

A Study of the Effect of Social Capital on Human Development in Islamic Countries

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Abstract

In view of the fact, social capital in some common definitions offered about it contains a number of social elements that facilitate actions of social actors and from this aspect they are able to improve society's performance. To study this characteristic of social capital and explore its effect on human development among Islamic communities, the current study examines the effect of social capital on human development among Islamic countries. For this purpose, a collection of 20 Islamic countries is examined during 1999-2008. Since social capital variable is qualitative the alternative variable of Corruption Perceptions Index is employed to measure the effect of social capital. The results of the study indicate a significant negative effect of corruption on human development index level.

Resumen

En general, la definición más común de capital social contiene algunos elementos que hacen referencia a las acciones llevadas a cabo por agentes sociales, que tienen la capacidad de contribuir a la mejora de la sociedad. Con el fin de estudiar esta característica del capital social y explorar su impacto en el desarrollo humano en las comunidades islámicas, el presente estudio examina el efecto del capital social en los países islámicos, en concreto en una muestra de 20 países, durante el período 1999-2008. Puesto que la variable del capital social es cualitativa, usamos la variable alternativa del Índice de Percepción de Corrupción para medir el efecto del capital social. Los resultados de este estudio muestran un efecto negativo de la corrupción en el índice de desarrollo humano.

Classification JEL: O15, C33

Key words: Social Capital, Human Development, Islamic Countries, Corruption Perceptions Index, Panel Data.

1. Introduction

There are many countries that suffer from widespread poverty and deprivation for centuries. In the last two centuries, most of these countries have tried to release themselves from this poverty trap and join to the developed countries. Especially, after World War II, many underdeveloped countries in Asia, Africa and Latin America immediately after gaining independence considered economic development in their agenda (Yousefi, 2009). However, when the desired results from investments in economic development programs in third world countries may not enjoy the second generation of development so, researchers began to examine more closely the requirements of development and gradually development scholars while moving away from large and fantasy pattern, paid special attention to the topic of agencies in micro level, individual abilities, health and education (Motevasseli et al., 2010).

During 1990s, the role of national and local institutions that were political, legal and social was considered in development. A number of geo-political factors contributed to the turnaround in the 1990s, most prominent among them being the fall of communism, the ostensible difficulties of creating market institutions in transitional economies, the financial crises in Mexico, East Asia, Russia and Brazil, and the enduring scourge of poverty in even the most prosperous economies. Meanwhile, policy makers, foreign investors and aid agencies alike finally began to recognize the corruption, far from "greasing the wheels" in weak institutional environment, was in fact imposing serious and measurable net costs (World Bank, 1998). Challenging with the glaring evidence that orthodox theories had neither anticipated these difficulties nor offered safe passage through them once encountered, attention returned to the social and institutional aspects (Woolcock, 2001).

In addition, some results of low levels of social capital like the lack of public trust, efficient communication networks and lack of effective norms contribute to emergence of problems such as the reluctance of social cooperation, lack of social unity and cohesion and increase of trade costs and therefore they are considered some obstacles in the path of human development realization.

So, current study aims to investigate the relationship between social capital and human development.

2. Research Literature

The study tries to investigate the effect of several variables on human development. So, related literature is collected about each study variable and mentioned below.

2.1 *Social Capital*

Traditionally, capital has been classified in form of natural capital, physical capital and human capital. These capitals together develop the Wealth of Nations and make the base of development and economic growth. In this process the composition of capitals is changed. Some of natural capitals are used and then transform to physical capitals. Physical capitals break up as well and it is expected that some effective alternatives will be created for them by technology. It is now accepted that these three types of capital identify only some parts of economic growth process, because they ignore how economic players interact and how they organize themselves to create growth and development. Here, the missing link is social capital. There is a little disagreement about the role of social capital. However, there is no consensus about which aspects of dimensions of these interactions and organization merit the name of social capital and also about the validity of the term "capital" to describe this issue (Grotart, 2008).

Presented definitions for social capital are numerous and different. In 1998 the World Bank defines social capital as follows: "Social capital includes institutions, relationships, views and values in a given society that govern the actions and reactions between people and have some shares in the economic and social development. But, social capital is not a simple sum of institutions that include society; instead it is a mortar that links the mentioned institutions to each other. At the same time, social capital includes shared values and norms essential for social behavior that is reflected in individuals' personal relationships, their trust in each other and shared sense of civic responsibility, something that makes society more than and beyond the sum of individuals (Piran et al., 2005).

Fukuyama has defined social capital as follows: "Social capital is a tangible form and example of an informal norm that promotes cooperation between two or more persons. Social capital can include from the norm of mutual relationship between two friends to complex teachings such as Christianity or Confucianism that are expressed in detail. These norms should be realized objectively in actual relationships of human beings. Regarding this definition, trust, networks, civil society and the

like that are associated with social capital, all are by-product of this phenomena that are developed in result of social capital but do not constitute the social capital itself" (Fukuyama, 2005, p 89).

Plurality in perspectives about social capital is clearly seen in research conducted on social capital. For example, while a number of researchers define social capital with trust and social shared norms, others have described it as a part of moral and cultural attitudes such as compassion, altruism and tolerance and some researchers emphasize on institutions and quality and quantity in participatory life (Rahmani, Abbasinejad, and Amiri, 2007).

Also, in some researches, social capital is determined by trust (Kolankiewicz, 1996; Falk and Guenther, 1999; Cox and Caldwell, 2000; Glaeser et al, 2000). Some studies have introduced it with networks (Zhao, 2002) and norms (Isham et al, 2002; Skrabski et al, 2003; Staveren, 2003). In order to prevent plurality in social capital definition, distinguish between sources and results is necessary. It should be noted that the review of social capital resources is more in social sciences domain; but the results of social capital include many sciences including economics. In fact the sources of social capital are those networks and institutions that are formed by relationships govern among them and the results of this capital i.e. norms, trends and values. In other words, it is by attendance in the networks and having a continuous relationship with others that the outcomes of social capital including trust and practice in norms are achieved. Therefore, the sources of social capital should be applied so that its results to be achieved. These sources have wide range of results that depending on the circumstances, they can be positive or even negative (Elmi et al., 2005).

Some researchers have criticized the methodology of defining a social phenomenon by using its achievements. For example, Brown thinks this way is cluttering the introduction with result and explains that different introductions can lead to similar results, or a single introduction can lead to different results under different conditions (Brown, 1997). Woolcock (2001) also emphasize that any definition of social capital should focus on its sources rather than consequences. Minwile, despite of numerous definitions for social capital, Woolcock (2001) believes that in the literature of social capital there is an emerging consensus on the definition of social capital, one built on an increasingly solid empirical foundation, and it is as follows: social capital refers to the norms and networks that facilitate collective actions.

2.2 Social Networks

In thematic literature related to social capital, membership in networks and a set of shared values are at the heart of social capital concept. Individuals' networks should be considered as a part of a large set of relationships and norms that authorize people to pursue their goals and also make

interconnection in society. It can be expected that sometimes people's options be restricted due to the nature of resources that can be used through their connections. At other times, they can use their networks to be free of other obligations; also, in some cases in competition with their competitors people attempt to win for accessibility the same resources by using their social capital. So, regarding the role that the idea of social bonds has in the main function of society, the main idea of social capital is that social networks are valuable wealth. Networks create a basis for social cohesion because they enable people to gain mutual benefit they cooperate with together and not just with those who directly know (Field, 2007).

It should be noted that by using the concept of networks can present a definition for social capital which is more economic rather than sociological: "Social capital is the economic effect of some facilities that create the trust networks and cultural components in a social system. Trust networks in addition to reduce administrative costs cause that more time and funds dedicated to core activities and furthermore they bring about transfer of groups' members knowledge to each other and provide a proper flow of learning and knowledge among them that this can also be very effective in reduction of managerial costs and social and organizational development" (Haghshenas et al., 2007, p. 45).

2.3 Characteristics of Social Capital

Since there is no single definition for social capital, in mention of characteristics of this social phenomenon much plurality is seen. But Some of the features of social capital can be summarized as follows:

1. Social capital will be more with more consumption. In other words, its accumulation is the result of its consumption and it is unlike physical capital that its more consumption will cause its more attenuation, as continuous use of trust does not decrease it and on the contrary it adds to its amount. It should be noted that this feature of social capital is common with human capital. By using social capital, quality and quantity of social interactions will increase so that it is beneficial to both parties. This means that social capital is input and output of a collective action (Elmi et al., 2005).

Putnam writes about this characteristic of social capital: "stock of social capital such as trust, norms and networks are good performance guarantee for themselves and they accumulate. Successful cooperation in one case develops links and trust i.e. social assets that will facilitate future collaborations on issues that do not relate to that case. Owners of social capital like owners of conventional capital attempt to increase their capital. Social capital is what Albert Hirschman, a philosopher of social science, calls it 'moral resource' it means a resource that unlike physical capital increases due to its use and will not decrease, and if not used it will be destroyed" (Tajbakhsh, 2005,

p.68).

2. Social capital has certain characteristics that make it differentiated from private, divisible and non-transferable goods that it is discussed in neoclassical economic theory. One of the features that Loury (1987) discuss about it is social capital's impractical non-transferability. Although this capital is a resource that is valuable to use, it does not exchange easily. Qualitative attribute of social structure that individual was put in it is that social capital is not personal asset of none of the people who benefit from it (Coleman, 2004).

3. Putnam (2005) believes that the characteristic of being public goods for social capital causes that this property does not produce enough like other public goods such as clean air and safe streets by agents of the private sector. This means that social capital must be often by-product of other social activities. This capital usually is formed in links, norms and trust and it is transferable from one social condition to other conditions (Tajbakhsh, 2005).

There are two other features of social capital that are shared with other types of capital: 4. Capital is a storage from which a chain of interests is extracted. This can be considered a key feature of any capital. Since the concept of social capital is an accumulated stock and contains interests it can be considered capital.

4. Formation of social capital requires investment and social capital is not decreasing charge to scale of production. As many worldwide civil conflicts have testified, the destruction of social capital is much easier to renew it. For this reason, a repair cost is considered for social capital that is usually in time form. It means that time is the main cost of formation and reinforcement of social capital (Elmi et al., 2005).

2.4 Measuring Social Capital

Measurement of social capital is one of the most challenging issues in area of this social concept. By increase of tendency to empirical studies about identification the effect of social capital in different areas, the need to measure social capital was intensified. However, as Pontio (2009) express apparently no precise method has been identified to measure social capital or more importantly, the methods to measure social capital are so numerous that tests will lead to completely different results. In such circumstances, some researchers have acknowledged that for various reasons the true measure of social capital is not possible. First, the most comprehensive definition of social capital is a multi-dimensional definition that includes several analysis units. Second, there are many problems to

measure the profile of intangible concepts like community, network and social organizations. In fact, measurement of social capital is a challenging issue because it is not just observer of a concept and offers amalgam of complex concepts. "Trust", "community" and "networks" that are examples of concepts constitute social capital hardly to get quantified; and the third reason is that there are little scientific methods to measure social capital that are used for a long term and this has led contemporary researchers forced to consider indices close to what is reality such as trust, willingness to vote, the growth rate of public participation in elections, membership in civil institutions, hours that people are activities voluntarily etc. Among the researches that provide a strategy to measure social capital, some like Inglehart, that has used World values survey, by having precise and comprehensive studies and surveys have considered statistics related to various surveys. Also, some researches by suggesting alternative indicators have attempted in some way to reveal the rise and decline of social capital in society (Elmi et al., 2005; Akhtarmohagheghi, 2006).

Fukuyama (2005) describe an supposed formula to calculate social capital and ultimately confessed that produce of anything similar to a census or believable evaluation about volume of social capital of a community is almost impossible because it involves use of figures that either are estimated subjectively or do not exist. So, he introduces another source of data that is used as an alternative variable of social capital. He believes that survey data about trust and social and civic participation have a number of data sources that can be beneficial for measuring social capital.

3. Development

The roots of the concept of human development that is observed in many cultures and religions can often been seen in the earliest periods of human history. Aristotle (384-322 B.C.E) states: "Obviously, wealth is not what a good thing that we are looking for, because the benefit of wealth is something else." Also, in writings of the early founders of quantitative economics and works of political economy pioneers a similar view has been provided. Adam Smith (1776) in expressing his opinion that economic development should enable a person to interact with others freely with no shame of appearing in public in fact offer a concept of poverty that considered the integration of the poor into the mainstream of life. Throughout this early period, he evaluated the concept of development, revenue and its growth as a means and paid his attention to real concern for people. Quality of life of people – what they can do and what they do in fact, discriminations that they confront with them, their efforts and the choices them increasingly have - consisted pivotal preoccupation of development. This concern was not just limited to an economic choice, but included choices related to all areas in which people were able to expand their control over their lives (Human Development Report, 1994).

In 1986 the Development Right was recognized by General Assembly of the United Nations and was approved. Definition of development in the preamble of declaration related to Development Right is stated as follows: "development is a comprehensive economic, social, cultural and political process which aims to constantly improve the welfare of total population and all people based on active participation, free and meaningful in development and equitable distribution of its fruits." So, due to developments that have occurred in definition of concept of "development" today development can be defined as inseparable set of liberty, prosperity, expanding of opportunities and choices and establishment of human rights principles in a civil society that would be realized through empowerment, realism, construction, rationalism, and competition. Moreover, development is a gradual, conscious and discretionary process. Unlike economic growth, development disrupts the previous balance and creates a new one.

Also, developmental growth is quantitative, but developmental development is qualitative and quantitative that aims to reduce poverty, inequality, unemployment and promotion of human status and dignity (Yousefi, 2009).

When World War II ended many underdeveloped countries in Asia, Africa and Latin America put economic development in their agenda after independence and since the per capita income level in these countries was lower than developed countries, they were determined to give priority to programs that under the existing conditions make the highest revenue growth. Policymakers and theorists were ensure about effects of economic growth so that they did not think that there may be dispute or conflict among the goals of growth, elimination of unemployment or poverty reduction so the concept of economic development and economic growth was considered the same (Yousefi, 2009). But the gross per capita income growth could not resolve the problems of poverty, unemployment and economic and social inequalities in these countries (Gharehbaghian, 1996).

Amartia (1992) expressed the problem of economy's traditional development is not about that tools' selection has been inappropriate for the economic growth or policies have not been appropriate for growth, but the problem is in insufficient attention to the fact that economic growth is not something beyond a means to achieve other goals. So, probably the most important thematic deficiency of traditional development economics has been its focus on national product, total revenue or supply of a certain commodity without considering "merit" of people and empowering them. In reality, economic development should be focused around the fact that what people can or cannot do. Whether they can avoid death which is inevitable, or have good nutrition and be able to communicate and participate in decision-making processes on issues that affect their lives. By having such idea, economic development can be defined as "the process of extending people's merit and capability" (Yousefi, 2009, p.83). Such an approach to development is called "human development". Griffin and McKinley (1992, p.7) in explaining human development strategy state that "Indeed it is by now widely

understood that there is no one-to-one correspondence between material enrichment and the enrichment of human lives. The human development approach thus implies the dethronement of national product as the primary indicator of the level of development. The objective of development is not to produce more "stuff", more goods and services, but rather to increase the capabilities of people to lead full, productive, satisfying lives."

United Nations Development Programs (UNDP) (1995) that first launched in 1990 publishes annual reports of human development has defined the concept of human development as follows:

"Human development is a sample of development that is far beyond the rise or fall of national incomes. Human development is about creating an environment where people can develop their full latent talents and be guided to a productive and creative life that is consistent with their interests and needs. People are real wealth of nations. Therefore, development is about expansion of people's choices that should lead to the kind of life that is valuable for them. Also, development is far beyond economic growth which is just one of the means of expansion of people's choices (although in one case is very important). The base of expansion of these choices is making capabilities of human beings (the range of what human beings can be or do in life). The most basic capabilities for human development lead to long and healthy lives, being knowledgeable, having access to resources needed for an acceptable standard of life and ability to participate in social life. Without these, many choices are not simply provided and many opportunities remain inaccessible in life ".

Perhaps can be saying human development is the ultimate goal and the best possible means to promote economic development. Among benefits of human development is that it has an important role in the welfare of society and is based on equal opportunities and creates relationship between different types of investment to develop human resources. These benefits can be achieved only with guidance and leadership of government. In other words, government intervention is essential to achieve the expected results of human development.

In this way, decrease of concentration and people participation as a fundamental characteristic of development approach is extremely important. The other aspect of human development approach (in addition to goal and welfare realization means), is preserve the capability of individuals or economic security, i.e. securing people of community considering the level of health services, providing food, job and a fair share of income and wealth to reduce deprivation of people in society (Chinipardaz et al., 2006).

4. Experimental Studies

Social capital is a new concept that recently has transmitted from social science to other branches of humanities including economics. This transmission leads to relatively diversified studies about this concept and its effects on economy in human societies. Putnam (2005) believes that the most surprising feature in discussion about social capital is that the concept of social capital and related discussions to it cannot be included in boundaries of any discipline alone.

Knack and Keefer (1997) focus on one of the most comprehensive cross-country studies about the effect of social capital on economy. In this study some evidence provided that based on them social capital plays an important role in acceptable economic functions. In this study that includes a sample of 29 market economies two measures of trust and civic norms have been used that obtained from values' global survey. The findings show that the measure used to measure social capital (i.e. membership in formal groups) is not related to trust or improved economic performance. Moreover, the results indicate that trust and civic norms were stronger in societies that have higher and more equitable incomes and people had better education level and were similar in terms of racial. According to this study, Knack and Keefer (1997) found that variables of social capital had strong and significant relationship with growth. Also, the results of this research confirmed a hypothesis that in poorer countries, where there was no developed financial sector, social capital was more important (Knack and Keefer, 1997).

Svendsen (2003) conducts a study on comparison of social capital, corruption and economic growth in Western and Eastern Europe based on hypothesis that power centralization led to more corruption in a political system due to monopoly power of officials, the findings of researchers showed that power centralization in a political system lead to more corruption due to the monopoly power status of bureaucrats. Results show that corruption again would then lead to a lower level of social capital, here measured as trust, and slow down economic growth even further. Indeed, when comparing the tables and weighted averages for corruption and trust, highly corrupt countries such as those in Eastern Europe, also tend have the lowest level of trust. In general, low levels of trust (measured as general trust and civic participation) are also related to smaller Gross Domestic Product (GDP) per capita levels. A similar pattern is observed within Western Europe. In the European Union, "Northern EU" member states generally hold less corruption, more trust and higher Gross Domestic Product per capita compared to "Southern EU" member states.

Beugelsdijk and Schaik (2005) conducted a study on differences in social capital in 54 regions in Europe. This study focuses on measuring social capital at regional level and the relationship

between social capital and regional economic development. Results show that there are large regional differences on this social capital index. These preliminary results suggest a positive relationship exists between social capital and economic development and regional economic growth in 54 western European regions.

Chalbi and Mobaraki (2005) analyze the relationship between social capital and crime in two different levels. In the first level the survey was conducted among offenders in prisons in Tehran and in the second level, an international analysis was carried out between 1997 and 1999. In the first level to calculate the social capital a questionnaire research method was used and in international level the World Values Survey (WVS) data were used. In micro-level of this study social capital has been measured with six indicators "abundant interest to society," "social trust", "interactions with surroundings," "self confidence," "trend towards other people" and "devotion to strangers". The results of this study suggest that six dimensions of social capital have negative significant relationship with crime index. The research findings also showed that in international level there was negative significant and relatively strong relationship between social capital and crime.

Hasani (2006) focuses on social capital of Iran in his dissertation as well. He reviewed social capital trend in Iran from 1986 to 2004 by using alternative method of Fukuyama and recognized that this trend was increasing.

Fanni and Alizadeh Sani (2007) by studying about 86 countries reviewed effects of official corruption on communities' human development and also described the relationship between official corruption and human development components include: democracy, economic development and education and health level. For measuring official corruption they used Corruption Perceptions Index (CPI). This index which focuses on corruption in governmental sector has defined as misuse of governmental office for private interests. The results of this research proved significant effect of corruption on decrease of human development and that there was negative association with its components especially in developing countries so that one unit increase in corruption index decreases as 0.1 human development index unit in developing communities, while the amount of this effect for human development index in developed countries was 0.016. In addition, analysis of corruption relationship with levels of democracy, GDP, literacy and the rate of life expectancy in studied communities that was performed through Pearson correlation test showed that in developing communities and in significant level there was 1% negative relationship between official corruption and all of these indexes, while in developed countries no relationship was observed between official corruption rate and literacy level.

Dearmon and Grier (2009) examine linkages between social trust and economic development

using a panel of data. They confirm that trust is a significant factor in development and also show for the first time that trust significantly interacts with investment in physical as well human capital.

5. Model Estimation

The lack of statistics and data required are major limitations of this study. This problem not only limited the time frame under study, but also it caused to use inevitably alternative variables to review social capital. So, for Islamic countries model CPI are employed as an alternative indicator that shows the lack of social capital. According to literature review, lack of social capital in communities reveals itself as the presence of corruption and social deviations, so in level of Islamic countries review CPI are employed.

Since 1995, Transparency International (TI) publishes the Corruption Perceptions Index (CPI) annually ranking countries by their perceived levels of corruption, as determined by expert assessments and opinion surveys in more than 180 countries. This index that in fact is a score assigned to the corruption within countries has a scale between zero and one that its value is increased by reduction of corruption levels in a country.

5.1 Model Introduction

By adding CPI as the representative variable of social capital to the common model, calculation of human development index is used by United Nations Development Programme (UNDP), and the mentioned model will be defined as follows:

$$\text{HDI} = F(\text{GDP}, \text{SLE}, \text{M}, \text{CPI}) \quad (1)$$

HDI = Human Development Index

GDP = Gross Domestic Product per capita

SLE = School Life Expectancy

M = Infant Mortality Rate

CPI = Corruption Perception Index

It should be noted that data related to human development index are collected from UNDP and data related to CPI are collected from Transparency International. Also data of infant mortality rate are collected from UN Inter-agency Group for Child Mortality Estimation (IGME), data of School Life

Expectancy rate are collected from UNESCO Data Centre and data of GDP per capita have been extracted from World Development Indicators (WDI). As variables used in current study have different measurement units and since the human development index is expressed as values between zero and one, before estimation of models except CPI that has a value between zero and ten other explanatory variables change to values between zero and one as following method. This adjustment is so that the lowest observed rate of discussed time series is assumed equal to zero and more the variable rate increases, the score of indicator will be more and ultimately the maximum of observed amount will be calculated equal to one (Sameti et al., 2006).

$$X = \frac{(Vi - Vmin)}{(Vmax - Vmin)} \quad (2)$$

Vi = Year Variable Value

$Vmin$ = Minimum variable in different years

$Vmax$ = Maximum variable in different years

The current study aims to review the effect of social capital on the level of human development among member states of the Organization of Islamic Conference (OIC). Due to lack of usable information and statistics about 57 member states of this organization a set of twenty members including countries of Azerbaijani, Jordan, Uzbekistan, Indonesia, Uganda, Iran, Pakistan, Tajikistan, Turkey, Tunisia, Senegal, Oman, Kyrgyzstan, Kazakhstan, Cameroon, Kuwait, Guyana, Morocco, Malaysia and Mali are studied in ten-year period 1999-2008. Data used in current research is panel data that are combination of time series and cross-sectional data. A panel data regression can be shown as follows in which i is indicator of sections and t is indicator of time (Baltagi., 2005).

A panel data regression can be written as

$$Y_{it} = \alpha + \beta X_{it} + u_{it} \quad i = 1, \dots, N ; \quad t = 1, \dots, T \quad (3)$$

With i denoting countries and t denoting time (Baltagi, 2005).

To estimate equation (3) in general two assumptions can be considered about slope coefficients, intercept and disturbing element:

(A) Intercept and slope coefficients among sections and over time are constant and disturbing element is different in various sections and times.

(B) Coefficients related to explanatory variables are constant but the intercept is different for each

section.

In (A) difference between sections is ignored and all countries are assumed homogeneous. Such data are called "combined data". In this situation that is similar to a time series the method of ordinary least squares or generalized least squares can be used to estimate the model. In (B) each section has its own special intercept that should be estimated. This indicates conditions in which countries under study are different from each other. If there are cross-sectional differences the nature of reviewed data will be "panel data". To estimate a model that uses from panel data the special intercept for each section should be calculated.

One of the common methods for diagnosis of "combined" or "panel" data is "F Limer test". Null hypothesis in this test is the lack of individual differences among under study sections. So, if F test statistic is less than the critical value and therefore null hypothesis is confirmed all sections are the same or in other words the data used in this model will have combined property (Pool) and if the null hypothesis is rejected individual effects will be accepted and data will be panel. The statistic of this test is calculated as follows:

$$F = \frac{(RRSS - URSS) / (N - 1)}{\frac{URSS}{NT - N - K}} \quad (4)$$

RRSS = Residual Sum of Squares

URSS = Un-Residual Sum of Squares

N = Number of Sections

T = Number of Observations in each Section

K = Number of Explanatory Variables

If Limer statistic is greater than critical value of F test with degree of freedom (T-1) K and T (N-K) null hypothesis is rejected and individual effects in the model are confirmed.

Table 1 shows estimation results by using panel and combined data. Limer statistic value is set equal to 31/29 and F (5%, 36, 160) \approx 1/39. Since the value of calculated Limer statistic is greater than F in the table, hypothesis H0 based on this matter that data are combined is rejected and existing data can be used as panel data.

Fixed Effects Model is a model in which each section has its own special intercept and because time effects have assumed fixed in this model it is called fixed. This model is usually selected when all of a statistical community is reviewed. Instead, Random Effects Model is proper when sections are selected randomly from a large community. In this case, usually there are many sections and use of Fixed Effects Model can lead to lots of loss of degrees of freedom. In "Random Effects" Model individual effects are described for a community that the sample has been selected randomly from it (Baltagi, 2005).

The current study utilize from Hausman test to select between fixed effects model and random effects model. Null hypothesis in Hausman test is the lack of correlation among invisible disturbing elements in model and explanatory variables. In other words, this assumption explains independency of sections from explanatory variables and if this assumption is correct, the difference in units will be due to the difference in the intercept. The main idea of Hausman test is to compare two estimators of fixed and random effects so that one of the estimators shows consistency with both null hypothesis and alternative hypothesis and the other estimator just indicates consistency with null hypothesis. The existence of significant difference between these two estimators indicates rejection of null hypothesis. If null hypothesis is rejected, the most appropriate method to estimate model is fixed effects method and if this hypothesis is confirmed random effects method will be considered the proper method. The statistics of this test has distribution χ^2 with degree of freedom as number of explanatory variables in model.

In Table 2 by both fixed and random effects models estimation results are shown. The statistics value χ^2 is calculated by Eviews 6.0 software that with 4 degrees of freedom is equal to 28.534980 and critical value of statistics χ^2 with 4 degrees of freedom and at 1% confidence level is 13.3277. So, it is observed that Hausman test null hypothesis in significance level 1% is rejected and in such case model estimation by random effects method will lead to skewed results. Therefore, in this study the fixed effects method will be used to estimate human development model in Islamic countries.

2.2 Model Estimation Results and Analysis

The review of estimated coefficients of model in the fixed effects model suggests the expected effect of variables. Moreover, all of estimated coefficients are statistically significant so that all control variables (variables of school life expectancy, infant mortality and per capita income) are statistically significant at 1% and CPI is significant at 10% confidence level. Also, the estimated model shows that the amount of school life expectancy and per capita income, respectively, with coefficients

0.179378 and 0.299351 has positive and strong effect on human development index of Islamic countries. Infant mortality index with coefficient -0.069257 has relatively negative and strong effect on human development index. It is observed that influence of control variables is completely expectable that this shows proper selection of representative variables for dimensions of health, education and income. Coefficients estimation about the effect of social capital shows that CPI has positive effect and compared to control variables has little effect on human development index in Islamic countries. Here it should be noted that CPI value index has an inverse relationship with level of corruption within countries, thus increase of CPI value for a country shows lower levels of CPI in that country.

Therefore, positive effect of corruption index on human development index means that reduction of corruption leads to increase of human development index among the countries under study. Estimation results in this study showed that with one unit increase in corruption index human development index value is increased 0.002205. Tables 1 and 2 show the results of the study.

Table1. Estimation Results of Islamic countries model by using combined and panel data

Depended Variable: HDI		
Estimation Method	Panel Data with Fixed Effects	Combined Data
Intercept	0.498805* (39.82169)	0.546730 (388.84638)
GDP	0.299351* (8.473)	0.269968* (12.04491)
M	-0.069257* (-3.789758)	-0.230471* (-14.03470)
SLE	0.179378* (19.11063)	0.228976* (17.11188)
CPI	0.002205** (1.762303)	-0.004943* (-3.950339)
Adjusted R ²	0.99982	0.998957
Statistics F	35547.23	35187.34
Limer Statistics: 31.29		

Numbers in parentheses represent t statistic value.* significance level at 1% and ** significance level at 10%

Table2. Estimation Results of Islamic countries model by using fixed and random effects model

Depended Variable: HDI		
Estimation Method	Estimation with random effects model	Estimation with fixed effects model
intercept	0.437663* (24.58351)	0.498805* (39.82169)
GDP	0.316940* (8.914955)	0.299351* (8.473001)
M	-0.032939 * (2.456813)	-0.069257* (-3.789758)
SLE	0.221860 * (14.05041)	0.179378* (19.11063)
CPI	0.006626 ** (2.797430)	0.002205 ** (1.1762303)
R ² adjusted	0.774297	0.999820
Statistics F	127.0745	35547.23

Numbers in parentheses represent t statistic value: * significance level at 1% and ** significance level at 10%

6. Conclusion and remarks

Estimated coefficients of research model suggested that GDP per capita and school life expectancy rate have positive and strong effect and infant mortality rate has negative effect on human development index in Islamic countries. Also, in estimation of model it is observed that CPI positively effects on human development index. This effect can be concluding that corruption reduction leads to improve mechanisms and elimination of discriminations in economic and social arenas. Since extension of corruption will be followed by increasing waste of resources and inefficiency as well, combating corruption is a measure in order to optimize economic activities. Moreover, corruption reduction can help to develop opportunities for emergence of capabilities of those community members who were not able to offer their merits because of corruption existence or in other words it helps to develop community members' abilities. On the other hand, corruption reduction and develop of healthy social and economic structures and clear performance of executive institutions make better realization of considered purposes in movement of redistributing income for improvement of low-

income people's situation .

So, it can be said that the resultant of changes due to corruption reduction can lead to improvement of health, education and public welfare. In addition, corruption reduction can promote levels of trust among community members and outcomes of such expanded trust will be phenomena such as more civic participation, greater social unity etc. Therefore, set of these developments exhibit a positive effect on levels of human development in communities that benefit from higher levels of social capital or lower levels of corruption.

Due to this fact that Islamic countries surveyed are mainly underdeveloped or developing countries and many people in these countries confront with problems such as poverty, lack of access to health facilities and low levels of education, to achieve development and especially human development is an essential issue in such communities. According to results of this study benefit from social capital and its merits can be an effective help in achieving to human development in such communities.

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