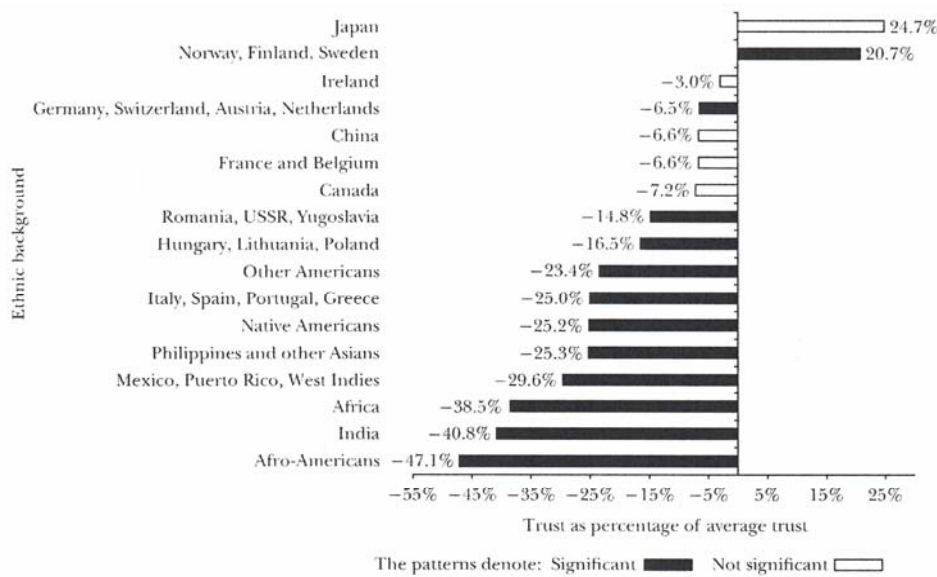
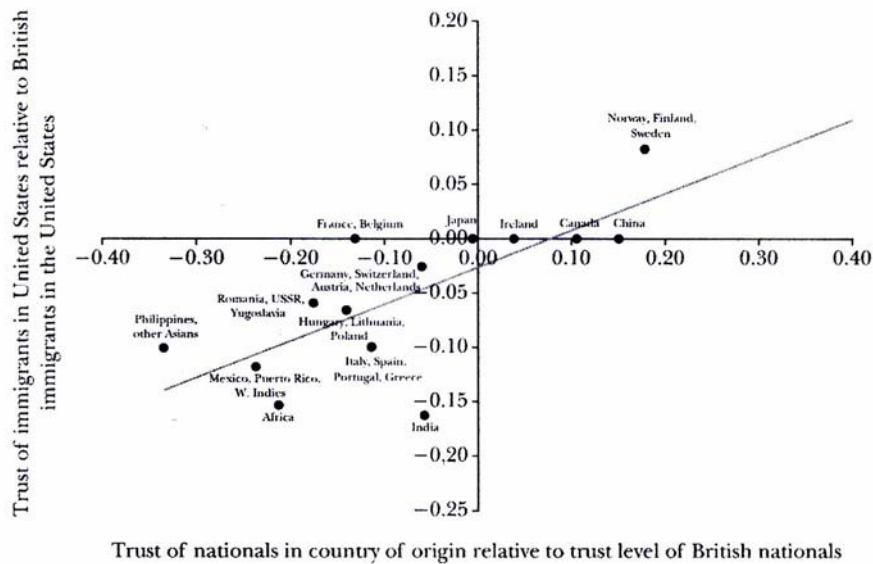


Figure 5.8: Correlation, Trust of Country of Origin and Trust of Immigrants



A limitation of trust is that, although considered a part of culture, it can be interpreted as a cultural variable that is not inherited. People can develop trust because of the

quality of the legal system or as a result of strategic interactions (Axelrod, 1984, cited in Guiso, 2006). Fukuyama (1995) also shows that the level of trust in a culture may vary over time, for example in USA.

Although many studies show a positive effect of social capital on economic growth, there are examples of the opposite. Olson (1982) argues that collective action may undermine the state's power to implement reforms that are beneficial for economic growth. This is because societies may develop collusions or organizations of collective actions, which reduce economic efficiency. Heliwell (1996, cited in Roth, 2009) found a negative relationship between trust and productivity growth for 17 OECD countries. By studying changes in trust, Roth (2009) finds that economic growth is negatively related to an increase in trust. However, for countries with low initial level of trust, an increase in trust leads to an increase in economic growth. For countries with a high initial level of trust, an increase in trust leads to a decrease in economic growth. This suggests that the effect of trust on economic growth is diminishing.

### **5.3 Politics and Governance**

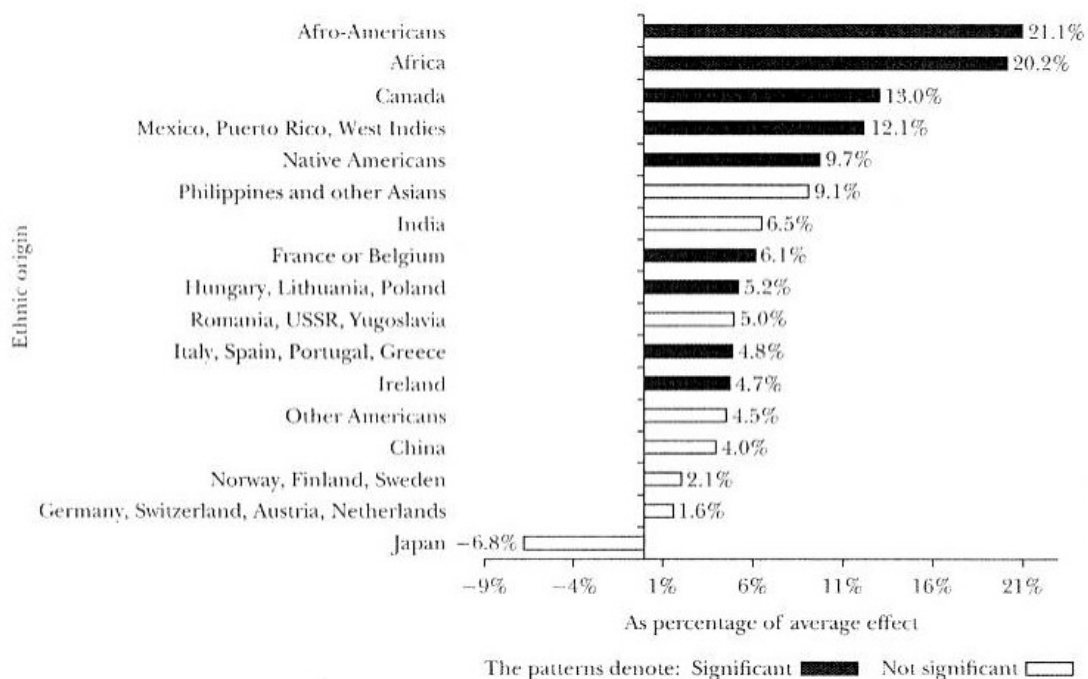
Economic policy is a key factor in creating economic development (Ray, 1998). Different countries pursue different economic policies, and the choice of political system may be an important determinant of economic policy. For example, economic growth is more stable in democracies, while non-democratic countries have very different rates of economic growth (Ray, 1998)

However, preferences for politics may be culturally biased. A natural observation is that different states have different preferences for a political system, therefore, national culture may have an effect. If this is the case, this may cause that some political systems persist longer in some countries, even if they are less conducive for economic development.

Historically, Landes (1999) argues that European societies had a cultural preference for democratic systems from early periods. The ancient Greeks were regarded as the inventors of democracy, and were also distinguishing between free and unfree. Later, the Roman Empire continued this with the ideas of the republic. Although both of these empires became autocratic in the end, these ideals were passed on and survived in Europe into the medieval period. Asian and Arab societies, on the other hand, did not have this legacy. Therefore, autocratic political systems were more tolerated in empires like China and Middle East empires. In Europe, democratic ideas were also coupled with other distinct traditions that especially supported institutions of private property, like the Judeo-Christian tradition. Lastly, the ideas for modern democracy were also established in Europe, namely in France.

In a study of USA and political preferences, Guiso, Sapienza and Zingales (2006) argue that several cultural aspects have an effect on what individuals prefer in political issues like competition, market and income regulation, redistribution and social security programs. For example, Figure 5.9 shows that ethnic background may have a significant effect on preferences for income redistribution.

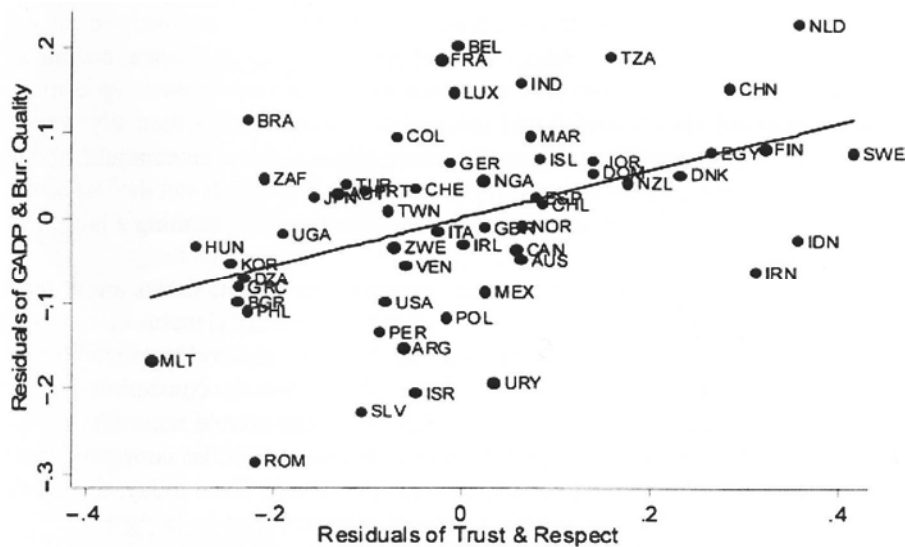
**Figure 5.9: Ethnic Origin and Preferences for Income Redistribution**



Alesina and Glaeser (2004) show a positive correlation between the proportion of people who believe that luck determines income, and the relative spend on social welfare in that country. Papaioannou and Siourounis (2008) argue that democratization may be blocked by religions that have a strong hierarchical structure and dogmas characterized by an unchallenged hierarchy. However, they do not discuss whether this is caused by religion as an institution or by religion as a cultural trait. Huntington (1991) argue that Catholic, Orthodox, Muslim and Confucian societies are more hierarchical and resistant to change, and also point to the fact that the Catholic Church has less prejudices towards representative rule after the mid-seventies, while Muslim societies focused more on religious tradition after this period.

Tabellini (2008) has regressed values of governance and bureaucratic quality against values of trust and respect. Figure 5.10 shows a positive relationship between these values and good governance. For example, the Netherlands and Italy are at comparable levels of development, but over half their difference in governance can be explained by differences in the values trust and respect.

Figure 5.10: Governance and Culture



Overall, it is therefore plausible that there are some cultural preferences for different political systems. A difficulty of measuring this is of course that political systems may change fast in modern times, i.e. in months or weeks, while the cultural preferences



do not. Therefore, it is more viable to say that political preferences rooted in culture may affect economic growth if they inhibit political change. Still, it will be challenging to establish causality in this matter.

## **5.4 Institutions and Organizations**

The quality of institutions is one of the main determinants of economic growth in the long term (Rodrik et al., 2002). Therefore, it is important to investigate to which extent cultural variables may affect institutions, both their quality and their functioning.

Institutions may be formal or informal, economical or political. Institutions may affect economic life in various ways, especially in protecting property rights, affecting the corruption level, enforcing rule of law and reducing transactional costs. However, Hagen and Pedersen (1999) argue for the opposite causality, since poverty in itself is a barrier towards developing good institutions, because the elite may increase their wealth by maintaining bad institutions.

Greif (1994) argues that culture plays an important role in how institutions are established. He shows how cultural differences between Genoese and Maghribi traders in the late medieval period led them to develop different institutions, and that the same institutions were important in later development. The Genoese traders were individualistic, while the Maghribi traders were collective. The individualistic trait of the Genoese led to the development of formal enforcement institutions which allowed anonymous exchange, which again increased the efficiency of the whole society. The collective trait of the Maghribi did not lead to institutions that increased efficiency for the rest of the society.

Tabellini (2008) introduces limited and generalized morality as a cultural trait to explain difference in institutional quality. Limited morality refers to that in hierarchical societies, codes of good conduct and honest behaviour are confined to small circles of related people, like the family. Outside of this small network,

opportunistic and highly selfish behaviour is regarded as morally acceptable. This contrasts generalized morality in many modern democratic societies, where abstract rules of good behaviour apply to many social situations, and not just in a small network of personal friends and relatives. Moreover, he argues that good government is more likely to arise if the individuals have norms of generalized morality. It increases the quality of institutions through three channels: Easier law enforcement due to more law-abiding citizens, bureaucrats are more likely to refrain from corruption, and voters demand higher standards of behaviour from political representatives.

By looking at the institutions in former colonies, Acemoglu, Johnson and Robinson (2001) find that today's economic level of these former colonies is largely correlated to the quality of the institutions which were established by European settlers. Here, quality means whether the institutions were extractive and transferring wealth to the colonizer, or if they enforced rule of law and encouraged investments. La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999) argue that it was the country of origin of the settlers which decided how the institutions were formed. British settlers were able to establish institutions that stimulated growth, while French, Spanish and Portuguese settlers established extractive institutions. This is ascribed to the cultural differences between these countries, especially religious differences like Protestants and Catholics. This does not exclude the possibility that it was the actual conditions in the colonies that decided the quality of institutions, for example that most colonies with low-quality institutions were tropical and had high settler mortality rates, and those with high-quality institutions were not (Acemoglu et al., 2001).

La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999) find two cultural indicators of good governance through institutional quality. Culturally homogeneous countries, measured by variety in languages, have better governments than heterogeneous countries. In addition, predominantly Protestant countries have better governments than predominantly Catholic or Muslim countries. Landes (1999) also argues that Catholic and Muslim religions have been hostile to institutional development.

Many of the studies that find cultural reasons for institutional quality, only compare differences on country-level, and therefore only national culture can be said to have

an effect. However, Tabellini (2005) has studied 69 regions in 8 European countries, thus looking at a closer level than the country-specific. He finds that two cultural traits has affected the political institutions positively in terms of economic growth, these are trust and respect (a part of social capital as described in chapter 5.2), and feeling in control of one's life.

A given type of institution does not have to be beneficial for economic development in every country. Importantly, Greif (1994) points out that the same formal institutions can function very differently in the same country because of local cultural differences. For example, the judicial system works much slower in Southern Italy than in Northern Italy, even the legal system and the legal path for judges have been unchanged for 150 years. In South American countries, the adoption of the U.S Constitution did not lead to democracy (North, 1991). This also indicates that the causality goes from culture to institutions, and not the opposite way

## **5.5 The Hofstede Framework**

Between 1967 and 1973, Geert Hofstede collected data in the large multinational corporation IBM as part of an employee attitude survey. These data were the results of more than 160.000 questionnaires from 72 countries. The goal of the survey was to map employee values. The data were then analysed later by Hofstede to find systematic differences across the nationalities of the respondents. Later, Hofstede did similar studies with university students and other companies, and the results were presented in the research book *Culture's Consequences* (1980). Five unique cultural dimensions were identified. Hofstede named these "Power Distance", "Uncertainty Avoidance", "Individualism", "Masculinity", and "Long Term Orientation".

Power Distance refers to the degree of human inequality in a society. This means the extent to which members of a society accept that power is distributed unequally. Organizations in countries with high power distance have typically a hierarchical organization chart, and salary differences are high between the lowest and highest positions.

Uncertainty Avoidance refers to a society's tolerance for uncertainty and ambiguity. This means that organizations in countries with high uncertainty avoidance will rely more on formal rules to avoid ambiguity. Cultures with high uncertainty avoidance have a higher search for absolute truth, while cultures with low uncertainty avoidance are more relativist.

Individualism refers to the extent to which members of a society associate themselves with a group. Individualistic societies expects the individual to look after himself and then his/her family.

Masculinity refers to the distribution of roles between the genders. Men in masculine societies are assertive, competitive and their values are maximally different from women's values. In societies with low masculinity, men and women's values are more similar.

Long Term Orientation was theorized from a questionnaire developed by Chinese scholars to university students. The reason for this was that arguments were made against the IBM questionnaire for containing western ethnocentrism. Although originally referred to as Confucian values, they refer to values which are found in all societies. Long-term oriented societies value thrift and perseverance, while short-term societies emphasize tradition and fulfilling social obligations.

### **5.5.1 Hofstede's Links Between Culture and Economic Growth**

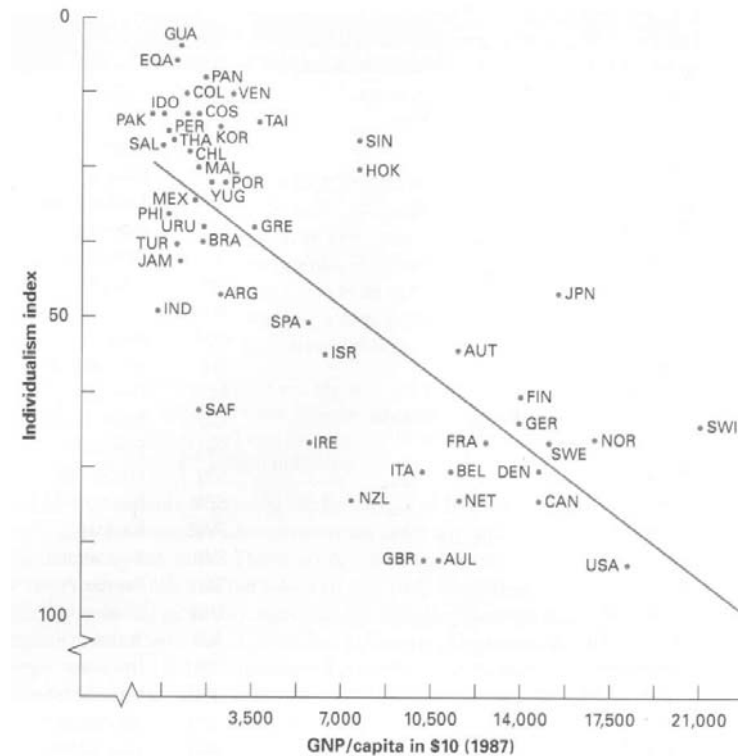
Significant correlations have been found between Hofstede's variables and a multitude of national economic variables. For example, power distance is correlated with income inequality in a country, and masculinity is negatively correlated with the share of GNP used on development assistance to the Third World (Hofstede, 1994).

This includes variables of economic development. Initially, the first links were found by Hofstede (1980), and showed a correlation between the Long Term Orientation and economic growth for a 25-year period. He also found significant relationships of economic growth with Individualism and Uncertainty Avoidance, in the period

between 1960 and 1970. However, this was only for countries with high economic wealth.

As viewed in Figure 5.11, Individualism was found to be negatively correlated with economic growth, contrary to what one might expect. Intuitively, one might assume that when individuals were more inclined to follow their will, decision-making would be more rational in an economic sense.

**Figure 5.11: Individualism and Economic Wealth**



Uncertainty Avoidance was found to be positively correlated to economic growth, which is also contrary to what one might expect. One might assume that countries that were flexible and adaptive would experience a higher economic growth.

A reason for these differences in growth might be that countries with a high economic level experiences lower growth rates due decreasing marginal product of capital and labour (Franke et al., 2002). The fact that individualistic and low uncertainty-avoidance countries comprised a cluster of wealthy countries still indicated that these factors had played a role for getting to those economic levels. Most importantly, none of the factors were significantly correlated with economic growth when the sample included the poor countries.

In another study, Hofstede and Bond (1988) investigated Long Term Orientation, and found that it was positively correlated with economic growth between 1965 and 1985. A reason suggested for this was that planning for the long term might lead to increased savings, larger investments, or both. Some of the highest values of Long

Term Orientation are found in South-East Asian countries, and Hofstede and Bond used this to explain why some Asian countries are referred to as growth miracles, while others stagnate. However, they also admit that culture is only a part of the explanation, and is not sufficient alone to explain economic growth.

Franke, Hofstede and Bond (1991) provided a deeper analysis of the Hofstede data on two different time periods, 1965-1980 and 1980-1987. The sample was limited to 18 countries, for which a complete dataset of cultural variables were available. The study found that national cultural variables accounted for more than half of the differences in economic growth for the two periods. Most significant was Long Term Orientation, followed by Individualism. In addition, Power Distance was found to be negatively correlated with economic growth for the second period, suggesting that more equality in organizations increases performance.

Lastly, Johnson and Lenartowicz (1998) find that Uncertainty Avoidance is negatively associated with economic growth, by negatively affecting economic freedom.

### **5.5.2 Criticism of Hofstede's Findings**

A main criticism of Hofstede's findings is that although he admits that culture is not enough to explain economic growth, no attempt is made to incorporate other variables (Yeh and Lawrence, 1995). There must be other parameters that are more directly linked to economic growth. Therefore, other factor from economic growth theories should be taken into account as well, at least as a background to evaluate which of these parameters that cultural variables may have an effect on.

In addition, Yeh and Lawrence (1995) argue that some of Hofstede's variables are correlated, and can therefore not be applied as separate determinants for growth. Responding to this, Franke, Hofstede and Bond (2002) argue that their main focus was to suggest that cultural variables do play a role in economic development, and admit that further research is needed.

## **PART III**

### **6 Introduction**

After reviewing literature on the scope of this thesis, this part will continue with empirical research.

The main focus of this thesis is a literature review. Much of the literature reviewed have used quantitative analysis in the research and suggested similar follow-up issues, and this should imply that further quantitative analysis is valid. Due to resource limits of this thesis, the empirical analysis will not be exhaustive and does not seek to fully explain this relationship, but will instead point at important data which may support or contrast some of the findings outlined in the literature review.

Since the literature review has found several links between cultural values and economic growth, I will select a few to investigate further. By doing this, it is clear that the economic effects of culture in its full meaning will not be empirically tested in this part. Hence, the specific goal for this analysis is to investigate relationships between a selection of cultural variables and economic development.

The research will be conducted using six hypotheses as research questions, with subsequent analysis of the data. Based on the literature review, I have selected a few cultural variables which have been shown to be linked with economic performance, and these are:

- **Trust**: From social capital theory, trust emerges as the main cultural significant variable.
- **Individualism, Uncertainty Avoidance and Long Term Orientation**. These are the most significant of Hofstede's variables for economic growth.
- **Religion**: Four religious denominations are included; Protestantism, Catholicism, Islam, Buddhism, as well as variables for general religiosity.

The research questions are listed briefly below:

Hypothesis 1a: There is a positive relationship between trust and economic growth.

Hypothesis 1b: The relationship depends on the type of trust.

Hypothesis 2a: There is a negative association between Individualism and economic growth.

Hypothesis 2b: There is a negative association between Uncertainty Avoidance and economic growth.

Hypothesis 2c: There is a positive association between Long Term Orientation and economic growth.

Hypothesis 3a: Economic growth is associated with the type of religion.

Hypothesis 3b: There is a negative association between religiosity and economic growth.



## **7 Method of Analysis**

For analysis, I will first examine the selected variables using correlational analysis. This will indicate basic relations between growth and cultural variables. As many researchers have pointed out (e.g. Johnson and Lenartowicz, 1998), a model seeking to explain economic growth that does not incorporate variables such as the economic environment, political system and stability, education, investments and institutions, will not capture important explanatory variables from growth models, and will thus be underspecified. This is also the reason that many of the literature references, i.e. Franke, Hofstede, and Bond (1991), have applied correlational analysis.

Subsequently, I will use Ordinary Least Squares (OLS) regression to investigate the variables further in the context of a model explaining economic growth. To mitigate the problem of underspecification I will include explanatory variables which are common in economic growth models. These are initial GDP, education level, savings, trade level, and institutional quality. The role of these variables in economic growth is discussed in chapter 4. Several researchers, for example Barro and McCleary (2003), use this method to investigate cultural factors in relation to economic growth.

Another methodological option could be indexes of countries, based on their cultural possibilities for improving economic performance, growth, or competitiveness.

A pitfall of using OLS-regression in this case is that the dataset might be skewed, as data may exist for a specific group of countries, e.g. wealthier parts of the world. Ideally, the dataset should contain data for all countries to increase significance. However, due to limitations of the surveys used, the dataset is reduced to the countries for which all observations exist. This may exclude countries which could have changed the results if included.

OLS-regression must also satisfy several required conditions (Keller and Warrack, 2003), for which I will examine the regressions carried out. Importantly, the error variable must be normally distributed (normality) and have a constant variance

(homoscedasticity). Since the data are cross-sectional for one period and not time series, I do not check for autocorrelation. Lastly, the explanatory variables are examined to check for multicollinearity. This is due to the fact that two variables may measure the same aspect, which means that using both variables does not add explanatory power or make them less significant. Therefore, I include a correlation matrix of the selected cultural variables.

## **7.1 Data and Regression Variables**

### **7.1.1 Dependent variables**

As an indicator of economic performance, I use GDP growth as the dependent variable.

The period chosen is 1970 – 2006, as this period has the most complete dataset from the World Economic Indicators Database for the countries studied. A problem of selecting period is that economic growth may vary significantly in the long term for a single country. For example, China has experienced one of the highest growth rates in the last decade. However, China had virtually no economic growth from 1450 to 1850 (Ray, 1998). In the 20<sup>th</sup> century, significant economic growth has only taken place after WWII (Ray, 1998), and has increased only the during the last decades. Thus, cultural variables for China may be deemed as feasible or infeasible for economic growth depending on the chosen period.

In the short term, economic growth also varies with business cycles (Burda and Wyplosz, 2005). Therefore, a chosen period may contain recessions for some countries and booms for other countries, which causes data to be skewed. It is therefore important that the period is long enough to contain the growth trend which the business cycles vary around. The chosen 36 year period should be long enough to rule out business cycles as a source of skewed data.

I will use two variants of GDP growth:

*Average annual growth rate of GDP:* Data for economic growth is sourced from the World Development Indicators Database (worldbank.org). The variable is calculated as the average of the growth rates for all years.

*Average annual real growth rate of GDP:* Since GDP measures the value of production in continuous prices, inflation may inflate the GDP value artificially, without there being a real increase in production. Therefore, I will also use real GDP growth as a dependent variable. Data for nominal GDP and GDP deflator is sourced from the World Development Indicators Database. From this, real GDP is calculated as

Real GDP = (nominal GDP) / (GDP deflator).

Subsequently, the average annual real growth rate is calculated as

$$\text{REALGDPGROWTH} = 1/37 \times \ln(\text{REALGDP2006}/\text{REALGDP1970})$$

where REALGPD2006 is the calculated real GDP in year 2006, using the method above.

This leads to fewer observations for the average annual real GDP growth, since some countries lack data for GDP deflator for some years.

In addition, I will also use GNI per capita for 2006, adjusted for purchasing power. Since the Solow model predicts that poor countries grow faster than rich countries, indicating convergence, countries with low GNI should also have higher growth rates. Data is sourced from World Development Indicators Database.

### **7.1.2 Independent variables**

The independent variables are to measure different cultural factors. As mentioned earlier, culture is an ambiguous term depending on the definition and population, and

thus difficult to measure, and it is virtually impossible to capture the culture in one single variable. In this section, the cultural variables are on a national level.

Due to time and resource limitations of this thesis, I use secondary data instead of collecting primary data. The independent variables are sourced from the World Values Survey 2005 ([worldvaluessurvey.org](http://worldvaluessurvey.org), referred to as WVS). This surveys various values for 52 countries for a representative sample of each population. The idea is that differences in the samples give information about of the aspect of national culture I want to investigate, for example “trust in most people”. These variables will thus act as proxies for specific traits of the national culture.

The strength of using this method is that I can isolate which parts of the culture that may affect economic growth.

A clear weakness is that the validity of the study is limited to the extent that the variables actually measure cultural aspects and are able to show cross-cultural differences. Two countries which have the same value score for one of the variables in the survey may not be viewed to be culturally similar. Another weakness of using this method is that it is difficult to catch interactions between the survey variables, as there are many survey questions related to the concept of trust. Choosing different variables for trust may yield different results.

There may also be measurement problems due to the fact that individuals may have been affected by the survey situation when answering the questionnaire. Individuals may also have exaggerated their real values. Lastly, the samples may not be representative for the total national populations, since they may be geographically, socially or ethnically skewed.

I also use Hofstede’s cultural variables Individualism, Power Distance, Uncertainty Avoidance, Masculinity and Long-Term Orientation. Data is sourced from the Geert Hofstede web site ([geert-hofstede.com](http://geert-hofstede.com)), including observations for 69 countries.

To measure religiosity, I use variables from World Values Survey 2005, measuring variables for religious denomination and general religiosity.

The standard economic growth variables used in the regression model are explained in Appendix 1.

## **8 Research Questions**

### **8.1 Trust and Economic Growth**

*Hypothesis 1a: There is a positive relationship between trust and economic growth.*

*Hypothesis 1b: The relationship depends on the type of trust.*

Social capital has been an important cultural factors of economic growth, and especially Fukuyama (1995) stresses that general trust is an essential part of the social capital theory. Therefore, there is scope to test these results, and also to investigate different types of trust than the concept of Fukuyama's general trust.

I use variables from WVS which shows the percentage of the sample answers to the following questions:

- "Most people can be trusted". Answer: Strongly agree.
- "How much do you trust your family?" Answer: Completely.
- "Confidence in government". Answer: A great deal.
- "Confidence in civil services". Answer: A great deal.

The first variable may be the closest to act as a useful proxy for the concept of "general trust" in social capital theory. The last two questions may act as a proxy for trust in organizations, and are therefore interesting to include to see if they produce different results and to investigate Hypothesis 1b.

**Table 1: Correlation Matrix – Trust and Economic Development**

	GDP growth	Real annual GDP growth	GNI per capita 2006	Trust in most people	Trust in family	Confidence government
Trust in most people	0.09 50	0.49* 30	0.58* 49			
Trust in family	0.06 46	0.16 29	-0.07 46	0.18 47		
Confidence government	0.29** 48	0.09 29	-0.47* 47	-0.14 49	0.24*** 45	
Confidence civil services	0.39* 49	0.07 30	-0.48* 49	-0.13 50	0.22 47	0.92* 48

Notes: Pearson Correlation Coefficient above number of observations.

\*\*\* Significant at the 1-percent level \*\* Significant at the 5-percent level \* Significant at the 10-percent level. 1-tailed significance levels.

**Figure 8.1: Trust in Most People and Real Economic Growth**

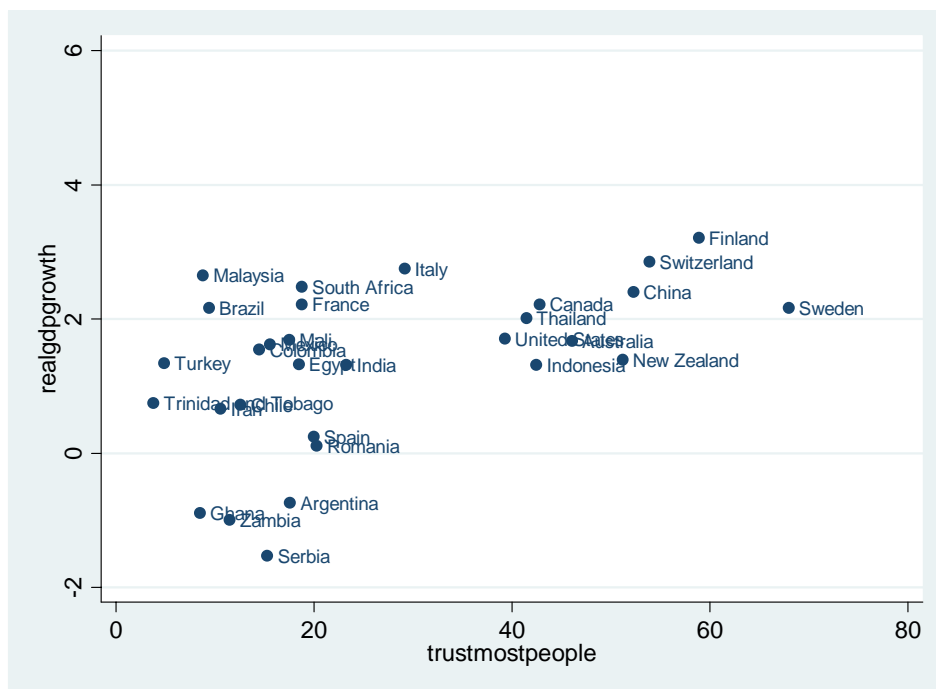


Table 1 shows that “Trust in most people” is highly significant for both real GDP growth and GNI, while trust in family is not. This supports the social theory claim that general trust is a cause for economic growth. In addition, confidence in government and civil services is significantly correlated to GDP growth.

Only trust in family is not significantly correlated. The reasons for this may be several. It is quite plausible that people in low-GNI countries are more dependant of their family and therefore trust them more. Once caught in this situation, it may also be harder to raise investment level since the family relies on the support from rich individuals. Hence, future investments have a high discount rate, and money is more easily spent today instead of saved and invested. Therefore, this situation may be self-enforcing. For high-income countries, the need to trust family may be less because individuals rely less on family. Since the variable does not seem to be related to economic development, it is omitted from the following regression analysis.

Overall, the results from the correlation matrix support Hypothesis 1a. They also support Hypothesis 1b, as institutional trust is positively correlated to average growth and GNI, while general trust is not. For real growth, only general trust is positively correlated.

Next, the role of trust will be examined in the regression model for growth.

## Regression analysis

**Table 2: Regression results - Trust and Economic Growth**

Regression results explaining economic growth. Cross-country study.

Dependent variables in column 2 and 3. Period 1970-2006.

Table shows Coefficients, Standard Deviations are in parenthesis

	Average annual real GDP growth	GNI per capita 2006
Trust in Most People	0.03(0.014)*	-67.92(76.315)
Confidence in Government	0.02(0.039)	-299.06(189.219)
Confidence in Civil Services	0.01(0.057)	202.24(323.361)
GDP per Capita 1970	-0.01(0.001)	5.57(1.224)
Secondary School Enrolment Rate (gross)	-0.03(0.016)	106.7(65.971)
Savings Average (percentage of GNI)	0.08(0.028)**	265.09(155.756)*
Trade Openness (Trade as percentage of GDP)	-0.01(0.008)	73.56(24.569)***
Bureaucratic Quality	0.67(0.203)***	1395.94(986.937)
Number of observations	24	31
R-squared	0.69	0.91

Notes: \*\*\* Significant at the 1-percent level \*\* Significant at the 5-percent level \* Significant at the 10-percent level

## Regression Diagnostics

To test for heteroscedasticity, I use White's test with Lagrange Multiplier test, which applies  $R^2 \times n$  as test statistic (Brooks, 2002):

White's test for  $H_0$ : homoskedasticity

against  $H_a$ : unrestricted heteroskedasticity

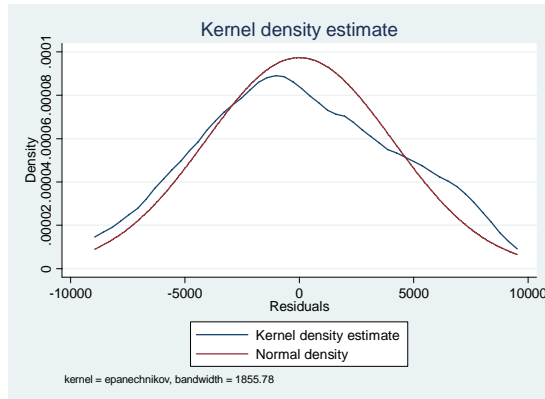
Real annual GDP growth	GNI per capita 2006
chi2(23) = 24.00	chi2(30) = 31.00
Prob > chi2 = 0.4038	Prob > chi2 = 0.4154

The p-values indicate that the assumption of homoscedasticity is not violated.

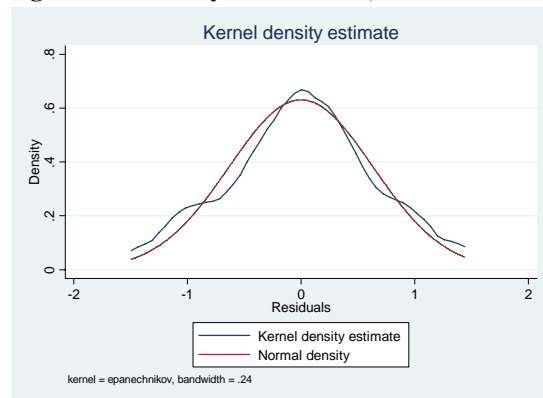


Figure 8.2 and Figure 8.3 show the distributions of residuals compared to a normal distribution (red line). They indicate that the assumption of normality of the residuals is not severely violated.

**Figure 8.2: Density of Residuals, GNI per capita**



**Figure 8.3: Density of Residuals, Real Growth**



**Table 3: Correlation Matrix - Explanatory Variables, Trust**

	GDP1970	Secschool	Savings	Trade	Bureauqual	Trustmostp	Confgov
Secschool	0.69						
Savings	0.27	0.46					
Trade	0.05	0.28	0.35				
Bureauqual	0.70	0.75	0.42	0.15			
Trustmostp	0.61	0.44	0.37	0.10	0.49		
Confgov	-0.51	-0.51	-0.02	0.04	-0.63	-0.14	
Confcivilser	-0.51	-0.54	-0.11	-0.03	-0.65	-0.13	0.93

Table 3 shows that multicollinearity is an issue for some of the variables. This may cause the variables to be not significant because the standard deviations become wider, although the total fit  $R^2$  of the model is good. To solve the problem, variables may be dropped. However, since there are strong a priori reasons for including the standard growth variables in the model, dropping them may not be feasible (Brooks, 2002). A probable cause for errors may be the data itself and not the model, since there may be a lack of sufficient data because observations are few. Importantly, the two variables for institutional trust are correlated, but none of them are highly correlated with “trust in most people”. They are to some degree correlated to bureaucratic quality, education and initial GDP. Even with multicollinearity present, general trust is a significant explanatory variable, hence, making conclusions about Hypothesis 1a is still possible.

## **Discussion**

The results indicate that trust seem to be related to economic growth. However, only the variable for general trust was significant. The variables for institutional trust were not significant, contrasting the results from the correlation analysis.

Hypothesis 1a is still supported, which means that there is a positive relationship between trust and economic growth.

The regression results also support Hypothesis 1b, as none of the other trust variables were significant. This might be a problem of multicollinearity, but dropping one of the variables for institutional trust does not make any of them significant. Thus, only general trust seems to explain economic growth.

These results support the social theory claim that it is general trust which is beneficent for economic development. The variable result for “trust in most people” is consistent with the notion that generalized trust makes it easier for a society to cooperate, develop organizations and lower transaction costs.

A relevant question is if people develop generalized trust as a result of wealth. Fukuyama (1995) argues that generalized trust is a variable that changes slowly in a society, indicating that causality is from trust to growth. The regression results show that general trust is not significant for GNI, and that supports this claim of causality.

On the other hand, it seems plausible that it is harder to trust most people if there is high competition over scarce resources, as may be the case for low-GNI countries. In addition, it may be easier to develop trust in others in high-income countries, where it often exists a working legal system which allows people to trust each other without risking too much. The correlation analysis supports this, since there is a positive correlation between general trust and GNI.

## 8.2 Hofstede's Cultural Variables and Economic Development

*Hypothesis 2a: There is a negative association between Individualism and economic growth.*

*Hypothesis 2b: There is a negative association between Uncertainty Avoidance and economic growth.*

*Hypothesis 2c: There is a positive association between Long Term Orientation and economic growth.*

The main findings from the discussion in chapter 5.5 were that Individualism, Uncertainty Avoidance and Long Term Orientation showed a significant relationship with economic development. In the following, I will test these results using the period 1970-2006, using correlational analysis and regression. The hypotheses above express earlier findings. All of the reviewed studies have used shorter periods, and it is therefore scope to investigate the relationship further for long-term growth. In addition, I include the variables Power Distance and Masculinity, since they also have been tested in earlier studies.

**Table 4: Correlation Matrix – Hofstede's Variables and Economic Development**

	GDP growth	Real average annual GDP growth	GNI per capita 2006
Power Distance	0.21	-0.31**	-0.58***
	60	44	60
Individualism	-0.43***	0.33**	0.65***
	60	44	60
Masculinity	-0.06	0.09	-0.03
	60	44	60
Uncertainty Avoidance	-0.18	-0.19	-0.20
	60	44	60
Long Term Orientation	0.37***	0.02	0.01
	60	44	60

Notes: Pearson Correlation Coefficient above number of observations.

\*\*\* Significant at the 1-percent level \*\* Significant at the 5-percent level \*Significant at the 10-percent level. 1-tailed significance levels.

Table 4 replicates the approach used by Franke, Hofstede and Bond (1991) and Johnson and Lenartowicz (1998). Interestingly, Individualism is positively correlated with real growth, which does not support Hypothesis 2a. However, it is negatively correlated with average growth, which would support Hypothesis 2a. Since earlier studies also have used real growth, the result is not as expected. A reason for this might be the increased period, indicating that the real growth rates used in other studies were above growth trend. Another reason might be the difference in the sample size, as the sample size above is smaller.

As expected, Individualism is also positively correlated with GNI. A reason for this may be that individuals in wealthier countries are more individualistic because of larger state welfare and increased possibilities, thus being less reliant on social groups. However, the Hofstede variables are measured in 1970, meaning that the most Individualistic countries in 1970 are the wealthiest in 2006. This suggests that Individualism might be an important determinant after for growth, which strengthens Hypothesis 2a.

As expected, Uncertainty Avoidance is negatively correlated with all indicators, although not at a significant level. The correlation is highest with GNI ( $p=0.12$ ). Thus, Hypothesis 2b is not supported.

As expected, Long Term Orientation is positively correlated with average growth. However, it is not significantly correlated with real growth ( $p=0.9$ ), and the results do therefore not support Hypothesis 2c.

Next, the hypotheses will be examined using the regression model for growth.

## Regression analysis

**Table 5: Regression Results – Hofstede’s Variables and Economic Development**

Regression results explaining economic growth. Cross-country study.

Dependent variables in column 2-4. Period 1970-2006.

Table shows Coefficients, Standard Deviations are in parenthesis

	Average annual real GDP growth	Average GDP growth	GNI per capita 2006
Power Distance	-0.01(0.011)	-0.01(0.01)	-89.48(49.689)**
Individualism	-0.01(0.02)	-0.01(0.02)	124.32(98.685)
Masculinity	0.02(0.012)	-0.01(0.011)	-14.41(54.975)
Uncertainty Avoidance	0.01(0.01)	0.02(0.01)	93.66(46.517)**
Long Term Orientation	0.01(0.011)	0.02(0.011)***	-48.46(52.752)
GDP per Capita 1970	0.01(0.001)	-0.01(0.001)	4.75(1.349)
Secondary School Enrolment Rate (gross)	-0.01(0.016)	-0.03(0.015)*	3.36(75.411)
Savings Average (percentage of GNI)	0.01(0.035)	0.07(0.034)**	300.55(170.84)**
Trade Openness (Trade as percentage of GDP)	0.02(0.008)**	0.02(0.007)**	36.26(35.119)***
Bureaucratic Quality	0.17(0.166)	0.25(0.161)	1836.22(818.427)***
Number of observations	37	46	46
R-squared	0.35	0.62	0.91

Notes: \*\*\* Significant at the 1-percent level \*\* Significant at the 5-percent level \* Significant at the 10-percent level

## Regression Diagnostics

White's test for Ho: homoskedasticity

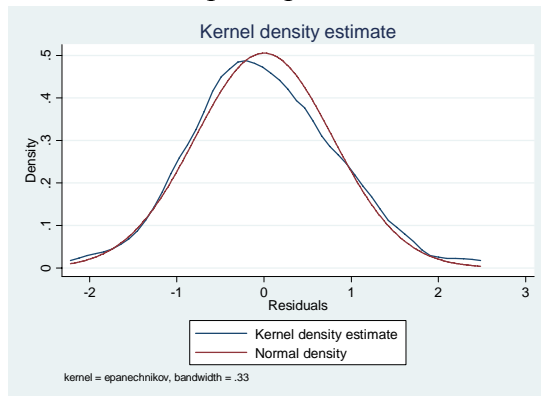
against Ha: unrestricted heteroskedasticity

Real annual GDP growth	Average GDP growth	GNI per capita 2006
chi2(23) = 37.00	chi2(45) = 46.00	chi2(45) = 46.00
Prob > chi2 = 0.4226	Prob > chi2 = 0.4306	Prob > chi2 = 0.4306

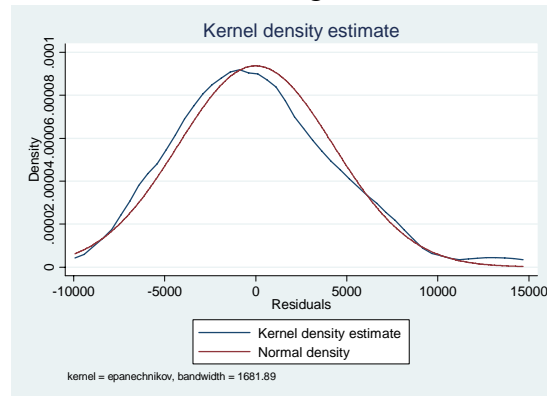
The p-values indicate that the assumption of homoscedasticity is not violated.

**Figure 8.4: Distribution of Residuals, Hofstede’s Variables**

Residuals, GNI per capita



Residuals, Real GDP growth



Residuals, Average GDP growth

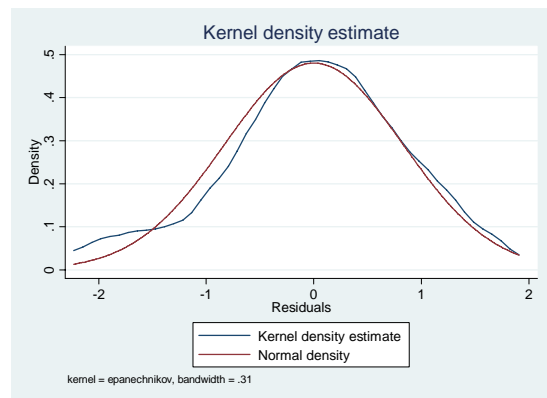


Figure 8.4 shows the distributions of residuals compared to a normal distribution (red line). They indicate that the assumption of normality of the residuals is not severely violated, although some skewness exists.

**Table 6: Correlation Matrix – Explanatory Variables, Hofstede**

	GDP 1970	Secschool	Savings	Trade	Bureauqu al	PDI	IDV	MAS	UAI
Secschool	0.69								
Savings	0.27	0.46							
Trade	0.05	0.28	0.35						
Bureauqual	0.70	0.75	0.42	0.15					
PDI	-0.64	-0.57	0.09	0.07	-0.52				
IDV	0.77	0.77	0.00	-0.05	0.68	-0.64			
MAS	-0.09	-0.08	0.07	-0.06	0.04	0.20	0.03		
UAI	-0.22	-0.06	-0.39	-0.32	-0.29	0.16	-0.21	-0.07	
LTO	-0.07	-0.04	0.36	0.05	0.23	0.12	-0.03	0.11	-0.35

**Discussion**

Table 6 shows that multicollinearity is present. This may lead to low significance for explanatory variables, since the fit  $R^2$  of the model is otherwise good for GDP growth and GNI, however not for real growth. From Hofstede’s variables, only PDI and IDV

are highly correlated. This corresponds to the findings of Yeh and Lawrence (1995), who also argue that IDV cannot be used as explanatory variable in regressions because of multicollinearity. Initial GDP, education and bureaucratic quality are also correlated to IDV and PDI.

This may be a cause for Individualism to be not significant for the any types of GDP growth, which was otherwise expected. Since none of the coefficients for Individualism are significant, Hypothesis 2a is not supported. To solve the problem of multicollinearity for Individualism, Power Distance may be dropped from the regression. However, Individualism is still not significant for any of the dependent when this is done.

The coefficients for Uncertainty Avoidance are positive and significant for GNI. This was not expected, and contrasts to some extent the results from the correlation analysis and earlier studies. Thus, the regression results as well as the correlation results do not support Hypothesis 2b.

The coefficients for Long Term Orientation are significant only for GDP growth. This is not sufficient to support Hypothesis 2c, which was also the conclusion from the correlation analysis.

Interestingly, Power Distance is negatively associated with GNI in both the correlation analysis and regression model at significant levels, even when there are issues with multicollinearity for this variable as mentioned above. It is also negatively correlated to real growth. This makes the relationship between Power Distance and economic growth one of the strongest in the analysis. This contrasts to some extent the results from Franke, Hofstede and Bond (1991), where Power Distance is positively associated with growth for two periods, although only significant for the period 1965-80. A reason for the different result might be that they used a smaller sample, numbering 20 countries.

### **8.3 Religion and Economic Development**

*Hypothesis 3a: Economic growth is associated with the type of religion.*

*Hypothesis 3b: There is a negative association between religiosity and economic growth.*

As explained in chapter 5.1, several researchers have pointed out that the religion of a country may affect economic growth. However, no country has a uniform religion for all its inhabitants, but many countries have a clear majority of a single religion. The majority may also be small or large. If religion is taken as an important cultural factor, it is thus viable to investigate how the religious composition of a country affects the economic performance. That is, are there for example links between the size of the Catholic population and economic performance? This approach is also used by Barro and McCleary (2003), thus there is scope to test these results further.

To investigate this, I use variables of religious denomination from WVS. The variables show the percentage of the sample which belongs to a religious denomination. Only large religious groups are included. The denominations Sunni and Shia are grouped together with Muslim denomination. For these variables, regression analysis as conducted earlier is not suitable because the sample is too small, and the data also has problems with normality as many of the observations are close to 100 % or 0 %. Therefore, only correlational analysis is applied for Hypothesis 3a. In this, I include variables of GDP in 1970 and 2006 to see possible relationships to change in wealth.

In addition, I use variables from WVS which shows the percentage of answers to the questions:

- “Important in life: Religion”. Answer: Very important.
- “Religious person”. Answer: (I am) a religious person.
- “Confidence in churches”. Answer: A great deal.

These three variables will act as three different proxies to measure general religiosity, i.e. impact of religion independent of religion denomination. This is to investigate if



religiosity in general has any effect on economic development. These variables are included in the correlation analysis, and will also be investigated further in the regression model.

**Table 7: Correlation Matrix – Religious Variables and Economic Development**

	GDP growth	Real GDP growth	GDP1970	GDP2006
Protestant share	0.15 39	0.08 23	0.43*** 29	0.39*** 39
Catholic share	0.18 42	0.01 23	-0.01 30	0.12 41
Buddhist share	0.60*** 31	0.21 18	-0.21 23	0.03 31
Islamic share	0.23 42	0.02 25	-0.49*** 31	-0.42*** 41
Religion important	0.11 49	-0.24 29	-0.58*** 37	-0.62*** 48
Religious person	-0.37*** 49	-0.34** 30	-0.35** 38	-0.55*** 48
Confidence churches	0.06 48	-0.25 29	-0.60*** 36	-0.65*** 47

Notes: Pearson Correlation Coefficient above number of observations.

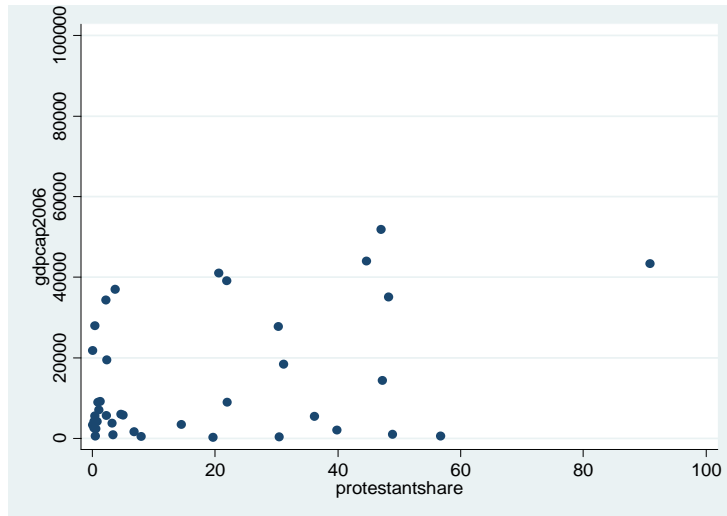
\*\*\* Significant at the 1-percent level \*\* Significant at the 5-percent level \* Significant at the 10-percent level. 1-tailed significance levels.

Table 7 shows that none of the religious denominations are significantly correlated to real growth. Only Buddhist share is correlated to GDP growth. However, significant correlations are found to wealth. The wealthiest countries in both 1970 and 2006 were those with highest Protestant shares, and the poorest countries in both 1970 and 2006 were those with the highest Islamic shares. This indicates that both Protestant countries and Islamic countries have kept different growth rates, although it can not be concluded that the religion have affected the size of the growth rate. Therefore, the results do not support Hypothesis 3a.

A look at the scatter plots in Figure 8.5 and Figure 8.6 reveals that the associations do not appear to be strong, as most of the observations are clustered.

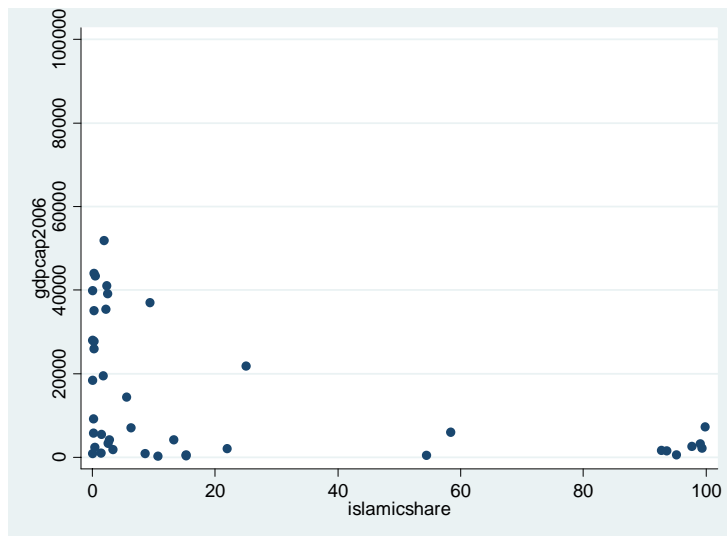
Another useful approach could therefore be a comparison of each country labelled with one of the religious denominations, e.g. the largest religion of the country, with economic development.

**Figure 8.5: Protestant Share and GDP per capita 2006**



For general religiosity, all variables are negatively correlated with wealth, at significant levels.

**Figure 8.6: Islamic Share and GDP per capita 2006**



For real growth, only “religious person” is significantly correlated. As this is a proxy for general religiosity, Hypothesis 3b is supported.

Next, Hypothesis 3b will be examined further in the regression model for growth.

## Regression analysis

**Table 8: Regression Results – Religiosity and Economic Development**

Regression results explaining economic growth. Cross-country study.

Dependent variables in column 2-4. Period 1970-2006.

Table shows Coefficients, Standard Deviations are in parenthesis

	Average annual real GDP growth	Average GDP growth	GNI per capita 2006
Religious Person	-0.01(0.017)	-0.05(0.012)*	21.19(73.421)
Religion Important	0.02(0.019)	0.03(0.014)***	-8.5(85.963)
Confidence in Churches	0.01(0.022)	0.04(0.017)***	-176.14(104.167)***
GDP per Capita 1970	0.01(0.001)	-0.01(0.001)*	5.72(1.049)
Secondary School Enrolment Rate (gross)	-0.02(0.02)	0.01(0.012)	44.5(70.298)
Savings Average (percentage of GNI)	0.08(0.032)**	0.08(0.024)*	283.64(147.534)***
Trade Openness (Trade as percentage of GDP)	-0.01(0.009)	-0.01(0.006)	23.74(32.803)
Bureaucratic Quality	0.67(0.263)**	0.45(0.176)**	591.47(1078.103)
Number of observations	23	29	29
R-squared	0.43	0.76	0.92

Notes: \*\*\* Significant at the 1-percent level \*\* Significant at the 5-percent level \* Significant at the 10-percent level

## Regression Diagnostics

White's test for Ho: homoskedasticity

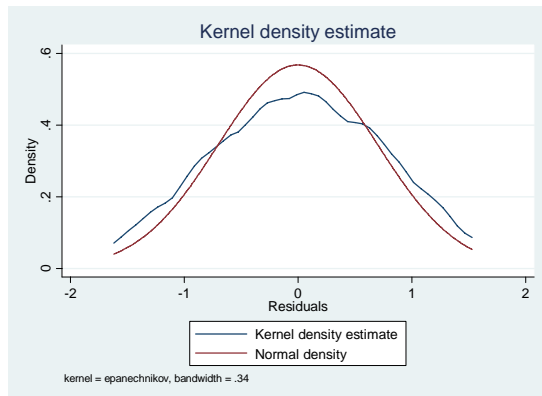
against Ha: unrestricted heteroskedasticity

Real annual GDP growth	Average GDP growth	GNI per capita 2006
chi2(23) = 23.00	chi2(45) = 29.00	chi2(45) = 29.00
Prob > chi2 = 0.4017	Prob > chi2 = 0.4125	Prob > chi2 = 0.4125

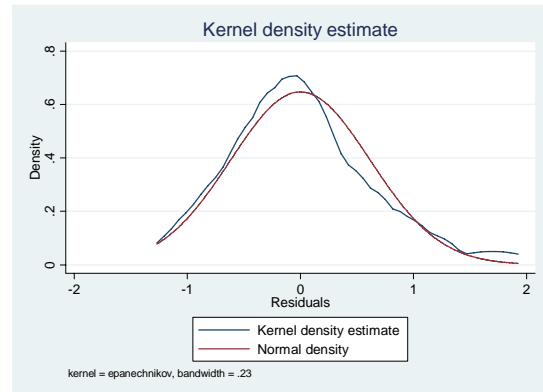
The p-values indicate that the assumption of homoscedasticity is not violated.

**Figure 8.7: Distributions of Residuals, Religious Variables**

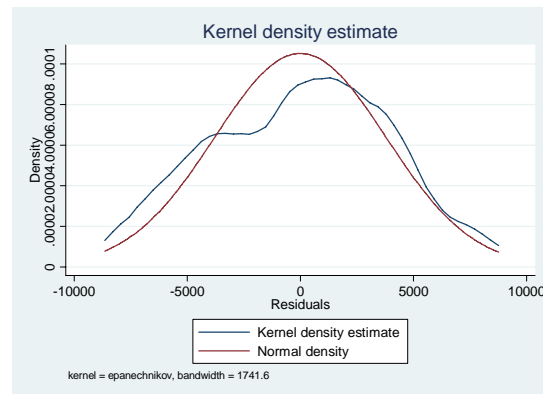
Residuals, Real GDP growth



Residuals, GDP growth



Residuals, GNI per capita 2006



The plots in Figure 8.7 show the distributions of residuals compared to a normal distribution (red line). They indicate that the assumption of normality of the residuals is not severely violated, however the distributions are skewed for GDP growth and GNI per capita.

**Table 9: Correlation Matrix - Explanatory Variables, Religiosity**

	GDP1970	Secsenrate	Savings	Trade	Bureauqual	Relimp	Relpers
Secsenrate	0.6918						
Savings	0.2718	0.4563					
Trade	0.0488	0.2751	0.3456				
Bureauqual	0.698	0.7543	0.419	0.1485			
Relimp	-0.5813	-0.6673	-0.3731	-0.1108	-0.8598		
Relpers	-0.3514	-0.4151	-0.5258	-0.1508	-0.5588	0.667	
Confichur	-0.6096	-0.6097	-0.311	0.0735	-0.8169	0.8795	0.7007

Table 9 shows that near multicollinearity is an issue for the variables for religiosity, especially “confidence churches”. A cause for this may simply be that the variables measure the same aspect. This suggests that they could be used intermittently for measuring general religiosity, which is the trait that is intended to measure. Therefore,

dropping two of them could change the significance. If “confidence churches” and “religious person” is dropped, “religion important” becomes significant ( $p=0.06$ ) for GNI per capita.

## **Discussion**

Interestingly, Table 9 shows that all religious variables are negatively correlated with education, suggesting that education creates less religiosity in general.

The coefficients for “religion important” are significant for growth, and GNI if multicollinearity is corrected for. In addition, “confidence in churches” is significant for both growth and GNI. The correlation analysis also showed association between wealth and religiosity. However, this probably just means that religion is less important as a country turns wealthier, and it is quite possible that people feel religion is less important without that causing any extra wealth. In addition, it is also likely that the need for religion is higher when resources are scarce and wealth is low.

The coefficients for real growth are not significantly different from zero, which indicates that these two variables do not explain growth. However, if two religious variables are dropped to correct for multicollinearity, “religion important” becomes significant also for real growth at  $\alpha = 0.2$  ( $p=0.19$ ), but then with a positive coefficient. This also suggests that the model needs to be developed further, or more observations are needed.

For the sample percentage who calls themselves religious, the coefficients are only significantly different from zero for GDP growth. Thus, regression results do not support Hypothesis 3b. The reason that this conclusion is different from the correlation analysis may be lower significance level due to multicollinearity, however, dropping the other cultural variables does not make this variable significant.

Overall, the results do therefore not support Hypothesis 3b. This contrasts the conclusions from Barro and McCleary (2003), where religious belief was found to be positive for economic growth. Another reason for low significance may be that

religiosity does not affect economic growth directly, but only through interaction with economic attitudes such as trust, cooperation and legal morality, as is argued by Guiso, Sapienza and Zingales (2003). Therefore, further research is needed to investigate possible interaction with other variables which are important for economic growth.

## **9 Conclusion**

The goal of this thesis has been to investigate the role of cultural variables in economic growth. This has been done by reviewing relevant theories and literature, and empirically testing a selection of cultural variables against economic development.

Current growth theories use mainly “hard” factors such as capital, labour, savings, investment and technology as determinants for economic growth. Still, there is a need to further explore what determines these factors in the first place. “Softer” factors such as human capital, national competitive advantage, political systems, and institutional quality are also harder to explain the causes for, but do undoubtedly play an important role in determining economic growth.

It is clear that the difficulties of incorporating culture in economic models partly stems from the nature of culture as a concept. Therefore, conclusions about the economic importance of culture do not always give clear or useful answers. Still, the literature review has identified several cultural traits which have been linked to economic growth. The most important of these are social capital, religion, political preferences, attitudes towards institutions, as well as Hofstede’s cultural variables.

Differences in political preferences emerge as a determinant for political systems, which is important in economic development. Historically, this may explain the persistence of political systems in some countries that are less conducive to growth, but also the development of sound economic policies and growth-oriented nations.

Culture may affect how institutions are developed, and therefore also their quality. Attitudes of the society which forms the institutions, have been identified as an indicator of the institutions’ goals and functioning. In the business context, culture is also well-known as a factor in organizational management.

From social capital theory, trust emerges as the main cultural variable which makes societies able to cooperate, reduces transaction costs and barriers for sociability, and above all creates effective organizations. The empirical results of this thesis support this theory. First, general trust is found to be positively associated with real growth, and the results indicate that an increase in a population by 1 % of those who have general trust, increases real GDP growth by 0.03 %. In addition, the empirical results have also verified that the economic effect depends on the type of trust, and that general trust is the most salient type. The causality seems to be from trust to growth, since general trust level does not depend on national wealth. This matches closely the findings from social capital theory, and is also one of the strongest in this thesis.

Hofstede's cultural variables were originally constructed to measure national cultural differences. Out of these, the literature review identifies Individualism, Uncertainty Avoidance and Long Term Orientation as closely associated with economic growth. The empirical results of this thesis has verified a positive association between Individualism and economic growth, which was not expected, but scrutinizing the variables further in a regression model for growth does not support this result. A cause for this may however be methodological problems. In addition, the results indicate that Power Distance is negatively associated with growth. However, this link is weak, and does not hold in a regression model for growth. Therefore, the results match much of the earlier critique towards Hofstede's variables and economic growth.

Religion was one of the first cultural traits to be mapped against economic development. Since then, the debate has focused not only on which religion is conducive to economic growth, but also whether the impact of religiosity in general affects economic life. The empirical results of this thesis have not identified any specific religions that are conducive for economic growth, nor that growth increases as any specific religion becomes the majority. However, the results show that wealth is higher when the share of Protestants on the population is high, and lower when the share of Muslims is high. From this, however, it can not be concluded that a religious majority has caused any economic growth, especially since many wealthy countries have neither Protestant nor Islamic majorities. For general religiosity, i.e. the impact of religion in a society, the results show that the population share who view themselves as religious is negatively associated with GDP growth. However,



examining the variables further in a regression model for growth does not support this result. Therefore, the link is a weak one, although it can not be dismissed. As the literature review shows, religion is largely a non-uniform trait for most countries, which may be one of the reasons that it is less suited for cross-country analysis.

High caution should be taken when interpreting any results which indicate relationships between culture and growth. Above all, such results are too ambiguous to result in policy changes aiming to increase economic development. In addition, culture exists on too many levels other than national for policy changes to be well targeted and have any effects.

A reason for this may be that culture per se does not cause economic growth, but only affects growth through interaction with other variables. This means that the effect of culture depends on the environment. Therefore, more research should be undertaken to investigate how culture interacts with other variables.

Lastly, causality is an issue which needs further research. It is clear that few aspects of culture, if any, are persistent enough to not be affected by the economic situation. The persistence also seems to decrease with higher wealth levels.

Overall, several links do exist between aspects of culture and economic growth. The question is if and how these can be interpreted in economic models, which would enable us to explain growth also from culture. On the other hand, the nature of culture may not be such that this is a viable approach. It seems clear that economic life is not separated from any society, but happens in a social context, where norms, personal goals and behaviour of the individuals determine the outcomes of all transactions. In this view, culture is an exogenous factor which determines much of the environment for economic life. The question may therefore not be what is missing from current growth models, but rather how their functioning is dependent of the cultural context.

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## **Appendix 1: Regression Variables**

*GDP per capita 1970*: Data is collected and compiled from the World Development Indicators Database.

*Secondary School Enrolment Rate (gross)*: Data is collected from the World Development Indicators Database, and show the average for the period 1970-2006.

*Savings Average as percent of GNI*: Data is collected from the World Development Indicators Database, and show the average for the period 1970-2006.

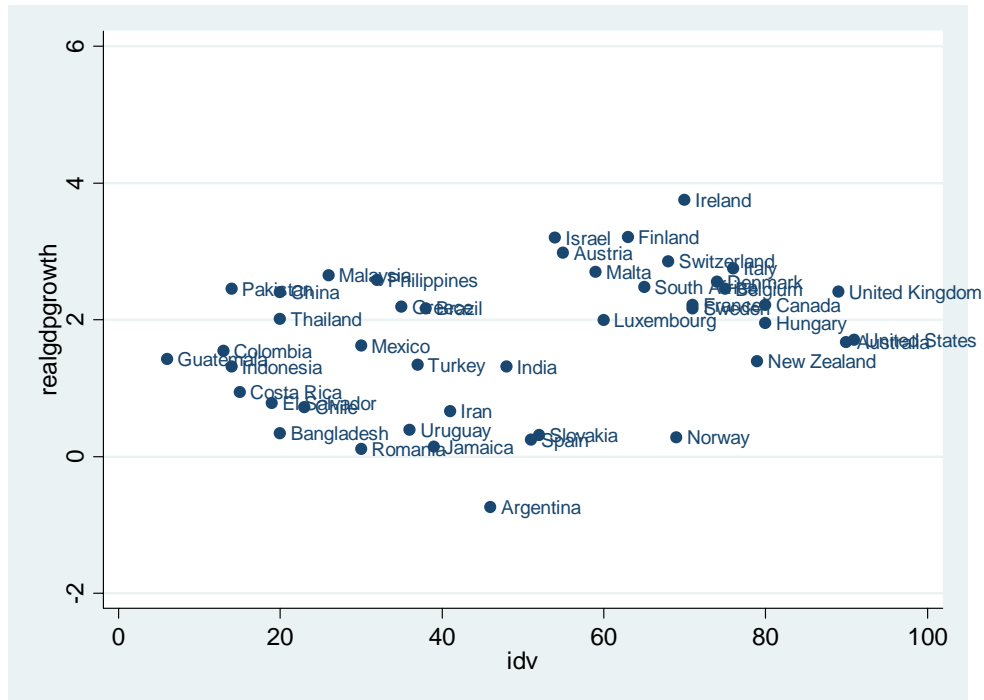
*Trade Openness*: Data for trade as percentage of GDP is collected from the World Development Indicators Database, and show the average for the period 1970-2006.

*Bureaucratic Quality*: This is an index from 0-6 constructed by the Center for Institutional Reform and the Informal Sector (IRIS) from data printed in the International Country Risk Guide, published by Political Risk Services. A high score means “autonomy from political pressure”, and “strength and expertise to govern without drastic changes in policy or interruptions in government services.” The data is compiled from the Center for International Development at Harvard University.

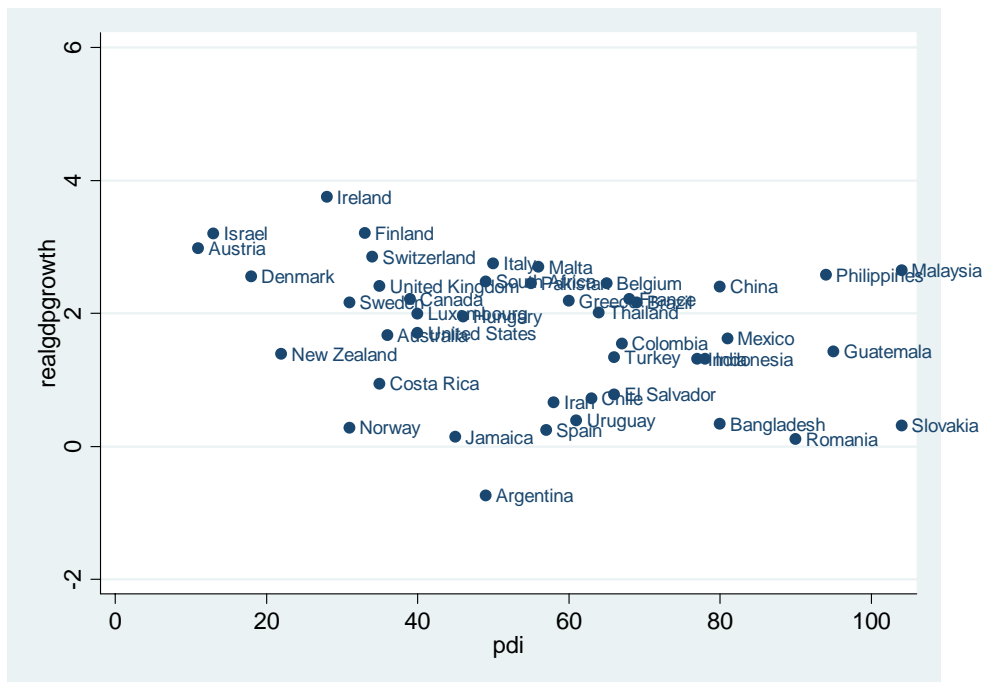
## Appendix 2: Scatter Plots with Country Labels

Cultural variables which are significantly correlated with real economic growth

### Individualism and Real Growth



### Power Distance and Real Growth



### Percentage which view themselves as religious vs Real Growth

