

# The Relationship between Foreign Direct Investment, Institutional Quality and Poverty: Case of MENA Countries

Ahmad Assadzadeh and Javad Pourqoly

**Abstract**—Capital scarcity is known to be one of the main causes of many countries' entrapment in vicious cycle of poverty and underdevelopment. In addition, the existence of appropriate institutional quality has an impact on the poverty rates in these countries. This paper examines the effects of foreign direct investment and institutional quality (rule of law) on reducing poverty. To do so, a random effect panel econometric technique is applied using MENA countries' data for 2000–2009. The Human Development Index is used as an indicator of poverty reduction. The findings show that the foreign direct investment and appropriate institutional quality have significant positive effects on reducing poverty and increasing welfare.

**Index Terms**—Poverty, foreign direct investment, institutional quality, human development index.

## I. INTRODUCTION

After World War II, trying to rebuild devastation of the war, many developed countries concentrated on combating poverty using the World Bank and other international aids. At the same time, a wide range of research, aiming at identifying the causes and eradication methods of poverty, was welcomed by researchers and policy makers in many countries. According to The World Bank poverty is deprivation in well-being, and comprises many dimensions. It includes low incomes and inability to acquire basic goods and services necessary for survival with dignity. Poverty also encompasses low levels of health and education, poor access to clean water and sanitation, inadequate physical security, lack of voice, and insufficient capacity and opportunity to better one's life [1].

Today, many countries, especially least developed and developing countries, suffer problems such as unemployment, population growth, economic recession, poverty and income inequality. In such circumstances, achieving economic stability and joining to the global competition require creation of new job opportunities through utilization and deployment of modern technology and investment in various economic sectors. In other words, industrialization becomes a key agenda for economic survival for these countries. Needless to say that, industrialization requires adequate investment and foreign exchange, both of which are scarce in developing countries.

Manuscript received October 19, 2012; revised December 23, 2012.

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The lack of investment in capital stock is known to be one of the main causes of many countries being caught in the vicious cycle of poverty and underdevelopment. If the governments cannot access financial resources properly, their economic activities will be challenged with difficulties in development process. National saving remains the main source of financing investment, though in most developing countries, this does not meet the level of investment needs and it often does not lead to capital formation. Ineluctably, these countries have turned to foreign investment and participation in economic activities as a way to overcome investment shortfall and break vicious cycle of poverty and underdevelopment.

There are several definitions for foreign direct investment (FDI). According to the United Nations Conference on Trade and Development (UNCTAD), foreign direct investment is a capital that ensures long terms and reflects continuous profit of natural and legal personality that is resident in a company outside the investor's country. Foreign direct investment in the US Department of Commerce is defined as whenever an individual or a group of American citizens have at least ten percent of the shares or voting rights of foreign economic institutions, their ownership of the institution is considered as a foreign direct investment in USA.

Since FDI affects poverty through an employment creation process, it is useful to examine its impact on poverty. Many researches have studied the effect of FDI on economic growth but its relationship with poverty has been little surveyed. In this paper the relationship between FDI and poverty reduction will be examined. First, the theoretical basis and an overview of studies are expressed. Then, the methodology, estimation techniques in panel data, analysis and stability of findings are examined. Finally, a summary of results and conclusions are presented.

## II. THEORETICAL BASIS

After World War II, two trends can be observed in the evolution of FDI in developing countries. The first trend includes times from the end of World War II until the end of the Cold War in the 1990s. In this period, FDI and stocks were increased around the world especially in the developed countries. During this period, FDI was governed primarily by political objectives instead of economic incentives. The second trend began from the 1990s onwards when FDI was concentrated in countries where financial benefits, subsidies and other incentives were offered.

The FDI impact on human development has at least two social and economic aspects. The social aspect includes

reducing poverty and improving welfare that are a priority for developing countries. The FDI can help reach major economic objectives including creating jobs, developing local skills and improving technical progress. In describing economic aspect, recent literatures suggest that FDI may be the main factor for sustainable growth in per capita GDP.

Foreign direct investment impacts on welfare through direct and indirect ways (Sumner, 2005). FDI impacts on the creation of welfare directly by generating new jobs. For the effectiveness of this channel, the number of jobs created must be greater than the number of jobs lost (following the expulsion, consolidation or merger or closure of local companies, etc.) as a result of FDI related activities. Indirect effects of FDI on welfare occur at macro level. If there is a transfer of net income in a country, it is likely that FDI increases total investments. In this case, economic growth will increase that shows its indirect relationship with welfare [2]. Also FDI through reducing instabilities and production costs and thus increase international competitiveness, directly affects the efficiency of industrial enterprises.

On one hand, FDI removes restrictions on foreign trade system of a country, causing further increase in export. On the other hand, the quality of institutions that generally is defined as the quality of rules governing economic, social and political interactions can affect economic performance through several mechanisms. Institutional quality limits corruption and inefficiency in government bureaucracy since good and stable institutions encourage more private investment (North, 1990). Establishing democracy in a country depends on its wealth [3]. Moreover, democracy affects economic growth indirectly through its effect on political stability [4].

In this study the role of institutional quality and foreign direct investment on poverty reduction is examined. It is assumed that in developing countries institutional quality through the rule and implementation of law (preventing gender discrimination, age, race, ethnicity and etc.) and FDI directly and indirectly lead to poverty reduction.

### III. LITERATURE REVIEW

Several studies have analyzed the relationship between FDI and economic growth to determine the effects of FDI on economic development. A common premise in all of them is that economic growth improves welfare while FDI is a factor that stimulates economic growth. Numerous methodological and conceptual factors such as; lack of comprehensive and coordinated data collection, use of different definitions for FDI and differences in the application of econometric methods result in diverse findings.

Chang and Calderon [5] were reviewed the effect of institutional quality on poverty during 1960-1990. Their results suggest that institutional effectiveness reduce the incidence and severity of poverty. They considered indicators of institutional development as index of expropriation risk and bureaucracy quality.

Carkovic and Levin [6] have studied the relationship between FDI and economic growth for 72 countries. The study does not approve that FDI accelerate economic growth. This finding contrasts with the above study.

Hosseini and Mowlae [7] studied the effects of foreign

direct investment on economic growth for 1978-2002 using three econometric models. Different variables were applied in different models. In the first ones, foreign direct investment, domestic investment, human capital and openness of the economy, in the second model combined effect of foreign direct investment and domestic investment, human capital and foreign trade and in the last ones inflation, taxes and government spending used as indicators of economic structure. Their results show that foreign direct investment has a positive effect on economic growth but its effect is reinforced by status of human capital.

Chowdhury and Mavrotas [8] applied Yamota test to determine the causal relationship between attracting FDI and economic growth in Chile, Malaysia and Thailand from 1969 to 2000. In the case of Chile, the causality test suggests the presence of a unidirectional causality from FDI to GDP but a bilateral relationship is established in Malaysia and Thailand.

Hansen and Rand [9] investigated the relationship between FDI and economic growth in 31 developed countries during 1970-2000, using a two-variable autoregressive model for the rate of FDI and GDP. They find evidence that there is a strong causality between FDI and GDP in long run.

Apergis et al [10] examined the impact of FDI on economic growth in 27 European transitional countries, using panel data on from 1991 to 2004. Their results show that in conditions of high income and privatization programs, FDI has a positive relationship with economic growth.

Rivera [11] examined the effect of institutions on poverty; showing that institutional quality has a strong positive effect on poverty reduction. Moreover income growth is necessary but not sufficient factor for poverty reduction.

Azerbaijani et al [12] examined the impact of foreign direct investment and trade on economic growth in Iran for the period 1974 to 2005, using ARDL approach. Results indicate that in short term, foreign direct investment affects the growth negatively but trade as well as capital and labor has a significant positive effect on economic growth in Iran both in the short and long term.

Gohou and Soumare [13] investigated the effect of FDI on poverty reduction in five regions of Africa between 1990 and 2007. Net flow of FDI per capita and the HDI (as an indicator of poverty reduction and improved well-being) applied as concerning variables. Their results indicate a strong positive relationship between FDI and poverty reduction with more effect on poor countries than rich ones.

### IV. METHODOLOGY

The paper studies effects of FDI and institutional quality on poverty reduction in MENA countries between 2000 and 2009, using panel data. The model is based on theoretical framework and Gohou and Soumare (2012) model as follows:

$$HDI_{it} = \alpha + \beta_1 FDI_{it} + \beta_2 Kafman_{it} + \beta_3 CL_{it} + \beta_4 Credit_{it} + \varepsilon_{it} \quad (1)$$

where  $HDI_{it}$  indicates human development index in country  $i$  at time  $t$ ,  $FDI_{it}$  stands for foreign direct

investment in country  $i$  at time  $t$ ,  $Kafman_{it}$ ,  $CL_{it}$  and  $Credit_{it}$  represent index of institutional quality, index of civil liberties and domestic credit allocated to private sector in country  $i$  at time  $t$  respectively.  $\varepsilon_{it}$  is vector of residuals.

Although poverty indices offers criteria for a comprehensive measuring of country's welfare and standard of living, these indices are not published annually for all countries, therefore poverty cannot be surveyed effectively across the countries. Based on Gohou and Soumare's work and Rivera's study, HDI index is used as an indicator of poverty. According to UNDP definition, HDI is a composite statistic of health, knowledge, and standard of living indices. Health is measured by life expectancy at birth. Knowledge is measured by a combination of adult literacy rate and combined primary, secondary, and tertiary gross enrollment ratio[14]. Standard of living is defined by GDP per capita. FDI is measured by FDI net inflows, that is, the sum of equity capital, reinvested earnings, long-term capital, and short-term capital as shown in the balance of payment. Three definitions of FDI is applied in studies: (i) per capita FDI (the ratio of FDI net inflows over total population); (ii) the ratio of FDI net inflows over GDP; and (iii) the ratio of FDI net inflows over gross capital formation (GCF).The first definition is used in this study. The Data for FDI is derived from the World Bank database [15].

$Kufman$  indicates institutional quality index which is calculated by Kaufman and colleagues. It is a composite of different indexes such as voice and accountability, political stability, government effectiveness, property right and rule of law and control of corruption. In this study, the rule of law is used as a representative of institutions quality which is obtained from WGI [16]. It is worth nothing that control variables are as follows:

- 1) Financial market development which is measured in two ways:
  - Total credit by financial intermediaries to the private sector over GDP
  - Stock market capitalization over GDP
- 2) Political risk variables include two items:
  - Political rights rating which measures freedom for political activism
  - Civil liberties rating which measures latitude for the exercise of civil freedoms

In this study, we use total credit by financial intermediaries to the private sector over GDP as financial market development index and civil liberties as political risk variables. The following summarizes each of them:

Variable of civil liberties (CL) is a tool for measuring enjoyment of civil liberties ratings in different countries. This index is estimated by Freedom House, ranking from one to seven. Countries with full freedom are in the first rank and countries with a minimum freedom are in the seventh rank. Credit by financial intermediaries to the private sector ( $Credit_{it}$ ) is the amount of funds allocated by government to private sector. This index is obtained from World Bank Group. The study includes data in for ten years (2000-2009) for MENA countries<sup>1</sup>. The STATA11 software is used for

estimation.

#### A. The Panel Data Estimation Method

Before entering into discussion, analysis and model estimation, we explain why the study is done as panel data. In other words, are the countries surveyed homogeneous? If they are, we can use generalized least squares method and otherwise, the panel data fixed effects or random effects will be used. The F-test statistic is often used to examine the homogeneity of countries.

$$Y_i = Z_i\delta + U_i \quad \text{Restricted model}$$

$$Y_i = Z_i\delta_i + U_i \quad \text{Unrestricted model}$$

$$i = 1, 2, \dots, N$$

The statistic for the hypothesis testing is;

$$F(N-1, NT-N-K) = \frac{(R_{UR}^2 - R_R^2)/(N-1)}{(1-R_{UR}^2)/(NT-N-K)} \quad (2)$$

where,  $N$  is the number of cross-sectional units,  $K$  is the number of explanatory variables and  $T$  is the number of observations over time. Rejecting null hypothesis determines the fixed or random effects method [17].

Panel data estimation techniques include three types: between group, within group (fixed effects) and random effects. In between type, the regression is done over averages and usually it is used to estimate long-run coefficients. Within type is not considered the time and just specific effects of each of individual can be considered. In the estimation of random effects it is assumed that the intercept ( $\alpha_i$ ) has a joint distribution with mean  $\alpha$  and variance  $\sigma^2$  and unlike previous methods are uncorrelated with the explanatory variables. In this technique time factor is considered and individual effects are entered the model over time as explanatory variables separately [18].

In applying fixed or random effects it should be noted that the fixed effects approach is usually effective when all statistical population are considered. However, if a random sample is selected from a large population, using a random effect will be more efficient.

Test statistic for the random effects method is Breusch and Pagan test, defining as follows:

$$LM = \frac{NT}{2(T-1)} \cdot \left[ \frac{\sum_{i=1}^N (\sum_{t=1}^T e_{it})^2}{\sum_{i=1}^N \sum_{t=1}^T e_{it}^2} \right]^2 - 1 \sim \chi^2 \quad (3)$$

The null hypothesis  $H_0: \sigma_U^2 = 0$  means that there are no random effects. For this test, the  $LM$  statistic with  $\chi^2$  distribution and a single degree of freedom is applied.

## V. ANALYSIS OF THE RESULTS

Before estimating the model the data is examined for cross sectional homogeneity. According to the results in Table I, the null hypothesis of the homogeneity of the cross sections is rejected, this suggest that the panel data methods must be used.

TABLE I: TESTING HOMOGENEOUS PROPERTIES	
P-Value	F-statistic
Prob > F=0.000	F (12,107) =164.95

SOURCE: OWN CALCULATIONS

Now the Breusch and Pagan test is used to select between fixed and random effect model. The results are presented in

<sup>1</sup>Includes Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Marco, Oman, Qatar, Saudi Arabia, Tunisia, United Arabic Emirates, Gaza, Yemen.

Table II.

TABLE II: RESULTS OF BREUSCH AND PAGAN TEST

P-Value	Chi Square Statistics
Prob > chi2 = 0.000	354.28

SOURCE: OWN CALCULATIONS

The results suggest that the null hypothesis (the absence of heteroscedasticity) is rejected in the data. Therefore, the GLS method is applied for the model estimation. Table III presents model estimation applying the random effects.

TABLE III: SUMMARY OF ESTIMATION (RANDOM EFFECT MODEL)

Variable	Coefficient	Z-statistics	Prob > Z
Constant (c)	0.64	18.70	0.000
FDI	5.09-e06	1.77	0.066
Kafman	0.028	2.20	0.028
Credit	0.001	4.54	0.000
CL	-0.007	-1.66	0.098
$R^2 = .51$		no. obs: 124	

SOURCE: OWN CALCULATIONS

A. Robustness of the Results

There are several methods to examine the robustness of the estimates; among the most common are addition or removal of explanatory (control) variables, use of alternative criteria for explanatory variables and changing of the study period. In this section, to ensure the robustness of the results, the removal of explanatory variables (control) is examined.

TABLE IV: SUMMARY OF ESTIMATION (RANDOM EFFECT MODEL)

MODEL (1)			
Variable	Coefficient	Z-statistics	Prob>Z
Constant (c)	0.717	2.15	0.000
FDI	6.66e-06	2.15	0.031
Kafman	0.033	2.39	0.017
Credit	-----	-----	-----
CL	-0.012	-2.66	0.008
$R^2 = .51$		no. obs: 124	
MODEL (2)			
Variable	Coefficient	Z-statistics	Prob>Z
Constant (c)	0.599	25.53	0.000
FDI	5.79e-06	2	0.045
Kafman	0.0314	2.43	0.015
Credit	0.001	5.03	0.000
CL	-----	-----	-----
$R^2 = .51$		no. obs: 124	
MODEL (3)			
Variable	Coefficient	Z-statistics	Prob>Z
Constant (c)	0.658	29.17	0.000
FDI	8.18e-06	2.63	0.009
Kafman	0.037	2.61	0.009
Credit	-----	-----	-----
CL	-----	-----	-----
$R^2 = 0.64$		no. obs: 125	

As mentioned in the model, the basic model consists of two main variables of per capita foreign direct investment and institutional quality, the other two variables namely, credit by financial intermediaries to private sector and civil liberties have been used as control variables. To examine the robustness of results in Table 3, the first model is estimated excluding credit by financial intermediaries to private sector. It can be seen that all coefficients are significant and the

signs of the original variables is not changed. In the second model, the inclusion of credit by financial intermediaries to private sector and exclusion of civil liberties variable have not changed the sign and significance of the results. Finally, estimating the model while excluding both of the control variables, leaves the sign and significance of the coefficients unchanged. This simply means that, the robustness is achieved for the estimated results.

The results presented in Table 4 confirm that  $FDI_{it}$  has a positive impact on poverty reduction and this result is consistent with Gohou and Soumare's findings. In explaining this phenomenon it can be stated that attracting foreign direct investments in sectors that are more productive through technological progress has led to job creation and skills development. This issue has led to poverty reduction and welfare improvement.

Also, the results indicate that high institutional quality and increase in legitimacy have led to reduce poverty and improve welfare. This result is consistent with the results obtained by Rivera (2009). In explaining this phenomenon it can be stated that the higher political stability in a country leads to high level of investment security which in turn raises private investment in the country and leads to growing middle income class.

Civil liberties and credit by financial intermediaries to the private sector variable have positive effects on poverty reduction (it should be noted that the civil liberties index is defined as an inverse, this means that a higher degree is assigned to the countries with low civil liberties).

Civil liberties impact on poverty reduction is consistent with the results obtained by Feng (1997) and Lipsets (1959). It is argued that democracy, through its effects on political stability, stimulates economic growth and increases society's welfare. Also, the findings show that the higher is the credit by financial intermediaries to the private sector, the greater will be the impact on poverty reduction. Therefore it can be justified that increase in the credit by financial intermediaries to the private sector can increase private investments in the productive sectors, which ultimately leads to a rise in the middle class incomes and reduces poverty in the society.

VI. CONCLUSION

In most developing countries, poverty is still considered a great problem. Proper planning and collective efforts are needed to combat poverty. To do so, countries need adequate investment for job creation, workforce training (in order to increase productivity and improve human capital), and education and health improvements. These countries often lack sufficient investment due to low national savings; therefore, there is an urgent need to attract foreign investment.

This paper examined the effects of foreign direct investment and institutional quality (rule of law) on reducing poverty. The research included 21 members of the MENA countries surveyed in 2000-2009 period. To deal with the problem of heteroscedasticity the random panel data method is used for the model estimation. In the absence of an appropriate poverty indicator across all the countries, the study used the human development index as an indicator for

poverty reduction; the foreign direct investment was used in per capita form. The research findings suggest that foreign direct investment, institutional quality and rise in legitimacy have positive and significant impact on poverty reduction. Also, credit by financial intermediaries to the private sector and civil liberties variables have positive and significant impact on poverty reduction. Attracting foreign direct investment particularly in production sectors leads to an increase in employment and middle income earnings. The political stability in a country boosts the amount of foreign investment which in turn reduces poverty. Hence, an important policy implication for the developing countries is that, in order to fight poverty, along with efforts to attract foreign investment, the countries must work on improving institutional quality.

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