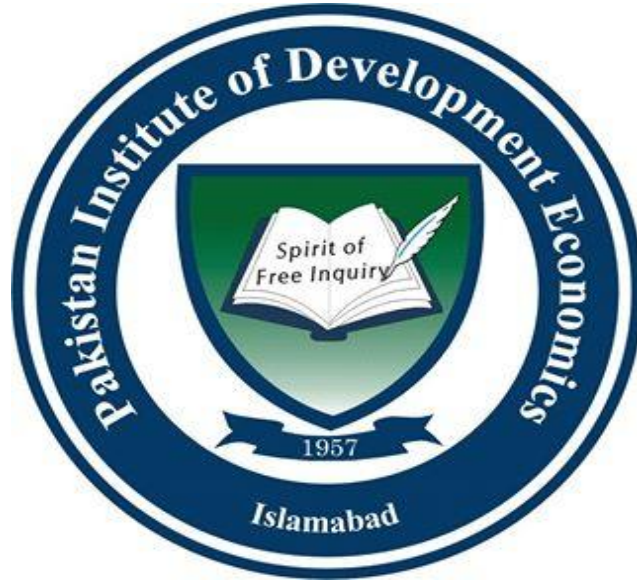**FDI-Growth Nexus: Role of Absorptive Capacity in Pakistan**

By

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A Thesis Submitted in Partial Fulfillment of the Requirement for the Degree of Master of Philosophy in Economics and Finance

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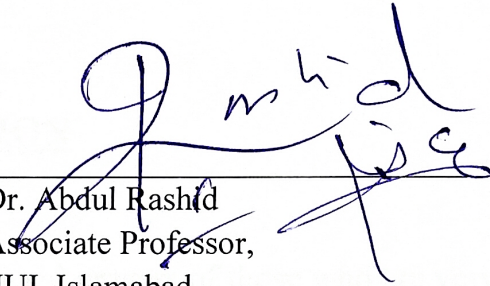
Islamabad, Pakistan.

PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS, ISLAMABAD

CERTIFICATE

This is to certify that this thesis entitled **"FDI Growth Nexus: Role of Absorptive Capacity in Pakistan"** submitted by **Mr. Salman Ahmad** is accepted in its present form by the Department of Economics and Finance, Pakistan Institute of Development Economics (PIDE) Islamabad as satisfying the requirements for partial fulfillment of the Degree of Master of Philosophy in Economics and Finance.

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<u>DEDICATION</u>

Every task needs efforts as well as guidance and prayers of those who are very close to your heart.

I dedicate this effort to my Mother

(MAA Ji)

ACKNOWLEDGEMENTS

Firstly, I would like to thankful to Almighty Allah, who gave me the opportunity, ability, strength and vigor, not only to complete my MPhil in this prestigious institute PIDE, but also to present this study as part of my final desertion. I am also thankful to my parents who support me financially as well as morally and encouraged me to complete this degree.

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LIST OF ACRONYMS

FDI	Foreign Direct Investment
PCA	Principal Component Analysis
ARDL	Auto Regressive Distributed Lag
GDP	Gross Domestic Product
FD	Financial Development
HD	Human Capital Development
TO	Trade Openness
IF	Infrastructure Development
PS	Political Stabilit
AC	Absorptive Capacity Index
ECM	Error Correction Model
VAR	Vector Autoregressive
SBP	State Bank of Pakistan

ABSTRACT

This study is an attempt to revisit the relationship of foreign direct investment and economic growth of Pakistan by investigating the role of *absorptive capacity* of the host country. This study also provides an analysis on the impacts of FDI on economic growth of Pakistan with formal empirical evidence by including all major determinants of absorptive capacity. Absorptive capacity of Pakistan describes as the ability of absorbing, adjusting and transforming new knowledge into innovation and to utilize financial inflows at optimum level in effective way. The absorptive capacity index is developed by using Principal Component Analysis (PCA) by using financial development, human capital, trade openness and infrastructure development as the major determinants while political stability is also an important determinant of absorptive capacity because it ensures the consistent healthy environment for the business. This study is conducted on the time series data from 1970 to 2017 by using the ARDL bound testing approach (2001) to test the long run relationship among economic growth and explanatory variables. Empirical results show the significant impacts of explanatory variables on the growth of Pakistan and the results become more significant by including the absorptive capacity. Interactive term describes the mutual impact of FDI with absorptive capacity on the economic growth of Pakistan which implies that threshold level of absorptive capacity facilitate FDI to generate more positive significant impact on the economy. The findings verify main hypothesis of this study and also justify the purpose of study which is according to the economic theories and findings on the role and dynamic significant impacts of FDI on economic growth of developing host country. This study concludes that the absorptive capacity of Pakistan determines the maximum spill over impacts of FDI, so it is important to develop the absorptive capacity at high level to attract and get the maximum benefits from FDI. The enhancement of absorptive capacity means that the key sectors of economy are developing at threshold level which contribute in the development of many other sectors and it all contribute to the growth of economy. Pakistan is a hot cake for the foreign investors due to its geography and abundant natural resources but the development process is less as compare to other nations because of the absorptive capacity.

Keywords: Absorptive Capacity, FDI, Principal Component Analysis, ARDL Bound Testing.

CHAPTER 1

INTRODUCTION

Almost all of the developing countries are facing investment-saving gap. Indeed, this is one of the main hurdles in their economic growth. Therefore, the economies always have a dire need of finances and capital flows to fill this gap. There are many options for the managers of economies to fill this gap. Foreign Direct Investment (FDI) is considered as one of the major sources of capital inflow to fill this gap. Importantly, the literature on the economic growth considers that it is a less volatile source of finances. Furthermore, FDI enhances the economic development by providing the needed capital which fulfills the financial needs for investment in various areas of economy and facilitate to interact with international communities by providing foreign exchange (Bosworth and Collins, 1999).

By definition FDI is regarded as "the ownership or control of 10 percent or more of an enterprise's voting securities or the equivalent interest in an unincorporated business" (Griffin and Pustay, 2007) while Farrell (2008) defines "FDI as a package of capital, technology, management, and entrepreneurship which allows a firm to operate and provide goods and services in a foreign market". Generally, FDI is divided into two main categories. First, green field investment refers as activities or assembling all the elements right from scratch (start) and the second type is *foreign takeover* which means through mergers and acquisitions start production without building a new one from scratch.

Practically, the researchers find that FDI has an inconclusive impact on economic growth. One stream of researchers identifies that FDI has a significant positive impact on the economic growth of host countries while other approach opposes the first one. However, FDI gives a positive impact in the most of the cases along with few cases of negative impact on host

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countries' economic growth. So the behavior of FDI is complex one. This shows that impact of FDI on host countries needs to re-analyze which describe the correct behavior of FDI on economic development of host countries. Its implies that specific sectors of economy working at threshold level are helping the FDI to generate positive impacts on the host countries' while counties where FDI has insignificant impact shows that specific sectors either under developed or not properly established. The importance of FDI for developing countries and its complex behavior motivate us to further investigate its relationship with economic growth.

It is a debatable issue that growth of developing countries is restrained due to shortage of physical capital, human capital, financial capital, skilled labor, technology and management expertise along with some other factors. By removing these bottlenecks, developing countries become able to get sustained economic growth and development. FDI gives significant impact on development of host countries through different channels like financial capital formation in host countries which fill the gap of investment and by bringing advance machinery in host country which facilitate to introduce new technology and skills. FDI also improves the working methods and management skills in host countries by different training programs because foreign investors have experienced with advance methods and techniques.

However, the benefits of FDI do not appear as automatic but conditional to the *absorptive capacity* of host country. More clearly, it implies that the host country may absorb the foreign flows or not. Generally, the *absorptive capacity* implies that the status of financial development, human capital, trade openness and infrastructure development of a country. If these mentioned indicators are well-functioning, then it implies that the inflow in shape of FDI may work optimally. It is also important to know the role of these indicators in explaining the economic growth which is well established in the growth literature.

For example, *financial sector development* performs a key role in the economic growth of economy which facilitate to absorbs the FDI and circulate its spillover impacts on the economy. A Financial system makes sure about the availability of capital funds to the profitable projects on fair criteria and make the cost of transaction low which causes the positive impact on growth by (Goldsmith and William, 1969). Financial system development also contributing in process of technological diffusion associated with FDI by fulfilling the need of required capital. Similarly, *trade openness* represents the mobility of imports and exports without restrictions by a country. Trade openness has impact on economic growth by adopting advance technology that in use by advance countries to enhances the productivity. In analyzing the long term relationship more outward oriented countries contribute to economic growth (Edwards, 1998; Frankel and Romer, 1999). The export oriented countries need capital to enhance their exports and minimize their cost through new technologies and working method in the competitive global market. FDI is the source to fill this gap to enhance the exports through technology transfer, skills development, productivity improvement and majorly as financial support which contribute to the economic development of a country.

Indeed, the human capital has major contribution in development of economy, an educated and skilled labor force of develop countries give maximum productivity than under developed countries. Technical knowledge and skills become a riding factor for economic development and sustained economic growth. The countries which have good education system and R&D institute are capable to produce maximum number of desired human capital which require for business operations to contribute in economic growth. By investing on human education and skill development give the correlation between human capital and economic growth of country (Olaniyan and Okemakinde, 2008).

In the modern history of the economies, the infrastructure development is a prerequisite and driver of FDI to generate positive spillover impacts on the host economies. Infrastructure development improves the productivity of different sectors of economy by reducing input costs, through expansion of production capacity and generating profitable investment opportunities; so the infrastructure is complement with other factor of production and act as country's physical stock of capital (Aschauer, 1993; Gramlich, 1994). A sufficient level of infrastructure as the absorptive capacity of a country produces spillover benefits from FDI and desirable impact on the economic growth while FDI exert least impact on development of host country only when the infrastructure is below from certain threshold level (Kinoshita and Lu, 2006). Infrastructure development exerts massive impact on economic development through direct and indirect channels via supply side and demand side. Through supply side, infrastructure capital stock as a production factor has a direct channel and technological progress as indirect channel. Through demand side, infrastructure development provides socio economic effects at door step by improving services of water availability, sanitation services, power required for production, telephone availability and transportation facility.

Some has the view that political stability has a detrimental role in the growth of countries. The political stability means country has visionary directions towards its goals which require consistency in policies and implementations. Political stability represents the smooth and expected desired outcomes in long run which increases the growth rate of economy in the presence of FDI. It means that political stability provides a well settled ground to an economy for its growth but in the presence of investment saving gap the speed of economic development is remained slow that's why FDI is needed to boost up the speed of growth. Political stability is necessary for smooth economic development of a country while political instability with regular

constitutional changes significantly affect the FDI inflows towards developing countries (Schneider and Frey, 1985; Tuman and Emmert, 2004).

The Absorptive Capacity

The important variable of this study is absorptive capacity which defined by (Cohen and Levinthal, 2000) as the "capacity of absorbing, adjusting and transforming new knowledge into innovation". The absorptive capacity of a country determines the spillover impacts which can generate to host countries through foreign inflows and specifically on various sectors within the country. it's mandatory for the host countries to highlight important sectors of economy which needs to develop at thresh hold level to attain rapid growth. The general perception regarding role of FDI on economic growth can only be true on the functioning of absorptive capacity of country which represent some important sectors of economy.

The determinants of absorptive capacity identified by different researcher with the passage of time are the financial development which shows ability of country to handle financial inflows and utilize in effective way. The others are human capital development, trade openness and infrastructural development while the political stability is necessary for the consistent growth of economy because it describe that the Economic policies carry on at right direction. The host country characteristics are conditional for the effectiveness of FDI on economic growth (Fortanier, 2007). FDI is considered as catalyst to explain the productivity growth that boost up growth process of host countries with their absorptive capacities which facilitate the innovation process (Kinoshita, 2001). Absorptive capacity at threshold level plays an important role in absorbing and adapting new knowledge as well as to creating skills which contribute to innovations and development of economy.

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The impact of FDI on developing countries are realized in two ways either from Demand side or Supply side. FDI Impacts on host countries' aggregate demand by its initial investment and subsequently through input demand while from supply side it influences through financial capital, machinery, labor training, management expertise and technology. These all above variables comes under the umbrella of absorptive capacity of a country which facilitate to produces spillover impact of FDI and by seeing the absorptive capacity of host countries; it become easy to understand the relationship between FDI and economic growth (Borensztein *et al.,* 1998).

More specifically absorptive capacity of a country is like a processor which process the inputs efficiently and gives the desired output in effective way. The functioning of this processor depends on its units which describe the power of the processor either strong or not. The FDI comes in the processor and the units of this processor works according to their capacity and the output depends on the working capability of this processor. It's important to strengthen those specific sectors so called the absorptive capacity of country to get the desired productive results.

1.1 Research Gap

Literature gives many studies regarding the FDI-Growth Nexus of developed and developing countries while few studies tried to explain the absorptive capacity of countries. In case of Pakistan lot of studies have been done on FDI-Growth Nexus with different variables but as per best of my knowledge no one clearly focus on the absorptive capacity of Pakistan by identifying its important role in economic growth by analyzing these determinants.

1.2 Significance of Study

This is pioneer study which significantly adds inn the absorptive capacity requirement of Pakistan to get maximum benefits from foreign direct investment because it's important to know the level of absorptive capacity of country before the start of new FDI. This study also helps to highlight the weak sectors of absorptive capacity that need much attention to enhance and modify their capacities to generate spillover impacts of FDI. This paper will contribute by giving some guide line to the policy makers by arising important query that how to maximize the FDI spillovers in case of Pakistan?

1.3 Hypothesis of the Study

This study tests the hypothesis that financial sector development, human capital, trade openness, infrastructure physical capital generates the absorptive capacity which catalyzes the growth effect of FDI in a political stable environment.

1.4 Objective of Paper

This study has two objectives to test the above mentioned hypothesis:

1. The aim of study is to reanalyze foreign direct investment and economic growth nexus in Pakistan.

2. To analyze the importance and role of absorptive capacity in case of FDI growth nexus in Pakistan.

1.5 Organization of Study

Further, Chapter 2 will present the review of existing literature on the subject. Theoretical background and the methodology will be presented in chapter 3. Chapter 4 and Chapter 5 will discuss the variable construction and empirical results respectively. The Chapter 6 concludes the study.

CHAPTER 2

LITERATURE REVIEW

FDI is an important factor which is highlighted by all Economic Schools of Thought but in case of developing countries importance of FDI is increases because it fulfill the saving investment gap. It is highlighted earlier that FDI growth nexus is not infant but the study on absorptive capacity is a new research area in addition to combining the both dimensions of literature (positive and negative impacts) for comparison in one study. In case of developing countries specifically Pakistan, importance of FDI is much increases because it provides the required needed capital and an opportunity to enhance the speed of growth.

Developing countries attracts FDI via making policies to offering different incentive schemes like tax relaxation and subsidized their operations. FDI exerts two types of impact; one is the positive significant impact on growth of country (Blomström, 1986; Basu and Chakraborty, 2003) while the second is insignificant and even negative impact on economic growth (Singh, 1988) are the two dimensions of existing literature but the literature has not robust the theories of FDI and Economic Growth nexus properly. This shows that there are some important variables which describe the FDI growth nexus; it means that countries which describe the positive impact show that variables are working properly at threshold level.

The countries which shows insignificant impact describes that important variables are not working at threshold level. The host country needs to develop that specific variable at thresh hold level to get maximum benefits from FDI while these variables are the proxies of different sector of economy which represent absorptive capacity of country. FDI impact on economic growth is varies, it can give negative impact in the one period while it becomes positive during next period.

It implies that some important sectors of economy become develop up at required thresh hold level in next period which facilitate FDI to exert positive significant impacts and these considered as absorptive capacity of country (Gui-Diby and Loris, 2014).

2.1 Positive Impact of FDI

Stoneman (1975) describes that foreign flows generally concerned with immediate and direct effect on national income conveniently regarded as payment effect in contributing to economic growth. Blomström (1986) describes that FDI correlate positively with structural efficiency, highlighting the fact about improvement in the input markets because foreign entry in domestic market and it is positively related to productivity changes on industry average. Crotty *et al.* (1998) have pointed out that FDI is a means towards development, FDI strategy combine with the host country environment determine the outcome while inherently it is not good or bad. The impact of FDI crucially depends on different domestic and international structure of economies which determine the outcomes of FDI; so the outcomes of FDI depends on the context within which it occurs.

Olofsdotter (1998) has pointed out that FDI contributes to economic growth through prompts higher development rates by conveying new innovation to the host nations of multinational enterprises. Further, to explain the impacts of FDI across countries vary due to the capacity of the host economy to receive and adopt foreign innovation has been considered in account. Lensink and Morrissey (2001) describe that FDI positively affects development while volatility of FDI negatively affects development and it is also pointed out the beneficial outcome of FDI isn't sensitive to other explanatory variables incorporated into estimation by analyzing the data of 88 countries. Nair-Reichert and Weinhold (2001) pointed out the relationship between FDI and growth by analyzing the panel data of 24 developing countries and also found a causal

relationship. They also proof the effectiveness of FDI is higher in more open economies, despite the fact that this relationship is likewise exceedingly heterogeneous across the countries.

Chakraborty and Basu (2002) have pointed out that FDI flow proposes that two long-run positive connections exist amongst FDI and real Gross domestic product while FDI assumes no critical part in the short run adjustment procedure of Gross domestic product . So, due to lower marginal labor cost FDI inflows works as labor displacing factor in short term. Campos and Kinoshita (2002) describe the positive and significant role of FDI on economic growth by analyzing the data of 25 Central and Eastern European and former Soviet Union transition countries. So, transition economies become able to address their problems because of good combination of sizeable innovation gap and industry structure with human capital in the presence of foreign capital; that's reason FDI is a crucially important as explanatory variable in economic development.

Basu *et al.* (2003) have pointed out that FDI is engine of economic growth which exerts positive significant long run impact on economic growth and explain the liberalization dynamics of relationship between FDI and GDP by using panel data of 23 and 119 developing countries. Ozturk (2007) describe that FDI has a tendency to exert significant impact on development through different channels like capital formation, transfer of technology and human capital development.

Nahidi and Badri (2014) has pointed out FDI's positive significant impact on the growth of MENA countries in the period of 2005-2010. So, developed countries provide more suitable the conditions for FDI spillover that's reason the impact of FDI on economic growth becomes more significant. Ali and Hussain (2017) describe the positive impact of FDI on the economic growth of Pakistan and it considered as a forward step to the global economic integration.

2.2 Negative Impact of FDI

Singh (1988) describe that Multinationals Corporations (through FDI) have insignificant impact on industrial output growth which contribute to economic development while the host country domestic variables like financial development, the national reserve rate, the government intervention and exports generally appears solid contribute in development of economy; by analyzing the data of 73 developing countries. Blomström and Sjöholm (1999) has pointed out by analyzing data of Indonesia that the level of foreign ownership does neither influence the productivity of foreign firms, nor the technological spillovers while the domestic firms of host countries able to get only technological spillovers from FDI due to competitive market. So, there is no statistically significant difference in degree of spillovers of local and foreign firms in host country and spillovers are determined by something else.

Athukorala (2003) has described that FDI does not exert an independent impact on the economic development of host countries. It doesn't support to the perspective of a positive connection amongst FDI and economic development of Sri Lanka however it doesn't mean that FDI is irrelevant. So, FDI gives independent impact on the economic growth which reduces the confidence on FDI in the case Sri Lankan development. It also pointed out that FDI exert negative impact on the economic growth of wider economy by analyzing data of Ghana, which correlate with past studies while effective labor, capital venture and trade are critical in determining the economic development over the long run in Ghana.

Naveed and Shabbir (2006) have pointed out the role of FDI as insignificant on the economic growth by analyzing the data 23 of developing countries, so must give attentions towards the promoting factors of economic growth. Hien (2008) describe that FDI produces insignificant effect on the growth of per capita income by analyzing the data of 41 developing

countries. Belloumi (2014) describe that FDI has not exert the positive spillover impact on the development of host country independently by analyzing the data of Tunisia.

Joshi (2016) describe the importance of financial inflows on the economic growth in South Asian countries through different models; to check the impact of FDI on economic development give varying insignificance of results and the economic growth depend upon the model specification. Vu and Le (2017) pointed out the relationship between FDI spillovers and technical efficiency and it showed that the negatively impact externalities generates from FDI. So it is contradictory to generally accepted intuition that considers the positive significant role of FDI on the development of economic growth.

2.3 Issue Arises

It is not clear from literature about the role of FDI on economic development, so it's needed to analyze some other important factors which contribute in economic growth of host country. It means that countries with positive significant impacts on economic growth have some important sectors working at threshold level while counties which show insignificant impact of FDI have these sectors below threshold level. The concept of absorptive capacity evolves which means the availability of country resources (develop sectors) to utilize the FDI optimally or not. Different determinants have analyzed to predict the absorptive capacity of a country; which includes Financial institutions, Human Resource, Trade openness and Infrastructural Development while to get full benefits at threshold level of these determinants Political stability is a necessary condition.

2.4 Absorptive Capacity Impact

Salisu *et al.* (1999) describe the role of Foreign Direct Investment in promoting economic growth by using new growth theory framework on the data of 46 countries of Asia and Latin

countries. The evidence is accounted for to demonstrate that interaction amongst FDI and human capital give significant impact upon development of host countries. It is also describing that trade openness is another component of absorptive capacity that contribute to economic development. Durham (2002) describes that foreign direct investment and equity foreign portfolio investment do not have direct positive impact on economic development by analyzing the data of 80 countries and it depends upon the host countries' absorptive capacity.

Girma (2005) describes the productivity benefit from Foreign Direct Investment increases along absorptive capacity at threshold level and below that it becomes less obvious. So, there should be a minimum absorptive limit at edge level and below which efficiency from FDI are immaterial or even negative. Jyun-Yi and Chih-Chiang (2008) by using the data of 62 countries it is describe that the impact of FDI on economic development is rely on absorptive capacity which are in particular initial Gross domestic product, human development and trade openness while importantly all variables necessarily working at thresh hold level to get positively and significantly impact on the host countries' economies.

Elmawazini *et al.* (2008) pointed out the absorptive capacity is measured by exploring the average years of schooling and total factor productivity gap of 38 developed and developing countries while it is also describe that total factor productivity gap is more suitable than average years of schooling in calculating the host countries' absorptive capacity. Criscuolo and Narula (2008) describe that FDI is complementary nature with of knowledge sources which determine the absorptive capacity at different phases of firm growth. The host country's Absorptive capacity and information aggregation from the firm level investigation give the capacity of a nation to assimilate outside information and its phase of technological improvement enhances the learning process.

Baharumshah and Almasaied (2009) describe that FDI exerts positive and significant effect on economic development of Malaysia. FDI interact with the absorptive capacity determinant of Malaysia and give short and long term impacts on the development process of host country. Human capital and financial institutions considered as the major determinant of absorptive capacity but the maximum benefits of FDI through its spill over impacts can be realized on the well-functioning of the above determinants at thresh hold level.

Wang and Wong (2009) describe the positive relationship between FDI and economic growth with sufficient level of human capital and well developed financial markets as pre-requisite. FDI enhances capital growth only when financial market is developed to certain thresh hold level while the human capital is the important factor connecting FDI and productivity development; so the above both add to economic development of host country. Lund (2010) describes that effectiveness of FDI on economic development is not clear by the analyses of 12 countries at aggregated level and sector wise. The potential impact of FDI is positive on economic development but it depends on the type of FDI and the domestic factors of host country. The major driving force of economic growth depends on the Domestic investment with infrastructure development, financial develop institutions with adequate level of human capital.

Heyuan and Teixeira (2010) has pointed out that capacity building exercises as human capital advancement and research and development endeavors can enhance capacity of a nation to develop knowledge and skills which enhances the level of profitability that is required for Economic growth of country by analyzing the Portuguese economy. Kottaridi and Stengos (2010) describe the influential impact of FDI on the economic development of 45 OECD and Non-OECD set of countries, it suggests that FDI-growth nexus is a complex one. FDI inflows has effect on cyclical or linear impact on the development of host countries with the human

capital and initial capital; it means that FDI is not fully effective in the presence of above two absorptive capacity determinants.

Anwar (2010) describe that FDI exerts impact on economic development through transfer of technology and management skills to the industrial sector of manufacturing industries of Vietnam. FDI spillovers significantly contribute through vertical-backward linkages to manufacturing sector growth in Vietnam. The positive effect of vertical backward linkages on manufacturing development is conceivable by accessibility of thresh hold level of human capital which contribute to the economic development.

Farkas (2012) describes the local conditions that enable FDI to exert positive effect on economic development and also to generate enhancement of welfare in host economies. The domestic conditions shape FDI spillovers are absorptive capacity which consist on development of financial market, productivity of human capital, trade openness, agricultural concentration and the abundance of natural resources. The facts describe the importance of FDI as catalyst to the development of host developing countries and it is a global affair. Khordagui and Saleh (2013) describe the absorptive capacity as the ability to absorb the benefits of FDI by analyzing data of emerging and MENA economies. The factors human capital, trade openness and institutional quality are considered as significant determinants of absorptive capacity which contribute to spillovers of FDI to the Emerging and MENA economies.

Bodman and Le (2013) describe that FDI indirectly enhances economic growth of host country through its absorptive capacity by analyzing the data of 15 developed countries. The development in total factor profitability (TFP) in both FDI sending and host nations has significantly related to Research and development and their human capital; which contribute to the economic growth. Kim (2015) describes that FDI and the absorptive capacity of domestic

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firms gives productivity spillover which contribute to economic development by analyzing the South Korean manufacturing industries data. The research and development and exports consider as absorptive capacity factors that contribute to additional positive spillovers of FDI.

Silajdzic and Mehic (2015) pointed out the externalities of FDI which generate have positive effect on economic development of transition economies. The efficiency seeking and knowledge building capability enable FDI to generate positive impact which contributes to economic development through knowledge building spillovers and technological development as the proxy research and development expenditures that are associated with growth performance among transition economies.

Fatima (2017) describes that firms operating in different quantiles of the productivity respond differently with the absorptive capacity in the presence of FDI by using Turkish industrial data. FDI with absorptive capacity give productivity spillovers at different quantiles contribute to economic growth depend on the initially position of firm on the productivity distribution and its absorptive capacity. Mohamad and Bani (2017) pointed out by analyzing the 39 developing countries that the FDI has no significant impact on technological innovation separately while when it interact with the absorptive capacity of host developing countries than FDI gives significant positive impact on technological innovation and progress.

2.4.1 Financial Development

Bailliu (2000) describes the impact of capital inflows on the economic growth of developing countries which foster economic development of 40 countries and the banking sector perform its role at certain thresh hold level. The domestic financial sector has an important role to promote economic development by supporting the foreign inflows in developing countries. Hermes and Lensink (2003) describe that FDI exert significant impact on economic growth with

develop financial markets by analyzing the data of 67 countries of Latin America and Asia. The financial system which works at threshold level is able to spillover benefit of FDI toward economic growth which is technology diffusion.

Alfaro *et al*. (2004) pointed out the ambiguous role of FDI in contributing to economic development and the economies with developed financial markets able to generate significant spillovers of FDI by analyzing the data of 71 countries. So, development of the financial market is a decisive aspect for Multinational corporations and these corporations act as catalysts for technology transfers. The threshold level of domestic financial markets of host economies are needed to recognize the positive impact of FDI on economic development. Hermes and Lensink (2003) pointed out by analyzing data of 67 Latin America and Asian countries that develop financial system is a pre-condition for the FDI to generate significant positive effects on economic development of the recipient country. More over for technological diffusion as FDI spill over impacts is only possible in the presences of develop financial system.

Aqeel *et al.* (2004) has analyze the case of Pakistan and pointed out that trade, fiscal and financial sector liberalization attract FDI which give significant impact in short and long run economic development. They also indicate the significant and positive effect of policy reforms on FDI in Pakistan. Khan (2007) Pointed out by analyzing data that FDI give positive externalities only if the domestic financial sector is working efficiently and developed at minimum threshold level in case of Pakistan. FDI perform important role in economic development of host countries while financial sector development is important for positive spill over impacts on the economic development of Pakistan.

Choong and Lim (2009) describe the FDI, human capital, government expenditure and public investment have important role in economic development of Malaysia. By interacting FDI

with financial development generate a huge beneficial outcome on the development of Malaysia while public investment and human capital are significant to output growth in the short run as well as in long run. Lee and Chang (2009) describe that develop financial system as foundation of healthy economy provide a better position to reap the benefits of foreign direct investment effectively by analyzing the data of 37 countries. Moreover, in the long run a solid financial system attract work as driving force with an active economic policy to attract FDI and producing positive significant impacts on economic growth. Azman-Saini *et al.* (2010) describe the importance of financial market development which mediating to analyze the impact of FDI on economic development by analyzing 91 countries data; so FDI can exert positive effect on economic development when financial markets are development at threshold level.

Shahbaz and Rahman (2010) pointed out that develop financial system will boost up economic growth through technological diffusion with foreign capital inflows by analyzing the case of Pakistan and also determined that foreign capital has positive significant impact on the long run economic growth. Jalil and Feridun (2011) describe the positive correlation between financial development and economic growth of Pakistan by using composite financial depth indicator. It's developed by combining three conventional measures used to check the level of financial development; that's reason this new financial indicator (index) gives more reliable and credible results on economy growth.

Baharumshah *et al.* (2015) describe that countries have financial market working at thresh hold level will enjoy large quantity of foreign capital inflows and it is also point out the nonlinear relationship between foreign inflows and growth of host country. The above relationship depends on financial market development that facilitates the capital inflows to contribute on economic development of developed and emerging economies. Costigan (2016)

describes that FDI is not exert an independent impact on economic development of China by using national and provincial level data. FDI led growth is depending on threshold level of financial sector which contribute to spillover benefits of FDI in growth of country.

2.4.2 Human Capital:

Keller (1996) describes that technology is only useful and implementable if labor force has built up the required knowledge and skills. Trade liberalization gives new ideas and technologies that have positive impact on the output and consumption level while the sustainable growth is only possible if the arrival of new technologies accompanied with the required human skills before the regime has change. Borensztein *et al.* (1998) describe that FDI is an important channel for the technology transfer and its contribution in economic development is more as compared to domestic investment by analyzing the data of 69 developing countries. However, robustness of results holds true about the productivity spillover of FDI only when the host countries maintain the threshold level of human capital; it shows the as absorptive capability of host countries for the absorption of advanced technologies.

Narula and Marin (2003) describe that foreign direct investment spillovers have occurred in the presences of reasonable investment on the absorptive capacity specifically human capital by the domestic firm; the firm level analysis of Argentina. So, the firm which invested heavily on training and new equipment for innovation become able to get more FDI spillover benefits. Li and Liu (2005) describe that foreign direct investment has no direct impact on economic development itself but it also has indirect impacts on host countries. FDI exerts positive impact on economic development with the interaction of human capital in developing countries, while the technology gap of host countries has a contradicting impact on the FDI spillovers by analyzing 84 developed and developing countries. So, human capital and technology are

considered as the determinants of absorptive capacity of the above host countries to exert advance significant effect on development of economy.

Khan *et al.* (2005) describe that higher level of education gives more productive work force, boost up total factor productivity and improve country's production function upward by analyzing the cross-country analysis of 9 countries and specifically for Pakistan. It is also determined higher growth is achieved by investing on better education with institutional quality and accumulation of physical capital. Mingyong *et al.* (2006) describe that foreign direct investment has effective spillover channels as compared to imports and for long run growth there should reasonable investment on the human capital for its training and skill building. By using the provincial data of china, it is determined that host country's human capital investment with the level of openness determined technology spillovers while economic development of host country cab be increased by increasing the investment on human capital development which is a major part of absorptive capacity of host country.

Vinding and Anker (2006) describes absorptive capacity at firm level analysis which provide a deep insight to producing a major share in the development of industrial economy that human capital determine the absorptive capacity at firm level with technological innovation by analyzing the 1544 manufacturing industry and service industry firms of Denmark. The human capital and firm development has a close relationship, so there is positive relation with the capacity to develop technological innovation and in addition adversely associated with the level of innovative imitation. Fu (2008) describes that foreign direct investment (FDI) exert significant effect on the regional advancement ability and the productivity of host country by analyzing regional data in case of China. FDI gives the spillover impacts towards economic growth, so it

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contributes to the yields of the regional innovation framework with the level of efficiency of developing economies.

Miyamoto (2008) pointed out in his working paper by analyzing the literature of developing countries that adult with basic level of schooling are needed to attract FDI in host countries and these multinational companies develop the human capital of host countries by giving training and by supporting to get formal education. The multinational companies give positive and significant impact on host economies through spill over impacts in shape of technology transfer and productivity turn over which ultimately help to improve the absorptive capacity of host country. Chatterji and Montagna (2008) describe the role host country's absorptive capacity which determined the multination enterprises (MNEs) location decisions with investment and training capacities; through this way these are able to develop human capital at threshold level in the host country. The absorptive capacity with training cost determines the flow of FDI is described by the paper by analyzing the developing countries. Majeed and Ahmad (2008) has pointed out by analyzing the data of 23 developing countries that human capital development is one of the major determinant which attract Foreign Direct Investment with the health expenditure used as proxy because good health enhances the ability to get knowledge and improves his productivity which show the significant positive impact on FDI. While the illiteracy rate impact on FDI is less significant with negative sign; both above are important for the development of human capital which ultimately has significant impact on the sustainable and development of host economies.

Mastromarco and Ghosh (2009) describe by analysis of developing countries that positive impact of Multination companies investment in developing country is not direct but it all depend upon the human capital accumulation of host countries. To get the maximum benefits in their

productivity and technology spill over from the FDI , host developing countries needs to develop their human capital absorptive capacity which not only attract FDI but also give contribute to sustain level of development. It is clear that human capital affect directly and indirectly through research & Development, machinery and FDI. Noorbakhsh *et al.* (2001) pointed out by analyzing the data of 36 developing countries that the Human capital is the significant determinant to attract FDI to developing countries and with the passage of time the importance of human capital increase; it was one of the contribution to determine the trend of human capital significance. The developing countries with human capital have cost effective advantage which attract for investors and ultimately utilized for the development host economies.

Reiter and Steensma (2010) have describe by analyzing the data of 49 developing countries that FDI significant positively relation to the human development of host countries only when the host countries enter the foreign investors to specific economic sectors and preferring them with discrimination between local and foreign investors; more over FDI has also positive relation with human development in the presence of low corruption. High corruption distract the FDI and human development relation which is affect the development of economies, so to get maximum benefits from FDI through Human development it is necessary the corruption remained at low level. Fisher (2015) describes the aggregate research and development expenditures which uses to decide real advantages emerging from multinational firms while human capital conditions has an arbiter part in this procedure. By analyzing data of 31 developing and 35 developed countries the maximum benefits from the FDI spillovers can be achieved by building R&D concentration and human capital development.

Khordagui and Saleh (2016) describe the role of human capital development as absorptive capacity determinant by analyzing the 30 MENA Economies at sector wise as

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primary, secondary and tertiary. The FDI spillovers vary according to sector level depend on sector wise human capital development, so it means that human capital has not lessened its importance as factor of absorptive capacity to boost up economic growth by accumulation. Afridi (2016) has pointed out positive significant effect of human capital on economic development of Pakistan while physical capital and birth rate have also produce positive effect on the economic development.

2.4.3 Trade Openness

Bhagwati (1978, 1988) stated that "with due adjustments for differences among countries for their economic size, political attitudes towards FDI and stability, both the magnitude of FDI flows and their efficacy in promoting economic growth will be greater over the long run in countries pursuing the export promotion (EP) strategy than in countries pursuing the import substitution (IS) strategy". Ahmad *et al.* (2003) pointed out significant positive impact of FDI on economic development of Pakistan through trade openness because FDI has significant spill over impact on domestic output. They also found long run correlation among FDI, economic development and exports of Pakistan. Navaretti *et al.* (2004) describe the level of openness influencing the inflow of FDI in an economy has a tendency to differ according to the motivations for the engaging FDI in business operations. FDI collaborate with the local resources to give productivity, so the open ended economies able to get more spillover of FDI than close one which contribute to economic growth of country.

Frimpong and Oteng-Abayie (2006) describe the positive relationship between trade openness and economic development which imply that trade liberalization and export enhancement policies has significant impact on economy growth of Ghana. Foreign direct investment exerts positive impacts on export oriented industrial and agricultural sectors towards

economic growth by analyzing the data of Ghana. Naveed and Shabbir (2006) have pointed out that trade openness is positively and significantly impact on GDP per capita growth by analyzing the data of 23 developing countries, so Trade Openness is a key driver for the economic growth.

Iqbal *et al.* (2010) pointed out that FDI is attracted by the trade policies and growth while FDI enhances the economic growth of Pakistan as catalyst. FDI also gives positive effect to trade led growth of Pakistan and it is happened because government make polices to encourage the investor by providing facilities and especially security. Jafari *et al.* (2011) describe the effect of FDI on the development of GDP by analyzing OIC countries data and it determine that FDI inflow and Openness have significant effect on GDP development in the above economies. Kakar *et al.* (2011) analyze comparative analysis of Pakistan and Malaysia and pointed out the positive significant effect of trade openness on the Malaysia as well as Pakistan's Economic growth. Furthermore, the Causality also gives indication that the trade openness stimulates the economic growth in both country case.

Klasra (2011) has pointed out by analyzing the data of turkey and Pakistan that trade openness growth nexus exist in case of Pakistan while growth driven exports relation become true in case of turkey. FDI impacts on the growth of Pakistan through its trade openness because due to low cost as compared to turkey; Pakistan able to attract more FDI and its exports becomes cheaper as compared to turkey, so more opportunity of growth available for Pakistan through its Trade openness. Huchet-Bourdon *et al.* (2011) describe that the export oriented countries sending out a wide range of more items which will helpful to develop their economies and export oriented countries gives better economic growth performance by analyzing the data of 158 countries. It is also confirmed that countries with export of higher quality products have rapid growth as compared to the countries exporting low quality products.

Liargovas and Skandalis (2012) pointed out by analyzing the data of 36 developing countries that in long run trade openness is important contributor to the FDI in the development and growth of economies. The economies utilize the FDI optimally in their growth by adopting and developing more trade openness, so FDI in these economies are export oriented and trade openness also facilitate the foreign investors. Shahbaz (2012) has pointed out that trade openness exerts positive effect on the long run economic development by analyzing the data of Pakistan through ARDL testing approach, so must give consider as important driver which contribute in Pakistan's growth process. Nobakht and Madani (2014) describe that Upper Middle Income Countries (UMCs) increase their trade liberalization (free trade) to attract more FDI inflows which improve local firms' ability to getting more benefits from FDI that also supporting to advanced industrialization process. The results also indicate the well development of domestic financial system with free trade facilitate FDI spillovers in order to boost up the economic development of by analyzing data of 33 UMCs.

Hussain and Haque (2016) describe by analyzing the data of Bangladesh that trade and FDI have significant effect on economic development of because cheap labor of Bangladesh has comparative advantage, so FDI gives boost to economic growth through trade and generate more employment. Sakyi and Egyir (2017) describe that FDI through the trade as interacting mediator factor has positive effect on economic development of 45 African economies. It is also describing that FDI in export oriented countries has long term development impact on the growth of countries which confirm the Bhagwati hypothesis.

2.4.4 Infrastructural Development

Munnell (1992) has pointed out that public infrastructure investment has provided immediate economic stimulus for growth and exert positive significant effect on output and

economic development. Kumar (2006) describe that the infrastructure availability has attract FDI by multinational corporations to contribute in the development of economies by analyzing the data of 66 countries. So, infrastructure development has a direct impact on economic development but it also improves the general investment climate of country which encourage foreign investors in shape of FDI by giving confidence on their investments and these investments contribute to economic development of host countries.

Kinoshita and Lu (2006) describe that impacts of FDI on economic growth development depends upon the on infrastructural growth of the host country while infrastructure considers as a pre-requisite by analyzing data of 42 developing countries. Technology spillovers via FDI can only take place in the host countries when the sufficient level of infrastructure has developed otherwise the host economy cannot achieve the maximum benefits from FDI. FDI is not panacea for economic development independently; threshold level of infrastructure facilitates the host countries to gain maximum spillovers of FDI, the infrastructure development is considered as major determinant of absorptive capacity of an economy.

Sahoo and Dash (2009) describe that infrastructural development exerts has constructive contribution to economic development via private and public sector investments by analyzing the data of India. The causality analysis pointed out unidirectional causality from infrastructure to output which contributes to economic growth. Imran and Niazi (2011) has pointed out that infrastructural development has positive significant impact of the real per capita GDP of Pakistan, it is because the infrastructure development (energy generation & telecommunication) has direct and indirect impact on economic growth through productivity improvement. Mohiudin and Salam (2011) pointed out the positive relationship between FDI and real GDP of Pakistan because overseas investor always encourage to invest in countries which has sufficient level of

infrastructure and facilitate their business operations. Due to comparative advantage as compared to other countries, Pakistan needs to attract more FDI and circulate optimally towards desired areas to get maximum benefits from this incoming investment.

Rehman *et al.* (2011) describe that in case of Pakistan; infrastructure development has the positive significant correlation with Foreign Direct Investment because infrastructural development provide low transportation cost as well as to help multinational companies to allocate its resources to get maximum benefits. Pradhan, Norman *et al.* (2013) describe that we transport infrastructure has positive impact with FDI on economic development by analyzing the case of India. So, to get FDI exerts faster significant impact on economic development of host country than sufficient transport infrastructure is necessary condition.

Kodongo and Ojah (2016) describe the infrastructure development and quality relate positively to economic growth by analyzing the data of 45 Sub-Saharan African countries. Infrastructure development has important role for developing economies with significant association with foreign capital inflows and trade competitiveness. Donaubauer *et al.* (2016) describe that Infrastructure development has considered as a key role to attract FDI by analyzing data of developing countries. Foreign investors anticipate longer term relationship between aids of the country and the infrastructure and checkout the number of benefits has arisen. Pradhan *et al.* (2017) describe the long term relationship exist in telecommunication infrastructure development (TEL), economic development and FDI by analyzing data of 21 Asian countries. Telecommunication Infrastructure development undertake as a key driver to attract FDI for the economic development of Asian countries.

State Bank of Pakistan (2006) report describe that infrastructure is pre-requisite for accelerating economic growth with its improvement and expansion; similarly, it is necessary for

sustain social development in case of Pakistan. It also suggests that a 7 percent GDP growth would increase demand for infrastructure services that in turn require investment on infrastructure increases, similarly quality of physical infrastructure is also important Multinational Companies in location preferences for foreign direct investment, and particularly in effective production. To get sustain growth rates and to improve future prospects of FDI, infrastructure development needs to be enhanced.

2.4.5 Political Stability:

Fatehi-Sedeh and Safizadeh (1989) by analyzing the data of 15 developed and developing countries has pointed out that the investment decision of multinational depends much on socio political stability of host countries which ultimately gives the perceived level of political risk. Through survey it analyzed that the factors like riots, demonstrations, strikes and assassinations are the symptoms of socio political instability and multinational Companies much aware about these symptoms before investment because the political stability is beyond the control of Investors. Alesina *et al.* (1996) have pointed out the time periods in which chances of government collapse is high at that time occur growth of country is significantly less than otherwise by analyzing the data of 113 countries.

Khan and Khilji (1997) pointed out by analyzing the case of Pakistan that due to political instability, law order situation, lack of trained educated labor force and the inadequate infrastructural facilities are the reasons that Pakistan faces to lack of FDI and the optimal usage of this investment. Singh and Jun (1999) has pointed out by analyzing the data of 31 countries that qualitative political risk index is significant factor which attract FDI to the host countries and the countries which are not attracting FDI; there political risk has negatively impacted. The countries which has political risk index favorable for FDI, these countries show sustain economic

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growth because investments utilized optimally on required areas for the development of host country.

Hess (2004) argues that political stability attracts the financial inflows due to persistence in government policies is possible which provide a healthy and confident environment for investors, so multinational firms has preferred to invest in those countries which have stable and consistent political stability. Brada *et al.* (2005) describe that Political instability isn't welcome in any case and it will adversely influence the nation's advancement and development process. FDI inflows to progressing economies have real conflict with political instability while reforms and stability in political environment with its consistency boost up the volume of FDI inflows. So in case of Balkans it finds that cost of insecurity and instability in terms of FDI spillover have been very high. Asiedu (2006) describes that macroeconomic uncertainty, corruption and political instability create negative impact about the investment climate of country and this aspect create barriers FDI inflows. Political stability has positive impact on government functioning which facilitate   the utilization of domestic and foreign resources in effectively way; so the political stability exerts marginal impacts on foreign inflows which also boost up the share of domestic investment.

Busse and Hefeker (2007) have pointed out by analyzing the data of 83 developing countries that FDI inflows are closely linked to the political instability and domestic institutions of a country because stability of political system and its consistency with democratic accountability of the government give confidence to investors and multinational companies also sensitive to the internal as well as external conflicts which ultimately impact on the economy of host country. Roe and Siegel (2007) describe that an economy's ability to create and promote financial security of foreign investors is heavily reliant on the political stability of country. It also

contends that precarious governments can't focus on arrangements that can empower and promote entrepreneurial activities with the function domestic financial markets. They also pointed out that political instability exerts negative impacts like poor economic policies which ultimately hamper the financial infrastructure development.

UNCTAD (2010) report describe that foreign investors will hesitate to bring new projects in the host countries without surety that business environment would be conductive and suitable for their operations and it is not possible without political stability of country because political stability has direct link to the business running with in county. Qureshi *et al.* (2010) pointed out development trend of a country like Pakistan remain unstable during the period of political instability. The spans of political instability consist nearly half history of country and analysis gives negative relationship between political instability and economic growth of Pakistan. In their analysis they construct a composite index of political instability by including protests, riots, number of strikes, tenure of governments, and change of government by war and coups.

World Bank (2011) has published report regarding political stability of Pakistan and it is categorically stated that political instability and corruption are the reason of low investment by private sector in country. Azam and Ahmad (2013) describe the impact of political instability and human capital on FDI inflows into Pakistan and it is pointed out that political instability has positive insignificant impact on FDI while human capital exerts significant impact on foreign direct inflows. Dutta and Roy (2011) describe that with higher levels of political stability helpful to build absorptive capacity of county and generates the advantages of foreign direct inflows in more effective ways by analyzing the data of 97 countries. In the presence of political risk, financial development and FDI inflows reveal strictly nonlinear, so political instability creates

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hurdle to attract and utilize the foreign investment even the country has an effective financial infrastructure. Shahzad and Al-Swidi (2013) describe that Political instability exerts negative impacts on economic growth of Pakistan because effectiveness and functioning of all sectors of economy are pledge to the political stability and consistency of country. In spite of the fact that Pakistan has numerous natural resources, infrastructure and energy projects for investment with productive human capital stock but instability of democratic governments generate reasons affecting economic growth as well as FDI inflows.

Talat and Zeshan (2013) pointed out that terrorism and political instability exert negative impact on foreign direct inflows in Pakistan because foreign investors much conscious regarding risk associated to their investment and their expected profits. The developing country Pakistan where FDI supports to economic growth if affected than ultimately it causes to the economic growth rate negatively impacted. Rauf *et al.* (2016) describe that Political stability exerts positive effect on foreign direct inflows towards Pakistan while terrorism generate negative impact on FDI inflows that's reason degree of Political risks generally rely political strength and great administration of the legislature in a country. Tabassam *et al.* (2016) has pointed out the Political instability generate the negative effects on the economic development of a country like Pakistan, so to for a sustainable growth government must ensure a stable political environment with in country.

CHAPTER 3

THEORY AND EMPERICAL MODELLING

3.1 Theoretical Background:

Foreign direct investment provides capital accumulation in host countries which seems to support Pre Classical views and the Mercantilism as first one on attracting foreign capital to set up investment plans. The basic idea of Mercantilist was to generate a surplus of exports over imports and the motive behind this was to collect the precious metal and increase the quantity of money. Increases in exports generate the high employment level in country, so this cumulative process of employment generation through exports produces increase in national wealth. Mercantilist economies attracts financial capital by giving subsidies to exports, protection policy of taxes on imports, government intervention in desired activities, low prices and wages because their focus were to export high values goods than imports. This productive capital inflow in shape of precious metals do not generate the desired employment level and the mercantilist did not give attention to keep equilibrium between investment and savings; due to worse incomes distribution because they unable to understand relation between effective demand and employment. Mercantilism is the name given to the economic doctrines and practices of major trading countries and this school is dominated in European, France and other countries between16th and 17th centuries.

Adam Smith and David Ricardo are the big names of classical school of economics with their believe that the economy can be grow by increasing the real output which goes to the market and their stance is with Says Law that supply creates its own demand that's reason classical school of thought called as supply side economists. Ricardo's classical theory of growth says that "an increase in capital and labor would result in growth of output"

while according to Harrod-Domar Model of growth "the change in capital stock (investment) and incremental capital-output ratio (ICOR) determine the growth of national income (output)." Foreign direct investment is in shape of new physical business in host countries, so it increases the employment level and facilitate to attain sustain growth of economy.

The classical and neo classical economist explains the development and growth of economies in term of productive resources including capital, labor, management skills, natural resources and technology. In Neo-classical analysis, an increasing exogenous shock in FDI leads to increase in capital and per capita income temporarily as diminishing returns would restrict limit on the growth of economy in long run. Neo-classical do not considered technology as function of growth separately that's reason FDI could not exert a level impact on the rate of output. The stance of the above economic theories that long run growth of a country is possibly determine with the capital accumulation either it depends upon saving behavior of economy or the technical progress (Solow Model).

The New Growth Theory, technology considered as exogenous in endogenous growth models and the progress in technology is assumed to generate external effects on the economic growth by (Romer,1986 ; Lucas,1991) while (Romer,1986) also emphasized that "FDI can be an important source of technology transfer and know-how in host countries". So, FDI not only affect the output per capita level but also its rate of growth. In New Growth Theory; FDI through different channels gives permanent impact on growth rate due its potential role of development. These endogenous growth models are the function of technological progress considered as long run growth which provide a framework for FDI that can permanently increase the rate of growth through technology transfer and spillover effects. The key difference between the neoclassical growth theory and new growth theory is technology function.

FDI in the form of financial capital increases the investment level in the host country which increases the production level because it is considered as part of growth function in all school of economics. As level of FDI increases growth of the host country is conditionally increases because growth is also depending on some other important factors which support other sectors of economy. FDI gives significant effect on growth up to some extent but for complete spill over impacts on economic growth it is necessary that other important sectors of host country must be developed up to thresh hold level; that's sectors of economy are known as the absorptive capacity of country.

Similarly, financial development is a prerequisite for the growth because it ensures to handle the domestic as well as foreign inflows in effective way and provide the funds on needed areas which help to fulfill the requirement of financial capital. Trade openness facilitate the producers to get comparative advantage by trading in global market which facilitate the balance of payment as well as to gain economies of scale which contribute to economic growth of host country. Foreign investors have much consideration regarding the trade openness of host country because it determines their functioning ability to utilize the domestic resources of host country which ultimately contribute to the economic growth.

Human capital is another major sector of a country which directly contributes to the economic development because a skilled nation generates much output than others and it facilitate the foreign investors in their operations in efficient way; so an educated and skilled man force is necessary to attract FDI and generate spill over impacts. Similarly, infrastructure is a basic requirement for any economic activity and in shape of physical addition to existing capital of a country which contributes to boost up economic development. It facilitates to the businesses in their working capability by supporting via providing transport infrastructure, water,

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electricity etc. and it all utilize the domestic resources to contribute in economic development of host country.

Political stability is the surety that country is consistent in democracy and in their economic policies which are necessary condition for economic growth because it ensures that businesses have opportunity to grow without any threat. This factor motivates the foreign investors to invest with confidence in political stable countries and through this way the industrial sector of economy grow faster which has a major share in the economic development of host country.

3.2 Methodology:

  The econometric model is used to estimate the impact of independet side of model on the dependent side by regressing the independent variable on dependent variable. The base model of this study in which FDI with other independent variables are regress on the growth represented as GDP per capita of Pakistan. The indepednet variables others than FDI , Political stability and error term describe the absorptive capacity of Pakisatn and to check their solely impact or combine impact on GDP than regress them by forming different models as per requirement of study.

  This base Model1 provides the impact of each inependnet variable on the GDP by regressing, so by this way it can easily identify the variable which have more significant impact and which has insignificant impact on the GDP.

$$GDP_t = \alpha_0 + \alpha_1 FDI_t + \alpha_2 FD_t + \alpha_3 HC_t + \alpha_4 TO_t + \alpha_5 IF_t + \alpha_6 PS_t + \mu_t \qquad (1)$$

  GDP = Gross Domestic Product

  FDI = Foreign Direct Investment

  FD = Financial Development

  HC = Human Capital Development

  TO = Trade Openness

  IF = Infrastructure Development

  PS = Political Stabilit

  The Autoregressive Distributed Lag (ARDL) bound testing approach is use to check the level relationship between dependent and independent variables without specifying the integrated level of variables which is necessarily required for Enger Granger and Johansen and Juselius Approaches. ARDL bound testing approach is developed by Pesaran *et al.* (2001) is use to study the long run relationship between the variables of researcher's interest. ARDL use for both I(0)

and I(1) level at same time and it is not prerequsite to check the stationarty before running the technique while ARDL is not applicable for I(2) level integration. So to get proper results of this technique, it is better to pre-test the level of integration for stationarity because in case of I(2) this technique is not a usefull option while in very few cases the data is stationary at I(2). The beauty of ARDL bound testing approach is that it gives the long run as well as short run relationship between the variables by removing the credibility issue of data.

Different estimation techniques are available to check long run relationship between the variables of time series data but the most accurate results can calculate by using ARDL bound testing approach. The Engel Granger (1987) test, Johansen (1988, 1991) test which is based on maximum likelihood and Johansen and Juselius (1990) tests have some major drawbacks like these are not producing reliable results in case of small sample size and by increasing time period length the results can be improved to an appropriate level. The ARDL automaticaly take the required number of lags which capture the data generating process sufficiently in general to specific modeling framework.

Furthermore error correction model (ECM) can be derived through a simple linear transformation from ARDL estimation technique. The ECM includes short term adjustments with long run equilibrium without losing long run information that's reason ARDL bound testing approach is superior to the Johensen and Juselius's cointegration technique (Pesaran and Shin, 1999).

As mentioned earlier that we are focusing on absorptive capacity of the country. Therefore, introduce a new construct absorptive capacity index (AC) for ARDL estimation which consist on Finnacial development, trade openness, Human capital development and infrastructural development variables. This variable describe the absorptive capcity of Pakistan

and it will provide ease to understand the results of equations (2) and (3) by analyzing the whole absorption of country. This variable is constructed through PCA which enable to manage large data sets into a small data set that can easliy handle and produce better interpretable results.

ARDL framework of equation (1) is as follows:

$$\Delta lnGDP_t = \beta_0 + \sum_{i=1}^{P} \delta_i \, \Delta lnGDP_{t-i} + \sum_{i=0}^{P} \theta_i \, \Delta lnFDI_{t-i} + \sum_{i=0}^{P} \Omega_i \, \Delta PS_{t-i} + \sum_{i=0}^{P} \mathcal{E}_i \, \Delta AC_{t-i}$$

$$+ \sum_{i=0}^{P} \gamma_i \, \Delta(AC_{t-i} \times FDI_{t-i}) + \lambda_1 lnGDP_{t-1} + \lambda_2 lnFDI_{t-1} + \lambda_3 PS_{t-1} + \lambda_4 AC_{t-1}$$

$$+ \lambda_5 \Delta(AC_{t-i} \times FDI_{t-i}) + \mu_t \qquad\qquad (2)$$

AC = Absorptive Capacity Index

The null hypothesis in the equation is

$H_0 : \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = 0$.

The alternative hypothesis is H_1 :

$\lambda_1 \neq 0, \lambda_2 \neq 0, \lambda_3 \neq 0, \lambda_4 \neq \lambda_5 \neq 0$

<u>Error Correction Model</u>

$$\Delta lnGDP_i = \beta_0 + \sum_{i=1}^{P} \Psi_i \, \Delta lnGDP_{t-i} + \sum_{i=0}^{P} \omega_i \, \Delta lnFDI_{t-i} + \sum_{i=0}^{P} \emptyset_i \, \Delta PS_{t-i} + \sum_{i=0}^{P} ¥_i \, \Delta AC_{t-i}$$

$$+ \sum_{i=1}^{P} \mho_i \, \Delta(AC_{t-i} \times FDI_{t-i}) + \alpha ECM_{t-1} + \mu_t \qquad\qquad (3)$$

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ARDL estimation technique uses $(P + 1)^l$ number of regression while p describe the maximum number of lags and l describe the number of variables that's reason ARDL technique is preferred to choose optimal lag length for each variable. The three criteria of model selection is Log likelihood criteria (LR), Schawrtz Bayesian criteria (SBC) and Akaike's information criteria (AIC).

In next step, long run relationship is estimated through ARDL estimation technique by the researchers on the basis of Log likelihood, AIC or SBC criteria's. By seeing the existence of long run relationship between the variables than it is needed to check the short term relationship among the variables without losing the long run information. In last step to check error correction term is important which highlight the time required by short run dynamics to converge in long run equilibrium path of Model by using above error correction model (ECM).

CHAPTER 4

VARIABLE CONSTRUCTION AND DATA

A frame work has developed to analyze the variables, which cover the period 1973 to 2017 on annual basis. All the relevant data will collect from Investment board of Pakistan, State Bank of Pakistan, Economic Survey of Pakistan and Political Index; Polity Database.

Foreign Direct Investment

FDI define as "An incorporated or unincorporated enterprise in which a foreign investor owns 10 per cent or more of the ordinary shares or voting power of an incorporated enterprise or the equivalent of an unincorporated enterprise" by (Griffin and Pustay 2007) & IMF. Simply FDI take place when an investor start business through merger acquisition or building foreign business from scratch level including ownership or controlling interest in a foreign company. FDI is a long term investment in a host country and its contribution is greater than the other forms of investments due to its significant positive spill over impacts on economic growth by coordinating and supporting the other important sectors of economy; it is identified by Blomström (1986) & Ozturk (2007). All developing countries like Pakistan; are really welcome the FDI for their development and make different policies which encourage the foreign investors in the development of different sectors and growth of economy.

FDI in Pakistan

FDI increased due to privatization policies and trade liberalization mainly after the year 1988 by the Government of Pakistan; these steps gave the confidence to foreign investor regarding the intentions of government and about the future margins regarding business

operations. In 1900s FDI reached at maximum in 1995, after that FDI started declining due to political instability in country, sanctions imposed after the nuclear test and also due to Asian crises in that decade. FDI improve again as a result of liberalization policies for foreign investors, Debt rescheduling and the improvement started in the Pakistan USA relationships after 2000. FDI again reached at maximum level in 2008 and then again came with steep decline due to lack of confidence in Pak USA relationships and country specific conditions such as the energy crises, and deteriorating law, political and macro-economic stability and order conditions. In May 2013 government of Pakistan has signed the CPEC Project with China which originally valued at $46 billion while the current value of CPEC Projects is $62 billion and it's a big contract in the history of Pakistan. So a huge amount of capital inflows including a big portion of FDI coming from china as well as other countries in various projects which help to fill the investment gap.

Gross Domestic Product

GDP is define as "The total market value of the goods and services produced by a country's economy during a specified period of time" by SBP. It is a measure of economic growth of country which incorporates all domestic sectors of economy to calculate the current level of growth either it is increases or decreases as compare to any base year. GDP is used proxy of economic growth and it is calculated by different ways like per capita growth rate, average annual growth rate etc. in this study per capita growth rate is used because it gives signals growth in economy with increase in productivity. Moreover per capita growth rate describe the contribution of each individual in the GDP which represent the real growth of country and it is important for the policy makers in their decisions to evaluate the actual growth of country.

Financial Development:

It is defined as "Financial development is defined as a combination of depth (size and liquidity of markets), access (ability of individuals and companies to access financial services), and efficiency (ability of institutions to provide financial services at low cost and with sustainable revenues, and the level of activity of capital markets)" by Svirydzenka (2016). It a very import sector of every country while it is calculated through different proxies like credit to private sector, M3 to GDP ratio and total loan plus total deposit to GDP ratio etc. but in this study credit to private sector is preferred because confidence of people on banking sector of country gives the right picture of financial development and this proxy capture that result. Moreover today it's a huge debate of financial liberalization and financial inclusion in Pakistan and its impacts on the growth of economy.

Human Capital:

Human capital development is the abilities and skills of individuals through investment in education and training which enhance potential earnings. It is an important component of growth and it is calculated by using different proxies like vocational & university enrollment rate, secondary school enrollment rate, high school enrollment rate and average year of schooling; all capture the result of human development in a country. In this study vocational & university enrollment rate proxy is preferred because in current era skilled educated person is demanded more by the companies and it is properly capture in this proxy. An educated and skilled human resource is needed to foreign investor and helpful in their operations which ultimately gives significant impact to growth.

Trade Openness:

Trade openness of a country is define as "Exports plus imports and divided by GDP of country" by Shahbaz *et al.* (2007) and this figure shows that either country is export oriented or import oriented. Now a days world becomes a global village, to get develop and grow rapidly it is necessary to interact with other countries; otherwise comparative advantages, productivity gains, new innovation and sustain development of country is not attained easily. This factor is also important for the multinational companies because their most of the business operate with the interaction of entire world and it is very tough to run their business under unusual constraints.

Infrastructure Development:

It is define as "Physical installations such as highways and roads, airports, telecommunication facilities, water supply systems, electricity, waste treatment facilities and the like" by Kodongo and Ojah (2016) . Infrastructural Development is another major factor that contributes to economic development of country by facilitating the business and providing social benefits. Physical infrastructural development is measure through different proxies which include roads, railway lines, electricity generation station, telecom connections and Irrigation system. In this study roads development is used as proxy to capture the maximum figure of infrastructure development in case of Pakistan and more over it directly impact on business operations.

Political Stability:

Political stability is defined as "Regularity of the flow of political ex-changes with Optimistic perceptions emanating from internal stability, intergovernmental relationships and anticipated government continuity all brought either by social, economic or relevant external environment" by Ake (1975). The consistency of government means that important policies are

being implemented and the vision of government is clear about its country. Political stability is determined through different indices as proxy which is developed by different independent bodies that tries to include maximum factors that capture true picture of countries. In this study Polity data base 4 index is preferred over terrorism index and WDI political instability index because Polity index capture the maximum factors which use to determine political stability of country.

4.1 Absorptive Capacity Index

The absorptive capacity Index is developed through Principal component analysis (PCA) because PCA used to reduce the large data set of variables into small set which contain maximum information of large data sets. Absorptive capacity index is develop by combining the financial development, human capital, trade openness and Infrastructural development variables. Technically PCA is feature extraction technique which transforms the possibly correlated variables into uncorrelated variables.

Table 4.1: Principal Component Analysis for Absorptive Capacity			
Principal Component	Eigenvalues	% of Variance	Cumulative %
1	2.331	0.722	0.722
2	0.739	0.135	0.857
3	0.533	0.101	0.958
4	0.397	0.042	1.000

The above Table 4.1 shows the results to develop Absorptive capacity index by using PCA is consist of financial development, Human capital, Infrastructural development and Trade openness. The first (principal) component explain the 0.722% variational impact of the

absorptive index on dependent side; it implies that first outcome of PCA describe the major portion of Absorptive capacity index which can generate a significant impact on dependent side. Similarly, the second component of PCA has 0.135% portion of absorptive capacity index which contribute to variation impact on the dependent side accordingly. The Third outcome of PCA is 0.101% which has this share in the absorptive capacity index and this outcome generates variation on dependent side accordingly. The fourth and last outcome of the PCA is 0.042% and it is the share in the absorptive capacity index according to percentage ratio. Therefore, we use the first principal component to generate the absorptive capacity index which explain the maximum variation.

CHAPTER 5

EMPERICAL RESULTS

The stance of this study is to evaluate the conditional impact of foreign direct investment on the economic growth which is conditional on the absorptive capacity of Pakistan. To validate hypothesis of study; it is needed to analyze the solely direct impact of FDI on the economic growth in first step and after that the impact of FDI with absorptive capacity will analyze on the economic growth of Pakistan. The past studies have predicted the conditional impact of FDI on the economic growth of other countries while this study will analyze the conditional impact of FDI on growth of Pakistan which is conditional on the development of some important sectors of economy which determine the Absorptive capacity. The condition is the development of absorptive capacity at thresh hold level and finding of this study will validate our interested hypothesis.

Estimation of this study is started with the unit root test which is mandatory in case of time series data to check the level of stationarity of variables. It is mandatory that variables must stationary to get unbiased results. In this study Augmented Dicky Fuller Unit Root Test (ADF) is used to check the stationarity of time series data to avoid the spurious regression. When the results of ADF test shows that data series of variables are stationary than goes to next step of lag length selection and it is very important for ARDL bound testing approach. By identifying the appropriate lags than goes to the last step which is to analyze the relationship between dependent variable GDP per capita with the independent variables of Model by using ARDL bound testing approach.

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ARDL technique describes the stance of this study that either the FDI has relationship with GDP of Pakistan or not as independently; or the FDI has conditional impact on the GDP with absorptive capacity of country.

5.1 Unit Root Test

Before applying co-integration test, it is essential to check the stationarity of variables because estimating model without considering the order of integration may give spurious result. Different tests are available for checking the stationarity of variables like KPSS, Phillip-Parron (PP) test and Augmented Dickey-Fuller (ADF) test. In this study, ADF test is apply for each variable because it is more reliable and more frequently used in empirical literature.

In applying ADF test for checking stationarity, we put constant or constant and trend, whenever it is significant

Table xx: Unit Root Tests				
	ADF			ADF
GDP	-1.396		*ΔGDP*	-4.45
FDI	-1.296		*ΔFDI*	-8.084
TO	-2.997		*ΔTO*	-6.296
FD	-3.279		*ΔFD*	-6.778
HC	-1.384		*ΔHC*	-8.779
IF	0.4248		*ΔIF*	-2.374
PS	-3.245		*ΔPF*	-3.781
OC	-2.548		*ΔOC*	-6.888

The above table 5.1 describes the results of stationarity of unit root test for all variables of model, it is important to check the level of stationarity for ARDL bound testing approach and also important for other co-integration approaches. The co-integration techniques are not

effective in case of stationarity of level 2; it means that the variable become stationarity on its second lag. In case of Model of above table all variables become stationary at different level that's reason ARDL bound testing approach give the appropriate results. For example, financial development variable gives different result that is not stationarity at level.

5.2 Lag Length Criteria

Before applying ARDL approach, it is essential to determine the optimal lag length used in model. The result of different lag length selection criterion like Log likelihood (LL), Akaike Information Criterion (AIC), Schwarz Bayesian Criteria (SC) and Log likelihood Ratio (LR) are shown in the table (5.2).

Table 5.2: Test Statistics and Choice Criteria for Selecting the order of the VAR Model					
Order	LL	AIC	SBC	LR test	Adjusted LR test
3	166.887	141.667	128.037		
2	159.039	144.489	134.754	CHSQ(4) =2.1794 (0.703)	1.9020(.754)
1	137.135	126.465	120.623	CHSQ(8)= 47.3443(0.000)	41.3187(.000)
0	106.155	101.305	99.3581	CHSQ(12)=107.2196(.000)	93.5735(.000)
Note: *** Significant at 1 % level					
LL=Log likelihood, AIC= Akaike Information Criterion, SBC=Schwarz Bayesian Criterion , LR= Log likelihood Ratio					

The above Table 5.2 describes the optimum lag length of model variables; the log likelihood ratio and adjusted log likelihood ratio give the significant results at level and at first difference, the log likelihood ratio criteria is used as lag length selection instead of AIC and SBS

criteria's. The likelihood ratio (LR) test carried from the maximum lag as starting point than reducing the lag one by one until the first one rejected and in case of this model maximum three lag length constraint has applied. The lag length selection criteria try to select the true Model, so the risk of under or over specifying the model is continuously generated due to adding of too few or too many lags.

The results of ARDL bound testing are sensitive with the lag selection and it may produce biased results in the presence of inappropriate lag length. In lag length selection criteria we try to select the model which has minimum lags and represent as best models among other alternatives by giving true results. Different criterion attempt to balance the information by adding lags against which increase in the complexity of the model and in our model LR test criteria is preferred among other criterions.

5.3 Bound Testing Approach

The bound testing approach approves the presence of the long-run relationship among all variables. A Bound test has two bounds, the upper bound which assumes that all variables are I (1) and the lower bound which assume that all variables are I (0). The bound testing approach is based on the F-statistics to test the null-hypothesis of no co-integration or no long-run relationship.

The co-integration technique is used to check long run relationship among two independent data series and if series have impact on each other it means that co-integration exist there. Engel Granger (1987), Johansen and Juselius (1990) and Pesaran *et al.* (2001) Bound testing approaches are some famous co-integration techniques. Bound testing co-integration technique useful for both level of stationarity I (0) and I(1) at same time while the previous approaches use separately for I(0) and I(1).

Table No 5.3: Bounds Tests for the Existence of a Long Relationship								
	F-statistic		1 % Critical bounds		5% Critical bounds		10 % Critical bounds	
			I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
Dependent variable is the natural log of per capita GDP								
Lag 4	4.99887		3.93	5.23	3.12	4.25	2.75	3.79
Lag 3	5.17797		3.93	5.23	3.12	4.25	2.75	3.79
Lag 2	5.68303		3.93	5.23	3.12	4.25	2.75	3.79
Lag 1	6.13289		3.93	5.23	3.12	4.25	2.75	3.79
Dependent variable is the natural log of FDI								
Lag 4	2.47633		3.93	5.23	3.12	4.25	2.75	3.79
Lag 3	1.44364		3.93	5.23	3.12	4.25	2.75	3.79
Lag 2	1.30352		3.93	5.23	3.12	4.25	2.75	3.79
Lag 1	1.24476		3.93	5.23	3.12	4.25	2.75	3.79
Source of critical values: Pesaran *et al.* (2001)								

To analyze that either FDI has impact on the growth of Pakistan or growth of Pakistan can influence the FDI that's why only these two variables are critically analyze through bound testing approach. In bound testing of co-integration uses two types of limits in its working; one is lower bound and other is upper bound. It is specifying that to check the level of co-integration between dependent variable and independent variable, the F statistics values is compared with three critical bounds values. The above table 5.3 describes the results step wise, in first case the GDP per capital is on dependent side and we check its F statistics values with 1%, 5% & 10% critical values while in second case FDI come on the dependent side and repeat the above procedure. By doing this way, we can identify that either FDI gives significant long term impact on GDP by seeing their co-integration or GDP has significant impact on FDI by seeing their co-integration at different critical bounds values.

The 1% critical bound has lower bound value is 3.93 and the upper bound value is 5.53, so if the results of F statistics is below to the lower bound limit than there is no co-integration and if the value is above the upper bound limit than the co-integration exist while if the F statistics value come between the lower and upper limit than it means inconclusive. In first case where the per capita GDP on dependent side the lag1 and lag 2 shows the co-integration between dependent and independent side at 1% critical bound value while lag 3 and lag 4 gives the inclusive results. In case of 5% and 10% critical bound values, the F statistics of all four lags shows the co-integration between dependent and independent sides.

In second case where the FDI come on the dependent side and per capital GDP goes to independent side show the F statistics of all four lags below the lower bound limit 3.93 which implies that no co-integration exists between dependent and independent side at 1% critical bound value. While the same scenario is repeated again in case of 5% and 10% critical bound values, so in second case on co-integration exist between dependent and independent side when the FDI comes on dependent side. The above table results imply that GDP is determined by the FDI and FDI is not determine by GDP, so long run relation only exist when FDI determine the GDP and one more signal come from the above table is that our model selection is correct.

5.4 ARDL Long Run Estimate

ARDL estimation technique is used to analyze the long run relationship among dependent and independent sides of Model by regressing the independent variables on dependent variable to find out their long term relationship. The above table 5.4 gives the results of two models, firstly Model1 in which FDI is one of the main variable of the model is regressed solely on GDP and results shows highly significant value 0.7401 at 1% level of significance, so

in case of Pakistan FDI and GDP has strong long term co-relation.

Table No 5.4: Long Run ARDL Estimates		
Dependent variable is the natural log of per capita GDP		
Regressor	**Model 1**	**Model 2**
Foreign Direct Investment	0.7401***	0.8728***
	(0.2860)	(0.3199)
Trade Openness	NA	0.2269**
	NA	(0.1058)
Financial Development	NA	0.6441***
	NA	(0.1868)
Human Capital	NA	0.9388***
	NA	(0.1674)
Infrastructure	NA	0.8900*
	NA	(0.5317)
Political Stability	NA	0.6347
	NA	(0.529)
Constant	0.1233	0.4569***
	(0.1055)	(0.1068)
Diagnostic Test Statistics (p-values)		
χ^2*(Serial Correlation)*		0.8478
χ^2*(Functional Form)*		0.20221
χ^2*(Normality)*		0.52669
χ^2*(Heteroscedasticity)*		0.7193
Note: The standard errors are in parentheses. ***, ** and * for 1 percent, 5 percent and 10 percent level of significance.		

The above result are in line with the Basu *et al.* (2003); Basu and Guariglia (2007) have pointed out that FDI is engine of economic growth which exerts positive significant long run impact on economic growth and explain the liberalization dynamics of relationship between FDI and GDP of a developing country like Pakistan and this result verify the theory. The above result also verify the research findings in case of Pakistan by (Ali and Hussain, 2017) describe the

positive impact of FDI on the economic growth of Pakistan and it considered as a forward step to the global economic integration. After the regressing solely FDI on GDP, now in the next step regress the whole dependent side on the GDP to check the significant long term relationship of each independent variable with the GDP.

In second model (Model 2) the ARDL bound testing approach is also used and all the independent variables are regress on the dependent variable simultaneously to check the impact of each independent variable on the dependent side of Model. Through this it can analyze the relationship among independent and dependent variables which will helpful to indicate the correlation of Model. FDI is the one of the main variable of the model has strong relationship with the dependent variable GDP at 1% level of significance 0.8728 as compare to Model1. This result verify the findings of Nahidi and Badri (2014) has pointed out FDI's positive significant impact on the growth of MENA countries in the period of 2005-2010. So, developed countries provide more suitable the conditions for FDI spillover that's reason the impact of FDI on economic growth becomes more significant.

The second variable of independent side of Model2 is trade openness which has also gives the positive significant impact on the Dependent side 0.2269 at significance level of 5% and shows the strong relationship with the GDP. This result according to the Frimpong and Oteng-Abayie (2006) describe the positive relationship between trade openness and economic development which imply that trade liberalization and export enhancement policies has significant impact on economy growth of Ghana. In this current era of globalization, countries which are indulge in trade with other countries are grow rapidly because trade openness provides the cost efficiency and economies of scale also. The above result also verify the findings of Ahmad *et al.* (2003) pointed out significant positive impact of FDI on economic development of

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Pakistan through trade openness because FDI has significant spill over impact on domestic output and also found long run relationship among FDI, economic growth and exports of Pakistan.

The third variable of independent side of Model2 is financial development which exerts positive significant impact on dependent side 0.6441 at significance level of 1% and shows strong long run relationship with GDP. This result according to the Baharumshah *et al.* (2015) describe that countries have financial market working at thresh hold level will enjoy large quantity of foreign capital inflows and it is also point out the nonlinear relationship between foreign inflows and growth of host country. Financial development shows the capacity of country to handle and manage the financial flows in efficient way; strong financial system describes the chances of growth of a country. It also verify the findings of Jalil and Feridun (2011) that pointed out the positive significant relationship between financial development and economic growth of Pakistan by using composite financial depth indicator; which give credible results on economic growth and financial development.

Fourth variable of independent side of Model2 is human capital which exerts positive significant impact on the dependent side 0.9388 at significance level of 1% and shows strong relationship with GDP. This result according to the Mastromarco and Ghosh (2009) that Multination companies have positive significant on developing countries are not direct but it all depend upon the human capital accumulation of host countries. Human capital contributes to economic growth through productivity and efficient skill which helpful in cost reduction and facilitating to adopt new technologies. It also verify the findings of Afridi (2016) has pointed out positive significant effect of human capital on economic growth of Pakistan while physical capital and birth rate have also produce positive effect on the economic development.

Fifth variable of independent side of Model2 is infrastructure which has positive impact of 0.8900 at 10% level of significance on the dependent variable GDP that shows long run relationship exist. This result according to the Kinoshita and Lu (2006) describe that impacts of FDI on economic development depends upon the on infrastructural growth of the host country while infrastructure considers as a pre-requisite and technology spillover via FDI can only take place in the host countries when the sufficient level of infrastructure has developed otherwise the host economy cannot achieve the maximum benefits from FDI. Infrastructure development provide the physical support to facilitate the business operations in efficient way which enhances the productivity of all sectors of economy especially industry sector. It also verify the findings of Rehman *et al.* (2011) describe that in case of Pakistan; infrastructure development has the positive significant correlation with Foreign Direct Investment because infrastructural development provide low transportation cost as well as to help multinational companies to allocate its resources to get maximum benefits.

The political stability ensures the smooth economic environment for consistent development and growth of country; the political stability shows the insignificant result 0.6347 on the GDP of Pakistan, which implies political stability is not involve to create any hurdle in the economic growth of the developing country Pakistan. The political stability is important to attracting foreign inflows and for consistent growth of developed countries while in developing countries although it's important but due to lack of some other important sectors which are required for development; political stability become less important.

The purpose of developing and regressing the Model2 is to check the impact of each variable of independent side on the growth; this helps to identify the individual importance and contribution to economic growth of Pakistan. The next step is to check the absorptive capacity of

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Pakistan which is the main theme of this research; the absorptive capacity index is develop on the four variable.

5.5 Error Correction Model (ECM)

In ECM, lag of error term will be replaced by the linear combination of all variables including dependent variable. In error correction model the variables with difference sign (Δ) capture the short-run effect only, while ECT(-1) shows the speed of adjustment toward long-run equilibrium path after any short-run shock. The ECT (-1) term has to be statistically significant and negative for convergence toward equilibrium.

Table No 5.5: Short Run ARDL Estimates		
Dependent variable is the natural log of per capita GDP		
Regressor	**Model 1.A**	**Model 2.A**
ΔFDI	0.0224	0.0976*
	(0.0972)	(0.0537)
ΔTO	NA	0.2013**
	NA	(0.0969)
ΔFD	NA	0.1401
	NA	(0.4487)
ΔHC	NA	0.3383
	NA	(0.2153)
ΔIF	NA	0.5006
	NA	(0.5569)
ΔPS	NA	0.4433***
	NA	(0.1814)
Δconstant	0.3694	0.1814***
	(0.5642)	(0.0370)
ecm(-1)	-0.1525***	-0.0952***
	(0.0800)	(0.0308)
Diagnostic Test Statistics (p-values)		
R-squared	0.5111	0.6724
R-bar-Squared	0.4712	0.6229
F	4.9361	5.5188
DW	1.6171	1.7516

The short run ARDL estimation dynamics are show in above table 5.5 which consists on two parts; first one is the short run co-relation coefficients of dependent and the independent variables of Model and the second one is the error correction term (ECT). Short run ARDL is also said as Error Correction Model (ECM) because the ECT is the main important outcome of this part of estimation. First part contains short run dynamics of estimated coefficients and the second part consists on ECT that measures the speed of adjustment. Error correction term describe the time required for convergence of short run dynamics towards long run equilibrium path of the model.

The ECT in Model 1.A has significant value –0.1525 which shows that the short term dynamics converge to long run path of equilibrium in rapid way. In Model 1.A, the FDI as independent variable is regressed solely on GDP of Pakistan as dependent variable. In Model 2.A, the all independent variables are regressed on the dependent variable GDP to see the co-relation of each variable in short run dynamics. The ECT of this Model is -0.0952 which is more significant value as compare to the Model 1.A, it shows that second Model in which all independent variables are regressed has more rapid response to converge short run dynamics to long run equilibrium path.

5.6 ARDL Long Run Estimates with Absorptive Capacity

ARDL bound testing approach gives the long run relationship between independent side and dependent side. The table 5.6 describes the results of two models, firstly in model3 the FDI and the absorptive capacity index is regress on the growth of Pakistan which is on the dependent side. The Model3 results show that FDI exerts positive significant impact 0.3819 on growth of Pakistan at significance level of 1%, result describe the importance of FDI for the economic development.

Table No 5.6: Long Run ARDL Estimates		
Dependent variable is the natural log of per capita GDP		
Regressor	**Model 3**	**Model 4**
Foreign Direct Investment	0.3819***	0.8687***
	(0.1497)	(0.1440)
Absorptive capacity	0.5383***	0.7285***
	(0.1663)	(0.1859)
Foreign Direct Investment × Absorptive capacity	*NA*	0.4495***
	NA	(0.1499)
Constant	0.4231***	0.2415**
	(0.1207)	(0.0913)
Diagnostic Test Statistics (p-values)		
χ^2*(Serial Correlation)*		0.7386
χ^2*(Functional Form)*		0.1644
χ^2*(Normality)*		0.4282
χ^2*(Heteroscedasticity)*		0.5848
Note: The standard errors are in parentheses. ***, ** and * for 1 percent, 5 percent and 10 percent level of significance.		

The result shows strong long run co-relation between FDI and GDP of Pakistan; so Pakistan can get maximum benefits and boost in economic growth by increasing FDI. This result according to the Olofsdotter (1998) has pointed out that FDI contributes to economic growth through prompts higher development rates by conveying new innovation to the host nations of

multinational enterprises. Further, to explain the impacts of FDI across countries vary due to the capacity of the host economy to receive and adopt foreign innovation has been considered in account. FDI is the blood for the economic growth of developing countries because it fills investment requirement of capital.

The other important variable of the Modle3 is the absorptive capacity which determines the ability of Pakistan either to utilize the foreign inflows at optimum level or not. The results of table describe the significance result of 0.5383 on GDP of Pakistan at significance level of 1%, which shows that the absorptive capacity has important role in economic development. This result according to Farkas (2012) describes the local conditions that enable FDI to exert positive effect on economic development and also to generate enhancement of welfare in host economies. The domestic conditions which shape the FDI spillovers are absorptive capacity which consists on development of financial market, productivity of human capital, trade openness, agricultural concentration and the abundance of natural resources. It implies that the absorptive capacity has strong co-relation with the GDP of Pakistan, so it is necessary to increase the absorptive capacity of Pakistan to get rapid growth and maximum benefits. It also verify the finding of Mohamad and Bani (2017) that the FDI has no significant impact on technological innovation separately while when it interact with the absorptive capacity of host developing countries than FDI gives significant positive impact on technological innovation and progress.

The Model4 which consist on one important interactive term on the independent side which gives the evidence that either the absorptive capacity will boost up the role of FDI towards economic growth or not. Results shows that absorptive capacity working at threshold level will facilitate the foreign inflows to perform at optimum level towards economic development of Pakistan. FDI shows positive significant result 0.8687 at the 1% level of significance as compare

to Modle3 where the co-relation between the GDP and FDI was 0.3819 at same level of significance. It means that by including interactive term in model4, the level of significance is much increases to facilitate FDI in its functioning which supports our hypothesis. This result according to the Nguyen *et al.* (2009) that absorptive capacity is essential to exert spillover impacts from FDI. FDI come with capital, advance technology, financial system improvement and human capital development with infrastructure development but it all can only effective when the host country must have required absorptive capacity. Absorptive capacity facilitates to enhance the benefits from FDI in two ways, firstly in capital disbursement for investment and secondly converting the FDI benefits into country's competencies to generate spillover impacts.

The absorptive capacity index figure is also shows the positive significant results of 0.7285 at 1% level of significance in Model 4 as compare to Model 3 where the co-relation between the GDP and FDI was 0.5383 at same level of significance. It also justifies our hypothesis that the absorptive capacity has a significant role in the growth of developing countries like Pakistan. Absorptive capacity results in Model4 are more significant which shows that in the presence of absorptive capacity interactive term the co-relation between FDI and economic growth is much significant as compare to the solely regress as in Model3. This result according to the Khordagui and Saleh (2013) describe the absorptive capacity as the ability to absorb the benefits of FDI while human capital, trade openness and institutional quality are considered as absorptive capacity determinants which facilitate FDI spillover to the Emerging economies.

The interactive term of FDI and absorptive capacity in Model4 shows the mutual impact of the two variables on the GDP of Pakistan. The significance of the term describes how mutually these variables perform well and support each other to generate positive impacts on the

economic growth. Specifically, the significant positive result implies that the absorptive capacity enhances the impact of FDI on the economic growth of the country. So, the interactive term that consists on the role of absorptive capacity in boosting up the impact of FDI is important one because its significance point out that absorptive capacity is fit with the FDI by supporting it and it also shows the level of absorption in Pakistan.

The interactive term in Model4 gives the positive significant impact 0.4495 on economic growth of Pakistan at the 1% level of significance; it means that absorptive capacity of Pakistan helps out on the functioning and performing of FDI in the development of Pakistan. These results verify the importance of absorptive capacity which facilitates FDI to produce positive significant spillover impacts on the development of host country Pakistan by providing required important developed sectors. This result according to the Lund (2010) that impact of FDI on economic growth is not clear; potential impact of FDI is positive on economic development but it depends on the type of FDI and the domestic factors of host country while the major driving force of economic growth depends on the Domestic investment with infrastructure development, financial develop institutions with adequate level of human capital. If this interactive term shows the insignificant results it means that these variables are not support each other and these are not fit to perform mutually while both variable may perform significantly solely.

The FDI increase the capital stock in the host country which enhances the growth of Pakistan and also exerts positive impacts on socio economic development by improving power generation capacities required for production, water availability, transportation facility and also transferring the management skills with technology transfer. The absorptive capacity provides different channel through which the FDI exerts maximum spillover impacts on the economy. The financial system is key to development of an economy because it manages and ensures the

availability of incoming capital at needed projects with many other services which facilitate and encourage the investors. The exports of country provide the evidence about it industrialization and the technology innovation because both are important in competitive market. The FDI not only getting the benefits of existing working methods of host country but also participate in the improvement and technological innovation process; which all give a breakthrough in the development of host economy Pakistan from exports side.

Human capital contribute a lot in the development of host country Pakistan and also to attract FDI because a skilled technical labour has a major share in the economic growth of country and always welcome by multinational companies because it fulfill their requirement. The countries which faces less skilled labour are indulge to face loses in shape of spending a lot of capital to foreign skilled people for their services and also in shape of time lag for hiring a skilled labour which stumble the development of many sectors of economy. FDI not only splits the new working methods to the host countries but also train the host labour who is spread around the country but the point is there must be a minimum threshold of skilled labour. Similarly the infrastructure development has also a major share in the development of economy of Pakistan because it facilitates all sectors of economy specifically businesses to expand their operation by reducing input costs and increase in investment opportunities. Multinational companies attracted to those countries which have required level of infrastructure to facilitate their operations in an effective way that's why infrastructure is a complement with other factor of production and act as country's physical stock of capital.

Pakistan can get maximum benefits by enhancing its absorptive capacity and increasing the FDI because absorptive capacity support FDI to produce the economic growth, so both fit in the mutual functioning. The results support our research questions and verify out hypothesis that

absorptive capacity will produce the maximum benefits from FDI and developing countries like Pakistan must focus on its absorptive capacity to get maximum benefits form FDI.

To check further the strength and accuracy of the final model, it is necessary to apply diagnostic tests like Serial Correlation test, Functional Form, Normality test and heteroscedasticity test. The result of these tests shows that the above selected model is better one, where the probability value of these tests are highly insignificant which means that there is no problem of serial correlation, functional form, non-normality and heteroscedasticity.

5.7 Error Correction Model (ECM) with Absorptive Capacity

Short run dynamics of ARDL describe the variability in short run dynamics and importantly the error correction term (ECT) which highlight converge of short run dynamics to long run equilibrium path. In this ECM lag of error term will be replaced by the linear combination of all variables including dependent variable and the interactive term of Absorptive capacity.

Table No 5.7: Short Run ARDL Estimates		
Dependent variable is the natural log of per capita GDP		
Regressor	**Model 3.A**	**Model 4.A**
ΔFDI	0.9198	0.1225**
	(0.7215)	(0.0654)
ΔAC	0.5692**	0.6438
	(0.2576)	(0.5799)
Δ(AC*FDI)	*NA*	0.4479***
	NA	(0.1500
Δconstant	0.3843***	0.2193***
	(0.0594)	(0.0170)
ecm(-1)	-0.1648**	-0.0748***
	(0.0888)	(0.0119)
Diagnostic Test Statistics (p-values)		
R-squared	0.5180	0.6120
R-bar-Squared	0.3685	0.4514
F	6.8777	5.8119
DW	1.3725	1.6827

The Error correction term (ECT) of Model 3.A is -0.1648 which shows convergence of the short run dynamics to long run equilibrium path of model. The ECT of Model 4.A is -0.0748 which is more significant as compare to the Model 3.A, it implies that the absorptive capacity of Pakistan will helpful in short term dynamics towards long run equilibrium path of the model in

rapid way. By seeing the above table 5.7 results; it can be concluded that Model 4.A converges to the long run in rapid way as compare to Model 3.A.

Estimation results confirm the hypothesis of study that absorptive capacity has significant impact on the economic growth of Pakistan in both periods of long run and short run analysis. The table describes the results of two models; firstly Model 3.A gives significant positive results of short run dynamic of absorptive capacity which is the important variable of Model and this research. FDI has no significant outcome in the period of short run because FDI is a long term investment and to generate spillovers impacts on the economic development; it requires time that's reason impact of FDI is not easily captured in short run analysis. Similarly, in Model 4.A gives the significant positive results of short run dynamics of interactive term which is most important in this Model because the significance of this term describe mutual impact of FDI and absorptive capacity on economic growth of Pakistan. In this model FDI has significant positive impact and the absorptive capacity gives insignificant impact while the interactive term gives the significant positive impact of the short term mutual dynamics of model on economic growth of Pakistan.

To check strength and accuracy of the short term final model, diagnostic test R-squared, R-bar-Squared, F test and Durbin Watson test (*DW*) are applied on both models 3.A and 4.A. The results of these test shows significant values which describe that in short run this model is also a better one which captures the short term correlation between the variables. Moreover the significance of test results increases in magnitude by including the absorptive capacity interactive term in case of model 4.A. This is reason the ecm(-1) significance level increases in model 4.A by including interactive term which predicts that it converge to long run equilibrium path more rapidly.

CHAPTER 6

CONCLUSION

This study is about to revisit the "Foreign Direct Investment (FDI) growth nexus of Pakistan" in a new dimension by highlighting the conditional significance of FDI on economic development. No doubt FDI is always welcome by every county and importantly developing economies which are much needed due to shortage of investing capital and some other important facts. A lot of practical efforts are available which describe the role of FDI on the host economies but with the passage of time and analyzing its role critically by using new techniques and identifying some important factors which were not included before. Now in this era, it is identified that FDI exerts diverse impacts country to country according to the structure and capacity of host economy but the interest of this study is capacity of host developing country as Pakistan.

Capacity means the absorptive capacity which is the key factor of this study and all the research revolve around to describe the importance of absorptive capacity at thresh hold level to generate positive significant impacts of FDI on economic development. The stance of this study is that absorptive capacity of Pakistan as an innovation which determines the impact of FDI on growth either as positively significant or insignificant or even negative and it didn't before. FDI exerts spill over impacts through different channels on the development of host country while these channels involve different important sectors of economy which facilitate to produce significant impacts and some major sectors of economy are considered as the absorptive capacity according to current dimensions of Pakistan.

This research is conducted to verify the hypothesis empirically in stepwise by seeing the solo impact of FDI on economic development of Pakistan in first phase while in next step FDI is

analyzed with other variables which represent as the proxy of important sectors of economy. In last phase the important interaction term is analyzed critically which conclude the whole story by highlighting the role of absorptive capacity in generating positive significant impact of FDI on the economic growth of Pakistan.

Absorptive capacity determinants are financial development, human capital development, trade openness and infrastructure while these all determinants are proved one by one as absorptive capacity of a country by different researches. Financial development shows the ability to handle the financial inflows and represent the banking structure development in a country which all contributes in economic growth. In this era, no one can grow without trade and specifically it much important for industrial development; simply trade openness describes the level of interaction with other countries in term of exports and imports. Human development describes as availability of educated skilled persons with in a country which attracts the foreign investors and properly contributes in the development of country by applying their energies. Infrastructural development is a prerequisite for any development of a country because it facilitates business to operate their functions properly and also contribute by enhancing the level of physical capital. Most importantly political stability is required to achieve the functioning of all above sectors in efficient way because it provides the stable environment and consistent economic policies which increase the confidence of investors by ensuring no risky environment for their business.

Absorptive capacity index is developed in case of Pakistan which is not done before by using PCA, it consists on the above determinants which describe as the capacity of absorbing, adjusting and transforming new knowledge into innovation. This index is helpful to control the huge data sets from 1970 to 2017 in a summarized shape to analyze the hypothesis of study in a

meaningful way whether PCA is much useful to develop this index without losing the information of data sets.

To check the relationship between dependent and independent variables, ARDL bound testing approach is used which give unbiased results to test the hypothesis of study while stationarity of variables are necessary condition for this technique either at different levels I(0) or I(1). In first case where FDI is solely regress on dependent side (GDP per capita) to check its impact on economic growth of Pakistan; the results show positive and significant which is according to the theoretical frame work of this research. It implies that FDI can generate significant impact on economic growth but stance of this study is different which states that the positive significant impact of FDI on economic growth is depends on the absorptive capacity of Pakistan. In this scenario the importance of interactive term is much increases because it finalizes the validity of hypothesis that either absorptive capacity is important or not to generate the positive spill over impacts of FDI on the economic growth of Pakistan.

In next step, FDI and other all variables are regressed on GDP of Pakistan to analyze the relationship of each variable with GDP while this step is also helpful to point out the individual significance of each variable on the economic growth which highlights the significance of that sector of economy. The results show that all the independent variables have significant relationship with economic growth of Pakistan; it highlights the importance of these specific sectors in the economic development and one more important thing about minimum working criteria has achieved. But it is needed to verify by the significant result of interactive term which is last step of estimation to test the hypothesis of research.

The absorptive capacity and FDI are mutually regress on GDP to check their combine impact on economic growth of Pakistan, if the result comes positive and significant than it

verifies hypothesis of this research which is a major breakthrough in FDI Growth nexus practical frame work. The result of the last step of interactive term shows positive and significant which verified the hypothesis and highlight one important side that FDI exerts positive significant impacts on economic growth of Pakistan only when the absorptive capacity is working as threshold level. These results also implies that absorptive capacity of Pakistan working at threshold level that's reason the interactive term gives significant value, so it required to enhance the absorptive capacity for more benefits by utilizing domestic resources at optimal level which assist to generate spill over impacts of foreign inflows at maximum.

Policy Recommendations

The present study suggests that the absorptive capacity of Pakistan should be enhanced as a whole. More clearly, the FDI cannot be flourished only by some specific economic deal. The absorptive capacity of Pakistan should be enhanced to reap the benefits of that economic deals. Importantly, we should make policies for the development of human capital which enhances its absorptive capacity by adopting new modern technologies which utilize the FDI to exert maximum benefits. Furthermore, there is a need of improvement of its physical infrastructure, trade openness and financial system which also boost up the absorption process to get maximum benefits from FDI.

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