Impact of Foreign Direct Investment on Economic Growth of Pakistan -

- An ARDL-ECM Approach

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SUMMARY

This study investigates an impact of Foreign Direct Investment (FDI) on Gross Domestic Production (GDP) of Pakistan over the period 1966-2014. I apply Autoregressive Distributed Lag- Error Correction Model (ARDL-ECM) technique to find long run effects and short run effects simultaneously. The FDI has a significant positive impact on the GDP growth of Pakistan both in long-term and in short-term. Moreover, the ECM coefficient suggests a convergence to the equilibrium path. Other factors such as the inflation and the population also show significant effects on the GDP in the long run. Finally, the gross capital formation and the trade have no significant role to explain the variation in the economic growth of Pakistan.

KEY WORDS: GDP, FDI, growth, Pakistan, ARDL
# Table of Contents

SUMMARY ........................................................................................................................................... 2

1. INTRODUCTION ................................................................................................................................. 5

2. REVIEW OF LITERATURE .................................................................................................................... 8
   2.1. Positive impacts ............................................................................................................................. 8
   2.2. Negative impacts ........................................................................................................................... 9

3. FOREIGN DIRECT INVESTMENT IN PAKISTAN .................................................................................. 11

4. THEORETICAL FRAMEWORK ............................................................................................................. 15
   4.1. Dependency theory ....................................................................................................................... 15
   4.2. Endogenous growth ....................................................................................................................... 16
   4.3. Innovation-based growth by Grossman and Helpman ................................................................. 16
   4.4. Technology spillovers ................................................................................................................... 18

5. Data ..................................................................................................................................................... 21

6. METHODOLOGY FRAMEWORK ......................................................................................................... 24
   6.1. MODELS ...................................................................................................................................... 26

7. RESULTS AND DISCUSSION ............................................................................................................... 28
   7.1. Unit Root and Stationary Test ...................................................................................................... 28
   7.2. Optimal lags .................................................................................................................................. 29
   7.3. Short run analysis .......................................................................................................................... 30
   7.4. Long run analysis .......................................................................................................................... 33
       7.4.1. Bounds test ............................................................................................................................ 33
       7.4.2. Long run effects .................................................................................................................... 34
   7.5. Sensitivity Analysis and Stability Test ......................................................................................... 36

8. CONCLUSION AND DISCUSSION ....................................................................................................... 38

REFERENCES .......................................................................................................................................... 40

APPENDIX .............................................................................................................................................. 47
B. Table.

Table 1: Hurdles faced by Pakistan economy ..........................................................47
Table 2: Sector wise FDI Inflows in Pakistan ...........................................................48
Table 3: Countrywise FDI Inflows in Pakistan .........................................................14
Table 4: Data Statictics ..............................................................................................22
Table 5: Unit Root and stationary Test ..................................................................28
Table 6: Optimal lags ..............................................................................................29
Table 7: Error Correction model ............................................................................32
Table 8: Bound test .................................................................................................33
Table 9: Long Run Elasticities .............................................................................35

Figure 1: Show the graphically moment of the all Variables over time .................23
Figure 2: Plot of Cumulative sum of Recursive Residuals (CUSUM) ..................36
Figure 3: Plot of Cumulative sum of Recursive Residuals (CUSUMq) ...............36
1. INTRODUCTION

There are many factors which play important roles in capital formation and economic growth. These factors might be different across countries with respect to the geographical, geological, technological progresses, politics, and institutional structures. The aim of this study is to investigate the relationship between the foreign direct investment (FDI) and the economic growth of Pakistan over the period 1966-2014.

FDI plays a key role in the development of developing countries. One reason is that FDI helps in transferring advance technologies know-how and increases employment levels to the host countries. Economists believe that FDI through new technologies and high standard managements puts pressures on domestic firms while making the markets competitive. Furthermore, FDI brings significant and positive externalities to the developing economies such as labor managements, training opportunities and thus increases the standard of the production function. By technology transfer, it boosts the economies of the developing countries to stand there on feet’s by technology spill over. (Bauer, 1991; Easterly, 2006)

According to the world investment report (2008), FDI boosts the economy by creating employment opportunities, transfers skills and technologies, increases in productivity, and continuous long term development in the developing countries. It also serves as a major source of the external capital inflow for the host countries. It attracts innovation technology transfers, promotes international trades and management skills and sustains economics development in the host countries.

Görg and Greenway (2004) concluded that FDI may be more beneficiary for the host countries. The questions here are why FDI is important for a host country and why investors and other firms are willing to invest in other countries. The answer to the first question is, underdeveloped countries have almost a low literacy rate and a high rate of labor with less capital intensive production. The countries having such characteristics cannot achieve its economic goal alone. One motive is also to increase the competition in the local market; the countries look for the FDI to retain their economies on an equilibrium path. With the help of transfer of knowledge and technology spillover, the FDI also trains the local labor to overcome the future challenges related
to the production and the economic growth. The answer to the second question is that foreigner firms and investors are interested to invest in other countries due to the availability of cheap raw materials and cheap labor costs to maximize their profit. Low transport costs and low excise duties on imports and exports also courage the investors to invest in developing countries. A few product competitors and market structure also attract the inflow of the FDI (Hussain and Kimuli, 2012).

Pakistan came on the world map in 1947 after a separation from India. Since its independence, Pakistan has been facing political and economic instabilities. Pakistan was not provided with reserved as according to a pre proportion agreement from India. At that time there was no proper systematized institution, such as Central Bank. In 1948 after the death of Muhammad Ali Jinnah (founder of Pakistan), Pakistan started facing political and economic problems. At the same time, a war against India affected the Pakistan economy badly (Cohen, 2013).

The Pakistan’s history consists of two phases. The first phase was from 1947 to 1971. This phase belonged to two wars and in a result; Pakistan lost half of its resources in the form of Bangladesh (the East Pakistan). The second phase belonged to the year 1972 to onwards. In this phase, Pakistan faced again two wars, terrorism issues and highly political instabilities. The American-Afghan war and series of the political instabilities also put negatively pressures on the Pakistan’s economy. International trade restrictions in response of test of nuclear bombs also contributed to the Pakistan’s economy seriously. So in all-time period’s inflow of FDI went up and down in each year. Table A1 (see Appendix) briefly highlights the hurdles’ faced by the Pakistan’s economy.

This study aims to analyze empirically the impact of FDI on the economic growth in Pakistan from 1966 to 2014. Does Foreign Direct Investment show the significant impacts on economic growth of Pakistan both in the long-run and in the short-run?

Previous studies investigated the impact of FDI on the economic growth of Pakistan from different approaches. The results are still ambiguous therefore this study is an attempt to find FDI’s impact on the economic growth along with the trade, the inflation, the gross capital
formation and the population. I expect a positive and significant impact of FDI on the growth rate of Pakistan.

I apply Autoregressive Distributed Lag- Error Correction Model (ARDL-ECM) technique. A main advantage of the ARDL-ECM approach is to find both short run and long run effects. Additionally, this technique is appropriate for a small sample size (Pesaran, 1999). The results suggest that FDI has a significant and positive impact on GDP of Pakistan both in long-term and in short-term. The inflation has a negative impact while the population shows a positive impact in the long run. There are no indicators of the effects of the trade and the gross capital information on the GDP growth of Pakistan.

The rest of the paper is structured as follows. I review relevant literatures in the next Section. Foreign Direct investment in Pakistan is in section 3. Theoretical framework is in Section 4. Data Source and Methodology follow in Section 5 and Section 6. My empirical results and some discussions are written in Section 7. The final section is the conclusion.
2. REVIEW OF LITERATURE

2.1. Positive impacts

Balasubrammanyam and Sapsford (1996) and De Mello (1999) concluded that FDI is a combination of capital stock, knowledge and technology, which may smoothly increase the existing stock of economy through management practice, skill development, training and organizational arrangement. Both studies found that FDI has a positive impact on the economic growth of developing countries.

Blomstrom M. Lipsey, R, S Zejan, M. (1996) found that FDI has a significant and positive impact on the economy of receiving countries by using a panel estimation technique. FDI allows the developing countries to make exchange with other countries, so its overall impact is positive on the economy.

Unciad (1999) found the both positive and negative impacts of FDI on the economy growth and it depends on variables used in estimation equations. The variables may include the political instability, the term of trade, GDP per capita, the ratio of domestic investment, the level of education and the black market.

In 1998, Borensztern E, Gregio J, S lee, J. concluded that the impacts of FDI may vary according to the level of human capital of receiving countries. This research was based on the density of human capital which determines the absorbing capacity of foreign technology. A high level of human capital induced the level of FDI inflow in receiving countries. This hypothesis was developed on the base of his empirical finding.

Amna et.al (2010) analyzed the impacts of FDI and the inflation on the economic growth of Pakistan by using time series data from 1981 to 2010. A multi regression technique was used to estimate the model. According to the results, FDI has a positive and significant impact on economy whereas the inflation has a negative contribution in the Pakistan’s economy.

Mamoun Benmamoun and Kevin Lehnert (2013) examined the impacts of FDI, worker remittances and Official development assistance (ODA) on the economic growth of developing
countries by using panel data from 1990-2006. By applying system generalized method approaches, a positive and significant impact of FDI, the remittances and the Official development assistance (ODA) on the economic growth of the developing countries are reported. They also found that the contribution of the worker remittances to the economic growth is greater than FDI, and ODA.

Nigel Driffield and Chris Jones (2013) investigated the contributions of FDI and ODA to the economic growth in the developing countries. They used a system methodology to check the inherent endogeneities. They also examined the importance of institutions, not only the growth and the interaction between institutions and other sources of the growth. They founded that the overall foreign capital has a positive and significant impact on the growth, when the institutions are taken into account. Manelle Lahdhiri and Mohamed Amine (2012) found that FDI and ODA have positive and significant impacts on the economics growth of the developing countries by using panel data estimation.

2.2. Negative impacts

According to Durham (2004), FDI has an insignificant and negative impact on the economic growth of the developing countries. He concluded that the flow of FDI depends on the technology absorption capacity of the recipient countries.

Ali Sharafat (2014) found that FDI and the inflation have long run negative impacts on the economic growth of Pakistan. In the short-run analysis confirmed a unidirectional causality running from FDI, the services debt and the inflation and the literacy rate to growth. He used the Johansen co-integration technique and the Granger causality for his estimations and the data was taken from 1972-2013.

The study of Bende –Nebende, A., Ford, J., Santoso B., S Sen, S (2003) was an example of hypothesis mentioned above. They found that the long run impacts of FDI inflow is significant and positive in case of less developing countries such as Thailand and Philippines. However, the impacts are negative in the countries with better economy such as Taiwan and Japan.
Görg and Greenwood, (2003) confirmed that FDI has a negative effect on GDP. However FDI does not contribute to any parts in accelerating the economic growth in the receiving countries. Görg and Greenwood (2003) also suggested that a negative impact of FDI is due to the spillover issues. Foreign firms also do not create positive externalities on the GDP growth. Hermes and Lensink (2003) related negative effects to financial conditions of the receiving countries. By using panel data for 67 developing countries collected from Asia, Africa, and Latin America, they concluded that the FDI effect is negative for the strong financial countries.

Carkovic and Levine (2002) confirmed that FDI has a negative impact on the growth of the receiving countries by using cross-country data from 1960 to 1995 and applying a generalized method technique for estimations. Their results were not consistent with the theory, that FDI has a positive impact on the economies of the receiving countries.

So the impact of FDI is still controversial. Several studies have been conducted to find the impact of FDI on the economy. Some studies observed positive impacts and others got negative impacts depending on estimation variables, such as politics, economics and technological conditions of receiving countries.
3. FOREIGN DIRECT INVESTMENT IN PAKISTAN

Since 1947, Pakistan has had a FDI history. Siemens was the first German company in the telecom industry in Pakistan. The second company was the British firm ICI in chemical and pharmaceutical manufacturing sectors. Later the Lever brothers (currently Unilever), the Imperial tobacco company, the Shell and the Burma oil contributed to establishing their business in early years of Pakistan.

In the 50s and 60s, a significant growth in Pakistan’s economy was observed. At the same time, the country followed a policy of restricting the trade and the investment, due to which the inflow of FDI to Pakistan was discouraged. According to Sahoo (2006), the aim of initial policy for FDI was that the majority of stakes remained with the domestic firms. Mughal (2008) described that the saving rate in Pakistan dropped below 15 percent and the investment rate showed almost seventeen percent. Due to this fact, there existed a gap between the savings and the investments which led the country relied on the foreign capital to fill this gap. Additionally, in the decades of 1950s, 1960s and 1970s, Pakistan pursued a policy of self-reliance by boasting import substitution goods in the country and relied only on the foreign assistance to fill the investment and savings gap.

According to Khan and Khilji (1997), in the 1960s, the government of Pakistan adopted more liberalized policies for industrial investments by opening twenty four key industries for private investors. The decade of 60s was entirely dominated by the private sectors, but FDI was not participating in the sectors of banking, finance and other service sectors, so these sectors remained reserved only for the domestic investors (Zakaria, 2008). In the 1970s, the government switched over from the liberalized policies of 1960s to the policy of nationalization under the slogan of promoting socialism due to which the FDI inflow into Pakistan was greatly discouraged (Khan and Khilji, 1997, Zakaria, 2008). After conceptualizing the unsatisfactory performance of nationalized units and other institutions the government modified its policy for the domestic private and the foreign private investment. The foreign investment act of 1976 was approved in order to promote foreign investment, the foreign investors were guaranteed by this act to transfer their capital and profits any time.
In 1980, the government introduced the public-private sector partnerships by auctioning of a percentage of public shares in some institutions. Simultaneously, the government also made its policy more liberal to evoke foreign investment. The control over exchange rate was eliminated which resulted in launching the establishment of export processing zone (EPZ). The Export Processing Zone included the tax holiday for a period of five years as well as duty free imports and exports were permitted (Zakaria, 2008).

Anwar (2002) mentioned that in the 1990s the government of Pakistan further undertook some regulatory measures to attract FDI. The restrictions on the mobility of capital were lifted up gradually. The investors from abroad were allowed to keep hundred percent equity of the business without a prior approval. The transfer of shares to nonresidents, the transfer of dividend earnings, and the disinvestment were allowed without the prior approval of the central Bank. (Khan, 2008). Pakistani government in 1997 also allowed to foreign companies to invest in the agricultural and service traditionally, which were banned for foreign companies to invest after the independence of Pakistan (Sahoo, 2006). The other encouragements such as declining in taxes were being granted and dividends, royalties, transferring of profits and even full invested capital were also allowed.

From 2000’s, the main incentive of the government investment policy was privatization and deregulation of the economy to charm FDI (Zakaria, 2008). Khan (2007) also described that the government has opened up all sectors for foreign direct investment (including the service sector) which was banned before for foreigner investors. The government of Pakistan also provided the guarantee that the foreigner investors owned organizations completely, neither be municipalized and nor be taken under control by other means. The government finished the requirements of obtaining no objection certificate from the local authority, now anybody can start a project at any places within the state.

The steps stated above taken by the government of Pakistan at the last three decades were intended to enhance FDI in each sector of the state. But the effect of FDI inflow remained held up due to some other factors such as the corruption, the political disturbance, the weak diplomatic relations at abroad and inefficiency in the legal system, and etc.
Table 1 explains the inflow of Foreign Direct investment in Pakistan from different countries for fiscal years 2007 to 2014. The FDI data in Table 1 defines the USA, the United Kingdom and the UAE were at the top of the list during this time. In the fiscal years 2008 to onwards, a consistently decrease in FDI inflow was recorded due to financial crisis in the Europe and in the USA, terrorism and security conditions within Pakistan, and political instabilities.
Table 1: Country wise FDI Inflows in Pakistan ($ Million).

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>1,309.3</td>
<td>869.9</td>
<td>468.3</td>
<td>238.1</td>
<td>227.7</td>
<td>227.1</td>
<td>212.1</td>
<td>209</td>
</tr>
<tr>
<td>UK</td>
<td>460.2</td>
<td>263.4</td>
<td>294.6</td>
<td>207.1</td>
<td>205.8</td>
<td>633.0</td>
<td>157.0</td>
<td>174</td>
</tr>
<tr>
<td>U.A.E</td>
<td>589.2</td>
<td>178.1</td>
<td>242.7</td>
<td>284.2</td>
<td>36.6</td>
<td>22.5</td>
<td>-47.1</td>
<td>216</td>
</tr>
<tr>
<td>Japan</td>
<td>131.2</td>
<td>74.3</td>
<td>26.8</td>
<td>3.2</td>
<td>29.7</td>
<td>30.1</td>
<td>30.1</td>
<td>71.1</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>339.8</td>
<td>156.1</td>
<td>9.9</td>
<td>125.6</td>
<td>80.3</td>
<td>242.6</td>
<td>228.5</td>
<td>83.4</td>
</tr>
<tr>
<td>Switzerland</td>
<td>169.3</td>
<td>227.3</td>
<td>170.6</td>
<td>110.5</td>
<td>127.1</td>
<td>149.0</td>
<td>209.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>46.2</td>
<td>-92.3</td>
<td>-133.8</td>
<td>6.5</td>
<td>-79.9</td>
<td>3.2</td>
<td>-40.1</td>
<td>-64.8</td>
</tr>
<tr>
<td>Germany</td>
<td>69.6</td>
<td>76.9</td>
<td>53.0</td>
<td>21.2</td>
<td>27.2</td>
<td>5.5</td>
<td>-5.7</td>
<td>-20.3</td>
</tr>
<tr>
<td>South Korea</td>
<td>1.2</td>
<td>2.3</td>
<td>2.3</td>
<td>7.7</td>
<td>25.4</td>
<td>25.8</td>
<td>24.4</td>
<td>14.3</td>
</tr>
<tr>
<td>Norway</td>
<td>274.9</td>
<td>101.1</td>
<td>0.4</td>
<td>-48.0</td>
<td>-275.0</td>
<td>-258.4</td>
<td>-21.6</td>
<td>2.7</td>
</tr>
<tr>
<td>China</td>
<td>13.7</td>
<td>-101.4</td>
<td>3.6</td>
<td>47.4</td>
<td>126.1</td>
<td>90.6</td>
<td>695.8</td>
<td>255</td>
</tr>
<tr>
<td>Others</td>
<td>2,005</td>
<td>1,964</td>
<td>1,019</td>
<td>631.3</td>
<td>289.7</td>
<td>285.5</td>
<td>224.4</td>
<td>-93.0</td>
</tr>
<tr>
<td>T.I. P.P</td>
<td>5,409</td>
<td>3,719</td>
<td>2,150</td>
<td>1,634</td>
<td>820.7</td>
<td>1,456</td>
<td>1,667</td>
<td>851</td>
</tr>
<tr>
<td>FDI. E.P.P</td>
<td>5,276</td>
<td>3,719</td>
<td>2,150</td>
<td>1,634</td>
<td>820</td>
<td>1,456</td>
<td>1,698</td>
<td>851</td>
</tr>
</tbody>
</table>


[Sources: State Bank of Pakistan ]

For the sector-wise, the FDI inflow in Pakistan is presented in Table A2 (See Appendix). The oil and gas, and textile sectors are on the top of the list of sector-wise FDI inflow in Pakistan.
4. THEORETICAL FRAMEWORK

In order to explain the impacts of FDI on host country economic development, the theoretical perspectives can be split into two groups: the modernization (endogenous growth theory and Innovation-based growth) and dependency theories.

4.1. Dependency theory

Dependency theory is based on the Marxist thought. Dependency scholars argue that developing economies face negative impact from foreign investment due to profit repatriation, declining reinvestment and income inequality. Therefore, foreign direct investment inflows to the “periphery” distract local firms, stifle technological innovation and “crowd out” domestic firms (Dixon and Boswell, 1996). Dixon and Boswell (1996) also concluded that FDI shows a positive impact on growth in the start, yet in the long run the reliance on foreign investment shows a negative effect on growth. The institutions and infrastructure support further FDI and negative spillovers such as income inequality unemployment and over-urbanization.

Similarly, Moran (1978) suggests that foreign investors destroy host country political processes by adopting the local elites and/or by utilizing their influence in their home countries. It is argued that the benefits of FDI are poorly distributed between (Multinational Corporations) MNC and the host country. MNC starts an economic surplus that could have been utilized for financing international development. The economists primarily promoted the dependency theory of FDI and its impact on economic development in developing countries throughout the 1970’s and 1980’s.

Furthermore, in line with the dependency theory, Kentor (1998) supported the fact in his study, that the countries with relatively high foreign capital dependence (measured as accumulated foreign stock) show slower economic growth than less dependent countries. These results are also supported by the findings of Dixon and Boswell (1996). Kentor (2003) uses a different measure to foreign investment concentration which is calculated as the percentage of total FDI stocks considered for by the top financing country and still includes a long-term negative effect.
According to Kentor, foreign investment concentration shows a significant, long term negative effect on growth; its impact is intense over the starting five years and drops overtime.

4.2. Endogenous growth

Romer (1986) presented the endogenous growth theory and he is considered as one of the main contributor to this theory. Endogenous growth reveals how FDI plays an essential role to economic growth through labor training and skill acquisition not only through capital accumulation and technology transfer. According to this theory, technology transfer, expansion of the level of knowledge ascends through training and skills of labor. In the same way, through the introduction of alternative management practices and organizational arrangements, domestic firms can emulate from FDI. Thus, FDI may lead to output growth by increasing total factor productivity due to an observed distribution of technology and increased efficiency through better marketing, managerial structure, and superior technology (Blomstrom et al., 1996; Borenztin et al., 1995; de Mello 1997, 1999). Additionally, endogenous growth literature has shown country conditions that are relevant for FDI to have positive effects on growth such as the interdependencies between domestic and foreign investment, appropriate level of human capital, open trade regimes, and well developed financial markets.

4.3. Innovation-based growth by Grossman and Helpman

This growth model is defined by the drive force of economic development is innovation or development of already existing products. The model is based on the theory that the growth of capital is increased by innovation. I.e. the innovations play a very important role, because it prompts the market so that it provokes more competition enhancing the economic development (Mankiw & Taylor, 2008).
Gene M.Grossman and Elhanan Helpman (1994) converted this model to a theory which describes how innovation creates long-term growth in a host country. Their model mentions that innovators tend to find more efficient production methods by upgrading already existing products and services together with designing new ones. Additionally, the condition for this market presents a state of damaged competition that allows innovators to take advantages over their competitors which consequently motivates investors to advance in (research and development) R&D. Thereupon; firms will fix prices on products and services in order to cover production and R&D expenditure. So the outcome of future possible capital results in continuous innovation and research (Grossman – Helpman, 1994).

According to Grossman-Helpman (1994), the impact of the institutions in the countries regarding protection of property rights is being highlighted which indicates that the inventor get exclusive rights and protection on their inventions. Therefore, a good protection of property rights is important to encourage investing in R&D since it makes it possible to achieve market share and make profit until a competing firm improves its innovation. Furthermore, due to progress in production and technology, labor skills in the economy also get improved implying that the human capital also increases over time (Grossman-Helpman, 1994).

Graham and Krugman (1991) support an assumption that FDI further is more productive than domestic investment in developing countries. This assumption is grounded on the belief that domestic firms have better know-how and approach to domestic markets as compared to foreign firms. Thus if a foreign firm decides to participate in the market, it must repay for the advantages utilized by domestic firms. Similarly, a foreign firm that decides to invest in another country gains advantages from lower costs and higher productive efficiency than its domestic competitors. Whereas, in case of developing countries, a combination of advanced management skills and more modern technology would result in higher efficiency of FDI (Graham and Krugman 1991).
4.4. Technology spillovers

The Models of FDI and positive spillovers were presented in details in 1970s. Hymer seminal study (1976) hypothesized international differences across firms at scientific and technological levels which were caused due to technology transfer and spillovers. According to Hymer, FDI was considered as an international extension of industrial organization theory while assuming FDI to symbolize the transfer of a “package” in which capital, management, and new technology are all united. Koizumi and Kopecky (1977) founded a model which explains the transfer of technology from a parent firm to its subsidiary. When considering this case, Scientific and technological transfer determine the productivity in a host country. Why some countries grow faster than others can be better understood by the nature of technology spillovers.

Technological knowledge can be used by producers other than the inventors to boost their productivity due to its non-rivalry nature.

Spillover Channels

Technology spillovers from foreign to domestic firms can be performed through a variety of channels.

Skill

Firstly, knowledge transfer can take place through labor mobility (Fosfuri, Motta, and Ronde, 2001; Glass and Saggi, 2002). Trained Workers of MNCs with knowledge and technical skills can move to domestic firms. Foreign firms will try to counter knowledge outflows by offering higher incomes to hold workers and also to attract skilled workers from domestic firms (Sinani and Meyer, 2004).

Demonstration effect

Secondly, domestic firms may become more proficient emulating the production, management, and marketing technology of foreign firms. The relationships between foreign and domestic firms can lead to the utilization of better technologies and modern business practices such as just-in-time (JIT) inventory practices and quality assurance (QA) programs. Domestic firms are
reluctant to adopt expensive technology and they will be more likely to do so when they see foreign firms utilizing technology successfully. It is considered as the “demonstration effect” (Wang and Blomström, 1992).

*Competitive effect*

Due to entry of foreign partners, a greater competition in the host country market is observed (Caves, 1974; Wang and Blomström, 1992). Competition makes domestic firms forcefully use resources more efficiently and adopt advanced productive technologies, which leads to productivity gains. However, competition can also create negative spillovers. As a result of greater competition at home, can restrict market power of domestic firms can be limited and their market shares can be declined. If decreased market shares cause decreased capacity utilization in existing companies, or the use of smaller production facilities, domestic firms will be enforced to work on a less efficient scale while diffusing the advantages of technological innovations to consumers in other countries.

*Linkages*

A final spillover channel includes backward and forward linkages between foreign associates and domestic firms. Spillovers can be horizontal or vertical in nature. Horizontal spillovers increase productivity of domestic firms that have the same position in the supply chain as competing foreign firms. Vertical spillovers may exist between domestic suppliers of intermediate inputs and their multinational clients (backward linkages), or between foreign input suppliers and domestic customers of intermediate inputs (forward linkages). These linkages effects have been determined by Lall (1978) and Clare (1996). Borensztein et al. (1998) argued that FDI raises the range and quality of intermediate goods, which in turn enhances productivity.

Finally, modernization theory scholars, on one hand, argue that FDI increases income level and provides employment opportunities to the host country thereby enhancing overall economic growth. On the other hand, dependency theory scholars argue that MNCs may suppress
economic development by extracting local entrepreneurs, by deteriorating the distribution of income, by decreasing consumer welfare and introducing inadequate consumption pattern in the host countries. Alternatively, constructive effects of FDI is not a given fact, it perhaps depends significantly on host country enabling environment, political and macroeconomics stability, institutional capacity, infrastructure and educational system.
5. Data

This study investigates the impacts of the FDI on the GDP growth of Pakistan by using time series data over the period 1966-2014. The data used in this study are taken from the World Bank’s World Development Indicators. My dependent variable is the real GDP per capita (current US dollar) of Pakistan. Independent variables are the FDI, the population, the gross capital formation (GCF), the inflation and the trade. All series are in natural logs form due to removing sharpness in the time series data (Karagol, 2006). This log transformation is the best option for unbiased empirical evidence (Sezgin, 2004). I used Microfit software 4.1 for my estimation. The explanations of the independent variable are follows.

**Foreign Direct Investment (FDI)** is an investment “made by a company or entity based in one country, into a company or entity based in another country. The FDI differ substantially from indirect investments such as portfolio flows, wherein overseas institutions invest in equities listed on a nation's stock exchange”. It is taken as percentage of GDP.

**Population (POP)** is described as population over age 15 to 64 which is taken as a labor input due to missing data. Total labor force is made up of economically active group of people aged 15 and older according to the International Labor Organization, which defines this group of people as supplier of labor for the production of goods and services during a specific time period. Both the employed and the unemployed belong to this group. It is taken in billions.

**Inflation (INF)** is define as consistently rise in the level of price of goods and services along decreasing the purchasing power of Currency. State bank limit the inflation to avoid deflection for an economic growth. It is taken as annual percentage.

**Gross Capital Formation (GCF)** comprises of outlays on additions to the fixed assets of the economy and net changes in the level of inventories. Fixed assets can be defined as land improvements (fences, ditches, drains, etc.) equipment, machinery and plant purchases; construction of roads and railways. It also includes construction of hospitals, schools, offices, private residencies as well as commercial and industrial buildings. It is taken as percentage of GDP.
**Trade (TRADE)** includes the sum of all exports and imports in an economy. It is taken as percentage of GDP.

**Table 2. Descriptive Statistics.**

<table>
<thead>
<tr>
<th>Variables</th>
<th>MEAN</th>
<th>MEDIAN</th>
<th>MAX</th>
<th>MIN</th>
<th>Std. Dev.</th>
<th>Kurtosis</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnGDP</td>
<td>5.9868</td>
<td>5.9848</td>
<td>7.1828</td>
<td>4.6081</td>
<td>0.6733</td>
<td>2.3086</td>
<td>0.0043</td>
</tr>
<tr>
<td>lnFDI</td>
<td>0.8701</td>
<td>0.6844</td>
<td>3.6683</td>
<td>0.0094</td>
<td>0.7406</td>
<td>8.6343</td>
<td>2.3775</td>
</tr>
<tr>
<td>lnINF</td>
<td>2.0284</td>
<td>2.0498</td>
<td>3.2832</td>
<td>0.1107</td>
<td>0.5936</td>
<td>4.0829</td>
<td>-0.4741</td>
</tr>
<tr>
<td>lnPOP</td>
<td>18.462</td>
<td>18.507</td>
<td>19.036</td>
<td>17.796</td>
<td>0.3805</td>
<td>1.7515</td>
<td>-0.2015</td>
</tr>
<tr>
<td>lnTRADE</td>
<td>3.4704</td>
<td>3.5038</td>
<td>3.6612</td>
<td>2.9923</td>
<td>0.1441</td>
<td>5.0580</td>
<td>-1.4508</td>
</tr>
<tr>
<td>lnGCF</td>
<td>2.8525</td>
<td>2.8846</td>
<td>3.0358</td>
<td>2.5595</td>
<td>0.1120</td>
<td>2.8674</td>
<td>-0.8056</td>
</tr>
</tbody>
</table>

* Total 49 observation is used.

The statistic description is reported in Table 2. I have total 49 observations. As can be seen, the mean value of lnFDI is relatively small in comparison with the mean of lnGDP. For some years, there were very little foreign direct investment and for some years, high figures for FDI are observed. So that is a reason of high standard deviation value of lnFDI.

Figure 1, shows plots all the variables over time. The lnFDI and lnGDP show fluctuated trends along time. In 1971, the LnFDI shows a sudden decrease. The reason behind was a war against India which resulted in separation of Bangladesh from Pakistans.
Figure 1. The graphical moment of the all Variables over time.
6. METHODOLOGY FRAMEWORK

The OLS (ordinary least squares) method results how much each independent variable affects the dependent variable, holding other independent variables constant. Whereas \( Y_t \) is a dependent variable and \( X_t \) is an independent variable and \( U_t \) is an error term in the following sample model,

\[
Y_t = \beta_0 + \beta_1 x_t + U_t \quad (1)
\]

Equation (1) is supposed as a long run model. In order to confirm the existence of a long run relationship, a bound testing technique is applied in the model. So the equation (1) is used as a conditional ARDL (Auto regressive Distributed Lag) model.

\[
\Delta Y_t = C_0 + \sum_{i=1}^{p} \gamma_1 \Delta y_{t-i} + \sum_{j=0}^{q} \gamma_2 \Delta X_{t-j} + \pi_1 y_{t-1} + \pi_2 x_{t-1} + U_t \quad (2)
\]

Where as \( U_t \) are white noise errors and \( C_0 \) are drift component.

This estimation technique was introduced by Shin and Smith (1995, 1999), and Perasan et al (2001). It is used to confirm the long run relationship between the variable based on t-test or F-tests standards. Most important advantage in this technique is that they excluded pre unit root testing. The variable may be stationary I(0), Integrated of order I(1), or mutually co-integrated. This is a major advantage of bound testing technique, because the main variables should be stationary and other variables should not (Mohsen Bahmani-Oskooee & Rajarshi Mitra, 2008b). Eventually, the bound test technique has the ability to find the short run and long run results from the same model.

In equation (2), short run results are derived from the estimation of \( \gamma_1 \) and \( \gamma_2 \) and long run effect is inferred by the estimate of \( \mu_2 \) which is normalized on \( \mu_1 \). A linear combination of the lagged level of all variables in equation (2) is called as error correction term ECM.

First step in order to estimates an ARDL model is to apply either t-test (for null hypothesis \( H_0: \mu_1 = 0 \)) or F-test (for significance of the lag level). Bahmani-Oskooee & Ardalani (2006) explained that the F-test will be more sensitive to the order of lags. So a selection of lag length is important procedure in the first step. Pesaran et al., (2001), introduced a fixed number of lags on each first differenced variable and selected optimal lag on each variable by using Akaike’s
Information Criterion Value (AIC). In order to estimate an ARDL model we initially estimated for all lags with maximum of 3 lags by the OLS technique.

After selecting optimal lags, t–test or F-test is carried out to confirm the presence of co-integration. Those two statistical methods are applied to the bounds test with new critical values, which are suggested by Pesaran et al. (2011). Due to independent variables being I(d) (where $0 \leq d \leq 1$), two asymptotic critical value bounds provide a test for co-integration (see more De Vita & Abbott, 2002). While assuming all regressors to be stationary or I(0), a lower critical value is emerged. Whereas an upper value emerged by assuming all variables to be integrated of order one or I(1). A long run relationship will be resulted, when test statistics lie above the respective upper critical values. In case, the test statistics fall below the lower critical values, the null hypothesis of no co-integration will not be rejected. At last, if the statistics fall within their respective bounds, inference would be indeterminate.

In the next step, the long run and short run model can be derived after the confirmation of co-integration existence among those variables in equation (2). Estimation of conditional long run coefficients in equation (1) can be attained by following formulas (Pesaran, 1999).

$$\beta_0 = - \frac{c_0}{\pi_1}$$

$$\beta_1 = - \frac{\pi_2}{\pi_1}$$

In order to form an error correction known as ECM_{t-1}, estimation of $\pi_1$ is used. When all variables are adapted toward their long run equilibrium, the gap between the dependent and the independent variables measured by the coefficient associated to ECM_{t-1} must decline. In other words, a negative and significant coefficient accessed for ECM_{t-1} will not only be a signal of adjustment toward equilibrium but also an alternative way of supporting co-integration among variables. The adjustment parameter in absolute value is located between zero and one. The
larger the error correction coefficient is, the faster is the economy’s return to its equilibrium after a shock (Huchet-Bourdon, M. and J. Korinek, 2011).

Finally, the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMsq) tests are applied for checking the stability of the model. Examining the prediction error of the model is another way of ascertaining the reliability of the ARDL model. If the error or the difference between the real observation and the forecast is infinitesimal, then the model can be regarded as best fitting. The Lagrange multiplier (LM) test is also applied to check for non-autocorrelation of residual.

6.1. MODELS

The underlying theory of my research proposal is motivated by a standard growth model where the FDI and the trade are introduced as determinants of investment (see Burnside and Dollar, 2000; Catrinescu et al, 2009). Mathematically, the growth long run model is formulated as log-linear form in equation (3):

\[
\ln GDP_t = a_0 + a_1 \ln GDP_{t-k} + a_2 \ln FDI_{t-k} + a_3 \ln POP_{t-k} + a_4 \ln TRADE_{t-k} + \\
a_5 \ln INF_{t-k} + a_6 \ln GCF_{t-k} + \epsilon_t \tag{3}
\]

In equation 3, \(\ln GDP\) is a log of real GDP per capita,

\(\ln FDI\) is a log of foreign direct investment,

\(\ln POP\) is a log of Population,

\(\ln TRADE\) is a log of trade,

\(\ln INF\) is a log of inflation and

\(\ln GCF\) is log of Gross capital formation.

Whereas the FDI and the trade support growth via external sources. The data of the entire variable is taken in logarithm form; which is good for the elasticity estimating. In the above
equation, positive estimation of $a_2$, mean an increase inflow of FDI will considered to boost the Pakistan economy expected. I also expect positive signs for other remaining coefficients except for $a_5$.

The estimations of the coefficient $a_1$ to $a_6$ determine the long run impacts of all the independent variables on the dependent variable. To find the short run impact, long run model expressed in ECM Model form as in the below equation.

$$\Delta \ln GDP_t = d_0 + \sum_{k=1}^{n_1} d_{1k} \Delta \ln GDP_{t-k} + \sum_{k=0}^{n_2} d_{2k} \Delta \ln FDI_{t-k} + \sum_{k=0}^{n_3} d_{3k} \Delta \ln POP_{t-k} + \sum_{k=0}^{n_4} d_{4k} \Delta \ln TRADE_{t-k} + \sum_{k=0}^{n_5} d_{5k} \Delta \ln INF_{t-k} + \sum_{k=0}^{n_6} d_{6k} \Delta \ln GCF_{t-k} + \varphi_1 \ln FDI_{t-1} + \varphi_2 \ln POP_{t-1} + \varphi_3 \ln TRADE_{t-1} + \varphi_4 \ln INF_{t-1} + \varphi_5 \ln GCF_{t-1} + \varphi_0 \ln GDP_{t-1} + \varepsilon_t \tag{4}$$

In equation (4), The estimations of $d_{1k} - d_{6k}$ represent the short impacts of the independent variables on the GDP growth of Pakistan and the estimations of $\varphi_1$ to $\varphi_5$ divided by $\varphi_0$ determine the long run impacts. The long run coefficients for the equation (3) are calculated by,

$$a_0 = \frac{-d_0}{\varphi_0}; a_2 = \frac{-\varphi_1}{\varphi_0}; a_3 = \frac{-\varphi_2}{\varphi_0}; a_4 = \frac{-\varphi_3}{\varphi_0}; a_5 = \frac{-\varphi_4}{\varphi_0}; a_6 = \frac{-\varphi_5}{\varphi_0}$$

For investigating the existence of long run relationship in the model, bounds testing approach is applied. Further, a negative and significant value of error-correction term also indicates an existence of a long run relationship in the model.
7. RESULTS AND DISCUSSION

7.1. Unit Root and Stationary Test

Table 3: Unit Root Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>At Level P value</th>
<th>At 1st difference P value</th>
<th>Order of Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnGDP</td>
<td>0.9252</td>
<td>0.0000</td>
<td>I(1)</td>
</tr>
<tr>
<td>lnFDI</td>
<td>0.0330</td>
<td></td>
<td>I(0)</td>
</tr>
<tr>
<td>lnINF</td>
<td>0.0196</td>
<td></td>
<td>I(0)</td>
</tr>
<tr>
<td>lnPOP</td>
<td>0.0040</td>
<td></td>
<td>I(0)</td>
</tr>
<tr>
<td>lnTRADE</td>
<td>0.1316</td>
<td>0.0000</td>
<td>I(1)</td>
</tr>
<tr>
<td>lnGCF</td>
<td>0.2493</td>
<td>0.0000</td>
<td>I(1)</td>
</tr>
</tbody>
</table>

*With Constant and Trend.*

The main advantage of ARDL is to skip the classification of variable into I(0) or I(1), because unit root pre-testing is not necessary. According to Sezgin and Yildirim, (2002) and Ouattara (2004), the computed F-statistics provided by SPSS (2001) become invalid in the presence of I(2) variables, due to bounds test, which is based on the assumption of the variables I(0) or I(1) or mutually being co-integrated. Therefore, the application of unit root test in the ARDL procedure might still be essential in order to assure that none of the variable is integrated at order 2 i.e. I(2) or above. For this reason, the Augmented Dickey Fuller (ADF) unit-root test has been used to search for the order of integration of concerned participants in the study.
Table 3 shows the result of unit root test. It shows that the, the lnFDI, the lnINF, and the lnPOP series are stationary at level I(0). But, lnGDP, the lnTRADE and lnGCF series have unit roots but at the first difference, these series become stationary, I(1).

**7.2. Optimal lags**

Next step towards the ARDL- ECM model, the bounds testing technique requires suitable lag length of all variables. Best model have different lag length of each variable. Lütkepohl, (2006) found that dynamic link among the series can be captured if proper lags are used. The optimal lags should be chosen by the model itself. I used Microfit software 4.1 for selecting optimal lags for each variable according to the smallest AIC (Akaike information criterion) values. Table 4 shows the optimal lags for all variables.

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>INDIVIDUAL OPTIMAL LAG</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Gross domestic product</em></td>
<td>2</td>
</tr>
<tr>
<td><em>Foreign direct investment</em></td>
<td>0</td>
</tr>
<tr>
<td><em>Inflation</em></td>
<td>2</td>
</tr>
<tr>
<td><em>Population</em></td>
<td>2</td>
</tr>
<tr>
<td><em>Trade</em></td>
<td>1</td>
</tr>
<tr>
<td><em>Gross capital formation</em></td>
<td>3</td>
</tr>
<tr>
<td><em>Akaike Information Criterion</em></td>
<td>-30.4797</td>
</tr>
</tbody>
</table>
7.3. Short run analysis

Results of short run estimation of the ARDL model are presented in Table 5. The adjusted F statistics and $R^2$ turn out satisfactory to my short run estimations. The sign and the magnitude of the coefficient of the ECM determine a short-term adjustment process.

In Table 5, the coefficient of the ECM turns out being statistically significant (-1.7369), suggesting a converging to the equilibrium path, the error-correction process converges equilibrium path less than in a year. The significance and the correct sign of the error correction coefficient also confirm the presence of a long-run equilibrium association between the economic growth and the independent variables included in the model.

The FDI has significant and positive impact on the GDP growth of Pakistan. The magnitude of the coefficient is 0.249. This result is consistent with both endogenous theory and Innovation-based growth model. So the Pakistan economy is boost by FDI spillover as I discussed previously. Blomstrom M.lipsey, R, S Zejan, M. (1996) also found that the FDI has a significant and positive impact on the economy of the receiving countries and the FDI allows the developing countries to make exchange with other countries, so its impact is positive on the economy.

The population has a significant effect on the growth. The first lag of the population shows a negative effect while other two population variables show positive effects. A positive impact was found in the previous study of Fikirte Tsegaye Mamo (2012).

The coefficient of the inflation at the year $t$ and the year $t-1$ are insignificant in the short run analysis. The second lag is significant but positive. Stockman (1981) also found a positive impact of the inflation on the economic growth.

I find no significant impact of the trade on the economic growth, which is surprising because mostly trade delivers significantly positive impacts on growth (Najia Saqib1, Maryam Masnoon and Nabeel Rafique, 2013). However, Fatima Nishat (2010) found a negative relation of trade with economic growth of Pakistan.

The gross capital formation at the same year shows a positive and significant coefficient. Florin-Marius (2008) also found the positive impact of gross capital format on economic growth.
In conclusion, the results validate the hypotheses that the FDI is positively associated with the economy growth in Pakistan in the short run. The other factors, such as the foreign direct investment, the gross capital formation, the inflation and the population have ambiguous effects at different lags. Finally, there is no impact of the trade on the GDP.
Table 5: Error Correction Model

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T-Ratio</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>dLnGDP1</td>
<td>-.25049</td>
<td>.15539</td>
<td>-1.6120</td>
<td>.118</td>
</tr>
<tr>
<td>dLnGDP2</td>
<td>-.48644</td>
<td>.15371</td>
<td>-3.1647</td>
<td>.003</td>
</tr>
<tr>
<td>dLnINF</td>
<td>-.10653</td>
<td>.21728</td>
<td>-.49030</td>
<td>.627</td>
</tr>
<tr>
<td>dLnINF1</td>
<td>.12710</td>
<td>.21834</td>
<td>.58213</td>
<td>.565</td>
</tr>
<tr>
<td>dLnINF2</td>
<td>.71057</td>
<td>.15395</td>
<td>4.6157</td>
<td>.000</td>
</tr>
<tr>
<td>dLnFDI</td>
<td>.24983</td>
<td>.16402</td>
<td>1.5232</td>
<td>.037</td>
</tr>
<tr>
<td>dLnGCF</td>
<td>3.6726</td>
<td>1.6661</td>
<td>2.2043</td>
<td>.035</td>
</tr>
<tr>
<td>dLnGCF1</td>
<td>-1.6032</td>
<td>1.4534</td>
<td>-1.1030</td>
<td>.279</td>
</tr>
<tr>
<td>dLnGCF2</td>
<td>-1.0504</td>
<td>1.5653</td>
<td>-6.7105</td>
<td>.508</td>
</tr>
<tr>
<td>dLnGCF3</td>
<td>-2.1058</td>
<td>1.1331</td>
<td>-1.8584</td>
<td>.073</td>
</tr>
<tr>
<td>dLnPOP</td>
<td>572.898</td>
<td>174.8709</td>
<td>3.2761</td>
<td>.002</td>
</tr>
<tr>
<td>dLnPOP1</td>
<td>-950.525</td>
<td>351.9332</td>
<td>-2.7009</td>
<td>.011</td>
</tr>
<tr>
<td>dLnPOP2</td>
<td>379.2014</td>
<td>180.6712</td>
<td>2.0988</td>
<td>.045</td>
</tr>
<tr>
<td>dLnTrade</td>
<td>-.36482</td>
<td>1.1180</td>
<td>-3.2632</td>
<td>.746</td>
</tr>
<tr>
<td>dLnTrade1</td>
<td>1.6142</td>
<td>1.1059</td>
<td>1.4596</td>
<td>.155</td>
</tr>
<tr>
<td>ecm(-1)</td>
<td>-.17369</td>
<td>.25107</td>
<td>-6.9182</td>
<td>.000</td>
</tr>
</tbody>
</table>

R-Squared | .73666 |
S.D. of Dependent Variable | .65785 |
DW-statistic | 2.1182 |
Equation Log-likelihood | -14.4797 |
7.4. Long run analysis

7.4.1. Bounds test

The existence of a long-run relationship is crucial for valid estimation and inference about the model parameters. If a long-run equilibrium relationship exists, the ARDL technique can be used to estimate the long run coefficients. Since the computed statistics fall outside the critical bounds, the null hypothesis of non-existence of a long-run relationship between the variables can be rejected at the 5% level of significance. The calculated F-statistic value is sensitive to the selected lag technique. The total regressions generated by ARDL is \( [(p+1) k] = (6+1)2 = 49 \) for each calculated equation; where \( K \) indicates the lag length and \( P \) indicates the number of variables. The value of F-statistic is calculated from equation (5) by applying OLS technique in Table 6. The value of F-statistic exceeds upper critical bound, based on the critical values provided by Narayan (2005) or by a negative and significant ECM\(_{t-1}\) (t-statistics).

So the value of F-statics (5.4082) is higher than upper bound value (3.61) which indicates the existence of long run relationship in our model.

Table 6: Bound Testing for the existence of a Level Long-Run Relationship

<table>
<thead>
<tr>
<th>Bound Critical value</th>
<th>Unrestricted intercept and no trend</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F-stat Value</strong></td>
<td><strong>I(0)</strong></td>
</tr>
<tr>
<td>5.4082</td>
<td>99 %</td>
</tr>
<tr>
<td>95 %</td>
<td>2.45</td>
</tr>
<tr>
<td>90 %</td>
<td>2.12</td>
</tr>
</tbody>
</table>
7.4.2. Long run effects

I use Microfit 4.1 to obtain the long run estimation (Table 7). According to the estimated coefficients, the FDI has a positive and significant impact on the GDP of Pakistan in the long run. This result is consistent with the endogenous theory and Innovation-based growth model, whereas it doesn’t support the Dependency theory arguments in case of Pakistan. Both theories show that the FDI boosts the economy growth through new technology progress, enhances knowledge, consistency in investment and technological spillover. Thus economic growth increases continuously over time. Bende –Nebende, A., Ford, J., Santoso B., S Sen, S (2003) found a positive and significant impact on the economic growth. They also found that FDI have more positive impact on developing as compared to developed countries. Mohey-ud-din, Ghulam (2004) also found strong positive impact of FDI on economic growth of Pakistan. Due to new protection policies and politically stability investors are highly interested in investing to Pakistan economy.

The inflation has also a negative significant impact on the Pakistan’s economy, which is similar as the study of Amna et.al (2010). She found a negative impact of inflation on the Pakistan’s economy. The magnitude of the inflation’s coefficient is -0.39.

This study finds a positive and significant long-run relation between the population and the GDP. Here the population over age 15 to 64 is used as a labor input. Nawaz.M. Fafi (2015) found a positive impact of the population on the economics growth of Pakistan. Following to the exogenous growth theory, an increase in the technology and the knowledge transfer increases the labor efficiency and the GDP.

The GCF has a negative and insignificant impact on economic growth of Pakistan. The sign of the coefficient is against to exogenous growth theory. However, the negative sign is consistent with many previous studies like Nawaz.M. Fafi (2015) to show the negative impact of the GCF on the economic growth.

Consistently with the findings in the short-run analysis, the trade has no statically significant impact on the GDP.
Table 7: Long Run Elasticities

<table>
<thead>
<tr>
<th>Regressors</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T-Ratio</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>$lnFDI$</td>
<td>-.39725</td>
<td>.15805</td>
<td>-2.5135</td>
<td>.018</td>
</tr>
<tr>
<td>$lnINF$</td>
<td>.14383</td>
<td>.097187</td>
<td>1.4799</td>
<td>.050</td>
</tr>
<tr>
<td>$lnPOP$</td>
<td>-.62573</td>
<td>.80891</td>
<td>-.77354</td>
<td>.445</td>
</tr>
<tr>
<td>$lnTRADE$</td>
<td>.90628</td>
<td>.34753</td>
<td>2.6078</td>
<td>.014</td>
</tr>
<tr>
<td>$lnGCF$</td>
<td>.71930</td>
<td>.98169</td>
<td>.73271</td>
<td>.470</td>
</tr>
</tbody>
</table>
7.5. Sensitivity Analysis and Stability Test

Figure 2: Plot of Cumulative sum of Recursive Residuals (CUSUM)

Figure 3: Plot of Cumulative sum of Squares of Recursive Residuals (CUSUMq)
The straight lines in Figure 2 and Figure 3 show the 5 percent critical bounds for the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMsq) used to check for parameter stability. In 2000 and in 2001, Pesaran suggested that CUSUM and CUSUMsq are adequate in testing for stability of coefficients in such kind of models. The graph of CUMSUM is significant at 5 percent significance levels (plots lies between the critical bounds) indicating the stability of the parameters in model.

The Lagrange Multiplier (LM) statistic test is also applied to check for serial correlation. The F-value is 0.67 so there is no problem with the serial correlation.
8. CONCLUSION AND DISCUSSION

I aim to find the impact of the FDI on the economic growth of Pakistan over the period of 1966 to 2014 both in long-run and in short run by using ARDL technique. Furthermore, the bound testing approach is applied to confirm the long run relationship in the estimation model.

The FDI has an overall positive and significant impact on the Pakistan’s economy both in long run and short run). One of the reasons to explain the positive impact is that the FDI inflow brings the advanced technology and the investment enhancing the country economy.

The inflation is significantly negative correlated with the Pakistan economy in the long run while the population shows positive and significant impact on the Pakistan economy in the long-run. This study indicates that Pakistan is still struggling to develop from a labor intensive production to a capital intensive country.

Together with the gross capital information, the trade has insignificant impacts on the GDP of Pakistan, which is surprising. Pakistan is an agri-economy. Pakistan mostly imports raw material at cheap rate and import final goods at expensive rates. This phenomenon is also called “Dutch Disease Effects”. Through the advanced technology and knowledge transfer Pakistan should increase the export of final goods to support the economy in a better way.

In this paper, I mainly study the relation between the FDI and GDP. It is also importance to understand how others institutional factors impact the economic growth, which can be addressed in the future papers. As I stated before, Busse and Hefeker (2007) pointed out that the political risk and the quality of institutions in the host country matter most for the multinational companies in making decision about where to invest in developing countries. The countries with democratic stability are more likely to be attractive for multinationals and opposite to it countries with higher political risk attract small FDI. The government stability, the absence of religious and the ethnic conflicts and the democratic accountability processes are more closely to be associated with the inflow of the FDI. Unfortunately, Pakistan is lacking these characteristics of stable governments, religious and ethnic tolerance and democratic accountability since decades. Therefore it has received less FDI as compared to the other countries in the region.
Some policy suggestions for Government of Pakistan are stated here. In order to encourage the foreign and domestic investors to invest in Pakistan, it is necessary to improve the protection and insurance policies. Pakistan should increase the export of final goods through improvement in infrastructure, construction of new roads, better transport facilities and installing advance machinery that will reduce production cost inside the country. The corruption control policies, the political stability are needed for better utilization of the FDI and other capital. There is a requirement to improve quality and quantity of human capital and skills through better education, health and training, so that FDI can be utilized in a better way while considering the trained and skilled labor force.
REFERENCES.


OECD (Organisation for Economic Co-operation and Development) (2012), ODA Receipts and Selected Indicators for Developing Countries and Territories.


APPENDIX.

Table A1. Hurdles’ faced by Pakistan’s economy.

<table>
<thead>
<tr>
<th>Year</th>
<th>Events</th>
<th>consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>-Civil war</td>
<td>Creates instability in Country and loss of East Pakistan</td>
</tr>
<tr>
<td></td>
<td>-War against Indian</td>
<td>and Resources.</td>
</tr>
<tr>
<td></td>
<td>-Resignation by president</td>
<td></td>
</tr>
<tr>
<td>1977</td>
<td>-Political instability</td>
<td>Martial Law rule 11 year and effect public policy.</td>
</tr>
<tr>
<td></td>
<td>-Pakistan army took control</td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td>-unfair general election</td>
<td>Week democracy.</td>
</tr>
<tr>
<td>1988</td>
<td>-President died in Plain crash</td>
<td>Midterm election, Change in Afghan war policies.</td>
</tr>
<tr>
<td></td>
<td>With 29 senior army officer</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>-Midterm election</td>
<td>Opponents from Government.</td>
</tr>
<tr>
<td>1993</td>
<td>-Midterm election</td>
<td>Opponents from Government.</td>
</tr>
<tr>
<td>1996</td>
<td>-Midterm election</td>
<td>Opponents from Government.</td>
</tr>
<tr>
<td>1998</td>
<td>-Pakistan test nuclear devices</td>
<td>America impose International trade restrictions.</td>
</tr>
<tr>
<td>1999</td>
<td>-War against India</td>
<td>Relation affected with international community.</td>
</tr>
<tr>
<td>2005</td>
<td>-Earthquake</td>
<td>destroy infrastructure and property, causing 82,000 Deaths.</td>
</tr>
<tr>
<td>2007</td>
<td>-terrorism activity start</td>
<td>law and order disturbed due to suicide bombing.</td>
</tr>
<tr>
<td></td>
<td>in the country</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>-Bombay bomb attack</td>
<td>Raise tension with India and got threats of attack from India.</td>
</tr>
<tr>
<td>2010</td>
<td>-sever flood in Pakistan</td>
<td>Affecting crops, infrastructure and property</td>
</tr>
</tbody>
</table>

[Source: Nawaz, R. M. (2014)]
Table A2. Sector wise FDI flow toward Pakistan.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil &amp; Gas</td>
<td>775.0</td>
<td>740.6</td>
<td>512.2</td>
<td>629.4</td>
<td>559.6</td>
<td>502.0</td>
<td>246.1</td>
</tr>
<tr>
<td>Financial Business</td>
<td>707.4</td>
<td>163.0</td>
<td>310.1</td>
<td>64.4</td>
<td>314.2</td>
<td>192.8</td>
<td>256.4</td>
</tr>
<tr>
<td>Textiles</td>
<td>36.9</td>
<td>27.8</td>
<td>25.3</td>
<td>29.8</td>
<td>10.0</td>
<td>-0.2</td>
<td>43.9</td>
</tr>
<tr>
<td>Trade</td>
<td>166.6</td>
<td>117.0</td>
<td>53.0</td>
<td>25.3</td>
<td>5.7</td>
<td>-3.2</td>
<td>50.0</td>
</tr>
<tr>
<td>Construction</td>
<td>93.4</td>
<td>101.6</td>
<td>61.1</td>
<td>72.1</td>
<td>46.0</td>
<td>28.8</td>
<td>53.5</td>
</tr>
<tr>
<td>Power</td>
<td>130.6</td>
<td>-120.6</td>
<td>155.8</td>
<td>-84.9</td>
<td>28.4</td>
<td>71.4</td>
<td>201.7</td>
</tr>
<tr>
<td>Chemicals</td>
<td>74.3</td>
<td>112.1</td>
<td>30.5</td>
<td>96.3</td>
<td>71.6</td>
<td>94.9</td>
<td>55.3</td>
</tr>
<tr>
<td>Transport</td>
<td>93.2</td>
<td>132.0</td>
<td>104.6</td>
<td>18.7</td>
<td>44.1</td>
<td>2.7</td>
<td>6.2</td>
</tr>
<tr>
<td>Communication (IT&amp;Telecom)</td>
<td>879.1</td>
<td>291.0</td>
<td>-34.1</td>
<td>-312.6</td>
<td>-385.7</td>
<td>434.2</td>
<td>45.1</td>
</tr>
<tr>
<td>Others</td>
<td>763.4</td>
<td>586.3</td>
<td>416.3</td>
<td>282.2</td>
<td>765.5</td>
<td>375.2</td>
<td>-107.0</td>
</tr>
<tr>
<td>Total including Pvt. Proceeds</td>
<td>3,719.9</td>
<td>2,150.8</td>
<td>1,634</td>
<td>820.7</td>
<td>1,456.4</td>
<td>1,698.6</td>
<td>851.2</td>
</tr>
</tbody>
</table>

[Sources: State Bank of Pakistan]