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Title: FDI and Rising Inequality

Impacts of Foreign Direct Investment (FDI) on inequality in South Asia

Name: Tenzin Tamang

Supervisor: Dr Jan Fransen

Co supervisor: Mrs Rupinder Kaur (Msc)

Specialization: Urban Competitiveness and Resilience (UCR)

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MASTER'S PROGRAMME IN URBAN MANAGEMENT AND DEVELOPMENT

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Name: Tenzin Tamang
Country: Bhutan

Supervisor: Dr Jan Fransen
Co supervisor: Mrs Rupinder Kaur

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Summary

Globalisation facilitated economic integration of countries across borders to devise means and sources to fund activities to realize economic growth. And with the free flow of investments in the last decade, developing regions like South Asia displayed a consistent economic performance with substantial progress on the economic front. But despite South Asia's rapid economic growth, issues of inequality has become a top concern for the region. Studies have highlighted the occurrence of huge gaps between the wealthy and the poor in this region. Also, inequality in wealth distribution is one dimension of the inequality concern in South Asia. Other issues of disparity relating to gender are on the rise likewise. Many research claims that globalisation and its key components like FDI might have fuelled income inequality and have also affected men and women differently creating gender imbalances in the labour market for employment, wage and other opportunities.

As the countries in South Asia continue to liberalise policies to attract more and more FDI for economic gains, it was felt essential to study the relationship between FDI and inequality both from an academic and policy perspective. Many researchers have studied the impacts of FDI on inequality but the studies are mostly focused on the inequality of outcomes like income or wage inequality. The findings of the FDI and income inequality relationship is heterogeneous with diverse results in different locations and the link between FDI and inequality of opportunity is little explored. As growing inequality may also lead to reduced growth, political instability and social disharmony. The research aims to evaluate the impacts of FDI inflow on both income inequality (inequality of outcome) and gender inequality (inequality of opportunity) to explain the relationship between FDI inflow and inequality as a whole in South Asia (2005-2015).

The research studied the impacts of FDI and income inequality at a country level using Gini index and UNDP's inequality in income (%) as a measure of income inequality. The FDI and gender inequality (in employment) were deliberated at a country and a sectoral level (agriculture, industry, and service). A set of panel regressions with and without interaction terms were performed to evaluate the relationship. The outcome indicated that both the FDI-income and FDI-gender inequality relationship is a moderated causal relationship. The results suggested that the impacts of FDI on income inequality in South Asia were significant only when moderated by human capital. The moderating factors of the FDI inflow and gender inequality relationship were found to be varying across sectors.

The research also finds that the income inequality situation in South Asia remains varied in the period with some countries have experienced a drop in income inequality and others have witnessed a rise. The findings of the gender inequality situation in South Asia is shocking. It discloses that the female employment in South Asia experienced a moderate drop in the period indicating that despite South Asia's economic growth, gender inequality is gradually escalating in the labour market. A sectoral shift in female employment is observed with the agriculture sector witnessed a drop in female employment and the industry and service sector have experienced a gradual growth. But all the three sectors (Agriculture, industry, and service) in South Asia have experienced a rise in men employment (%) and a fall in the female employment (%) in the period (2005 to 2015). From the findings of the study, it appears that globalisation might have marginalized the role of women in the labour market.

Keywords

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Dedication

I dedicate this thesis to my parents and my wife.

Foreword

This thesis is part of MSc. in Urban Management and Development at Institute for Housing and Urban Development (IHS), Erasmus University Rotterdam, Netherlands. The purpose of this study is to analyse the relationship between FDI and inequality (income and gender inequality) in South Asia and to study the factors that influence the relationship.

Abbreviations

IHS	Institute for Housing and Urban Development
FDI	Foreign Direct Investment
MNE	Multi National Enterprise
ILO	International Labour Organisation
WIID	World Income Inequality Database
UNDP	United Nations Development Programme
ADB	Asian Development Bank
GPN	Global Production Network
USD	United State Dollars
CPIA	Country Policy and Institutional Assessment
GDP	Gross Domestic Product
ICT	Information Communication and Technology
GVC	Global Value Chain

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Chapter 1: Introduction

1.1.1 Background

Globalisation facilitated the integration of countries around the world marked by the movement of people, goods, and capital across borders. This phenomenon of globalisation amplified human activities beyond national borders for economic, social, political or technological grounds (Goldin and Reinert, 2007). This phenomenon of globalisation is defined as "the closer integration of the countries and peoples of the world which has been brought about by the enormous reduction of costs of transportation and communication, and the breaking down of artificial barriers to the flows of goods, services, capital, knowledge, and (to a lesser extent) people across borders" (Huwart and Verdier, 2013, Pg-13). The globalisation era is characterised by many series of events but the most significant attribute of the period is evaluated in terms of investments from industrialised to developing countries (Hofmann, 2013). These investments were mostly in terms of Foreign Direct Investments (FDI) from Multinational Enterprises (MNE) based in an industrialised country to a developing country. It is a key component of the globalisation period and a vital source of financial resource for emerging economies (Bhandari, Dhakal, et al., 2007).

Foreign Direct Investment (FDI) has consistently remained as a significant source of capital for many developing countries. The UNCTAD Report (2002) claims that by the year 2000, 40 % of the investment to developing countries were in the form of FDIs. The top priority in developing region is still to attain economic growth, therefore, the leaders and policy makers in developing countries are actively looking for ways to attract more FDIs to implement development activities. Tax barriers have been removed, attractive enticements and subsidy regulations are formulated to attract FDIs (Herzer, Klasen, et al., 2008). Many researchers also emphasize that FDI not only serves as a source of funds but also impacts the domestic market through different spill over channels (Borensztein, De Gregorio, et al., 1998).

The last few decades witnessed many issues raised and deliberated on the impacts of globalisation on economy and development of countries. Foreign Direct Investment (FDI) is one of the key drivers of globalisation and many researchers have raised concerns on countries limiting the consideration and impacts of FDI in terms of economic growth and neglecting other probable effects of FDI on the host countries (Mushtaq, Ahmad, et al., 2014). The inflow of FDI has aided countries to finance activities aimed to achieve economic growth but research has also highlighted that a country requires a good level of development in terms of education, technology, and infrastructure to efficiently utilize FDI (Hansen and Rand, 2006). There is much existing literature that has studied the impacts of FDI on the host country in terms of economic growth. But there are fewer studies evaluating the relationship between FDI and inequality which have become a key concern in many developing countries.

A similar situation of inequality is learned from the South Asian region. The South Asian region that includes eight countries of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka have been attracting growing number of FDIs and have achieved unprecedented economic growth in the last decade. According to the ADB report (2014) the yearly progress rate of the gross domestic product (GDP) in this region reached 7.0% in terms of 2005 purchasing power parity (PPP) dollars, thrice as high as that of the North Africa and Middle East at 2.4% and two times higher than that for Latin America and the Caribbean at 3.2%. The region's average per capita GDP in 2005 PPP terms amplified from $1,602 to $4,982. The percentage of the population living on or below the $1.25-a-day poverty line decreased from 54% in 1990 to 22% in 2008. Considering $2-a-day poverty mark, the rate of poverty reduced from close to 80% to about 45%. However, it is found that about 82% of this

region experienced increasing disparity of per capita income during the period of the 1990s to the late 2000s (Kanbur, Rhee, et al., 2014). Broadening disparities in income have become a major concern in this region despite the rapid economic growth and a mounting gap is witnessed amid the "haves" and the "have-nots" (Kanbur, Rhee, et al., 2014).

However, the subject of inequality is multifaceted and income disparity is only one form of inequality. There are also other aspects of inequality that persists in the South Asian region despite the economic growth and changing social norms. Inequalities with respect to gender in the labour market remains a critical issue and women in this region face diverse challenges relating to education, employment, wages and other opportunities. The gender gap in the labour market is distinct in the region with segregation and concentration of women in certain sectors which are lowly paid and insecure. Also, a large percentage of the female population is annually observed to migrate to other places or represent the informal markets due to lack of opportunities in the region (ILO and ADB, 2011).

ADB (2009) highlights that substantial differences exist between the men and women in the labour market in many countries of developing Asia, particularly South Asia (Niimi, 2009). According to ILO (2016), the South Asian region experienced a widening gender gap in labour participation by 2.3% in the period of 1995 to 2015 and the female employment to population ratio is three times lower than that for men (ILO, 2016). Generally, inequality has become a major concern for the leaders of this region. Amidst the debates and deliberations of probable impacts of FDI on the host countries in generating disparities; FDI in Asia has risen tremendously, largely encouraged by liberal policies and removal of investment barriers. A myriad of factors triggered the promotion of these policies, including rapid improvements in technology, the advent of global and regional production networks, forging of bilateral investment agreements, policy advice coming from international agencies, and increasing recognition of the economic effects of FDI (ADB, 2007).

In this context, developing and executing an advancement strategy that delivers growth with equity ensuring inclusive growth is a top concern for the developing nations of South Asia. However, the challenge remains in understanding the causes of rising inequality in South Asia in the last decade despite achieving unprecedented economic growth. Similar observations of inequality in developing regions has stirred deliberations on the efficacy of FDI in promoting growth and reducing inequality. Many researchers have explored the relationship of FDI and inequality on different geographic locations and have found diverse results. Despite many studies conducted the link between FDI and inequality is largely unclear and the relationship is still to be explained evidently (ADB, 2012). Also, most of the previous studies have linked FDI and inequality in terms of financial aspects and have found mixed conclusions to the relationships. The research findings linking FDI and inequality positively provide little scrutiny of other aspects of inequality of opportunities like gender inequality. It also lacks reasons of whether or how the impact occurs and why it varies across the different sectors of a host country. In this context, a need to study the impacts of FDI on inequality in South Asia has been felt essential to emerging at a consensus on determining the eventual impact of FDI on host economies that can be used as a guideline for framing holistic policies to address inequalities in all segments of society including gender disparity.

1.1.2 Problem statement

"We have reached a tipping point. Inequality can no longer be treated as an afterthought. We need to focus the debate on how the benefits of growth are distributed" (OECD, 2015).

Globalisation facilitated economic integration of countries across borders to devise means and sources to fund activities aimed to achieve economic growth. Most South Asian countries started liberalisation for trade and FDI in the 1990s and since then has become an integral part of the global investment networks (Siegmann, 2006). With the free flow of investments in the last decade, South Asia displayed a consistent economic performance with substantial advancement in the economic front. But despite South Asia's rapid economic growth, issues of inequality has become a top concern for the region. Studies claim that broadening disparities in opportunities and income has plagued the region with about four-fifths of the population of most of the countries in this region are becoming more uneven in varied ways (Kanbur, Rhee, et al., 2014). Studies have highlighted the occurrence of huge gaps between the wealthy and the poor in this region. Extravagant prosperity at one side and mere lack of basic services at the other. (Rama, Béteille, et al., 2015). Also, inequality in wealth distribution is one dimension of the inequality crisis in South Asia. Other issues of disparity relating to gender are on the rise likewise. Some researchers claim that globalisation and its key components like FDI have impacted men and women differently and has generated gender imbalances in the labour market for employment, wage and other opportunities (Siegmann, 2006).

As inequality may lead to reduced growth, political instability and social disharmony, devising policies and frameworks to control the issues of multifaceted inequality in the South Asian region has become essential to be addressed by the policy makers and leaders of the region (Kanbur, Rhee, et al., 2014). As the primary goal of this region is to attain economic growth, it has become crucial to elucidate the FDI inflow and inequality in South Asia because FDIs are key sources of investment for most of the developing countries. This, in turn, will enlighten and assist policy makers to frame holistic policies to realise optimistic impacts of FDI inflows and reduce inequality. The society cannot be left to split by wealth, gender or race because inequality engenders social issues and disharmony in the society. It is also claimed that it limits the potential of economic growth by reducing the efficiency and utilisation of opportunities (Milanovic, 2007).

Many researchers have studied the impacts of FDI on inequality but the studies are mostly focused on the inequality of outcomes like income or wage inequality. Also, the findings of the FDI and income inequality relationship is heterogeneous with diverse results in different locations. On the other hand, the link between FDI and inequality of opportunity is little explored. Some of the studies assert that FDI fosters rapid economic growth but also uplifts uneven income distribution in the host nations caused by low conditions of technology, limited human capital and weak institutional environments in the host country (Basu and Guariglia, 2007, Choi, 2006, Zhang and Zhang, 2003, Jaumotte, Lall, et al., 2013).

Many others claim that FDI promotes growth and declines income inequality by improving the productivity of labour and domestic firms which improve their earnings (Lipsey and Sjöholm, 2004, Msweli, 2015, Feenstra and Hanson, 1997, Reuveny and Li, 2003a, Chintrakarn, Herzer, et al., 2012). There are also other studies affirming that the FDI inflow does not impact the inequality situation in a host country (Pan-Long, 1995, Sylwester, 2005, Bussmann, De Soysa, et al., 2002, Hemmer, Krüger, et al., 2005). Prevailing literature on the effects of FDI on the gender inequality is still limited, however, (Rivero, 2007) found that FDI had significant positive effect on gender inequality. (Braunstein and Brenner, 2007) also, assert a positive relationship between FDI and gender inequality in semi-industrialised countries. (Aguayo-Tellez, 2012) claimed that FDI inflow and gender inequality relationship were found to be

varying across sectors depending on the industry structure and skill endowments of men and women.

In the context of this debate on issues of inequality in South Asia which may lead to reduced growth, political instability and social disharmony, the mixed findings of the link between Foreign Direct Investments and income inequality and the lack of studies relating FDI inflow to inequalities of opportunities. *This research attempts to go beyond existing research and relate to the existing debate in an innovative way by adopting three simple innovative approaches* in the study to enlighten and assist policy makers to frame holistic policies to promote equality and inclusive growth in South Asia.

> ➢ The first approach will be to link FDI to both the income inequality (inequality of outcome) and gender inequality (inequality of opportunity) to assess the impacts of FDI on inequality as a whole.

> ➢ Most of the existing gender studies have been focussed on the manufacturing sector. This study will effort to analyse the impacts of FDI on gender inequality in all the three sectors (Agriculture, industry, and service) to better understand the impacts of FDI on gender inequality depending on the industry structure. The findings of this research will assist in the formulation of better public policies identifying the sectors where FDI has worked well for women and sectors which have not.

> ➢ The research intends to go beyond the simple account of the cause and effect relationship. Hence, the third approach will be to study the factors that influence the FDI-inequality relationship as a whole by deliberating on moderation effects of the absorption capacity (human capital. physical infrastructure and institutional settings) on income and gender inequality relationship. Ascertaining the role of this factors in the FDI-inequality relationship will enlighten policy makers to create conditions in the host country that will enable equitable distribution of the benefits of FDI.

1.1.3 Research objective

> ➢ To explain the relationship between FDI inflow and inequality in South Asia

1.1.4 Research question

To what extent FDI inflow has an impact on inequality in the South Asian countries from 2005-2015?

1.1.4.1 Research sub-questions

> ➢ What are the impacts of FDI inflow on income inequality in South Asia?
> ➢ What are the impacts of FDI inflow on gender inequality in South Asia?
> ➢ What are the factors that influence FDI inflow and inequality relationships in the South Asian countries?

1.1.5 Significance of the Study

Scientific: Most of the studies related to the impacts of FDI on the host economy is determined on the positive impacts of FDI in terms of economic growth and development. The probable negative impacts of FDI are largely disregarded by most of the policy makers in developing countries. FDI undoubtedly is a vital source of capital for many developing countries around the world but there is also much research asserting the possible negative impacts of FDI on host countries. In this perspective, studying the impacts of FDI inflow on inequality in the host

country is a highly debated topic deliberated and studied by many researchers in recent times. However, most of the existing studies have linked FDI to the material aspect of inequality in terms of income or wage inequality and the effects of FDI on Inequality of opportunities like gender inequality is little explored. The existing studies focused on the FDI inflow and income inequality relationship does not have common findings and is largely heterogeneous despite many studies. The impacts of FDI on inequality in context to South Asia as a whole is a little-explored topic with studies focused on the region is largely based on larger countries like India and Pakistan. Therefore, this study will look to extend the limits of existing research and literature with findings and suggestions on the FDI inflow and inequality as a whole by linking FDI inflow to both facets of inequality which are inequality of outcome and opportunity in the context of the South Asian countries.

Policy: As FDI fills the gap of investment for executing development goals, most of the developing countries are blindfolded by the positive impacts of FDI. This research aims to better inform policy makers of countries in South Asia about the possible negatives of FDI inflows in the host nations. The research also intends to study factors that determine the impacts of FDI inflow on inequality in the recipient country. Existing studies are concentrated on one facet of inequality like income inequality which does not provide comprehensive measurements of the inequality issues in the society. The strength of this research is the inclusion of gender perspective to inequality considering the fact that South Asia has pressing inequality issues related to gender. This study will stimulate policy makers to formulate not only the policies to bridge the gap between the "haves" and the "have-nots" but also gender sensitive policies for achieving inclusive growth. In conclusion, this study will support policy makers to make interventions to address the issues of inequality in the South Asian region.

1.1.6 Scope and Limitations

Figure 1: Study Area
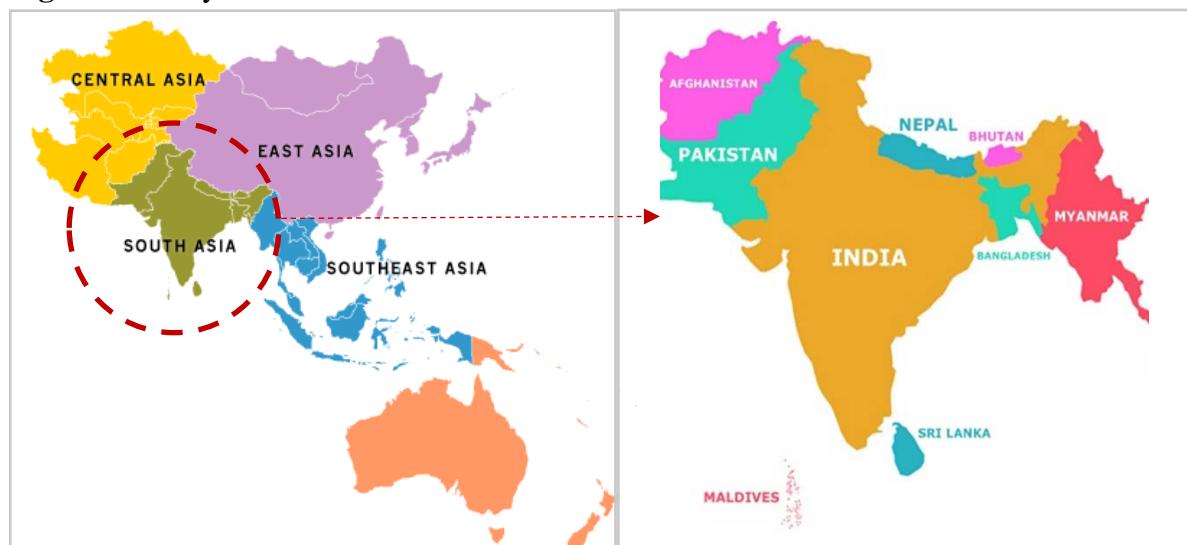
Source: google maps

The scope of the study will be delimited to the eight South Asian countries of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The research will use the available secondary data of FDI inflow and inequality in terms of income and gender at a country and sectoral level. Considering the wide geographical scope of the study, the research will be delimited to the study of the impacts of FDI inflow on inequality at a country and sectoral level but will not study the impacts of FDI inflow on inequality at a city level.

The study will be based on secondary data and no primary data of income or employment at households will be collected. The data for the analysis will be a panel data of the last 10 years (2005-2015). The FDI inflow and income inequality relationship will be a country level study using the data of FDI inflow at a country level. Gini Coefficient and inequality in income (%) will be used as the indicator of income inequality. The impacts of FDI inflow on gender inequality will be investigated at both the country and sectoral level. The female employment data as a measure of the parity in gender employment in the three sectors of Agriculture, industry and service sector will be adopted as the indicator of the gender inequality. The research will also attempt to explain the moderated causal relationship between FDI inflow and inequality (income and gender) by using indicators of absorption capacity like the human capital, physical infrastructure and institutional settings as the moderating factors in the relationship. The outcomes of the moderated causal relationship will ascertain the factors that moderate the FDI inflow and inequality relationships in the South Asian countries.

A major limitation of the study is the unavailability of the exact required data to operationalize the variables of the study. In this case, proxy indicators have been used to indicate the various moderating variables to perform a regression with and without interaction to study the relationship between FDI inflow and inequality. The panel data in this study is for the period of 2005 to 2015 but there are missing values in the Gini coefficient data. Also, there are missing values for the some of the indicators of the absorption capacity which lowers the number of observations in the regression model. As inequality is expected to change slowly, a longer time span would have been preferred but the unavailability of data restricts the study to a period of 2005 to 2015. Gender inequality is a broad concept and can be evaluated in many different perspectives and scenarios. Accordingly, this research studies the impact of FDI inflow on gender inequality in terms of employment and may not highlight the definite extent of gender inequality in other areas.

Two regressions with and without interactions were performed for the FDI inflow and income inequality relationships using Gini index and inequality in income as the dependent variable to achieve robust results. Similarly, multiple regressions with and without interactions were performed for the FDI inflow and gender inequality relationship at a country and sectoral level (agriculture, industry, and service). Though a common set of indicators of human capital, physical infrastructure, and institutional settings have been used as moderating variables and also a common set of the control variable in all the regressions. But a possible limitation in comparing the results is observed due to the differences in the number of moderating and control variables in the final analysis and the output of the regressions mainly because of the different responses in the assumptions tests.

Chapter 2: Literature Review / Theory

2.1 Introduction

In this chapter existing literature related to FDI and inequality will be reviewed to place this research in the context of what is already studied about the topic. It will look to establish a theoretical basis for this research based on the existing theories and concepts on the relationship between inward FDI and inequality. The chapter will start with the review of existing literature on the globalisation, Foreign Direct Investment (FDI) and Multinational Enterprise (MNE) to expand the understanding of the independent variable FDI and its role in developing countries. Then the study will attempt to explain the concepts of inequality (outcome and opportunity) and review the existing literature on FDI and inequality (gender and income) relationship. Lastly, the chapter will study the moderation role of the absorption capacity in the FDI and inequality relationship. The absorption capacity will be divided into human capital, physical infrastructure, and institutional settings.

2.2 Globalisation, FDI and MNE

Since the 1980s, free capital flow among countries across the globe marked the start of an era that empowered developing countries to fill the gap for insufficient capital to promote economic growth (Prasad, Rogoff, et al., 2007). This era of globalisation facilitated in realising economic growth as a primary target achieved by the close integration between the countries by reducing costs of transportation and removing obstacles to ease the flow of goods, services, capital and people across borders (Huwart and Verdier, 2013). However, the most important trait of the globalisation era is mainly evaluated by the volume of cash flow in terms of international trade, Foreign Direct Investment (FDI) and other forms of cash transfer across borders (Hofmann, 2013).

The opening of borders and markets have accelerated cash flows amongst countries rapidly in the last decade. By early 2000, FDI has become the largest source of capital for developing countries accounting for up to 40% of the total capital flows into developing countries (Treviño and Mixon Jr., 2004). FDI is a key indicator of the financial globalisation era and a highly sought source of capital by most of the developing countries to fill the financial resource gap (Bhandari, Dhakal, et al., 2007). It is generally considered as the instrument or as a source of fostering economic growth of countries. It enables emerging countries to facilitate developmental activities without lack of capital funds. The inflow of FDIs have profited different sectors of the recipient countries and have significantly contributed to the betterment of their productivity in terms of technology and even in the development of market economies. It has successfully acted as a vehicle for fostering rapid economic growth and narrowing the performance gap between countries in many cases (Fifeková and Nemcová, 2015).

However, the lack of empirical studies and evidence on the effects of FDI on diverse economies makes it elusive and it is highly probable that the effects of FDI on the different economies can vary depending on various factors (Blonigen and Wang, 2004). Despite the varying effects of FDI on different economies, FDI has become an important element of economic integration for developing countries and a link to the global value chain (Farole and Winkler, 2014). Many countries have been driven to formulate liberal policies to attract FDI to a greater extent by devising attractive enticements for Multinational Enterprises (MNEs) from advanced countries. For instance, the establishment of special economic sectors in China and 'cyber port' in Hong Kong aims to attract FDIs by providing subsidised infrastructure and tax holidays to MNEs (Farole and Winkler, 2014).

Multinational Enterprises (MNEs) have been commonly defined as large business units that make investments in potential businesses usually outside the home country in multiple locations and also controls the activities (Gilroy, 2005). Some other studies have expressed MNEs as large enterprises with no less than 5 % consolidated assets from FDI, voting rights of 25% in a minimum of three countries and a sales worth of at least $75 million from foreign ventures (Stopford, Dunning, et al., 1982). In the past developing countries considered MNEs as harmful to development fearing exploitation of resources but presently MNEs are reflected as a solution for development not only for reasons that it finances many activities but also brings new technology and innovation together with it (Treviño and Mixon Jr., 2004)

MNEs considers many factors before making investments in foreign dealings: attractive enticements and the available resources play a major role in attracting the FDIs. The three paradigms of ownership advantage, location advantage (Dunning, 2001) and internationalisation (Dunning, Pak, et al., 2007) are used by MNEs to study and strategize investments in foreign locations. Ownership advantages ascend from the possession of intangible resources like patents, innovation capacity, availability of raw materials, finance and control of the market for buying and marketing. This benefits usually offer unique competitive advantages to the MNEs (Brouthers, Brouthers, et al., 1996). Three conditions that inspire ownership advantages comes from monopoly (Hymer, 1976), resource-based perspective and dynamic capabilities (Teece, Pisano, et al., 1997).

Location advantages are offered either by natural or artificial differences between the countries. The difference in the availability of natural resources and artificial factors like tax, cultural, political and technical specifications arises from this sort of advantages. These advantages are described by the characteristic of the host market and are searched upon by MNEs to associate to ownership advantages. The internationalisation paradigm allows MNEs to evaluate and frame alternate strategies based on the location and strength of different countries (Dunning, 2001). These three paradigms explain the factors that affect the decision of MNEs to sort out countries to take up foreign activities and assign FDIs.

2.3 Inequality

Globalisation led the integration of the countries across the globe that led to unprecedented levels of economic growth but there are growing concerns of widening disparities in the society as a consequence of the rapid economic development (Kanbur, Rhee, et al., 2014). The benefits of growth were initially thought to be benefitting everyone eventually (Kuznets curve) but gradually research started to reveal that the process of growth was accompanied by the uneven distribution of the benefits of growth in the society (Afonso, LaFleur, et al., 2015). Inequality not only generates social issues and disharmony in the society but also limit the potentials of economic growth by reducing the efficiency and utilisation of opportunities. Rising disparity is believed to adversely affect the positive effects of globalisation by the disproportional distribution of benefits and losing the support of the population in the host nation. However, the debate on the distributional effects of the global integration process is split between the views of two groups of researchers. One group upholds the view that impact of globalisation is equally dispersed among all groups of people and the other group argues that the benefits of achieved growth are not equally distributed in the society (Milanovic, 2007).

In deliberating on the rising inequality issue usually, studies have focussed especially on the economic aspect of the inequality but it is vital to recognise the multidimensional aspect of inequality. In the recent years, factors like education, health and opportunity have added a new dimension to the inequality issue. For example, good health enables an individual with many benefits not measured by income. Covering the multi-dimensional aspect of inequality the two distinguished concepts of inequality are: inequality of outcome and inequality of opportunities

(Kanbur, Rhee, et al., 2014). Inequality of outcomes occurs when material wealth is not equally distributed and individuals do not hold equal wealth or living economic conditions. Economists evaluate the progress in this type of inequality by the comparison of income distribution and consumption levels (Afonso, LaFleur, et al., 2015). Inequality of opportunity reflects on the 'capability framework' approach developed by Amartya Sen (1970) which added a new dimension to the evaluation of the concept of well-being. It explored well-being on the basis of an individual's ability to do or to be; emphasising the right to choose one thing over the other (Sen, 1993). In this context, evaluating inequality in terms of income did not explain to all situations of an individual highlighting dependence on other personal and social factors: age, gender, family and other societal conditions (health care and education). Inequality of opportunity highlights on balancing opportunities and not only income as a means of living to enable people with the freedom and right to choose their own life (Afonso, LaFleur, et al., 2015).

The issue of inequality needs to be prioritized by the policy makers in all countries because addressing the issue of inequality is in itself an aspect of improving the society but the significance of solving this issue can have a larger impact on the society. If the benefits of development are distributed equitably, it can be a strong basis for reducing poverty and a strong groundwork for a sustainable future development (Kanbur, Rhee, et al., 2014). Inequality and poverty are linked to each other directly or indirectly. Poverty is found to be sensitive to the income distribution changes that lead to inequality. There are studies asserting that the issue of poverty can be reduced through an equitable distribution of income and it is believed that economic growth and equitable distribution are not rivals in the fight to poverty reduction but are complementary to each other. Equitable distribution of income and asset can enhance economic growth whereas higher inequality can deter the growth (Naschold, 2002).

Inequality in the society can cause misallocation of human capital with the poor lacking resources to invest in human capital or income generating sources. Hence, the chances of the underprivileged remaining poor are very high. The uncertain financial market with hefty accountability and constraints restricts the poor to borrow money for making possible income generating activities. Similarly, smaller businesses are also constrained to access the market to find financial resources to invest in opportunities (Kanbur, Rhee, et al., 2014). Broadening inequality issues can separate out the middle class in the society with the few rich at the top and poor at the bottom. Middle-class group in the society is considered to be a vital building block of growth and provides stability in the society: "growth driven by and benefiting a middle class is more likely to be sustained – both economically to the extent that the problems of rent-seeking and corruption associated with highly concentrated gains to growth are avoided; and politically to the extent that conflict and horizontal inequalities between racial and ethnic groups are easier to manage when not only is the overall size of the pie growing but everyone is enjoying bigger slices"(Birdsall, 2010 pg-1).

2.3.1 FDI and gender inequality

Gender inequality is a prominent example of inequality of opportunity which is a result of circumstance and is not under the control of an individual. It refers to the unequal treatment of individuals due to their gender and as per ADB (2009), gender inequality is evaluated in three spheres of capabilities, access to resources and opportunities, and security. The dimension of capability refers to abilities evaluated in terms of education, health and nutrition which are necessary for accessing opportunities and are essential for the well-being of an individual. The domain of access to resource and opportunities refers to the parity in the opportunity to use capabilities for generating income, assets and taking a role in the political decision-making

process. The third and the last domain of security refers to the concerns of vulnerability relating to violence that can reduce abilities of an individual to fulfill their potential (Niimi, 2009).

The impacts of FDI on inequality in terms of gender is largely unclear with relatively few studies have examined the impacts of FDI on gender inequality. Aguayo and Tellez (2012) studied the impacts of FDI on gender inequality in employment and wages in developing and developed countries. The findings suggest that the FDI and gender inequality are positively correlated in developing countries. The impacts, however, vary across sectors depending on the industry structure and skill endowments of men and women. The observed gender gap is largely explained to be occurring because of the technological advancement of industries and most of the women were found to be less skilled compared to men (Aguayo-Tellez, 2012).

Siegmann (2006) explicates two possible means in which FDI inflows in developing countries can impact gender inequality in the labour market. Due to the global competition, the MNEs strategies are mostly motivated in cost reduction by forming labour intensive markets that lead to the likely employment of female workers with a lower salary. On the other hand, foreign firms with advanced technology and skills commonly involve skilled labour force with higher education. In this perspective, gender gaps in the labour market of the local economy may be ignited due to men worker's superior ability in the skill-intensive industry (Siegmann, 2006). Randriamaro (2005) claims that FDI led foreign firms to generate competition in the local market leading to employment losses and shut down of small local firms in the informal sector which are mostly dominated by female entrepreneurs that sources gender inequalities in employment (Randriamaro, 2006).

Vijaya and Kaltani (2007) examined a cross-country data of FDI inflow and wages in the manufacturing sector. The findings assert that FDI inflow adversely impacted the wages in the manufacturing sector and the impact was found to be stronger for female workers. The overall impact of FDI inflow on wages is explicated in terms of the lower bargaining power of the local labour force caused by free movement of investments across borders for the most favourable conditions. However, from a gender perspective, the stronger impact on wages of the female worker is due to the vulnerability of female workers and lesser bargaining position compared to men (Vijaya and Kaltani, 2007). Oostendorp (2004) also conducted a cross-country study examining the impacts of FDI inflows on gender wage gap. The findings suggest that the FDI inflows narrow gender gaps relating to wages for low-skill occupations in both developed and developing countries. But it is found to be widening the gender wage gap for high-skill occupations in developing countries. The institutional settings regarding wage distribution played a significant role in determining the impact of FDI inflow on gender wage gap in most of the countries examined (Oostendorp, 2004).

2.3.2 FDI and income inequality
The concern of rising inequality in many parts of the globe has ignited abundant researchers to study the effects of FDI on income inequality. In the last decade, the association between FDI and income inequality has been explored in many different locational contexts and the findings are heterogeneous. The existing literature and theories provide contradictory results and fail to converge at a common finding. One group of scholars emphasise that FDI stimulates the economic growth of the host country and reduces income inequality. On the other hand, other groups consider FDI makes the local market vulnerable by crowding effect on local investments, dependence and generate disparity in the host country (Wan, 2009).

The potential of FDI affecting the income patterns of a host country can be explained using two theories: Neo-classical theory and Dependency theory. From the perspective of neo-classical theory, FDI carried knowledge improves labour productivity which leads to higher wages. Similarly, technology and capital improve the productivity of the domestic firms with

improvement in organisational and production method improving income conditions in the host economy (Vijaya and Kaltani, 2007). On the other hand, dependency theory asserts that investments from MNEs can harm domestic economies and create disparities in the host country (Firebaugh and Beck, 1994). There are different interpretations explicating the possibilities of this occurrence in developing countries. Evans and Timberlake (1980) claims that FDIs distort the labour force structure with the disproportional growth of labour force employed in one particular sector (Evans and Timberlake, 1980).

Parantap Basu and Alessandra (2007) investigated the effects of FDI on income inequality using a panel data of 119 developing countries over a 29 year period (1970-1999) and found that the inflow of FDI in this countries promotes both inequality and growth. The main prediction of their model concluded that FDI and income inequality are positively correlated. The risks of FDI exacerbating inequality can be high in an environment where the access to technology will be limited to the poor (Basu and Guariglia, 2007). Changkyu Choi (2006) tested a similar model using pooled data for 119 countries over a nine-year period 1993-2004) and found that the Gini coefficient (income inequality) in the model increased with the increase in FDI stocks as a measurement of the progress in GDP. However, the increase in real GDP reduced income inequality in a country. The other significant finding in this model asserted that outward FDI was more detrimental on income distribution than inward FDI (Choi, 2006).

Xiaobo Zhang & Kevin H. Zhang (2003) created a model using a data set over a 12 year period (1986-1998) and used a quantitative method to decompose the effects of inward FDI and foreign trade on the widening inequality in China. The findings from the literature suggested that globalisation in terms of FDI and foreign trade played a vital role in stirring inequality in China by creating regional comparative advantages which divided the labour and capital market promoting inequality in Chinese economy (Zhang and Zhang, 2003). Pan-Long Tsai (1995) examined the relationship of FDI and income inequality with samples collected from least developed countries (LDC) and adopted data comparability and model specification for studying the correlation between FDI and income inequality. The findings emphasise that FDI played a significant role in the unequal income distribution in the LDC region (only South Asia and South East Asia) in the 1970s (Pan-Long, 1995).

Eunyoung Ha (2012) used a pooled time-series data to conduct a data analysis to examine how globalisation has affected income distribution in 59 LDC countries in the period of 1975 to 2005. The measure of globalisation was measured by the trade flows and FDI in the region. The result exhibited that increasing trade flows and FDIs in the region significantly extended the income inequality in this countries. It also highlights the vitality of government ideology in formulating policies to shape the outcome of globalisation (Ha, 2012). Jaumotte, Lall, and Subir (2013) examined the relationship between rising inequality, trade and FDI using a panel data of the period 1981 to 2003 from 51 countries from both the developed and developing region. The paper suggests that increased trade reduces inequality but FDI tends to rise inequality. The paper also suggests that technological advancement plays a vital role in changing the demands of the labour market for skilled and unskilled labour which eventually creates income disparities in the society (Jaumotte, Lall, et al., 2013). Rafael Reuveny and Quan Li (2003) also led an empirical analysis of 69 countries for the period 1960 to 1996 to understand the relationship between Economic openness, democracy, and income inequality. Economic openness was measured by the trade flows and FDI inflows. A comprehensive set of Gini-coefficient data was used as the measure of inequality. The authors find that the trade reduced income inequality but FDI was found to share a positive correlation with income inequality and was associated with increasing income inequality (Reuveny and Li, 2003a).

Msweli (2015) empirically examined a panel data of South Africa covering the period of 1956-2011 to establish a relationship between the FDI and income inequality in the region. The empirical results explicate a negative relationship between FDI and income inequality for the studied period. The findings suggest that the FDI are more responsible for reducing inequality in the region but GDP was found to share a significant positive correlation with income inequality (Msweli, 2015). A data analysis of capital inflows and wage inequality of Mexico was studied by Feenstra and Hanson (1997) covering the period of 1975-1988 and the results suggested that FDI shares a positive correlation with the relative demand for skilled worker contrary to findings and suggestions of many kinds of literature. The increase in demand of skilled worker improved the wages of a large percentage of the workers that distorted the wage conditions in the market causing inequality (Feenstra and Hanson, 1997).

Lipsey and Sjoholm (2004) studied the effect of FDI on the local wages of Indonesian manufacturing sector and the examined period was adjusted based on the availability of data. It was observed that FDI instigated significant spillovers effects to the local wage market affecting the wages of both the white and blue collar in a similar way representing strong effects of FDI on inequality. The influence from FDI improved the overall wage in industries reducing inequality (Lipsey and Sjöholm, 2004). (Jensen and Rosas, 2007) also found that FDI in Mexico led to a reduction in income inequality at the state level for the period 1990-2000.

Herzer and Nunnenkamp (2011) conducted a macroeconomic analysis of the effects of FDI on income inequality in 10 European countries in the period of 1980 to 2000. The results from the casualty technique they adopted suggested three possible relationships between FDI and income inequality in this countries. FDI enhanced income inequality in the short-run but in the long-run FDI reduced income inequality. The FDI-income inequality relationship was observed to be two-ways: FDI reduced inequality and higher inequality led to less FDI inflows. However, the results varied for some places like Ireland and Spain which exhibited a positive correlation between FDI and income inequality (Herzer, Hühne, et al., 2014). Chintrakarn, Herzer and Nunnenkamp (2010) also explored the relationship between FDI inflow and income inequality in 48 states of the United States using state-level panel data for the period 1977-2001. From the analysis, it was observed that the effects of FDI inflow on income inequality were insignificant in the short-run. On a longer-run, FDI inflow and income inequality displayed a negative correlation. However, the result of the analysis was heterogeneous with 21 states displaying a positive correlation between FDI and income inequality (Chintrakarn, Herzer, et al., 2012).

Despite many debates on the impacts of FDI on income inequality of the host country, there is also literature that claims that FDI has no influence on the income distribution pattern of the host country (Sylwester, 2005, Bussmann, De Soysa, et al., 2002, Hemmer, Krüger, et al., 2005). Kevin Sylwester (2005) empirically examined the FDI and income inequality relationship using data of less developed countries from the period 1970 to 1989 and the results suggested that FDI was positively associated with economic growth but there was no association between FDI and income distribution. Similarly, (Bussmann, De Soysa, et al., 2002) and (Hemmer, Krüger, et al., 2005) did not find significant effect of FDI on income inequality. Apart from these studies supporting different theoretical perspectives, there are few other studies that claim that the impacts of FDI on income inequality depend on specific characteristics of the host country termed as "absorption capacity". (Wu and Hsu, 2012) studied the impacts of FDI on income inequality using a cross sectional dataset of 54 countries (1980-2005). The results indicated that FDI may escalate income inequality in countries with low absorption capacity. (Meschi and Vivarelli, 2007) also asserted that the impact of FDI on income inequality depends on the absorption capacity of the host country.

In summarizing the main study results, the FDI and income inequality relationship are based on two theoretical perspectives leading to contesting views. There are also studies that claim no association of FDI with income inequality. And there are other few studies followed a different approach to explain the relationship: the short and long term effects of FDI on income inequality and the role of absorption capacity in the relationship.

Table 1: Summary (FDI-income inequality)

Sl.no	Literature	Main study results
01	(Msweli, 2015, Feenstra and Hanson, 1997, Lipsey and Sjöholm, 2004, Jensen and Rosas, 2007)	Asserts a negative relationship between FDI and income inequality. It is based on the neoclassical theory which asserts the positive distributional impacts of FDI in terms of capital, knowledge, and technology leading to the growth of the host economy reducing income inequality.
02	(Basu and Guariglia, 2007, Choi, 2006, Zhang and Zhang, 2003, Ha, 2012, Jaumotte, Lall, et al., 2013, Reuveny and Li, 2003b, Pan-Long, 1995)	Asserts a positive relationship between FDI and income inequality. It is based on the dependency theory which claims that FDI fuels income inequality in the host country by creating dualism and segmentation in the labour market.
03	(Sylwester, 2005, Bussmann, De Soysa, et al., 2002, Hemmer, Krüger, et al., 2005)	FDI does not impact income inequality.
04	(Herzer, Hühne, et al., 2014, Chintrakarn, Herzer, et al., 2012)	Asserts that FDI fuels income inequality in the short-run and reduce income inequality in the long run.
05	(Wu and Hsu, 2012, Meschi and Vivarelli, 2007)	The impact of FDI on income inequality depends on the absorption capacity of the host country

Source: Author, 2017

2.4 Absorption capacity as a moderating factor

FDI is primarily seen as a source of capital for most of the developing countries but it also impacts the host country by knowledge and new technology spill over from parent MNEs to the local firms (Gorg and Greenaway, 2004) which in turn plays a vital role in developing situations causing inequalities of outcome and opportunities in the host countries. The FDI-inequality Nexus has been studied by many researchers and many claims that this impacts of FDI on the host country are varied (Borensztein, De Gregorio, et al., 1998, Flexner, 2000). From the Neo-classical theory perspective, it fosters parity in the host country by creating jobs, innovation, transferring knowledge and skills to the residents and the local firms (Hoang,

Wiboonchutikula, et al., 2010). On the other hand dependency theorist reasons that the investment dependence of emerging economies on the MNEs of advanced countries have harmed the local economies and generates disparity in the host country caused by the dis-propionate distribution of the benefits of FDI and reduces the welfare of the host country (Firebaugh and Beck, 1994).The evidence on the FDI-inequality relationship has differing results and theories.

Research claim that the impacts of FDI on the host country in creating conditions in the host country that generate inequality vary depending upon capacities of the host country mentioned as 'absorption capacity' which indicates the maximum amount of FDI that a country can utilize in an effective way (Kalotay, 2000). Researchers have recognised factors like human capital (Blomstrom and Kokko, 2001, Khordagui and Saleh, 2013, Borensztein, De Gregorio, et al., 1998), physical infrastructure (Kinoshita and Lu, 2006) and institutional settings (Khordagui and Saleh, 2013) of the host country altogether define the absorption capacity of the host economy.

2.4.1 Human capital

In the process of development, receiving new knowledge and ideas from an external source like MNE is vital for emerging economies. But receiving advanced knowledge and adopting the external acquisition while integrating it in the existing market is a challenging task (Lund Vinding, 2006). In this context, human capital can be considered as one of the most important components required to advance the absorptive capacity of the domestic firms and host economy as a whole (Nguyen, Duysters, et al., , 2009). Most of the MNEs (Multinational Enterprise) hold advanced knowledge and information and transfers new concepts and technological advancement to the host country using FDI as the medium of transfer. The newly acquired knowledge enables host economies to create new varieties of capital goods at a cheaper cost. However, for the host nation to utilise it efficiently the domestic market need to possess adequate qualified and skilled human capital. The human capital in this context is the knowledge and skill of the local residents in host country achieved by education or training which determines their productivity (Borensztein, De Gregorio, et al., 1998).

Blomström and Kokko (2001) suggests that FDI and human capital interaction is complex. FDI and human capital share a two-way interaction: FDI inflows generate knowledge spillovers in the local market and on the other hand the potential of the local market in terms of availability of skilled and qualified human capital influences the rate of FDI attraction and assimilation in the host economy. For instance, economies with highly qualified and skilled labour force might attract advanced MNEs with technologically advanced systems which in turn will significantly improve the skills of the labour in the long run. Oppositely, local economy with weak human capital will attract MNEs with modest technology and achieve marginal development (Blomstrom and Kokko, 2001). Wolfgang Keller (1996) claims that free trade and investments transfer advanced technology and skills in the host economy which has favorable effects but it can be sustained given that the arrival of advanced technologies is accompanied by human skill development. The research emphasizes that technological and skill transfer from advanced to emerging economies is a complex process and human capital development should be a primary initiative for all developing economies to maximize utilization of incoming advanced technologies (Keller, 1996).

The availability of sufficient human capital in the host country enable nations to experience progressive spillovers in the local economy by efficient utilization of FDI. Educated and skilled labour eases the transfer of technology, new practices, and skills in the domestic market (Nguyen, Duysters, et al., , 2009). And the extent of a country's resources relating to human capital mediates the FDI and inequality relationship which is essentially rooted in the changes

in relative employment conditions of the host country generated by the opposing effects of technology and education on the demand and supply of skilled labour respectively (Tinbergen, 1975). The role of FDI in transferring new technology and the availability of skilled labour in the host country mediates the FDI- inequality relationship. The superior capacity of the host country in terms of human capital is observed to lower the skill premium in the local economy reducing inequality (Eicher and García-Peñalosa, 2001).

2.4.2 Physical Infrastructure

Physical infrastructure refers to the facilities like roads, buildings, power supplies, and telecommunication set ups available in a country necessary to initiate investments to experience optimum spill overs from FDI. The provision of adequate physical Infrastructure in a country has not only been asserted as a prerequisite of FDI attraction but studies have also exhibited that the positive impacts of FDI in terms generating opportunities for the population are enhanced when the country has the necessary infrastructure to engage it. Countries with poor physical infrastructure have experienced minimal impacts of FDI compared to countries with the advanced level of infrastructure (Kinoshita and Lu, 2006).

Studies have claimed that the level of development of a country in terms of physical infrastructure is closely linked to reducing inequality in the local economy. Physical infrastructure is found to impact both the inequality of outcome and opportunities in a country through three main channels. The role of adequate infrastructure in providing basic services like water, sanitation, and electricity to all the people is considered to be the first channel of influence in a country. Infrastructure like electricity, roads, and ICT improves the productivity of the local firms by reduction of cost which in turn improves the economy of a country which may reduce inequalities. The third channel is considered to the channel of connectivity which facilitates the flow of information and improves access of people to opportunities, goods, and services which may affect inequality (Le Blanc, Freire, et al., 2016). Also, studies have found that the quality of physical infrastructure closely links to the human capital of a country and contributes to the pursuit of socially inclusive growth which is vital to address inequality. It improves the productivity of the people by creating equal access to services like education and health that improve their abilities to pursue opportunities (Ali and Pernia, 2003).

2.4.2.1 Transport infrastructure

The availability of adequate transport infrastructure is found to be vital in maximizing utilization of FDI. It is also claimed that the level of transport infrastructure in a country also mediates the FDI- inequality relationship via the channel of productivity and connectivity (Le Blanc, Freire, et al., 2016). The benefits of good transport infrastructure in the host country improve the productivity of both the foreign and domestic firms by the advancement of operational efficiency of the firms and limiting waste of resources (Khadaroo and Seetanah, 2010). Inadequate accessibility leads to operational disruption leading to increasing cost and reducing the productivity of the firms. Efficient transportation in the form of good road networks, ports or even air connectivity eases the delivery of raw materials and final products to the preferred locations that reduces cost and improves the efficacy of businesses (Erenburg, 1993). The maintenance cost of the foreign and domestic firms is also dependent on the quality of transport infrastructure. For example, the condition of the roads determines the wear and tear of the vehicles used which defines the maintenance and transportation cost. The quality of transport infrastructure can improve outputs and reduce inputs (Khadaroo and Seetanah, 2010). Overall, the advancement of the productivity of firms in a country improve the overall economy of a country improving income levels and distribution of jobs which may affect conditions of inequalities in a country (Le Blanc, Freire, et al., 2016)

Good transportation infrastructure in the host country is also identified as a key element of the locational advantage that MNEs seek for making investment decisions in a country (Dunning, 2001). Easily accessible locations not only create conducive environment FDI spill overs but also inspire clustering and agglomeration of firms that generate economic activities (Haughwout, 2001). Inhabitants of rural locations in a country which are not connected properly may not benefit equal access to information, jobs, and opportunities. Their seclusion may hinder income convergence and inequalities of opportunities across the country enlarging inequalities. Also, from a gender perspective, women in rural parts are not encouraged to go to work as men because of the lack of connectivity as it requires walking a long distance from home to work (Le Blanc, Freire, et al., 2016).

2.4.2.2 Information and Communication Technologies (ICT) infrastructure

ICT infrastructure involves facilities that capture, transmit and display data and information electronically (Chen, 2004). Information and communications technologies have played a significant role in promoting economic growth and development of countries around the globe. And the benefits of ICT have ranged from improving productivity to ease in transfer of information and knowledge. Countries with advanced technological infrastructures have shown significant progress in the economy marked by improvement in the productivity of the firms in a country (Chen, 2004). Other benefits of ICT infrastructure also include facilitating the flow of information and knowledge that improves the access to goods, services and job opportunities. In this context, the role of ICT infrastructure in mediating the impacts of FDI on inequality is also through the channels of productivity and connectivity (Le Blanc, Freire, et al., 2016).

Many studies have asserted that adequate ICT infrastructure development in a country is capable of substantial improvement in the productivity of both the firms and labour. At a firm level using ICT allows cheaper transaction and management of information that reduces the production cost of the firms and the improvement in labour productivity is associated with the reduction of time to perform a task (Gholami, Tom Lee, et al., 2006). Improved productivity leads to increase in volumes of transaction and higher output. Ease of access to information and knowledge also leads to increased innovation and efficiency (Chen, 2004). This impacts the operational aspect of the economy, including the levels of income and distribution of jobs, and may have an effect on inequality (Le Blanc, Freire, et al., 2016). The increased connectivity also allows transparency, accountability, and accessibility to various information's relating to public services and opportunities which might be crucial in avoiding corruption and situations that might generate inequalities in the society (Chen, 2004).

Studies have also found that the development level of ICT infrastructure in a host country played a vital role in influencing the MNEs decision for placement of headquarters and business operations which may provide varied opportunities to the people of a country. (Reynolds, Kenny, et al., 2004). ICT development in a country might also provide educational opportunities to the people to update skills to avoid bias in terms of opportunities. This opportunity of education can also be linked to women in rural places with social barriers as it provides flexible access and study times. Improving technical skills and education may reduce gender biases in employment and can also participate in other income generating opportunities. ICT can also be used to influence public opinion on certain customs and practices in societies that restrict women to work, study and avail other opportunities like men (Chen, 2004).

2.4.3 Institutional settings

Hodgson (1988) defined institutions as 'Systems of established and prevalent social rules that structure social interactions' (Hodgson, 1988, Pg-2). Institutions develop the framework of the society for functioning effectively under different circumstances. It reflects public essentials

like policies, law, culture, rights, and responsibility and many researchers have hypothesized the role of institutions as a key element of the absorption capacity and a mediator for the impacts of FDI on the host country (Khordagui and Saleh, 2013). But it is essential to realise that though the term institution and the concept of the institution have been used widely across many disciplines, the concept of institutions remains largely a contested topic with no unanimity in the concept of institutions (Hodgson, 1988).

Generally, the mediation role of institutional settings on the impacts of FDI on inequality relates to issues of corruption and biased public investments. Weak institutional settings and governance structure entertain the benefits of the growth to one group of people in the society causing disparities in the economy. The role of institutional settings in causing inequalities relates to the mishandling of the benefits that are accompanied by FDI inflow in the host country (Acemoglu, Johnson, et al., 2002). However, it is also vital to consider that the institutions can both limit and facilitate activities that may impact inequality differently. Strict law and regulations will constrain activities but on the other hand, it also opens up opportunities and may develop conditions that otherwise would not exist (Hodgson, 1988).

Institutional setting in the form of policies, coordination system or governance structure is pivotal for achieving economic growth and improving the competitiveness of a country that may impact inequalities through various channels. Whitley (1998) highlights the nature of markets and behaviour of firms in a business system vary across geographical locations because of the differences in institutional settings that moderates the financial and labour markets. In this case market economies are assumed as business systems consisting of different actors and activities which are controlled and coordinated by institutional settings of a particular location (Whitley, 1998). Coe and Henderson (2002) outlined the framework of global production networks (GPN) to relate production, consumption and their impacts on the location. It emphasizes institutional arrangements have both local and global impacts on the GPN.

In a local context, institutional settings especially will be vital in generating value and market capture. Also, it impacts the local conditions and standards of wage, labour and working environments. The institutional arrangements of a location are crucial for the functioning and the outcome of the GPN (Henderson, Dicken, et al., 2002). Porter (1998, 2001) stress that the formation of local clusters or activities characterised by competition and other conditions decides the competitive advantage of a region. And a region becomes more productive with the increase in localised activities. However, the existence of supportive institutional structure is a key aspect of the cluster activities that determine the competitive advantage of a region. Also, Kitson (2004) consider institutional settings as social capital and a local asset that makes a region more competitive and provides common commitment which is favourable for firms and businesses (Kitson, Martin, et al., 2004).

Hall and Soskice (2003) would argue that similar institutional settings may have different impacts on different economies (liberal market economy or a coordinated market economy). And the institutional settings are not only determined by the legal framework in the form of policies or law but are also linked to other factors like informal settings and local asset of a place. The varieties of capitalism assume firms as the primary actors responsible for the economic performance of the nation. The interaction of firms with other actors is highlighted as a crucial determinant of prosperity but a good coordination structure is required for the firms to interact efficiently with other actors. The varieties of capitalism identify two modes of coordination between the firms and actors: in the first mode, coordination primarily takes place through competitive markets and is regarded as the liberal market economies (LME). In the second, the coordination takes place through a strategic interaction process and is regarded as the coordinated market economies (CME). The mode of interaction of firms with other actors

vary across countries (political economies) and the impact of institutional settings vary likewise. The institutional setting drives the firms of both the LME and CME to develop specific kind of strategies that regulate income distribution and employment differently (Hall and Soskice, 2003).

Alguacil, Maite et.al (2011) suggest that upright and fair institutions should be the foremost priority of countries seeking to experience positive impacts of FDI (Alguacil, Cuadros, et al., 2011). Usually, FDI involves many transactional costs that are affected by the legal and political frameworks of a country. Transparent and upright institutions can avoid incurring expenses on corruptions and improve the productivity of the firms (Prüfer and Tondl, 2008). Krammer (2015) claims that the quality of institution in the host country affects the productivity of the FDI recipient country both directly and indirectly. He examined the relationship of institutions and productivity in developed and emerging economies and found out institutional settings strongly impacted the productivity of a region. Institutional settings determined the extent of FDI spillovers on the host country (Krammer, 2015). Also, institutional settings play a vital role to inspire innovation, skill, and productivity in the host country (Wang, Gu, et al., 2013). From all these numerous research suggestions, it is evident that institutional settings are a vital constituent of the absorption capacity of the country that is essential to improve economic performance and to regulate the equitable distribution of the benefits of the growth in the society. Also, Institutional settings of a country influence the opportunities for employment and other opportunities for women. Institutions play a pivotal role in developing policies to avoid gender and another form of biases in work and promote equity (Beggs, 1995).

2.4.4 Summary (Absorption Capacity)

Table 2: Channels of moderation

Sl.no	Absorption Capacity	Channels of moderation (FDI-inequality relationship)
01	Human Capital	1. Enables the supply of skilled labour force to suppress the opposing effects of FDI relating to demand and supply of skilled labour (female labour force in case of gender inequality) 2. Enables efficient utilization of the benefits of FDI and improves the productivity of local firms to further economic opportunities 3. Lowers the skill premium (income inequality) in the host country 4. Improves female labour force participation (gender inequality) in the host country
02	Physical Infrastructure	1. Infrastructure is linked with the reduced cost and time to make local firms more productive which may further economic opportunities and reduce inequality 2. Improves connectivity which facilitates the flow of information and access to opportunities
03	Institutional settings	1. Enables parity in the distribution of benefits of FDI in the host economy by eluding corruption and biased decisions

| | | 2. Influences the labour market (standards of wage, labour and working environments) |
| | | Note: The concept of institutions is a highly contested topic and institutions are expected to have diverse effects on inequality depending on the context. |

2.5 Conceptual Framework

From the literature review, key concepts and indicators have been identified to explain the relationship between FDI inflow and inequality in South Asia. Inequality can be distinguished into inequality of outcome and opportunity based on the multi-dimensional aspect of inequality (Kanbur, Rhee, et al., 2014). The literature on the impacts of FDI inflow on host economy is mostly evaluated and studied in terms of the impacts of FDI inflow on economic growth. There is also numerous literature linking FDI inflow and inequality but most of the studies have discussed the economic aspect of inequality as income or wage inequality. This research looks to go beyond the traditional assessment of inequality in monetary terms by studying the impacts of FDI inflow on Inequality in terms of both outcome (income inequality) and opportunity (gender inequality). The continued economic liberalization and FDI inflows in developing countries have made it imperative to analyse the impacts of the FDI inflow on other dimensions of inequality. In pursuit of promoting growth with equity in the society, the need to integrate the perspective of gender along with income has become vital for achieving the welfare goals of the society.

This research will consider FDI inflow into the South Asia as the independent variable and inequality will be the dependent variable. The dependent variable inequality will be divided into income and gender inequality. It will be a two level study linking FDI to income and gender inequality at a country and a sectoral level. The FDI and income inequality relationship will be assessed at a country level. And considering the limited existing studies on the FDI and gender inequality relationship, it will be evaluated at both the country and a sectoral level. The Gini coefficient and UNDP's inequality in income (%) will be used as the indicator of income inequality. Gender inequality can be assessed in many aspects but this study will adopt the female employment in the three sectors (primary, industry and service sector) of South Asia as a measure of gender inequality bearing in mind the problems faced by women related to work in South Asia. According to ADB report (2013), the most pressing issue in regards to gender in Asia is the disadvantages and discrimination in the labour market that most women face (ADB, 2013). The female labour force participation of South Asia which accounts for a mere 35% is only higher than North Africa's 26% in the world (ADB, 2015).

The findings of this research will enlighten and assist policy makers to frame holistic policies to promote equality (income and gender) and inclusive growth in South Asia. It will also assist in the formulation of better public policies identifying the sectors where FDI has worked well for women and sectors which have not. According to many studies, the impact of FDI inflow on inequality is largely moderated by the absorption capacity of the host country. Absorption capacity is understood to be the capability of the host country to assimilate a certain amount of FDI in the domestic market (Kalotay, 2000). The absorption capacity of the host country is dependent on resources like human capital (Blomstrom and Kokko, 2001, Khordagui and Saleh, 2013, Borensztein, De Gregorio, et al., 1998), physical infrastructure (Kinoshita and Lu, 2006) and institutional settings (Khordagui and Saleh, 2013). Ascertaining the role of this factors in the FDI-inequality relationship will enlighten policy makers to create conditions in

the host country that will enable equitable distribution of the benefits of FDI in the host countries.

Figure 2: Conceptual framework


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│  ┌──────────────────────────┐                      ┌──────────────────────────┐ │
│  │ Independent Variable     │ - - - - - - - - - - ▶│ Dependent Variable       │ │
│  │                          │                      │                          │ │
│  │ Foreign Direct           │                      │ Inequality               │ │
│  │ Investment (FDI)         │                      │  ➢ Income inequality     │ │
│  │ Inflow                   │        ▲             │  ➢ Gender inequality     │ │
│  │  ➢ Country level         │  ┌───────────────┐   │                          │ │
│  │  ➢ Sectoral level        │  │ Moderating    │   │                          │ │
│  └──────────────────────────┘  │ Factor        │   └──────────────────────────┘ │
│  South Asia                    │  ➢ Absorption │                                │
│                                │    capacity   │                                │
│                                └───────────────┘                                │
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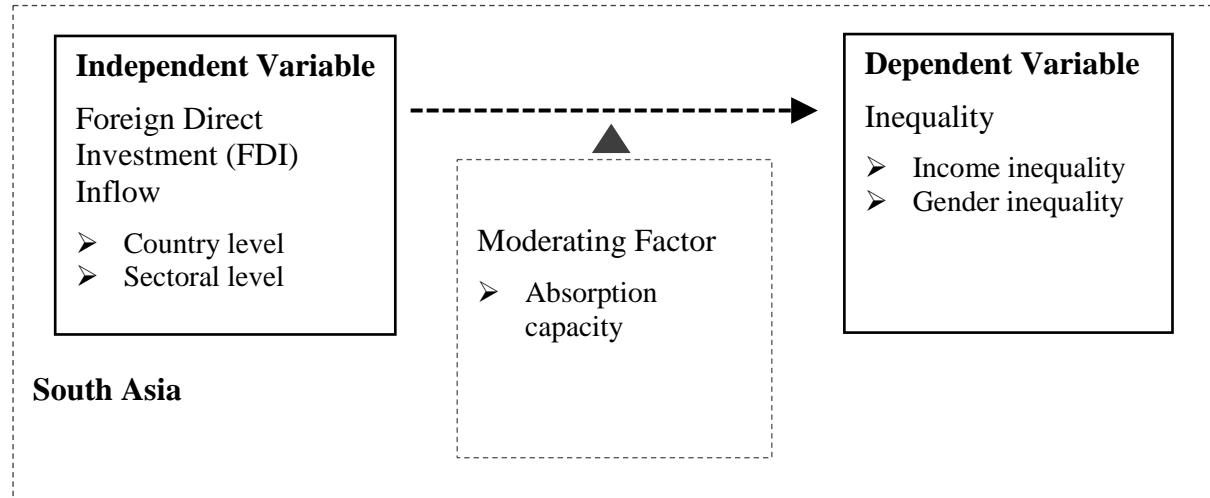
Source: Author, 2017

Chapter 3: Research Design and Methods

3.1 Introduction

This chapter covers the development of a framework for the step-by-step approach for research design, data collection and data analysis methods. It includes the definition of theoretical concepts and operationalisation of the concepts into entities that can be evaluated by observation or measurement. The operationalisation of concepts is an important step that guides the empirical part of the research by explicating what will be measured and how the measurements will be evaluated.

3.1.1 Revised Research Questions
o Main Research Question:
  ➢ To what extent FDI inflow has an impact on inequality in the South Asian countries from 2005-2015?
o Research sub-questions:
  ➢ What are the impacts of FDI inflow on income inequality in South Asia?
  ➢ What are the impacts of FDI inflow on gender inequality in South Asia?
  ➢ What are the factors that influence FDI inflow and inequality relationships in the South Asian countries?

3.1.2 Operationalization: Variables and Indicators
Definition of concepts:

The key theoretical concepts that are crucial to this research are defined below. This theoretical concept is usually multi-facet and can be defined in diverse aspects but the definitions chosen below include the facets and elements that are most relevant for this study.

Foreign Direct Investment (FDI): FDI is a key indicator of the globalisation era and a highly sought source of capital by most of the developing countries for fulfilling the financial requirements of implementing developing activities (Bhandari, Dhakal, et al., 2007). It is the cross-border movement of capital from Multinational Enterprises (MNE) based in industrialised countries to developing countries (Hofmann, 2013). FDI inflow is the net value of inward FDI received by a country from the MNEs.

Inequality: The meaning of Inequality can vary from one theory to other (Sen, 1993) but in the context of this research, it refers to the uneven distribution of the resources and opportunities in the society (Afonso, LaFleur, et al., 2015).

a) Income inequality: It occurs when material wealth is not equally distributed and individuals do not hold equal wealth or living economic conditions. Economists evaluate the progress in this type of inequality by the comparison of income distribution (Afonso, LaFleur, et al., 2015).

b) Gender inequality: It refers to the unequal treatment of individuals due to their gender and is evaluated in three spheres of capabilities, access to resources and opportunities, and security. In the context of this research, it refers to the gender gap in the employment in the three sectors of primary, industry, and services (Niimi, 2009).

Absorption Capacity: The impacts of FDI inflow on the host country vary depending on the market conditions and the characteristics of the host country. This country-specific characteristic is largely referred as the 'absorption capacity' which mediates the impacts of FDI inflow on equality in income and opportunities in the host country (Blomstrom and Kokko,

2001). It indicates the maximum amount of FDI that a country can utilize in an effective way benefitting everyone similarly (Kalotay, 2000). Many studies have claimed that human capital (Blomstrom and Kokko, 2001, Khordagui and Saleh, 2013, Borensztein, De Gregorio, et al., 1998) physical infrastructure (Kinoshita and Lu, 2006, Khadaroo and Seetanah, 2010, Reynolds, Kenny, et al., 2004) and institutional framework (Alguacil, Cuadros, et al., 2011, Khordagui and Saleh, 2013) of the host economy are vital elements that determine the absorption capacity of a country.

a) Human capital: The MNEs (Multinational Enterprise) hold advanced knowledge, skills, and information. The transfer and utilization of this advanced knowledge from the MNEs to the domestic firms depend on the availability of the qualified and skilled human capital in the host country. The human capital in this context is the knowledge and skill of the local people in host country achieved by education or training which determines their productivity (Borensztein, De Gregorio, et al., 1998).

b) Physical Infrastructure: Physical infrastructure refers to amenities like roads, buildings, power supplies, and telecommunication set ups available in a country. It defines the development level of a country and this amenities in the host country mediate the distribution of FDI influences through various channels (Kumar, 2001, Kinoshita and Lu, 2006).

c) Institutional settings: Hodgson (1988) defined it as 'Systems of established and prevalent social rules that structure social interactions' (Hodgson, 1988, Pg-2). Institutions develop the framework for the effective functioning of the society under different circumstances and it reflects public essentials like policies, law, culture, rights, and responsibility (Khordagui and Saleh, 2013). The institutional settings in this research refer to the governance structure and policies to regulate the local market and other relationships between the foreign and local firms that mediate the impacts of FDI in the host country.

Operationalisation of concepts:

The variables and indicators selected below are based on the developed conceptual framework in Chapter 2. The research aims to explain the impact of FDI inflow (X-variable) on inequality (Y-variable) and the relationship is mediated by the absorption capacity (mediating variable) of the host country.

Table 3: Dependent variable (Y-variable)

Concept: Inequality

Variable	Indicator	Source
Income inequality	Gini coefficient	WIID-World Income Inequality Database (0= perfect equality, 1=perfect inequality)
	Inequality in income (%)	UNDP Human Development Data

Gender Inequality	Female Employment in three sectors (percentage of total employment)	ILO- International Labour Organisation

Source: Author, 2017

Gini coefficient: It is a widely used indicator of income inequality and it provides a measure of the distribution of income among individual and households within a country. A value of 0 represents absolute equality, a value of 100 absolute inequality.

Inequality in income (%): It also provides a measure of income inequality and is based on the data of surveys at a household and estimated using the Atkinson inequality index. The inequality in income (%) is used in the research as an alternative to Gini coefficient to achieve robust results. The Atkinson index examines the effects of inequalities in a wider income spectrum and enables more meaningful quantitative assessment than Gini. A higher percentage denotes higher inequality and vice versa.

Female employment: The female employment data collected from the ILO will be used as the indicator of gender inequality to study the disparity in employment from a gender perspective in the three sectors of agriculture, industry, and service of South Asia.

Table 4: **Independent variable (X-variable)**

Concept: Foreign Direct Investment (FDI)

Variable	Indicator	Source
FDI inflow	Country level FDI inflow	FDI markets
	Sectoral FDI inflow	FDI markets

Source: Author, 2017

Mediating variables (FDI-income inequality)

(Table 5) The indicators of the labour force, life expectancy and education is used in the model as a measure of the available human capital in the country in terms of workforce, health and education respectively. Indicators like access to electricity, mobile subscription and internet users are used as indicators for the energy and ICT infrastructures. Air transport is used as the only indicator for the transport infrastructure due to the unavailability of data on other indicators of transport infrastructure like road networks.

Three indicators have been used for the institutional settings and all the indicators are generic indicators because of the unavailability of data for specific indicators which are a limitation of the model. It is also to be considered that the concept of institutions remains a vastly contested topic and the concept of institutions remains highly elusive (Hodgson, 1988). For that reason, there are many contradictory indicators for institutions and different indicators of institutional settings might impact the FDI- income inequality relationship differently.

The first indicator used for the institutional settings is CPIA indicator for transparency, accountability, and corruption which combines three dimensions of accountability of civil servants, access to information on public affairs and state capture by narrow vested interests. Transparency in the governance system with easy access to public information, highly accountable public servants and low corruption might reduce income inequality by limiting misuse of authority, funds, and resources. The second indicator is the CPIA indicator for social protection that rates the policies in social protection and labour market regulations. Higher social protection rating might reduce inequality by regulating the labour market for equitable distribution of income. A final CPIA indicator for economic management is adopted in the

model that combines the macroeconomic management, fiscal and debt policy of a country which might be linked to the amount of FDI inflow and other economic activities. A higher CPIA economic management cluster average might be indicative of better economic management and performance of a country which might influence income inequality by creating income generating opportunities. An aggregate index is also included in the empirical analysis to evaluate the influence of the absorption capacity on the FDI and income inequality relationship. It is generated using the R statistical computing by combining all the indicators of human capital, physical infrastructure, and institutional setting.

Table 5: Mediating variables (FDI-income inequality)

Concept: Absorption Capacity

Variable	Indicator	Source
Human Capital	Total Labour Force (% of total population)	World Bank database
	Life expectancy at birth (years)	UNDP Human Development Data
	Population with at least some secondary education (% ages 25 and older)	UNDP Human Development Data
Physical Infrastructure	Access to electricity (% of population)	World Bank database
	Mobile cellular subscriptions (per 100 people)	World Bank database
	Air transport, registered carrier departures worldwide	World Bank database
	Internet users (% of population)	UNDP Human Development Data
Institutional settings	CPIA (country policy and institutional assessment) transparency, accountability, and corruption in the public sector rating (1=low to 6=high)	World Bank database
	CPIA social protection rating (1=low to 6=high)	World Bank database
	CPIA economic management cluster average (1=low to 6=high)	World Bank database
Aggregate Index	Index value (higher value= better absorption capacity)	Generated using R statistical computing

Source: Author, 2017

Control variables (FDI-income inequality)

(Table 6) A set of control variables is used in the regression to avoid influences from external factors which are not a part of the scope of the study. Economic growth (Aghion, Caroli, et al., 1999, Yao, 1999) and trade (Meschi and Vivarelli, 2009) are linked to income inequality by many research but the interest of this study remains in the mediating role of the absorption

capacity of the country in the FDI-income inequality relationship. Therefore, to ensure the intended subject is studied (internal validity) the following control variables are used to control the effects of this external variable in the FDI-income inequality relationship. Variables of demography and size of the country are used to control the problem of endogeneity (Wu and Hsu, 2012). Population density will be used as a control variable if both the variables, population, and land area fails the assumption test.

Table 6: Control variables (FDI-income inequality)

Variable	Indicator	Source
Economic growth	GDP growth (annual %)	World Bank database
Demography	Population, total (millions)	UNDP Human Development Data
Trade	Exports and imports (% of GDP)	UNDP Human Development Data
Size of the Country	Land area (Sq. Km)	World Bank database

Source: Author, 2017

Mediating variables (FDI-gender inequality)

(Table 7) The indicators of the labour force and education are used in the model to display the available human capital in the country in terms of workforce and education respectively. Indicators of life expectancy and the adolescent birth rate are used to capture the health dimension of the human capital in the country. All the indicators are female specific indicators as the model is based on the female employment data to evaluate the gender inequality in employment. Data on access to electricity and air transport is used as the indicator of the physical infrastructure development of the country. But, the indicators of ICT infrastructure is not incorporated in the model due to the unavailability of female-specific data for indicators like mobile subscription and internet users. Also, air transport is used as the only indicator for the transport infrastructure due to the unavailability of data on other indicators of transport infrastructure like road networks.

Three indicators have been used for the institutional settings and all the indicators are generic indicators because of the unavailability of data for specific indicators which are a limitation of the model. It is also to be considered that the concept of institutions remains a vastly contested topic and the concept of institutions remains highly elusive (Hodgson, 1988). For that reason, there are many contradictory indicators for institutions and different indicators of institutional settings might impact the FDI- gender inequality relationship differently.

The first indicator used for the institutional settings is CPIA indicator for transparency, accountability, and corruption which combines three dimensions of accountability of civil servants, access to information on public affairs and state capture by narrow vested interests. Transparency in the governance system with easy access to public information, highly accountable public servants and low corruption might reduce gender inequality by limiting misuse of authority and gender biases. The second indicator is the CPIA indicator for gender equality which evaluates the role of institutions and policies in promoting gender parity at work and other areas of access to health and education. A higher rating for the CPIA gender equality indicator might be indicative of strong policies and institutions that lessen gender inequality. A final CPIA indicator for economic management is adopted in the model that combines the macroeconomic management, fiscal and debt policy of a country which might be linked to the amount of FDI inflow and other economic activities. A higher CPIA economic management cluster average might be indicative of better economic management and performance of a

country which might influence gender inequality by generating various work opportunities. An aggregate index is also included in the empirical analysis to evaluate the influence of the absorption capacity on the FDI and income inequality relationship. It is generated using the R statistical computing by combining all the indicators of human capital, physical infrastructure, and institutional setting.

Table 7: Mediating variables (FDI-gender inequality)

Concept: Absorption Capacity

Variable	Indicator	Source
Human capital	Labour force, female (% of total)	World Bank database
	Population with at least some secondary education, female (% ages 25 and older)	UNDP Human Development Data
	Life expectancy at birth, female (years)	World Bank database
	Adolescent birth rate (births per 1,000 women ages 15-19)	UNDP Human Development Data
Physical infrastructure	Air transport, registered carrier departures worldwide	World Bank database
	Access to electricity (% of population)	World Bank database
Institutional settings	CPIA (country policy and institutional assessment) transparency, accountability, and corruption in the public sector rating (1=low to 6=high)	World Bank database
	CPIA gender equality rating (1=low to 6=high)	World Bank database
	CPIA economic management cluster average (1=low to 6=high)	World Bank database
Aggregate Index	Index value (higher value= better absorption capacity)	Generated using R statistical computing

Source: Author, 2017

Control variables (FDI-gender inequality)

(Table 8) A set of control variables is used in the regression to avoid influences from external factors which are not a part of the scope of the study. Economic growth (Seguino, 2000, Matthews and Nee, 2000) and trade (Busse and Spielmann, 2006) are both linked to gender inequality by many research but the interest of this study remains in the mediating role of the absorption capacity of a country in the FDI-gender inequality relationship. Therefore, to ensure the intended subject is studied (internal validity) the following control variables are used to control the effects of this external variable in the FDI-gender inequality relationship. Variables of demography and size of the country are used to control the problem of endogeneity (Wu and Hsu, 2012). Population density will be used as a control variable if both the variables, population, and land area fails the assumption test.

Table 8: Control variables (FDI-gender inequality)

Variable	Indicator	Source
Economic growth	GDP growth (annual %)	World Bank database
Demography	Population, female (% of total)	World Bank database
Trade	Exports and imports (% of GDP)	UNDP Human Development Data
Size of the Country	Land area (Sq. Km)	World Bank database

Source: Author, 2017

3.1.3 Research Strategy

The chosen research strategy is a desk research (quantitative) statistical analysis method using existing databases. The desk research approach is best suited for this research as it is a deductive study and involves a trend analysis and seeks to understand the impacts of FDI inflow on inequality in South Asia for the period 2005 to 2015. Also, a desk research approach is most suitable for the research, considering the broad scope of the research with a wide geographic location including a two-level study for the impacts of FDI inflow on income and gender inequality in South Asia at a country level covering 8 countries (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka). And a sectoral level study analysing the impacts of FDI inflow on employment from a gender perspective in the three sectors (primary, manufacturing, and service sector) of the South Asian countries.

The statistical analysis method using existing databases is adopted for this research in view of the scope and duration of the research, as the desk research is a time and cost-effective strategy. As this research is a deductive study with concepts and variables identified from existing theories, it is realised that the required data on the variables to explain the FDI inflow and inequality relationship over a period of ten years can be collected from various reliable international sources. Researchers today have increasing access to data as many reliable international organisations publish data and indicators in an online database for free public access. Likewise, for this research, the availability of most of the data relating to the required variables and indicators, to explain the FDI inflow and inequality relationship in South Asia makes a desk research an apt option for the research.

3.1.4 Reliability and Validity

A major challenge of the desk research method using secondary data for a statistical analysis is related to the operationalization of variables. Primary data are collected by the researcher himself but using existing secondary data and materials can concern a research as the data may

not be published for research purposes. The data published by public organisations can also get outdated very quickly due to changes in the system or may also be inaccurate (Van Thiel, 2014). The available secondary data usually do not directly match with the variables involved in a study as it was collected for a different purpose which limits the operationalization of concepts in the secondary analysis method leading to concerns of adequate measurement of the research subject. In this case, the internal validity of the research will be low as theoretical construction needs to be operationalized adequately to make sure the intended effect has been measured by the researcher.

To lower the issues of reliability and validity of this research, the statistical data are obtained from reliable sources like the ILO (International Labour Organisation), World Bank, World Income Inequality Database (WIID), FDI markets and UNDP human development database. The availability of reliable data from international organisations also makes the research repeatable and consistent which is also a vital element of reliability. The operationalization of variable has been carried out carefully using available indicators for adequate measurement of the subject to ensure intended effect has been measured. The analysis will also be using control variables to ensure the intended research subject is evaluated correctly without influences from other external factors. Furthermore, the FDI inflow and inequality is studied carefully to confirm the existence of the presupposed relationship and the variables are derived from existing scientific literature to validate the research. Generally, the secondary quantitative analysis offers a high external validity (generalization) but the findings of this research may not be generalized and be delimited to the South Asian region because of the heterogeneity of the research subject in different parts of the globe due to various factors.

3.1.5 Data Collection Methods

The adopted research strategy for this study is the desk research method that uses existing datasets for secondary analysis. The study unit of the research includes the eight South Asian countries: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka and the data used for the analysis will be quantitative panel data for the year 2005 to 2015. The required data for the study will be collected from reliable online sources like databases of international organizations that allow free access to high-quality data of various indicators that satisfy the data requirement of this study. The required data for the operationalisation of the variables in the study is collected from the following sources:

o   World Income Inequality Database (WIID)

Income inequality which is the dependent variable for the country-level study will be collected from WIID. It is the database maintained by the United Nations World Institute for Development Economics Research which promotes sustainable and equitable development for all by providing economic and policy advice to governments. The WIID collects and stores data and material on income inequality for developing, transition and developed countries which can be downloaded for free.

o   ILO (International Labour Organisation)

The data for the second dependent variable which is the gender inequality in employment in three sectors of the South Asian countries will be collected from the ILO. It is a multilateral (only tripartite) United Nations agency that brings together governments, employers, and the worker representative of 187 member states. It plays an important role in promoting decent work for all men and women by setting labour standards, policies and various other programs.

o   FDI markets

The data for the FDI inflow in the South Asian countries will be collected from the FDI market which was launched in the year 2003, and it functions as a bank of information on the globalisation of business and it tracks the cross-border movement of Greenfield investment across all sectors and countries worldwide.

o   World Bank database

Some of the data for the Indicators of absorption capacity will be collected from the World Bank database. It is the database managed by the World Bank that allows free and open access to global development data. It contains various collections of time series data related to a variety of development related topics which are collected through sample surveys of households, business establishment, and other facilities.

o   UNDP human development database

Some of the data for the Indicators of absorption capacity will be collected from the UNDP human development database. It is the database of the human development reports under the United Nations Development Programme. It aims to advance human development by contributing towards the expansion of opportunities, choice, and freedom. It provides free global data on various indicators related to human development for the period of 1990 to 2015.

3.1.6 Data Analysis
The research study the impacts of FDI inflow on inequality in South Asia for the period 2005 to 2015. The study is conducted in a country and a sectoral level using FDI inflow data from the FDI markets as the independent variable in the both the analysis. The study includes Gini coefficient and UNDP's Inequality in income (%) as a measure of income inequality at a country level. Gini index is widely used as an indicator of income inequality but UNDP's inequality in income (%) is used as the second indicator of income inequality for robust results. Inequality in income (%) include adjustments in income distribution made from household surveys estimated using the Atkinson inequality index which examines the effects of inequalities in a wider income spectrum. Female employment data at a country and a sectoral level (agriculture, industry, and service) of South Asia will be used as the dependent variable for the FDI and gender inequality study.

The data analysis technique for analyzing the quantitative data is divided into two categories of descriptive and inferential statistical techniques. Descriptive statistics are used for the exploration of the data by describing the basic features of the data. The description also presents all the variables and the trends in the period 2005 to 2015. GIS, Microsoft Excel tools, and STATA were used to present the descriptive statistics in the form of graphs, images, and summaries of the data. The inferential statistics include the results of the panel regressions with and without interaction terms.

Table 9: Data Analysis

Sl.no	Research Sub Questions	Data Analysis	Analysis Tool
01	What are the impacts of FDI inflow on income inequality in South Asia?	Descriptive and Inferential Analysis	Microsoft Excel tool GIS
02	What are the impacts of FDI inflow on gender inequality in South Asia?	Descriptive and Inferential Analysis	

03	What are the factors that influence FDI inflow and inequality relationships in the South Asian countries?	Descriptive and Inferential Analysis	STATA

Source: Author, 2017

Panel Regression:

Regression analysis enables to test the relation between the dependent and independent variable and also explains the influence of the independent variables on the dependent variable. Additionally, it indicates the magnitude of the explanatory value specified as (R square), the percentage of variance (Van Thiel, 2014). Therefore, panel regressions were performed to study the impacts of FDI on inequality (income and gender) in South Asia. The first regression was performed between FDI inflow and income inequality using Gini index as the dependent variable. To achieve robust results, a second regression was performed between FDI inflow and income inequality using inequality in income (%) as the dependent variable. The second set of regressions were performed between FDI inflow and gender inequality using female employment data as the dependent variable. The FDI inflow and gender inequality regressions were performed at a country and sectoral level. To enhance the validity of the research and to make it technically correct all the regressions adopted the necessary assumption tests of normality, linearity, multicollinearity, homoscedasticity, model specification and independence. Also, the outliers in the data were eliminated using cook's d as a measure to detect the influential points and robust standard errors were used for heteroscedasticity. Following a Hausman test, all the regressions were performed using a fixed effect model.

The equation for the fixed effects model: $Y_{it} = \beta 1 X_{it} + \alpha_i + u_{it}$

Where α_i is the unknown intercept, Y_{it} is the dependent variable where i= entity and t= time, X_{it} represents one independent variable, $\beta 1$ is the coefficient, u_{it} is the error term

Panel Regression with interaction terms:

As the research intended to go beyond the simple account of the cause and effect relationship. It performed panel regression with interaction terms to understand the factors that alter the magnitude of the causal relationship. Panel regression with interaction terms (Wu and Zumbo, 2008) were performed to study the factors that influence the FDI inflow and inequality (income and gender) relationships in the South Asian countries. This model enabled to offer an explanation on the role and significance of absorption capacity (human capital, physical infrastructure, and institutional settings) as a moderating variable in the FDI-inequality relationship. It is explained on the basis of the interaction between FDI inflow and indicators of absorption capacity, in the relationship and the changes in the dependent variable (income and gender inequality) depending on the moderating effect of absorption capacity on the FDI inflow.

Panel regression with interaction terms was performed to study the FDI inflow (independent variable, X) and income inequality (Gini coefficient and Inequality in income (%) as the dependent variable, Y) relationship at a country level. The second set of panel regression with interaction terms was performed to study the FDI inflow (independent variable, X) and Gender inequality (women employment as the dependent variable, Y) relationship at a country and a sectoral level. The indicators of human capital, physical infrastructure, and institutional settings were used as the moderating variable in all the regression with interaction terms.

To enhance the validity of the research and to make it technically correct all the regressions adopted the necessary assumption tests of normality, linearity, multicollinearity, homoscedasticity, model specification and independence. Also, the outliers in the data were

eliminated using cook's d as a measure to detect the influential points and robust standard errors were used for heteroscedasticity. Following a Hausman test, all the regressions with interaction terms were performed using a fixed effect model.

For the first set of panel regression with interaction terms, Let Y be the dependent variable, income inequality and X1 be FDI inflow, the independent variable and X2 be the absorption capacity. The interaction effects between the independent and mediating variable, X1 and X2 can be estimated by multiple regression models of the form:

$$Y = \beta 0 + \beta 1 X1 + \beta 2 X2 + \beta 3 X1\ X2 + e$$

Income inequality = $\beta 0$ + $\beta 1$*FDI inflow + $\beta 2$*Absorption Capacity + $\beta 3$*FDI inflow*Absorption Capacity + e

For the second set of panel regression with interaction terms, Let Y be the dependent variable, gender inequality and X1 be FDI inflow, the independent variable and X2 be the absorption capacity. The interaction effects between the independent and mediating variable, X1 and X2 can be estimated by multiple regression models of the form:

$$Y = \beta 0 + \beta 1 X1 + \beta 2 X2 + \beta 3 X1\ X2 + e$$

Gender inequality = $\beta 0$ + $\beta 1$*FDI inflow + $\beta 2$*Absorption Capacity + $\beta 3$*FDI inflow*Absorption Capacity + e

Chapter 4: Research Findings

This chapter presents the findings of the research in two broad sections of descriptive and inferential statistics. The first section of descriptive analysis presents the data on the independent, dependent and mediating variables. It is presented as graphs and figures with a description of the data. The second part of the chapter is the inferential analysis that describes and details the results of the regression analyses and also links the results with existing theories and reasons it.

4.1. Descriptive Statistics

4.1.1. Income Inequality

4.1.1.1 Gini index

Table 10: Summary of income inequality (Gini index) data for South Asian countries

Variable	Obs	Mean	Std. Dev.	Min	Max
Gini index	56	35.09107	3.644965	27.8	42.44

Source: Author, 2017 (STATA)

Table 10 above show summary of the Gini index data of the South Asian countries. The Gini index data reveal that most of the countries have witnessed a reduction in the Gini index from the year 2005 to 2010 signifying an improvement in income distribution. However, from the year 2010, countries like Pakistan and Sri Lanka have witnessed a gradual rise in the Gini index indicating it was becoming uneven in terms of income distribution.

The highest Gini index rating of 42.44 for Bhutan in the year 2005 indicates Bhutan had a highly imbalanced income distribution in the households compared to other South Asian nations. This relates to the fact that Bhutan is a small developing country with more than 75% of the population dependent on agriculture for livelihood. The majority of the population live in the rural area and practice subsistence farming to feed themselves and their family. The rural urban divide might have a huge role in the high Gini index pertaining to the income gaps of the rural and urban population. Also, Bhutan is a landlocked country and was a closed economy till the late 2000s. From 2005 to 2013, Gini index for Bhutan is observed to be reduced gradually every year and by the year 2012, it was noted to be 36. In the year 2005 Sri Lanka, Maldives and Nepal also had a high Gini index of 40.42, 40.12 and 40.25 respectively. However, it is also seen to be reduced gradually.

Comparatively, Afghanistan has better income distribution in the region as indicated by the Gini index of 27.8 in the year 2008 which is the lowest Gini value recorded for the South Asian countries. Subsequent to Afghanistan, Pakistan also recorded a low Gini index value of 29.8 in the year 2010.

4.1.1.2 Inequality in income (%)

Table 11: Summary of income inequality (%) data for South Asian countries

Variable	Obs	Mean	Std. Dev.	Min	Max

| Income inequality | 43 | 18.80465 | 6.740318 | 10.6 | 37.4 |

Source: Author, 2017 (STATA)

Figure 3 below presents the inequality in income situation of the South Asian countries from a period of 2010 to 2015 based on the UNDP data of inequality in income (%).The highest inequality in income is observed in Nepal with 37.4 % in two consecutive years of 2011 and 2012 indicating a highly imbalanced income distribution in the households of Nepal. However, Nepal witnessed a significant drop in the inequality in income (%) from 26.4 % in 2010 to 13.9 % in 2015. The inequality in income (%) for Pakistan was the lowest in the region with 10.6% in the year 2010 which increased to 11.6% by the year 2015. It is observed that the inequality in income (%) of Bangladesh witnessed significant growth from 14.8 % in 2010 to 28.3 % in 2015.

Figure 3: Income inequality (%) in South Asia
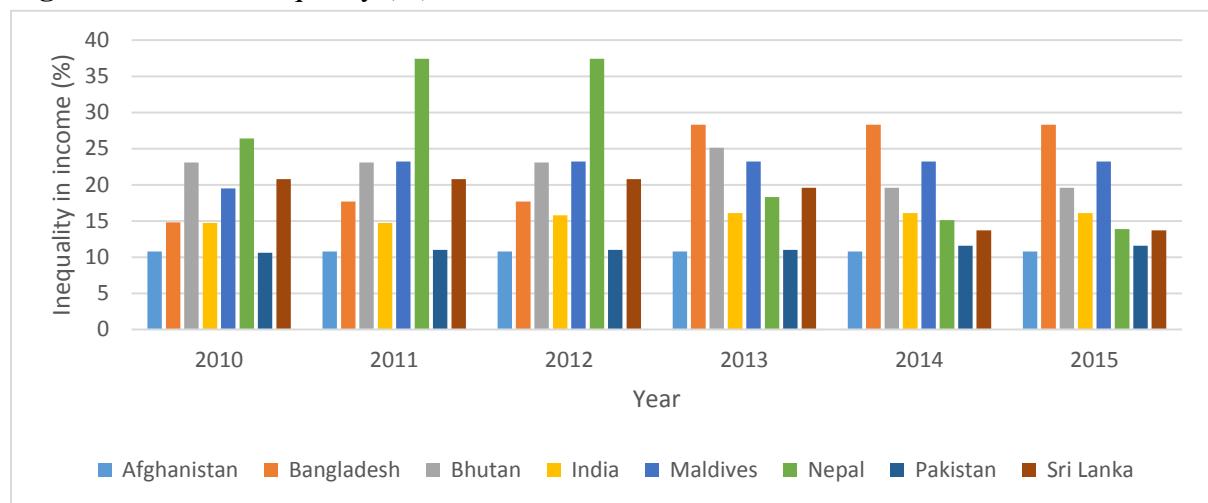
Source, Author 2017

4.1.2 Gender Inequality

The study evaluates the employment data of South Asia to assess the gender gap in the labour market of South Asia. Figure 4 below displays the distribution of male and female in terms of employment in South Asia for the years 2005 to 2015. It illustrates that the female workers form only a small portion of the workforce of the South Asian labour market. The highest female employment recorded was 29.4 % in the year 2005 and the lowest in the year 2012 was 26.2 %.Empirical evidence also confirms that the South Asian labour market has witnessed an upward trend in regards to employment from 2005 to 2015. While the employment of male workers experienced a rising trend similar to the growth trend in total employment, the female employment growth has not witnessed a similar growth. The male employment is observed to be improved from 70.5% in the year 2005 to 73.4% in the year 2015.

Although female employment has increased in numbers from 2005 to 2015, it is shocking that the percentage of female workers with respect to total employment has declined from 29.4 % in 2005 to 26.51 % in the year 2015. It appears that the substantial economic growth achieved by South Asia in the period have not benefitted women. South Asia have also witnessed rising female education and declining fertility rate in the period which is thought to largely explain the female employment and participation in the labour market. However, it is shocking that the female employment (%) has declined in South Asia in the period despite substantial economic growth, rising female education and declining fertility rate. Did globalisation adversely impact women? What explains the declining female employment trend of South Asia? (Gunatilaka, 2013) assert that women are over represented in the agriculture and export manufacturing

sector. And the rapidly growing sectors such as construction, trade, and transport are largely male dominated and job opportunities for women have become challenging despite women wanting to work. It could also be the social attitudes and cultural norms continuing to affect women employment even in the context of rapidly changing society. However, further research is necessary to expand the understanding of declining female employment in South Asia regardless of the substantial growth trajectories.

Figure 4: Gender inequality (employment) in the labour market of South Asia (2005-2015)
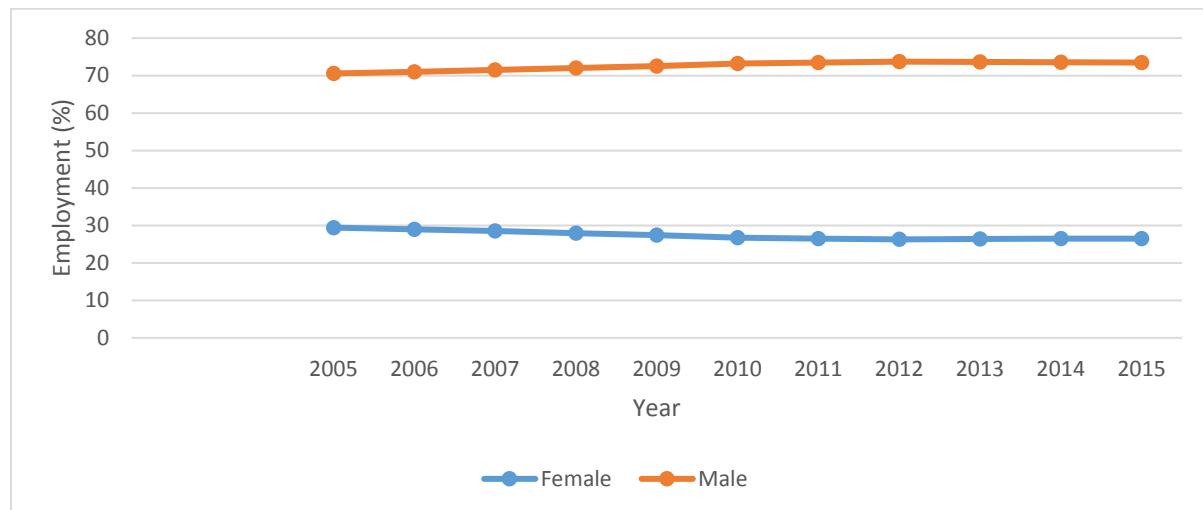
Source, Author 2017

Figure 5 below shows the occurrence of a sectoral shift in female employment in the period 2005 to 2015. The female workers in the agriculture sector of South Asia formed 70% of the total female workers in the year 2005 which reduced to 64% in the year 2015. The female employment in the manufacturing and the service sector improved from 14% and 15.5 % in the year 2005 to 17.9% and 18% respectively in the year 2015.

Figure 5: Distribution of female workers in the three sectors of South Asia (2005-2015)
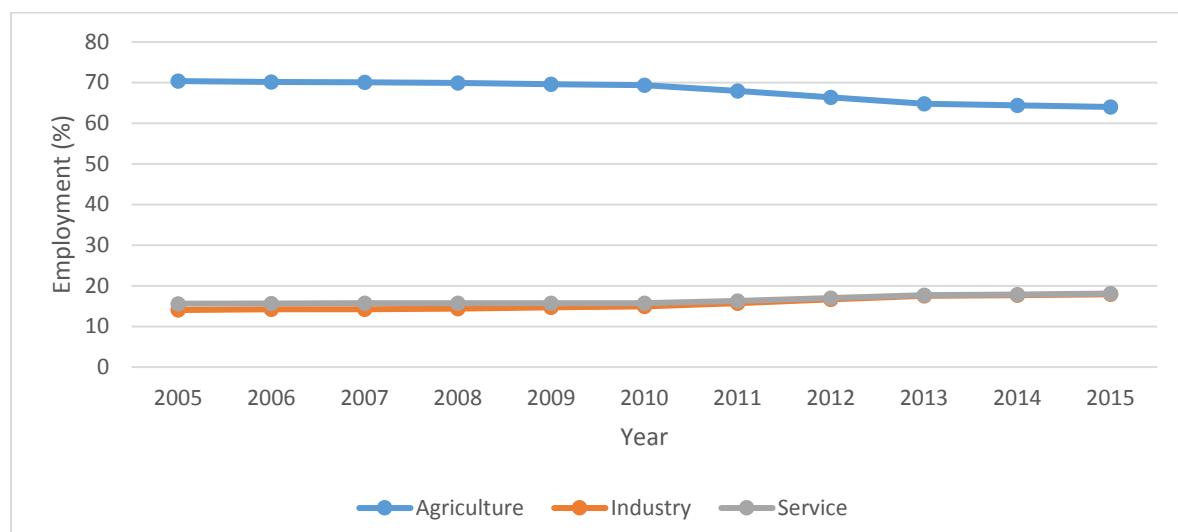
Source, Author 2017

4.1.2.1 Gender Inequality (Industry sector)

Table 12: Summary of gender inequality data in the industry sector

Variable	Obs	Mean	Std. Dev.	Min	Max
Female employment	88	27.59198	13.72465	11.10233	61.05612

Source: Author, 2017 (STATA)

Figure 6 below display the industrial sector of the South Asia is a male led sector. And it is appalling to find that the gender disparity in the industrial sector of South Asia has amplified in the period. The female employment in the industrial sector reduced from 22.3% in the year 2005 to 20.2% in the year 2015 but the male employment increased from 77.6 % in 2005 to 79.75 % in the year 2015.

At a country level, only the industrial sector of Maldives have equality in men and women workers with female employment ratio ranging from 50.7 % in 2005 to 51.8 % in the year 2015. The industrial sector of Pakistan recorded the lowest female employment with simply 11.10 % in the year 2007. The female employment in the industrial sector of Pakistan ranges between 12.5 % in 2005 to 14 % in 2015. Subsequent to Maldives, Sri Lanka is the only country to have attained a female employment ratio of 43.7 % in 2015 improved from 30.6 % in the year 2005. The highest female employment in the industrial sector was observed in Bhutan in the year 2009 with a female employee of 61.05 %.

Figure 6: Gender inequality (employment) in the industrial sector of South Asia (2005-2015)
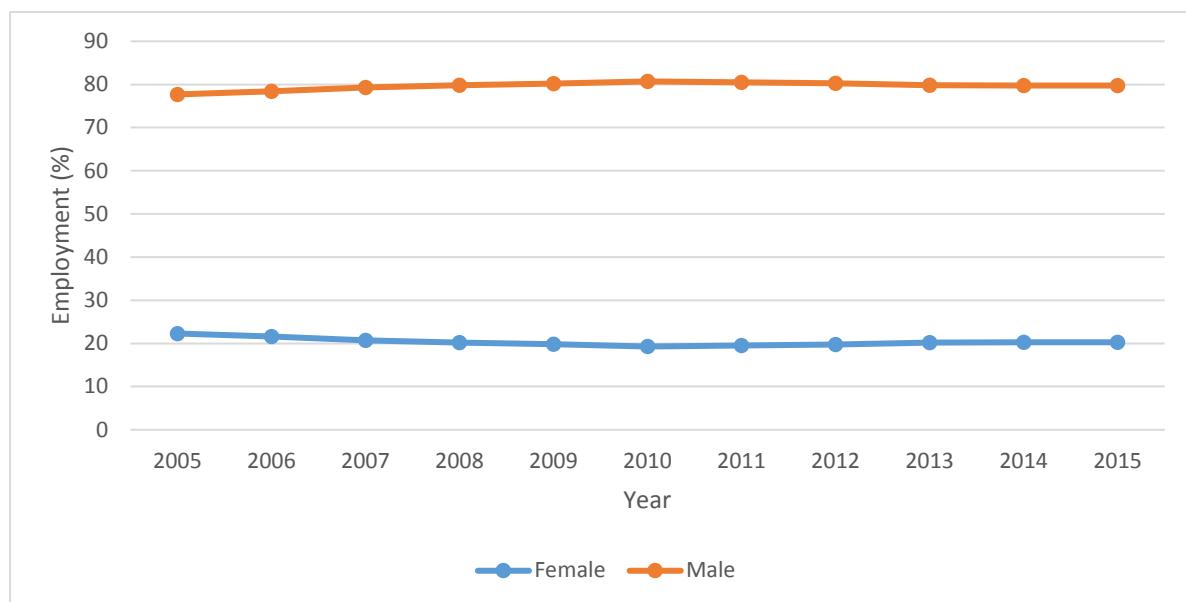
Source, Author 2017

4.1.2.2 Gender Inequality (Service sector)
Table 13: Summary of gender inequality data in the service sector

Variable	Obs	Mean	Std. Dev.	Min	Max
Female employment	88	22.05183	11.7505	6.014628	38.64379

Source: Author, 2017

Figure 7 below display the service sector of the South Asia is also a male dominated industry with a significantly more disparity between the men and women employment. It is shocking to find that the gender disparity in the service sector of South Asia has also amplified in the period. The female employment in the service sector reduced from 16.8% in the year 2005 to 15.7% in the year 2015 but the male employment increased from 83.1 % in 2005 to 84.2 % in the year 2015.

At a country level, the maximum female employment recorded was 38.6 % for Maldives in the year 2015 and the least was 6.01 % for Pakistan in the year 2013. Countries like Afghanistan and Pakistan only share a female employment ratio of 6% to 8% in the period 2005 to 2015. The nearest parity between men and female employment in the service sector is observed to be in the service sector of Maldives with a mere female employment ratio of 35.3% in 2005 to 38.6% in the year 2015. The service sector of Nepal shares a comparative female employment ratio with the Maldives with a female employment ratio of 34.4% in 2005 to 37.8% in 2015. From 2005 to 2015 most of the countries have experienced a trivial growth in the female employment ratio with the only exception of Bangladesh, Bhutan, and Pakistan. Both Bangladesh and Bhutan experienced a significant drop in the female employment ratio from 2005 to 2015. Bangladesh witnessed a drop from 21.1% in 2005 to 11.3% in 2015 and Bhutan experienced a drop from 27.1% in 2005 to 17.6% in 2015. It is observed that the service sector is an unequal sector in South Asia with huge gaps between men and women employment.

Figure 7: Gender inequality (employment) in the service sector of South Asia (2005-2015)
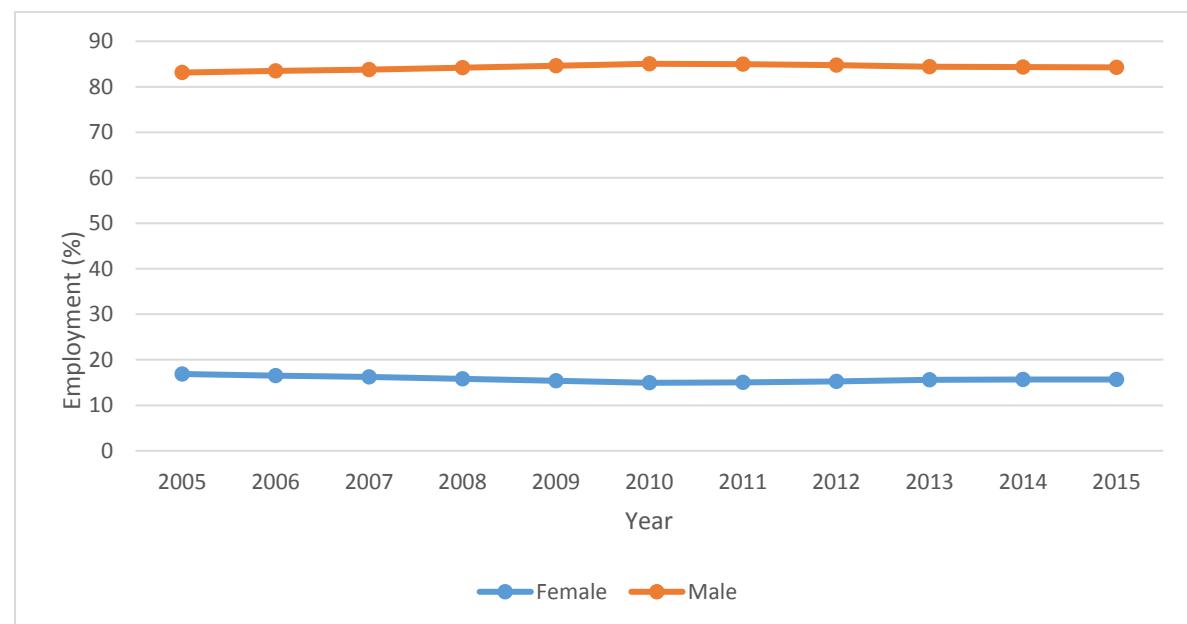
Source, Author 2017

4.1.2.3 Gender Inequality (Agriculture/Primary sector)
Table 14: Summary of gender inequality data in the primary sector

Variable	Obs	Mean	Std. Dev.	Min	Max
Female employment	88	37.71096	15.08789	17.81067	63.84764

Source, Author 2017 (STATA)

Figure 8 below display the gender disparity in the primary sector of the South Asia. It is also found to be a male led industry but the disparity is found to be the least amongst the three sectors. However, it is surprising that even the primary sector of South Asia has witnessed a gradually growing gender inequality in the period. The female employment in the primary sector reduced from 38.1% in the year 2005 to 36.8% in the year 2015 but the male employment increased from 61.8% in 2005 to 63.1% in the year 2015.

At a country level, only three countries of Bangladesh, Bhutan, and Nepal is found to have parity between men and women in the agriculture sector. The largest disparity in employment between men and women exists in the primary sector of Afghanistan and Maldives. The primary sector of Afghanistan is found to have 17.8 % female employment in the year 2005 and 20.7% in the year 2015. Similarly, the agriculture sector of Maldives simply has a female employment ratio of 18.2% in the year 2005 and 18.8% in the year 2015.

Bangladesh had almost equal numbers of male and female workers in the year 2005 with 49.1 % female employment in the primary sector. It is also observed that the primary sector of Bangladesh experienced a rising trend in female employment with 63.8 % of female workers in the year 2015 which is the highest female employment recorded in the primary sector. As mentioned earlier, the primary sector entails 70% of the total female workers in South Asia and the gender inequality in agriculture sector is also found to be relatively less compared to other two sectors. However, it is possible that the majority of the female workers in the agriculture sector might be involved in subsistence farming and not a paid engagement.

Figure 8: Gender inequality (employment) in the agriculture sector of South Asia (2005-2015)
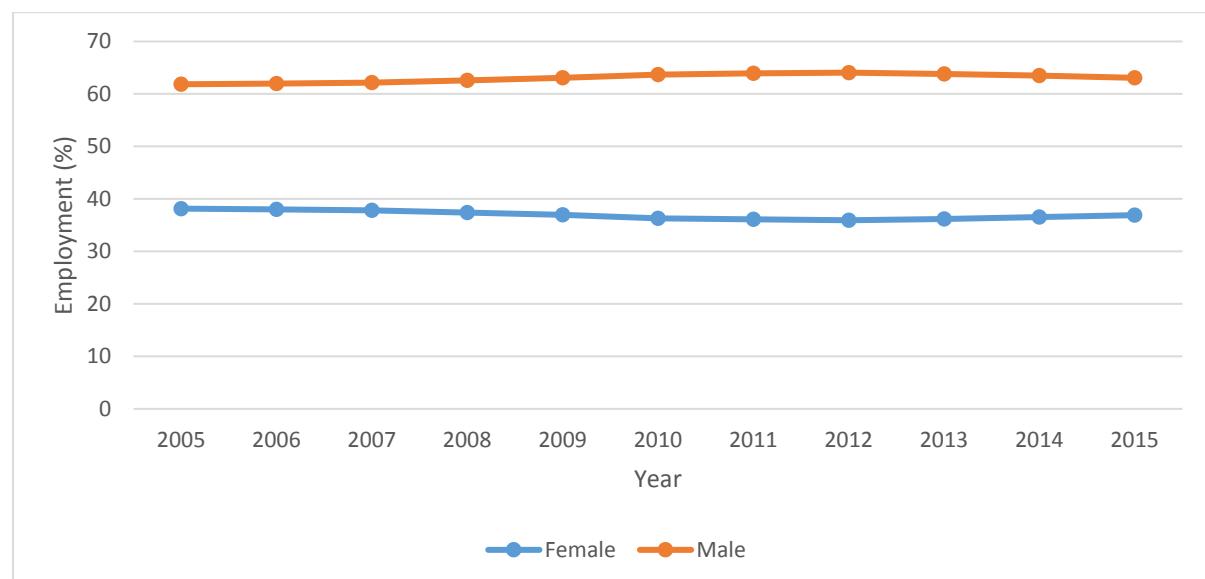
Source, Author 2017

4.1.3. FDI inflow in South Asia (2005-2015)

4.1.3.1 FDI inflow (Country level)
Table 15: Summary of FDI inflow data at a country level

Variable	Obs	Mean	Std. Dev.	Min	Max

FDI inflow	88	4608.641	10900.13	0	51029.35

The data on the FDI inflow in South Asia show that all the South Asian countries (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka) have received FDI from many different sources in the period of 2005 to 2015. The maximum FDI for a single year was received by India in the year 2008 equal to an amount of (51029.3 million $). Countries like Afghanistan, Bhutan, Maldives, and Nepal did not receive FDI for some years in the period 2005 to 2015. In the period, India received the maximum total FDI equal to (348562.9 million $) and Bhutan received the lowest amount (686.5 million $).

Figure 9: Order of countries in terms of magnitude of FDI inflow (2005 to 2015)
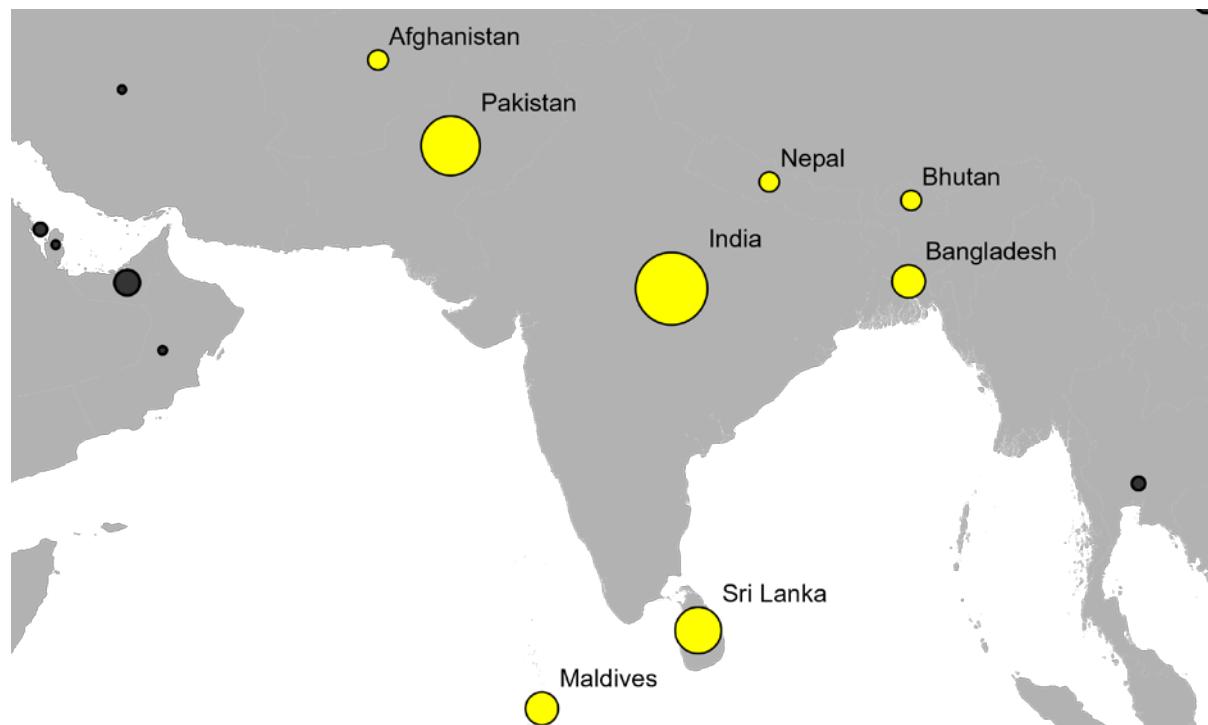
Source: Author, 2017 (developed in GIS)

Note: The order of the countries in respect to FDI inflow in a descending order is as follows: India, Pakistan, Sri Lanka, Bangladesh, Maldives, Nepal, Afghanistan, and Bhutan.

Figure 9 above displays a visual representation of the eight South Asian countries in accordance to the total FDI inflow received in the period 2005 to 2015. As mentioned earlier India is represented as the largest dot for having received maximum FDI inflow and the smallest dot is for Bhutan for receiving the minimum FDI inflow in the same period.

Figure 10: FDI inflow network of South Asia

Source: Author, 2017 (GIS)

Figure 10 above is the FDI inflow network of the South Asian countries (2005 to 2015). It enables to realize the extent of globalization over the period (2005 to 2015) in terms of movement of cash flows as FDIs across borders. It can be observed that South Asia has received FDI from countries around the globe in the period.

Trend Analysis (FDI inflow-country level)

Figure 11: FDI inflow trend of South Asia (2005-2015)

Nepal

Pakistan

India

Sri Lanka
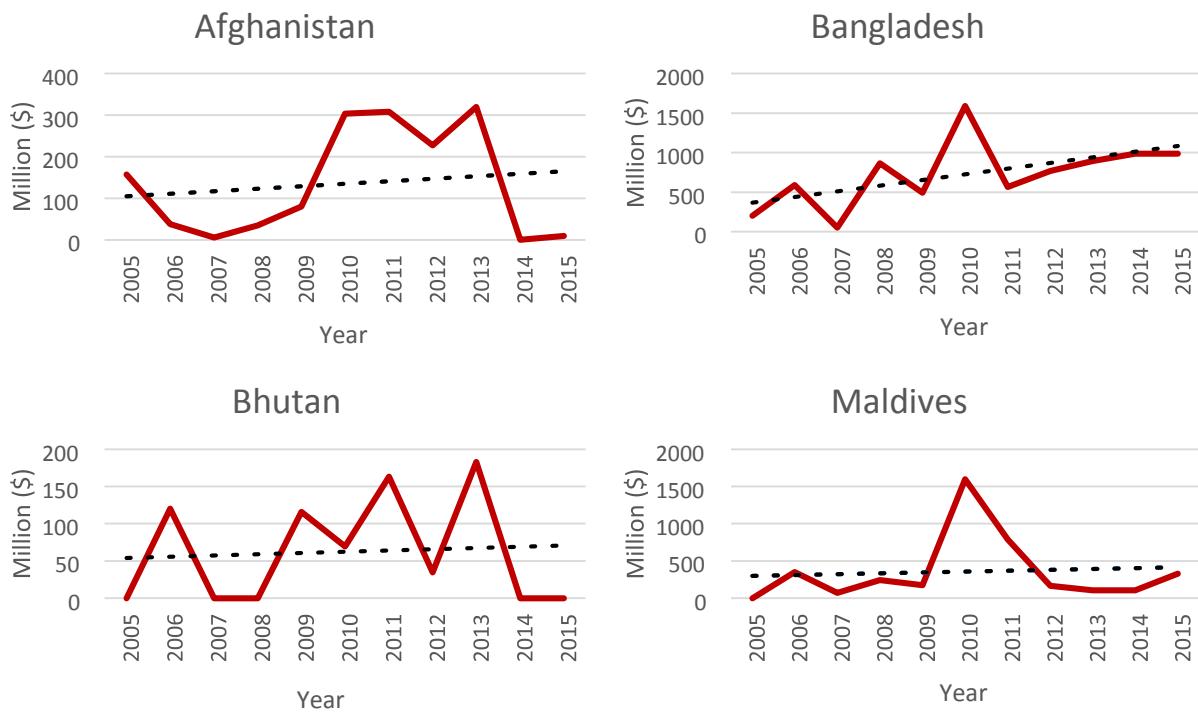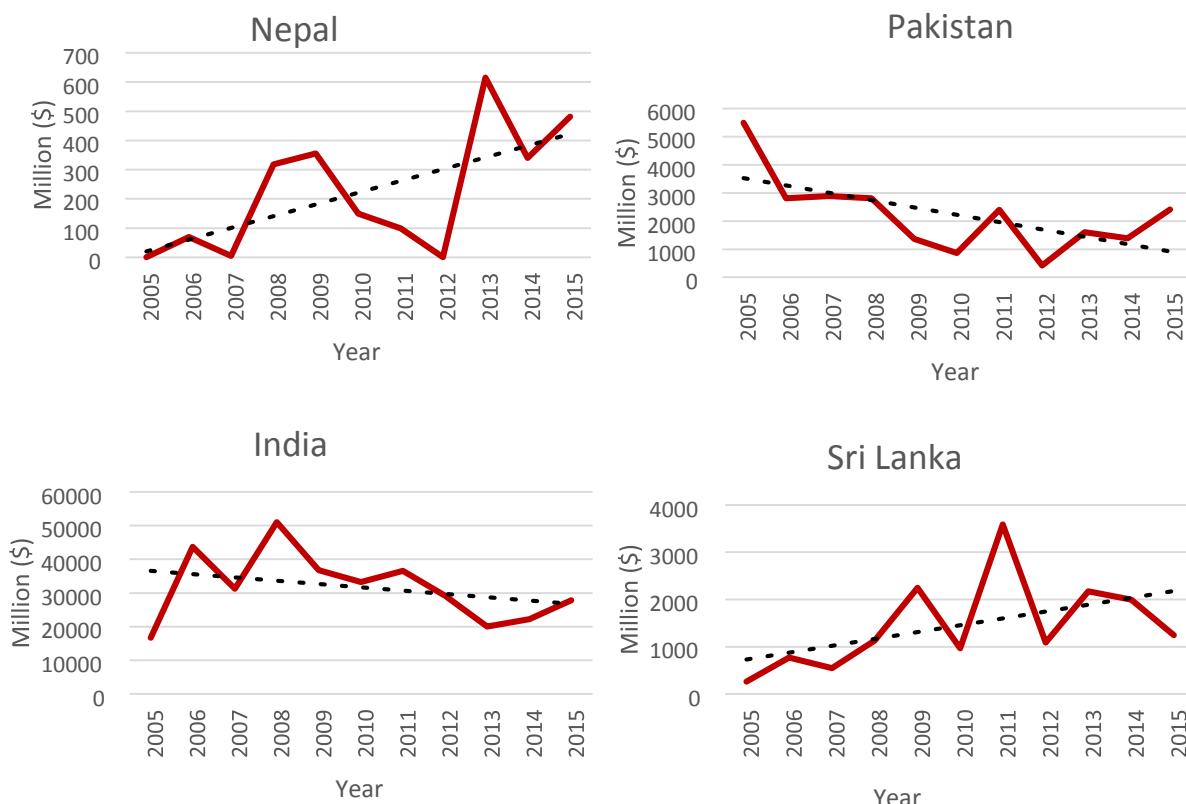
Source: Author, 2017

Figure 11 above displays the FDI inflow trends of the eight South Asian countries in the years 2005 to 2015. *In general, it is observed that except for Pakistan and India all the other South Asian countries have a growing FDI inflow trend in the period. Nepal, Sri Lanka and Bangladesh have witnessed sharp rising trends. On the other hand, Afghanistan, Bhutan, and Maldives have experienced only a gradual growth. Both Pakistan and India display a falling trend, however, the decline for Pakistan is observed to be more alarming.*

The maximum FDI inflow was experienced in the years 2008 to 2013 by seven of the countries except for Pakistan which received a maximum in the year 2005. Afghanistan, Bhutan, and Nepal received the maximum FDI in the year 2013. Maldives and Bangladesh received the maximum FDI in the year 2010. Similarly, Sri Lanka experienced it in the year 2011 and India in the year 2008. Except for Pakistan which received the lowest FDI inflow in the year 2012, all the remaining seven countries experienced the least FDI inflow in the years 2005 to 2007. The FDI inflow trends of Bhutan is observed to be highly undulating in the entire period. Bangladesh also displayed a fluctuated trend till the year 2011 after which it displays a consistent increasing trend. *Though most of the countries have received larger FDIs in the year 2015 compared to 2005 it is observed that the FDI inflow trends of South Asia have large variations between most of the years in the period.*

4.1.3.2 Sectoral FDI inflow
The data on the sectoral FDI inflow is divided into the three sectors of industry, service sector and the agriculture sector of the eight South Asian countries for the period 2005 to 2015.

4.1.3.2.1 Industry Sector

Table 16: Summary of FDI inflow data in the industry sector

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI inflow	88	2643.308	6612.794	0	33798.48

Source: Author, 2017 (STATA)

The data of FDI inflow in the industry sector reveals that all the countries of South Asia (Afghanistan, Bangladesh, Bhutan, India, Nepal, Maldives, Pakistan and Sri Lanka) have received FDI in this sector in the years 2005 to 2015. India received the maximum (203652.61 million $) and Bhutan received the lowest (372.7 million $) total FDI in the manufacturing sector. Maldives and Bangladesh received a very comparable volume of FDI equaling to (3387.6 million $) and (3434.66 million $) respectively. Nepal (1349.18 million $) and Afghanistan (465 million $) received a smaller amount of FDI compared to all the countries except for Bhutan. For a single year, India received the maximum amount of FDI (33798.4 million $) in the year 2008.

It is observed that the manufacturing sector of South Asia is the most preferred sector for the MNEs with a large percentage of investments from the total investments is observed to be in this sector. The total investment in the manufacturing sector of Maldives equals to 86.1% of the total investment and the least is 31.3% in Afghanistan. Bhutan, India, Nepal, and Pakistan receive FDI amounting to more than 50 percent investment in this sector from the total investment and the FDI in the manufacturing sector of Bangladesh and Sri Lanka also amounts to roughly 45 percent of the total investment.

The high FDI inflows in this sector possibly link to the fact that many countries in South Asia are export oriented due to the comparative advantage of both the low cost and high capacity in labour. For example, Bangladesh is a hot spot in the garment manufacturing global market. *Liberalization of policies and attractive enticements for investments in the industrial sector could also be the reason for the industrial sector to be a favorite sector of the MNEs.* For example, the industrial licensing in India which exempts most industrial undertakings from obtaining an industrial license. Investment in the manufacturing sector of Pakistan allows 100 percent equity of industrial projects from the government. Similarly, Bangladesh also allows several enticements like the tax exemptions for power generation an exemption of import duties for export oriented industries (Sahoo, 2006). *Also, significant infrastructural development in South Asian regions could be a determinant of high volumes of FDI in this sector.*

Figure 12: Order of countries in terms of magnitude of FDI inflow in the Industry sector (2005 to 2015)
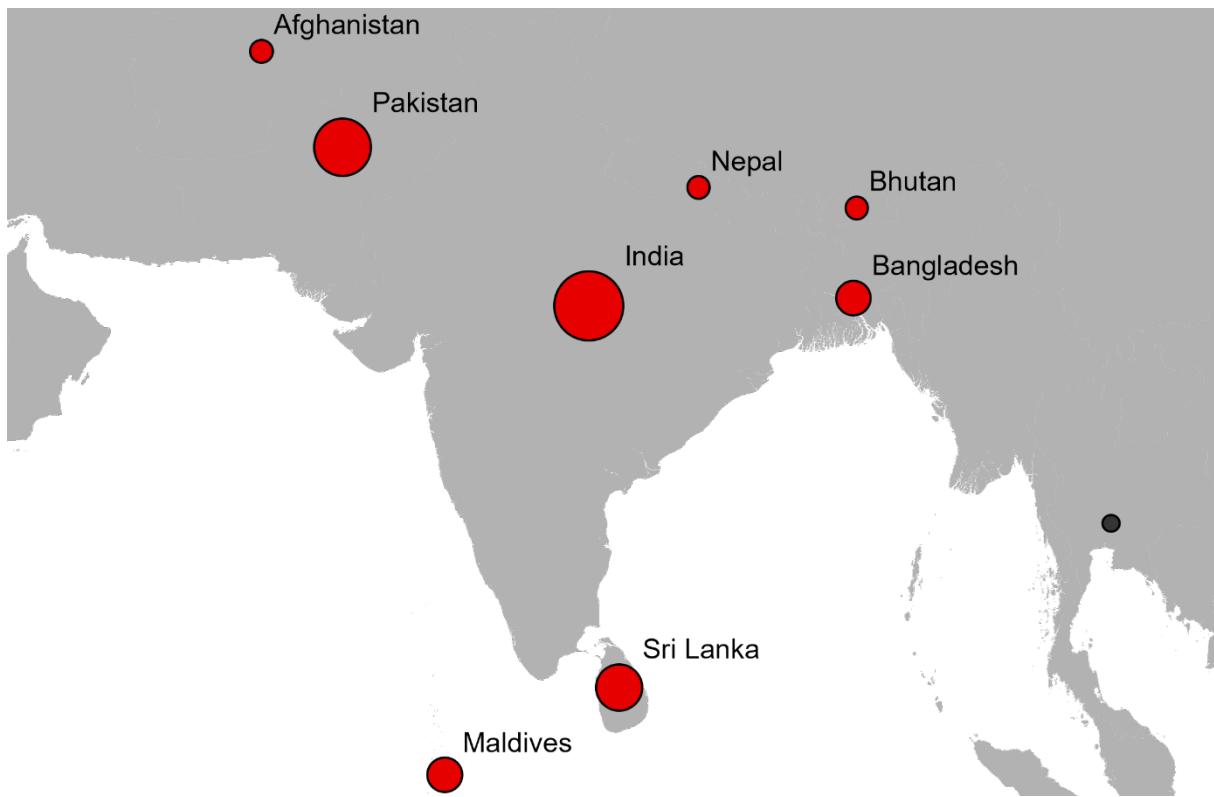
Source: Author, 2017 (developed in GIS)

Note: The order of the countries in respect to FDI inflow in a descending order is as follows: India, Pakistan, Sri Lanka, Bangladesh, Maldives, Nepal, Afghanistan, and Bhutan.

Figure 12 above displays a visual representation of the eight South Asian countries in accordance to the total FDI inflow received in the period 2005 to 2015. As mentioned earlier India is symbolized as the largest dot for having received maximum FDI inflow and the smallest dot is for Bhutan for receiving the minimum FDI inflow in the same period.

Figure Annex 1 (refer Annexure) is the FDI inflow network of the industrial sector of South Asia (2005 to 2015). It enables to realize the extent of investments received by the industrial sector in the period 2005 to 2015. It can be observed that the industrial sector of South Asia has received FDI from countries around the globe in the period. *Though it is the most preferred sector by the MNEs in South Asia in terms of FDI value, the FDI network of the industrial sector is observed to be next to the service sector meaning the industrial sector has received FDI from fewer countries compared to the service sector.*

Trend Analysis

Figure 13 below display the FDI inflow trends of the eight South Asian countries. *It can be observed that apart from Pakistan and India all the other countries display a growing FDI inflow trend.* Most of the growth in FDI inflow remain gradual in South Asia with the exception of Nepal and Bangladesh which display a sharp growth of FDI inflow in the period. All the countries experienced an upsurge in FDI inflow in 2015 compared to 2005 except for Pakistan which witnessed a significant drop in the amount of FDI received in 2015 compared to 2005.

Though the FDI in manufacturing sector accounted for a major portion of the FDI received in South Asia, it is observed that Afghanistan, Bhutan, and Nepal experienced inconsistent FDI inflow and did not receive FDI for most of the years in the period (2005-2015). Nepal received FDI in five of the years in the period and Bhutan and Afghanistan experienced even less with

having attracted FDI in only four of the years from 2005 to 2015. Other than India and Pakistan which experienced a high inflow of FDI in the year 2008 and 2005 respectively, all the other South Asian countries received the maximum amount of FDI in the years amid 2010 to 2013. Fig 6: Trend of sectoral FDI inflow (Industry sector) in South Asia (2005-2015)

Figure 13: Trend of FDI inflow (industrial sector) of South Asia (2005-2015)
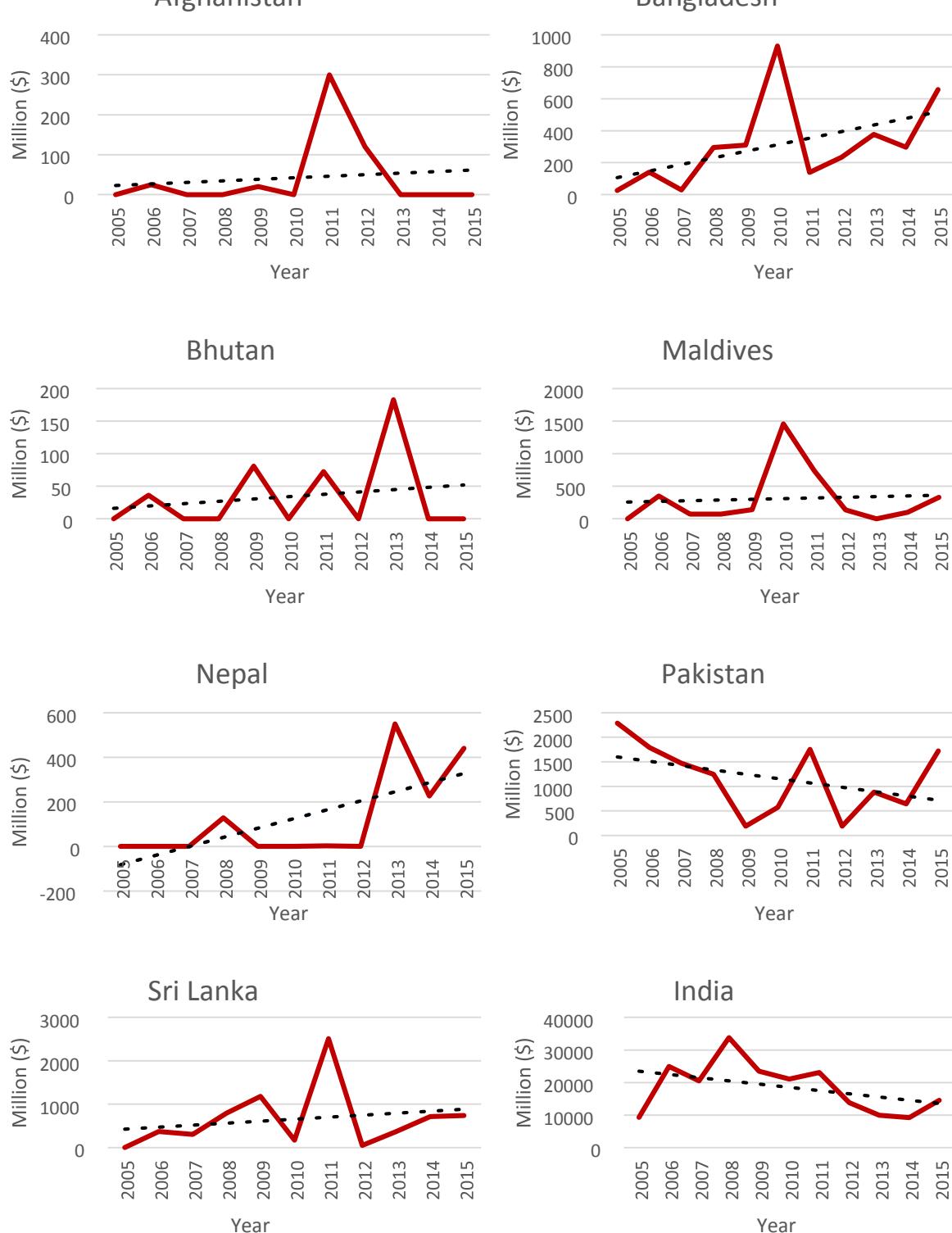
4.1.3.2.2 Service Sector

Table 17: Summary of FDI inflow data in the service sector

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI inflow	88	1841.98	4156.724	0	17385.97

Source: Author, 2017 (STATA)

The data of FDI inflow in the service sector reveals that all the countries of South Asia have received FDI in this sector in the years 2005 to 2015. India attracted the maximum total FDI (136396.6 million $) and Bhutan received the lowest (204.9 million $) in the service sector. For a single year, India received the maximum amount of FDI (17385.97 million $) in the year 2006. *It is observed that most of the countries of South Asia attract a fair amount of FDI in the service sector. However, countries like Afghanistan (68.6 %), Bangladesh (53.3%) and Sri Lanka (52.5%) receive the maximum amount of FDI in the service sector.* Maldives receives the least amount of FDI in the service sector which equals to (13.8 %) of the total FDI inflow.

Figure 14: Order of countries in terms of magnitude of FDI inflow in the Service sector (2005 to 2015)
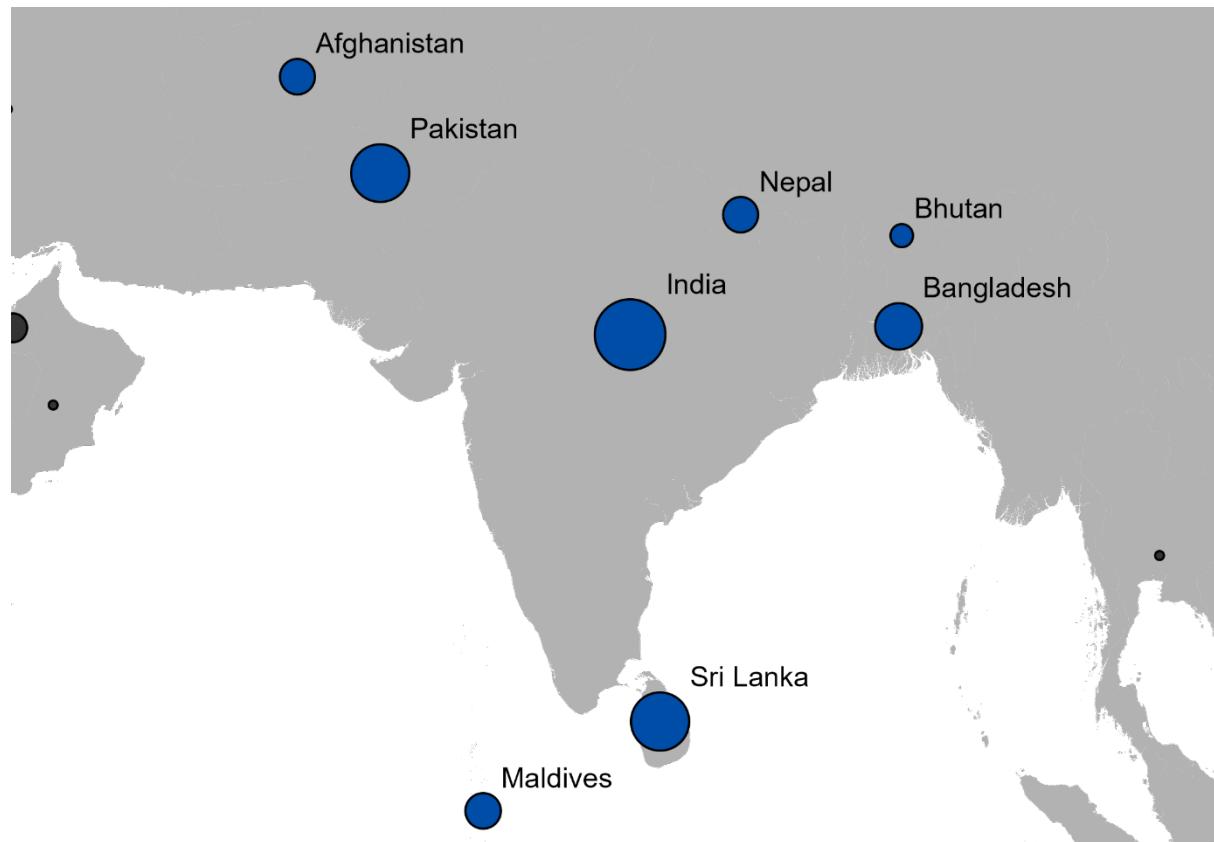
Source: Author, 2017 (developed in GIS)

Note: The order of the countries in respect to FDI inflow in a descending order is as follows: India, Pakistan, Sri Lanka, Bangladesh, Afghanistan, Nepal, Maldives, and Bhutan.

Figure 14 above displays a visual representation of the eight South Asian countries in accordance to the total FDI inflow received in the period 2005 to 2015. As mentioned earlier India is indicated as the largest dot for having received maximum FDI inflow and the smallest dot is for Bhutan for receiving the minimum FDI inflow in the same period.

Figure Annex 2 (refer Annexure) displays the FDI inflow network of the service sector of South Asia (2005 to 2015). It enables to realize the extent of investments received by the service sector in the period 2005 to 2015. *It can be observed that the service sector of South Asia has received FDI from a large number of countries around the globe revealing the service sector has the most widespread FDI network. However, in terms of FDI value, it is the next preferred sector by the MNEs in South Asia subsequent to the industrial sector.*

Trend Analysis
Figure 15 below display the FDI inflow trend in the service sector of the eight South Asian countries. *Only the service sector of Sri Lanka and Bangladesh show a steady growing FDI inflow trend in the period. India, Nepal, and Maldives display a stable trend and Afghanistan show a gradual growth for the period. Both Pakistan and Bhutan spectacle a dropping FDI inflow trend for the period 2005 to 2015.*

Afghanistan, Bangladesh, Bhutan and Sri Lanka received the maximum FDI inflow in the period 2010 to 2014. India, Maldives, Nepal, and Pakistan had the similar experience in the period 2005 to 2009. The FDI inflow in the service sector of Bhutan was very inconsistent having received FDI in merely five of the years in the period 2005 to 2015. Most of the countries experienced a rise in the FDI inflow in 2015 compared to 2005 except for Pakistan and Afghanistan which experienced a drop in the amount of FDI received in 2015 compared to 2005. It is noticed that Pakistan has received the maximum amount of FDI in the year 2005 in both the service and industrial sector. *Largely, FDI inflow in the service sector of South Asia exhibits huge fluctuations in the period.*

Figure 15: Trend of FDI inflow (service sector) in South Asia (2005-2015)

Maldives

Nepal

Pakistan

Sri Lanka
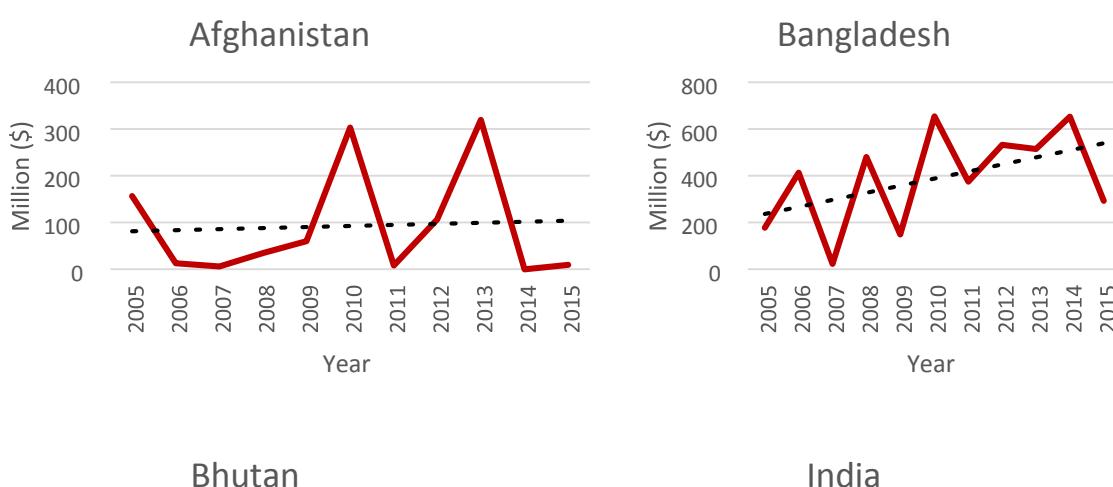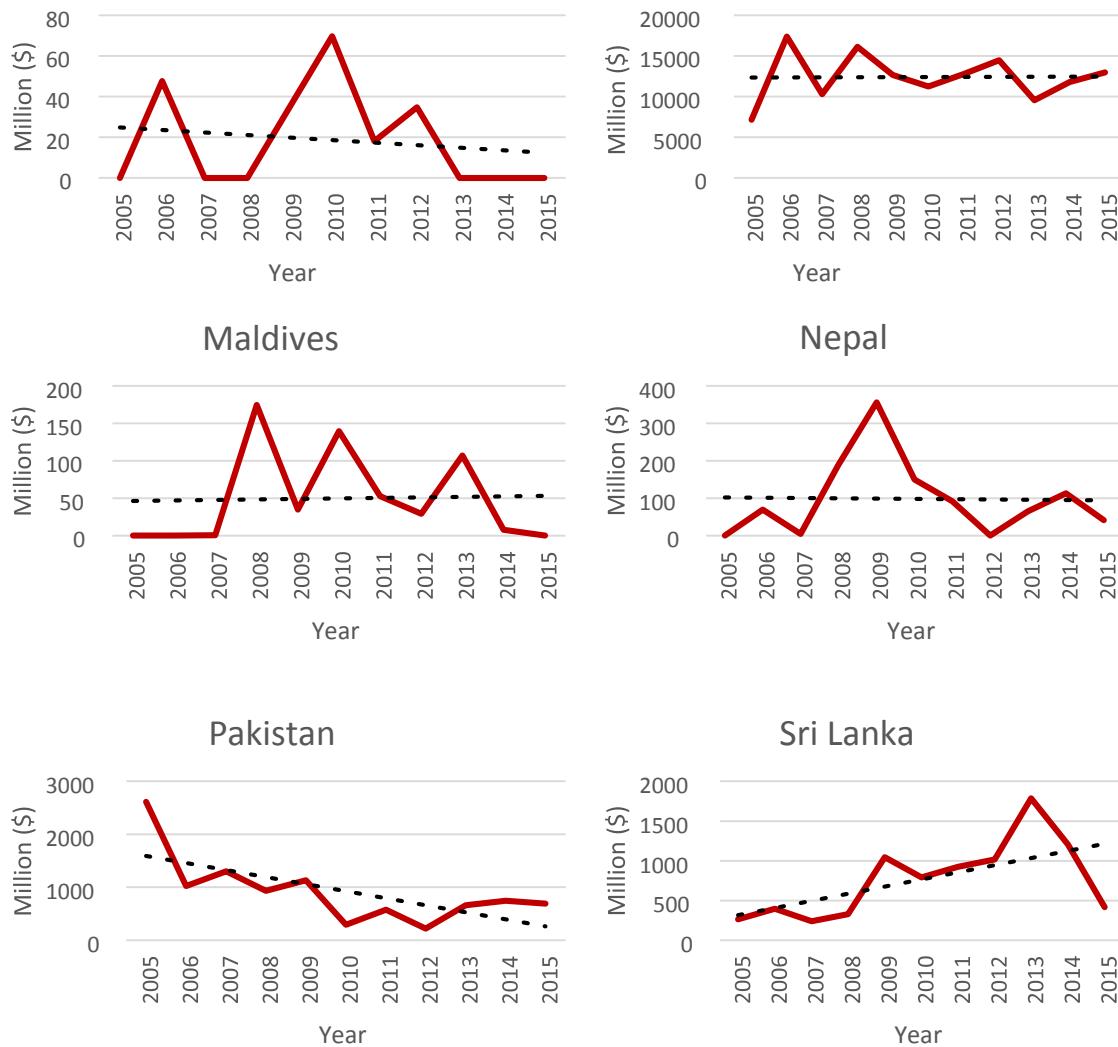
Source: Author, 2017

4.1.3.2.3 Primary Sector (Agriculture)

Table 18: Summary of FDI inflow data in the agriculture sector

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI inflow	88	123.3526	292.9743	0	1423.21

Source: Author, 2017

Figure 16: Order of countries in terms of magnitude of FDI inflow in the Agriculture sector (2005 to 2015)
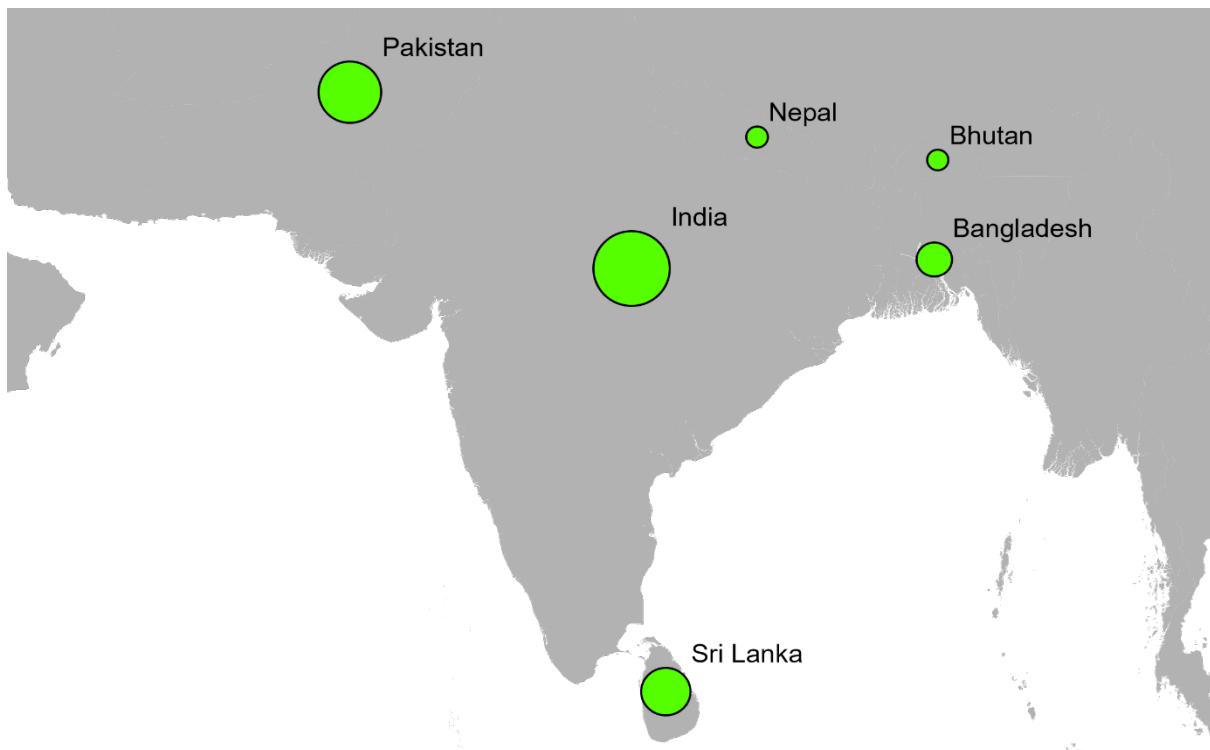
Source: Author, 2017 (developed in GIS)

Note: The order of the countries in respect to FDI inflow in a descending order is as follows: India, Pakistan, Sri Lanka, Bangladesh, Bhutan, and Nepal.

The data of FDI inflow in the agriculture sector reveals that only six (Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka) countries in South Asia have received FDI inflow in the years 2005 to 2015. India received the maximum (8513.71 million $) and Nepal received the lowest (3.28 million $) Total FDI in the agriculture sector. Pakistan received (1536.6 million $) of total FDI inflow subsequent to India. For a single year, India received the maximum FDI (1423.21 million $) in the year 2006.

It is observed that the FDI inflow in this sector is marginal compared to Industrial and the service sector sensing it is the least preferred sector for the foreign investors. The highest FDI inflow in this sector is in Bhutan and Pakistan which accounts for only 15.8 % and 6.2 % of the total FDI inflow respectively. Bangladesh, India, Nepal and Sri Lanka have experienced least FDI inflow in this sector accounting to less than 5% of the total FDI inflow.

Figure 16 above displays a visual representation of the six South Asian countries in accordance to the total FDI inflow in the agriculture sector received in the period 2005 to 2015. As mentioned earlier India is indicated as the largest dot for having received maximum FDI inflow and the smallest dot is for Nepal for receiving the minimum FDI inflow in the same period.

Figure Annex 3 (refer Annexure) is the FDI inflow (agriculture) network of the South Asian countries (2005 to 2015). It enables to realize the extent of investments received by the agriculture sector in the period 2005 to 2015. It can be observed that the agriculture sector of South Asia has received FDI from countries around the globe in the period but the network is sparse compared to the industrial and the service sector. The primary sector is found to be the least preferred sector by the MNEs.

Trend Analysis

Figure 17 below exhibits the trends of FDI inflow in the agriculture sector of the South Asia in the period 2005 to 2015. *The trend line displays a gradual change in all the countries except for Pakistan and Sri Lanka. Pakistan exhibits a sharp drop in the FDI inflow in the period. It is found that the FDI inflow trends of Pakistan display a sharp drop in all the three sectors. Sri Lanka shows a sharp growing trend in the service sector.*

Bhutan and Nepal have experienced inconsistent FDI inflow in the primary sector and did not receive FDI for most of the years in the period. Bhutan received FDI only twice (2006, 2011) in the entire period and Nepal experienced even less with just once (2011) in the entire period. The maximum amount of FDI inflow was experienced in the years 2008 and 2011 by most of this country except India which experienced the highest inward FDI in the year 2006. India is the only country which experienced consistent FDI inflow having received FDI in all the years (2005 to 2015). All other countries have not received FDI in at least one or more of the years.

Figure 17: Trend of FDI inflow (primary sector) in South Asia (2005-2015)
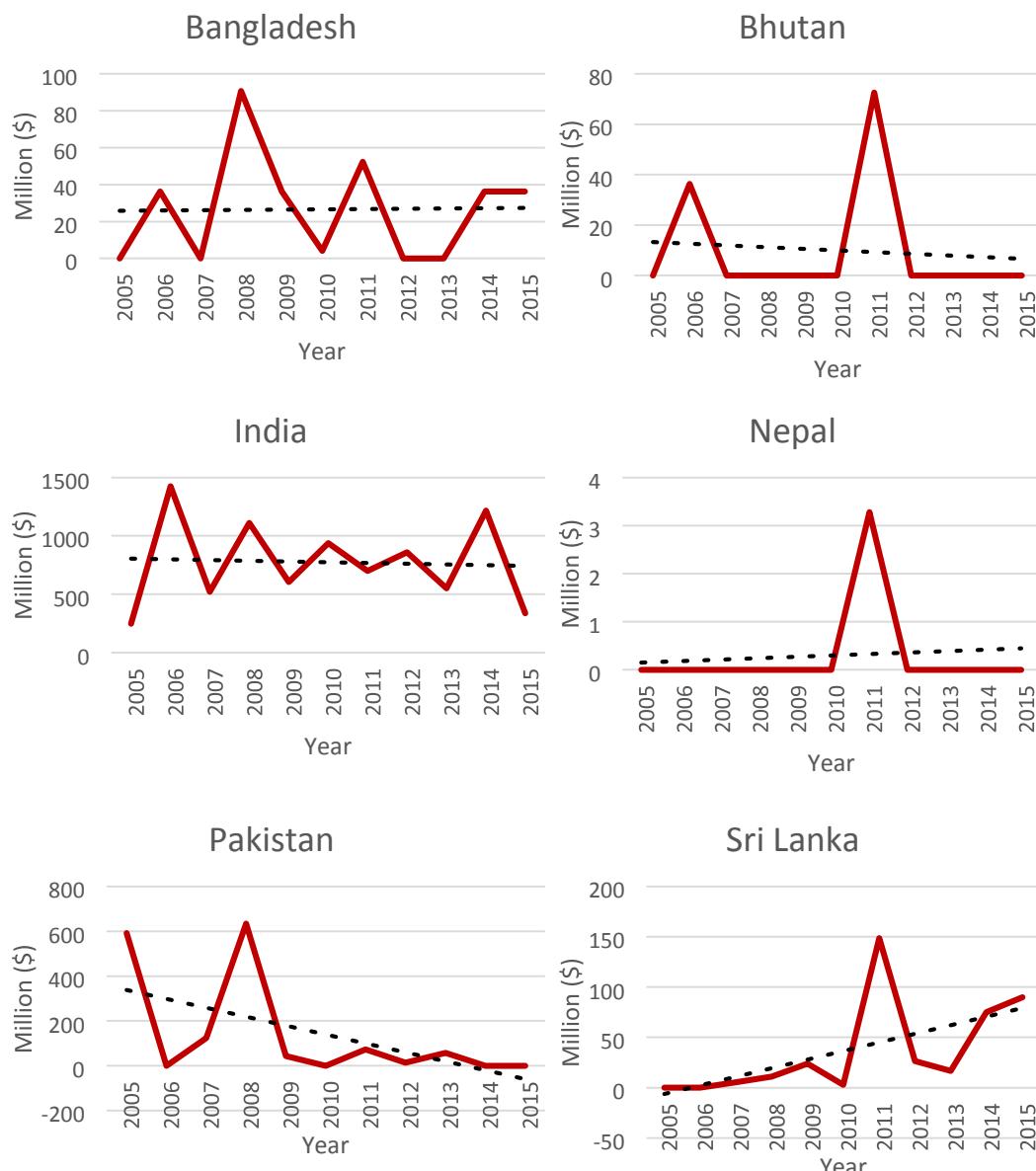
Source: Author, 2017

4.1.4 Absorption Capacity

4.1.4.1 FDI inflow-income inequality

Table 19 below displays the summary of the human capital, physical infrastructure and institutional setting data which is considered to be the components of the absorption capacity in this study. Also, an aggregate index is included in the model to evaluate the collective impact of the human capital, physical infrastructure and the institutional setting (absorption capacity) on the FDI and income inequality relationship. The data collected includes data for the labour force, life expectancy, and education as the indicator of the human capital. Acess to electricity, mobile subscription, and air transport points out the level of infrastructural development of the country. Institutional structure is evaluated in terms of transparency and corruption, social protection and economic management settings of the country.

Table 19: Summary of data (absorption capacity)

Variable	Obs	Mean	Std. Dev.	Min	Max
Labour force	72	41.25486	7.621777	26.76253	54.49523
Life expectancy	72	67.99306	5.199034	57	76.6
Education	72	33.11111	19.31415	9.6	80.5
Access to electricity	72	72.98227	18.8136	23	99.9
Mobile subscription	72	54.21509	40.59845	0.8987643	181.194
Air Transport	72	92526.37	191371.3	1900	695626
Transparency/corruption	72	2.993056	0.6526924	2	4.5
Social Protection	72	3.284722	0.4426742	2	4
Economic Management	72	3.467731	0.5964291	2.16	4.5
Aggregate Index	72	9.205207	3.072881	1.051004	13.98736

Source: Author, 2017 (STATA)

In accordance with the data, Nepal recorded the highest labor force (% of total population) with 54.5 % in the year 2013 and Afghanistan had the least labour force of 26.76 % in the years 2008 and 2009. From all the countries, the life expectancy of people in Maldives is observed to be the highest with 76.6 years (2013) and the lowest is 57 years (2005) in Afghanistan. In the year 2013, around 80.5% of the population of Sri Lanka was found to be with an at least of secondary education and simply 9.6 % of the population in Bhutan had secondary education.

By the year 2009, 99.9 % of the population of Maldives had access to electricity and the very least of 23% of the population of Afghanistan had access to electricity in the year 2005. But a significant improvement was noted with a 75.2 % of the population recorded to have access to electricity by the year 2013. By 2013, Maldives had a total number of 181.19 postpaid and prepaid subscriptions (mobile cellular subscription) per every 100 people which were the highest in the South Asian region. On the other hand, Nepal had the minimum mobile subscriptions of 0.89 subscriptions in 2005 which furthered to 76.85 subscriptions in a decade.

In the years 2005 to 2013 India had the maximum domestic and international take-offs indicating India has a highly developed transport infrastructure. Oppositely, Bhutan had the least takeoffs signifying less development in the transport infrastructure. From the empirical evidence, it is very realistic that Maldives has a highly advanced ICT infrastructure in the

region. Afghanistan, on the other hand, is the least developed country in ICT infrastructure. As per the CPIA rating, the public sector in Bhutan is highly transparent and accountable with the highest rating of 4.5 for transparency in most of the years (2009 to 2013). It is also the highest rated (4.5) country for economic management that includes a rating for the macroeconomic management, fiscal, and debt policies. The public sector of Afghanistan is the least placed country for both transparency and the social protection with a rating of 2 in multiple years in the period. Maldives recorded the highest rating of 4 for Social protection and government policies in social protection in the years 2010 to 2013 but fails to replicate that in the economic management policy as it is the least ordered in the CPIA economic management rating.

Figure 18: Absorption Capacity/Aggregate index (2015)
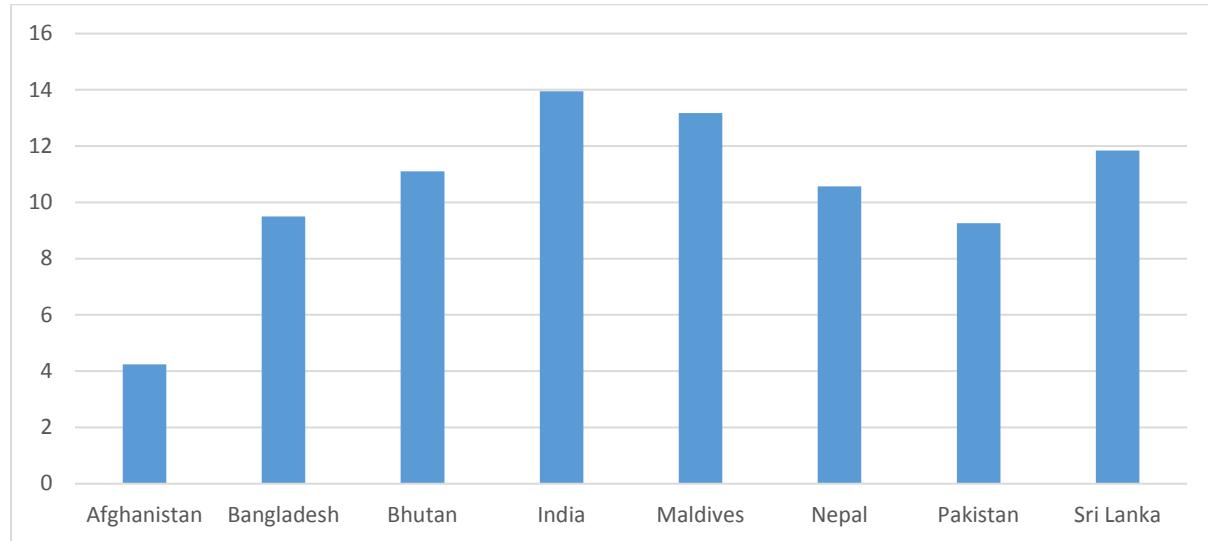
Source: Author, 2017

Reiterating that an aggregate index was generated using the R statistical computing by combining all the indicators of human capital, physical infrastructure, and institutional setting to evaluate the absorption capacity of the South Asian countries. Figure 18 above presents the absorption capacity of the eight South Asian countries in the year 2015. It is found that India has the highest aggregate index (13.95) signifying superior absorption capacity in the region and Afghanistan is found to have the lowest absorption capacity with an aggregate index (4.23).

4.1.4.2 FDI inflow-gender inequality

Table 20 below displays the summary of human capital, physical infrastructure, and institutional settings data which is considered to be the components of the absorption capacity in this study. Also, an aggregate index is included in the model to evaluate the collective impact of the human capital, physical infrastructure and the institutional setting (absorption capacity) on the FDI and gender inequality relationship. The data collected includes data for the labour force, life expectancy, birth rate, and secondary education as the indicator of the human capital. Access to electricity and air transport data indicates the level of infrastructural development of the country. Institutional structure is evaluated in terms of transparency and corruption, gender equality rating and economic management settings of the country.

Table 20: Summary of absorption capacity data in the South Asian countries

Variable	Obs	Mean	Std. Dev.	Min	Max
Labour force (F)	88	32.83208	10.92608	15.19098	50.80274
Life expectancy (F)	88	69.66667	5.609596	58.151	78.389

Education (F)	88	24.28977	20.4872	2.3	80.2
Access to electricity	88	75.75124	18.70807	23	100
Air Transport	88	98348.04	201518.9	1900	787998
Transparency/corruption	88	3	0.6608946	2	4.5
Gender equality	88	3.380682	0.8475601	1.5	4.5
Economic Management	88	3.44125	0.5881183	2.166667	4.5
Aggregate Index	88	7.434422	2.703507	1.579353	11.8854

Source: Author, 2017 (STATA)

In accordance with the data, Nepal recorded the highest female labor force (% of the total female population) with 50.8 % in the years 2013 to 2015 and the least by Afghanistan with a mere 15.19 % in the years 2006 to 2007. The life expectancy of the female population in Maldives is noted to be the highest with 78.3 years (2015) and the lowest is 58.15 years (2005) in Afghanistan. In terms of education, Sri Lanka leads with 80.2% of the female population found to be with at least a secondary education in the year 2014 and 2015. In the years 2005 and 2006 simply 2.3 % of the female population of Afghanistan is recorded to have at least a secondary education which is the lowest in the region. Poor health conditions of women relating to birth may be the highest in Afghanistan with a maximum of 44.8 births recorded per every 1000 women and the least is in Sri Lanka with simply 15.6 births per 1000.

By the year 2015, 100 % of the population of Bhutan and Maldives had access to electricity. The very least of 23% of the population of Afghanistan had access to electricity in the year 2005 but by 2015 a significant improvement was noted with an 89.5 % of the population recorded to have access to electricity by 2015. The collected information for the years 2005 to 2015 show that India had the maximum domestic and international take-offs indicating India has a highly developed transport infrastructure. Similarly, Bhutan had the least takeoffs signifying least development in transport infrastructure. Also, from the empirical evidence, it is very realistic that Maldives has a highly advanced energy infrastructure and Afghanistan is the least developed in this sector. As per the data, the public sector in Bhutan is highly transparent, accountable, and least corrupt with the highest public sector rating of 4.5 for seven consecutive years (2009 to 2015). It is also the highest rated (rating=4.5) country for economic management that includes macroeconomic management, fiscal, and debt policy. The public sector of Afghanistan is the least placed for both transparency and corruption and the gender equality rating with a rating of 1.5 for the years 2013 to 2015. Maldives recorded the highest rating of 4.5 for gender equality in the years 2012 to 2013 but fails to replicate that in the economic management policy as is the least ordered in the CPIA economic management with a rating of 2.16.

Figure 19 below presents the absorption capacity of the eight South Asian countries in the year 2015. It is found that India has the highest aggregate index of 11.88 signifying superior absorption capacity in the region and Afghanistan is shown to have the least absorption capacity with an aggregate index of 3.3.

Figure 19: Absorption capacity/Aggregate Index (2015)
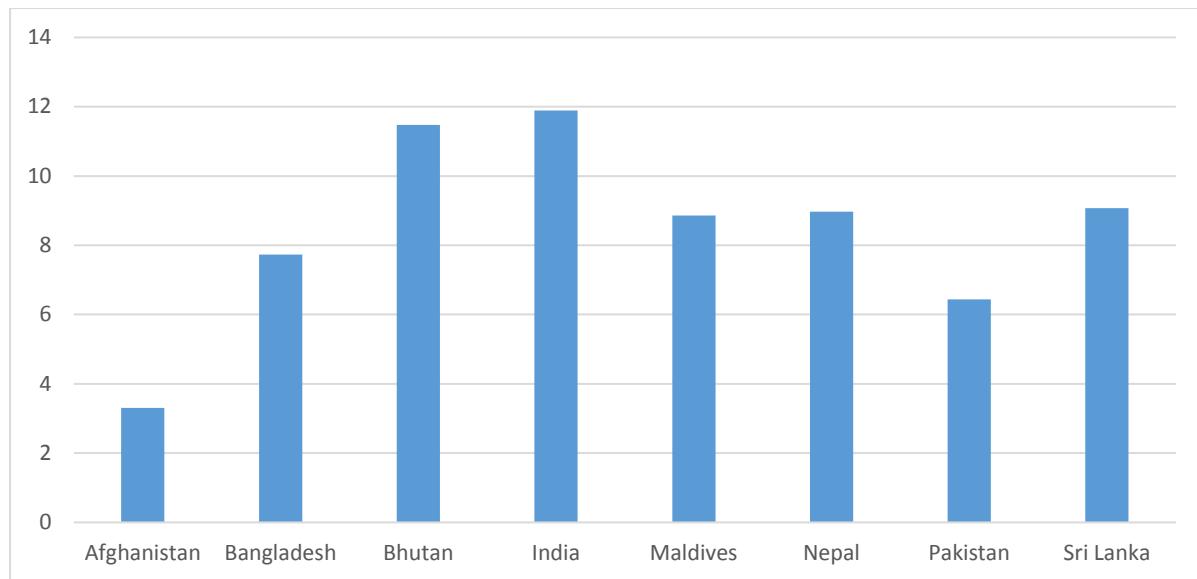
Source: Author, 2017

4.2 Inferential Statistics

4.2.1. FDI and income inequality

4.2.1.1 Gini Index

A panel regression was performed to study the impacts of FDI inflow on income inequality in South Asia (2005 to 2013). The regression used Gini index as the dependent variable and FDI inflow as the independent variable. The empirical analysis adopted four models to study the relationship and each model included a different number of control variables. From the outcome of the empirical analysis (refer Annexure) it can be deduced that FDI inflow does not have a significant impact on income inequality in South Asia. (Sylwester, 2005) also found that FDI is positively associated with economic growth, however, no strong association between FDI and income inequality was detected. (Pan-Long, 1995) claimed that the significant correlation between FDI and income inequality obtained in previous studies might have captured more of the geographical difference in inequality than the effect of FDI. (Bussmann, De Soysa, et al., 2002, Hemmer, Krüger, et al., 2005) also found no significant impacts of FDI on income inequality.

As this research was also meant to study the role of absorption capacity; human capital, physical infrastructure and institutional settings on the FDI inflow and income inequality relationship. It needed to consider more than simply the main effects of FDI inflow on income inequality. For example, the effect of the independent variable on the dependent variable may depend on other variables. Therefore, to further the understanding of the factors that mediate the FDI inflow and income inequality relationship, interaction terms were included in the model. The interaction terms were performed in four different models. Model (1) includes the interaction of FDI inflow with indicators of human capital. Model (2) includes the interactions of FDI inflow with indicators of human capital and physical infrastructure. Model (3) includes the interaction of FDI inflow with the indicators of human capital, physical infrastructure, and institutional settings. Model (4) repeats model (3) but includes a set of control variables.

Table 21: Results of the regression with interaction terms (Gini index)

VARIABLES	(1) Gini index	(2) Gini index	(3) Gini index	(4) Gini index

	(1)	(2)	(3)	(4)
FDI inflow	0.0107**	0.00609	0.0154	0.0157
	(0.004)	(0.008)	(0.015)	(0.016)
log Labour force	-11.72*	-6.501	-13.71	-27.96**
	(5.333)	(8.265)	(7.515)	(8.944)
FDI*log Labour force	-0.00197**	-3.31e-05	-0.00468	-0.00368
	(0.001)	(0.001)	(0.008)	(0.008)
Life expectancy	0.0211	-1.064*	-1.619**	-2.747**
	(0.368)	(0.523)	(0.664)	(0.826)
FDI*Life expectancy	-6.73e-05	-7.09e-05	8.13e-05	2.65e-05
	(0.000)	(0.000)	(0.000)	(0.000)
Education	-1.391**	-1.352**	-0.961*	-0.838
	(0.479)	(0.404)	(0.432)	(0.721)
FDI*Education	9.54e-05**	-1.05e-05	-0.000199	-0.000184
	(0.000)	(0.000)	(0.000)	(0.000)
Access to electricity		0.0923**	0.111**	0.230***
		(0.035)	(0.043)	(0.056)
FDI*Access to electricity		-1.32e-05*	-2.56e-05	-3.09e-05
		(0.000)	(0.000)	(0.000)
Broadband subscription		1.30e-06**	1.44e-06	2.21e-06***
		(0.000)	(0.000)	(0.000)
FDI*Broadband subscription		-0	-0	-6.26e-11
		(0.000)	(0.000)	(0.000)
Transparency/corruption			0.290	0.590
			(1.369)	(1.786)
FDI*Transparency/corruption			0.00124	0.00132
			(0.002)	(0.002)
Social Protection			0.866	1.021
			(1.215)	(0.975)
FDI*Social Protection			-0.000607	-0.000219
			(0.001)	(0.001)
log Economic Management			-3.672	-1.975
			(3.296)	(4.031)
FDI*log Economic Management			-0.00117	-0.00227
			(0.001)	(0.002)
log GDP growth annual				0.544
				(0.974)
trade				0.0316
				(0.021)
Population				-0.00154
				(0.001)
Constant	92.12***	138.6***	199.0***	311.4***
	(15.213)	(27.786)	(51.620)	(48.050)
Observations	56	56	56	54
R-squared	0.544	0.593	0.630	0.665
Number of CID	8	8	8	8

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author, 2017 (STATA)

Table 21 above display the results of the interaction terms and it can be observed that the interaction of FDI inflow with the labour force and education have a significant impact on income inequality. As the nature of the relationship is explained by the main effect of the significant interaction terms. It can be observed that both labour force and education share a negative correlation with income inequality. Meaning a larger population with education and a larger labour force in the market will be vital to witness optimistic impacts of FDI on income inequality. From the outcome of the analysis, it can be inferred that the impact of FDI inflow on income inequality in South Asia is moderated by the quality of human capital. The finding is concomitant with the existing research that suggests human capital as one of the most important component of absorption capacity (Nguyen, Duysters, et al., , 2009) which moderates the FDI and income inequality relationship (Eicher and García-Peñalosa, 2001). (Hemmer, Krüger, et al., 2005) also claim that the effects of FDI is largely dependent on the existing human capital endowment. (Basu and Guariglia, 2007) also highlighted that FDI could worsen inequality, mostly in a setting where the initial human capital is poor.

The key reason for the effect of FDI inflow on income inequality is generated due to the transfer of new technology and knowledge in the host country. Which deviates the relative employment conditions of the host country due to the opposing effects of skill and education on the demand and supply of labour (Tinbergen, 1975). The higher demand for labour with skills and higher education might lead to rise in the income of skilled labour and generate an income gap between the skilled and unskilled workers. The role of education hence is related to the supply of skilled labour in the local market to meet the demands of MNEs. A higher educated population in the host country allows the higher supply of skilled labour. Therefore, countries with a larger educated population reduce the skill premium in the local economy created by FDI inflows which influence income inequality (Eicher and García-Peñalosa, 2001).

The labour force in the empirical analysis reports the people who are currently employed and the unemployed but who are seeking work but excludes unpaid workers and students. It is a measure of the economically active people in the country who are a part of the labour market for the production of goods and services. As FDIs are claimed to transfer technology, know-hows and trade networks through various channels. FDI inflow in the host countries is likely to generate many economic opportunities. However, the higher output of FDI holds only when the host country has a minimum threshold stock of human capital (Borensztein, De Gregorio, et al., 1998). Therefore, it is ostensible that larger the labour force of a country, a larger number of people are expected to venture on economic activities and involve in the labour market which might influence income distribution in the country. Also, as both, the indicators of the human capital labour force and education were found to have significant interaction terms with FDI. It can be reasoned that a larger ratio of the educated labour force in the host country might be central to have positive impacts of FDI on income inequality.

4.2.1.2 Inequality in income (%)

An additional panel regression was performed to study the impacts of FDI inflow on income inequality in South Asia (2010 to 2015). The regression used UNDP's inequality in income (%) as the dependent variable and FDI inflow as the independent variable. Inequality in income (%) also provides a measure of income inequality and is based on the data of surveys at a household and estimated using the Atkinson inequality index. The inequality in income (%) is used in the research as an alternative to Gini coefficient to achieve robust results. The Atkinson index examines the effects of inequalities in a wider income spectrum and enables more

meaningful quantitative assessment than Gini. The empirical analysis also adopted four models to study the relationship and each model included a different number of control variables. From the outcome of the empirical analysis (refer Annexure) it can be deduced that FDI inflow does not have a significant impact on income inequality in South Asia. Reiterating the association of the findings with existing research, (Pan-Long, 1995, Sylwester, 2005, Bussmann, De Soysa, et al., 2002, Hemmer, Krüger, et al., 2005) also found that FDI does not have a significant impact on income inequality.

To study the factors that moderate the FDI inflow and income inequality relationship, interaction terms were included in the model. The interaction terms were performed in the same four models. Model (1) includes the interaction of FDI inflow with an indicator of absorption capacity. Model (2) includes the interactions of FDI inflow with indicators of human capital and absorption capacity. Model (3) includes the interaction of FDI inflow with the indicators of human capital, physical infrastructure, and absorption capacity. Model (4) repeats model (3) but includes a control variable.

Table 22: Results of the regression with interaction terms: inequality in income (%)

VARIABLES	(1) Income inequality	(2) Income inequality	(3) Income inequality	(4) Income inequality
FDI inflow	-2.11e-05	0.000798	0.00720**	0.00880*
	(0.000)	(0.002)	(0.003)	(0.004)
Aggregate index	-0.0320	-0.00588	-0.0145	-0.00596
	(0.081)	(0.138)	(0.157)	(0.148)
FDI*Aggregate index	1.44e-06	-2.76e-06	-6.17e-06	-8.58e-06
	(0.000)	(0.000)	(0.000)	(0.000)
log Labour force		0.764	0.757	2.241
		(4.860)	(3.553)	(2.955)
FDI*log Labour force		-0.000239	-0.000181	-0.000371
		(0.001)	(0.000)	(0.001)
log Life expectancy		20.19	54.19**	50.48**
		(24.181)	(19.229)	(20.119)
FDI*log Life expectancy		-6.21e-05	-0.00188*	-0.00217*
		(0.001)	(0.001)	(0.001)
log Education		-4.179	-6.449**	-6.600**
		(2.630)	(1.990)	(2.126)
FDI*Education		0.000156	0.000650**	0.000789**
		(0.000)	(0.000)	(0.000)
Mobile Subscription			-0.0153**	-0.0144***
			(0.005)	(0.003)
FDI*Mobile subscription			-2.55e-07	-3.03e-07
			(0.000)	(0.000)
Broadband subscription			2.22e-07	2.74e-07
			(0.000)	(0.000)
FDI*Broadband subscription			-0	-0
			(0.000)	(0.000)
Trade				-0.00800

				(0.007)
Constant	3.140***	-75.78	-213.3**	-202.4**
	(0.663)	(91.906)	(76.045)	(80.027)
Observations	48	48	48	48
R-squared	0.017	0.253	0.497	0.541
Number of C_ID	8	8	8	8

Robust standard errors in parentheses

*** p<0.01, ** p<0.05,

* p<0.1

Source: Author, 2017 (STATA)

Table 22 above display the results of the interaction terms and it can be observed that the interaction of FDI inflow with education and life expectancy have a significant impact on income inequality. As the nature of the relationship is explained by the main effect of the significant interaction terms. It can be observed that education share a negative correlation with income inequality. The finding is analogous to the earlier regression results which were performed using the Gini index as the dependent variable. Hence, it can be inferred that the impact of FDI inflow on income inequality in South Asia is mediated by the quality of human capital expressed in terms of labour force, skills and education. Echoing the previously discussed link of education on the FDI and income inequality relationship, it is rooted in the changes in relative employment conditions of the host country generated by the opposing effects of technology and education on the demand and supply of skilled labour respectively (Tinbergen, 1975). Hence the role of education is related to the supply of skilled labour in the local market to meet the demands of MNEs. A higher educated population in the host country allows the higher supply of skilled labour. Therefore, countries with a larger educated population reduce the skill premium in the local economy created by FDI inflows which influence income inequality (Eicher and García-Peñalosa, 2001).

A variable of life expectancy was included in the model as an indicator of the human capital from a health perspective. The interactions of FDI inflow and life expectancy were significant, but the main effect of life expectancy display a positive association with income inequality hinting a longer life expectancy of the people might escalate income inequality. The interactions of FDI inflow with life expectancy and increasing income inequality may be associated with a dependency ratio of a country. Higher dependency ratio or population aging is claimed to be associated with a reduction of the labour force which is vital for efficient utilization of the benefits of FDI. As a result, which slows the economic growth of a country that threats employment and opportunities (Bloom, Canning, et al., 2010).

4.2.2. FDI and Gender inequality

A panel regression was performed to study the impacts of FDI inflow on gender inequality in South Asia (2005 to 2015). The regression used female employment in South Asia as the dependent variable and FDI inflow as the independent variable. The empirical analysis adopted four different models to study the relationship and each model included a different number of control variables. The outcome of the first two models (refer Annexure) display a positive and a significant correlation of FDI inflow with female employment. It can be interpreted that FDI inflow might lessen gender inequality in South Asia by improving the female employment in the region. The finding is consistent with existing literature, (Rivero, 2007) found that FDI had significant positive effect on employment in the Latin American Countries and the effect was

stronger for female employment. (Braunstein and Brenner, 2007) also, assert a positive relationship between women employment and FDI in semi-industrialised countries. However, the existing literature on the effects of FDI on the gender inequality is still limited. (Aguayo-Tellez, 2012) claimed that FDI inflow and gender inequality relationship were found to be varying across sectors depending on the industry structure and skill endowments of men and women. To further the understanding of the FDI and gender inequality relationship the relationship is explored at a sectoral level at a later stage.

To study the factors that influence the FDI inflow and gender inequality relationship, interaction terms were included in the model. The interaction terms were performed in four models. Model (1) includes the interaction of FDI inflow with the aggregate index. Model (2) includes the interactions of FDI inflow with the aggregate index and the indicators of human capital. Model (3) includes the interaction of FDI inflow with the aggregate index, indicators of human capital and the physical infrastructure. Model (4) repeats model (3) additionally with the indicator of institutional setting and control variables.

Table 23: Results of the regression with interaction terms (Country level)

VARIABLES	(1) Female employment	(2) Female employment	(3) Female employment	(4) Female employment
FDI inflow	0.00102***	-0.00121**	-0.00129***	-0.00148***
	(0.000)	(0.000)	(0.000)	(0.000)
Log Aggregate Index	3.953***	-0.00111	0.0747	0.610
	(1.013)	(0.732)	(0.644)	(0.488)
FDI* log aggregate index	-0.000471***	0.000272	0.000330*	0.000392*
	(0.000)	(0.000)	(0.000)	(0.000)
Labour force (F)		0.282	0.267**	0.217*
		(0.162)	(0.106)	(0.094)
FDI*labour force (F)		2.89e-05**	2.64e-05***	2.92e-05***
		(0.000)	(0.000)	(0.000)
Education		0.218**	0.218**	0.134**
		(0.079)	(0.081)	(0.048)
FDI*Education		-2.15e-05	-1.73e-05	-1.75e-05
		(0.000)	(0.000)	(0.000)
Broadband Subscription			-4.25e-08	-1.37e-07
			(0.000)	(0.000)
FDI*Broadband Subscription			-0	-0
			(0.000)	(0.000)
Gender equality				-0.0517
				(0.359)
FDI*Gender equality				-9.91e-06
				(0.000)
trade				-0.00265
				(0.006)
Population density				0.0163
				(0.010)
Constant	25.29***	21.67***	22.09***	20.38***
	(1.910)	(4.644)	(3.325)	(3.493)

Observations	88	88	88	87
R-squared	0.462	0.802	0.804	0.838
Number of C_ID	8	8	8	8

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author, 2017

Table 23 above display the results of the interaction terms and it can be observed that the interactions of FDI inflow with indicators of human capital and the absorption capacity have a significant impact on female employment. As the nature of the relationship is explained by the main effect of the significant interaction terms. It can be observed that both labour force and aggregate index share a positive correlation with female employment in South Asia. Meaning a larger female labour force and a higher absorption capacity might be essential to have positive impacts of FDI on female employment crafting gender parity in the labour market of south Asia. The association of women participation in the labour market with FDI and gender inequality feasibly links to the economic opportunities that accompany FDIs. Though a highly contested topic, FDIs are linked with generating economic opportunities and growth in the host country through various channels. But provided that there is no adequate female labour force, the economic and other opportunities generated by FDI for women cannot be utilized. Economic opportunities and equality policies will be futile unless women are willing to work and participate in the labour market. Similarly, (Aguayo-Tellez, 2012) highlighted that female employment and wage may increase if female labour force participation is larger in sectors that receive larger FDI. The empirical investigation is also suggestive of the similar fact that human capital might be imperative to realise positive impacts of FDI on gender inequality.

However, it is vital to consider that the female labour force participation is decided by various factors like education, social norms, and institutional capacities. Studies suggest that the labour force participation and the education of women are closely linked as education is found to have an important impact on women worker's decision to participate in the labour force (Verick, 2014). Currently, the female labour force participation remains low in most South Asian countries. Social norms that underline household work as the primary responsibility of women constitute a significant constraint to their social activities and mobility. The responsibility of kids, dependents and other domestic tasks remains the primary responsibility of women in most of this countries (ADB, 2015). Furthermore, the empirical model also included an aggregate index as an indicator of absorption capacity. The outcome of the empirical analysis reveals that the interactions of FDI with the absorption capacity significantly moderate the relationship. It confirms that the host nation needs to have better human capital, physical infrastructure, and institutional settings to have optimistic impacts of FDI on gender inequality.

4.2.2.1 Industry sector

A panel regression was performed to study the impacts of FDI inflow on gender inequality in the industrial sector of South Asia (2005 to 2015). The regression used female employment in the industrial sector as the dependent variable and FDI inflow as the independent variable. The empirical analysis adopted four different models to study the relationship and each model included a different number of control variables. From the outcome of the empirical analysis

(refer Annexure) it can be inferred that FDI inflow does not have a significant impact on gender inequality in the industrial sector of South Asia. Prevailing literature on the effects of FDI on the gender inequality is still limited especially at a sectoral level and the results are mixed. (Shu, Zhu, et al., 2007) studied the effects of FDI on gender inequality in employment in export-oriented manufacturing firms in urban China and found no intrinsic positive or negative implications of FDI on gender inequalities. (Vijaya and Kaltani, 2007) studied the impacts of FDI on gender inequality in in the manufacturing sector in terms of wages but found that FDI furthered gender inequality with adverse effects on female wages.

To study the factors that moderate the FDI inflow and gender inequality relationship, interaction terms were included in the model. The interaction terms were performed in the same four models. Model (1) includes the interaction of FDI inflow with indicators of human capital. Model (2) includes the interactions of FDI inflow with indicators of human capital and physical infrastructure. Model (3) includes the interaction of FDI inflow with the indicators of human capital, physical infrastructure, and institutional settings. Model (4) repeats model (3) but includes a set of control variables.

Table 24: Results of the regression with interaction terms (Industry sector)

VARIABLES	(1) Female employment	(2) Female employment	(3) Female employment	(4) Female employment
FDI inflow	-0.000302**	-0.000244*	3.72e-05	4.97e-05
	(0.000)	(0.000)	(0.000)	(0.000)
Life expectancy (F)	-0.0615	-0.0681	-0.0544	-0.0526
	(0.048)	(0.058)	(0.051)	(0.054)
FDI*Life expectancy (F)	5.97e-06*	5.20e-06	1.42e-08	-3.04e-08
	(0.000)	(0.000)	(0.000)	(0.000)
labour force (F)	0.0476	0.0493	0.0239	0.0240
	(0.044)	(0.043)	(0.034)	(0.035)
FDI*labour force (F)	-2.81e-06	-3.12e-06	-2.01e-06	-2.08e-06
	(0.000)	(0.000)	(0.000)	(0.000)
Education	0.0187	0.0204	0.00731	0.0107
	(0.024)	(0.026)	(0.024)	(0.023)
FDI*Education	-3.21e-06	-2.30e-06	6.66e-07	1.19e-06
	(0.000)	(0.000)	(0.000)	(0.000)
Broadband Subscription		9.22e-09	1.01e-08	1.60e-08
		(0.000)	(0.000)	(0.000)
FDI*Broadband Subscription		-0	-0*	-0*
		(0.000)	(0.000)	(0.000)
Public Health Expenditure			0.0101***	0.0103***
			(0.002)	(0.003)
FDI* Public Health Expenditure			2.90e-06	2.58e-06

			(0.000)	(0.000)
Gender equality			0.0576	0.0535
			(0.096)	(0.100)
FDI*Gender equality			-1.65e-05**	-1.64e-05**
			(0.000)	(0.000)
Population density				-0.00143
				(0.001)
trade				0.000108
				(0.001)
Constant	5.747	6.121	5.462	5.601
	(3.788)	(4.355)	(3.918)	(4.130)
Observations	88	88	88	87
R-squared	0.122	0.125	0.280	0.297
Number of C_ID	8	8	8	8

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author, 2017 (STATA)

Table 24 above present the results of the interaction terms and it show that the interaction of FDI inflow with indicators of infrastructure and institutional setting has a significant impact on female employment. As the nature of the relationship is explained by the main effect of the significant interaction terms. It can be observed that gender equality ratings which were included in the regression as an indicator of the institutional setting and broadband subscription as an indicator of ICT infrastructure, both share a positive correlation with female employment in the industrial sector. Meaning effective policies on gender equality and advancement in infrastructural development might improve female employment in the industrial sector and lessen gender inequality. From the outcome of the empirical analysis, it can be reasoned that institutional settings and physical infrastructure mediate the FDI inflow and gender inequality in the industrial sector of South Asia.

Adequate ICT infrastructure development in a country improves the productivity of both the firms and labour. At a firm level using ICT allows cheaper transaction and management of information that reduces the production cost of the firms and the improvement in labour productivity by reduction of time and energy to perform a task (Gholami, Tom Lee, et al., 2006). The link between FDI and female employment in the industrial sector can most likely be explained from the point that the women workers engagement in the labour market might relatively be less in the industry sector due to the higher manual skill requirement and less favorable conditions for women to take part in the labour market. FDIs are usually accompanied by advanced technologies in the host countries. Adoption and advancement of technologies in the industrial sector might lessen the requirement of manual skills and create more favourable conditions for women to work in the industrial sector. Technology can also support gender policies by enabling transparency, accountability, and accessibility to various

information's relating to opportunities which might be crucial in avoiding corruption and situations that might generate inequalities (Chen, 2004).

Gender equality used in the regression rates the institutions and policies that promote equal access for men and women in the economy. Women in many countries face discrimination at work especially in a male dominated sector like the industrial sector and do not get equal opportunities. The discrimination is a consequence of culture or social systems that postulate gender roles in families and communities (IMF, 2013). Therefore, the role of gender policies to provide equal opportunities for women and men at work and infrastructural advancement will be vital to realise positive impacts of FDI and create parity between men and female employees at work in the industrial sector.

4.2.2.2 Service sector

A panel regression was performed to study the impacts of FDI inflow on gender inequality in the service sector of South Asia (2005 to 2015). The regression used female employment in the service sector as the dependent variable and FDI inflow as the independent variable. The empirical analysis adopted four different models to study the relationship and each model included a different number of control variables. From the outcome of the empirical analysis (refer Annexure) it can be inferred that FDI inflow does not have an impact on gender inequality in the service sector of South Asia. Prevailing literature on the effects of FDI on the gender inequality is still limited especially at a sectoral level. The findings are mostly based on the manufacturing sectors with mixed results. (Joekes, 1995) suggest that the MNC employment is not restricted to the manufacturing sector and the service sector MNCs are the new sources of employment opportunities for women. However, the outcome is moderated by various contextual factors like economy, sectoral nature of job segregation and sociocultural factors (UNCTAD, 2014).

For this reason, to evaluate the factors that moderate the FDI inflow and gender inequality relationship, interaction terms were included in the model. The interaction terms were performed in four models. Model (1) includes the interaction of FDI inflow with indicators of human capital. Model (2) includes the interactions of FDI inflow with indicators of human capital and physical infrastructure. Model (3) includes the interaction of FDI inflow with the indicators of human capital, physical infrastructure, and institutional settings. Model (4) repeats model (3) but includes a set of control variables.

Table 25: Results of the regression with interaction terms (Service sector)

VARIABLES	(1) Female employment	(2) Female employment	(3) Female employment	(4) Female employment
FDI inflow	-0.0113***	-0.0105***	-0.00832***	-0.00925**
	(0.002)	(0.002)	(0.002)	(0.004)
Labour force (F)	1.277*	1.205	1.116	0.989
	(0.651)	(0.637)	(0.708)	(0.731)
FDI*labour force(F)	-0.000195**	-0.000171*	-0.000151*	-0.000130
	(0.000)	(0.000)	(0.000)	(0.000)
Life expectancy (F)	-2.587**	-3.681**	-3.532**	-3.871**
	(0.820)	(1.486)	(1.385)	(1.350)
FDI*Life expectancy (F)	0.000269***	0.000253***	0.000233***	0.000242***
	(0.000)	(0.000)	(0.000)	(0.000)

Education	0.839***	0.970**	0.791	0.654
	(0.193)	(0.347)	(0.502)	(0.495)
FDI*Education	-0.000172**	-0.000236**	-0.000164	-0.000155
	(0.000)	(0.000)	(0.000)	(0.000)
Access to electricity		0.0804	0.102	0.159**
		(0.055)	(0.064)	(0.065)
FDI*Access to electricity		3.12e-07	3.04e-06	-1.14e-06
		(0.000)	(0.000)	(0.000)
Broadband Subscription		6.05e-07	6.76e-07	7.46e-07
		(0.000)	(0.000)	(0.000)
FDI*Broadband Subscription		-0	-0	-0
		(0.000)	(0.000)	(0.000)
Gender equality			2.245	2.621
			(2.175)	(2.309)
FDI*Gender equality			-0.000556*	-0.000565*
			(0.000)	(0.000)
Population density				0.0122
				(0.015)
trade				0.0253
				(0.030)
Constant	152.0**	222.9*	207.6*	226.3**
	(52.847)	(100.462)	(95.467)	(92.040)
Observations	88	88	88	87
R-squared	0.383	0.410	0.440	0.460
Number of C_ID	8	8	8	8

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author, 2017(STATA)

Table 25 above display the results of the interaction terms and it can be observed that the interaction of FDI inflow with the labour force, education and gender inequality policies have a significant impact on female employment in the service sector of South Asia. As the nature of the relationship is explained by the main effect of the significant interaction terms. It can be observed that labour force, education, and gender inequality policies share a positive correlation with female employment in the service sector. Meaning a larger female labour force with education and effective policies moderates the impacts of FDI to improve female employment and reduce gender inequality in the service sector of South Asia. From the outcome of the empirical analysis, it can be reasoned that human capital and institutional settings moderate the FDI inflow and gender inequality in the service sector of South Asia.

The role of education in influencing the impacts of FDI on gender inequality relates to the skills and knowledge diffusion in the host countries that are likely to be accompanied with FDI inflows. The introduction of new technology into the service sectors raises the minimum educational requirements of the workforce and creates the need for educated female workers at work (Richards and Gelleny, 2007). Therefore, a highly educated female labour force becomes crucial in the host country to have optimistic impacts of FDI on gender inequality in the service

sector. In regards to the female labour force, studies claim that the majority of the uneducated female workers are found to participate in the agricultural subsistence activities, informal activities and physical labour in the industrial sector. However, women with at least a high school education and above are found to join the labour market for jobs and benefits in the service sector. The labour force participation and the education of women are closely linked as education is found to have an important impact on women worker's decision to participate in the labour force (Verick, 2014).

Empirical results also indicate that gender policies to provide equal opportunities for women and men at work will be vital to realise positive effects of FDI on gender inequality at work in the service sector. As reasoned before, many women face biased decisions and get less opportunity at work. (UNCTAD, 2014) suggest that human resource management and development which refers to the employment policies, including the processes of training, developing and compensating personnel are likely to have significant influence gender inequality in relation to FDIs.

A variable of female life expectancy was included in the model as an indicator of the human capital from a health perspective. The interactions of FDI inflow and life expectancy were significant, but the main effect of life expectancy display a negative correlation with gender inequality in the service sector hinting a longer life expectancy of the female population might escalate gender inequality. The interactions of FDI inflow with life expectancy and reduction in female employment may be associated with a dependency ratio of a country. Higher dependency ratio or population aging is claimed to be associated with a reduction of the labour force which is vital for efficient utilization of the benefits of FDI. As a result, it slows the economic growth of a country that threats employment and opportunities (Bloom, Canning, et al., 2010).

4.2.2.3 Agriculture sector

A panel regression was performed to study the impacts of FDI inflow on gender inequality in the agriculture sector of South Asia (2005 to 2015). The regression used female employment in the agriculture sector as the dependent variable and FDI inflow as the independent variable. The empirical analysis adopted four models to study the relationship and each model included a different number of control variables. From the outcome of the empirical analysis (refer Annexure) it can be deduced that FDI inflow does not have a significant impact on gender inequality in the agriculture sector of South Asia. Prevailing literature on the effects of FDI on the gender inequality is still limited especially at a sectoral level. The findings are mostly based on the manufacturing sectors with mixed results. However, (Siegmann, 2006) asserts that the impacts of FDI on gender equality in the agriculture sector are not optimistic.

To study the factors that mediate the FDI inflow and gender inequality relationship, interaction terms were included in the model. The interaction terms were performed in the same four models. Model (1) includes the interaction of FDI inflow with indicators of human capital. Model (2) includes the interactions of FDI inflow with indicators of human capital and physical infrastructure. Model (3) includes the interaction of FDI inflow with the indicators of human capital, physical infrastructure, and institutional settings. Model (4) repeats model (3) but includes a set of control variables.

Table 26: Results of the regression with interaction terms (Agriculture sector)

VARIABLES	(1) Female employment	(2) Female employment	(3) Female employment	(4) Female employment

FDI inflow	-0.0670	-0.256**	-0.250	-0.244
	(0.118)	(0.108)	(0.158)	(0.141)
log labour force(F)	12.25	-3.427	-4.570	-4.091
	(21.559)	(19.225)	(24.948)	(25.341)
FDI*log labour force(F)	0.0168	0.0297	0.0396	0.0374
	(0.026)	(0.019)	(0.025)	(0.023)
Birth rate	0.254	0.0992	0.268	0.328
	(0.462)	(0.392)	(0.693)	(0.469)
FDI*Birth rate	0.000718	0.00512**	0.00458*	0.00450**
	(0.001)	(0.002)	(0.002)	(0.002)
Square education	4.240*	4.870**	5.569	5.770**
	(2.161)	(1.806)	(3.309)	(1.838)
FDI*Square education	-0.00212	0.00339	-0.000128	-0.000556
	(0.006)	(0.004)	(0.008)	(0.005)
Air Transport		-2.54e-05**	-2.83e-05***	-2.82e-05**
		(0.000)	(0.000)	(0.000)
FDI*Air Transport		6.16e-08***	6.67e-08***	6.59e-08***
		(0.000)	(0.000)	(0.000)
log economic management			-0.413	-1.915
			(6.887)	(10.028)
FDI*log economic management			-0.00594	-0.00326
			(0.019)	(0.020)
log Gender equality			-5.789	-6.313
			(6.824)	(4.922)
FDI*log Gender equality			-0.00952	-0.00894
			(0.010)	(0.008)
trade				0.00660
				(0.029)
Population density				0.00273
				(0.057)
Constant	-22.74	35.52	40.87	38.59
	(81.703)	(74.036)	(107.876)	(109.645)
Observations	88	88	88	87
R-squared	0.333	0.456	0.479	0.492
Number of C_ID	8	8	8	8

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author, 2017 (STATA)

Table 26 above display the results of the interaction terms and it can be observed that the interaction of FDI inflow with indicators of infrastructure and human capital have a significant impact on female employment. As the nature of the relationship is explained by the main effect of the significant interaction terms. It can be observed that birth rate share a positive correlation with gender inequality meaning higher birth rates might lead to higher female employment in

the agriculture sector. On the other hand, an indicator of physical infrastructure modeled in terms of air transport departures share a negative correlation with gender inequality meaning FDI inflow and advancement in infrastructure development might further gender inequality in the agriculture sector by reducing female employment. From the outcome of the empirical analysis, it can be deduced that infrastructure development negatively influences FDI-gender inequality relationship in the agriculture sector of South Asia.

The birth rate was included in the model as an additional indicator of women participation in the labour market as falling birth rates have often been linked to higher female employment and participation (Siegel, 2012). But an opposite effect is observed in the agriculture sector and the rise in birth rate is found to be accompanied by an increase in female employment. The interactions of FDI with birth rate feasibly links to the technology spill overs of FDI inflow. Technological advancement can alleviate tedious agricultural labour (Richards and Gelleny, 2007), improve productivity and work time flexibility in the agriculture sector. As the social and cultural norms in most developing countries demand flexible work time for women due to other household tasks and children's. FDI induced technology offering better flexibility with less physical work and improved productivity might boost female employment in the agriculture sector.

Most of the women workers in the agriculture sector of developing countries are engaged in subsistence farming which is usually considered to be risky with little margins of profit (UN-IANWGE, 2011). The negative mediation role of infrastructure on FDI-gender inequality in agriculture sector probably links to export strategies and distribution network of trade in the host country accompanied with FDIs (Damgaard, 2011). Countries with sufficient level of infrastructure can supplement and support the trade network. Infrastructural development with trade networks provide opportunities for women in the other sectors and provides alternative employment opportunities with better market benefits, incentives, and several other opportunities. For example, (Razavi, 2012) some countries in South Asia has witnessed the significant growth of export oriented industries, like garment industries that have employed large numbers of women in the recent years. Also, women in rural parts are not encouraged to go to work as men because of the lack of connectivity as it requires walking a long distance from home to work. Infrastructure development might encourage women to look for employment beyond the agriculture sector as a result of improved connectivity (Le Blanc, Freire, et al., 2016).

4.3 Summary of findings

Figure 20: Summary chart
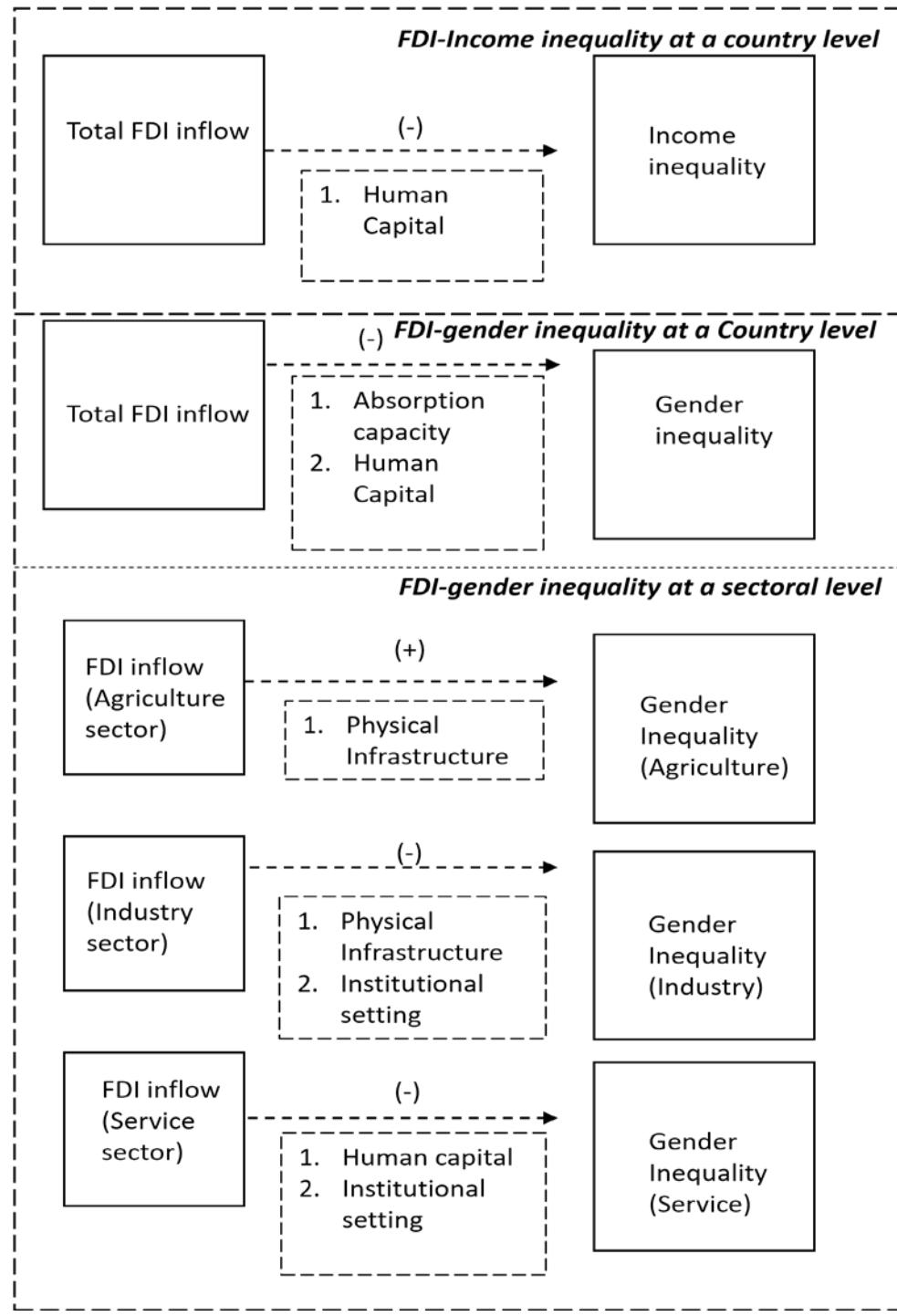
Source: Author, 2017

Figure 20 above condense the outcome of the empirical analysis. The findings of the analysis *indicated that the FDI inflow does not have a significant impact (main effect) on income inequality in South Asia*. The finding is allied to existing research that asserts marginal impacts of FDI on income inequality (Pan-Long, 1995, Sylwester, 2005). (Sylwester, 2005) found that FDI is positively associated with economic growth, however, no strong association between FDI and income inequality was detected. (Pan-Long, 1995) also claimed that the significant

correlation between FDI and income inequality obtained in previous studies might have captured more of the geographical difference in inequality than the effect of FDI. (Bussmann, De Soysa, et al., 2002, Hemmer, Krüger, et al., 2005) also found no significant impacts of FDI on income inequality.

Similarly, the empirical analysis for the FDI and gender inequality relationship was assessed by analysis of a country and sectoral level (agriculture, industry, and service) of South Asia. *The outcome of the analysis at a country level indicated a significant impact (main effect) of FDI inflow on gender inequality*. The finding is consistent with existing research, (Rivero, 2007) found that FDI had significant positive effect on employment in the Latin American Countries and the effect was stronger for female employment. (Braunstein and Brenner, 2007) also, assert a positive relationship between women employment and FDI in semi-industrialised countries. However, at a sectoral level, the results displayed that *FDI inflow does not have a significant impact (main effects) on gender inequality in all the three sectors of South Asia*. The existing literature on the effects of FDI on the gender inequality is still limited especially at a sectoral level.

The results of the panel regressions with interaction terms using Gini index as the dependent variable illustrated that the indicators of human capital: the labour force and education significantly moderated the FDI inflow and income inequality relationship. The second analysis with inequality in income (%) as the dependent variable also illustrated that the indicators of human capital: education significantly moderated the FDI inflow and income inequality relationship. The results of both the empirical analysis using Gini index and income inequality (%) with interaction terms exhibited that the *FDI inflow and income inequality relationship in South Asia are moderated by the human capital*.

The finding is concomitant with the existing research that suggests human capital as one of the most important component of absorption capacity (Nguyen, Duysters, et al., , 2009) which moderates the FDI and income inequality relationship (Eicher and García-Peñalosa, 2001). (Hemmer, Krüger, et al., 2005) also claim that the effects of FDI is largely dependent on the existing human capital endowment. (Basu and Guariglia, 2007) also highlighted that FDI could worsen inequality, mostly in a setting where the initial human capital is poor. (Lin, Kim, et al., 2013) explored if human capital defined the link between FDI and income inequality and found significant impacts of FDI on income distribution depending on the threshold levels of human capital expressed in terms of education.

The result of the interaction terms for FDI and gender inequality association showed that the *FDI inflow and gender inequality at a country level were found to be moderated by human capital and absorption capacity*. Though the impacts of FDI on gender inequality (at a country level) was found to have a significant impact (main effect) without moderation, it was detected that the impacts of FDI on gender inequality were significantly more when moderated by absorption capacity and human capital. The absorption capacity refers to the collective impact of human capital, physical infrastructure and the institutional setting which was used as an aggregate index in the analysis. (Aguayo-Tellez, 2012) also highlighted that female employment and wage may increase if female labour force participation is larger in sectors that receive larger FDI suggesting that human capital might be imperative to realise positive impacts of FDI on gender inequality.

FDI inflow and gender inequality at a sectoral level were found to be moderated by different factors in different sectors. The FDI inflow and gender inequality relationship in the *agriculture sector were found to be moderated by physical infrastructure*, but the impact was found to be adverse on gender equality as it indicated a reduction of female employment in the agriculture sector with infrastructural development. The FDI inflow and gender inequality relationship in

the *industrial sector were found to be moderated by physical infrastructure and institutional settings*. The FDI inflow and gender inequality relationship in *the service sector were found to be moderated by human capital and institutional settings*. The *moderating factors of the FDI inflow and gender inequality relationship were found to be varying across sectors* depending on the industry structure and skill endowments of men and women as asserted (Aguayo-Tellez, 2012). Prevailing literature on the effects of FDI on the gender inequality is still limited especially at a sectoral level. The findings at a sectoral level are mostly based on the manufacturing sectors with mixed results

It is witnessed that gender equality which was used as an indicator of institutional setting in the analysis significantly moderated the impacts of FDI on gender inequality in both the manufacturing and service sector. The finding is in line with the existing research of (Oostendorp, 2004) which asserts that the institutional setting plays a significant role in determining the impact of FDI inflow on gender inequality in most of the countries. (Vijaya and Kaltani, 2007) suggest that the impact of FDI on gender inequality in work is related to the lower bargaining power of women in terms of skill and education in the labour market compared to men. However, it can be reasoned that effective institutional settings in the form of effective gender policies to provide equal opportunity to men and women are central to relish positive impacts of FDI on gender inequality at work in South Asia.

Chapter 5: Conclusions and recommendations

5.1 Conclusion

Globalisation facilitated economic integration of countries across borders to devise means and sources to fund activities to attain economic growth. And with the free flow of investments in the last decade, developing regions like South Asia displayed a consistent economic performance with substantial progress on the economic front. But despite South Asia's rapid economic growth, issues of inequality has become a top concern for the region. Studies have highlighted the occurrence of gaps between the wealthy and the poor in this region. Also, inequality in wealth distribution is one dimension of the inequality concern in South Asia. Other issues of disparity relating to gender are on the rise likewise. Many research claims that globalisation and its key components like FDI might have fuelled income inequality and have also affected men and women differently creating gender imbalances in the labour market for employment, wage and other opportunities.

Researchers have studied the impacts of FDI on inequality but the studies are mostly focused on the inequality of outcomes like income or wage inequality. The findings of the FDI and income inequality relationship is heterogeneous with diverse results in different locations. And the link between FDI and inequality of opportunity is little explored. As countries in South Asia continue to liberalise policies to attract more and more FDI for economic gains, it was felt essential *to explain the relationship between FDI inflow and inequality in South Asia* to enlighten and assist policy makers to frame holistic policies to promote inclusive growth in South Asia by assessing the impact of FDI on inequality as a whole.

From the findings of the study, it is understood that the impacts of FDI inflow on inequality in South Asia are influenced by different elements of the absorption capacity evaluated in terms of human capital, physical infrastructure, and institutional settings. Echoing the findings again, FDI only had a significant effect on income inequality in South Asia when moderated by the human capital. The impacts of FDI on gender inequality (at a country level) was found to have a significant impact (main effects), but it was noticed that the impact become significantly more

when moderated by absorption capacity and human capital. At a sectoral level, the impacts of FDI on gender inequality were significant simply when moderated by human capital, physical infrastructure and institutional settings depending on the sector. In summarizing the results it can be deduced that the FDI inflow and inequality (income and gender) relationship in South Asia is a *moderated causal relationship* as the strength of FDI and inequality relationship is found to be influenced by the absorption capacity (human capital, physical infrastructure, and institutional settings).

As mentioned before, many studies examined the impacts of FDI on income inequality and the findings are divided with contesting views. As per the findings of this research, the reason of the lack of consensus in the findings may be attributed to the differences in the human capital of the host country. The impacts of FDI on developed, developing and least developed countries might be varied depending on their respective stocks of human capital. Meaning, FDI influences income inequality indirectly, moderated by the threshold levels of human capital in the host country. However, the mixed results of the FDI and income inequality relationship may also be attributed to the differences in the use of econometric specifications, sample size, measurement of variables, composition of the sample and other factors. Further study of the FDI and income inequality relationship with differences in measurement of human capital like different types of skills and education levels of the host population will be exciting and will be valuable to expand the understanding of the influences of human capital on FDI-income inequality relationship.

In discussing the impacts of FDI on inequality, this research distinguished two concepts: income inequality as inequality of outcome and gender inequality as the inequality of opportunity. The inclusion of both income and gender was aimed to achieve an inclusive assessment of inequality in South Asia and the findings of the study is surprising. The findings of income inequality in South Asia are not uniform to conclude that South Asia has experienced rising income inequality in the period as the research finds that the income inequality situation among the South Asian countries remains varied in the period. This probably relates to the finding that FDI influences income inequality indirectly, moderated by the quality of human capital in the host country.

The findings of the gender inequality situation in South Asia is shocking. It discloses a dropping trend of female employment in South Asia in the period indicating that despite South Asia's economic growth, gender inequality is gradually escalating in the labour market. A sectoral shift in female employment is observed with the agriculture sector witnessed a drop in female employment and the industry and service sector have experienced a gradual growth. But all the three sectors (Agriculture, industry, and service) in South Asia have experienced a rise in men employment (%) and a fall in the female employment (%) in the period (2005 to 2015). From the findings of this study, it appears that globalisation might have marginalized the role of women in the labour market and have adversely impacted women workers fuelling gender inequality in South Asia.

With the existing debate and studies largely focused on the income inequality as a measure of inequality. The inclusion of gender inequality in this study offered alarming results relating to decreasing parity between men and women at work in South Asia despite its substantial economic growth in the period. The declining female employment trend in South Asia points out that globalisation and its key components like FDI which are thought to be the determinants of economic growth might not be "gender blind" and has affected men and women differently. However, the studies relating to FDI and gender inequality is still at a nascent stage which makes it inappropriate to generalize the results. In conclusion, the shocking findings of rising gender inequality in South Asia despite substantial economic growth in the period (2005-2015)

is of utmost concern and the need for further research on inequality especially gender inequality is felt highly critical.

As inequality is expected to change slowly, a longer time span would have been preferred but the unavailability of data restricts the study to a period of 2005 to 2015 which is a major limitation of the study. Other limitations with the recommendations for future research are discussed below.

5.2 Recommendations for future research

1. This research simply studied the impacts of FDI inflow on inequality in South Asia and did not study the influence of outward FDI on inequality. Future research can study the impacts of total FDI on inequality or a comparative study of the impacts of inward and outward FDI on inequality as some research (Choi, 2006) highlights that the impacts of outward FDI are more significant on inequality than inward FDI.

2. This research studied the impacts of FDI inflow on income and gender inequality in South Asia. It studied the impacts of FDI inflow on gender inequality at both the country and sectoral level but the impacts of FDI inflow on income inequality is only studied at a country level. Future studies can be deliberated on the impacts of FDI inflow on income inequality in the different sectors of South Asia. Also, in larger countries of South Asia like India, a country level study provides little basis for generalization. State or a city level study for countries like India can be considered pertaining to the fact that states of Maharashtra and NCR attracted 49% of the total FDI in India since the year 2000.

3. The FDI and income inequality relationship were studied using two different outcome variables, Gini coefficient for the year 2005 to 2013 and UNDP's inequality in income (%) for the year 2010 to 2015. The unavailability of the data for a longer period was a major limitation of the study. Future studies can be based on data for a longer period to get a better understanding of the relationship.

4. The FDI and gender inequality relationship in South Asia was studied using the female employment data in the three sectors (Agriculture, Industry, and service) of South Asia. However, it was revealed that 70 % of the female workers in South Asia was in the agriculture sector. It can be assumed the majority of women in South Asia practice subsistence farming and the workers in the agriculture sector may not be under a paid employment. Future research may use the gender wage gap or gender income gap as the outcome variable to study the impacts of FDI on gender inequality which might uncover a larger extent of the influences of FDI on men and women. Also, studies can find alternatives to link FDI to gender equity beyond wages and employment to get a better understanding of the FDI and gender inequality relationship to infer where and why FDIs have benefitted women.

5. As per the findings of the research, the human capital in terms of education was found to be significant in influencing the FDI and inequality relationship. Future research can study the variations in the FDI and inequality relationship with differences in education types and education levels of the host population to get a better understanding of the influences of education on FDI-inequality relationship.

5.3 Policy Recommendations

The indicators adopted in the empirical analysis in evaluating the FDI and inequality relationship are sector and country-specific. So, further research on the relationship is recommended especially gender inequality needs more attention. However, the following policies may be beneficial (but more research is needed).

From the outcome of the empirical analysis, it was revealed that FDI and income inequality relationship was mediated by Human capital in South Asia. As per the findings, the policy recommendations here will be focused on improvement of the labour force and education for human capital development. The data of education in South Asia revealed that most of the countries have fragile human capital both in terms of secondary education and expected schooling years with an exception of Sri Lanka. Taking into consideration the findings of the analysis following policies is recommended for relishing positive impacts of FDI inflow on income inequality.

1. Public expenditure on education should be increased significantly to ensure access to quality educational infrastructures for learning.
2. Policies in the form of education loans, scholarships or other enticements to encourage youth to pursue education should be formulated.
3. Training programs for skill development of staffs by organizations should be prioritized.
4. The private sector should be supported for the training of their staffs to offset the risk of human capital imbalance between the public and the private sector.
5. Job oriented education like (VET) Vocational Educational Training institutes should be initiated to train young people to acquire specialized skills and to improve labour force participation.

Bearing in mind, the results of the empirical analysis in which the FDI inflow and gender inequality relationship were mediated by different factors in the three sectors. The policy recommendations for gender equality in the three work sectors include:

1. Policies to initiate technologies for agriculture, trade opportunities and training to practice improved farming techniques should be prioritized to retain and encourage female workers in the agriculture sector. In general, the policies should be aimed to reduce the time spent on tasks, increase productivity and income, reduce drudgery and expand their production and to improve product quality.
2. Policies aimed to advance infrastructure in terms of technology to make industrial jobs attainable for women should be developed.
3. Policies to provide equal rights, responsibilities and opportunities to men and women ensuring basic security in adversity should be framed for gender parity at work in all sectors.
4. Providing employment protected and paid maternity leave for working mothers should be devised to encourage female participation in the labour market.
5. Policies to ensure equal access to quality education for both men and women, equal support should be provided to complete schooling, equal rights and opportunities to make educational choices.
6. Encouraging more women to pursue studies and raising awareness in the society about gender-stereotypical attitudes towards female education and academic performances.

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Annex 1:

Fig Annex 1: FDI inflow network of South Asia (Industry sector)

Source: Author, 2017 (developed in GIS)

Fig Annex 2: FDI inflow network of South Asia (Service sector)

Source: Author, 2017 (developed in GIS)

Fig Annex 3: FDI inflow network of South Asia (Agriculture sector)

Source: Author, 2017

Table Annex 1: Results of the regression without interaction terms (Gini index)

VARIABLES	(1) Gini index	(2) Gini index	(3) Gini index	(4) Gini index
FDI inflow	2.67e-05	5.38e-06	9.65e-06	1.56e-05
	(0.000)	(0.000)	(0.000)	(0.000)
log Labour force	-17.74**	-8.985	-23.78**	-35.93***
	(5.546)	(6.041)	(8.987)	(10.204)
Life expectancy	-0.00765	-0.777	-0.925	-1.572*
	(0.315)	(0.651)	(0.654)	(0.800)
Education	-1.275**	-1.285**	-1.292***	-1.219**
	(0.491)	(0.430)	(0.280)	(0.398)
Access to electricity		0.0618	0.0716	0.144
		(0.062)	(0.063)	(0.079)
Broadband subscription		3.64e-07**	2.95e-07**	4.09e-07**
		(0.000)	(0.000)	(0.000)
Transparency/corruption			0.273	0.289
			(1.408)	(1.914)
Social Protection			1.487	2.145*
			(0.959)	(0.973)
log Economic Management			-3.004	-4.033
			(2.818)	(2.251)
log GDP growth annual				0.461
				(0.815)
trade				0.0263
				(0.014)

				-0.00106
Population				
				(0.001)
Constant	115.0***	130.4***	193.0***	272.4***
	(13.497)	(26.431)	(50.301)	(46.689)
Observations	56	56	56	54
R-squared	0.478	0.533	0.566	0.594
Number of CID	8	8	8	8

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, *
p<0.1

Source: Author, 2017 (STATA)

Table Annex 2: Results of the regression without interaction terms: inequality in income (%)

VARIABLES	(1) log Inequality	(2) log Inequality	(3) log Inequality	(4) log Inequality
FDI inflow	-4.09e-06	7.05e-08	4.10e-07	-4.71e-07
	(0.000)	(0.000)	(0.000)	(0.000)
log Labour force	0.375	0.242	0.254	0.458
	(3.594)	(2.783)	(2.741)	(2.942)
log Life expectancy	20.15	49.11**	39.77**	40.21**
	(15.792)	(19.461)	(16.651)	(16.972)
log education	-4.157*	-5.953**	-5.015**	-5.147**
	(2.160)	(2.118)	(1.797)	(1.879)
Mobile subscription		-0.0126**	-0.00996**	-0.00998**
		(0.005)	(0.004)	(0.004)
Broadband subscription		-4.40e-08	-2.69e-08	-2.96e-08
		(0.000)	(0.000)	(0.000)
Transparency/corruption			0.469	0.426
			(0.561)	(0.570)
Trade				-0.00141
				(0.004)
Constant	-74.25	-191.2**	-155.6*	-157.7*
	(55.255)	(73.828)	(65.950)	(67.511)
Observations	48	48	48	48
R-squared	0.231	0.410	0.437	0.439
Number of C_ID	8	8	8	8

Robust standard errors in
parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author, 2017 (STATA)

Table Annex 3: Results of the regression without interaction terms (Gender inequality-country level)

VARIABLES	(1) Female employment	(2) Female employment	(3) Female employment	(4) Female employment
FDI inflow	3.34e-05**	2.15e-05*	-6.78e-06	-1.10e-05
	(0.000)	(0.000)	(0.000)	(0.000)
log Aggregate Index	2.057	-1.634	-0.359	-0.0684
	(2.199)	(1.049)	(0.794)	(0.736)
Education		0.236**	0.248**	0.165**
		(0.076)	(0.089)	(0.058)
Labour force (F)		0.713**	0.485**	0.446**
		(0.217)	(0.166)	(0.178)
Broadband Subscription			-2.11e-07**	-2.34e-07**
			(0.000)	(0.000)
Gender equality				0.0565
				(0.488)
population density				0.0190
				(0.014)
trade				-0.00520
				(0.005)
Constant	28.62***	10.15	15.54**	13.07*
	(4.174)	(5.762)	(5.531)	(6.117)
Observations	88	88	88	87
R-squared	0.089	0.653	0.726	0.767
Number of C_ID	8	8	8	8

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author, 2017 (STATA)

Table Annex 4: Results of the regression without interaction terms (Gender inequality-Agriculture sector)

VARIABLES	(1) Female employment	(2) Female employment	(3) Female employment	(4) Female employment
FDI inflow	-0.000700	-0.00116	-0.00116	-0.00112
	(0.001)	(0.002)	(0.002)	(0.002)
log labour force (F)	23.74	12.13	13.71	13.93
	(14.194)	(16.891)	(20.733)	(21.856)
Birth rate	0.261	0.238	0.410	0.430
	(0.393)	(0.387)	(0.690)	(0.437)
Square education	3.479	4.490*	5.235	5.350**

(1.989)	(1.965)	(3.304)	(1.962)

	(1)	(2)	(3)	(4)
Air Transport		-2.00e-05	-2.17e-05*	-2.19e-05
		(0.000)	(0.000)	(0.000)
log economic management			0.614	-0.756
			(6.611)	(9.871)
log Gender equality			-4.813	-5.207
			(7.120)	(5.742)
trade				0.0131
				(0.037)
Population density				0.000937
				(0.062)
Constant	-60.31	-20.90	-27.55	-28.03
	(51.592)	(63.730)	(90.135)	(94.611)
Observations	88	88	88	87
R-squared	0.281	0.326	0.338	0.352
Number of C_ID	8	8	8	8

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author, 2017 (STATA)

Table Annex 5: Results of the regression without interaction terms (Gender inequality-Industry sector)

VARIABLES	(1) Female employment	(2) Female employment	(3) Female employment	(4) Female employment
FDI inflow	-3.95e-06	-7.40e-07	-6.09e-07	-2.96e-07
	(0.000)	(0.000)	(0.000)	(0.000)
labour force (F)	0.0288	0.0436	0.0217	0.0216
	(0.026)	(0.033)	(0.025)	(0.027)
Life expectancy (F)	-0.0496	-0.0707	-0.0556	-0.0508
	(0.048)	(0.055)	(0.044)	(0.046)
Education	0.0168	0.0207	0.00874	0.0100
	(0.023)	(0.023)	(0.022)	(0.021)
Broadband Subscription		1.67e-08	1.19e-08	1.31e-08
		(0.000)	(0.000)	(0.000)
Public Health expenditure			0.0101***	0.00998**
			(0.003)	(0.003)
Gender equality			0.0481	0.0489
			(0.092)	(0.097)
Population density				-0.00129
				(0.002)
trade				-0.000312

		(0.001)
Constant	5.565	6.475	5.652	5.607
	(3.549)	(3.818)	(3.165)	(3.378)
Observations	88	88	88	87
R-squared	0.090	0.114	0.253	0.273
Number of C_ID	8	8	8	8

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author, 2017 (STATA)

Table Annex 6: Results of the regression without interaction terms (Gender inequality-Service sector)

VARIABLES	(1) Female employment	(2) Female employment	(3) Female employment	(4) Female employment
FDI inflow	7.59e-05	0.000129	0.000125	9.31e-05
	(0.000)	(0.000)	(0.000)	(0.000)
labour force (F)	0.302	0.829	0.724	0.636
	(0.491)	(0.568)	(0.651)	(0.640)
Life expectancy (F)	-1.936*	-3.645**	-3.572**	-3.899**
	(0.984)	(1.255)	(1.204)	(1.247)
Education	0.709**	0.846**	0.731	0.586
	(0.253)	(0.293)	(0.420)	(0.416)
Access to electricity		0.100*	0.117*	0.173**
		(0.050)	(0.061)	(0.059)
Broadband Subscription		7.43e-07*	7.91e-07**	8.54e-07***
		(0.000)	(0.000)	(0.000)
Gender equality			1.668	2.036
			(2.206)	(2.254)
Population density				0.0129
				(0.019)
trade				0.0254
				(0.030)
Constant	140.4*	232.1**	224.5**	241.0**
	(60.187)	(77.783)	(76.766)	(78.542)
Observations	88	88	88	87
R-squared	0.194	0.342	0.359	0.387
Number of C_ID	8	8	8	8

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author, 2017(STATA)

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