The Relationship Between Foreign Direct Investment Flows in Kenya and Macro-economic Factors

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Abstract
Foreign direct investment (FDI) has been recognized as an important resource for economic development. However, this resource is realized within a set of variables that determine its inflow into a country. The objective of this study was to establish the determinants of the flow of foreign direct investment into Kenya. The regression was statistically significant with an indication that changes in five factors, namely, exchange Rate, Tax Rate, Inflation, GDP Growth and Openness explained 50 percent of the variation in the rate of change in FDI. For specific determinants, the exchange rate is the factor that is most prominent as a determinant of FDI inflows into Kenya. Tax Rate, Inflation, GDP Growth and Openness are not significant drivers of changes in the FDI inflows into Kenya. Policy makers have to watch the fluctuations in KES exchange rates carefully.

Keywords: Foreign Direct Investment, Exchange rate, Economic growth rate, Inflation rate, Trade openness, Kenya

1. Introduction
Foreign Direct Investment (FDI) is the spending by a foreign firm to establish operating units in the domestic economy. Foreign Direct Investment is distinguished from portfolio investment solely based on percentage ownership. Capital inflows are designated as FDI when foreign entity owns 10 percent or more of a firm regardless of whether the capital flows are used to purchase a new plant and equipment or to buy an owner-ship position in an existing firm. FDI usually includes such investment types as wholly owned subsidiaries, joint ventures and mergers and acquisitions. The growth of FDI spending corresponds to the growth of the multinational firms in the international trade and commerce.

FDI comes in three different components, namely, equity capital, reinvested earnings and other capital, which mainly consists of intra-company loans (UNCTAD, 2002). Dunning (2001) stated that on top of financial assets, FDI also refers to intellectual capital and transfer of technology and knowledge.

The motives for ownership of foreign operations can be explained by imperfect competitive market conditions and superior expertise of the domestic firm. Alfaro et al. (2009) added that FDI can also foster linkages and provide financing to local firms. These linkages can be very beneficial to the host economy, if the country in question is able to take advantage of them. Foreign direct investment (FDI) has also been recognized as an important resource for economic development. Many people argue that the flows of FDI could fill the gap between desired investment and domestically mobilized finance. It also may increase tax revenues and improve management, technology, as well as labour skills in host countries (Todaro and Smith, 2003). Additionally, FDI may help the host country to break out of the vicious cycle of underdevelopment (Hayami, 2001).

The factors that determine the flows of FDI into one country or another will depend on the context within which the FDI is flowing. As a result, there are many factors that affect this flow of FDI. The factors can vary from one country to another and from one period to another. The factors include economic growth, inflation, exchange rates, taxes and openness. The relationship between FDI and each of the factors is context-sensitive (Cummins and Hubbard, 1995).

Economic growth refers to the annual changes in the gross domestic product of a country. Countries that have high economic growth rates tend to attract higher FDI values (Obadan, 1992; Eke, 2003). Inflation is a period-based measure of the changes in the consumer price indices in a country. High levels of inflation cause FDI flight to countries with lower rates of inflation and with relative stability in the national currency (Sayek, 1999; Azam, 2010). Exchange rates also affect FDI in that investors will move to countries where the exchange rates bring more benefit to the investor than invest in countries where the rates erode value from investors (Goldberg and Klein (1998); and, Osimubi and Amaghioneodiwe, 2009). Taxes may influence FDI especially if the tax levels significantly cut into incomes of the foreign investors (Agostini and Tulayasathien, 2003). Trade openness refers to the extent to which a country economically interacts with other economies as proxied by the total amounts of trade in exports and imports (Ghosh, 2007). Countries that interact more tend to attract more values of FDI (Liargovas and Skandalis, 2011).

Kenya has had a long history with foreign firms. In the 1970s it was one of the most favoured destinations for FDI in East Africa. However, over the years, Kenya lost its appeal to foreign firms a phenomenon that has continued to the present. There has been high volatility in FDI flows in Kenya and the FDI has not played an important role in the Kenyan economy despite the reforms that had been undertaken and the many incentives provided to foreign investors. In the period 1997–2001, FDI was about 0.6% of GDP, a ratio that was below the
African average of 1.9%. In the 1980s, Kenya share of FDI in East Africa was at 80%; this has completely changed by 2006 where Kenya with (21%) has lost its competitiveness over Uganda (40%) and Tanzania (36%) in attracting FDI (Ajayi, 2006). In 2008, Kenya launched vision 2030 initiative which included an intent to reverse the trend by a renewed commitment to entice increased FDI to assist in the industrialization process.

Several studies have been undertaken on the determinants of FDI flows in developing countries i.e. Ayanwade And Bamire (2004) In Nigeria, Azam (2010) In Armenia, Kyrgyz Republic And Turkmenistan, and Osinubi and Amaghionyeodiwe (2009) in Nigeria. Focusing on Kenya, the study by Kinuthia (2012) addressed the relationship between local capital flows and FDI but did not target the five factors in this study. In another study by Were (2005) the focus was on the effect of health on FDI. Assumani (2007) dwelt on the effect of the Kenyan legal on FDI. The studies cited above indicate that the factors that drive FDI depend on the environment within which the study is carried. Not only did the studies cited show a lack of universal agreement concerning which factors drive FDI in which countries and the nature of the relationships of the factors with FDI, but no comprehensive study on the factors has been conducted in Kenya. This study examined the nature of the relationship between FDI and the independent variables: exchange rates, taxes, inflation, levels of GDP and openness.

2. Literature Review
2.1 Theoretical Literature review
The theories underpinning FDI flows include product life cycle, the eclectic paradigm, and, the internationalization theory.

The product life cycle theory explains both trade and FDI. The theory was developed by Vernon (1996) and explained why the manufacturers move from the policy of exporting their products to the policy locating in foreign countries through FDI. Firms first manufacture for their local markets, then start exporting and finally look for foreign locations to site productive operations.

A general framework for explaining international production was offered by the eclectic paradigm. According to the paradigm there are three variables including Ownership-specific (O); Location-specific (L); and Internalization (I). The OLI paradigm suggests that MNCs develop competitive O advantages at home and then transfer these abroad to specific countries (depending on L advantages) through FDI, which allows the MNE to internalize the O advantages.

Internalization theory was developed by efforts of Buckley and Casson (1976), Rugman (1981), and Hennart (1982). The theory asserts that at firm-level the MNC will exert proprietary control (ownership) over an intangible, knowledge-based, firm-specific advantage. In internalization theory, transaction cost economics and the resource-based view to explain the efficiency aspects of MNCs.

2.2 Empirical Literature review
In this section we review the literature that examines the connection between the dependent variable and the independent variables of this study.

The relationship between FDI and Economic growth has been widely studied (Obadan, 1992; Ayanwale and Bamire, 2004; Eke, 2000; Campos and Kinoshita, 2002). The studies show that there is a strong and significant relationship between FDI and GDP growth. This indicates that an increase in FDI stimulates economic growth. However, the findings may not be universal as growth is driven by different factors in different countries and not necessarily FDI.

Given that a lot of foreign investment is motivated by reducing transaction costs, the effects of the host country’s economic conditions on the foreign investor’s costs and competitiveness in foreign markets are of central concern. Thus, inflation rates and foreign exchange rates are particularly important in this regard. Studies that seek to establish a link between FDI and inflation are varied and include Sayek (1999) who found that a three percent increase in Canadian inflation reduced US FDI in Canada by two. In a similar way, a seven percent increase in Turkish inflation reduced US FDIs in Turkey by 1.9 percent. This study suggested that percentage change in FDI is negatively related to inflation in the recipient country. Gul, et al. (2012) found that there was an insignificant relationship between inflation and FDI, but they were positively correlated. Azam (2010) study indicated negative effect of inflation on FDI.

Goldberg and Klein (1998) did a study to investigate the relationships among trade, foreign direct investment and the real exchange rate between a set of South East Asia and Latin American countries and both the United States and Japan. The empirical results documented the significance of regional linkages between the real exchange rate and foreign direct investment. Other related studies include Osinubi and Amaghionyeodiwe (2009), and Parajuli (2012).

Agostini and Tulayasathien (2003) conducted a survey study in which they sought to find out The Impact of State Corporate Taxes on FDI. The results showed state corporate income tax rate that investors face has a negative effect on FDI that states received. In another study Slemrod (1990) the results of the study generally supported a negative effect of U.S. effective rates of taxation on the total FDI and new transfers of funds. A study by Cummins
and Hubbard (1995) found that FDI was very sensitive to the taxation policy of the country into which the FDI flowed.

Ghosh (2007) conducted a study examining the relation between a developing country’s trade openness and the stock of its FDI liabilities using panel data for the period 1970-97 and found that trade openness was positively correlated with FDI liabilities, with or without country fixed effects. The main empirical findings of the panel regression analysis revealed that in the long run, trade openness contributed positively to the inflow of FDI in developing economies. Liargovas and Skandalis (2011) did a study to examine the importance of trade openness in attracting Foreign Direct Investment (FDI) inflows. They reported a positive relationship. Majocchi and Strange (2007) study confirmed that the choice of FDI location is positively influenced by the extent of trade, and financial and market liberalization. Kinuthia (2012) did a study to analyze the relationship between local capital flows and found that decrease of external debt would bring in more foreign exchange reserve which will act as stimulant to foster growth. It was established that Current account is irrelevant in determining the FDI inflows in Kenya.

The empirical studies reviewed have shown that FDI is strongly affected by the five variables: exchange rates, taxes, inflation, levels of GDP and openness. However, the relationships are not universal, but context dependent. None of the studies has shown the nature of the relationship in Kenya. This study wishes to fill this gap by analyzing the effect of exchange rates, taxes, inflation, levels of GDP and openness on FDI in Kenya.

3. Research Methodology

3.1 Research Design and Data Collection

This investigation was a descriptive study with the values of FDI as the dependent variable while the independent variables are: exchange rates, taxes, inflation, levels of GDP rate and openness. Regression analysis was used to find the relationship between FDI and independent variables since the relationship expected was linear. Such a model was used by Majocchi and Strange (2007) when they conducted a study to determine factors that had an impact upon FDI seven Central and East European countries, namely, Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia.

This study used secondary data for analysis. The secondary data included the annual values of Foreign Direct Investment in Kenya at current US Dollar rates; the International Monetary Fund Price-Adjusted Rate of Exchange PARE); corporate tax rates for foreign business; inflation rates; levels of GDP rate, annual values of GDP, annual values of imports and exports for the 21 years between 1991 to 2012, were used for the analysis.

3.2 Methods of Data Analysis

This study used regression analysis model in which the dependent variable was the annual percentage change in FDI inflows to Kenyans. The independent variables were exchange rates, taxes, inflation, levels of GDP rate and openness. The multiple regression analysis was used to determine how each of the dependent variables relates to annual FDI rates. The regression analysis took the form below:

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon \]

Where,

- \( Y \) = Annual rate of change in FDI, that is, the percentage change in FDI from year to year
- \( X_1 \) = Annual rate of change in the IMF PARE, that is, the percentage change from year to year
- \( X_2 \) = Corporate taxation rate on foreign businesses
- \( X_3 \) = Annual inflation rate
- \( X_4 \) = Annual GDP growth rate, that is, the percentage change in GDP from year to year.
- \( X_5 \) = Rate of openness, that is, the percentage change in openness from year to year
- \( \alpha \) = The constant of regression
- \( \beta_i \) = The sensitivity of FDI rate of change to the dependent variable
- \( \epsilon \) = The error term.

The \( t \)-tests at 95% confidence level were used to determine the statistical significance of the constant term, \( \alpha \), and the coefficient terms, \( \beta_i \). The \( F \)-tests was used to determine whether the regressions is of statistical importance at 95% confidence level. The coefficient of determination, \( R^2 \) and the Adjusted \( R^2 \) were used to determine how much variation in FDI rates is explained by variation in the independent variables. The analysis was done using MS EXCEL 07 software.
4.0 DATA ANALYSIS AND DISCUSSIONS

4.1 Descriptive Statistics

Table 1: The descriptive Statistics of the variables of the Study

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Foreign Direct Investment</th>
<th>Economic Growth</th>
<th>Inflation Rate</th>
<th>Exchange Rate</th>
<th>Corporate Taxation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>229.95</td>
<td>88.27</td>
<td>38.71</td>
<td>7.66</td>
<td>40.60</td>
</tr>
<tr>
<td>Median</td>
<td>-95.22</td>
<td>2.98</td>
<td>30.60</td>
<td>2.98</td>
<td>38.71</td>
</tr>
<tr>
<td>Minimum</td>
<td>2189.05</td>
<td>80.03</td>
<td>50.20</td>
<td>80.03</td>
<td>50.20</td>
</tr>
<tr>
<td>Maximum</td>
<td>549.26</td>
<td>17.84</td>
<td>50.20</td>
<td>74.17</td>
<td>50.20</td>
</tr>
<tr>
<td>Std.Dev.</td>
<td>549.26</td>
<td>17.84</td>
<td>7.62</td>
<td>9.03</td>
<td>7.62</td>
</tr>
</tbody>
</table>

(Source: Prepared by researcher, 2013)

Table 1 gives the descriptive statistics of the variables of the study. The annual rate of FDI was the dependent variable of this study. The values of FDI were captured at current dollar rates. The annual data was used after converting it to an inter-year rate of change. As shown in the Table 1 the arithmetic mean rate of change in FDI from year to year was 229.95 %. The highest attained rate of change in FDI was 2189.05 % which was in 1992, with the minimum at 95.22% in 1993.

The average exchange rates were changed into rates of change by expressing the inter-year differences as percentages. The descriptive data of the rates are presented in Table 1 above show mean rate of 7.66 %. The highest change in the exchange rates was 80.03% realized in 1992 when the value of the Shilling dropped from KES 32.22 to the USD to KES 58.00. The lowest change was -8.24 % realized in 1994 when the KES appreciated from 56.05 to the USD to KES 51.43.

Corporate Taxation rate was proxied by the total effective amount of taxation levied on corporate profits in Kenya. The rate used in the regression was the total corporate income tax rate adjusted for deductions. The descriptive statistics in Table 1 show mean total taxation on corporate income was 40.60 %. The highest level of taxation was 50.20 % in 2005 and 2007. The lowest rate of the taxation was 29.30 % in 1992.

The annual figures of inflation rate statistics in Table 1 show the mean rate of annual inflation was 13.12 %. The highest rate of inflation was 46.00 % realized in 1993. The lowest level of inflation was 1.60 % in 1995.

Economic growth rate statistics in Table 1 indicate that the arithmetic average economic growth rate was 3.15 %. The highest level of economic growth realized was 7.00 in 2007 while the lowest rate was the economic regression of -0.80 % realized in 1992.

Economic Openness was a measure of economic interaction between Kenya and the rest of the world through trade in goods and services. Openness was found by expressing the sum of exports and imports in a year as a percentage of GDP in that year. As shown in Table 1, the average level of openness is 58.18 %. The highest level of openness attained was 74.17 in 2011 while the least rate of openness was 42.11 % attained in 1992.

4.2 Correlation Analysis

Table 2 shows the results of the correlation analysis of the variables. The rate of FDI change was weakly negatively correlated with economic growth, \( r(21) = -0.1384 \). The findings are similar to those of Majagaiya and Gu (2010) who found a weak negative correlation between economic growth and FDI in Nepal using a time series analysis. This study also finds a weak, but positive relationship between FDI and inflation, \( r(21) = 0.2377 \). This is a similarity to the finding of Antwii, et al. (2013) in Ghana.

There was a strong positive correlation between FDI rate and change in the rates of exchange indicating that higher FDI inflows were associated with the weakening Shilling. The findings are like those of Osinubi and Amanghioyeodwue (2009) who did a similar study in Nigeria to find the relationship between FDI and exchange rates. The finding, however, do not agree with Barrell et al. (2003) who found a strong negative relation between US FDI and exchange rate volatility in Europe and UK.

Table 2: Correlations Matrix

<table>
<thead>
<tr>
<th></th>
<th>FDI</th>
<th>Economic Growth</th>
<th>Inflation</th>
<th>Exchange Rate</th>
<th>Openness</th>
<th>Tax rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI</td>
<td>1.00</td>
<td>-0.1384</td>
<td>0.2377</td>
<td>0.6454</td>
<td>-0.2470</td>
<td>-0.1861</td>
</tr>
<tr>
<td>Economic Growth</td>
<td>1.00</td>
<td>-0.4832</td>
<td>-0.3868</td>
<td>0.5624</td>
<td>0.6173</td>
<td></td>
</tr>
<tr>
<td>Inflation</td>
<td></td>
<td>1.000</td>
<td>0.1849</td>
<td>0.0160</td>
<td>-0.2252</td>
<td></td>
</tr>
<tr>
<td>Exchange Rate</td>
<td></td>
<td></td>
<td>1.000</td>
<td>-0.3811</td>
<td>-0.2311</td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
<td>0.7926</td>
</tr>
<tr>
<td>Tax rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
</tbody>
</table>

(Source: Prepared by researcher, 2013)

There was a weak negative correlation between FDI rate and openness, \( r(21) = -0.2470 \). This agrees with the
findings of Seim (2010) who found a negative correlation between FDI and trade openness among transition countries, but disagrees with the findings of Baharom, Habibullah, and Royfaizal (2008) who found a strong positive relationship in Malaysia. This study also finds a weak negative correlation between FDI rate and tax rate and supports the findings of Egger and Raff (2011) who found a negative correlation between corporate tax rates and FDI.

Other variables that showed strong positive correlation were economic growth and openness, \( r(21) = 0.5624 \), economic growth and corporate tax rate, \( r(21) = 0.6173 \) and openness and tax rate, \( r(21) = 0.7926 \) weak negative correlation was found between economic growth and inflation, \( r(21) = -0.4832 \), between economic growth and exchange rate, \( r(21) = -0.3868 \) between inflation and corporate tax rate, \( r(21) = -0.2252 \) between exchange rate and openness, \( r(21) = -0.3811 \) and between exchange rate and tax rates, \( r(21) = -0.2311 \).

### 4.3 Regression Analysis

Table 3 below provides the results after the regression analysis of the relationship among the variables. Table 4 provides the statistics of the tests for the regression analysis.

<table>
<thead>
<tr>
<th>Table 3: Regression Results</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>355.79</td>
<td>919.10</td>
<td>0.49</td>
<td>0.63</td>
</tr>
<tr>
<td>Exchange rate</td>
<td>20.18</td>
<td>6.17</td>
<td>3.29</td>
<td>0.0046</td>
</tr>
<tr>
<td>Tax rate</td>
<td>-7.34</td>
<td>23.21</td>
<td>-0.32</td>
<td>0.76</td>
</tr>
<tr>
<td>Inflation</td>
<td>14.24</td>
<td>11.41</td>
<td>1.25</td>
<td>0.23</td>
</tr>
<tr>
<td>GDP growth</td>
<td>97.77</td>
<td>66.33</td>
<td>1.47</td>
<td>0.16</td>
</tr>
<tr>
<td>Openness</td>
<td>-8.32</td>
<td>20.76</td>
<td>-0.40</td>
<td>0.69</td>
</tr>
</tbody>
</table>

The regression model is

\[
Y = 355.79 + 20.18(X_1) -7.34(X_2) + 14.24(X_3) + 97.77(X_4) -8.32(X_5)
\]

<table>
<thead>
<tr>
<th>Table 4: Regression Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistic</td>
</tr>
<tr>
<td>R-squared</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
</tr>
<tr>
<td>F (5, 16)</td>
</tr>
<tr>
<td>P-value(F)</td>
</tr>
</tbody>
</table>

(Source: Prepared by researcher, 2013)

As shown in Table 3 the constant term was 355.79 which was not significant, \( (t\text{-ratio} = 0.49, p> 0.05) \). The coefficient of annual rate of change in exchange rates was 20.18 which was significant, \( (t\text{-ratio} = 3.29, p< 0.05) \). The coefficient of tax rate was -7.34 which was not significant, \( (t\text{-ratio} = -0.32, p> 0.05) \). The coefficient of inflation rate was 14.24 which was not significant, \( (t\text{-ratio} = 1.25, p> 0.05) \) As indicated, the coefficient of GDP growth (economic growth) was 97.77 which was not significant, \( (t\text{-ratio} =1.49, p> 0.05) \). The coefficient of openness was -8.32 which was not significant, \( (t\text{-ratio} = -0.40, p>0.05) \).

The regression was statistically significant, \( F = 3.19, p<0.05 \). The variation in the five variables, namely, Exchange Rate, Tax Rate, Inflation, GDP Growth and openness explained the variation in the rate of change in FDI, \( (R^2 = 0.50, p < 0.05) \).

The findings indicated that the key factor that determines changes in FDI in Kenya is exchange rate of the Kenyan Shilling to the other currencies proxied by the rate of change to the US Dollar. The other factors like Tax Rate, Inflation, GDP Growth and Openness don’t seem to explain the changes in FDI. The findings support the findings of Osinubi and Amaghionyeodiwe (2009) who found a strong relationship between FDI and exchange rates in Nigeria, from 1970 to 2004. The findings also support the findings of Parajuli (2012) who found a strong relationship between exchange rate and foreign direct investment Mexico for the period 1994 to 2008.

The findings are, however, in disagreement with those of Campos and Kinoshita (2002) who found a significant relationship between foreign direct investment and economic growth for 25 Central and Eastern Europe and former Soviet Union transition economies covering the period 1990-1998. This research does not agree with the findings of Sayek (1999) who found a strong relationship between Canadian and Turkish inflation and FDI from the US. The findings concerning the relationship between FDI and openness disagree with those of Liargovas and Skandalis (2011) who found a significantly strong relationship between openness and FDI in a sample of 36 countries from Latin America, Asia, Africa, Commonwealth of Independent States and Eastern Europe for the period 1990–2008.

The finding that FDI was not responsive to corporate taxation does not agree with Cummins and Hubbard (1995) who found that FDI from the USA was very sensitive to the taxation policy of the country into which the FDI flowed. The finding is, however in agreement with those of Slemrod (1990) no significant responsiveness to taxation by firms investing in the USA.
5. Conclusion

The aim of this study was to find out which factors determine FDI inflows into Kenya, and how each of the factors affected FDI. The objective was to be met by conducting a regression analysis with annual rate of change in FDI inflows into Kenya as the dependent variable and exchange rates, tax rates, inflation, GDP growth rates and openness as the independent variables.

This study established that there was a strong relationship between FDI inflows into Kenya and the levels of exchange rates. The relationship was found to be both positive and strong so that when the value of the shilling devalued, there was a strong positive reaction from FDI inflows. There was a negative relationship between FDI and corporate taxation rate; however, the relationship was not statistically significant.

The study found a positive relationship between FDI and inflation rate, but the relationship was not significant. The relationship between FDI and GDP growth rate was positive, but not statistically significant. The relationship between FDI and openness was also not statistically significant save for the fact that it was negative. The whole regression analysis was statistically significant and the variation in the independent variables, namely, exchange rates, tax rates, inflation, GDP growth rate and openness together explained the variation in FDI change rates.

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