Is there an impact of Foreign Direct Investments on gender equality?

A study of female employment in Latin America and the Caribbean

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Abstract

Foreign Direct Investment (FDI) is a part of the globalization process, a process increasing all over the world. These investments affect people, both in the home economy and the host economy. People in the host economy are, due to several aspects, affected in different ways. One of those aspects is gender. Gender inequality in the world is well known, women have less political, economic and social power than men, and they are further down in the social hierarchy. All these factors have an impact on how women are affected by development such as globalization in general and also FDI more specifically. Earlier research regarding FDI is almost gender blind, some studies exist but not to a broad extent. Since men and women have different positions in society the impact of FDI can be assumed to be different. In order to include a gender perspective we examine whether FDI has an impact on women's situation and on gender equality, and in that case whether the impact is positive or negative. We perform fixed effect estimation on a sample of 24 Latin America and the Caribbean (LAC) countries during the time period 1990-2013 in order to study the relationship between FDI and female labour force participation (FLFP). We also study the impact of FDI on the composition of the labour force. The regressions show some signs of FDI having an impact on gender equality, but the results are not robust and there is a need for further research within this subject.

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Abbreviations

Presented in order of appearance

FDI – Foreign direct investments

LAC - Latin America and the Caribbean

FLFP – Female labour force participation

LFP – Labour force participation

MLFP – Male labour force participation

MNC – Multinational companies

RLFP – Ratio of female to male labour force participation

SSA – Sub-Saharan Africa

GDP – Gross Domestic product

WDI – World Development Indicators

GI – Greenfield Investments

1. Introduction

FDI is a part of economic globalization and is viewed by many as a catalyst for growth and development, making economies eager to attract them. The amount of FDI has increased over the years and, just as international trade, it affects the population of both the investing economy and the receiver. FDI might affect wages, employment and productivity to mention a few areas, and it might have a varying impact on different groups. Research regarding FDI and its impact on both the investor and the receiver has increased over the years, but little attention has been devoted to what impact these investments have on gender equity.

It is well known that in practically all countries and cultures women have a lower status than men, implying that gender needs to be included when examining the impact of globalization and FDI. Gender equality has a large value on its own, which is a strong enough reason for studies with a gender perspective, but there is also economic value of equality. Gender equality has many dimensions, both for the individual and for society. It might contribute to reducing poverty and increasing education to mention a few examples.

In order to understand the impact of FDI on gender equity it is important that the number of studies using a gender perspective increases, and the aim of this essay is to contribute to this field of study. A gender perspective implies examining effects or impacts in the context of men and women's different roles in society. Studies with a gender perspective do exist, but to such a small number that the existing studies are almost gender blind. What is common for the studies using a gendered lens is that they are often case studies of a country, or small-scale studies of a few countries. While these kinds of studies still contribute with important information regarding the gender subject, they cannot be used for overall conclusions or connected to theory in the same way as a study performed in a larger scale. This essay contributes to earlier studies by using more countries in the empiric analysis to seek answer to the question whether FDI has an impact on gender equity. Though, there is not one single measure covering all dimensions of gender inequality. In this essay we will, due to data availability, focus on whether FDI has an impact on FLFP. Gender separated data is unfortunately not available at a large scale, but FLFP is one of the variables more available. Female employment and labour force participation (LFP) strengthens women's autonomy and

is therefor important in the struggle for gender equity.[1] A secure income increases women's bargaining power in their own households, and also their position in society, making them less dependent and more able to control their own lives.

The chosen region for this study is LAC since both inflow of FDI and FLFP have increased during the latest decades. During the beginning of the 1990s FDI inflow increased heavily compared to earlier years, and even though the inflow has changed over the years FDI keeps flowing in to the region. The aim of this study is to examine whether FDI has had an impact on the increase in FLFP. The chosen time period is 1990-2013 due to data availability, but also since the inflow of FDI increased significantly during the 1990s. We perform a quantitative empiric analysis using fixed effect estimations to examine the relationship.

This essay is structured as follows. In chapter two we give some background information by introducing FDI, both globally and for the LAC region. We end this chapter by presenting FLFP in LAC. In chapter three we present how FDI is expected to affect employment, both in general and factors that are specific for women. Chapter four follows thereafter and presents earlier research within the subject. In chapter five we present the data and methodology used for this study. Chapter six is the empiric part, where we present the regression results and robustness checks. This is followed by a discussion of the results in chapter 7. We conclude the results and present possible future research angles within this subject in chapter 8. References follow in chapter 9 and Appendix in chapter 10.

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[1] We will use employment and LFP as synonyms in this essay due to similar interpretations where employment refers to having an employment and LFP to being economically active (World Bank 2015b).

2. Background

In this chapter we will present background information regarding FDI and its development. We begin with a general presentation and then continue with FDI for the LAC region, and the chapter ends with a presentation of female employment in the LAC region.

2.1 Presentation of FDI

Ever since the 1980s the world has undergone a wide integration through the globalization process. Transport costs have reduced, and capital flows, technology transfers, trade and FDI have increased heavily. FDI can be defined as cross-border investments made by a resident entity in one economy, the home economy, with the objective of obtaining a lasting interest in a firm in another economy, the host economy (OECD 2008). Lasting interest implies a long-term relationship where the investor has a minimum of 10 per cent of the voting power in the receiving firm.[2] 10 per cent, or more, of the voting power gives the investor influence over the firm's management and production.

The amount of FDI has increased rapidly over the years and since the early 1980s the global FDI flows have increased more rapidly than both world trade and world output (UNCTAD 1991). During the 1980s several developing countries improved their economic situations, making it more profitable to invest in them. In diagram 1 we see the development of the global flows during the time period 1980-2013, both for the world as a whole and for developing economies as a group. The distribution of FDI flows has changed over the years and there are now more countries among both investors and receivers (UNCTAD 2014: Braunstein 2006). Previously, developed countries have been the main receiving group but in 2012 developing countries passed them. Developing countries received 26 per cent of global FDI flows in 1980, 37 per cent in 1997, and in 2012 their share had risen above 50 per cent. Also in 2013 developing countries received the main part, but developed countries are predicted to be the main receivers again from 2014 (UNCTAD 2014).[3]

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[2] Below 10 per cent of the voting power is usually referred to as portfolio investment.

[3] The numbers for 2014 will be presented in the World Investment Report 2015.

Diagram 1 – Global FDI flow, in million dollars, during 1980-2013.
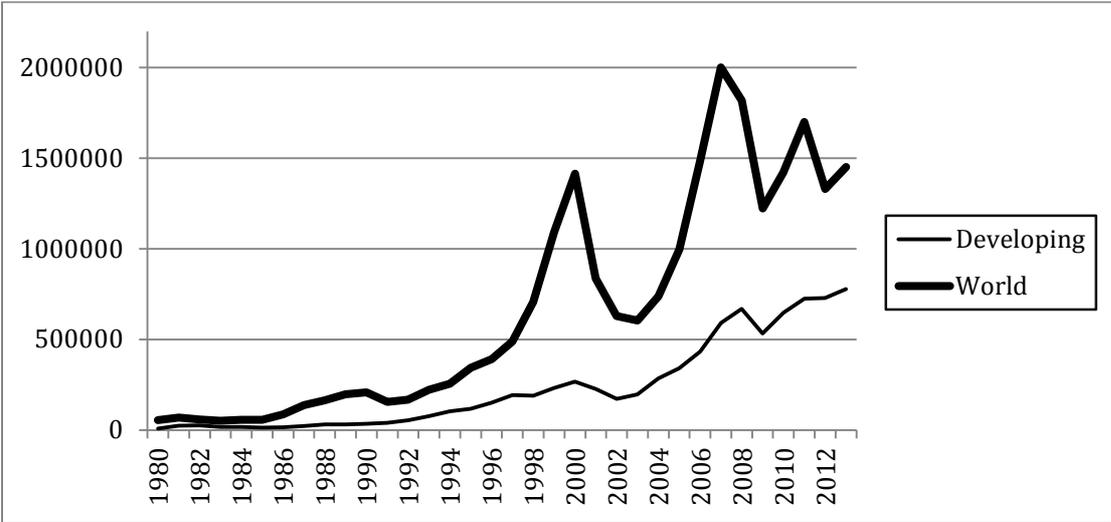
Also the distribution among developing countries has changed over the years, but it is still uneven (UNCTAD 1991: Braunstein 2006: UNCTAD 2014). During the 1980s ten countries received 75 per cent of the share of FDI going to developing countries. In 2000, 20 countries accounted for 90 per cent but five of those countries accounted for three quarters of those 90 per cent (Braunstein 2006). In the 1980s, developing Asia passed LAC as the largest receiver among developing countries (UNCTAD 1991). LAC is since then the second largest receiving regional area and Africa by far receives the least.

2.2 Latin America and FDI

The 1980s is often referred to as the lost decade for the LAC region (Vacaflores Rivero 2007). FDI inflows reduced during the second half of the 1980s and the region suffered from debt crisis, low access to international capital markets, high volatility of economic factors and low growth rates (Vacaflores Rivero 2007: Calvo et al 1996: UNCTAD 1991). In the 1990s international capital started to flow in to the region again. This was mainly due to high international demand for exports along with a, small but still, rise of economic growth in the region. During the first half of the 1990s the amount of FDI inflow was five times as large as during the second half of the 1980s (Calvo et al 1996). Even though the inflow has continued, the amount has varied over the years and the distribution of FDI within the LAC region has varied. South America is the region receiving the most, Central America comes in second and the Caribbean is the region receiving the least (ECLAC 2013).

For the region as a whole FDI inflow has a rather even distribution among the main sectors (ECLAC 2013). In 2013 service sectors received 38 per cent, manufacturing sectors 36 per cent and natural resources 26 per cent. For almost all LAC countries service sectors receives a large share of FDI, but the share divided between manufacturing and natural resources depends on local circumstances. Ever since the 1990s the largest share of FDI invested in natural resources has been directed towards South American countries. For manufacturing sectors, investments have mainly been directed towards Mexico, some Central American countries and the Caribbean, which produce in order to export to the U.S. Most FDI towards these sectors has been driven by growth in private consumption, which has remained high despite a decrease of both economic growth and exports in 2013.

The LAC region suffers from a technological lag towards already developed regions, and along with low levels of domestic savings this makes FDI an important contribution (Vacaflores Rivero 2007). The local governments are thereby eager to attract the investments, and efforts to do so include changing or creating policies especially to make it desirable for MNCs to invest in the countries. One often accepted view of the function of FDI as a catalyst of economic development and growth is that the investments should increase the volume of investment in the host economy, as well as its efficiency. The investments are thought to generate technological diffusion, increase knowledge and to spread knowledge and technology to local firms. Thus, FDI is assumed to have an impact on the host economy.

Studying the labour market regarding gender equity is important since both direct and indirect effects of FDI are likely to occur on the labour market. We now move on to female employment in the LAC region.

2.3 LAC and FLFP

In almost every country in the world, no matter the degree of development, FLFP is lower than that of men (World Bank 2012b). Gender gap in employment is persistent even though more women have entered the work force over the years. Even though more women participate on the labour market they are more likely to be part of vulnerable employments than men are. Vulnerable employments imply, for instance, informal employment, difficulties in finding a first job and earning less money than men. Women are also more likely to have a part-time job instead of full-time.

FLFP in LAC has increased over the years, and it has had a fast convergence to male LFP (MLFP) since the late 1970s (Verick 2012: Elborgh-Woytek et al. 2013) Increased female share of employment is often referred to as feminization of the labour force since the male dominance decreases. The speed of convergence remained until the 1990s and then slowed down during the 2000s, but the long-term LFP trend has continued over the latest years. FLFP continued to increase while the rate for men stood still or fell slightly, narrowing the gap between men and women. Though, the gap remains even though it has been reduced (World Bank 2010). FLFP has been close to 60 per cent for the region during the last couple of years but it varies between countries, it stretches from around 40 to 70 per cent, while the corresponding number for men is above 85 per cent. We see the development of female and male LFP in LAC during 1990-2013 in diagram 2.

Diagram 2 – FLFP and MLFP for the time period 1990-2013
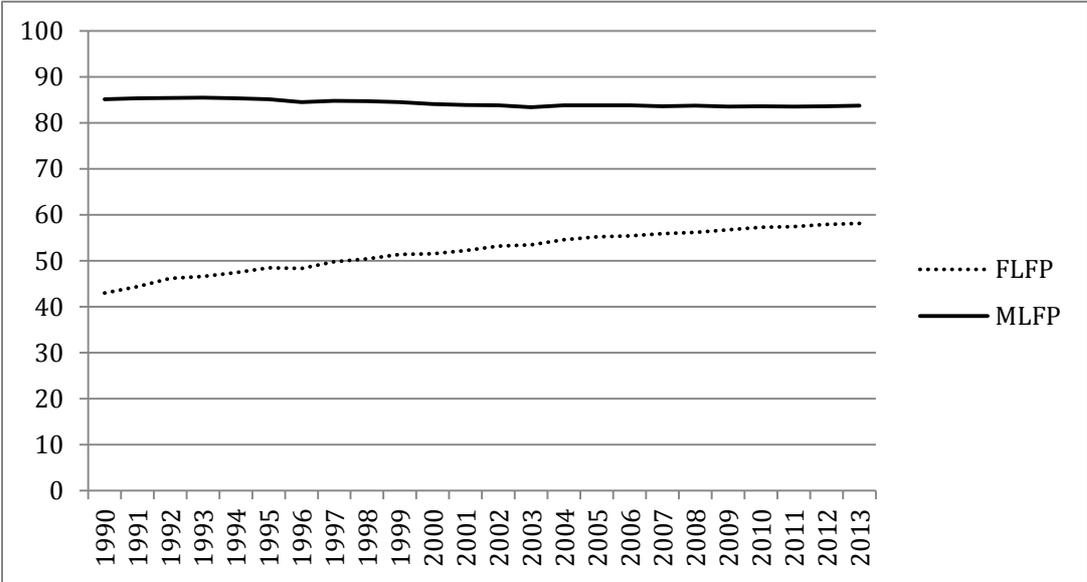
Source: World Bank 2015a

FLFP in LAC is mostly concentrated in a few sectors, making it vulnerable to industry shocks as well as outside shocks. FLFP also depends heavily on the level of education and complex interactions of marital status and decisions whether to have children or not (World Bank 2012b: Cruces and Galiani 2005). Women also tend to have a larger responsibility for domestic work and family care, meaning they might not be able to take on a full-time job (World Bank 2012b). Thus, among the explaining factors for low participation we find norms and cultural factors, along with economic incentives such as education.

The overall educational attainment of LAC has increased over the years. As for other parts of the world, education plays a large role when it comes to labour market participation. The educational gap between men and women in LAC has reduced to a large extent since the 1970s. The gender gap for primary education reduced greatly in the 1980s, and during the 1990s the gap for secondary education almost disappeared. Also the gap for completed tertiary education was reduced during the 1990s, resulting in almost no gap at the end of the decade. This pattern is true for the region as a whole, but there are differences among countries. The educational gap has reduced, and so has the employment gap as we saw above.

Increased FLFP is positive for gender equity, and has, along with higher labour earnings and access to pensions, contributed to reducing poverty in LAC (World Bank 2012a). However, increased FLFP is not enough to reach gender equality. The net effect for women might not be positive. Women are often responsible for domestic work and family care, and entering the work force does not imply that their burden regarding those areas necessarily is reduced (Cagatay 2001). Increased employment may imply that either family care and domestic work or women's leisure is reduced. At the same time, paid employment might give them greater control over income, and increase their status and bargaining power within households or communities and societies. Thus, gender equality is not easy to achieve or easy to examine. In this study we will use LFP rate as a measure to examine if there is an impact of FDI on gender inequality. In the next chapter we present how FDI is expected to affect female employment.

3. How FDI is expected to have an impact on FLFP

There is no simple answer regarding the impact of globalization and FDI on women's situation and gender equality (Braunstein 2002). There is no commonly used theory or model for studying the impact of FDI with a gender lens. In this section we will present how FDI is expected to have an impact on the relationship between FDI and female employment. In order to understand the impact FDI might have on employment one needs to understand that the relationship is complex. There are both direct and indirect effects – positive and negative. There are also other factors having an impact and need to be taken into consideration. We begin with a brief overview of the general relationship between FDI and employment, and thereafter discuss gender factors having an impact on female employment specifically.

3.2 General impact of FDI on employment

When multinational companies (MNCs) perform FDI they have potential to generate additional employment in the host economies through both direct and indirect effects (Vacaflores Rivero 2007). Direct effects start as soon as the investments lead the MNCs to hire employees from the host economy (Kurtishi-Kastrati 2013). FDI increase the physical capital stock in the host economy and might increase labour demand and employment (Vacaflores Rivero 2007). In order for this to be a positive effect the MNCs need to hire people not having a job already. If they hire people employed at domestic firms the effect nets out. MNCs hiring employees can thereby have a positive or neutral impact on employment. The impact might in fact be negative if the entry of MNCs force domestic firms to shut down or reduce their business due to higher competition. Higher competition might also raise efficiency of domestic firms, which is good for a positive long run effect on employment.

MNCs often have higher productivity, better technology and management skills than domestic firms (Smarzynska Javorcik 2004). These factors might be transferred to domestic firms by mimicking or copying the production process, or by employees switching employers from MNCs to domestic firms. These factors are all assumed to increase productivity, and thereby contribute to increased employment. In order for such spillovers to be possible the domestic firms need to have knowledge and technological levels that are high enough to benefit and learn from the MNCs (Lipsey and Sjöholm 2004: Smarzynska Javorcik 2004). Other indirect effects occur when the investments result in job creation in domestic suppliers, due to backward and forward linkages (Vacaflores Rivero 2007). Backward linkages occur if

domestic firms enter into business relations with the MNCs, supplying the MNCs with input, while forward linkages refer to domestic firms processing products of the MNCs. These linkages might create new jobs and encourage further economic activity. Further economic activity might also come from MNCs having higher wages than domestic firms. Higher wages and increased employment are assumed to raise local spending by increasing consumption, savings and investments in the host economy, which in turn might increase labour demand and employment.

There are also other factors having an impact on employment and these also need to be taken into consideration (Vacaflores Rivero 2007). Productivity, trade and openness are all factors having an impact on employment, and also structural factors such as labour laws and education matters. Structural factors affect at what rate people can enter and leave the labour market, and also how easy or difficult it is to find a job.

As we can see, the relationship between FDI and employment is ambiguous. On top of this ambiguous relationship we need to add factors specific for women, and we now move on to such factors.

3.3 Gender factors
In this section we focus on factors having an impact on women's LFP since these factors have an impact on the employment effect of FDI.

It is well known that gender inequality is persistent over the world (Sen 1987). Women have less political, economic and social power than men, and are further down in the social hierarchy. Including a gender perspective is a way of studying situations and issues including the respective roles and contributions of men and women. Gender roles are created and given to men and women socially and culturally. They imply patterns of behaviour, rights and obligations defined by society as appropriate for each sex. Gender roles affect how women, and men, respond to economic events (Catagay 2001). Thus, we need to include this aspect when examining the impact of FDI on women and FLFP.

The labour market is often divided among the sexes (Braunstein 2002). Women are primarily associated with care and reproduction of the family, implying that their time is much spent

outside the labour market and inside their homes performing domestic work. Both marital status and fertility are factors keeping women out of the work force (World Bank 2012b). Compared to women being single, married women are more often not active on the labour market. Unfortunately, data for marital status is not available and will not be included in this essay. It is, however, an issue we need to have in mind regarding this subject. Fertility, the number of children a woman gives birth to, is assumed to have a negative impact on FLFP since having children keeps women out of the work force. Besides giving birth, women are also more likely to raise the children and take care of domestic work, keeping them from participating in the labour force. In this way one can say that fertility account for both raising children and performing domestic work. Unpaid work such as this is not considered as economic activity and is thereby not helpful increasing women's status (Catagay 2001).

The different roles are also reflected in terms of enjoyment of rights and education (Sen 1987). The general impact of education on female employment is positive due to the decreasing educational gap (World Bank 2012b) Education has a positive impact on the status of women, making it more likely for women to be part of the labour force. When women get more educated the opportunity cost of not working increases along with increased earnings for women. A counter effect of education is that women's reservation wage is increased and preferences for job seekers might change since they are capable of better jobs (Verick 2012). By increasing women's status, education also shifts social norms. Norms regarding both traditional gender roles and women's awareness of the possibility of actually working for a living. Education makes women more capable and accessible for jobs, and the better the jobs that are available for women the demand for higher education also gets larger.

Gender roles are also mirrored in responsibilities and decision-making (Sen 1987). The division of the labour market where women are kept out of the workforce due to, for instance, domestic work or having children, is reflected in the households and both financial responsibility and control are affected. If women are active on the labour market, they are often seen as secondary breadwinners (World Bank 2010). This implies that their income is seen as a complement to, and less important than, the male income in the household. Gender roles affect how households pool their income, and also have a strong impact women's incentive to seek paid employment. Besides the impact on whether women will seek paid work at all, it also affects what kind of jobs that are available and considered as suitable.

As we can see, gender roles have an impact on FLFP, and thereby also on how FLFP is affected by FDI. FDI can be positive for women and yet not contribute to reducing inequality between the sexes. If FDI has a positive effect for men and not for women, then we can easily conclude that it has a bad influence on gender equality. If FDI has an equal effect on men and women we cannot say that it is good for equality even though the situation for women might be improved. The differences between the sexes remains and men keep the distance in the social hierarchy. In order for FDI to have a positive effect not just for women in an absolute way, but also for equality, it needs to have a relatively more positive effect (or less negative effect) on women than it has for men.

It also matters whether the sector receiving FDI is male or female dominated, or if the investments open up for female employment. If FDI reach male dominated sectors it is not helpful for women's situation or gender equality, and if FDI reach female dominated sectors there is a risk that the employers will replace female employees with male employees since men often are seen as more skilled (Braunstein 2006: Fussel 2000).

Thus, it is not an obvious relationship we are studying. The net effect is ambiguous, making empiric analysis important. FDI cannot be thought of as the solely contributor towards gender equity, but the impact of FDI is an important part to study since it is increasing. In the next chapter we introduce earlier research within this area, and thereafter we move on to the empiric analysis.

4. Earlier research

In this chapter we will present earlier research within this subject. Studies regarding FDI are growing, but its impact on gender related subjects is not well studied. We begin this chapter with a presentation of relevant studies regarding female employment, and ends with a table of more detailed information.

Braunstein (2002) studied the impact of FDI on female labour supply by using employment and wages in East and Southeast Asia. Most macroeconomic studies exclude factors such as women's autonomy and bargaining power within their households having an impact on the labour market outcome, while in fact both affect female labour supply. Braunstein includes these aspects and concludes that women's fortune in the labour market are strongly linked with openness, including FDI, and liberalization. Siegmann (2006/2007) examined the effect of FDI on the Indonesian labour market by studying the rural area since most of the population lives there and gender gaps in education and income are wider. Focus is on the gender composition of the work force, working conditions for men and women and the wage gap in foreign and domestic firms. She finds that FDI and MNCs contribute to increasing female total working time.

Both Vacalores Riviero (2007) and Timmerman (2014) examine FDI's impact on female employment. Vacaflores Riviero found, for the LAC region during 1980-2002, a positive impact of FDI on employment on the aggregated level as well as separately for both men and women, but the impact was stronger for women. Though, by using the same controlling variables through all regressions he excludes the fact that women have other factors having an impact on their LFP. Timmerman studied FDI's impact specifically on FLFP and the ratio of female to male LFP (RLFP) in Sub Saharan Africa (SSA) during 1990-2009. She found no significant impact on FLFP, except for countries with initially low values. When differentiating between mineral rich and poor countries, a positive impact on FLFP for countries rich of minerals is shown. The study showed no impact on RLFP.

Earlier studies have used different procedures, implying there is no clear pattern within this field of research. In this study we focus on the LAC region for the time period 1990-2013, but unlike the study of Vacaflores Rivero we include a gender perspective. Next chapter describes the chosen data and methodology for this study, and thereafter follows the empiric analysis.

Table 1 – Earlier research

Year	Author	Problem	Data/sample	Method	Result
2002	Braunstein	Gender, FDI and women's autonomy.	20 semi-industrialized countries in East and Southeast Asia during 1975-1999.	Combines qualitative literature with an analysis of the relationship between family structure and female labour supply.	Women's fortune in the labour market and their autonomy in the household are strongly linked with both openness, such as FDI, and liberalization.
2006/2007	Siegmann	The impact of FDI, as a measure of globalisation, on the Indonesian labour market.	Gendered labour markets in rural Indonesia.	Combines qualitative data from focus groups with quantitative data when performing regressions.	FDI has an indirect impact of widening the wage gap, and MNCs contribute to increasing female total working time.
2007	Vacaflores Rivero	FDI's impact on employment.	17 LAC countries during 1980-2002.	General Method of Moments estimation.	FDI has a positive impact on employment, both on the aggregate level and separately for men and women. The impact is stronger for women.
2014	Timmerman	The impact of FDI on FLFP and the ratio of female to male LFP in order to see if it is profitable for SSA countries to attract FDI.	43 SSA countries during 1990-2009.	Ordinary Least Squares regression.	FDI had significant impact on FLFP for countries with low initial values. Differentiating between mineral rich and poor countries shows a positive effect on mineral rich countries. No impact on RLFP.

5. Data and methodology

In this section we present the chosen variables and its corresponding data, as well as the chosen methodology for this study.

Unfortunately gender-separated data is not very accessible, which complicates the process of examining gender equity and narrows variables possible to use. As we could see in the earlier section, Vacaflores Rivero (2007) performs regressions both in total and separately for men and women but he uses the same variables for all regressions. He thereby excludes the fact that there are other factors having an impact on women than on men. Unlike Vacaflores Rivero we will include a gender perspective when studying the LAC region. The region contains of 37 countries but due to data availability 24 countries are included in this sample (UNESCO 2015).[4] Availability of data is also a determinant of the chosen time period, 1990-2013 with yearly observations. Fortunately, this time period coincides with the fact that FDI inflow to the LAC region increased during the 1990s. We will use a method close to Timmerman's study mentioned earlier, but extend the regressions with variables capturing international factors such as exports and openness and macroeconomic factors such as inflation.

We perform regressions both using FLFP and RLFP as dependent variables. The ratio is used in order to examine whether FDI has an impact on reducing the employment gap between men and women. We also use two FDI measures, FDI net inflow and FDI as a percentage of GDP, where the latter shows FDI's relevance for the host economy's economic situation. Using these two measures will show whether just an inflow of FDI and FDI in relation to GDP matters in the same way. We perform the regressions using fixed effects estimation in order to capture unobservable country specific effects. In the first regression equation presented below FLFP is the dependent variable.

$$(1)\ FLFP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 Fertility_{it} + \beta_3 GDP_{it} + \beta_4 Education_{it} + \beta_5 Urban_{it} + \beta_6 Exp_{it} + \beta_7 Open_{it} + \beta_8 Inflation_{it} + \beta_9 \tau + \varepsilon_{it}$$

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[4] A complete list of all countries in the LAC region, as well as which countries that are included in the sample, is presented in the Appendix 10.1

FLFP$_{it}$ refers to FLFP in country i at time t. β_0, being the intercept, is of no interest for this study and will not be presented in the results. The impact of *FDI* is the main interest of this study, whether FDI will have an impact or not, and if that impact is positive or negative. *Fertility* capture the impact of having children, but we also use it as a way of controlling for women missing out of the work force due to domestic work. We assume fertility to have a negative impact of FLFP. *GDP* refers to Gross Domestic Product (GDP) per capita and is included in order to control for output. We assume a positive impact on FLFP. *Edu* refers to education, which is assumed to have a positive impact on female employment due to reducing the education gap between men and women. We use percentage of women enrolled in secondary education since education needs to exceed junior secondary education in order for education to have a positive impact on FLFP (Verick 2012).[5] *Urb* refers to urbanization and is included since the urbanization process increases. The assumed impact is ambiguous since it could have a positive impact on FLFP due to job opportunities being higher within urban areas, but at the same time women might not be educated or seen as appropriate for those jobs (Aboohamidi and Chidmi 2013). *Exp* and *Open* refers to exports and openness and they are included to capture the impact of international factors on FLFP. Exports, as part of GDP, are assumed to have a positive impact on FLFP since exports increases the relative demand for female labour due to, for example, women receiving lower wages (Siegmann 2006). Openness is calculated in the traditional matter by dividing the sum of exports and imports with GDP. Its impact is harder to predict than for exports since exports are assumed to have a positive impact on employment while imports might have a negative impact if job opportunities are transferred to other countries. We also control for *inflation* in our regressions since the LAC region has experienced unstable inflation over the years (Vacaflores Rivero 2007). The impact of inflation is assumed to be negative. τ denotes controls for time specific events, such as financial crisis. We perform the regressions both with and without time controls and the results are presented separately. ε_{it} is the error term, which is divided as

$$\varepsilon_{it} = \lambda_i + \mu_{it}$$

where λ capture the unobservable individual specific effects for each country, and μ_{it} denotes the remaining disturbance.

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[5] Also tertiary education has increased among women, but it is unfortunately not available at an acceptable level and would thereby imply a large loss of data.

We also examine FDI's impact on RLFP. By performing regressions with these two dependent variables we examine both the impact of FDI on female employment and whether FDI has an impact on the employment gap between men and women. In regression equation (2), the dependent variable is RLFP. The equation contains the same explanatory variables as equation (1) and just as in (1) we will perform the regressions with and without time controls and the results are presented separately.

(2) $RLFP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 Fertility_{it} + \beta_3 GDP_{it} + \beta_4 Edu_{it} + \beta_5 Urban_{it} + \beta_6 Exp_{it} + \beta_7 Open_{it} + \beta_8 \tau + Inflation_{it} + \varepsilon_{it}$

Common for all data for this study is that it is collected from the Word Bank's World Development Indicators (WDI). Data for some of the variables are available from other sources as well but not to such a broad extent as from WDI. In Appendix 10.2, table 7, we present a summary of the explanatory variables and what impacts that are expected from them. When estimating the regressions we have logged FDI inflow, fertility and GDP per capita since that gives coefficients easier to interpret, the other variables are in percentage and thereby in no need to be logged.[6] In the next chapter we present the regression results.

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[6] Earlier studies have only logged GDP but performing regressions in that way or as I described above give similar results.

6. Empiric analysis

In this section we present the regression results from examining whether FDI has had an impact on FLFP and RLFP. We begin with the results for FLFP and thereafter for RLFP, and the chapter ends with a robustness check. A discussion follows in chapter 7.

6.1 FDI's impact on FLFP

Table 2 presents the regression results from examining the impact of FDI on FLFP. Column (1) and (2) present the results from using FDI inflow as FDI measure, where (2) include controls for time specific events. Column (3) and (4) present the results using FDI in relation to GDP as FDI measure, and (4) include time controls.

Table 2 – effect of FDI on FLFP, using fixed effect estimation

	(1)	(2)	(3)	(4)
Log FDI inflow	0.006	0.004		
	(0.003)	(0.004)		
FDI/GDP			0.115	0.094
			(0.074)	(0.092)
Log fertility	-0.087	-0.007	-0.097*	-0.038
	(0.051)	(0.095)	(0.048)	(0.093)
Log GDP/capita	0.026*	0.027	0.030**	0.028
	0.013	(0.017)	(0.013)	(0.017)
Education	0.050	0.023	0.036	0.009
	(0.053)	(0.054)	(0.052)	(0.052)
Urbanization	0.053	0.050	0.064	0.061
	(0.103)	(0.107)	(0.096)	(0.101)
Exports	0.301**	0.233*	0.331***	0.313**
	(0.122)	(0.131)	(0.116)	(0.131)
Openness	-0.117*	-0.070	-0.126**	-0.110*
	(0.066)	(0.067)	(0.061)	(0.064)
Inflation	0.010	0.035	-0.024***	-0.023***
	(0.043)	(0.036)	(0.005)	(0.006)
Time control	No	Yes	No	Yes
R^2	0.568	0.604	0.568	0.604

Number of observations for (1) and (2) is 342, and for (3) and (4) 352. Robust standard errors are presented within parenthesis. Significance level is presented as: 10 % = *, 5 % = **, 1 % = ***

The variable of special interest is FDI, and for regression (1) it is positive but not significant. It is close to being significant at the 10 per cent level but the impact is not strong enough to be significant. Most of the controlling variables show expected signs. Though, inflation is positive and openness, which was not obvious to assume beforehand, has a negative sign. GDP, exports and openness are significant while fertility, education, urbanization and inflation are not. When controlling for time specific events in (2) significance is removed from almost all variables, except for exports. The explanatory power of the model is stronger when controlling for time specific events, but at the same time almost all significance is lost.

In column (5), where we present the result from using FDI as a percentage of GDP as FDI measure, FDI shows a positive but not significant impact. Though, just as in (1) it is close to being significant at the 10 per cent level. Among the explanatory variables fertility, GDP, education, urbanization and exports show expected signs while openness and inflation show negative signs. All of the explanatory variables, except education and urbanization, are significant. When controlling for time specific events in (4) fertility and GDP lose their significance, while exports, openness and inflation are still significant. The explanatory power is stronger when time controls are included.

6.2 FDI's impact on RLFP

In this section we present the regression results from using RLFP as the dependent variable. The results are presented in table 3 below, and just as for FLFP we present the different FDI measures separately, with and without time controls. If FDI has a positive impact on this ratio one can say that FDI has a positive impact on feminization of the labour force.

For regression (5), FDI is positive and significant at the 10 per cent level. An increase of FDI inflow would imply an increase of RLFP, and FDI thereby shows a positive impact of feminization of the labour force. Fertility, GDP and exports give expected and significant signs while openness is negative and significant. Inflation is negative but not significant. Education and urbanization show expected signs but are not significant. When controlling for time specific effects in (6) significance is lost on all variables except for exports. Also here the explanatory power is higher with time controls,

Table 3 – Effect of FDI on RLFP, using fixed effect estimation

	(5)	(6)	(7)	(8)
Log FID inflow	0.006*	0.004		
	(0.003)	(0.003)		
FDI/GDP			0.117	0.054
			(0.077)	(0.094)
Log fertility	-0.134**	-0.021	-0.142*	-0.043
	(0.057)	(0.102)	(0.055)	(0.097)
Log GDP/capita	0.030*	0.033	0.036**	0.034*
	(0.016)	(0.020)	(0.016)	(0.019)
Education	0.079	0.040	0.072	0.031
	(0.060)	(0.060)	(0.060)	(0.057)
Urbanization	0.118	0.118	0.127	0.128
	(0.124)	(0.121)	(0.118)	(0.112)
Exports	0.362**	0.264*	0.351***	0.307**
	(0.131)	(0.135)	(0.119)	(0.132)
Openness	-0.150**	-0.088	-0.136**	-0.106
	(0.071)	(0.070)	(0.065)	(0.068)
Inflation	-0.016	0.012	-0.020***	-0.020***
	(0.044)	(0.034)	(0.006)	(0.005)
Time control	No	Yes	No	Yes
R^2	0.690	0.728	0.690	0.726

Number of observations for (1) and (2) is 342 and for (3) and (4) 352. Robust standard errors are presented within parenthesis. Significance level is presented as: 10 % = *, 5 % = **, 1 % = ***

In (7), where we use FDI in relation to GDP as FDI measure, FDI shows a positive but not significant value of FDI. Though, it is close to being significant at the 10 per cent level. The controlling variables show the same pattern as for (5) except inflation now being significant. When including time controls in regression (8) significance is lost on fertility and openness while GDP, exports and inflation are still significant. Just as in the earlier regressions the explanatory power is stronger when controlling for time specific events.

6.3 Robustness check

Generally for the LAC countries FLFP have increased during 1990-2013, but for Jamaica and Suriname FLFP has actually decreased during this time period. In this regard, these two countries do not follow the same pattern as the other countries and in order to see if the decreases in their FLFPs have affected the regression results we perform new regressions excluding them from the sample.

6.3.1 FDI's impact on FLFP

We use the same regression equations and perform new regressions without Jamaica and Suriname in the sample and the results are shown below. Again we begin presenting the results for FLFP, in table 4, and thereafter for RLFP in table 5.

Equation (1) shows a positive but not significant impact of FDI inflow on FLFP. GDP and export show their assumed impact and are the only explanatory variables that are significant. Including time controls removes significance from all variables. When using FDI in relation to GDP as the FDI measure, (3), shows a positive and significant impact of FDI on FLFP. Among the explanatory variables GDP, exports, openness and inflation are significant. When including time controls FDI and GDP loses its significance while exports and inflation are still significant. Excluding Jamaica and Suriname increases the explanatory power of all regressions. This shows that using the new sample the model manages to explain the impact on FLFP more than when using the original sample. Including time controls also give higher explanatory power than for the original sample, and the regressions using FDI in relation to GDP have stronger explanatory power than when inflow is used.

Table 4 - Effect of FDI on FLFP, using fixed effect estimation

	(1)	(2)	(3)	(4)
Log FDI inflow	0.005	0.000		
	(0.003)	(0.003)		
FDI/GDP			0.145**	0.051
			(0.062)	(0.064)
Log fertility	-0.080	0.069	-0.084	0.059
	(0.052)	(0.098)	(0.054)	(0.100)
Log GDP/capita	0.031**	0.029	0.036**	0.028
	(0.013)	(0.019)	(0.013)	(0.018)
Education	0.059	0.018	0.052	0.014
	(0.053)	(0.050)	(0.055)	(0.052)
Urbanization	0.040	0.057	0.052	0.069
	(0.117	(0.122)	(0.113)	(0.115)
Exports	0.225**	0.118	0.252**	0.168*
	(0.062)	(0.095)	(0.094)	(0.088)
Openness	-0.086	-0.027	-0.101*	-0.055
	(0.062)	(0.057)	(0.056)	(0.053)
Inflation	-0.013	0.015	-0.025***	-0.022***
	(0.038)	(0.025)	(0.004)	(0.005)
Time control	No	Yes	No	Yes
R^2	0.617	0.675	0.638	0.690

Number of observations for (1) and (2) is 333 and for (3) and (4) 338. Robust standard errors are presented within parenthesis. Significance level is presented as: 10 % = *, 5 % = **, 1 % = ***

6.3.2 FDI's impact on RLFP

Just as when using the original sample we also perform regressions with RLFP as the dependent variable, and also here we have performed regressions with two separately FDI measures and with and without time controls. The regression results are presented in table 5.

Equation (5) shows a positive and significant impact of FDI on RLFP. An increase of FDI inflow would imply an increase of the female share in the labour force. Fertility, GDP and export have their expected signs and are significant while neither education nor urbanization are significant. Openness is negative and significant while inflation is also negative but not significant. Controlling for time specific events removes significance from all variables.

Table 5 – Effect of FDI on RLFP, using fixed effect estimation.

	(5)	(6)	(7)	(8)
Log FDI inflow	0.006*	0.001		
	(0.003)	(0.003)		
FDI/GDP			0.164**	0.036
			(0.071)	(0.077)
Log fertility	-0.126**	0.051	-0.131**	0.049
	(0.059)	(0.110)	(0.060)	(0.112)
Log GDP/capita	0.034**	0.035	0.041**	0.036*
	(0.016)	(0.021)	(0.017)	(0.020)
Education	0.090	0.042	0.085	0.039
	(0.060)	(0.056)	(0.063)	(0.056)
Urbanization	0.102	0.114	0.117	0.121
	(0.137)	(0.137)	(0.137)	(0.131)
Exports	0.298**	0.161	0.302***	0.186*
	(0.118	(0.109)	(0.105)	(0.105)
Openness	-0.122*	-0.046	-0.125*	-0.061
	(0.068)	(0.062)	(0.060)	(0.060)
Inflation	-0.033	-0.002	-0.019***	-0.0167***
	(0.044)	(0.027)	(0.005)	(0.004)
Time control	No	Yes	No	Yes
R^2	0.715	0.769	0.723	0.776

Number of observations for (1) and (2) is 333 and for (3) and (4) 338. Robust standard errors are presented within parenthesis. Significance level is presented as: 10 % = *, 5 % = **, 1 % = ***

In (7), FDI shows a positive and significant impact on feminization of the labour force and the controlling variables show the same pattern as in (5) but here inflation is significant. When controlling for time specific events GDP, exports and inflation are still significant while neither of the other variables are. For both FDI measures the explanatory power is higher when including time controls, and the regressions using FDI in relation to GDP show a stronger explanatory power than when inflow of FDI is used.

7. Discussion

In this section we will discuss the results from chapter 6. We will mainly focus on the variables for FDI since they are the variables of special interest for this study. The different regressions do not give robust results regarding the impact of FDI, and we will discuss possible explanations for the regression outcomes.

The inconsistency of FDI's impact is of course not desirable. Starting without time controls for the original sample, neither FDI measure show a significant impact on FLFP and only inflow have a significant impact on reducing the employment gap. When excluding Jamaica and Suriname, FDI in relation to GDP show an impact on FLFP and both FDI measures show a significant impact on RLFP. Thus, the results are not very robust. We can see that the explanatory power is stronger when Jamaica and Suriname are excluded, the model manages to explain more of the changes than with the original sample. This implies that Jamaica and Suriname might have affected the regression results. The new sample shows signs of FDI having a positive impact on female employment and on reducing the employment gap.

One can wonder whether it is worrying that FDI shows such different impacts. One possible explanation of the varying results is that we have used yearly observations in this study. Inflow of FDI can vary extensively from year to year and it is possible that aggregating, for example, three or five years, when performing the regressions would give a different outcome of the impact of FDI. FDI can also have different impacts on FLFP and RLFP since the latter also depends on MLFP. It is thereby not remarkable for FDI to show different impacts for the two dependent variables.

We cannot dismiss there being an impact of FDI on FLFP and RLFP completely, but neither can we put too much emphasis to the shown significant impacts, especially since the FDI variables showing significance loses significance when we control for time specific events. This is true for both samples. Losing significance when including time controls is of course not desirable. It can be a sign that the chosen method or model is not the right one for this study, or that the included variables need to be changed. To examine this we have performed regressions without exports and/or openness but the pattern is the same, we have also performed regressions without inflation. FDI has practically the same impact in all regressions as presented in this study, and significance is lost when time controls are included.

Including inflation gives higher explanatory power of the models, and inflation is one of the variables not losing significance when controlling for time specific events. Losing significance due to time controls could also imply that time specific events, such as macroeconomic events, had stronger impacts on FLFP and RLFP than the variables included in this study. If FLFP is more affected by macroeconomic effects or bad economic situations then time controls might capture the impact instead of the variables included in this essay. Whether this is likely or not is hard to say, but it is possible. We do, however, include some macroeconomic variables, such as inflation, which should capture some of the macroeconomic effects having an impact on the outcome.

In this study data for FDI is aggregated for all sectors and it would have been interesting to have access to sector specific data of FDI. If FDI was directed towards sectors where women are established, or opened up for women in new sectors, one can assume the impact on FLFP to be larger than if FDI is directed towards male dominated sectors. It is possible that using such disaggregated data would give other results than what we found in this study. Also data of FDI segregated between Greenfield Investments (GI) and Mergers & Acquisitions, where the first refers to establishment of new firms and the latter to already existing firms, might give useful insights if it was available. An employment effect might be stronger with GI since new firms can be assumed more likely to hire people than already existing firms.

The LAC region include some countries defined as tax havens and a possible strategy could be to exclude these countries in order to see if the results are different.[7] Though, when looking at FDI as a percentage of GDP the tax havens of the LAC region did not have numbers notably different from the others. If they had shown to receive FDI as a higher percentage of GDP than the other countries in the region it would have been interesting to perform regressions excluding them. This approach could be interesting for future research, both for the LAC region and other regions.

There are many aspects to consider when studying gender equality, and in this study we have controlled for some of them. In the next chapter we conclude our findings and give some suggestions for future research.

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[7] Countries defined as tax havens are shown in table 7 in Appendix 10.1

8. Conclusion

In this chapter we conclude the aim, process and results of this study, and we end with some thoughts for future research within this subject.

The aim for this essay was to examine whether FDI has an impact on gender equality by studying the impact of FDI on FLFP and the composition of the labour market. We have performed fixed effect estimations using a data sample consisting of 24 countries within the LAC region for the time period 1990-2013. We found that there are some signs of FDI having an impact on female employment and feminization of the labour force, but the results are not very robust. When FDI shows a significant impact the impact is lost when including time controls, but we cannot dismiss there being an impact of FDI on FLFP and/or RLFP completely. The varying results we received are rather a sign telling us that there is a need for more studies within this subject. For future research it would be desirable if more gender-segregated or sector-segregated data were available since it would simplify the process of studies with a gender perspective. Using large data samples would also be desirable since it increases the possibility to apply theoretical approaches, even though case studies also contributes to the existing research of FDI's impact on gender.

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10. Appendix

10.1 A list of the LAC region countries

Table 6 – LAC countries

South America	Included in sample	Tax haven
Argentina	X	
Bolivia	X	
Brazil	X	
Chile	X	
Colombia	X	
Ecuador	X	
Guyana	X	
Paraguay	X	
Peru	X	
Suriname	X	
Uruguay	X	
Venezuela	X	

Central America	Included in sample	Tax haven
Belize	X	
Costa Rica	X	
El Salvador	X	
Guatemala		
Honduras	X	
Mexico	X	
Nicaragua	X	
Panama	X	X

The Caribbean	Included in sample	Tax haven
Antigua & Barbuda		X
Aruba		X
Bahamas	X	X
Barbados	X	
Cayman Islands		X
Cuba		
Curacao		
Dominica		
Dominican Republic	X	
Grenada		X
Haiti		
Jamaica	X	
St.Kitts & Nevis		X
St. Lucia	X	
St. Vincent and the Grenadines		X
Trinidad & Tobago	X	
Virgin Islands		

Source: UNESCO 2015

10.2 Explanatory variables

Table 7 – Explanatory variables

Explanatory variables	Expected effect	Source
Log FDI inflow	+/-	WDI
FDI/GDP	+/-	WDI, calculated by author
Log Fertility	-	WDI
Log GDP per capita	+	WDI
Education	+	WDI
Urbanization	+	WDI
Exports	+	WDI
Openness	+/-	WDI
Inflation	-	WDI