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# Quality of Institutions and Inclusive Financial Development in the Muslim World

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*If the misery of the poor be caused not by the laws of nature,*
*but by our institutions great is our sin.*
—Charles Darwin

**Abstract** This chapter explores the linkages between financial development and quality of institutions with poverty using cross-sectional and panel data sets for Islamic countries. The empirical findings show that financial inclusion and development significantly alleviate poverty in the Muslim world. However, poverty-reducing effect of financial development is not robust to the use of different measures of financial development. In contrast, the poverty-reducing effect of institutional quality remains robustly negative and significant in all models. Corruption turns out to be the most significant predictor of poverty in the Muslim world. This study concludes that both inclusive

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financial development and institutions are important to address the issue of widespread poverty. Nevertheless, these are the institutions, which are prerequisite to eradicate the poverty because institutions also play a mediating role to ensure poverty-reducing effect of financial development.

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## 1.1 Introduction

An extensive literature has focused on the relationship of financial development and economic growth of an economy and has widely recognized the importance of finance for economic performance (King and Levine 1993). Another body of the literature has focused on the linkages between institutional infrastructures to explain growth and emphasizes on the development of institutions to attain long-run sustainable growth rates (Scully 1988; Knack and Keefer 1995). Whereas finance and institutions matter for economic growth, they also have the power to explain poverty outcomes in developing countries. However, surprisingly, the empirical literate has paid little attention to analyze the linkages between institutions with poverty.

The empirical studies provide evidence that development of financial sector helps to eradicate poverty (Honohan 2004; Jalilian and Kirkpatrick 2005; Beck et al. 2007; Jeanneney and Kpodar 2008). These studies point out that one of the fundamental causes of poverty is the inability of a poor to save from his minimum earnings and to invest them into productive activities. In this regard, financial markets are not only the means of enhancing poor's access to formal modes of finance provision but also yield efficient ways of savings, mobilizing and allocating resources.

The favorable outcomes of increased financial development for growth and poverty may be inhibited in the presence of low quality of institutions and widespread corruption. In the presence of weak institutional infrastructure, the resource allocation can be diverted from productive purposes to the inefficient utilization of resources. In particular, low-quality institutions are disadvantageous to the poor because they divert the benefits of financial development and growth from the poor to the rich. Therefore, a financial system embedded in strong institutional setup is necessary to eliminate poverty. Tebaldi and Mohan (2010) argue that improving the quality of institutions is the only way that can help to escape from the poverty trap.

The extant empirical literature on finance and poverty suggests that financial development can have diverse effects on poverty. For instance, Honohan (2004) finds out favorable impact of financial development on poverty. However, some empirical studies find out unfavorable impact of financial development on poverty. For example, Jeanneney and Kpodar (2008) show financial development is not poverty reducing when disadvantages of financial crises exceed the advantages of financial development. The available literature on finance and poverty does not incorporate the role of institutions to explain the links of finance with poverty. In particular, the importance of this relationship is not focused on the case of Muslim countries where poverty is a serious issue. Moreover, the mediating role of institutions to explain the poverty–finance nexus is ignored.

This study incorporates the role of institutions in shaping the finance–poverty relationships and attempts to address the following questions. (1) Does improvement in financial development help to ameliorate poverty? (2) Does financial inclusion alleviate poverty? (3) Does the institutional framework matter in explaining poverty outcomes? (4) Do different dimensions of institutions influence the poor differently? (5) Does quality of institutions mediate the relationship of finance with poverty? In this study, we test the following hypothesis for the Muslim world.

H1: The improvement in financial sector helps to eradicate poverty.

H2: Higher inclusive financial development alleviates poverty burden.
H3: The impact of financial development on poverty varies depending upon the measures of financial development.
H4: Higher quality of institutions ensures eradication of poverty.
H5: Higher quality of institutions strengthens the poverty-reducing effect of finance.

The remaining chapter is organized as follows: Sect. 1.2 provides a discussion on the relevant literature. The analytical framework of the study is provided in Sect. 1.3. The descriptions of data and estimation methods have been given in Sect. 1.4. Section 1.5 puts forward the discussion of empirical findings. Finally, Sect. 1.6 concludes the discussion with policy recommendations.

## 1.2 Literature Review

The literature on causes of poverty reduction suggests that economic growth is an important strategy to eradicate poverty. For example, Dollar and Kraay (2002), in a cross-country data of 92 countries, found support to the proposition that the average income of the poorest bottom quintile increases with the growth of the average income of society. Similarly, Adams (2004) found poverty-decreasing effect of economic growth using a sample of 50 countries. In contrast, some studies do not find empirical support to confirm the poverty-reducing effect of economic growth. For example, Eastwood and Lipton (2002) replicated the study of Dollar and Kraay (2002) for a sample of 23 countries. They found the evidence that growth does not necessarily reduce poverty. They showed that that there are many episodes when high economic growth is neither pro-poor nor anti-poor. They argue that poverty effect of growth depends upon the degree of initial inequality. They found that economic growth, especially agriculture growth, adversely affected the poor in the presence of higher initial inequality.

Another important cause of poverty is the capital market failure that restricts the poor from borrowing and making investment. Theoretical

literature predicts the negative impact of financial development on poverty. Schumpeter (1911) argues that financial intermediaries facilitate savings allocation that in turn enhance productivity and growth and ameliorate poverty. Similarly, Stiglitz (1994) argues that poverty can be reduced by increasing the poor's access to formal finance through addressing the failures and imperfections of financial markets. The development of financial markets helps the poor by providing them the credit and services for consumption and investment. The empirical literature also provides favorable evidence of financial development on poverty. For instance, using a sample of 70 countries, Honohan (2004) showed that poverty decreases by 2.5–3% in response to 10 percentage point increase in private-credit-to-GDP ratio. Moreover, he found that the role of governance-related variables is also significant in reducing poverty. Similarly, Jalilian and Kirkpatrick (2005) showed that one percent increase in financial development causes 0.3% decrease in poverty.

Another study of Beck et al. (2007) investigated finance–poverty nexus using private-credit-to-GDP ratio as a measure of financial development and a sample of 72 countries from 1960 to 2005. The findings of their study exhibited that financial development helps to reduce inequality and poverty. Jeanneney and Kpodar (2008) used two proxies of financial development that are credit-to-GDP ratio and broad-money-to-GDP ratio (liquidity ratio) for a sample of 75 countries over the period 1966–2000. They found out that financial development reduces poverty through McKinnon conduit effect (money/GDP ratio). They argue that financial development is pro-poor while financial instability is anti-poor. Likewise, Akhter and Daly (2009) also find similar evidence in a panel data of 54 developing countries from 1993 to 2004. Their study confirms poverty-reducing effect of financial development while poverty-increasing effect of financial instability. Moreover, political instability and corruption also accentuate poverty.

Contrary, some studies doubt on the poverty-reducing effects of financial development. For example, Fulford (2011) points out that the literature highlighting the poverty-reducing effect of financial development does not consider dynamic effects of financial development on poor and simply focuses on short horizons. However, financial development initially reduces poverty by increasing consumption of the poor,

however, after some time increases poverty by decreasing consumption of the poor. Similarly, Rewilak (2013) found mixed evidence on poverty–finance nexus using the extended data of Dollar and Kraay. He found that financial development did not reduce poverty in Latin America and Caribbean countries while reduced poverty in South Asia. In addition, the poverty-decreasing effect of financial development can be constrained by corruption in the financial sector and other political factors may divert the credit from the poor to the rich or to unproductive uses. Thus, it is also important to include the role of institutions to have a better understanding of finance–poverty nexus.

The literature on institution has widely recognized the positive association of institution with economic growth (Scully 1988; Knack and Keefer 1995; Dollar and Kraay 2003). For example, Scully (1988) found out that economies having strong rule of law, market allocation of resources, private property rights, and poetically open societies tend to grow three times faster than those not having such freedoms. Apart from favorable outcomes for economic growth, institutions also influence inequality. Chong and Calderon (2000a) showed that high-quality institutions reduced inequality in rich countries while increased inequality in poor countries. The possible reason of diverse effects of institutions on inequality is the difference in transaction costs between the rich and the poor countries. The poor countries face additional transaction costs at the initial stages of new institutional setup. For instance, to control for corruption, to implement new reforms, and to initiate better training and programs may require additional costs for which burden is shifted to informal sector of the economy which is the poor in effect. Using a sample of more than 100 countries over the period 1970–2000, Chong and Gradstein (2007) investigate the impact of institutions on inequality. They used corruption, law and order, bureaucratic quality, democratic accountability, and government stability as measures of institutions. Their empirical results show that the quality of institutions plays an important instrumental role in alleviating cross-country inequalities.

The extant literature has been paid least attention to the role of institutions to explain finance–poverty nexus. There are only few studies,

which have investigated poverty effects of institutions. Using a sample of 49 counties over the period 1960–1990, Chong and Calderon (2000b) exhibited mixed effects of institutions on poverty. Corruption, law and order, and repudiation of contract as measures of intuitional quality do not appear significant and robust in reducing poverty, whereas bureaucratic quality and low risk of expropriation as measures of institutions significantly alleviate poverty. They conclude that overall institutions help to alleviate poverty. Some other empirical studies find favorable impacts of institutions on poverty. Gupta et al. (2002) conducted a cross-country analysis from 1980 to 1997 and found out that one standard deviation increase in corruption increases poverty by 1.6 percentage points and income inequality by 4.4 points. Using a sample of 71 countries over the period 1996–2008, Rizk (2012) finds poverty-reducing effects of governance.

Recently, another study by Perera and Lee (2013) found mixed evidence of intuitional development on poverty in a panel of nine economies of East and South Asia over the period 1985–2009. The empirical findings showed that the institutional measures of law and order and government stability have a significant role in reducing poverty. Contrary, improving control of corruption, bureaucratic quality, and democratic accountability increased poverty and inequality. Overall, the role of institutions turned out to be negative and significant in reducing inequality and poverty. The discussed extant literature shows that intuitional improvements as a whole alleviate poverty, though different measures of institutions are not equally important to reduce poverty. Similarly, financial development is also helpful to address the issue of poverty. However, the impact of financial development varies depending upon the measures used for financial development. The literature on finance and poverty nexus ignores the importance of quality of institutions. Similarly, the literature on institutions and poverty pays less attention to finance. In this study, we argue that both finance and institutions are important in a single model to have a better understanding of the finance–poverty nexus. In particular, we argue that institutions play a mediating role to strengthen the poverty-reducing effect of financial development.

## 1.3 Methodology

### 1.3.1 Empirical Model Specification

Following Dollar and Kraay (2002), poverty model is specified as follows:

$$\ln \mathrm{Pov}_{it} = \alpha_{it} + \alpha_1 \ln \mathrm{GINI}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln X_{it} + \mu_{it} \quad (1.1)$$

where $\ln P$ is natural log of poverty which is measured with headcount ratio and poverty gap. The term Ineq represents inequality, which is measured with Gini coefficient. The notation $Y_{it}$ shows growth rate of GDP per capita. The vector $Z_{it}$ includes other control variables, which can affect poverty. It includes inflation, trade, remittances, government expenditures, and education. The parameters $\alpha_1$ and $\alpha_2$ measure elasticity of poverty with respect to income inequality and economic growth, respectively. The notations t and i indicate time span and number of countries, respectively.

The financial sector has an import role to explain poverty outcomes. The studies of Honohan (2004), Jalilian and Kirkpatrick (2005), and Jeanneney and Kpodar (2008) argue that one of the fundamental causes of poverty is the inability of a poor to save from his minimum earnings and to invest them into productive activities. Financial markets are not only the means of enhancing poor's access to formal modes of finance provision but yield efficient ways of savings, mobilizing, and allocating resources.

Adding measures of financial development to Eq. 1.1

$$\ln P_{it} = \alpha_{it} + \alpha_1 \ln \mathrm{lneq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \mathrm{FD}_{it} + \alpha_4 \ln Z_{it} + \mu_{it} \quad (1.2)$$

The term $\ln \mathrm{FD}$ represents indicators of financial development. Following the literature, $\alpha_1$ is expected to be positive; $\alpha_2$ and $\alpha_3$ are expected to be negative. The literature on finance and poverty indicates that the impact of financial development on poverty also depends on the measures used to proxy financial development. Therefore, we incorporate three different measures of financial development to assess their separate marginal effects. Equations 1.3 and 1.4 include credit

and broad money as measures of financial development, respectively. Equation 1.5 includes financial inclusion as a measure of inclusive financial development.

$$\ln P_{it} = \gamma_{it} + \gamma_1 \ln \text{Ineq}_{it} + \gamma_2 Y_{it} + \gamma_3 \ln \text{Cred}_{it} + \gamma_4 \ln Z_{it} + \varepsilon_{it} \quad (1.3)$$

$$\ln P_{it} = \gamma_{it} + \gamma_1 \ln \text{Ineq}_{it} + \gamma_2 Y_{it} + \gamma_3 \ln \text{M2}_{it} + \gamma_4 \ln Z_{it} + \varepsilon_{it} \quad (1.4)$$

$$\ln P_i = \partial_i + \beta_1 \ln \text{Ineq}_i + \partial_2 Y_i + \partial_3 \ln \text{Fin.Inc}_i + \partial_4 \ln Z_{it} + \varepsilon_{it} \quad (1.5)$$

$\alpha_3$ and $\beta_3 =$ The elasticity of poverty with respect to financial development. $\partial_3 =$ The elasticity of poverty with respect to financial inclusion. Note that in the case of inclusive financial development, empirical analysis is restricted only for cross-sectional analysis because of data unavailability for panel analysis.

The favorable outcomes of increased financial development for poverty may be repressed in the presence of widespread corruption and poor institutional infrastructure. The resource allocation may become inefficient and divert from productive purposes in the presence of weak institutional infrastructure. In particular, low-quality institutions are disadvantageous to the poor because they divert the benefits of financial development and growth from the poor to the rich. Therefore, a financial system embedded in the strong institutional setup is necessary to eliminate poverty. Tebaldi and Mohan (2010) argue that improving the quality of institutions is the only way that can help to escape from the poverty trap. Note that the score of indicators used to measure the quality of institutions ranges from the lowest quality to the highest quality of institutions. For example, the lowest value of corruption 0 indicates highest corruption (worse quality of institutions) and the highest value 6 indicates no corruption (best quality of institutions).

Now extending Eq. 1.3 to include institutional quality measures

$$\ln P_{it} = \alpha_{it} + \alpha_1 \ln \text{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \text{Cred}_{it} + \alpha_4 \text{Cor}_{it} + \alpha_5 \ln Z_{it} + \mu_{it} \quad (1.3a)$$

$$\ln P_{it} = \alpha_{it} + \alpha_1 \ln \text{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \text{Cred}_{it} + \alpha_4 \text{Law}_{it} + \alpha_5 \ln Z_{it} + \mu_{it} \quad (1.3b)$$

$$\ln P_{it} = \alpha_{it} + \alpha_1 \ln \text{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \text{Cred}_{it} + \alpha_4 \text{Dem}_{it} + \alpha_5 \ln Z_{it} + \mu_{it} \tag{1.3c}$$

$$\ln P_{it} = \alpha_{it} + \alpha_1 \ln \text{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \text{Cred}_{it} + \alpha_4 \text{BQ}_{it} + \alpha_5 \ln Z_{it} + \mu_{it} \tag{1.3d}$$

$$\ln P_{it} = \alpha_{it} + \alpha_1 \ln \text{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \text{Cred}_{it} + \alpha_4 \text{GS}_{it} + \alpha_5 \ln Z_{it} + \mu_{it} \tag{1.3e}$$

$$\ln P_{it} = \alpha_{it} + \alpha_1 \ln \text{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \text{Cred}_{it} + \alpha_4 \text{Ins}_{it} + \alpha_5 \ln Z_{it} + \mu_{it} \tag{1.3f}$$

In the literature, two broad measures are used separately, and therefore, we introduce separate equations for private credit and board money. Now adding institutional measures into Eq. 1.4

$$\ln P_{it} = \gamma_{it} + \gamma_1 \ln \text{Ineq}_{it} + \gamma_2 Y_{it} + \gamma_3 \ln \text{M2}_{it} + \gamma_4 \text{Cor}_{it} + \gamma_5 \ln Z_{it} + \varepsilon_{it} \tag{1.4a}$$

$$\ln P_{it} = \gamma_{it} + \gamma_1 \ln \text{Ineq}_{it} + \gamma_2 Y_{it} + \gamma_3 \ln \text{M2}_{it} + \gamma_4 \text{Law}_{it} + \gamma_5 \ln Z_{it} + \varepsilon_{it} \tag{1.4b}$$

$$\ln P_{it} = \gamma_{it} + \gamma_1 \ln \text{Ineq}_{it} + \gamma_2 Y_{it} + \gamma_3 \ln \text{M2}_{it} + \gamma_4 \text{Dem}_{it} + \gamma_5 \ln Z_{it} + \varepsilon_{it} \tag{1.4c}$$

$$\ln P_{it} = \gamma_{it} + \gamma_1 \ln \text{Ineq}_{it} + \gamma_2 Y_{it} + \gamma_3 \ln \text{M2}_{it} + \gamma_4 \text{BQ}_{it} + \gamma_5 \ln Z_{it} + \varepsilon_{it} \tag{1.4d}$$

$$\ln P_{it} = \gamma_{it} + \gamma_1 \ln \text{Ineq}_{it} + \gamma_2 Y_{it} + \gamma_3 \ln \text{M2}_{it} + \gamma_4 \text{GS}_{it} + \gamma_5 \ln Z_{it} + \varepsilon_{it} \tag{1.4e}$$

$$\ln P_{it} = \gamma_{it} + \gamma_1 \ln \text{Ineq}_{it} + \gamma_2 Y_{it} + \gamma_3 \ln \text{M2}_{it} + \gamma_4 \text{Ins}_{it} + \gamma_5 \ln Z_{it} + \varepsilon_{it} \tag{1.4f}$$

Since inclusive financial development is essential to help the poor of Muslim countries, we also add institutional measures into Eq. 1.5

$$\ln P_i = \partial_i + \beta_1 \ln \text{Ineq}_i + \partial_2 Y_i + \partial_3 \ln \text{Fin.Inc}_i + \partial_4 \text{Cor}_{it} + \partial_5 \ln Z_{it} + \varepsilon_i \quad (1.5a)$$

$$\ln P_i = \partial_i + \beta_1 \ln \text{Ineq}_i + \partial_2 Y_i + \partial_3 \ln \text{Fin.Inc}_i + \partial_4 \text{Law}_{it} + \partial_5 \ln Z_{it} + \varepsilon_i \quad (1.5b)$$

$$\ln P_i = \partial_i + \beta_1 \ln \text{Ineq}_i + \partial_2 Y_i + \partial_3 \ln \text{Fin.Inc}_i + \partial_4 \text{Dem}_{it} + \partial_5 \ln Z_{it} + \varepsilon_i \quad (1.5c)$$

$$\ln P_i = \partial_i + \beta_1 \ln \text{Ineq}_i + \partial_2 Y_i + \partial_3 \ln \text{Fin.Inc}_i + \partial_4 \text{BQ}_{it} + \partial_5 \ln Z_{it} + \varepsilon_i \quad (1.5d)$$

$$\ln P_i = \partial_i + \beta_1 \ln \text{Ineq}_i + \partial_2 Y_i + \partial_3 \ln \text{Fin.Inc}_i + \partial_4 \text{GS}_{it} + \partial_5 \ln Z_{it} + \varepsilon_i \quad (1.5e)$$

$$\ln P_i = \partial_i + \beta_1 \ln \text{Ineq}_i + \partial_2 Y_i + \partial_3 \ln \text{Fin.Inc}_i + \partial_4 \text{Ins}_{it} + \partial_5 \ln Z_{it} + \varepsilon_i \quad (1.5f)$$

$\text{inst quality}_{it}$ = Institutional quality measured by the simple average of corruption index, law and order, democratic accountability, bureaucratic quality, and government stability. $\alpha_4$, $\partial_4$ and $\gamma_4$ = The coefficients of institutional measures (Eqs. 1.3a–1.3f, 1.4a–1.4f and 1.5a–1.5f).

The available literature on finance and poverty exhibits that poverty effects of finance are ambiguous. To provide a better understanding of finance–poverty nexus, we add the mediating link of institutions. In cases where direct impact of financial development turns out to be insignificant or unfavorable for the poor, we add an interactive term of financial development and institutions.

Adding the interactive measure of financial development and different dimensions of institutions into Eq. 1.2

$$\ln P_{it} = \emptyset_{it} + \emptyset_1 \ln \text{Ineq}_{it} + \emptyset_2 Y_{it} + \emptyset_3 (\ln \text{FD}) * (\text{Ins})_{it} + \emptyset_4 \text{Ins}_{it} + \emptyset_4 \ln Z_{it} + \varepsilon_{it} \quad (1.6)$$

$\emptyset_3 =$ It is the coefficient of interactive terms of financial development and quality of institutions.

### 1.3.2 Econometric Methodology

The empirical strategy for this study proceeds as follows: To obtain baseline results, we apply Ordinary Least Squares (OLS) on models specified in Sect. 1.3.1. Since the issue of endogeneity can undermine the strength of results, we use instrumental variables approach for empirical analysis. To find suitable exogenous instruments, we rely on extant literature and try our best to use the best available instruments. We also use internal instruments using initial values in cross-sectional analysis and lag values in panel data analysis. In the case of panel data, we use Pooled OLS, Fixed Effects, Random Effects, and General Method of Moments. A brief discussion on the strengths and weakness of different estimators is given below. The regression using Pooled OLS is restrictive because its specification is based on the assumption of constant intercept and coefficients. Its specification is given as follows:

$$\begin{aligned} \ln P_{it} = {} & \alpha_0 + \alpha_1 \ln \mathrm{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \mathrm{FD}_{it} \\ & + \alpha_4 \mathrm{Ins}_{it} + \alpha_5 \ln Z_{it} + \mu_{it} \end{aligned} \tag{1.7}$$

To allow the variation of cross section-specific intercepts, the available option is Fixed Effects model. It accounts country-specific effects by allowing each country having its own intercept. It is specified as follows:

$$\begin{aligned} \ln P_{it} = {} & \alpha_i + \alpha_1 \ln \mathrm{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \mathrm{FD}_{it} \\ & + \alpha_4 \mathrm{Ins} + \alpha_5 \ln Z_{it} + \mu_{it} \end{aligned} \tag{1.8}$$

where $i$ represents intercept of different countries used in the analysis. It may vary depending on the country-specific characteristics of each country. The Fixed Effects model allows varying intercept across cross sections but it is time invariant. However, in panel data, if we write $\alpha_{it}$ it indicates time variant intercept of each country. We can also use dummy variables approach to allow intercept to change across country over time. In this case, Eq. 1.7 can be written as follows:

$$\ln P_{it} = \beta_0 + \beta_1 D_{1i} + \beta_2 D_{2i} + \cdots + \beta_n D_{ni} + \alpha_1 \ln \text{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \text{FD}_{it} + \alpha_4 \text{Ins}_{it} + \alpha_5 \ln Z_{it} + \mu_{it} \quad (1.9)$$

The Fixed Effects model is also referred as Least Squares Dummy Variable (LSDV) model. To avoid dummy variables trap N-1 dummies are used in N cross sections. The major advantage of using Fixed Effects model is that it captures country-specific factors such as natural and geographical factors, which do not vary over time. However, the disadvantage of using this approach is loss of degree of freedom because the use of many dummy variables consumes a lot of degree of freedom.

The Random Effects model is suggested as an alternative model, which expresses ignorance through error term. Error Component Model (ECM) assumes that intercept of a single cross-sectional unit is randomly drawn from a larger population with a constant mean value of the intercept. The country-specific intercept is then taken as the deviation from the mean value. The term $\alpha_{0i}$ is written as

$$\alpha_{0i} = \alpha_0 + \varepsilon_i \, i = 1, 2 \cdots \text{n} \quad (1.10)$$

where $\varepsilon_i$ is a random error term with zero mean and constant variance $\sigma_\varepsilon^2$. This error term reflects individual differences in the intercept of each country. Substituting Eq. 1.10 into Eq. 1.9, we obtain

$$\ln P_{it} = \alpha_0 + \alpha_1 \ln \text{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \text{FD}_{it} + \alpha_4 \text{Ins}_{it} + \alpha_5 \ln Z_{it} + \mu_{it} + \varepsilon_i \quad (1.11)$$

or

$$\ln P_{it} = \alpha_0 + \alpha_1 \ln \text{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \ln \text{FD}_{it} + \alpha_4 \text{Inst}_{it} + \alpha_5 \ln Z_{it} + \omega_{it} \quad (1.12)$$

$\omega_{it} = \varepsilon_i + \mu_{it}$ is a composite term having $\varepsilon_i$ cross-sectional error component, and $\mu_{it}$ is a cross-sectional and time series error component. The assumptions of ECM are that individual error components are uncorrelated with each other and are uncorrelated across both time and

cross-sectional units. We apply Hausman test to make a choice between Fixed Effects and Random Effects models.

### 1.3.3 Endogeneity

The assumption of zero conditional mean in the case of OLS is violated in three cases. First, the issue of endogeneity is likely to arise when explained variable and explanatory variable are determined simultaneously. Second is the issue of omitted variables bias, and third is the measurement error in the explanatory variables. There are different factors, which cause these three problems; however, they have a common solution that is the use of instrumental variable technique.

In this study, the problem of endogeneity is likely to arise because of simultaneous linkages between poverty, finance, and quality of institutions. Whereas a better quality of institutions and financial sector help to alleviate the burden of poverty, it is also likely that widespread poverty provides grounds for the reforms of financial sector and institutions. Therefore, the parameter estimates obtained using OLS can give biased results. To address this problem, we use instrumental variables techniques such as 2SLS and GMM. A comprehensive discussion on the theory of instruments used is provided in Sect. 1.5.

## 1.4 Data and Descriptive Analysis

In this study, we employ both cross-sectional and panel data sets to explore the linkages between poverty, finance, and the quality of institutions. The data is selected for all OIC countries from 1984 to 2012. Since some OIC countries do not have sufficient observation for variables of analysis, the final sample of study is restricted to 32 countries (Table 1.1).

**Table 1.1** Data sources and variable definitions

| Variables | Definitions | Sources |
|---|---|---|
| Poverty (headcount index) | It is defined as the percentage of population living below $1.25 a day at 2005 international prices | [4] |
| Poverty gap | It is defined as the mean shortfall from the poverty line. It is $1.25 a day (PPP) (%) | [4] |
| Gini coefficient | It is a measure of income inequality which ranges from 0 (perfect equality) to 1 (perfect inequality) | [4] |
| Economic growth | It is measured as GDP per capita at constant 2005 international $ | [1] |
| Private credit | It is domestic credit to private sector by banks (% of GDP) | [1] |
| Broad money (M2) | It represents broad money as % of GDP. This ratio shows the real size of the financial sector | [1] |
| Corruption | ICRG index 0–6 scale; where 0 indicates high degree of corruption and 6 indicates no corruption | [3] |
| Law and order | ICRG index 0–6 scale; where 6 indicates high degree of law and order. | [3] |
| Democratic accountability | ICRG index 0–6 scale; where 6 indicates high degree of democracy. | [3] |
| Bureaucratic Quality | ICRG index 0–4 scale; where 4 indicates high degree of bureaucratic quality | [3] |
| Government stability | ICRG index 0–12 scale; where 0 indicates very high risk and 12 indicates very low risk | [3] |
| Inflation | It is GDP deflator (annual %) | [2] |
| Government expenditures | General government final consumption expenditure (% of GDP) | [1] |
| Population | Population growth rates | [1] |
| Remittances | This variable is measured as personal remittances, received (% of GDP) | [1] |
| Trade | It is the sum of exports and imports (% of GDP) | [1] |
| Colonial origin | A value of 1 is assigned if the country belongs to a particular colony and 0 otherwise | [5] |
| Ethno-Linguistic | It is ethno-linguistic fragmentation | [7] |
| Absolute latitude | It is a dummy variable | [7] |
| Black market exchange rate | It is an exchange rate that differs from the official exchange rate set by a government | [6] |
| Legal origin | It is a dummy variable. The legal origin of a country can be British, French, German, Socialist or Scandinavian | [5] |
| Financial inclusion | It is an index comprising three indicators of financial inclusion: (1) adults share with an account at a formal financial institution, (2) adults saving in the past year, (3) adults originating a new loan in the past year | [8] |

*Sources* [1] World Bank, World Development Indicators online database (2013), [2] International Financial Statistics online database (2013), [3] ICRG (2013), [4] PovcalNet database (2014), [5] Klerman et al. (2009), [6] Gwartney et al. (2006), [7] La Porta et al. (1999)

**Table 1.2** Descriptive statistics. *Source* Author's calculation

| Variables | Observations | Mean | Std. dev. | Min | Max |
|---|---|---|---|---|---|
| Headcount ratio | 32 | 29.71 | 26.48 | 0.55 | 71.62 |
| Poverty gap | 32 | 11.95 | 12.53 | 0.12 | 33.90 |
| Inequality | 32 | 39.92 | 5.85 | 29.84 | 52.88 |
| Economic growth | 32 | 0.016 | 0.015 | −0.01 | 0.04 |
| Private credit | 32 | 23.29 | 21.39 | 3.17 | 108.9 |
| Broad money (M2) | 32 | 41.92 | 28.11 | 11.96 | 118.5 |
| Financial inclusion | 27 | 13.92 | 9.96 | 1.33 | 41.67 |
| Corruption | 32 | 2.44 | 0.56 | 1.23 | 3.54 |
| Law and order | 32 | 3.15 | 1.22 | 1.39 | 8.53 |
| Democracy | 32 | 2.88 | 0.83 | 1.48 | 4.44 |
| Bureaucracy quality | 32 | 1.52 | 0.55 | 0 | 2.67 |
| Government stability | 32 | 7.76 | 1.07 | 5.88 | 11.05 |
| Government expenditures | 32 | 13.63 | 4.96 | 4.71 | 30.74 |
| Inflation | 32 | 30.96 | 57.54 | 2.57 | 262.8 |
| Remittances | 32 | 4.24 | 4.76 | 0.31 | 19.17 |
| Trade | 32 | 66.90 | 35.76 | 28.66 | 187.6 |
| Education | 32 | 10.24 | 9.58 | 0.82 | 40.33 |
| Institutions | 32 | 3.55 | 0.55 | 2.46 | 5.20 |

**Table 1.3** Correlation matrix. *Source* Author's calculation

| Variables | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Poverty | (1) | 1.00 | | | | | | | | | | |
| Inequality | (2) | 0.28 | 1.00 | | | | | | | | | |
| Growth | (3) | −0.28 | −0.25 | 1.00 | | | | | | | | |
| Credit | (4) | −0.52 | −0.06 | 0.28 | 1.00 | | | | | | | |
| M2 | (5) | −0.73 | −0.13 | 0.32 | 0.75 | 1.00 | | | | | | |
| Institutions | (6) | −0.69 | 0.06 | 0.24 | 0.53 | 0.52 | 1.00 | | | | | |
| Corruption | (7) | −0.37 | 0.47 | −0.06 | 0.20 | 0.29 | 0.67 | 1.00 | | | | |
| Law and order | (8) | −0.55 | −0.03 | 0.14 | 0.40 | 0.41 | 0.83 | 0.48 | 1.00 | | | |
| Democracy | (9) | −0.25 | 0.20 | 0.10 | 0.36 | 0.45 | 0.41 | 0.34 | 0.10 | 1.00 | | |
| Bureaucracy | (10) | −0.56 | 0.05 | 0.13 | 0.61 | 0.46 | 0.69 | 0.49 | 0.40 | 0.39 | 1.00 | |
| Govt. stability | (11) | −0.48 | −0.23 | 0.35 | 0.21 | 0.16 | 0.62 | 0.17 | 0.49 | −0.21 | 0.27 | 1.00 |

### 1.4.1 Descriptive and Statistical Analysis

Table 1.2 describes descriptive statistics of cross-sectional data. The lowest level of poverty, 0.55, belongs to Albania while the highest level of poverty, 71.62, belongs to Mozambique. Malaysia has the maximum level of financial development, that is credit/GDP is 108.91, and Sierra

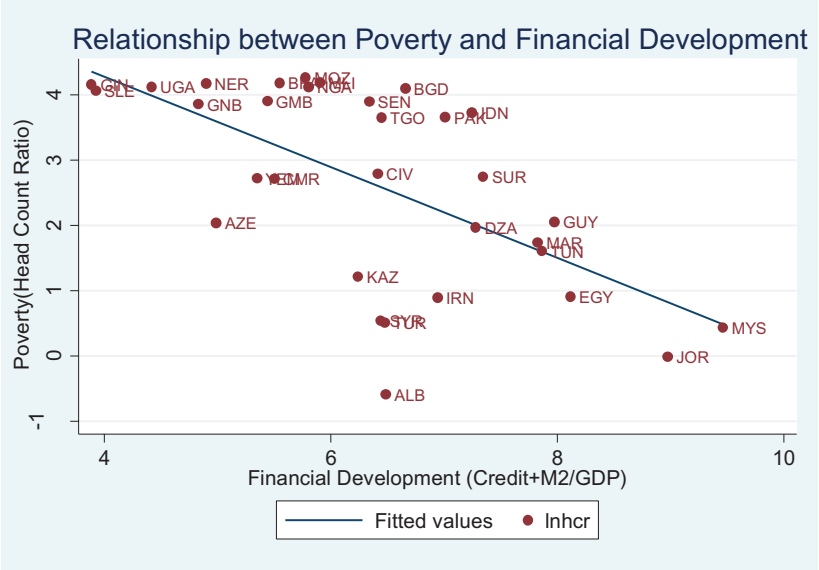


**Fig. 1.1** Relationship between poverty and financial development (private credit)

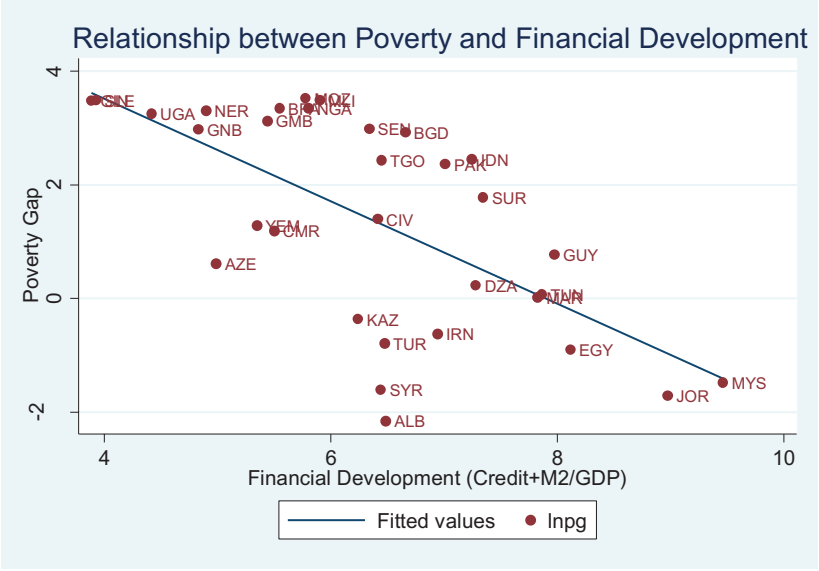


**Fig. 1.2** Relationship between poverty and financial development (broad money)

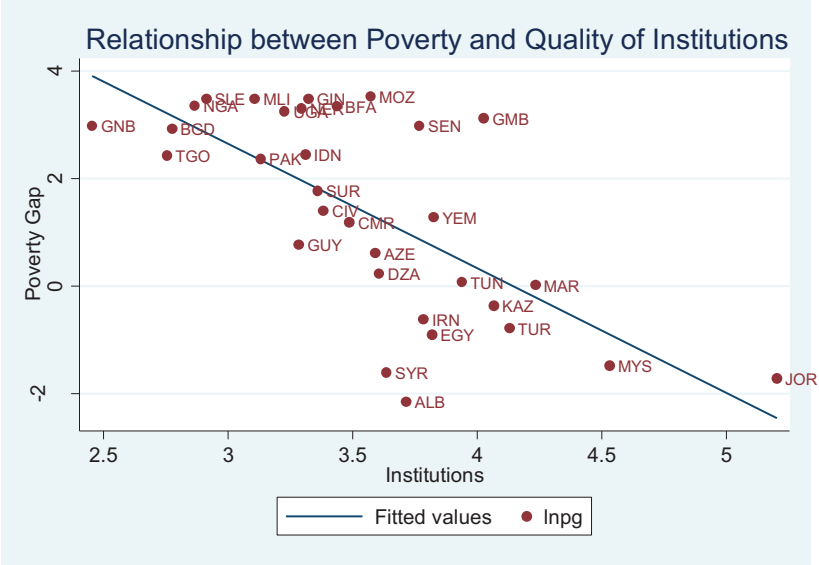


**Fig. 1.3** Relationship between poverty and institutions

Leone has the minimum level of financial development, that is credit/GDP ratio is 3.16. The maximum average score of institutional quality is 5.02 for Jordan, while Guinea-Bissau shows the minimum values of institutional quality that is 2.45.

## 1.4.2 Correlation Analysis

The measures of financial development show a negative correlation with poverty. Similarly, the quality of institutions is also negatively correlated with poverty. It is evident from Table 1.3 that the highest correlation −0.72 corresponds to M2/GDP and poverty. The institutional measures show that the quality of bureaucracy has the highest correlation −0.56 and democracy has the lowest correlation −0.24.

### 1.4.3 Graphical Analysis

Figure 1.1 shows the relationship of financial development (credit+M2/GDP) with poverty measured using headcount ratio, while Fig. 1.2 shows the relationship of financial development with poverty gap. Both figures show that financial development helps to alleviate poverty

**Table 1.4** Link test and Ramsey RESET test

| Dep. variable poverty | Equation | Coefficients | Std. error | T-stats | Prob. value > *t* |
|---|---|---|---|---|---|
| Hat | 3.6 | 1.105,421 | 0.1,700,013 | 6.50 | 0.000 |
| Hat-square | 3.6 | −0.424,983 | 0.0,596,045 | −0.71 | 0.482 |
| Constant | 3.6 | 0.0,549,798 | 0.1,978,438 | 0.28 | 0.783 |
| Hat | 4.6 | 1.119,018 | 0.1,561,363 | 7.17 | 0.000 |
| Hat-square | 4.6 | −0.0,464,162 | 0.0,524,871 | −0.88 | 0.384 |
| Constant | 4.6 | 0.0,570,221 | 0.1,844,384 | 0.31 | 0.759 |

Ramsey RESET test using powers of the fitted values of the dependent variable. Ho: model has no omitted variables $F(3, 23) = 1.17$ Prob > $F = 0.3433$ (Eq. 3.6); $F(3, 23) = 0.82$ Prob > $F = 0.4941$(Eq. 4.6)
Ramsey RESET test using powers of the independent variables. Ho: model has no omitted variables $F(15, 11) = 0.74$ Prob > $F = 0.7106$ (Eq. 3.6); $F(15, 11) = 0.82$ Prob > $F = 0.6436$ (Eq. 4.6)

**Table 1.5** Multicollinearity tests

| Independent variables | VIF | 1/VIF | VIF | 1/VIF |
|---|---|---|---|---|
| | Equation 3.6 | | Equation 4.6 | |
| Inequality | 1.06 | 0.939,247 | 1.14 | 0.879,145 |
| Eco. growth | 2.32 | 0.430,743 | 2.74 | 0.365,547 |
| Private credit to GDP | 2.01 | 0.498,463 | | |
| M2 | | | 2.61 | 0.383,311 |
| Institutions | 1.75 | 0.573,038 | 1.74 | 0.576,151 |
| Average institutional quality index | 1.32 | 0.759,623 | 1.59 | 0.628,733 |
| Mean VIF | 1.69 | | | 1.96 |

**Table 1.6** Shapiro–Wilk tests of normal data

| Variable | Equation | Observations | *W* | *V* | *Z* | Prob > *z* |
|---|---|---|---|---|---|---|
| Residual | 3.6 | 135 | 0.99167 | 0.886 | −0.273 | 0.60759 |
| Residual | 4.6 | 135 | 0.99167 | 0.886 | −0.273 | 0.60759 |

**Table 1.7** Hausman test: fixed effects model vs. random effects model

| Equations | $\chi^2$ | Probability value > $\chi^2$ |
|---|---|---|
| Hausman test on Eq. 3.6 | 11.51 | 0.021 |
| Hausman test on Eq. 4.6 | 53.32 | 0.000 |

irrespective of the measure of poverty. Moreover, Fig. 1.3 shows the negative relationship of poverty with the quality of institutions.

### 1.4.4 Data Diagnostic Tests

If a regression model is not specified correctly, it may lead to unbiased and inefficient results, which may leave us with incorrect analysis of the data. We have applied following data diagnostic tests.

#### 1.4.4.1 Model Specification Test

To check the correct specification of our focused Eqs. 1.4f and 1.5f, we applied LINK test and Ramsey Regression Equation Specification Error Test (RESET) test. Since *p*-values of the squared terms in the LINK test and Ramsey RESET test are greater than 0.5, we infer that our models are specified correctly (Table 1.4).

#### 1.4.4.2 Multicollinearity Test

To check the multicollinearity, we have applied Variance Inflation Factor (VIF) test. VIF is equal to the inverse of $1 - R^2 \left( \text{VIF} = \frac{1}{1 - R^2} \right)$. We can observe in Table 1.5 that there is no evidence of multicolliniarity because the VIF for all independent variables and their mean value is fairly small.

**Table 1.8** Cross-section regressions of poverty on financial development and institutions

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| GINI | 3.023** | 5.123*** | 2.996*** | 3.022** | 3.148** | 2.705** | 3.410*** |
| | (1.181) | (1.143) | (1.046) | (1.239) | (1.195) | (1.211) | (1.045) |
| Eco. growth | −1.680*** | −1.468*** | −1.546*** | −1.680*** | −1.587*** | −1.578*** | −1.356*** |
| | (0.242) | (0.211) | (0.219) | (0.252) | (0.266) | (0.258) | (0.238) |
| Pvt. credit/GDP | −0.0182 | 0.0190 | 0.140 | −0.0186 | 0.0790 | −0.0338 | 0.167 |
| | (0.271) | (0.226) | (0.246) | (0.282) | (0.295) | (0.270) | (0.245) |
| Corruption | | −1.166*** | | | | | |
| | | (0.321) | | | | | |
| Law and order | | | −0.419*** | | | | |
| | | | (0.142) | | | | |
| Democracy | | | | 0.001 | | | |
| | | | | (0.243) | | | |
| Bureaucracy | | | | | −0.385 | | |
| | | | | | (0.449) | | |
| Govt. stability | | | | | | −0.204 | |
| | | | | | | (0.185) | |
| Institutional development | | | | | | | −1.122*** |
| | | | | | | | (0.368) |
| Constant | 1.742 | −4.678 | 1.803 | 1.747 | 0.963 | 3.843 | 1.576 |
| | (4.587) | (4.219) | (4.064) | (4.756) | (4.698) | (4.954) | (4.030) |
| Observations | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| $R^2$ | 0.752 | 0.834 | 0.813 | 0.752 | 0.759 | 0.763 | 0.816 |

*Note* Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

### 1.4.4.3 Normality Test

To check the normality of the residuals obtained from Eqs. 1.4f and 1.5f, we have applied Shapiro–Wilk test of normality. Table 1.6 shows that the null hypothesis (residuals are normally distributed) is accepted at 1% level of significance.

### 1.4.4.4 Hausman Test: Fixed Effects Model vs. Random Effects Model

Table 1.7 reports the results of Hausman Test. The null hypothesis is that Random Effects are efficient and consistent with the alternative hypothesis that Fixed Effect will always be consistent. The probability values of 0.021 and 0.00 indicate that our null hypothesis of random

effect is appropriate and were rejected at 1 and 5% level of significance, respectively. Thus, Fixed Effects model is more appropriate.

## 1.5 Empirical Results and Discussion

### 1.5.1 Cross-Sectional Analysis

The results reported in Table 1.8 show that elasticity of poverty with respect to economic growth is negative and significant at one percent level of significance. This finding is consistent in all columns of Table 1.8. The parameter estimate of economic growth implies that 1% increase in economic growth leads to about 1% reduction in poverty, keeping all other variables constant. In contrast, the elasticity of poverty with respect to income inequality is positive and significant at 5% level of significance in all regressions. These findings are consistent with Dollar and Kraay (2002), Adams (2004), and Majeed (2015).

The empirical results indicate that monetization effect (broad money) is stronger than credit effect. Thus, financial development does help the poor but its effect is sensitive to the measure used to proxy financial development. This is consistent with the literature on finance and poverty. The direct impact of private credit on poverty is insignificant; however, when it is interacted with the quality of institutions (column 4), its impact turns out be significant with a negative sign. This finding reveals that the impact of financial development depends on the quality of institutions. In Muslim countries where the quality of institutions is better, the finance is pro-poor. To assess the sensitivity of baseline line results, we also use poverty gap as a measure of poverty. The results reported in columns (5–8) confirm that baseline findings are not sensitive to the measures of poverty.

Since the issue of reverse casualty can undermine the strength of results and may give biased analysis, to address this problem we used a variety of internal and external instruments following La Porta et al. (1999), Acemoglu et al. (2001), Klerman et al. (2009), and Tebaldi and Mohan (2010). The empirical literature on institutions suggests that

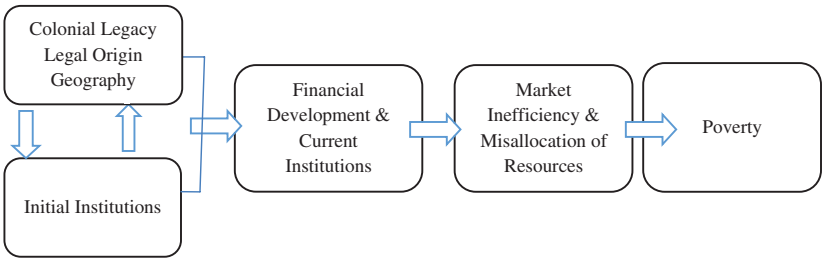


**Fig. 1.4** Legal and colonial origin, finance and poverty

much of institutional differences are explained by the historical and geographical factors (La Porta et al. 1999; Acemoglu et al. 2001; Klerman et al. 2009). Geographical, colonial, and institutional indicators are closely linked with each other. For instance, Acemoglu et al. (2001) highlighted that European formed diverse institutional policies in different colonies. The colonies having the issues of infectious diseases, such as malaria, were considered disadvantageous by European. They discouraged the creation of institutions, which promote property rights, and they used these colonies as extractive states.

European set up property rights and European-type institutional infrastructure in geographical advantageous colonies that is which are advantageous with a better environment. Acemoglu et al. (2001) argue that initial institutional setup provides the basis for current institutions and economic performance. In the same way, La Porta et al. (1999) emphasize on historical factors such as the legal origin to explain institutional framework. The geographic specific factors such as distance from the equator and ethno-linguistic heterogeneity are also considered important factors in the establishment of present institutions. The historical and geographical factors not only determine the quality of present institutions but also are used as instrumental variables for financial development. For instance, Levine (1999) has used legal original to instrument financial development to determine its effect on economic growth. Figure 1.4 summarizes the discussion on instruments of institutions and financial development.

From an empirical standpoint, the concepts and ideas discussed above can be written in the form of following regression equations.

$$\begin{aligned}\text{Finance}_{it} = \gamma_{it} + \gamma_1 \text{legal}_{it} + \gamma_2 \text{colonial}_{it} \\ + \gamma_3 Z_{it} + \omega 1_{it}\end{aligned} \tag{1.13}$$

$$\begin{aligned}\text{Institutions}_{it} = \delta_{it} + \delta_1 \text{legal}_{it} + \delta_2 \text{colonial}_{it} \\ + \delta_3 Z_{it} + \omega 2_{it}\end{aligned} \tag{1.14}$$

Equations 1.13 and 1.14 are the first-stage regression equations for 2SLS, where legal is the legal origin: English, French or Socialist law, is taken from La Porta et al. (1999), and is measured by a set of dummy variables that identifies 1 if the country has a particular legal system and 0 otherwise.

We use a dummy variable to incorporate the instrument of colonial region where a value of 1 is assigned to a country when it belongs to a particular colony and 0 otherwise. The data of colonial origin is obtained from Klerman et al. (2009). The row vector $\omega$ given in both equations represents other instruments such as initial values of endogenous variables, absolute latitude ethno-linguistic fragmentation, and black market exchange rates. The data on latitude and ethno is derived from La Porta et al. (1999), while the data on black market exchange rate is derived from Gwartney et al. (2006). That said, we specify second-stage equation for 2SLS, which uses the estimated values of financial development and institutions generated from first-stage regressions.

$$\begin{aligned}\ln P_{it} = \alpha_{it} + \alpha_1 \text{Ineq}_{it} + \alpha_2 Y_{it} + \alpha_3 \text{financial development}_{it} \\ + \alpha_4 \text{institutions}_{it} + \mu_{it}\end{aligned} \tag{1.15}$$

Table 1.9 presents the results obtained from the first-stage regression of 2SLS where we have regressed all endogenous variables on their exogenous instruments. It is evident from the column (1) of Table 5.2 that 70% of the variation in financial development (private credit) has been explained by historical and geographical instruments. Similarly, the other measure of financial development (broad money) depends on historical and geographical instruments, and approximately, 86% of the

**Table 1.9** 2SLS first-stage regression of endogenous variables on exogenous variables

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Credit | M2/GDP | Corruption | Law | Demo | Bureau | Gov. stab | Institutions |
| Initial credit | 0.0290*** | | | | | | | |
| | (0.00763) | | | | | | | |
| Initial M2 | | 0.0150*** | | | | | | |
| | | (0.00281) | | | | | | |
| Initial corruption | | | 0.358*** | | | | | |
| | | | (0.0786) | | | | | |
| Initial law and order | | | | 0.618*** | | | | |
| | | | | (0.178) | | | | |
| Initial democracy | | | | | 0.396*** | | | |
| | | | | | (0.0807) | | | |
| Initial bureaucracy | | | | | | 0.376** | | |
| | | | | | | (0.173) | | |
| Initial govt. stability | | | | | | | 0.335*** | |
| | | | | | | | (0.0878) | |
| Initial institution | | | | | | | | 0.485*** |
| | | | | | | | | (0.0890) |
| Legal origin-*English*[a] | 1.805*** | 0.693** | 0.411 | 2.323*** | −0.266 | 0.907** | 0.251 | 0.948*** |
| | (0.523) | (0.271) | (0.299) | (0.744) | (0.346) | (0.316) | (0.795) | (0.251) |
| Legal origin-*French*[a] | 0.735** | 0.414 | 0.591*** | 0.875*** | 2.034*** | 0.975*** | −0.720 | 0.639*** |
| | (0.293) | (0.241) | (0.102) | (0.231) | (0.174) | (0.217) | (0.489) | (0.0569) |
| Colonial origin-*French*[b] | −0.241 | −0.571** | −0.255 | 1.348** | −2.312*** | −0.578*** | 0.804 | 0.0634 |
| | (0.234) | (0.217) | (0.285) | (0.487) | (0.461) | (0.191) | (0.740) | (0.178) |
| Colonial origin-*British*[b] | −1.331*** | −0.864*** | | | | | | |
| | (0.314) | (0.226) | | | | | | |
| Colonial origin- | −0.196 | −0.427* | −0.153 | 1.687** | −2.496*** | −0.308 | 1.035 | 0.224 |

(continued)

**Table 1.9** (continued)

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | Credit | M2/GDP | Corruption | Law | Demo | Bureau | Gov. stab | Institutions |
| *Other F. C*[b] | (0.352) | (0.231) | (0.285) | (0.586) | (0.414) | (0.210) | (0.765) | (0.213) |
| Colonial origin- | −0.384* | −0.750*** | −0.489** | 0.792** | −1.746*** | −0.320 | −0.0772 | −0.348*** |
| *Not-Colonized* | (0.212) | (0.242) | (0.212) | (0.309) | (0.303) | (0.251) | (0.542) | (0.0887) |
| Ethno-linguistic | −0.894** | −0.620*** | −0.319 | −1.732** | −0.859** | −0.681* | | −0.865*** |
| | (0.321) | (0.196) | (0.265) | (0.703) | (0.402) | (0.375) | | (0.286) |
| Absolute latitude | −0.155 | 0.0276 | 0.626 | 0.735 | −0.434 | 0.790 | 2.757** | 0.880*** |
| | (0.583) | (0.490) | (0.407) | (0.725) | (0.872) | (0.646) | (1.138) | (0.273) |
| Black Market | | | 0.0642 | 0.145 | 0.190 | 0.0355 | −0.0215 | 0.0907* |
| | | | (0.0577) | (0.152) | (0.124) | (0.139) | (0.101) | (0.0513) |
| Constant | 2.197*** | 3.383*** | 0.668 | −1.274 | 1.083 | 0.235 | 5.163*** | 0.778 |
| | (0.263) | (0.318) | (0.536) | (1.548) | (1.181) | (1.169) | (1.299) | (0.459) |
| Observations | 30 | 30 | 26 | 26 | 26 | 26 | 28 | 26 |
| $R^2$ | 0.70 | 0.86 | 0.69 | 0.75 | 0.72 | 0.60 | 0.70 | 0.82 |

*Note* Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

*Notes* For Table 5.2:[a] Socialist law is omitted category. [b]Other former colony is omitted category. "Other F. C." in the Colonial origin column means former colony of other French civil law country (e.g., former portuguese or Spanish colony) (Klerman et al. 2009)

**Table 1.10** 2SLS second-stage regression of poverty on financial development (private credit) and institutions

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Inequality | 2.173** | 2.227* | 1.143 | 1.563 | 1.702 | 1.396 | 1.355 |
| | (1.039) | (1.237) | (1.065) | (1.223) | (1.207) | (1.344) | (1.105) |
| Eco. growth | −1.326*** | −1.377*** | −1.392*** | −1.354*** | −1.383*** | −1.415*** | −1.224*** |
| | (0.223) | (0.242) | (0.216) | (0.268) | (0.250) | (0.294) | (0.243) |
| Pvt. credit/ GDP | −0.0979 | 0.0821 | 0.297 | −0.0500 | 0.0892 | −0.0699 | 0.234 |
| | (0.286) | (0.314) | (0.301) | (0.317) | (0.331) | (0.326) | (0.311) |
| Corruption | | −0.715* | | | | | |
| | | (0.410) | | | | | |
| Law and order | | | −0.454*** | | | | |
| | | | (0.158) | | | | |
| Democracy | | | | −0.283 | | | |
| | | | | (0.289) | | | |
| Bureaucracy | | | | | −0.590 | | |
| | | | | | (0.442) | | |
| Govt. stability | | | | | | −0.0689 | |
| Corruption | | | | | | (0.288) | |
| Institutional Development | | | | | | | −0.985** |
| | | | | | | | (0.405) |
| Constant | 3.954 | 5.256 | 8.433* | 7.018 | 6.371 | 7.820 | 8.736* |
| | (4.023) | (4.656) | (4.138) | (4.750) | (4.691) | (5.796) | (4.345) |
| Observations | 30 | 26 | 26 | 26 | 26 | 26 | 26 |
| $R^2$ | 0.726 | 0.774 | 0.814 | 0.752 | 0.761 | 0.742 | 0.798 |

*Note* Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

**Table 1.11** 2SLS second-stage regression of poverty on financial development (M2) and institutions

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Inequality | 2.142 | 1.878 | 0.928 | 1.197 | 1.350 | 0.616 | 1.021 |
| | (1.436) | (1.443) | (1.431) | (1.534) | (1.480) | (1.786) | (1.430) |
| Eco. growth | −1.333*** | −1.206*** | −1.219*** | −1.340*** | −1.311*** | −1.287*** | −1.069*** |
| | (0.148) | (0.153) | (0.162) | (0.175) | (0.207) | (0.212) | (0.191) |
| Financial inclusion | −0.233 | −0.734** | −0.478*** | −0.482 | −0.452 | −0.669* | −0.568* |
| | (0.231) | (0.338) | (0.288) | (0.332) | (0.315) | (0.352) | (0.317) |
| Corruption | | −0.858** | | | | | |
| | | (0.340) | | | | | |
| Law and order | | | −0.376*** | | | | |
| | | | (0.0933) | | | | |
| Democracy | | | | −0.210 | | | |
| | | | | (0.314) | | | |
| Bureaucracy | | | | | −0.446 | | |
| | | | | | (0.420) | | |
| Govt. stability | | | | | | −0.232 | |
| | | | | | | (0.259) | |
| Corruption institutional | | | | | | | −0.882*** |
| | | | | | | | (0.269) |
| Development constant | 4.369 | 7.680 | 9.773* | 9.037 | 8.275 | 12.44 | 10.54* |
| | (5.413) | (5.398) | (5.216) | (5.843) | (5.553) | (7.592) | (5.505) |
| Observations | 30 | 26 | 26 | 26 | 26 | 26 | 26 |
| $R^2$ | 0.731 | 0.810 | 0.822 | 0.768 | 0.775 | 0.769 | 0.816 |

*Note* Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

variation of current institutions is explained by these instruments. In all regressions, it can be seen that current levels of financial development and institutions are highly affected by their initial values. It implies that countries having initial better financial system and institutions tend to have better financial and institutional system (Tebaldi and Mohan 2010).

Furthermore, the results of first-stage regression show that countries that belong to English legal origin are associated with good financial and institutional system. Contrary, countries belonging to French legal system may have better or poor financial and institutional system depending on the measures used to measure financial development.

As far as the colonial legacy is concerned, the countries having British or French colonial origin tend to have weak institutions and financial development. Moreover, the results show that ethno-linguistic fractionalization exerts a significant impact on financial development and

**Table 1.12** 2SLS second-stage regression of poverty on financial development (inclusion index) and institutions

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Inequality | 2.142 | 1.878 | 0.928 | 1.197 | 1.350 | 0.616 | 1.021 |
| | (1.436) | (1.443) | (1.431) | (1.534) | (1.480) | (1.786) | (1.430) |
| Eco. Growth | −1.333*** | −1.206*** | −1.219*** | −1.340*** | −1.311*** | −1.287*** | −1.069*** |
| | (0.148) | (0.153) | (0.162) | (0.175) | (0.207) | (0.212) | (0.191) |
| Financial inclusion | −0.233 | −0.734** | −0.478*** | −0.482 | −0.452 | −0.669* | −0.568* |
| | (0.231) | (0.338) | (0.288) | (0.332) | (0.315) | (0.352) | (0.317) |
| Corruption | | −0.858** | | | | | |
| | | (0.340) | | | | | |
| Law and order | | | −0.376*** | | | | |
| | | | (0.0933) | | | | |
| Democracy | | | | −0.210 | | | |
| | | | | (0.314) | | | |
| Bureaucracy | | | | | −0.446 | | |
| | | | | | (0.420) | | |
| Govt. stability | | | | | | −0.232 | |
| Corruption | | | | | | (0.259) | |
| Institutional | | | | | | | −0.882*** |
| Development | | | | | | | (0.269) |
| Constant | 4.369 | 7.680 | 9.773* | 9.037 | 8.275 | 12.44 | 10.54* |
| | (5.413) | (5.398) | (5.216) | (5.843) | (5.553) | (7.592) | (5.505) |
| Observations | 30 | 26 | 26 | 26 | 26 | 26 | 26 |
| $R^2$ | 0.731 | 0.810 | 0.822 | 0.768 | 0.775 | 0.769 | 0.816 |

*Note* Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

institutions suggested by La Porta et al. (1999). Finally, institutions are weak in those countries, which are located close to the equator (absolute latitude near to zero) and have greater ethnic and linguistic heterogeneity.

Results of the second-stage regression are reported in Tables 1.10, 1.11, 1.12 and 1.13. In all tables, we have used the estimated values of financial development and institutional measures obtained from the first-stage regressions. Table 1.10 displays the results when we regressed poverty on the estimated value of financial development (private credit/GDP) and alternative measures of institutional quality obtained from first-stage regression. We found weak evidence of poverty-reducing effect of private credit as all regressions show insignificant effect of private credit on poverty. Moreover, sign of coefficient on private credit is not consistent. In contrast, the impact of quality of institutions on poverty is significant and negative. Overall improvement in institutional quality

**Table 1.13** 2SLS second-stage regression of poverty on financial development (private credit) and institutions: interactive effects

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Inequality | 2.173** | 2.325* | 1.258 | 1.660 | 1.802 | 1.313 | 1.520 |
| | (1.039) | (1.271) | (1.063) | (1.231) | (1.185) | (1.337) | (1.098) |
| Eco. growth | −1.326*** | −1.359*** | −1.430*** | −1.353*** | −1.358*** | −1.401*** | −1.272*** |
| | (0.223) | (0.245) | (0.216) | (0.268) | (0.245) | (0.280) | (0.235) |
| Pvt. credit/GDP | −0.0979 | 0.721 | 0.728* | 0.231 | 0.531 | 0.266 | 1.351** |
| | (0.286) | (0.560) | (0.389) | (0.437) | (0.465) | (0.848) | (0.634) |
| Corruption*credit | | −0.247*** | | | | | |
| | | (0.148) | | | | | |
| Law and order*credit | | | −0.123*** | | | | |
| | | | (0.0430) | | | | |
| Democracy*credit | | | | −0.0959 | | | |
| | | | | (0.0990) | | | |
| Bureaucracy*credit | | | | | −0.251*** | | |
| | | | | | (0.149) | | |
| Govt. stability*credit | | | | | | −0.0418 | |
| | | | | | | (0.101) | |
| Intuitional Quality*credit | | | | | | | −0.295** |
| | | | | | | | (0.119) |
| Constant | 3.954 | 2.963 | 6.768 | 5.840 | 4.803 | 7.468 | 4.833 |
| | (4.023) | (5.187) | (4.118) | (4.916) | (4.754) | (4.936) | (4.360) |
| Observations | 30 | 26 | 26 | 26 | 26 | 26 | 26 |
| $R^2$ | 0.726 | 0.771 | 0.814 | 0.752 | 0.772 | 0.743 | 0.800 |

*Note* Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

by one unit reduces poverty by 0.98%. In columns 2–7 (Table 1.10), we estimate the impact of institutional measures individually that is corruption, law and order, democratic accountability, bureaucratic quality, and government stability are assessed one by one. The overall impact of institutional quality is checked by taking the simple average of these measures following Chong and Calderon (2000a, b). All measures of the intuitional quality have negative relationship with poverty, reduction in the corruption, stable and accountable governments, and improvements in rule and law are helpful in reducing poverty.

Table 1.11 repeats the same regressions when we use broad money/GDP to proxy financial development. It can be seen that in all regressions coefficient of broad money/GDP is highly significant and sufficiently large varying between 0.58 and 0.86%. As before, all measures of good institutional quality have a negative relationship with poverty. We arrive at the conclusion that financial and institutional developments play an important role in alleviating poverty.

**Table 1.14** Pooled OLS results of poverty, financial development, and institutions

| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Inequality | 2.210** | 1.498* | 1.000 | 1.060 | 0.945 | 1.986** |
| | (0.968) | (0.792) | (0.836) | (0.813) | (0.803) | (0.783) |
| Eco. growth | −7.753** | −3.546 | −5.259 | −5.818* | −1.101 | −2.446 |
| | (3.476) | (3.189) | (3.375) | (3.308) | (3.492) | (3.102) |
| Pvt. credit/GDP | −0.802*** | −0.615*** | −0.884*** | −0.709*** | −0.902*** | −0.568*** |
| | (0.161) | (0.165) | (0.161) | (0.173) | (0.151) | (0.157) |
| Corruption | −0.470** | | | | | |
| | (0.183) | | | | | |
| Law and order | | −0.377*** | | | | |
| | | (0.0850) | | | | |
| Democracy | | | −0.142 | | | |
| | | | (0.114) | | | |
| Bureaucracy | | | | −0.512*** | | |
| | | | | (0.188) | | |
| Govt. stability | | | | | −0.193*** | |
| | | | | | (0.0616) | |
| Institutional development | | | | | | −0.877*** |
| | | | | | | (0.165) |
| Constant | −1.981 | 0.0882 | 1.900 | 1.593 | 3.140 | 0.112 |
| | (3.443) | (2.961) | (3.114) | (3.047) | (3.031) | (2.855) |
| Mean VIF | 1.35 | 1.19 | 1.07 | 1.19 | 1.11 | 1.21 |
| Linktest | −0.08 | −0.001 | −0.25 | −0.32 | −0.022 | −0.08 |
| | (0.470) | (0.98) | (0.04) | (0.07) | (0.03) | (0.26) |
| Ovtest | 0.74 | 0.77 | 1.72 | 2.61 | 3.80 | 0.66 |
| | (0.53) | (0.51) | (0.17) | (0.05) | (0.01) | (0.58) |
| Observations | 132 | 130 | 132 | 132 | 132 | 132 |
| $R^2$ | 0.303 | 0.370 | 0.276 | 0.308 | 0.320 | 0.400 |

*Note* Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Table 1.12 reports the results using financial inclusion as a measure of financial development. The role of financial inclusion is consistently negative in all regressions implying that inclusive financial development is important to tackle the problem of poverty in the Muslim world.

Table 1.13 presents the results incorporating the mediating role of institutions to explain poverty outcomes of the Muslim world. Since financial development in terms of private credit did not show significant poverty-reducing impact, we interact this term with the quality of institutions to assess whether it is only difference of a measure or the mediating role of institutions is also important to explain its insignificance. All columns (2–7) of Table 1.13 indicate that independent impact of private credit is not poverty reducing while its impact in the presence of high quality of institutions is poverty reducing.

**Table 1.15** Pooled OLS results of poverty, financial development, and institutions

| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Inequality | 1.141 | 0.731 | 0.135 | 0.363 | 0.250 | 1.144 |
| | (0.895) | (0.734) | (0.765) | (0.739) | (0.740) | (0.753) |
| Eco. growth | −8.150*** | −4.896* | −6.378** | −6.619** | −3.845 | −4.064 |
| | (3.067) | (2.872) | (2.985) | (2.908) | (3.134) | (2.872) |
| M2/GDP | −1.535*** | −1.364*** | −1.672*** | −1.460*** | −1.587*** | −1.234*** |
| | (0.199) | (0.206) | (0.203) | (0.202) | (0.190) | (0.210) |
| Corruption | −0.330** | | | | | |
| | (0.166) | | | | | |
| Law and order | | −0.282*** | | | | |
| | | (0.0777) | | | | |
| Democracy | | | 0.00759 | | | |
| | | | (0.106) | | | |
| Bureaucracy | | | | −0.414** | | |
| | | | | (0.162) | | |
| Govt. stability | | | | | −0.128** | |
| | | | | | (0.0569) | |
| Institutional development | | | | | | −0.643*** |
| | | | | | | (0.162) |
| Constant | 4.701 | 5.666* | 7.987*** | 7.117** | 8.240*** | 5.087* |
| | (3.339) | (2.893) | (2.984) | (2.899) | (2.899) | (2.879) |
| Observations | 132 | 130 | 132 | 132 | 132 | 132 |
| $R^2$ | 0.434 | 0.481 | 0.416 | 0.445 | 0.438 | 0.480 |

*Note* Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Our results show that finance and institutions help to alleviate poverty incidence in the Muslim world. Financial development is beneficial to the poor but in a corrupt society, the benefits of financial development can be diverted from the poor to the rich or toward unproductive purposes. Thus, to ensure the favorable outcomes of financial development for the poor, it is necessary to build strong and sound institutional framework.

## 1.5.2 Panel Data Analysis

Tables 1.14, 1.15 and 1.16 report pooled OLS results. Table 1.14 shows results with private credit as a measure of financial development. Parameter estimates on private credit and institutional development turn out to be significant with negative signs confirming that both financial development and strong institutional framework help to ameliorate poverty. The results show that increasing control of corruption,

**Table 1.16** Pooled OLS results of poverty, finance, and institutions: sensitivity analysis

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Inequality | 1.986** | 1.690* | 2.311*** | 2.556*** | 1.961** | 3.184*** | 2.507*** |
| | (0.783) | (0.861) | (0.789) | (0.788) | (0.849) | (0.791) | (0.824) |
| Eco. growth | −2.446 | 2.717 | −2.941 | 0.0223 | −3.739 | −2.933 | −3.630 |
| | (3.102) | (3.210) | (3.072) | (3.139) | (3.356) | (2.921) | (3.136) |
| Pvt. credit/ GDP | −0.568*** | −0.505*** | −0.618*** | −0.423*** | −0.517*** | −0.723*** | −0.503*** |
| | (0.157) | (0.171) | (0.157) | (0.161) | (0.168) | (0.153) | (0.160) |
| Institutions | −0.877*** | −0.850*** | −0.905*** | −0.715*** | −0.884*** | −0.748*** | −0.765*** |
| | (0.165) | (0.179) | (0.164) | (0.171) | (0.192) | (0.159) | (0.174) |
| Education | | −0.0163** | | | | | |
| | | (0.00670) | | | | | |
| Inflation | | | −0.0140** | | | | |
| | | | (0.00683) | | | | |
| Trade | | | | −0.883*** | | | |
| | | | | (0.309) | | | |
| Remittances | | | | | −0.0312 | | |
| | | | | | (0.0287) | | |
| Population | | | | | | 0.406*** | |
| | | | | | | (0.0972) | |
| Government Expenditures | | | | | | | −0.734* |
| | | | | | | | (0.392) |
| Constant | 0.112 | 2.172 | −0.630 | 0.523 | 0.246 | −11.12*** | −0.571 |
| | (2.855) | (3.264) | (2.842) | (2.781) | (3.037) | (3.800) | (2.850) |
| Observations | 132 | 113 | 132 | 132 | 126 | 132 | 132 |
| $R^2$ | 0.400 | 0.459 | 0.420 | 0.437 | 0.415 | 0.473 | 0.417 |

*Note* Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

improving law and order situation, enhancing the quality of bureaucracy, and stability of government all are important institutional dimensions, which significantly reduce poverty.

Table 1.15 also confirms the same finding when financial development is measured with broad money. Table 1.16 shows benchmark results with the inclusion of standard control variables suggested in the literature such as education, trade, and remittances. It is clear that benchmark findings remain intact after controlling the additional control variables. Table 1.17 reports results using Fixed Effects econometrics technique. Since Hausman test does not support Random Effects technique, we only report Fixed Effects result. It is clear that institutions help to eradicate poverty. Finally, Table 1.18 reports results using GMM technique. The results remain same after using instruments in Table 1.18. To check the validity of the instruments, we use

**Table 1.17** Fixed Effects results of poverty, financial development, and institutions

| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Inequality | 2.968*** | 3.074*** | 3.111*** | 3.077*** | 3.130*** | 3.144*** |
| | (0.694) | (0.658) | (0.667) | (0.673) | (0.654) | (0.662) |
| Eco. growth | 2.219 | 1.647 | 2.047 | 1.890 | 2.634 | 1.966 |
| | (1.721) | (1.615) | (1.617) | (1.661) | (1.613) | (1.627) |
| Pvt. credit/GDP | −0.654*** | −0.524*** | −0.633*** | −0.626*** | −0.599*** | −0.554*** |
| | (0.130) | (0.134) | (0.130) | (0.135) | (0.127) | (0.134) |
| Corruption | 0.0566 | | | | | |
| | (0.0923) | | | | | |
| Law and order | | −0.156** | | | | |
| | | (0.0630) | | | | |
| Democracy | | | 0.00850 | | | |
| | | | (0.0656) | | | |
| Bureaucracy | | | | −0.0420 | | |
| | | | | (0.0962) | | |
| Govt. stability | | | | | −0.0648** | |
| | | | | | (0.0300) | |
| Institutional development | | | | | | −0.214** |
| | | | | | | (0.0995) |
| Constant | −6.800*** | −6.863*** | −7.266*** | −7.066*** | −6.890*** | −6.785*** |
| | (2.565) | (2.473) | (2.523) | (2.528) | (2.464) | (2.488) |
| Observations | 132 | 130 | 132 | 132 | 132 | 132 |
| Number of id | 32 | 32 | 32 | 32 | 32 | 32 |

*Note* Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Hansen's J-test of the over-identifying restrictions. Under the null hypothesis, the instruments are uncorrelated with the error term. The p-values of the Hansen J-Statistics show that we are unable to reject the null hypothesis that our instruments are uncorrelated with the error terms for all regressions, implying that the instruments are valid.

## 1.6 Conclusion

Eliminating poverty has become the biggest challenge for the present world. In particular, the Muslim world is observing high rates of poverty. For years, development practitioners and policy makers considered increasing economic growth as the main strategy to eradicate poverty. However, many high episodes of high economic growth rates cannot ensure eradication of poverty. In effect, increasing growth rates cause more inequalities rather than reducing poverty. This has shifted economists' attention toward searching other avenues of reducing poverty.

**Table 1.18** GMM results of poverty, financial development, and institution

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Inequality | 1.017 | 2.082* | 1.607 | 0.931 | 1.243 | 1.007 | 0.0593** |
| | (0.994) | (1.214) | (1.029) | (1.062) | (0.982) | (0.945) | (0.0264) |
| Eco. growth | −3.438 | −10.93*** | −3.391 | −5.170 | −5.816 | 0.117 | −1.666 |
| | (3.923) | (3.783) | (4.323) | (4.249) | (4.428) | (4.233) | (4.154) |
| Pvt. credit/ GDP | −0.845*** | −0.853*** | −0.571*** | −0.905*** | −0.699*** | −0.885*** | −0.488*** |
| | (0.147) | (0.145) | (0.170) | (0.156) | (0.162) | (0.132) | (0.168) |
| Corruption | | −0.550*** | | | | | |
| | | (0.189) | | | | | |
| Law and order | | | −0.431*** | | | | |
| | | | (0.0858) | | | | |
| Democracy | | | | −0.133 | | | |
| | | | | (0.117) | | | |
| Bureaucracy | | | | | −0.559*** | | |
| | | | | | (0.160) | | |
| Govt. stability | | | | | | −0.254*** | |
| Corruption | | | | | | (0.0604) | |
| Institutional | | | | | | | −1.054*** |
| Development | | | | | | | (0.182) |
| *Hansen's J* $\chi^2$ | 0.009 | 1.11 | 0.022 | 0.19 | 0.78 | 0.01 | 0.06 |
| | (0.92) | (0.29) | (0.88) | (0.67) | (0.38) | (0.97) | (0.62) |
| *Wald* $\chi^2$ | 39.49 | 96.55 | 120.06 | 63.68 | 73.34 | 98.65 | 144.29 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Constant | 1.207 | −1.068 | −0.260 | 2.182 | 0.940 | 3.326 | 5.455*** |
| | (3.853) | (4.401) | (3.998) | (4.076) | (3.850) | (3.526) | (1.040) |
| Observations | 130 | 129 | 127 | 129 | 129 | 129 | 129 |
| $R^2$ | 0.25 | 0.30 | 0.37 | 0.28 | 0.31 | 0.32 | 0.40 |

*Note* Standard errors in parentheses ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

The recent research has identified several merits of financial development and high quality of institutions. A lot of research has provided evidence that financial development and institutional infrastructure help to promote growth and to ameliorate inequality. However, the literature has been paid least attention to an equally important issue that is alleviating poverty through the development of financial sector and institutional infrastructure. The available literature on financial development and poverty provides mixed effects. The empirical studies conclude that the effect of financial development on poverty varies depending upon the measures used for financial development. However, these studies do not consider the role of quality of institutions in explaining poverty outcomes. In particular, the mediating role of institutions to explain poverty finance nexus is ignored.

The present study attempts to fill the gaps in the literature by incorporating the role of institutions and finance in a single model for a large set of Islamic countries from 1884 to 2012. To the best of our knowledge, the finance–poverty nexus incorporating the role of institutions is not analyzed into the literature. In particular, this analysis is missing in the case of the Muslim world. The empirical analysis of this study is based on three measures of financial development that is credit to private sector, broad money, and an index of financial inclusion. The quality of institutions is measured using five indicators of corruption, law and order, government stability, democratic accountability, and bureaucratic quality.

The empirical findings of the study confirm that finance is an important channel through which poverty outcomes can be explained. In most of the estimation methods, the effect of financial development on poverty turns out to be negative. In a comparative analysis, liquidity effect turns out to be more significant than the effect of private credit. The poor of OIC countries benefit from the development of banking sector because it facilitates economic transaction and helps the poor by providing opportunities for saving and investment. Furthermore, increasing private credit facilities help the poor to invest in productive purposes and enhance their living standards.

Moreover, the empirical results show that the quality of institutions significantly helps to eliminate poverty and strengthen the ability of financial sector to alleviate poverty. The role of corruption in increasing poverty incidence is robustly significant. The stability of government and strong rule of law are important dimensions of institutional setup that helps to eliminate poverty in the Muslim world.

The findings of this study recommend that poverty reduction strategies need to support those policies that improve inclusive development of financial sector. Such policies may focus on easing poor's access to credit and also provide information and guidelines for profitable investments. Moreover, rules and conditions applicable to extension must be less strict for the poor. Since the role of institutions is central in ameliorating poverty in the Muslim world, policy makers need to design such policies which focus on improving the quality of institutions. In particular, such policies need to be implemented that ensure control of corruption and strengthen the rule of law to provide justice.

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