# Does institutional quality matter in attracting foreign direct investment? the case of Ethiopia based on ARDL approach.

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# Does institutional quality matter in attracting foreign direct investment? the case of Ethiopia based on ARDL approach.

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**Abstract:**

This study investigates the role of institutional quality as a determinant of foreign direct investment (FDI) in the case of Ethiopia by applying the autoregressive distributed lag (ARDL) cointegration technique developed by Pesaran and Pesaran (1997). The results of the study demonstrate that institutional quality exerts a long run impact in determining the FDI inflows. The findings suggest that institutional quality is an important determinant of FDI in Ethiopia. The findings also suggest that the combined impact of institutional quality and trade openness is also significant by positively contributing to attracting FDI not only in the short run by in the long run as well. The findings support the policy implication that simultaneous implementation policies that reduce trade barriers and improve institutional quality play an important role in attracting FDI to a developing country like Ethiopia.

**Keywords**: FDI, institutional quality, ARDL, Ethiopia

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**Introduction:**

Much has been said and analysed on the impact of institutional quality on FDI. There exists a broad consensus among researchers that FDI forms a critical part of the engine that propels the economic development process forward. On top the capital FDI brings in, other advantages of importance to the FDI host country are the knowledge spillover and capital accumulation it brings in (De Mello, 1999). FDI also acts as an important vehicle to transfer technology by contributing more to economic growth than domestic investments (Borensztein, De Gregorio, Lee, 1998).

FDI also assists in the promotion of host countries' transport and communication infrastructures. Moreover, by bringing in FDI through multinational corporations (MNCs), a host country can ignite its engine of competition, innovation, know-how and managerial skills, thus they are able to improve the productivity and performance of local firms in host economies (Bengoa and Sanchez-Robles, 2003).

Considering the macroeconomic importance of an FDI for an economy, studies have focused on factors that influence it. A major factor that influence FDI is the quality of the institutions in the country. Quality institution increases the attractiveness if investing in a country and hence increase FDI inflows. (Nasir and Hassan, 2011). Institutional quality factors are characterized by property rights protection, rule of law, the effective use of resources, and the absence of violence, barriers and restrictive policies. These are the factors that foreign investors look for when entering a host country. Moreover, all these factors have been taken into consideration in most investment decisions, and for this reason many developing countries have focused on promoting their institutional quality in order to benefit from FDI's advantages. Theoretical literature favours the role of institutions as they discipline the behaviour of economic agents and introduce such rules and

regulations that limit opportunism and build transactional trust in financial transactions, and ultimately enhance confidence of foreign investor and FDI inflows.

There has been a growing interest among researchers to investigate quality of institutions as determinants of FDI in developing countries. A large number of empirical studies support institutional quality as an important determinant of FDI but the results of these studies have not had unanimous results (Ali, Fiess & MacDonal, 2010).

Some believe that major investment hurdles in an African countries like Ethiopia are deep-rooted corruption, very weak political and institutional structure that creates gap between policies and their implementations in these economies. One of the important aspects of previous research is that they are based on cross-country analysis. Cross-country regression analysis is based on assumptions of homogeneity in the nature and quality of data that is a very restrictive assumption. Institutional aspects are unique for different countries and ultimately the validity of the results from cross-country study becomes doubtful (Deaton, 1989). Therefore, it may be worthwhile to provide strong foundation for a policy formulation through exploring the relationship between FDI and institutions based on country specific analysis. Ethiopia is a very interesting case study, because it is one of those countries which has experienced long period of war against its neighbor Eritrea, political instability in one form or the other, wide spread corruption, lack of law and order situations, which seem to be hurdles in attracting FDI to Ethiopia.

The main objective of our study is to explore the long- and short-run impact of institutional quality on FDI for the Ethiopian economy by using the Autoregressive Distributed Lag (ARDL) cointegration technique.

The remainder of the article is organized as follows: Theoretical and empirical literature is presented in the second section. Data sources and description of variables are discussed in third section. Econometric methodology is explained in the fourth section and empirical results are reported in the fifth section. The sixth section presents a concluding summary and some policy implications that emerge from the study.

## Section 2: literature review

The literature review will attempt to review the theoretical link between FDI and institutional quality and then discuss the conflicting empirical findings that have been recently been performed by researchers.

### 2.1 Theoretical relationship between FDI and quality of institution:

Intuitively, it is evidently proven in macroeconomics theory that FDI is critical in improving the macro health of an economy. Given that studies have focused on factors that influence it. A major factor that influence FDI is the quality of the institutions in the country. Quality institution increase the attractiveness if investing in a country and hence increase FDI inflows. (Nasir and Hassan, 2011). The institutional factors discussed are:

1- Property rights protection,

2- Rule of law,

3- The effective use of resources,

4- The absence of violence, barriers

5- Restrictive policies.

The above 5 factors are what foreign investors looking to bring in investment would use as criteria on where to invest (Nasir and Hassan, 2011).

Theoretically, John H. Dunning's eclectic paradigm theory and Douglas north (also known as the OLI-Model or OLI-Framework) New institutional economics theory combined provides a theoretical link between institutional quality and FDI.

According to Dunnings (2000), the eclectic paradigm theory attempts to answer the question of why firms own production facilities outside their own borders. The theory states that transactions are made within an institution if the transaction costs on the free market are higher than the internal costs. This process is called internalization. Dunning theory relies heavily on the internalization theory that states that not only is the structure of organization important but dunning added three more factors:

Ownership advantages: (trademark, production technique, entrepreneurial skills, returns to scale) Ownership specific advantages refer to the competitive advantages of the enterprises seeking to engage in Foreign direct investment (FDI). The greater the competitive advantages of the investing firms, the more they are likely to engage in their foreign production.

Location advantages (existence of raw materials, low wages, special taxes or tariffs)
Locational attractions refer to the alternative countries or regions, for undertaking the value adding activities of MNEs. The more the immobile, natural or created resources, which firms need to use jointly with their own competitive advantages, favor a presence in a foreign location, the more firms will choose to augment or exploit their own specific advantages by engaging in FDI.

Internalization advantages (advantages by own production rather than producing through a partnership arrangement such as licensing or a joint venture) Firms may organize the creation and exploitation of their core competencies. The greater the net benefits of internalizing cross-border intermediate product markets, the more likely a firm will prefer to engage in foreign production itself rather than license the right to do so.

North (1990) argues that institutions influence economic activities through the channels of transaction and production costs. Transaction costs are linked to economic exchange, they consist of:
(a) costs of measuring the values of what is being exchanged and
(b) costs of protecting and enforcing property rights.

There would be substantial uncertainties associated with economic exchanges in the absence of well-functioning institutions.

North (1990) inefficient Institutions can decrease economic activities by increasing production cost. Inefficient institutions raises production costs by disrupting the supply chain. For example excessive bureaucracy in obtaining permits can significantly increase production costs. North also argued that by protecting property right two risks associated with foreign investment are reduced. First, political hazards which create hurdles in attracting FDI and second, local partners may be able to influence and convince their government to support them at the cost of foreign investors due to their active involvement in political process (Henisz, 2000).

**2.2 Empirical review of relationship between FDI and quality of institution:**

There has been much research done on the relationship between institutional quality and FDI. Although many studies have concluded that there is a significant positive link between institutional quality and FDI, these results cannot be generalized. Empirical research has so far been conflicting results on the link between FDI and institutional quality. Some studies have concluded that there is a positive and significant relationship while other have found negative or inconclusive relationship between FDI and institutional quality.

Turan Subasat and Sotirios Bellos (2013) using a Panel Data modeling technique for a sample of 18 Latin American countries from 1985-2004. They regressed for FDI using macroeconomic data and economic freedom data the Economic Freedom of the World Index (EFoWI) produced by the Fraser Institute. Their findings suggest while FDI responds to many EF measures positively, such results cannot be generalised. In fact, they found that there is a negative and statistically

significant relationship between all Economic Freedom indicators and FDI inflows in some selected Latin American countries.

Asiedu (2002) has attempted to study the role of institutional and political instability in Africa. The study results indicate that for some measures, sub-Saharan Africa had a different impact to institutional and political stability that the rest of the African content.

**Data and Methodology:**

*Focal variable (institutional quality):*

The analysis comprises the period from 1975 to 2012 for the Ethiopian economy. The linkage between quality of institutions and FDI is our particular concern. For the institutional quality (INS) variable, data is sourced from the International Country Risk Guide (ICRG).

ICRG is commonly used in empirical studies and this data set has time series data for the different concept of institutions. ICRG index provides a broad measure of institutional quality and each aspect is designed to measure a specific aspect of governance.

This study has selected the variable of constraints on the executives for empirical analysis. The variable of constraints on the executives refers to the extent of institutionalized constraints in the decision-making power of chief executives, whether as individuals or a collective, this variable is very close to the North definition of institutions.

The single measure of institutional quality (INS) has been constructed from above mentioned data sets and the series of institutional quality for the Ethiopian economy has been generated. An important aspect of this single measure of institutional quality is that it captured different dimensions of

institutions. In the original data sets, different scales are used for institutional indicators and some components are time invariant. In order to ensure compatibility among the various measures, all indicators are rescaled from 0 to 1 in such a way that higher values denote the strong institutions. After transformation, this indicator of institutional quality became time variant, which is more suitable for time series empirical analysis. Principal component analysis is used to determine the weight given to each component in the construction of the institutional quality measure.

***Other Variables***

FDI expressed as foreign direct inflows, net inflows as percentage as of GDP is used as dependent variable. The other important variables are incorporated in the model drawn from empirical literature of FDI determinants. Endogenous growth theory reveals that economies with a larger market size are expected to grow faster because of the benefits of the scale of economies. Therefore, it is supposed that inward FDI will tend to flow in countries that have larger market size. Chakrabarti (2001) finds that the only variable that passes the robustness test is the market size of the host country measured by GDP per capita. This study also considers real GDP per capita as an indicator of market size for empirical analysis. Inflation rate (IF) which is measured by the annual percentage change in the consumer price index, represents as a proxy measure of macroeconomic stability. Inclination of foreign investors always remains towards those countries which facilitate them in terms of both infrastructure and favourable policies for investments. The number of telephone lines (IR) is used as proxy for infrastructure facilities. There is a link between trade openness and FDI, depending on the type of foreign investment (Asiedu 2002). In general, openness to trade may be positively or inversely related with FDI, depending on the country sample. Different measures of trade openness are employed in the empirical studies, and trade share as percentage of GDP (TO) in the real term is used as proxy of the

trade openness in this article. Data of these variables are obtained from World Development Indicator (WDI) and African Development Bank based in Tunisia.

***Econometric Model for Institutions and FDI***

The following empirical model was used to investigate long- and short-run impact of institutional quality on FDI.

$$FDI_t = \beta_0 + \beta_1 INS_t + \beta_2 ONS_t + \beta_3 GPC_t + \beta_4 OP_t + \beta_5 IF_t + \beta_6 IR_t + \upsilon_t$$

Where in the model INS represents the measure of institutional quality, ONS indicates the interaction term (INS*OP) which is used to capture the joint role of institutions and trade openness to attract FDI. The significance of the corresponding relationship between institutions and trade openness is recognized by Bhattacharyya, Dowrick and Golley (2009).

This paper investigates the long- and short-run dynamic relationship between FDI and institutional quality by using an ARDL technique of cointegration. ARDL cointegration technique was developed by Pesaran and Pesaran (1997), Pesaran and Shin (1999) and Pesaran, Shin and Smith (2001). Prior to testing the long-run cointegration relation, it is critical to find out the order of integration among variables because in the presence of I(2) or above variables the computed F-statistics are not valid (Ouattara (2004)). With this goal in mind, the Augmented Dickey–Fuller (ADF) test is applied to test the stationary assumption all the variables under consideration. The ARDL method can be applied irrespective of whether the underling variables are stationary at level I(0), first difference I(1) or a combination of both. Additionally, the error correction term can be easily derived from simple linear transformation (Banerjee et al. (1993)). Moreover, the other major advantages of the ARDL approach

are that it can also be applied in studies that have a relatively small sample size. This approach is more effective than the Johansen and Juselius's (1990) cointegration technique for small samples and also provides the short-run adjustment without losing the long-run information (Pesaran and Shin, 1999). To assess the impact of institutional quality as a determinant of FDI, ARDL representation is formulated as follows:

$$\Delta FDI_t = \delta + \sum_{i=1}^{p} \omega_i \Delta FDI_{t-i} + \sum_{i=1}^{p} \psi_i \Delta INS_{t-i} + \sum_{i=1}^{p} \varphi_i \Delta ONS_{t-i} + \sum_{i=1}^{p} \alpha_i \Delta GPC_{t-i}$$
$$+ \sum_{i=1}^{p} \beta_i \Delta OP_{t-i} + \sum_{i=1}^{p} \gamma_i \Delta IF_{t-i} + \sum_{i=1}^{p} \phi_i \Delta IR_{t-i} + \lambda_1 FDI_{t-1} + \lambda_2 INS_{t-1}$$
$$+ \lambda_3 ONS_{t-1} + \lambda_4 GPC_{t-1} + \lambda_5 OP_{t-1} + \lambda_6 IF_{t-1} + \lambda_7 IR_{t-1} + \mu_t$$

Where $\delta$ is drift component, $\mu_t$ is the white noise residuals and $\Delta$ denotes the first difference operator. Where $\lambda$ is representing the respective long-run multiplier, whereas $\omega$, $\psi$, $\beta$, $\phi$, and $\Phi$ are short-run estimates. To find out the long-run relationship among the variables, bound testing procedure is used. The bound testing procedure is based on the Wald-test (F-statistic). The Wald test (F-statistic) is a test of the hypothesis of no cointegration among the variables against the existence or presence of cointegration among the variables, denoted as:

$H_o = \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = \lambda_7 = 0$ that is, there is no cointegration among variables.

$H_o = \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = \lambda_7 \neq 0$ that is, there is cointegration among variables.

Two critical values (lower and upper) are given by Pesaran et al. (2001) for the cointegration test. When the calculated F-statistic is higher than the upper bound critical value, then the $H_0$ is rejected (the variables are cointegrated). If the estimated F-statistic is below the lower bound critical value, then the $H_0$ cannot be rejected (there is no cointegration among the variables). When the computed F-statistics

falls between the lower and upper bound, then the results are inconclusive. When the long-run relationship exists among the variable, then there is error correction representation. Thus, the ARDL version of the error correction model can be expressed as:

$$\Delta FDI_t = \delta + \sum_{i=1}^{p} \omega_i \Delta FDI_{t-i} + \sum_{i=1}^{p} \psi_i \Delta INS_{t-i} + \sum_{i=1}^{p} \alpha_i \Delta GPC_{t-i} + \sum_{i=1}^{p} \beta_i \Delta OP_{t-i}$$
$$+ \sum_{i=1}^{p} \gamma_i \Delta IF_{t-i} + \sum_{i=1}^{p} \phi_i \Delta IR_{t-i} + \sum_{i=1}^{p} \varphi_i \Delta ONS_{t-i} + \theta ER_{t-1} + \mu_t$$

Where Θ is speed of adjustment parameter and ER is the residuals that obtained from the estimated above equation. The coefficient of error correction term (ER) in the model indicates the speed of adjustment back to long-run equilibrium after a short-run shock. To ensure the goodness to fit of the model, the diagnostic and stability tests have also been conducted. The diagnostic tests examine the serial correlation, functional form, normality and heteroscedasticity associated with estimated model. In order to select optimal lag length for each variable, the ARDL approach estimates (p + 1) k number of regressions, where p is the maximum number of lags and k is the number of variables in the model. The number of lags is selected on the basis of Akaike's Information Criteria (AIC).

**Discussion of empirical results:**

The results are given in Table 1 which show a mixed order of integration I(0) or I(1) for different series. The variables OP, IF, IR and ONS are non-stationary at level, whereas FDI, GPC and INS are stationary at level.

As we have all variables are integrated order I(0) or I(1) and none of the variables is integrated of order 2 or above, which support the ARDL estimation procedure rather than other alternative cointegration

methods. The F-test is used to examine the stable long-run relationship between FDI and institutions quality. Using ordinary least square method and F-statistic which is greater than the upper bound critical value at 1 per cent level (Pesaran et al., 2001). Thus, the null hypothesis of non-existence of a stable long-run relationship is rejected; empirical finding reveals that there is strong evidence of a long-run relationship among the underlying variables. The optimum order of ARDL lags are selected on the basis of AIC.

**Table 1: Unit root Hypothesis**

| | ***Level form*** | | ***First difference*** | |
|---|---|---|---|---|
| **Variables** | **t-statistic** | **k** | **t-statistic** | **k** |
| FDI | -20.75* | 0 | -21.23* | 1 |
| GPC | -11.51* | 1 | -9.35* | 1 |
| INS | -5.34* | 0 | -5.93* | 0 |
| OP | -1.56 | 1 | -6.56* | 1 |
| IF | -1.23 | 1 | -3.45** | 1 |
| IR | -2.47 | 1 | -4.54** | 1 |
| ONS | -1.14 | 0 | -3.95** | 0 |

Note: The optimal lag k conducting the ADF test were determined
by AIC (Alkaike Information Criteria)
** and * are significance @ the 5% and 1% levels respectively

**Table 2 : ARDL Long Run Estimates**

***Dependent Variable = FDI***

| **Regressor** | **Estimated Coefficients** |
|---|---|
| Constant | -19.32* |
| INS | 0.57* |
| GPC | 2.12* |
| OP | 0.73* |
| IF | -0.07** |
| IR | 0.04*** |
| ONS | 0.87** |
| **Diagnostic tests** | |
| Serial Correlation | 0.47 |
| heteroscedasticity | 1.25 |
| Functional Form | 0.51 |
| Normality | 0.19 |

Note: ***,** and * are significance @ the 10%, 5% and 1% levels respectively

Table 2 demonstrates the long-run estimates of the ARDL procedure. The estimated model passes through the diagnostic tests of serial correlation, functional form specification, normality and heteroscedasticity. All variables have the expected sign and are statistically significant at the 1 per cent or 5 per cent or 10 per cent level. Table 2 shows that institutional quality (INS) has significant and positive impact on FDI. The long-run coefficient of institutional quality suggests that 1 per cent improvement in the institutional quality (INS) yields 0.57 per cent increase in FDI. The long-run estimate of interaction term institutions and trade openness (ONS) indicates that 1 per cent increase in ONS will increase FDI by 0.87 per cent.

This endorses the importance of a liberal trade regime to attract FDI. Similarly, GDP per capita (GPC) and physical infrastructure (IR) also appear to be significantly positive related to FDI. Our results implies that 1 per cent increase in GPC, OP and IR will lead to 2.12 per cent, 0.73 per cent and 0.04 per cent increase respectively in FDI in the long run.

Table 3 demonstrate the short-run dynamics of the estimated ARDL model. The coefficient of error–correction term (ER) is correct sign (negative) and statistically significant at 1 per cent. This demontrate

that the error–correction term (ER) is valid but also that there is significant conservative force tendency to bring the model back into equilibrium whenever it strays too far. The short-run estimates of

**Table 3 : Error Correction Model (ECM) Estimates**

***Dependent Variables = FDI***

| **Regressor** | **Estimated Coefficient** |
|---|---|
| Constant | -10.42* |
| INS | 0.52 |
| GPC | 2.42* |
| OP | 0.63* |
| IF | -0.23 |
| IR | 0.21 |
| ONS | 0.59** |
| ER(-1) | -0.47* |
| **Diagnostic tests** | |
| Serial Correlation | 0.14 |
| heteroscedasticity | 1.05 |
| Functional Form | 0.37 |
| Normality | 0.18 |

ARDL procedure demonstrates that ONS, OP and GPC have significant effect on FDI while institutional quality, physical infrastructure and inflation are no longer significant in short-run dynamic analysis. The joint impact of interaction term institutions and trade openness (ONS) is positive and significant at the 1 per cent or 5 per cent level in short-run as well as in the long-run whereas institutional quality (INS) is significant only in the long-run.

**Conclusions and Policy Implications**

Foreign direct investment is a desirable form of capital inflow to emerging and developing economies because such investment is an engine that propels the host country economy forward. The goal of this article has been to explore the long- and short-run dynamic relationship between institutional quality and FDI for the Ethiopian economy.

The results strongly support the hypothesis that the institutional quality exerts long-run impact in determining FDI. The findings further show that joint impact of institutions and trade openness exert long-run as well as short-run impact to attract more FDI inflows. This finding suggests that simultaneous implementation of policy mix of reducing trade barriers and improving the quality of institutions would attract more FDI in short-run as well as in long-run. Hence, simultaneous institutional and trade reforms are crucial to attract more FDI in short-run as well as in long-run. Our results suggest that policies aimed at reinforcing the protection of property rights, reducing corruption, increasing government stability, high bureaucratic quality and better law and order should be the priority for policymakers seeking to attract more FDI to Ethiopia. Multilateral organizations such as the IMF, the World Bank and African development Bank should play their role in facilitating FDI by promoting good institutions in a developing countries like Ethiopia.

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