



**RESEARCH PAPER**

**The Impact of Institutional Quality on Financial Inclusion**

Hira Yousaf

Department of Management Sciences, COMSATS University, Islamabad, Pakistan

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**Corresponding  
Author**

hiravirk11@yah  
oo.com

**ABSTRACT**

Financial inclusion (FI) is considered crucial in poverty reduction and promoting economic status. However the FI varies greatly across countries. This study explores the determinants of financial inclusion particularly the effect of institutions, both legal and political, on financial inclusion (FI). The study uses data of 64 former colonies and employs 2SLS, DOLS and FMOLS to examine the causal effect of institutions on financial inclusion. The study found that legal and political institutions significantly affect the degree of FI across countries. The study suggests that establishing strong institutions can help countries achieve higher levels of financial inclusion.

**Introduction**

Financial Inclusion (FI) is defined as the availability and usage of financial services by individuals of a society. Financial inclusion refers to holding a bank account at any bank or other formal financial institutions (Kunt et al. 2017). Such account allows user to simply save money, make or receive payments or more formally access credit and avail insurance services. Financial inclusion thus eliminates the need of exploitive informal credit sources and help people get timely and adequate credit to invest in business and educational purposes as well as mitigate financial risk.

Financial inclusion has been considered a key factor in fostering economic development by reducing poverty (Kunt and Klapper, 2013). Klapper et al. (2016) have discussed at length the links between financial inclusion and 11 sustainable development goals (SDGs) including alleviating poverty, innovation and sustainable industrialization, health and safety, gender equality and shared economic growth. Given the vital importance of financial inclusion (FI) for a society, a huge gap still is

present in the level of FI across countries. As of 2017, 1.7 billion adults or almost one third of adult world population was still unbanked (Global Findex Report 2017).

With respect to the factors fostering FI, numerous researches have been conducted to explore the elements that hinder availability and use of financial services. The studies have identified various demographic characteristics of individuals (age, income, gender) to be the determining factors (Chikalipah, 2017; David et al., 2018; Aluko and Ibrahim, 2019). A number of studies found significant effect of developmental variables (GDP per capita, GDP growth, and literacy) and policy variables (government expenditures) on financial inclusion. Eldomiaty et al. (2020) inferred that institutions had a major impact on financial inclusion, however the study did not account for the endogenous nature of institutions, although it has been stressed by prior literature that institutions happen to be endogenous to development outcomes (Lambert and Volpin 2017).

The present study examines the effect of institutions (legal and political) on FI across countries. The importance of legal system of a country in finance was first brought to attention by the influential research conducted in the past by La Porta et al. (1996). They, in a series of papers, contended that legal system can determine the variation in the degree of financial development in different economies around the globe. They provided empirical support that financial development was significantly higher in the countries having common law rather than ones having Civil law because common law tends to offer more investor protection and favorable business environment (La Porta et al. 1997, 1998). Subsequent literature confirmed that financial development is largely shaped by the legal environment and legal institutions (Beck et al. 2003; Bottazzi et al. 2009; Gani and Clemes, 2016).

Nonetheless legal institutions are not the only one that matter. Financial markets are not liberated from political interventions. The relationship of political institutions in financial development comes under a well-recognized strand of research called “political economy of finance” (Pagano & Volpin, 2001). Douglass et al., (1989) stressed that for the development of markets, state must remain committed to the rules governing economic exchange. Rajan & Zingales (2003) explained how political elite undermines financial development for their vested interests. Several studies found that political institutions significantly affected financial development (Beccera et al. 2012; Ang & Fredriksson 2018).

The present study intends to explore the role institutions have in shaping financial inclusion. The study uses data of 64 former colonies. The study uses a 2SLS approach to account for the endogenous nature of institutions and uses legal origin and settler mortality as instruments for institutions following prior research (Acemoglu et al. 2001; Beck et al. 2003). Furthermore the study used DOLS and FMOLS for robustness of results. The study found that legal institutions significantly affected the degree of FI. This study, moreover, found evidence of the effect of political institutions on financial inclusion.

Following is the scheme of this study. Prior literature is presented in Section 2. Data and methodology is discussed in Section 3. Section 4 provides a discussion of results. Conclusion drawn is provided in Section 5.

### **Literature Review**

Institutions are defined as the governing principles that shape human behaviors and interaction in economic, social and political settings (North, 1991). They consist of both the formal rules such as the legal system, rule of law, political structure and informal rules like ideologies, traditions, norms and values of a society. North & Weingast (1989) stressed the importance of institutions for performance of economies and labeled safeguarding property rights of individuals to be imperative for societal development.

The role of institutions on financial development is well recognized in prior literature. La Porta et al. (1996) discussed the impact of legal traditions on financial development. This work was later referred to as the legal origins theory. Similarly the role of political institutions on financial development is known as political economy of finance. The present study is based primarily on these two theories. This paper, however, focuses on a key facet of the improvement of financial system known as financial inclusion. Given its vital importance for economic development, the last decade has witnessed much research on FI.

Several researches explored determinants of FI in past two decades. Few studies are limited to specific countries such as Nigeria (David et al. 2018), Uganda (Akileng 2018), Ghana (Akudugu 2013), India (Bhattacharyay, 2016) and China (Fungáčová and Weill, 2014). A number of studies are conducted on African continent exclusively. Allen et al. (2014) explored the antecedents of FI using data of 45 African countries for the year 2011. Zins and Weill (2016) using micro level data found that financial inclusion was higher in males, richer, older and educated individuals. Chikalipah (2017) in his study of 20 African countries found out that literacy rate is the biggest hindrance in using financial services. Bakari et al. 2018 found that political stability and government expenditures as well as mobile banking were main elements impacting the degree of FI in 10 countries of sub-Saharan Africa. Aluko and Ibrahim (2019) found that microeconomic indicators such as Income, inflation, trade openness, government expenditure, and financial openness were significantly explained the variation in FI in Sub-Sahara.

A couple of FI studies are conducted in Asian context such as Ngo (2019) who found that income, gender, rural population and infrastructure were significant determinants of financial inclusion. Lee et al. 2019 found that macroeconomic determinants, internet usage and population density explained variation in financial inclusion across 20 Asian countries.

Kunt and Klapper (2013) were the first to conduct a comprehensive study on financial inclusion that covered individual level data in 148 countries. The study found that requirement of complex documentation, high costs and physical distance

to nearest financial institution hindered financial usage of financial services. Datta and Singh (2019) found that education particularly financial literacy can increase access of formal financial institutions in less developed countries. Alber 2019 found that per capita GDP, GDP growth and interest rate were significant factors of FI in 145 countries.

Existing research on the impact of institutions on FI is narrow. Bakari et al. (2018) explored how institutions affected the degree of financial inclusion however these studies are limited to African countries. Eldomiaty et al. (2020) in a cross country study found that institutions impact certain level of FI across countries. However the study employed a generalized linear model and did not account for the endogenous nature of institutions highlighted in prior literature (Lambert and Volpin, 2018). The present study thus adds to the literature on FI by examining the effect legal and political institutions have on financial inclusion by employing methodology that controls for endogeneity.

## Material and Methods

### Empirical Model

The model in equation (1) is regressed to determine the relation of institutional quality and financial inclusion.

$$y_i = \alpha + \beta X_i + \delta Z_i + \epsilon_i \quad (1)$$

Whereas  $y_i$  indicates financial inclusion for country  $i$ ,  $X_i$  indicates the quality of institutions including legal and political institutions,  $Z_i$  is a set of control variables including GDP per capita, secondary school enrollment, urbanization, unemployment and reserves from natural resources and  $\epsilon_i$  indicates error term.

At the basic, the above model can be estimated using OLS regression. However OLS regression assumes that the explanatory variables are exogenous to financial inclusion. It has been pointed out in the prior literature that institutions are endogenous to dimensions of financial development (Lambert Volpin, 2018). Therefore the study uses an IV approach (instrumental variable) following Acemoglu et al. (2001) and Beck et al. (2003). The study uses settler mortality and legal origin dummy as an instrument for institutions for two-stage least squares regression. The first stage regression is

$$\text{Institutional quality} = \delta_1 [\text{legal origin}] + \delta_2 [\text{settler mortality}] + v_i \quad (2)$$

The second stage regression is

$$\text{Financial Inclusion} = \theta_1 [\text{institutional quality}] + \theta_2 Z_i + u_i \quad (3)$$

Legal origin dummy and settler mortality are used as instruments for institutions in first stage regression. The second stage regressions include instrumented institutions.  $Z_i$  is a set of control variables including GDP per capita, secondary school enrollment, urbanization, unemployment and reserves from natural resources.  $v_i$  and  $u_i$  represent error terms in the two regressions respectively.

## **Results and Discussion**

The study uses data on 64 former European colonies for the period 2004-2018. The total number of observations is 960. The intuition behind using only European colonies is that colonialism is considered as a natural experiment in the history. Colonization proved as an external shock which changed the dynamics of these colonies. The colonization strategies greatly affected the establishment of institutions in the colonies and the effects of these institutions persisted even after independence.

The study uses number of bank branches per one 100,000 people for measuring FI. IMF Financial Access survey is the primary source for obtaining data for the period 2004-2018 available annually. With respect to the quality of legal institutions, the study has used "Rule of Law" measure from the World Governance Indicator (WGI) Index provided by World Bank. For measuring the quality of political institutions the study has used polity 2 score from Polity IV data base. The study has used legal origin dummy and log of settler mortality as instruments for institutions. The study has also used several covariates including GDP per capita, secondary school enrollment and unemployment, urbanization and rents from natural resources. The data for all covariates is obtained from World Bank. The complete description of variables and their measurement is given below.

<b>Variable</b>	<b>Definition</b>
Financial inclusion	Financial inclusion measured as bank branches per 100,000 people.
Rule of law	The perceptions of individuals about the quality of law enforcement, secure property rights and their confidence in state institutions like police and judiciary etc.
Polity2	Polity 2 is derived by subtracting autocracy score from the democracy score assigned to each country from polity IV database.
Legal Origin	A dummy variable having value 1 in case of British Common law countries zero otherwise.
Settler Mortality	Mortality rate of European born soldiers when stationed in colonies per 1,000 soldiers in early 19 <sup>th</sup> century
GDP per capita	Total economic output divided by population of a country (in USD) by using PPP rates.
Education	Secondary school enrollment ratio measured as the percentage of school enrolled children to total population of official secondary

	school age
Urbanization	Country's total population divided by the urban population.
Unemployment	percentage of labor force seeking jobs but unemployed to total labor force
Natural resources	Log of the total rents obtained from natural resources.

### Descriptive Statistics

The mean number of bank branches per hundred thousand people is 11 for our data, with Malta and Bahamas heaving the highest number of bank branches 41 and 42 consecutively, and Niger and Democratic Republic of Congo having less than one branch per hundred thousand people. The average rule of law score was found to be 0. The countries having strong rule of law were Australia, New Zealand and Singapore, whereas Venezuela scored lowest on rule of law. The average polity score is 4.234. Various countries in our data score high on democracy (10) including United States, Australia, New Zealand, and Costa Rica, whereas the most autocratic country is Vietnam (-7).

The table 2 below indicates descriptive statistics. The average mortality rate is 248. New Zealand had the lowest mortality for European Colonizers which is 8 making it perfect for settlement, whereas Mali had the highest mortality rate is 2940. The mean GDP per capita for our data is \$12376. Singapore is the richest country with Per capita GDP more than \$100,000 and Democratic Republic of Congo (498\$) and Ethiopia (\$584) being the poorest countries.

**Table 1**

Variable	Mean	Median	Maximum	Minimum	Standard Deviation
<b>Financial Inclusion</b>	11.48	8.75	42.20	0.40	9.79
<b>Rule of Law</b>	0	-0.23931	2.584740	-2.287247	1
<b>Polity2</b>	4.234	6	10	-7	5.038
<b>GDP</b>	12376.50	7146.77	498.98	101531.63	14682.95
<b>Education</b>	70.35	73.41	8.71	157.17	28.88
<b>Urbanization</b>	57.17	56.38	15.50	100.00	22.96
<b>Unemployment</b>	6.75	5.30	0.32	29.58	4.72
<b>Natural resources</b>	8.94	5.78	0.00	59.62	10.05

There are a total of 960 observations in the data. There are no missing data.

The results of Model 1, in table 3 below, reveal that legal institutions have a strong effect on FI. The results also found a positive relation of political institutions on FI; however coefficient of political institutions is very small. The findings are consistent with previous researches such as Allen et al. (2012) who found significant effect of legal rights and political risk rating on financial inclusion in African countries. Bakari et al. (2018) substantiated the influence of government expenditure and political stability on FI in African economies. Results also reveal a positive effect of GDP per capita, education and urbanization on FI. Results also indicate that Unemployment had a negative impact on FI. The model 2 in table 3 also includes rents from natural resources as a control variable. The coefficient of natural resources was negative and significant.

**Table3: OLS results**  
**Dependent variable: Financial Inclusion measured as Number of bank branches per 100,000 adults**

	<b>Model 1</b>	<b>Model 2</b>
<b>Intercept</b>	-0.07102 (0.0159)***	-0.04614 (0.1050)
<b>Rule of Law</b>	0.25007 (<.0001)***	0.184979 (<.0001)***
<b>Polity2</b>	0.016524 (0.0004)***	0.01066 (0.018)**
<b>GDP per capita PPP</b>	0.359498 (<.0001)***	0.351029 (<.0001)***
<b>School enrollment</b>	0.069141 (0.0778)*	0.030317 (0.4246)
<b>Urbanization</b>	0.154218 (<.0001)***	0.169506 (<.0001)***
<b>Unemployment</b>	-0.10484 (<.0001)***	-0.08433 (0.0005)***
<b>Natural Resources</b>		-0.20967 (<.0001)***
<b>R square</b>	0.5475	0.5812

There are a total of 960 observations. \* Shows significance at 10%, \*\*5% and \*\*\* 1% level respectively.

The study employed 2SLS to account for the endogenous nature of institutions. The results are discussed in Table 4. In the first stage regression legal origin dummy and settler mortality were used as instruments for institutions. The results of stage 1 regression show that legal origin and settler mortality were significant determinants of institutions. The instrumented institutions were then used as regressors in stage 2 regressions. The results in table 4 reveal that legal institutions had significant impact on financial inclusion. Countries with strong rule of law tend to have higher financial inclusion. The coefficient of political institutions was significant though very small, which shows that the degree of FI was higher in

democratic countries. The findings are in accordance with prior researches like Allen et al. (2012), Bakari et al. (2018) and Eldomiaty et al. (2020).

GDP per capita was found to strongly affect the level of FI. The effect of GDP on financial development is confirmed by earlier studies such as Allen et al. (2014). Urbanization, as researched, had a positively affected the level of FI. Ngo (2019) also found that more rural population resulted in lower financial inclusion. Unemployment was found to have a significant negative effect on financial inclusion. Nandru et al. (2015) found negative effect of unemployment on financial inclusion. The results show that rents from natural resource are inversely related with FI. Many studies found that natural resources negatively affect financial development (Beck 2011; Khan et al. 2020) a phenomenon known as resource curse.

**Table 4**  
**2SLS results**

	<b>First stage</b> <b>Dependent variable: Rule of law</b>	<b>2nd stage</b> <b>Dependent variable: Financial inclusion</b>
<b>Intercept</b>	0.002281 (0.9264)	-0.05012 (0.0796)*
<b>Common</b>	0.286025 (<.0001)***	
<b>Settler mortality</b>	-0.51766 (<.0001)***	
<b>Rule of law (instrumented)</b>		0.117940 (0.0137)**
<b>Polity2</b>		0.011631 (0.0106)**
<b>GDP per capita PPP</b>		0.445509 (<.0001)***
<b>School enrollment</b>		-0.00270 (0.9442)
<b>Urbanization</b>		0.175949 (<.0001)***
<b>Unemployment</b>		-0.09002 (0.0002)***
<b>Natural Resources</b>		-0.23401 (<.0001)***
<b>F statistics</b>	337.04 (<.0001)***	182.71 (<.0001)***
<b>R square</b>	0.41352	0.57354

There are a total of 960 observations. \* shows significance at 10%, \*\* at 5%, \*\*\* at 1% level respectively.

### Robustness Checks



The study has used ordinary least square and two stage regression models. However, above-stated techniques may produce misleading and inconsistent coefficients due to the problem of serial correlation and heterogeneity. Therefore, for the robustness of the econometric methodology, “Fully modified ordinary least square (FMOLS) and Dynamic ordinary least square (DOLS)” are applied which are suggested by Pedroni, (2000) and Stock & Watson, (1993). The results produced by these methods are reliable because they can handle cross-sectional dependence and robust to heterogeneity (Arshad et al. 2020). The results reveal the positive impact of legal as well as political institutions on FI. GDP per capita, urbanization have a substantial positive effect on FI. Unemployment negatively affects FI. The rents from natural resources have a negative effect on financial inclusion confirming the natural resource curse.

**Table5: DOLS and FMOLS results**

**Dependent variable: Financial Inclusion measured as Number of bank branches per 100,000 adults**

	DOLS	FMOLS
<b>Rule of Law</b>	0.33325 (<.0001)***	0.37757 (<.0001)***
<b>Polity2</b>	0.28429 (0.0000)***	0.06802 <.0001)***
<b>GDP per capita PPP</b>	0.21891 (<.0001)***	0.22519 (<.0001)***
<b>School enrollment</b>	-0.12636 (0.2259)	0.04890 <.0810)*
<b>Urbanization</b>	0.154218 (<.0001)***	0.39506 (<.0001)***
<b>Unemployment</b>	-0.08177 (<.0880)*	-0.07433 <.0001)***
<b>Natural Resources</b>	-0.37475 (<.0001)***	-0.21967 (<.0001)***
<b>Adjusted R square</b>	0.49812	0.46998

**Conclusion**

The study investigated the impact of legal and political institutions on FI for 64 colonies for years 2004-2018. Based on the findings, the study suggested that legal institutions exerted strong positive effect on financial inclusion. The effect of political institutions was also found to be significant. The study thus implies that policies aimed at establishing better institutions may help increase the level of financial inclusion. More specifically, policies aimed to ensure strong law enforcement and safeguarding private property, fairness of judicial process and control of crimes are vital for financial inclusion.

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