The Determinants of Foreign Direct Investment-Empirical Evidence from Bahrain

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Abstract

The main purpose of this study is to examine the main determinants of foreign direct investment (FDI) inflows into a host country. The study uses multiple regressions represented by ordinary least square (OLS) to examine the relationships between inward FDI and the proposed explanatory variables that are anticipated to determine FDI inflows into Bahrain. Time-series analysis for the period 1980-2013 primarily uses data drawn from UNCTAD. The results of the OLS regression provide empirical evidence that country welfare represented by general government consumption expenditure, inflation rate, economic stability represented by annual interest rate, labor force, trade openness, public education, and population have statistically significant relationships with FDI inflows into Bahrain. Hence, these factors are considered as the main determinants of FDI inflows into Bahrain. Export potential represented by country export value index, market size represented by GDP growth, and exchange rates, on the other hand, were found to have positive but statistically insignificant relationships with FDI inflows. In addition, infrastructure development was found to have negative yet statistically insignificant relationship with FDI inflows.

Keywords: Foreign Direct investment (FDI), ordinary least square, multiple regression, time-series analysis, trade openness, public education, GDP growth, infrastructure development, economic stability, export value index

1.0 Introduction

The role of FDI in the economic development is becoming increasingly important (Wong, 2003). World inward FDIs, for example have increased from US$697.9 billion in 1980 to 25.46 trillion in 2013. On the other hand, inward FDIs have increased from US$296.28 billion to over US$8.48 trillion for the developing countries. These figures are calculated at current prices at current exchange rates (UNCTAD, 2015).FDI inflows into host countries currently have increased as these countries have started economic and political reforms in addition to having their economies more opened to international trade.

Foreign direct investment is believed to make significant contributions to growth and economic development of host (recipient) countries. FDI nourishes recipient countries with the capital inflows, technological knowhow, human capital development and managerial expertise required for sustainable economic development. According to Abdoulaye et al., (2015), FDI helps to solve several problems; it provides valuable capital to stimulate economic growth and development and it transfers technology and knowledge to host countries.

The determinants of FDI according to the empirical studies are classified into two sides; demand side and supply side. The demand side includes variables related to the host country (country-specific). The supply side includes variables related to the investing company itself (company-specific). Country specific variables possibly will include market size, economic growth, balance of payments, inflation rates, tax levels, political stability, and government policies re foreign investments. Host countries can possess location specific advantages, such as their domestic markets, natural resources, and labor force that serve to attract investments by foreign investors. This study will generally emphasize the second type (i.e., the country specific variables). Thus, the data and discussions will exclusively be emphasized on this type of determinants of FDI. This study, thus, aims to investigate the factors that affect foreign direct investment (FDI) in Bahrain.

1.1 Research Problem

Various countries all over the world are struggling and competing to attract FDI into their economies. Inward FDIs as it is always believed help boost the economic growth and achieve a sustainable development of the recipient countries. Policy makers and government officials of these countries may want to attract foreign investments into their economies. They will primarily need to know how to create a suitable environment for FDI. To be able to know how to attract these investments, they will need to know what entices these international investors. Thus, government officials and private investors will need to identify the factors that influence the FDI inflows into their host countries. Principally, they need to identify the relationships between FDI inflows on one hand and certain other socio and macroeconomic variables like GDP growth, economic stability, government consumption expenditure, infrastructure development, public education, labor force, export potential, exchange rate, etc. on the other. The outcomes of this study will possibly help these policy makers and government officials identify those factors that are anticipated to attract FDIs.

1.2 Objectives of the Study

The main objective of this study is to empirically identify the main factors determining the FDI inflows into host countries using evidence from Bahrain. It is designed to investigate the relationships between the annual amounts of inward FDI flows and a wide range of country specific explanatory variables assumed to be significantly stimulating the inward FDI inflows. For this purpose, and because of the large number of potential variables, the study ignores the factors influencing the outward FDI flows (supply determinants). Thus, this study investigates the influence of certain country-specific characteristics (socio-economic variables) on the FDI inflows into Bahrain for the period of 1980-2013. Specifically, the study examines the potential of market size, exchange rate, trade openness, export potential, economic stability, inflation rate, infrastructure development, public education, labour force, population, and country welfare to be determinants of FDI in Bahrain.

1.3 Significance of the Study

Extensive studies were conducted all over the globe to study the subject of determinants of FDI inflows into various economies, regions and even continents. To the best of the researcher's knowledge, no one study has been conducted for the case of Bahrain or even for the case of any of the Gulf Cooperation Council (GCC) countries. The literature even lacks studies that have examined FDI inflows into the Middle East. Even if there are some, those studies might have not utilized the same explanatory variables used in this study to predict the FDI inflows. Or they might have not come up with similar results due to dissimilarity of data used, methodology implemented, country examined, or study period investigated. This study will conceivably make a contribution to the literature governing the determinants of inward FDI.

2.0 Literature Review and the Empirical Evidence of the Determinants of FDI

The literature of FDI began around the mid of the last century by for example Hymer (1960), Kindleberger (1969), and Caves (1971). While Hymer (1960) claimed that multinational enterprises activities do not involve capital mobility, Caves (1971) confirmed that the determinants of FDI comprise relative production costs, technology, and trade barriers. His results reveal that economic factors including access to factors of production such as land, labor, and capital at lower cost are significant determinants of FDI. In an analysis of the determinants of annual average inflows of FDI in 25 developing countries from Africa, Asia and Latin America, Levis (1979) find that economic variables are more important than political ones. He found that quality of life, the balance of payments, government capabilities and economic conditions are the main influencing factors of foreign investment flows. The most important economic determinants of FDI, according to Shneider and Frey (1985), were country's level of development measured by real per capita GNP and the balance of payments.

Wells (1987) point out that good infrastructure is necessary to attract export-oriented investment. Similarly, Rolfe and White (1992) determine that infrastructure quality is significant in the attractiveness of a country for offshore manufacturing investment. Hobday (1994), on the other hand, pointed out that foreign firms were attracted to Singapore partly by the efficiency of transportation and communications infrastructure. Dupasquier and Osakwe (2006) explicate that humble infrastructure is one of the causes that African nations have received low levels of FDI compared to other developing nations. However, infrastructure was found to be insignificant variable in attracting FDIs by many researchers including, for example, Onyeiwu and Shrestha (2004) and Asiedu (2002) who found infrastructure as an insignificant factor influencing FDI flows.

Onyeiwu and Shrestha (2004), on the other hand, found other factors such as availability of natural resources, trade, and some other macroeconomic variables of the country to be more significant than infrastructure.Several researchers have tested the influence of political stability or, conversely, political risk, on foreign direct investment flows. Contractor (1990) for example, found a positive relationship between country political ratings and FDI inflows to developing countries. Political stability in the foreign country was found to be ranked, persistently, first or second amongst determinants of FDI in Basi's (1963) study and in El-Haddad's (1986) study. Bartels et al. (2009) confirm that political economy considerations strongly influence FDI location decisions in Sub Saharan Africa (SSA). Political risk was also found by Zheng (2009) to be a key determinant of FDI into China and India. Busse and Hefeker (2007) emphasize that political risk is a main component in influencing FDI inflows into Africa. They indicated that government stability, conflicts (internal and external), ethnic tensions, and bureaucracy are essential elements of attracting inward FDI.A high level of inflation is likely to discourage FDI inflows as indicated by many researchers. Onyeiwu and Shrestha (2004), Asiedu (2006), Khalid and Varoudakis (2007), and Zenegnaw (2010) found that FDI flows into Africa are negatively correlated with the level of inflation.

The exchange rate and exchange rate volatility have also been considered as key variables in determining inward FDIs. Kandieroand Chitiga (2006) examine the relationship between real exchange rates and FDI in a sample of 38 African countries. An inverse relationship was found between FDI inflows and real exchange rate appreciation. Aiming to examine how exchange rate volatility influences FDI inflows into Ghana, Coleman and Tettey (2008) found that exchange rates play an important role in attracting FDI. Their research results conclude that volatile exchange rate has a negative impact on FDI inflows. Nabende (2002) pointed out that exchange rates are important factors influencing FDI flows into Africa. Corruption and democratic accountability are considered by many researchers as detrimental to FDI. Dupasquier and Osakwe (2006) indicate that political instability is a factor that can be considered as responsible for low FDI inflows into Africa. Ali Al Sadig (2009) empirically examines the effects of corruption on FDI inflows based on panel data from 117 countries over the period 1984-2004. He stated that corruption is generally viewed as an additional cost of doing business and predicted to decrease the profitability of investment projects. His research results conclude that FDI inflows decrease by higher corruption levels.

Bilateral investment treaties found to have a significant impact on FDI inflows to host countries. Eric and Spess (2005) provide quantitative evidence that a higher number of bilateral investment treaties (BITs) raise the FDIs that flows to a developing country. Büthe and Milner (2008) argue that international trade agreements (GATT and WTO) and preferential trade agreements (PTAs) reassure investors and increase investment. They used statistical analyses for 122 developing countries to support the argument that international commitments are more credible than domestic policy choices. Foreign aid into host countries has also been primarily considered to be asignificant factor of FDI inflows. Biglaiser and DeRouen (2010) carried out a study on 126 developing countries and establish that the overall involvement of IMF in a certain country tends to surge FDI flows from the United States of America.

Rodriguez and Pallas (2008) utilized panel data to examine the sectorial, regional and macroeconomic variables that have attracted FDI inflows in Spain. They found that labor productivity and the cost of labor are important determinants of FDI in Spain during the period 1993-2002. Demand, the evolution of human capital, the export potential of the sectors variables in addition to other certain macroeconomic determinants that measure the differential between Spain and the European Union average were also found to play a crucial role in attracting FDI inflows. Kandiero and Chitiga (2006) emphasized that increased openness in the economy has a positive effect on FDI flows into Africa. Their results reveal that further trade liberalization is anticipated to increase FDI inflows to service sectors (i.e., telecommunications, finance, banking, insurance, transportation, retail, business, as well as legal services).Nuno and Horácio (2010) analyzed the effect of market size, labor cost, trade openness, and economic stability on FDI inflows to Portugal. They found market size and trade openness as important factorsin explaining FDI flows into Portuguese economy. Wage and taxes were also found to be statistically significant drivers of FDI. Zenegnaw (2010) intended to provide an empirical analysis of the demand side of FDI inflow into African nations. His results confirm that natural resources, labor quality, trade openness, market accession and infrastructure conditions are having positive and significant effects on FDI. He found the availability of stock market to have positive (though insignificant) effect on FDI. In addition, he indicated that government' expenditures and private domestic investments have positive influence on FDI inflows.

He, however, pointed out that market size is not a dominant factor for market seeking FDI due to the low income level in African countries. Based on a co-integration analysis of 19 African countries, Nabende (2002) ascertains that growing markets in Sub-Sahara Africa are a long run determinant of FDI. Tarzi (2005) investigates developing countries receiving the largest share of FDI investment and found that market size, growth rate of market size, economic competitiveness, infrastructure, and worker productivity as the main locational factors of FDI inflows. He also found several specific FDI and trade policies as germane to attracting a significant volume of FDI. Asiedu (2006) uses panel data from 22 African countries over the period 1984–2000 to study the effect of some macroeconomic variables on FDI inflows into Africa. Her results indicate that market size, natural resource endowments, good infrastructure, low inflation, reliable legal system and a good investment framework are stimulators of FDI inflows. In contrast, corruption and political instability were found to have the opposite effect. She also concluded that small countries or those that lack natural-resources can attract foreign direct investment by improving their institutions and policy milieu.

Using panel regression models, Quazi (2007) finds that FDI inflow is significantly increased by better infrastructure, higher return on investment (ROI), and more trade openness. Moreover, his study indicates that negative correlation exists between FDI inflow, on the one hand, and greater trade barriers, repressive taxation, restrictive foreign investment code, repressive financial system, and, price and wage controls, on the other. Excessive bureaucracy and inefficient financial markets were identified to have generated locational disadvantages for Mexico of a magnitude of that encumbering its rivals in the region. Bartels et al. (2009) examined the motivating factors and policy issues that influence FDI in Sub Saharan Africa (SSA). Their results reveal that FDI location decision is strongly influenced by Infrastructure and political economy considerations. They found Labor and production input variables as not influential. Sufian and Sidiropoulos (2010), likewise, used panel data of a sample of 36 countries and find that the size of the host economy, the government size, the availability of natural resources and the institutional variables are key determinants of FDI inflows into Middle East and North African (MENA) countries.

Asiedu and Lien (2011) examined the relationship between democracy, natural resources and FDI. They estimate a linear dynamic model using panel data from 112 developing countries over the period 1982–2007 to capture the effect of lagged FDI on current FDI. They identify 22 countries where an expansion of democracy may reduce FDI and 90 countries where an increase in democratization may promote FDI. They concluded that Democracy facilitates FDI in countries where the share of natural resources in total exports is low, but has a negative effect on FDI in countries where exports are dominated by natural resources. Ebiringa and Emeh (2013) noticed that Stock Market capitalization and Interest rate had a statistically significant and positive effect on FDI flows. They found exchange rate, GDP, and Inflation rate exert a long run statistically significant negative effect on FDI flows. To answer the question "why do FDI inflows go where they do in African Countries", Anyanwu (2012) examined data from fifty three African countries for the period 1996-2008. His cross-country regressions estimation results indicate positive relationships exist between FDI inflows, on the one hand, and market size, trade openness, the prevalence of the rule of law, foreign aid, agglomeration, natural resource, endowment and exploitation, on the other. He, however, found higher financial development to have a negative effect on FDI inflows. To detect and analyze the potential of management strategy to attract foreign direct investments, Abdoulaye et al. (2015) conducted a thorough literature review and identified different strategies for capital issues and benefits of FDI. They confirm that several trends that drive FDI must be considered in order to take appropriate measures to attract more investments including, for example, availability of natural resources, cheap labor markets and low cost.

Using panel data of 31 countries for the period 1984-2009, Gamal et al. (2013) emphasized that market size; past levels of FDI inflows, corruption, domestic credit, share of oil in exports, and religious tension risk are significant factors influencing FDI inflows into Africa. They, however, confirmed that most of the political and institutional risk indicators are insignificant. In a recent study, O'Meara (2015) identified the principal determinants of FDI on a cross-country basis. His results indicate that traditional variables pertaining to the size and scale of economic activity in the host country are more significant in explaining FDI flows than economic freedom, tax incentives and human capital. Caroline (2015) examined the factors that influence FDI flows into African nations using the fixed effects model to analyze annual data from 35 African countries for the period from 1984 to 2010. Her results reveal positive and significant relationship exists between FDI inflows and each of the commodity price index performance, high performance of stock markets, development in the infrastructure, and the increase in openness to trade of a country.

Conversely, her results indicated that high economic risk has negative significant effect on FDI flows. Both political risk and financial risk were revealed to have negative but insignificant impact on FDI inflows.

In a more recent study with the aim of answering the question "Does Growth Attract FDI", Sasi and Doucouliagos (2015) applied the Meta-regression analysis to 946 estimates from 140 empirical studies. Their results demonstrateda strong positive correlation between economic growth and FDI. They emphasized that growth is slightly more correlated with FDI in developing countries.

3.0 Data and Methodology

The time series data set used for the empirical analysis was primarily collected from both publications of United Nations Conference on Trade and Development (UNCTAD) and publications of Statistical Bulletin of the Central Bank of Bahrain (CBB). Annual data for figures related to FDI inflows as well as socio and macro-economic variables were collected for the period of 1980-2013[1]. Despite the fact that prior literature on the subject has suggested numerous possible explanatory variables, it is impracticable to include all of them. The criteria used for dropping variables from the list of investigation were based on a variety of factors: unavailability of data, irrelevance to Bahrain, similarity with other variables, and multi-collinearity. Data related to FDI inflows is proxied by the natural logarithm of total annual inward FDI inflows in US dollars measured at current prices and current exchange rates. Market size is proxied by annual GDP growth for the study period. Trade openness is captured from the Goods and Services Trade Openness Annual Indicator. Exchange rate is stated by the rate of conversion from the Great Britain Pound to the Bahraini Dinar (£/BD). The study used this major currency as an indicator of exchange rate due to the fact that Bahraini Dinar is officially pegged to the US dollar, on the one hand, and the unavailability of data related to the Euro as it was launched late, on the other. Inflation refers to the changes in the price level (index) and is captured by annual inflation rate (growth rate percentage). Economic stability variable is represented by annual interest rate in the country. Labor force is captured by the number of workers in Bahrain (in thousands). Infrastructure development is captured by the government consumption on transport, storage and communications ($ millions). Public education is captured by school enrolment percentage (secondary of net). Export potential is captured by the export value index (year 2000 = 100). Population variable is captured by the number of inhabitants (in thousands). Welfare is represented by data on general government final consumption expenditure (GGFCE) in millions of dollars[2].

3.1 The Study Hypotheses

In order to investigate the determinants of foreign direct investment inflows into the host country, the following 11 null hypotheses were designed and thus used for testing:

H1: There is no statistically significant relationship between economic stability and FDI inflows.
H2: There is no statistically significant relationship between labor force and FDI inflows.
H3: There is no statistically significant relationship between trade openness and FDI inflows.
H4: There is no statistically significant relationship between public education and FDI inflows.
H5: There is no statistically significant relationship between population and FDI inflows.
H6: There is no statistically significant relationship between country welfare and FDI inflows.
H7: There is no statistically significant relationship between inflation rate and FDI inflows.
H8: There is no statistically significant relationship between export potential and FDI inflows.
H9: There is no statistically significant relationship between market size and FDI inflows.
H10: There is no statistically significant relationship between infrastructure development and FDI inflows.
H11: There is no statistically significant relationship between exchange rate and FDI inflows.

These hypotheses were tested by examining the level of significance of the relationships between each of the eleven independent variables and the dependent variable (FDI inflows).

3.2 The Study Model

This study uses multiple-regression model for the estimation of a time series data which represent both the dependent and independent variables.

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[1] See appendix 1.
[2] Modern welfare state is identified as a distinctive combination of democracy, welfare, and capitalism (Marshall, 1950).

The study model expresses FDI inflows as a function of: market size (GDPG), exchange rate (EXCHR), Trade openness (OPENN), export potential (EXPOVI), economic stability (INTRR), annual inflation rate (INFLR), Infrastructure development (TRANSP), country welfare (GGFCE), labor force (LABRF), public education (PEDUC), and population (POPUL). The study uses E-view version 8 software to estimate the model of the study by using ordinary least squared (OLS) technique. Some variables were used in natural logarithm (LN) such as FDI and infrastructure development (TRANSP), some are used in millions like (GGFCE), and in thousands such as Population (POPUL). The remaining variables were used as either indexes or percentages.

Following is the multiple regression model estimated to test the above-mentioned hypotheses:
FDI = f (GDPG, XCHNR, OPENN, EXPOVI, INTRR, INFLAT, TRANSP, GGFCE, LABRF, PEDUC, POPUL,μ) --- (1)

$FDI = \beta_0 + \beta_1 GDPG + \beta_2 XCHNR + \beta_3 OPENN + \beta_4 EXPOVI + \beta_5 INTRR + \beta_6 INFLAT + \beta_7 TRANSP + \beta_8 GGFCE + \beta_9 LABRF + \beta_{10} PEDUC + \beta_{11} POPUL + \mu$ -------------------------- (2)

Where:

B_0: the intercept or constant amount.
$B_1 - \beta_{11:}$ are coefficients of the explanatory variables.
μ: stands for the error term
FDI = foreign direct investment (measured by the natural logarithm of FDI inflows).
GDPG = Gross domestic product growth used as a proxy of market size.
XCHNR = Exchange rate (captured by the rate of conversion from GB pound[3] to Bahraini Dinar £/BD).
OPENN = Openness to foreign trade (captured by goods and services trade openness annual indicator).
EXPOVI = Export potential (captured by export value index, year 2000 = 100).
INTRR = annual interest rate and used as a proxy for economic stability.
INFLAT = Inflation rate (refers to the changes in the price level and captured by annual growth in inflation rate).
TRANSP = Infrastructure development (captured by the government consumption on transport, storage and communications in millions of UD dollars).
GGFCE = Welfare of the country (captured by data on general government final consumption expenditure in millions of US dollars).
LABRF = Labor force (captured by the number of workers, in thousands).
PEDUC = Public education (captured by school enrolment percentage, secondary of net).
POPUL = Population (captured by the number of inhabitants, in thousands).

4.0 Research Results and Discussion

This study uses descriptive statistics, correlation analysis, in addition to regression analysis with the intention to come up with the concluding results. The following sections demonstrate the study findings and their discussions.

4.1 Descriptive Statistics

To analyze the results, this study starts with the descriptive statistics. Table 1 below represents the descriptive statistics of the dependent and independent variables of the study. It demonstrates the mean, median, maximum, minimum, standard deviations, in addition to skewness values of the 34 observations associated with each of the 12 variables used in the study. The figures demonstrated are not representing the actual amounts for some of the variables as they are plotted in natural logarithm of the original amounts, in millions, in thousands, or index format.

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[3] The study uses GB pound conversion rate (£/BD) for exchange rate calculation of the local currency (BD) as the latter is officially pegged to the US dollar and the Euro is newly launched and does not represent the study period (1980-2013).

Table (1): Descriptive Statistics

	LNFDI	EXPOVI	GDPG	GGFCE	INFLAT	INTRR	LABRF	OPENN	PEDUC	POPUL	TRNSP	XCHNR
Mean	7.697	113.31	0.034	1727	0.017	0.081	329.3	78.424	0.816	701.3	6.344	1.6268
Median	8.437	70.30	0.041	1328	0.018	0.084	268.0	77.380	0.850	588.5	6.138	1.6445
Maximum	9.788	319.1	0.090	4434	0.114	0.123	769.0	106.77	0.930	1332	7.567	2.0720
Minimum	4.111	35.50	-0.160	425	-0.025	0.059	136.0	57.107	0.590	360.0	5.328	1.1410
Std. Dev.	1.747	87.490	0.050	1085	0.029	0.018	190.2	9.4857	0.092	306.9	0.643	0.1872
Skewness	-0.608	1.2407	-2.216	1.223	1.253	0.471	1.326	0.8707	-1.065	0.885	0.583	-0.1264

The low standard deviations values for many of the variables indicate that they are largely in the same range of values. Positive and negative skewness values designate that the outcomes are, almost, not normally distributed.

4.2 Correlation Analysis

The correlation coefficient is used in this study as a method to explore the type and intensity of the relationships among the dependent and the hypothesized independent variables. The correlation matrix measures the degree of multi-collinearity among all the variables (regressor and regressand) of the study. The correlation test is also used to determine the most significant factors in the list of the hypothesized independent variables (Gathogo and Ragui, 2014). Table 2 below displays the correlations matrix of the proxy variables.

Table (2): Correlation Analysis

	LNFDI	EXPOVI	GDPG	GGFCE	INFLAT	INTRR	LABRF	OPENN	PEDUC	POPUL	TRNSP	XCHNR
LNFDI	1.0000											
EXPOVI	0.7104	1.0000										
GDPG	0.4215	0.1731	1.0000									
GGFCE	0.8024	0.9529	0.1927	1.0000								
INFLAT	-0.2090	0.1482	-0.1981	0.0122	1.0000							
INTRR	0.0002	-0.5383	0.0971	-0.4858	-0.1615	1.0000						
LABRF	0.7713	0.9480	0.1843	0.9823	0.0300	-0.4585	1.0000					
OPENN	-0.6296	-0.0873	-0.4199	-0.2982	0.43227	-0.3806	-0.3047	1.0000				
PEDUC	0.8708	0.4618	0.3650	0.5697	-0.18542	0.2862	0.5539	-0.6352	1.0000			
POPUL	0.8440	0.9570	0.2551	0.9825	0.03098	-0.4480	0.9778	-0.3092	0.6099	1.0000		
TRNSP	0.8749	0.9294	0.2657	0.9626	0.02456	-0.3945	0.9471	-0.3788	0.6390	0.9831	1.0000	
XCHNR	0.0950	-0.1242	-0.2490	0.0371	-0.48733	0.1253	0.0338	-0.4302	0.0998	-0.0319	0.0552	1.0000

Country welfare measured by the general government final consumption expenditures (GGFCE), public education (PEDUC), population (POPUL), and infrastructure (TRANSP), as shown in Table 2 seem to have the most significant positive correlation with FDI inflows (LNFDI). Next in strength comes the export value index (EXPOVI) variable which represents the export potential of the country and labor force (LABRF). Trade openness (OPENN) appears, unexpectedly, to have the highest negative correlation with the FDI inflows. Strong correlations between independent variables are found between export potential measured by export value index (EXPOVI) and each of GGFCE, LABRF, and POPUL. Other strong correlations were also found between GGFCE and each of POPUL and TRANSP and between LABRF and each of POPUL and TRANSP.

4.3 Regression Analysis

This study uses multiple regression analysis as a statistical tool to estimate the relationships between dependent and independent variables in order to identify the determinants of FDI inflows into Bahrain. Durbin-Watson statistics, adjusted R-square, and P- value were used for decision making criteria. P-value is used in this study for testing the statistical hypotheses. It is the criterion that helps decide whether to accept or to reject the proposed hypothesis. A p-value less than or equal to 10% signifies that the null hypothesis is rejected at 10% level of significance. A p-value less than or equal to 5% signifies that the null hypothesis is rejected at 5% level of significance. A P-value less than or equal to 1% signifies that the null hypothesis is rejected at 1% level of significance. Rejecting the null hypotheses implies accepting the alternative ones.

The Adjusted *R*-squared (or adjusted coefficient of determination) is used in multiple regression analysis to assess the goodness-of-fit that penalizes additional explanatory variables. The adjusted R^2 value of 0.984307 designates that variations in the hypothesized independent variables can explain the variations in the dependent variables by 98.4307%. Therefore, this measure is significant to explain the good fitness of the study model. Durbin-Watson (D-W) statistic is a number that tests for autocorrelation in the residuals from a statistical regression analysis[4]. It is used to test for first order serial correlation in the errors of a regression model (Wooldridge, 2004). The estimated D-W value of 1.997 designates nonexistence of autocorrelation in the data. Table 3 below demonstrates the regression results of the study. It shows the regression analysis between FDI inflows in the one hand (LNFDI) and the Export Value Index (EXPOVI), the Gross Domestic Product Growth (GDPG), the General Government Final Consumption Expenditures (GGFCE), Inflation Rate (INFLAT), Interest Rate (INTRR), Labor Force (LBRF), Trade Openness (OPENN), Public Education (PEDUC), the Population (POPUL), Transportation (TRANSP), and the Exchange Rate (XCHNR) on the other.

Table (3): Regression Results between LNFDI and Independent Variables Using Least Square Method

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.647178	3.817984	0.955263	0.3498
EXPOVI	0.001563	0.003187	0.490446	0.6287
GDPG	0.344043	1.096654	0.313721	0.7567
GGFCE	0.000531	0.000267	1.987490	0.0595*
INFLAT	-4.122796	2.120003	-1.944713	0.0647*
INTRR	23.52745	4.575692	5.141835	0.0000***
LABRF	-0.011953	0.001983	-6.027914	0.0000***
OPENN	-0.030963	0.011791	-2.625929	0.0154**
PEDUC	2.791511	0.977089	2.856968	0.0092***
POPUL	0.010716	0.002242	4.780606	0.0001***
TRNSP	-0.539288	0.726170	-0.742648	0.4656
XCHNR	0.546992	0.477926	1.144512	0.2647
R-squared	0.989538	Mean dependent var.		7.696893
Adjusted R-squared	0.984307	S.D. dependent var.		1.747184
S.E. of regression	0.218870	Akaike info criterion		0.069883
Sum squared residuals	1.053886	Schwarz criterion		0.608598
Log likelihood	10.81199	Hannan-Quinn criteria		0.253600
F-statistic	189.1736	Durbin-Watson stat		1.997000
Prob. (F-statistic)	0.000000			

***, **, and *, signify 1%, 5% and 10% respectively.

Table 3 shows a statistically significant positive relationship at 1% level exists between the dependent variable LNFDI and interest rate (INTRR) with p-value of (0.0000). This suggests that an increase in interest rate increases the amount of FDI inflows into the country. Since interest rate is used as a proxy of economic stability, then, the First hypothesis that there is no statistically significant relationship between economic stability and FDI inflows is rejected, and thus, the alternative hypothesis is accepted. This indicates that the economic stability is a determinant factor of FDI inflows. This result is consistent with the results of Ahmet (1996) who found the effect of the interest rate to be quite strong but relatively small in magnitude. However, this result deviates from the findings of Fuat and Ekrem (2002) whose empirical results suggest no significant effect on FDI of internal economic stability, as measured by interest rate. It is also non consistent with the results of Nuno and Horácio (2010).

The Table also reveals a statistically significant negative relationship at 1% level exists between FDI inflows and labor force (LABRF) with p-value of (0.0000). This suggests that an increase in labor force increases the amount of FDI inflows into the country. Therefore the Second hypothesis that there is no statistically significant relationship between Labor force and FDI inflows is rejected and the alternative hypothesis is accepted. This indicates that the labor force is a determinant factor of the FDI inflows.

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[4] www.investopedia.com/corp.aspx

This finding comports with the results of Elijah (2006) who found that human capital affects FDI inflows positively in the short run. However, it is not consistent with the results of Bartels et al (2009) who found Labor input variables to be not influential on FDI inflows. Table 3 illustrates that a statistically significant negative relationship at 5% level exists between FDI inflows and trade openness (OPENN) with a p-value of (0.0154). This, surprisingly, suggests that an increase in trade openness decreases the amount of FDI inflows into the country. Consequently the Third hypothesis that there is no statistically significant relationship between trade openness and FDI inflows is rejected. This implies that the alternative hypothesis is accepted which suggests that the trade openness is a negative determinant factor of the FDI inflows. This result is consistent with the results of Elijah (2006) who found that economic openness affects FDI inflows positively in the short-run. However, it is not consistent with the results of Obida and Nurudeen (2010) whose results illustrate that openness of the economy is statistically insignificant but positively related to foreign direct investment.

The empirical results show a statistically significant positive relationship at 1% level exists between FDI inflows and public education (PEDUC) with p-value of (0.0092). Thus the Fourth hypothesis that there is no statistically significant relationship between public education and FDI inflows is rejected. This implies that the alternative hypothesis is accepted and suggests that public education is a determinant factor of the FDI inflows. This also suggests that an increase in public education increases the amount of FDI inflows into the country. This result is consistent with the findings of Reiter et al. (2010) who show that FDI inflows are strongly positively related to improvement in human development. It is also consistent with the results of both Markusen (2001), who found that knowledge capital is vital for FDI inflows and Rodriguez and Pallas (2008) who found that human capital is the most significant determinant of inward FDI. It is also in agreement with Nonnemberg and Mendonça (2004) who conclude that FDI is correlated to level of schooling in the host country. However, it is not consistent with the results of James and Jiangyan (2010) whose results show that the degree of school enrollment in the population of the host country is not affecting FDI inflows.

Population (POPUL) is revealed by the results to have a statistically significant positive relationship with FDI inflows at 1% level with p-value of (0.0001). Thus the Fifth hypothesis that there is no statistically significant relationship between population and FDI inflows is rejected, which implies that, the alternative hypothesis is accepted. This result suggests that the population of the country is a determinant factor of the FDI inflows. This result is consistent with the results of Abdul Aziz and Makkawi (2012) whose data from 56 African and Asian countries supported the hypothesis that a country's population would be positively related to FDI. However, this result deviates from the findings of Zenegnaw (2010) who found population growth rate to have positive but statistically insignificant effect. It is also inconsistent with the results of Resmini (2000) who concludes that countries with larger populations tend to attract more FDI.

Host country welfare captured by general government final consumption expenditure (GGFCE) is found to have statistically significant positive relationship with FDI inflows at 10% level with p-value of (0.0595). This implies that the Sixth hypothesis that there is no statistically significant relationship between country welfare and FDI inflows is rejected and thus the alternative hypothesis is accepted. This suggests that the host country welfare is a determinant factor of the FDI inflows. This finding comports with the results of Zenegnaw (2010) who found Governments' expenditure to have positive influence on FDI inflows. However, it is not consistent with the results of Moses and Yaoshen (2014) who found Government consumption expenditure to be insignificant in attracting FDI inflows into Tanzania.

Inflation rate (INFLAT) also is revealed to have a statistically significant negative relationship with FDI inflows at 10% level with p-value of (0.0647). This implies that the Seventh hypothesis that there is no statistically significant relationship between inflation and FDI inflows is rejected and thus the alternative hypothesis is accepted. This suggests that the inflation rate is a determinant factor of the FDI inflows. This result is consistent with the research results of Zenegnaw (2010), Khalid and Varoudakis (2007), Asiedu (2006), and Onyeiwu and Shrestha (2004) who found FDI flows into Africa to be negatively correlated with the level of inflation. However, it is not consistent with the results of Obida and Abu, Nurudeen (2010) which illustrate that inflation is statistically insignificant but positively related to foreign direct investment. Table 3 reveals positive but statistically insignificant relationship exists between FDI inflows and export value index (EXPOVI) with a p-value of (0.6287). Since export value index is used as a proxy for export potential, then the Eighth hypothesis that there is no statistically significant relationship between export potential and FDI inflows is accepted. Accordingly, the study suggests that the export potential is not a determinant factor of the FDI inflows.

This result is consistent with the results of Soludo (1998) who emphasized that values of exchange rates and export potential are critical for the resurgence of investment and pointed out that they are necessary but not sufficient conditions. However, it is not consistent with the results of Rodriguez and Pallas (2008) who found export potential plays a crucial role in attracting FDI inflows.Positive but insignificant relationship also found to exist between FDI inflows and GDP growth (GDPG) with a p-value of (0.7567). Since GDP growth is used here as a proxy for market size, then the Ninth hypothesis that there is no statistically significant relationship between market size and FDI inflows is accepted. This suggests that the market size is not a determinant factor of the FDI inflows. This result is consistent with the results of Coleman and Tettey (2008) who claims that most foreign investors do not consider the size of the market in making a decision to invest in Ghana. It is also consistent with the argument of Zenegnaw (2010) who emphasized that market size is not a dominant factor for market seeking FDI due to the low level of income in African countries. This result deviates from the findings of Moses and Yaoshen (2014) who found market size as one of the major determinants of foreign direct investment inflow to Tanzania. It is also non consistent with the results of O'Meara (2015) who found market size of the host country as one of the most significant factors explaining FDI flows. The result also is not in agreement with Azmat, (1999), Andrea Marino (2000), Gordon (2001), and Chakrabarti (2003) studies results that have shown market size of the host country, considerably affect the amount of inward FDI.

The government consumption on transport, storage and communications (TRNSP), as clearly shown in the Table, is found to have a negative though statistically insignificant relationship with FDI inflows with p-value of (0.4656). Since TRANSP is used in this study as a proxy of infrastructure development, then, the Tenth hypothesis that there is no statistically significant relationship between infrastructure development and FDI inflows is accepted. For that reason, this study suggests that the infrastructure development is not a determinant factor of the FDI inflows. This result is consistent with the results of Bruce and Piger (2011) who found infrastructure to be with little support for inclusion in FDI determinants. The result is also consistent with those of Onyeiwu and Shrestha (2004) and Asiedu (2002) who found infrastructure to be an insignificant factor influencing FDI flows. However, it is not consistent with the results of Moses and Yaoshen (2014) who found infrastructure development as one of the major determinants of foreign direct investment inflows to Tanzania. It is also not consistent with the results of O'Meara (2015),Zenegnaw (2010), Caroline (2015) and Wafure and Nurudeen (2010), who found quality of infrastructure to be a key driver of foreign direct investment.

Exchange rate (XCHNR) is revealed to have positive though insignificant relationship with FDI inflows with p-value of (0.4656). Therefore the Eleventh hypothesis that there is no statistically significant relationship between exchange rate and FDI inflows is accepted. This denotes that the exchange rate is not a determinant factor of the FDI inflows. This finding comports with the findings of Dewnter (1995), who found no statistically significant relationship between the exchange rate and FDI. However, this result deviates from the findings of Obida and Nurudeen (2010) and Masayuki and Ivohasina (2005), and Okpara et al. (2012) who found exchange rate depreciation as one of the main determinants of FDI inflows into a host country.

5.0 Conclusions

This study empirically examines the relationships between FDI inflows and socio and macroeconomic variables of the host county. Using Ordinary Least Square (OLS) regression to analyze the time series of 34 years' data (1980-2013), the empirical findings show that the key determinants of FDI consist of: country welfare, economic stability, inflation rate, labor force, trade openness, public education, and population. Export potential, market size, and exchange rate, however, are found to be statistically insignificant but positively related to the FDI inflows. Country welfare, on the other hand, is found to be statistically insignificant, though negatively related, to FDI inflows. A number of other factors were dropped from the list of investigation due to a variety of causes: their unavailability of data, irrelevance to Bahrain, similarity with other variables, and multi-collinearity concerns.

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Appendix 1

Table (4): Study Data

	LNFDII	GDPG	INTRR	LABRF	PEDUC	EXPOVI	XCHNR	OPENN	POPUL	INFLAT	GGFCE	TRNSP
2013	9.788	3.90%	5.90%	769	87%	282.5	1.701	75.948	1,332	3.31%	4434	7.567
2012	9.731	3.40%	6.00%	763	86%	319.1	1.684	75.269	1,318	2.81%	4434	7.567
2011	9.676	2.10%	6.80%	746	93%	317.2	1.66	79.004	1,293	-0.42%	3992	7.473
2010	9.626	4.34%	7.20%	711	89%	241.7	1.721	69.537	1,252	1.97%	3324	7.451
2009	9.616	2.55%	7.90%	644	87%	191.7	1.707	68.466	1,192	2.79%	3206	7.291
2008	9.598	6.24%	8.20%	562	85%	279.5	1.447	82.577	1,116	3.53%	2846	7.203
2007	9.469	8.29%	8.30%	476	86%	220.1	1.329	79.68	1,032	3.25%	2629	7.034
2006	9.323	6.47%	8.00%	399	87%	197	1.445	84.638	951	2.04%	2352	6.928
2005	9.021	6.77%	7.80%	340	87%	165.3	1.463	83.895	880	2.62%	2245	6.768
2004	8.903	6.98%	7.90%	312	85%	122	1.453	78.605	821	2.28%	2030	6.7
2003	8.813	6.30%	8.30%	301	84%	107.1	1.629	72.061	772	1.68%	1918	6.589
2002	8.733	3.35%	8.40%	300	85%	93.5	1.775	72.507	733	-0.50%	1695	6.537
2001	8.697	2.49%	10.70%	303	91%	90	1.847	73.598	699	-1.18%	1549	6.428
2000	8.684	7.02%	11.60%	302	90%	100	1.758	79.181	668	-0.73%	1469	6.349
1999	8.597	5.97%	11.70%	293	87%	70.4	1.664	68.886	641	-1.26%	1436	6.279
1998	8.509	4.85%	11.80%	284	87%	52.8	1.606	57.107	618	-0.42%	1345	6.269
1997	8.472	2.35%	12.20%	273	86%	70.8	1.625	68.6	597	4.60%	1320	6.131
1996	8.401	3.25%	12.30%	263	86%	75.9	1.705	76.073	580	-0.19%	1336	6.105
1995	7.784	1.92%	11.70%	256	92%	66.4	1.685	70.963	564	3.14%	1308	6.144
1994	7.587	2.37%	10.70%	246	91%	58.4	1.738	69.187	549	4.00%	1237	6.098
1993	7.476	8.26%	10.80%	237	85%	60.1	1.773	73.567	536	2.60%	1224	6.019
1992	7.621	7.80%	11.70%	228	85%	55.9	1.515	73.776	523	-0.30%	1198	5.961
1991	7.066	4.56%	9.40%	221	85%	56.7	1.508	75.495	510	0.90%	1139	5.979
1990	6.314	4.63%	8.40%	214	76%	60.7	1.498	83.896	496	-0.91%	1072	5.659
1989	6.6	2.42%	8.40%	211	76%	45.7	1.625	81.285	481	1.20%	1006	5.743
1988	6.317	9.02%	7.80%	203	74%	38.9	1.495	79.376	465	0.20%	959	5.707
1987	5.805	1.91%	7.50%	196	77%	39.2	1.627	86.638	449	-1.70%	877	5.656
1986	5.908	1.13%	9.00%	188	73%	35.5	1.814	79.226	433	-2.50%	801	5.714
1985	5.989	-16.02%	8.40%	180	67%	46.8	2.072	85.088	419	-2.40%	1139	5.829
1984	5.697	4.90%	8.40%	172	70%	51.7	1.999	83.938	407	0.00%	853	5.922
1983	5.056	8.48%	7.80%	164	59%	50.4	1.755	76.155	396	3.20%	718	5.927
1982	4.533	-7.51%	7.50%	156	67%	61.2	1.522	95.397	386	8.70%	658	5.781
1981	4.174	-6.65%	9.00%	147	70%	70.2	1.324	106.774	374	11.40%	532	5.545
1980	4.111	2.58%	8.40%	136	59%	58.2	1.141	100.031	360	3.80%	425	5.328