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The Impacts of Governance and Institution on Financial Inclusion: Evidence from Muslim Countries and Developing Economies

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Abstract. Using the data of more than 100,000 individuals' characteristics in the Global Findex database, this paper examines the links between financial inclusion, institutions, and governance using panel data analysis from Muslim and developing countries. This paper argues that strong economic governance and institutions are important elements in improving financial inclusion especially for the poor segment of the society because markets, economic activity, and transactions more generally, cannot function well in their absence. The results suggest that governance positively influences financial inclusion by increasing the number of bank accounts and saving in formal financial institutions, but negatively impacts on borrowing behavior. There are also significant differences across countries and regions in explaining financial inclusion. The study suggests that removing corruption, increasing transparent legal framework, fair judicial proceedings and good administration are essential for development and raising financial inclusiveness prospects.

Keywords*:* Financial Markets; Financial Inclusion; Institutions; Governance; Development.

JEL Classification: G20; G21; G28.

JKAUIE Classification: H4; H45; N6.

1. Introduction

Financial inclusion (FI), within the broader context of inclusive development, is viewed as an important means to tackle poverty and inequality and to address sustainable development goals (SDGs). Financial inclusion is defined as a process that 'ensures the ease of access, availability and usage of formal financial services' (Sarma, 2008, p. 3). It is a state in which all members of the society have access to a full set of financial services at affordable prices and in a convenient manner. Broadly, inclusive financial sector development makes two complementary contributions to poverty alleviation: financial sector development is a driver of economic growth, which indirectly reduces poverty and inequality; and appropriate, affordable, financial services for poor people can improve their welfare. In advanced economies, financial inclusion is more about the knowledge of fair and transparent financial products, while in emerging economies, it is a question of both access to financial products and focus on financial literacy.

Despite the debate amongst specialists around the term of financial inclusion, there is no widely approved definition of financial inclusion, but the challenges associated with measuring financial inclusion are now being better met. On the other hand, there is still a lack of clear understanding about the specific ways in which financial inclusion promotes income equality and reduces poverty (Demirguç-Kunt and Klapper, 2012), though recent studies in individual developing countries are beginning to offer more important clues[1].The benefits of financial inclusion are relatively strong in the area of savings (Dupas and Robinson, 2012). It is also strong for payments services, although the impact of payments access on increased savings appears relatively small in some studies (Mbiti and Weil, 2011). Regarding access to credit, some studies suggest positive effects (Burgess and Pande, 2005; Banerjee et al., 2010; Karlan and Zinman, 2010), while others provide cautionary evidence on the pitfalls of micro-credit (Roodman, 2011) and the drawbacks of consumer credit (Bar-Gill and Warren, 2008).

Many factors hinder the access and use of financial services among the population in many parts of the world. The main obstacles can broadly be characterized as follows: (i) social, macroeconomic, and infrastructure features; (ii) institutional weakness; (iii) obstacles arising from banking activities; and (iv) regulatory distortion. The literature on financial inclusion has also identified two major factors that drive financial inclusion across countries which are: structural factors, which primarily determine the costs of providing financial services to the population; and policy-related factors, which have been found to be relevant in creating an enabling environment for financial inclusion (Love and Martínez Pería, 2012). Without a deeper understanding of these issues, it can create the condition for ill-informed policy designs. Hence, this paper contributes to the literature by examining the interlinkage between financial inclusion, institutions, and governance using panel data analysis from Muslim countries and developing countries.

This paper is set out as follows: Section 2 provides the stylized facts of financial inclusion, governance and institutions in developing economies. Section 3 describes the data and methodology for the empirical analysis. Section 4 provides analytical discussions on the empirical results. Section 5 offers conclusions.

2. Financial Inclusion, Economic Freedom and Governance

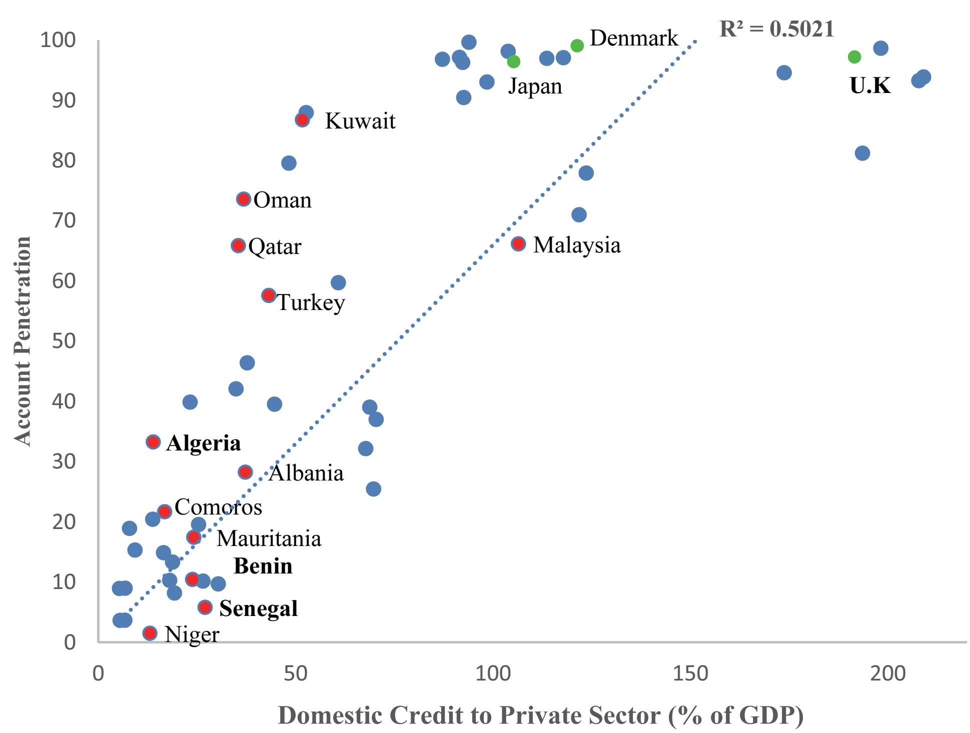
Many studies in economic development and poverty reduction suggest that financial inclusion matters. For instance, empirical evidence suggests that improved access to finance is not only pro-growth and reduces income inequality and poverty, but it is also pro-poor (Beck, et al., 2008, 2009). On the conceptual level, a range of theoretical models have been used to demonstrate that lack of access to finance can lead to poverty traps and inequality (Banerjee and Newman, 1993; Galor and Zeira, 1993; Aghion and Patrick, 1997). More recently, applied general equilibrium models provide new insights into the microeconomic underpinings of the relationships between financial inclusion, poverty reduction, income inequality and economic development (Buera, et al., 2012). In the literature, there has recently been a boom in new research due to improved availability of data. The recent availability of new datasets to measure inclusion, such as the Global Findex database, offers a new opportunity to distinguish between the use of financial services versus

(1) On the effects of bank branch expansion, see Burgess and Pande (2005) for India and Bruhn and Love (2009) for Mexico.

access for individuals, and therefore to probe deeper into the subject of financial inclusion. For instance, using a new micro dataset, Demirguc-Kunt and Klapper (2012) find that the likelihood of owning an account is higher among richer, older, urban, educated, employed, married individuals, with greater trust in banks. Furthermore, expanding financial inclusion can potentially reduce informality in an economy with related benefits such as an increased tax base.

In cross-country studies, economies with better-developed financial systems experience show faster reductions in poverty levels and income inequality. Moreover, financial depth can have direct and indirect effects on small firms and poor households (Beck, et al., 2008). Indicators of financial inclusion show a positive but imperfect correlation with indicators of financial depth such as credit to the private sector over GDP (Figure 1). This correlation shows that access is really a distinct dimension. The positive but imperfect correlations between financial depth and financial services imply that depth of financial systems alone is not sufficient for delivering access to all. The correlations also suggest that there might be room to improve the level of financial inclusion through financial and institutional policy reforms (World Bank, 2008). Greater financial depth is likely to be associated with greater access for both firms and households, making them better able to take advantage of investment opportunities, smooth their consumption, and insure themselves (Beck, et al., 2008).

Figure (1) Correlation between Account Penetration and Financial Depth



Source: Global Financial Inclusion (Global Findex) Database, 2014 Update, World Bank.

According to proponents of institutional economics, the discussion of institutions as a serious issue in economics is becoming more important in recent years compared to the late 1960s and 1970s (Maki, 1993; Prasad, 2003). The current debate within institutional economic thought is divided between the old and new institutionalists (Leibenstein, 1957; North, 1990; Rutherford, 1995). While the definitions of "institutions" may vary across studies, the results are consistent and strong: institutions explain economically and statistically significant differences in per capita incomes across countries (Acemoglu, et al., 2001; Persson, 2004). Broadly, institutions that have been associated with economic performance commonly relate to measures of government risk of expropriation, rule of law, bureaucratic quality, corruption, government repudiation of contracts, civil liberties, and openness to trade. Although there is now a consensus that institutions matter and institutional differences are fundamental in explaining national development paths, the process of integrating institutions and institutional change into economic theory is fairly new (Aron, 2000). There exists only a rudimentary understanding to what degree institutions actually matter in developing countries[2]. Moreover, the causality of the various links and channels of influence between the institutional set-up and development outcome is still not well or fully understood (Jutting, 2003).

Governance consists of the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them. Good governance involves far more than the power of the state or the strength of political will. The rule of law, transparency, and accountability are not merely technical questions of administrative procedure or institutional design. The outcomes of democratizing processes are driven not only by committed leadership, but also by the participation of, and contention among, groups and interests in society – processes that are most effective when sustained and restrained by legitimate, effective institutions. Figure 2 exhibits the strong positive correlation between governance indicators and financial inclusion[3]. Similarly, in-depth research and the proliferation of evidence and empirical measures of institutional quality, governance, and the investment climate have provided results showing that good governance has had a strong positive impact on development.

Individual freedom, the right to property (in all forms) and enterprise, the market mechanism, and distributive justice are inalienable parts of the economic framework of Islam. However, there are moral filters at different levels – individual motivation, personal behavior, social mores and manners, employer-employee conduct and individual-state relationships. Islam has given to mankind freedom of thought, freedom of speech, and freedom of action but within a correct and reasonable framework. Moreover, Islam does not seek to abolish private property nor does it prevent individuals from serving their self-interest. It recognizes the role of the market in the efficient allocation of resources but does not find competition to be sufficient to safeguard social interest. It tries to promote human brotherhood, socio-economic justice and the well-being of all through an integrated role of moral values, market mechanism, families, society, and 'good governance'. The principles of the ownership and distribution of wealth have a direct bearing on the rules of profit maximization as well as on the structure of production in an Islamic economy. But the state has a positive role to play in the nature of supervision, guidance and essential regulation, and producer of public goods while ensuring freedom, economic opportunity and property rights.

(2) Research that focuses on relevant institutions in OECD usually abstracts from the rest of the world. As a result, such studies focus on completely different sets of institutions, such as labor market institutions (Nickell, et al., 2005; Boeri, et al., 2000), traditional factor markets such as human and physical capital (Bassanini, et al., 2001), or product regulations (Nicoletti and Sarpetta, 2003).

(3) Chang (2005) points out the importance of making a clear distinction between the forms and functions of institutions citing the compilation of major "governance" indexes by Kaufmann, et al., (1999, 2002, 2003). He noted that the indexes often mixed up variables that capture the differences in the forms of institutions (democracy, independent judiciary, absence of state ownership) and the functions that they perform (rule of law, respect for private property, enforceability of contracts, maintenance of price stability, the restraint on corruption).

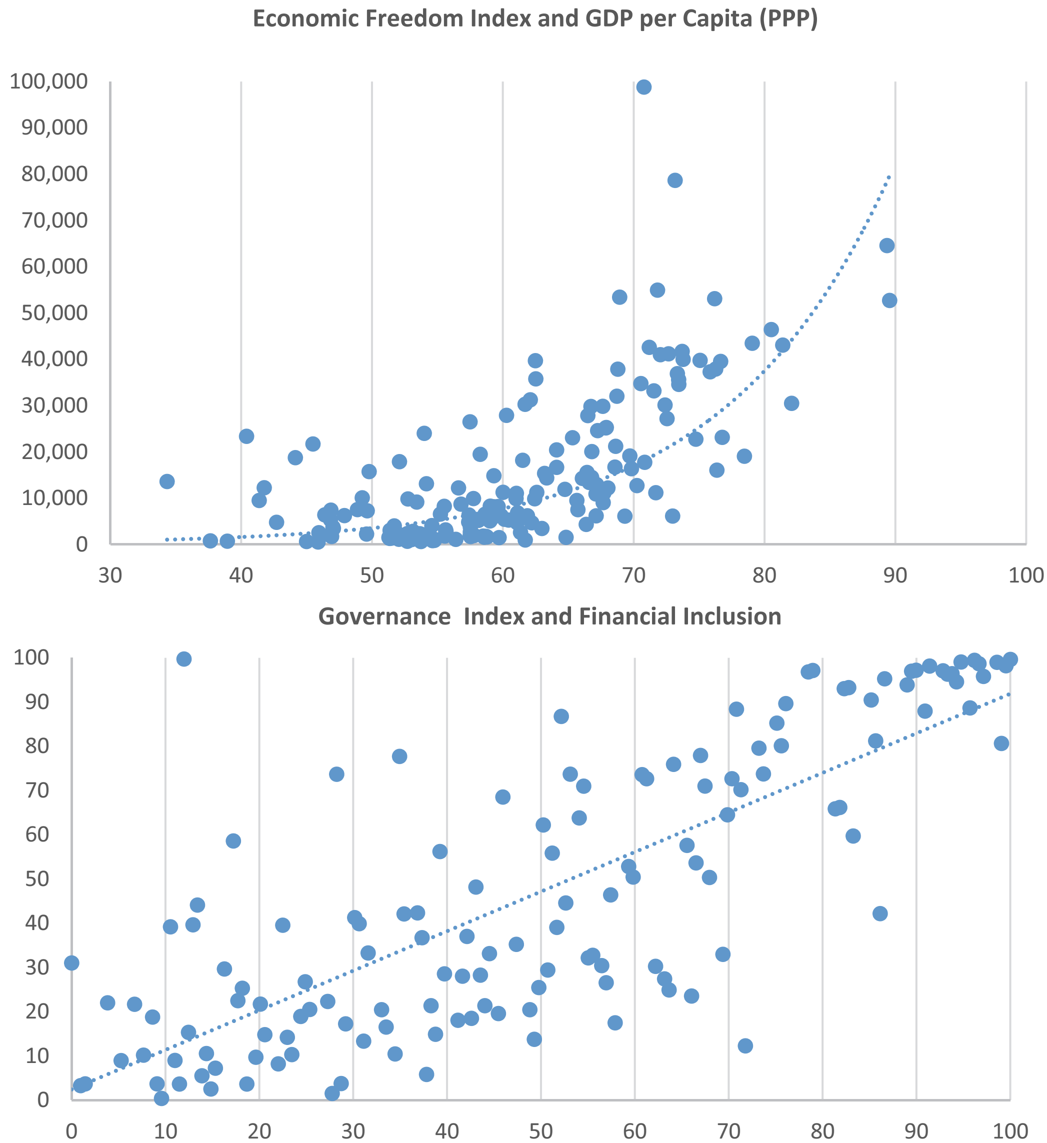
The level of economic freedom that exists in a country depends upon the existence of institutional framework. The greater the degree of economic freedom in a society, the greater the level of income and growth: a recurrent situation, which causes a continuum of advancement in economic freedom. Economic theories suggest that economic freedom tends to affect incentives, productive effort, and the effectiveness of resource use(4). Economists and economic historians have argued that since the time of Adam Smith, the central ingredients for economic progress are the freedom to choose and supply resources, competetion in business, trade with others, and secure property rights. The Economic Freedom Index shows that a total of 90 economies (50 percent of all nations) provide institutional environments in which individuals and private enterprises benefit from at least a moderate degree of economic freedom in the pursuit of greater prosperity and success. Despite varying degrees of economic freedom across the regions, the fundamental relationship between economic freedom and prosperity is readily apparent worldwide. Figure 2 shows a positive non-linear relationship between the economic freedom index and income implying that no matter the region, per capita income levels are consistently higher in countries that are economically freer.

It can also be observed from Figure 2 that the majority of the countries which are less developed or emerging economies, showed advances in economic freedom during the year 2015(5). Among the regions, average levels of economic freedom vary widely. Despite the ongoing economic and political turmoil in a number of countries in the Middle East and North Africa, the region as a whole still achieved an average economic freedom score slightly above 60, while average economic freedom scores in the South and Central America and Caribbean region, the Asia-Pacific region, and Sub-Saharan Africa continue to be below 60. The trends suggest that the whole idea of economic freedom is to empower people with more opportunity to choose for themselves how to pursue and fulfill their dreams, subject only to the basic rule of law and honest competition from others. Governments that respect and promote economic freedom provide the best environment for experimentation, innovation, and progress, and it is through these that humankind grows in prosperity and well-being.

(4) Islam has laid down some principles and prescribed certain limits for the economic activity of man so that the entire pattern of production, exchange, and distribution of wealth may conform to the Islamic standard of justice and equity.

(5) The Economic Freedom Index is released by The Heritage Foundation and The Wall Street Journal.

Figure (2) Economic Freedom, Governance and Financial Inclusion



Source: Global Financial Inclusion (Global Findex) Database, The Worldwide Governance Indicators, 2014 Update, World Bank; The Heritage Foundation, 2015.

3. Data and Methodology

There is a huge body of literature on various factors influencing financial inclusion across countries. The majority of them used Global Findex Gallup 2011 and 2014 individual level database compiled by the Gallup World Poll. Following the literature, we use the Global Findex database as the main sources of data with the focus on developing countries. The study uses three variables as the proxies for financial inclusions: (a) whether the respondent has a formal account in a financial institution, (b) whether the respondent has saved during the past 12 months and (c) whether or not the respondent borrowed from any financial institution during the last 12 months. Table 1 summarizes the statistics for the variables used in the study.

Table (1) Summary of Descriptive Statistics for the Variables Used in the Study

Variable	Obs.	Mean	Std. Dev.	Min	Max
Formal account (0/1)	135,368	0.357	0.479	0	1
Formal saving (0/1)	135,368	0.348	0.476	0	1
Borrowed (0/1)	135,368	0.094	0.291	0	1
Female (0/1)	135,368	0.483	0.500	0	1
Age	135,368	36.446	15.621	15	99
Age²	135,368	1572	1362	225	9801
Income: first quintile (0/1)	135,368	0.185	0.389	0	1
Income: second quintile (0/1)	135,368	0.185	0.388	0	1
Income: third quintile (0/1)	135,368	0.193	0.395	0	1
Income: fourth quintile (0/1)	135,368	0.210	0.407	0	1
Income: fifth quintile (0/1)	135,368	0.226	0.418	0	1
Primary education or less (0/1)	135,368	0.409	0.492	0	1
Secondary education (0/1)	135,368	0.486	0.500	0	1
Tertiary education (0/1)	135,368	0.105	0.307	0	1
Freedomindex1	135,368	50.352	9.844	24	75
Freedomindex2	135,368	77.546	9.064	34.8	94.55
Freedomindex3	135,368	72.490	6.354	33.9	88.3
Governanceindex	135,368	-0.462	0.530	-1.58	1.17
Business freedom	135,368	58.981	14.461	24.9	86.1
Trade freedom	135,368	72.864	8.792	51.8	88.6
Fiscal freedom	135,368	80.973	10.677	46.2	99.9
Government spending	135,368	74.119	14.744	21.4	95.5
Monetary freedom	135,368	72.490	6.354	33.9	88.3
Investment freedom	135,368	47.644	17.986	0	90
Financial freedom	135,368	45.299	14.691	10	80
Property rights	135,368	35.304	14.314	5	75
Freedom from corruption	135,368	31.429	11.835	13.4	72.4
Fiscal freedom	135,368	80.973	10.677	46.2	99.9
Labor freedom	135,368	60.947	15.217	27.2	97
Monetary freedom	135,368	72.490	6.354	33.9	88.3
Voice and accountability	135,368	-0.550	0.673	-2.17	1.13
Political stability	135,368	-0.505	0.788	-2.81	1.22
Government effectiveness	135,368	-0.422	0.645	-1.78	1.25
Regulatory quality	135,368	-0.339	0.612	-2.12	1.33
Rule of law	135,368	-0.456	0.620	-1.83	1.32
Control of corruption	135,368	-0.501	0.588	-1.45	1.29

Source: Authors' own computation.

We investigate the determinants of financial inclusion by utilizing the data on individuals' characteristics in the Global Findex database. We benefit from the individual characteristics of the respondents available in the Global Findex database, including age (and the age squared), income level, and education level. The income level comes in 5 quintiles, 20% poorest, second 20%, third 20%, fourth 20% and finally the richest 20%. Education level comprises of primary, secondary and tertiary levels. We examine how these different characteristics are associated with financial inclusion in developing countries. We perform probit estimations to explain measures of financial inclusion and estimate the following equation:

$$y_{ij} = \alpha + \gamma CHAR_i + \kappa FREE_i + \eta GOVN_i + \varepsilon_{ij} \quad (1)$$

where y is defined as one of three indicators (having account, saving, and borrowing from a financial institution) of financial inclusion for individual i in country j.ε_{ij} is a normally distributed error term with zero mean and variance equal to 1.The explanatory variables belong to two groups of structural characteristics, $CHAR_i$ provided in the survey dataset. The first group is the individual characteristics: income, education, age, and gender. Income is indicated by including four dummy variables, each equal to one if the individual's income is in a given quintile, from the first (poorest 20%) to the fourth (fourth 20%). The omitted dummy variable is for the fifth income quintile. We consider two dummy variables for education, equal to one if the individual has secondary education (Secondary Education) or tertiary education (Tertiary Education). We include age defined as the number of years (Age) and squared age (Age^2) in the estimations, in order to consider possible non-linearity in the relation between age and financial inclusion. The second group of structural characteristics are related to the reasons of not using formal banking: money, distance, documenttation, cost and religiosity.

In addition to the individual characteristics, some country-specific variables are added including the region, governance indicators and freedom indexes. In this study, 5 different regions are included, namely, Sub-Saharan Africa, Middle East and North Africa, South Asia, East Asia and Pacific, Eastern Europe and Central Asia and one category under high-income. Two-year dummies for 2011 and 2013 were also included to capture any effect related to time context. These two dummy variables are going to be the same for every country but different for each year. One example of these can be "systemic" events that influence countries at once but differently over time, e.g., the recent global financial crisis. In order to gauge the behavior of financial inclusion in Muslim and non-Muslim countries, we include a dummy, *Muslim* as a proxy in the regression. It is worth mentioning that both governance and freedom indicators, as well as year dummies, will be the same across individuals for a specific country but different between countries.

We estimate the model using economic freedom set of indicators, $FREE_i$ sourced from the Heritage Foundation Database. In simple terms, economic freedom is a conceptual measure of the private ownership and market allocation of resources, in lieu of government ownership and control. Expressing the sentiment of many, including the originators of the economic freedom index, Berggren (2003) who defines economic freedom as "the degree to which an economy is a market economy--that is, the degree to which it entails the possibility of entering into voluntary contracts within the framework of a stable and predict-able rule of law that upholds contracts and protects private property, with a limited degree of intervene-tionism in the form of government ownership, regulations, and taxes".

In Eq. (1), variable for economic freedom is introduced through principal component analysis to examine the impact of overall economic freedom on financial inclusion. Overall economic freedom index is defined by multiple rights and liberties. Moreover, we have selected three other indices which are closely related to the financial inclusion. These include business, monetary, and financial freedom indices. Business freedom index measures how free entrepreneurs are to start businesses, how easy it is to obtain licenses, and the ease of closing a business. Impedi-ments to any of these three activities are deterrents to businesses and therefore to job creations. Monetary freedom index combines a measure of price stability with an assessment of price controls. Both inflation and price control distorts market activity. Price stability without microeconomic intervention is an ideal state of a free market. Financial freedom index is a measure of banking security as well as independence from government's control. State ownership of banks and other financial institutions such as insurer and capital markets is an inefficient burden; and political favor-itism has no place in a free capital market. All these indices have 0 to 100 scales, where 100 represents ma-ximum freedom. A score of 100 signifies an economic environment or set of policies that are most conducive to economic freedom.

We include in Eq. (1) the institutional indicators proxy by governance indicators through, $GOVN_i$ extracted from the Worldwide Governance Indicators of the World Bank using the principle component analysis. Although the concept of governance is widely discussed among policymakers and scholars, there is as yet no strong consensus around a single definition of governance or institutional quality. We have selected three governance indicators which are closely related to financial inclusion. These include perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and imple-mentation, and the credibility of the government's commitment to such policies. Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regula-tions that permit and promote private sector develop-ment. Rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence.

4. Empirical Results

4.1 Descriptive Statistics

The data covered in this study is 135,368 individual observations including 67,177 and 68,191 observations for 2011 and 2013, respectively, across 69 developing and emerging economies including Muslim countries. The countries range across five regions including Sub-Saharan Africa, Middle East and North Africa, South Asia, East Asia and Pacific, Eastern Europe and Central Asia and one category under high-income for high income countries among the emerging and developing economies. The countries across the regions that are grouped into high-income are Saudi Arabia, Kuwait, Qatar, Bahrain, UAE and Malta.

Table 2 and Table 3 show that on average 35.7% of the respondents in 69 countries under study have had accounts with a formal financial institution. Among them, on average 34.8% have saved in a formal financial institution within the last 12 months and only 9.4% reported that they borrowed money from an institution within the last 12 months. At country level, Malta with 95.8% has had the highest level of indivi-duals with an account, while Turkmenistan with less than 1% has had the lowest percentage of individuals with an account. For the case of savings, interestingly, Nigeria has experienced the highest percentage of individuals who saved within the last 12 months while Pakistan with 7.7% had the lowest percentage. In the case of borrowing from a formal institution, Bahrain and Mongolia with almost 26.5% and Algeria with 1.2% of individuals had the highest and lowest percentage of people who borrowed within the last 12 months, respectively.

Table (2) Summary Statistics for Financial Inclusions Indicators by Country

Country	# of observations	Having account (%)	Saved within last 12 month (%)	Borrowed within last 12 month (%)
Albania	1934	35.5	26.3	7.3
Algeria	2000	37.9	24.8	1.5
Angola	1758	43.5	43.6	8.2
Armenia	1986	18.7	11.1	18.6
Azerbaijan	1910	19.0	12.4	17.6
Bahrain	1886	69.2	44.6	26.4
Bangladesh	1990	39.3	27.9	23.9
Belarus	1926	63.3	28.9	16.8
Benin	1998	14.0	33.6	5.1
Botswana	1992	43.7	36.1	8.2
Bulgaria	1950	57.0	12.0	7.0
Burkina	2000	21.0	44.0	4.7
Burundi	1994	10.2	26.3	2.2
Cambodia	2000	3.9	31.0	18.0
Cameroon	1992	18.8	53.5	4.8
Central Africa	1980	4.1	26.7	1.0
Chad	1978	15.6	31.9	6.9
Comoros	1998	21.0	28.9	7.2
Djibouti	1958	13.9	17.4	4.7
Gabon	1988	26.4	36.3	2.9
Ghana	1992	39.9	45.0	6.9
Guinea	1996	5.7	30.1	3.1
India	6856	41.7	27.9	8.1
Indonesia	1966	23.8	43.8	11.2
Jordan	1988	36.0	22.6	6.3
Kazakhstan	1806	44.0	24.7	14.0
Kenya	2000	44.8	41.9	10.1
Kuwait	1976	88.9	49.9	25.6
Kyrgyz Republic	1980	4.8	38.5	12.8
Lebanon	1944	39.6	31.7	12.1
Lesotho	998	25.1	29.7	4.3
Liberia	1998	30.5	48.3	9.7
Madagascar	2000	8.3	24.0	3.5
Malawi	2000	24.5	37.2	10.5
Malaysia	1880	71.7	53.1	11.8
Mali	2000	10.9	38.9	4.3
Malta	1978	95.8	52.3	9.5
Mauritania	1984	23.8	23.9	9.9
Mauritius	1948	83.4	50.5	14.7
Moldova	1936	17.5	23.3	6.1
Mongolia	986	77.5	33.6	26.6
Morocco	987	42.2	31.9	5.2
Mozambique	999	48.7	48.6	7.1
Nepal	1940	24.5	18.2	10.8
Niger	2000	3.1	25.8	1.7
Nigeria	1996	39.0	69.7	2.4
Oman	1948	72.1	57.4	8.1
Pakistan	1962	10.0	7.7	1.9
Philippines	1988	29.9	45.4	11.0

Country	# of observations	Having account (%)	Saved within last 12 month (%)	Borrowed within last 12 month (%)
Qatar	1950	72.5	60.1	15.1
Rwanda	1994	39.5	34.3	10.3
Saudi Arabia	1940	47.9	34.4	2.6
Senegal	1996	9.7	18.5	4.5
Sierra Leone	2000	24.5	40.2	8.0
Central Africa	1996	59.4	36.6	11.1
Sri Lanka	1980	71.2	38.2	20.2
Swaziland	1962	45.0	42.3	19.2
Tajikistan	1922	3.4	14.9	4.9
Tanzania	1994	21.3	46.0	8.8
Thailand	1984	74.0	63.2	18.4
Tunisia	1016	34.4	25.7	3.6
Turkey	1994	63.9	10.8	4.6
Turkmenistan	1990	0.7	45.6	1.1
Uganda	1992	30.3	50.8	10.7
Ukraine	1872	48.1	27.9	8.9
UAE	1958	63.3	36.4	11.5
Uzbekistan	1970	25.2	33.6	1.5
Vietnam	1616	27.2	43.9	16.7
Zambia	1992	35.1	41.0	8.4

Source: Authors' own computation.

Table (3) Summary of Descriptive Statistics for Financial Inclusion Indicators by Region

Region	# of Observations	Having account (%)	Saved within last 12 month (%)	Borrowed within last 12 month (%)
East Asia & Pacific	12,420	41.5	45.7	15.4
Europe & Central Asia	25,176	30.7	23.9	9.3
High income	15,530	75.8	49.9	14.3
Middle East and North Africa	9,893	33.2	25.0	5.8
South Asia	14,728	38.9	25.3	11.4
Sub-Saharan Africa	59,515	27.7	38.1	7.1

Source: Authors' own computation.

Regarding the distribution of age in the sample, the average age for the respondents is 36 years, but ranging between 15 to 99 years for the whole sample. Around 48% of the respondents were female. The distribution of respondents over the income quintile is fairly distributed, on average, ranging from 18.5% for the poorest and second quintile, 19% for third quintile and 21%, and 22.6% for the fourth and fifth quintiles, respecttively. The income gap between the highest quintile and lowest quintile is on average about 4%. In terms of education attainment among the respondents, about 40% were with primary education or less, 48.8% with secondary education and 10.8% with tertiary education.

On a regional level, as expected, the high-income group of countries has the highest percentage of individuals with an account at 75.8%, while the Sub-Saharan Africa group has the lowest at 27.7%. Regarding saving, the high-income group also shows the highest percentage of people at almost 50%, while interestingly the Eastern Europe and Central Asia group shows the lowest percentage of people who saved at 23.9%, which can reflect the negative consequences of the euro zone financial hardship during the last 5-6 years. On borrowing, the data shows a totally different trend – the East Asia and Pacific region has experienced the highest percentage of people who borrowed compared to other groups at 15.4%, while the MENA region shows the lowest percentage of people with borrowing.

4.2 Principal Component Analysis for Governance and Economic Freedom Index

The freedom indexes comprise of 10 distinguished indexes, each one capturing a specific aspect of economic freedom. In the same vein, governance indicators encompass 6 indicators representing different aspects of governance. The correlation coefficient among these variables shows high correlation. Table 4 shows the correlation matrix of the sub-indices of the economic freedom index and the governance index. Under such circumstances, one option to deal with high correlation among indicators is to drop some of the indicators from the regressions but that requires precise criteria in which indicator or indicators should be dropped. The second option would be to create an indicator or some indicators from the original indicators using factor analysis. The latter option allows us to benefit from the variety of indicators while avoiding any multicollinearity that can be present.

In this context, we employ principal component analysis for both freedom and governance indicators separately for the samples of countries under study. The results are shown in Tables 5-8. The freedom indexes can be grouped into three distinguished orthogonal indexes named as *Freedomindex1*, *Freedomindex2*, and *Freedomindex3*. The criterion by which we decided to group these indicators is the Eigen value greater than one. The methodology suggests to include the variables into the component by analyzing factor loading, that is to underline or mark all of the loadings in the rotated factor matrix that are higher than 0.40.

Table (4). Correlation coefficient matrix for economic freedom and governance indicators.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Business Freedom (1)	1															
Property Rights (2)	0.3122	1														
Freedom from Corruption (3)	0.4474	0.8644	1													
Fiscal Freedom (4)	0.3846	0.1612	0.3071	1												
Government Spending (5)	-0.189	-0.1869	-0.1731	-0.0087	1											
Labor Freedom (6)	0.3862	0.3184	0.3657	0.3248	-0.1739	1										
Monetary Freedom (7)	0.0877	0.2114	0.2633	0.0194	0.1131	-0.0944	1									
Trade Freedom (8)	0.5356	0.3593	0.4559	0.4365	-0.2444	0.2776	0.16	1								
Investment Freedom (9)	0.2376	0.4131	0.4034	0.0075	-0.0445	0.2196	0.357	0.2844	1							
Financial Freedom (10)	0.35	0.5935	0.5224	0.2231	-0.0456	0.3398	0.4086	0.4339	0.7041	1						
Voice and Accountability (11)	0.0418	0.4935	0.321	-0.2576	-0.1041	-0.0431	0.2244	0.1341	0.3908	0.3942	1					
Political Stability (12)	0.3053	0.4129	0.5596	0.1922	-0.2895	0.1292	0.177	0.4486	0.2185	0.2617	0.1758	1				
Government Effectiveness (13)	0.5277	0.8016	0.8372	0.2844	-0.1459	0.4495	0.2694	0.5571	0.4003	0.628	0.4446	0.4442	1			
Regulatory Quality (14)	0.5271	0.7727	0.7968	0.2458	-0.132	0.4281	0.4128	0.5652	0.6497	0.8023	0.5244	0.4295	0.889	1		
Rule of Law (15)	0.4448	0.8955	0.9119	0.2473	-0.203	0.3944	0.247	0.5236	0.4484	0.583	0.4789	0.5547	0.913	0.86	1	
Control of Corruption (16)	0.4532	0.8175	0.9396	0.1887	-0.2018	0.3383	0.2837	0.4326	0.3979	0.484	0.3256	0.5769	0.822	0.767	0.882	1

Source: authors' own computation.

Table (5) Factor analyses of freedom indexes

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	3.8983	2.3434	0.3898	0.3898
Factor2	1.5549	0.4863	0.1555	0.5453
Factor3	1.0685	0.2079	0.1069	0.6522
Factor4	0.8606	0.0725	0.0861	0.7382
Factor5	0.7880	0.2333	0.0788	0.817
Factor6	0.5546	0.0219	0.0555	0.8725
Factor7	0.5326	0.1451	0.0533	0.9258
Factor8	0.3875	0.1243	0.0388	0.9645
Factor9	0.2632	0.1718	0.0263	0.9909
Factor10	0.0913		0.0091	1.0000
# of observations	135,368			
LR test		Chi2 (45)=6*e+5		

Source: Authors' own computation.

Table (6) Factor loading (pattern matrix) of freedom indexes

Variable	Factor1	Factor2	Factor3	Uniqueness
Business freedom	0.645	-0.374	0.179	0.411
Trade freedom	0.687	-0.280	0.183	0.415
Fiscal freedom	0.447	-0.487	0.562	0.246
Government spending	-0.242	0.385	0.685	0.323
Monetary freedom	0.356	0.636	0.283	0.388
Investment freedom	0.630	0.490	-0.084	0.354
Financial freedom	0.795	0.352	0.044	0.240
Property rights	0.781	0.145	-0.312	0.270
Freedom from corruption	0.833	0.033	-0.159	0.278
Labor freedom	0.536	-0.398	-0.062	0.549
# of observations	135,368			

Source: Authors' own computation.

Table (7) Factor analyses of governance indicators

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	4.1672	3.2893	0.6945	0.6945
Factor2	0.8779	0.2947	0.1463	0.8409
Factor3	0.5831	0.3871	0.0972	0.9381
Factor4	0.1960	0.0858	0.0327	0.9707
Factor5	0.1101	0.0446	0.0184	0.9891
Factor6	0.0655		0.0109	1.0000
# of observations		135,368		
LR test	Chi2(15)		7.9e+5	

Source: Authors' own computation.

Table (8) Factor loading (pattern matrix) of governance indicators

Variable	Factor1	Uniqueness
Voice and accountability	0.557	0.689
Political stability	0.621	0.615
Government effectiveness	0.936	0.124
Regulatory quality	0.920	0.153
Rule of law	0.964	0.069
Control of corruption	0.905	0.181
# of observations	135,368	

Source: Authors' own computation.

Based on the component analyses *Freedomindex1* encompasses seven indexes including business freedom, trade freedom, financial freedom, having property rights in place, freedom from corruption, labor freedom, and investment freedom. *Freedomindex2* includes government spending and fiscal freedom and *freedomindex3* only includes monetary freedom. On the other hand, the governance indicators can only be grouped into one indicator based on the Eigen value criteria named as *governance index* and measured as the simple average of all the following indicators: voice accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. In our regression results, we include all indexes replacing the original freedom and governance indexes.

4.3 Structural Determinants of Financial Inclusion in Muslim and Developing Countries

The probit regression results of individual characteristics and freedom and governance indictors on three distinct financial inclusions are shown in Table 9. The results show that females have a higher probability of having accounts, higher activity on savings and higher tendency to borrow money from financial institutions. The higher the age, the more likely that the individuals have an account, are saving and borrowing. However, the negative impacts of age squared indicate the diminishing behavior as age increases. Age shows a higher impact on borrowing than having an account or saving formally. Similarly, a higher level of education is also associated with higher levels of financial

Table (9) Probit Regression Results of Financial Inclusion, Institution and Muslim Countries

	Dependent variables		
	Has formal account (0/1)	Formal saving within last 12 month (0/1)	Formal borrowing within last 12 month (0/1)
Female (0/1)	0.2069* (0.0079)	0.1045* (0.0073)	0.0993* (0.0100)
Age	0.0714* (0.0013)	0.0443* (0.0012)	0.0801* (0.0019)
Age²	-0.0007* (0.0001)	-0.0005* (0.0001)	-0.0009* (0.0001)
Secondary education	0.6420* (0.0093)	0.2923* (0.0086)	0.2430* (0.0122)
Tertiary education	1.2380* (0.0151)	0.6161* (0.0138)	0.4568* (0.0173)
Income: second quintile	0.1241* (0.0136)	0.1507* (0.0125)	0.0468* (0.0174)
Income: third quintile	0.2686* (0.0133)	0.2457* (0.0123)	0.0762* (0.0171)
Income: fourth quintile	0.4302* (0.0130)	0.3954* (0.0120)	0.1369* (0.0167)
Income: fifth quintile (20% richest)	0.6813* (0.0130)	0.5714* (0.0120)	0.2484* (0.0164)
Freedomindex1	0.0189* (0.0008)	-0.0073* (0.0007)	0.0221* (0.0010)
Freedomindex2	-0.0148* (0.0005)	0.0059* (0.0004)	-0.0022* (0.0006)
Freedomindex3	-0.0249* (0.0007)	-0.0135* (0.0007)	-0.0037* (0.0009)
Governance index	0.5088* (0.0159)	0.1560* (0.0142)	-0.2079* (0.0191)
Europe and Central Asia	-0.5588* (0.0170)	-0.7344* (0.0155)	-0.4562* (0.0196)

High income	0.1270* (0.0208)	-0.0769* (0.0172)	-0.3441* (0.0216)
Middle East and North Africa	-0.2335* (0.0214)	-0.4873* (0.0194)	-0.6662* (0.0268)
South Asia	0.0998* (0.0179)	-0.6287* (0.0172)	-0.0924* (0.0210)
Sub-Saharan Africa	-0.3157* (0.0147)	-0.1197* (0.0134)	-0.4295* (0.0170)
Muslim Countries	-0.0106*	-0.0104*	-0.1227*
	(0.0104)	(0.0094)	(0.0128)
Year 2013	0.0902* (0.0080)	0.0423* (0.0073)	0.0124** (0.0100)
Constant	-0.3872* (0.0755)	-0.6136* (0.0708)	-3.6820* (0.0969)
No. of Observations Log Likelihood LR test	135,368 -67,176 42,066	135,368 -80,428 14,110	135,368 -39,056 6,072

Note: Standard error in parentheses. * and** indicate significance at 1% levels and 10% levels, respectively.
Source: Authors' own computation.

inclusion particularly in having an account. In other words, as people achieve a higher level of education, they are more likely to open an account or save or borrow from a financial institution.

The results on five levels of income quintile clearly reflect the fact that the higher the level of individual income, the more likely they are to engage in financial activities, as indicated by the coefficient on various levels of income. The coefficients on income levels across all three regressions increase when the income increases. This finding is consistent with Demirguc-Kunt et al. (2013) that income and access to information are strongly associated with awareness and usage related to financial inclusion. While the results on year dummy for 2013 shows that, on average, individuals in countries under study were more engaged in financial activities in 2013 than in 2011. In other words, based on the two years of 2011 and 2013, the trend of financial inclusion is improving over time.

Finally, we find significant differences in explaining financial inclusion between Muslim countries and non-Muslim countries. Muslim countries exhibit a negative relationship towards financial inclusion indicators. The differences between Muslims and non-Muslims count-ries may be attributed to some extent on the economy-level variation in the size of the Islamic finance industry or preference and use for Islamic financial services that conform to religious belief. The finding corroborates the study by Demirguc-Kunt et al. (2013) that provide evidence of a strong hypothetical preference of Muslims for Sharīʿah-compliant products despite higher costs. Therefore, in Muslims countries, people are less likely to own a formal account, save or borrow at a formal financial institution.

Another reason for observing low financial inclusion could be the underdevelopment of the financial sector in many Muslim countries, especially, in the Sub-Saharan African region, i.e. only 27% of individuals surveyed have an account with financial institutions. Moreover, by differentiating between Muslim and non-Muslim countries, it helps to identify behavior among the different individuals in the society based on preferences and perceptions about the financial institutions and Sharīʿah-compliance. In this regard, individuals can treat the three financial inclusion indicators including having an account, saving and borrowing, differently with people who simply oppose having any transactions with financial institutions to avoid any *ribā*-based transactions. On the other hand, it may be due to mandatory requirements in order to fulfill daily financial transactions or simply a choice to have transactions with the financial institutions as long as the bank has the label of being Sharīʿah-compliant.

4.4 Impacts of Governance and Economic Freedom on Financial Inclusion

Several interesting facts emerge from the analysis pertaining to the issues of governance and economic freedom. The results show that neither the impacts of governance indicators nor the freedom indexes are conclusive; governance indicators influence having an account and saving in a financial institution positively, but on borrowing negatively. On the other hand, freedom indexes show mixed results as shown in Table 10. The results suggest that a lack of corruption, a transparent legal framework and fair judicial proceedings and good administration are essential for development and raising financial inclusiveness prospects. However, a number of developing countries face challenges in this regard. Very few developing countries are ranked above the global average for measures of rule of law and the majority are ranked below the global average in measures of government effectiveness and political stability (Holmes et al., 2014).

Table (10) Impacts of governance and freedom indexes on financial inclusion

Indicators	Freedom indices			Governance Indicator
	Freedom Index 1	Freedom Index 2	Freedom Index 3	
Having an account in financial institution	+	-	+	+
Save in a financial institution	-	+	-	+
Borrow from a financial institution	-	-	-	-

Note: Adopted from the regression results in Table 8 and Table 9.

Source: Authors' own computation.

In explaining the possible reasons for such a pattern, we need to distinguish among three financial inclusion variables under this study and their possible and potential determinants. Opening an account is a "gate" to other financial services, including saving and borrowing. More specifically, deciding on opening an account is determined by different factors compared to the other two services. When it comes to saving and borrowing, some other factors come to play which are more relevant to those financial activities than having an account. For example, the two main elements that encourage (or discourage) people to save or borrow are inflation and interest or profit rates. Such elements to a big extent determine whether a person decides to save or borrow but not to open an account.

Table 10 shows that governance indicators are more relevant to the financial inclusion variables than freedom indexes. Political stability and regulatory quality are good examples of how relevant the governance indicators are to the financial inclusion. These two indicators determine the extent of the trustworthiness of a financial system. If a country is struggling with its political situation, the people do not have enough incentive (or trust) to engage seriously in any financial activities. This finding corroborates with the Islamic principles that economic and political trustworthiness is gained with the combination of *īmān* and piousness. On the other hand, obviously, investment freedom, business freedom, monetary freedom and labor freedom (among the other freedom indexes) do not seem to have any direct relationship with the decision on having an account or to save in or borrow from a financial institution.

Even in some extreme cases where the country does not have an established and solid financial system, having monetary and/or fiscal freedom can lead to chaos and frighten possible savers/investors from saving/borrowing from the financial system. In the case of Islamic perspective, the foundation of economic freedom is not merely to accumulate wealth, but it is on spending of wealth. It is important that promoting economic prosperity and opportunities require the ability of individuals or firms to access economic opportunities on a fair and competitive basis. Open and competitive markets create a more efficient allocation of resources across the economy at large and boost productive potential across firms. However, the results suggest that there are challenges with respect to measures of business and investment freedom.

5. Conclusion

The structural determinants of financial inclusion from the analysis are age, income and education level which are consistent with other similar findings (Fungacova and Weill, 2015; Demirguc-Kunt, et al., 2013). The findings indicate that females have a higher probability of having accounts, higher activity on savings and higher tendency to borrow money from financial institutions. The higher the age, the more likely the individuals have an account, save and borrow, while the higher the level of individual income, the more likely they are to engage in financial activities. On the other hand, the results suggest that neither the impacts of governance indicators nor the freedom indexes are conclusive, while economic freedom show mixed results on financial inclusion. Governance had a positive influence on the extent people want to open an account and make savings in a financial institution, but impacted negatively on borrowing.

The findings of this study present considerable policy relevance. In view of the facts, formal finance can be used as a means to increase economic growth and to combat poverty and social exclusion, removing corruption, increasing transparency of the legal framework, having fair judicial proceedings and good administration, which are essential ingredients for development and raising financial inclusiveness prospects. Furthermore, improving the level of governance and economic freedom reduces the informality in the financial markets. Reaching out to individuals in the informal markets is particularly important because all households, no matter how poor they are, are said to engage in a number of financial activities to build assets, prepare for life events and emergencies and cover daily transactions.

Islamic socio-economic system as a divinely ordained system may provide a solution to the high degree of financial exclusion which exists in Muslim countries. The beauty of Islam lies in the code of life, which it demands from the man, that is, to be the best of the best in the hereafter. This gives an equal opportunity to the rich and poor to gain that stratum. Islamic socio-economic system with its own social vision i.e. *maqāṣid* al- Sharīʿah, could strike a balance between individual rights and freedom as well as the social rights and freedom. It forbids *ribā* and other forms of monopolistic and exploitative acts to ensure a higher degree of socio-economic equity and enhance financial inclusion. Furthermore, it grants individuals and societies with a high degree of freedom in dealing with property. It also gives individuals many more economic rights and freedom than that of the socialist or capitalist system.

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Appendix (1) Data Description and Sources

Variable	Description – Structural Indicators	Source
Formal account (0/1)	Binary variable that takes the value of one if the respondent reported to currently have, possibly together with someone else, a bank account at a formal financial institution---a bank, credit union, cooperative, post office, or microfinance institution. This includes having a debit card	Global Findex/ Gallup 2014
Formal savings (0/1)	Binary variable that takes the value of one if the respondent reported to have saved or set aside money in the past 12 months using an account at a bank, credit union, cooperative, or microfinance institution	Global Findex / Gallup 2014
Formal credit (0/1)	Binary variable that takes the value of one if the respondent reported to have borrowed money from a bank, credit union, microfinance institution, or other formal financial institution in the past 12 months	Global Findex / Gallup 2014
Age	Age in years	Global Findex / Gallup 2014
Female (0/1)	Binary variable that takes the value of one if the respondent is female.	Global Findex / Gallup 2014
Age squared	Age in years, squared	Global Findex / Gallup 2014
Income: poorest 20% (0/1)	Binary variable that takes the value of one if the respondent falls in the lowest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Global Findex / Gallup 2014
Income: second 20% (0/1)	Binary variable that takes the value of one if the respondent falls in the second lowest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Global Findex / Gallup 2014
Income: middle 20% (0/1)	Binary variable that takes the value of one if the respondent falls in the middle income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Global Findex / Gallup 2014
Income: fourth 20% (0/1)	Binary variable that takes the value of one if the respondent falls in the second highest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Global Findex / Gallup 2014
Income: richest 20% (0/1)	Binary variable that takes the value of one if the respondent falls in the highest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Global Findex / Gallup 2014
Variable	**Description – Economic Freedom Indicators**	**Source**
Economic freedom	defined by multiple rights and liberties can be quantified as an index of less abstract components. The index uses 10 specific freedoms, some as composites of even further detailed and quantifiable components	Heritage Foundation (www.heritage.org/index)
Business freedom	measures how free entrepreneurs are to start businesses, how easy it is to obtain licenses, and the ease of closing a business. Impediments to any of these three activities are deterrents to business and therefore to job creation.	Heritage Foundation (www.heritage.org/index)
Monetary freedom	combines a measure of price stability with an assessment of price controls. Both inflation and price controls distort market activity. Price stability without microeconomic intervention is the ideal state for the free market.	Heritage Foundation (www.heritage.org/index)

Variable	Description – Structural Indicators	Source
Financial freedom	measures of banking security as well as independence from government control. State ownership of banks and other financial institutions such as insurer and capital markets is an inefficient burden, and political favoritism has no place in a free capital market.	Heritage Foundation (www.heritage.org/index)
Variable	**Description – Governance Indicators**	**Source**
Government Effectiveness	Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	The Worldwide Governance Indicators, 2014 Update
Regulatory Quality	Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	The Worldwide Governance Indicators, 2014 Update
Rule of Law	Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	The Worldwide Governance Indicators, 2014 Update

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أثر الحوكمة والعمل المؤسسي على الشمول المالي:
شواهد من البلدان الإسلامية والاقتصادات النامية

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المستخلص. باستخدام ما يزيد عن ١٠٠ ألف من البيانات المتعلقة بخصائص المستجيبين في قاعدة بيانات (فيندكس) العالمية، تدرس هذه الورقة بهدف استنطاق العلاقة التي تربط بين الشمول المالي والعمل المؤسسي والحوكمة في البلدان الإسلامية والنامية، وذلك باستخدام منهج تحليل البيانات اللوحي. وتناقش هذه الورقة أهمية الحوكمة الاقتصادية القوية والعمل المؤسسي المتين في تعزيز الشمول المالي، وخاصة بالنسبة للفئات الفقيرة من المجتمع. ذلك لأن الأسواق والنشاط الاقتصادي والمعاملات عامة لا يمكن أن تعمل بشكل جيد في غيابهما. وتشير نتائج الدراسة إلى أن الحوكمة تؤثر بشكل إيجابي على الشمول المالي من حيث زيادة عدد الحسابات المصرفية والادخار في المؤسسات المالية الرسمية، بينما تؤثر بشكل سلبي على سلوك الاقتراض. كما تشير هذه النتائج أيضا إلى وجود اختلافات كبيرة بين البلدان والأقاليم في تفسيرها للشمول المالي. وفي الأخير تعتبر هذه الدراسة أن إزالة الفساد، وتعزيز شفافية الإطار القانوني، والإجراءات القضائية العادلة، والإدارة الجيدة من العناصر الأساسية التي تساهم في تعزيز التنمية ورفع آفاق الشمول المالي.

الكلمات الرئيسية: الأسواق المالية؛ الشمول المالي؛ المؤسسات؛ الحوكمة؛ التنمية