Female Labor Force Participation, Its Determinants and Effect on GDP in Pakistan

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ABSTRACT

This particular paper calculates the extra GDP that will be generated due to an increase in the female labor force participation in Pakistan. The extra GDP is computed by taking into account the "extra GDP per new employee" and "the number of new female employees entering the workforce". The paper looks at the plausible GDP for the year 2011-2012 and 2013-2014 that might have taken place if the female labor force participation was equal to the hypothesized increased values instead of the actual participation rates.

The paper sets up a hypothetical scenario. In the scenario the number of female and males in the labor force is assumed to be equal. This method sacrifices some realism in order to get a hypothesized GDP value. The reason for using this method is to show that raising labor force share of female has huge substantial GDP returns. We estimate that due to this labor force increase in Pakistan. The GDP of Pakistan goes up by almost 50%. The change is huge and substantial.

The second part of the paper looks at the macro determinants of FLFP. For this purpose an econometric model is run based on previous studies. The results indicate that fertility is the main determinant for FLFP, while literacy is overvalued in determining FLFP.

Keywords: gender equality, scenario analysis, female, labor force, Pakistan, North Cyprus.

ÖZ

Bu çalışma Pakistan'da kadın işgücü katılımına bağlı olarak doğan ekstra GSYİH' yı hesaplamaktadır. Bu ekstra GSYİH 'her yeni işçiye göre ekstra GSYİH' ve 'işgücüne katılan yeni kadın iş sayısı' baz alınarak hesaplanmıştır. Bu araştırma 2011-2012 ve 2013-2014 yılları arasında kadın işgücü katılımı, asli katılım oranları yerine varsayılan artan değerlere eşit olursa yer alacak olan makul GSYİH' yı araştırmıştır.

Bu çalışma bir varsayımsal senaryo kurmuştur. Bu senaryoda kadın ve erkek işgücü sayısı eşit varsayılır. Bu yöntem varsayımsal GSYİH değeri elde etmek için bazı gerçeklikleri kaybeder. Bu yöntemi kullanma sebebi , kadın işgücü dağılımını artırmanın çok büyük ve önemli miktarda GSYİH geri dönüşü yaratacağını göstermesidir. Bunu Pakistan'ın işgücü artışına bağlı olarak elde ediyoruz. Bu değişim büyük ve önemlidir.

Araştırmanın ikinci bölümünde FLFP' nin makro belirteçleri incelenmektedir. Bu amaç için daha önceki çalışmalara dayalı olarak bir ekonometrik model oluşturulmuştur. Sonuçlar okuryazarlık FLFP için yüksek değerli olduğu sürece doğurganlığın FLFP için ana belirteç olduğunu gösteriyor.

Anahtar Kelimeler: Cinsiyet Eşitliği, analiz , kadın , işgücü, Pakistan , Kuzey Kıbrıs

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INTRODUCTION

"Putting resources into women's hands, while promoting gender equality in the household and in society, results in large development payoffs. Expanding women's opportunities in public works, agriculture, finance, and other sectors accelerates economic growth, helping to mitigate the effects of current and future financial crises. An extra year of secondary schooling for girls can increase their future wages by 10 to 20%. And evidence shows that resources in the hands of women boost household spending in areas that benefit children" (World Bank, 2014)

Development and gender inequality have been widely studied in recent years and becoming increasingly important day by day (for example to close the GDP gap between countries) (Bryant, 2004). The increase in the female labor force participation specifically has been of utmost importance. Ever since the 1900`s the female participation has been experiencing a growth and it increased from the very low of 20.6% to around 50-70% in developed countries 2013 (Cardia, 2009) (WB, 2013). This increase in female labor force is not just experienced by developed countries but many Latin American economies, especially during the last two decades, have witnessed this increase as well. One of the major effects that this has had is in the uplifting of the status of the people at large. What has contributed to this increase in female participation in the economy is the increase in technology, the declining fertility rate and the economic structural changes (Galor and Weil, 1996).

The structural change refers to the economic activity shifting from the industrial sector to the service sector, meaning the share of service sector in GDP increasing for a country. The service sector has a positive impact on female labor force participation (Jacobsen, 1999)

However female labor force participation in Pakistan has remained low. It has one of the lowest female LFP rates in the world of 24.8% (PBS, 2012-2013). It is extremely low even when compared with other South Asian economies and especially when compared to the developed world. The following figure may give an idea of how low the female labor force participation of Pakistan is when compared to regional averages.

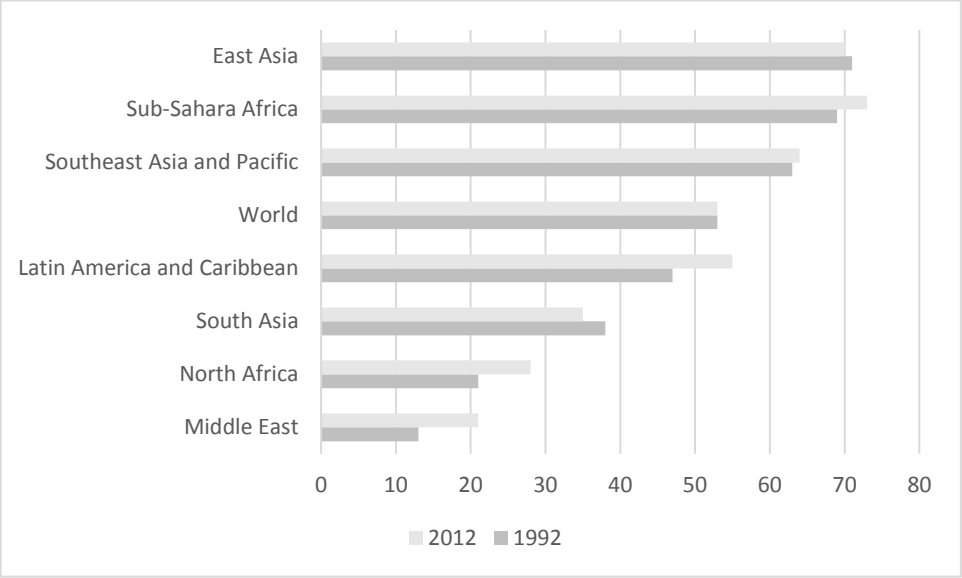

Figure 1. Regional Female Labor Force Participation (25 years over) 1991 and 2012

Pakistan belongs to South Asia, the region average is higher (about 34%) than Middle East (22%) and North Africa (28%). However Pakistan female LFPR (24%) (PBS, 2012-2013) are more similar to Middle East region rather than South Asia.

This shows that even in the region of South Asia which we assume takes into account cultural, social and religious factors, that might be prohibiting females from participating in economic activity, Pakistan lags behind.

For better understanding the situation, another good measure can be the male to female labor force participation ratio. According to the report of the World Bank (2012), Pakistan's LFP male to female ratio was 29 (for every 100 men there was only 29 women), while India's was 36,7, for Bangladesh 46,0, for Sri Lanka 86.0, for Bhutan and 20.0 for Afghanistan.

1.1 Background of the topic

World's female labor force participation has greatly increased during recent times. The gender labor force participation gap has reduced and is now narrower than ever as more and more women participate in the paid work. There are three main stages that we can categorize this trend. The first stage is that of the late 19th century. In this stage the number of women in the paid work was extremely low. At those times the women in the paid work were mainly young single women. They left the labor force after marriages except those that both, men and women, required to work to maintain sustenance level of income. The women that worked in these times were usually servants or they worked in the textile sector (Goldin, 2006).

In 1930`s and 1950 with the increase in the share of the service sector there was an increase in demand for office workers. This led to an increase in the female labor force participation. Other factors that contributed to this was the beginning of modern technology especially electricity had a major effect on female labor force participation rate as the time required for unpaid work reduced which allowed them

to spare time for paid work. During the late 1940`s women who were aged 35-45 made up for most of the participants (Goldin, 2006).

During the period of 1950`s and 1970`s women mostly worked as secretaries, teachers, nurses and librarians (Goldin, 2006). They mostly worked if the household required a secondary earner (Goldin, 2006). By the middle of 1970`s there was a huge increase in female participation in the labor force which was a result of many factors. One of the main factors was that of the increasing women's education level. This resulted in many women participating in the economy including young and married women. The overall growth was substantial and during the period of 1970 to 1990 female labor force participation went up by 40% to about 75% on average (Goldin, 2006).

This phenomena was observed especially in the period of 1980`s and early 1990`s, the reasons being lower fertility (fertility transition) (Lim, 2002) where the labor force growth rate for women was higher in every region of the world then men growth rate except Africa (Potter, 2006).

Now in this era of globalization all beliefs that we held in the past are being challenged. Earlier it was believed that only males were the breadwinners and that females were primary responsible just for the household. Now though women are pushing these boundaries as is evident from all developed countries. The Organization for Economic Cooperation and Development (OECD) countries female labor force participation rate is 62.6% although still not equal to the male rates (79.7%) (OECD, 2013).

1.2 Background of female labor force in Pakistan

According to Pakistan Bureau of Statistics (PBS) Labor Force Surveys, (PBS, 1970-2012) female labor force participation was somewhere around 7 percent in 1970. This kept on increasing and by the end of the 1980`s it had reached to around 10.5 percent. At the end of 1990`s there was a rapid increase in female LFPR where it went up from 13.7% to around 19% in 2007. This also led to an interesting conclusion as the years in which the female labor force participation rate increased the economic growth was low; around 3, 9 % (World Bank, 1990-1999). However during the relatively high economic growth period 2000-2007, where annual growth rate was 5.1% (World bank, 2000-2007) were seen to correspond to a more stable level of female labor force participation.

During the periods of 1990-2013, Pakistan experienced 4.04% annual GDP growth (World Bank 1990-2013). In 2011, the contribution of the service sector to GDP was 53.3 percent (Ahmed, 2011), Although the service side has a positive impact on female labor force participation (Jacobsen, 1999) we still see stagnancy in Pakistan`s female labor force participation. Besides women's poor position only 24% participation rate (PBS, 2013) on the labor market there is widespread gender inequality in politics, education and distribution of unpaid work in Pakistan.

For example; rural female literacy rate is 37.4% while male rate is 65.1%. The difference in literacy between women and men is smaller in urban areas, though it still exists, 81.6% for males while for females, and it is 67.9% (PBS, 2013). Average monthly salary of a male was 12804 rupees while for a female was 7869 rupees. Females, on average, earn 40 percent less than males (PBS, 2013).

1.3 Economy and Female Labor Force Participation Rate in Pakistan

Although Pakistan`s GDP per capita has increased 1.8% annually between years (World Bank, 2013) over the years 1990-2013. It still remains low compared to the developed countries. According to World Bank (2013) the overall GDP rank of Pakistan was 44th out of 190 countries. Keeping in mind that Pakistan has the 6th highest population in the world (US Census Bureau, 2014) this rank of 44 is far below its potential. In terms of GDP/capita Pakistan stands at $4515 and is ranked at 135th out of a total 187 countries (IMF, 2013). In 2012-2013 Pakistan`s GDP stood at 215.1 billion dollars (World Bank, 2013).

These circumstances could be changed if more females participated in the labor force. As expected, besides low female labor force participation rates, the share of female employment has been historically poor in Pakistan. In 1994-1995 only 2.8 million (10% FLFP) (PBS, 1994-1995) women were employed. The situation has changed and in 1999-2000 this number went up to about 4.5 million (13.7% FLFP) (PBS, 1999-2000). Currently Pakistan has FLFP of 24% (WB, 2014). However this is not comparable to the OECD average (57.5%) (WB, 2013) and is low even when compared to South Asian countries (51.3%) (WB, 2013) where Pakistan belongs.

There are many reasons why Pakistan is still extremely low in terms of female labor force participation. Some of the main factors provided by previous studies on female labor force participation in Pakistan are lack of education that females receive (Isran, 2012) and lack of government policies on education and gender discrimination (Mendez, 2011). Fifty five percent of females were illiterate (PBS, 2013). Another

factor that contributes greatly to this is the male domination and gender stereotypes in Pakistan (Yousef, 1971). The prevalence of belief that women should not work outside the house combined with a strong religious observance in society make it very hard for women to participate into the labor force (Lim, 2002). Besides above mention reasons Khan (2009) argue that husbands education level also one of the causes of low labor force participation of females. Khan found that as husbands education increases, female LFP decreases. All these factors will be detailed in the following sections of the study.

Employed women in Pakistan adhere to the social norms and are mainly found in the agricultural sector (75%). The percentage of female employment in the industry sector is 12% while for the service sector it is 13% (World Bank, 2010). This greatly reduces female labor force participation as the women are limited to agricultural sector. This in turn affects the economy of the country as valuable potential production is lost due to the female's curbed contribution the economy.

Although there are many forms of gender inequality exist in Pakistan due to the main aim of this study the rest of the inequalities other than the gender gap in LFPR, are out of the scope of this study. The female labor force participation affects the overall performance of the economy through improvements in GDP. The female labor force participation is an important tool for women empowerment and has been shown to reduce gender inequality and improve well-being of women and the country (Woytek, 2013). Pakistan is incurring massive GDP loss due to low female labor force participation. Hence, the study focuses on low female labor force participation as a way to bridge the economic gap between Pakistan and developed countries.

1.4 Closing Income Gap between Pakistan and Developed Countries through Higher Female Labor Force Participation

High and rising economic growth of a country is the necessary condition for the development of a country (Gavin, 2012; Todaro and Smith, 2012). A rise in GDP implies that there are more goods and services for the society that will positively affect the standard of living of the citizens. Furthermore, due to the rise in national income there will be a higher spending on various goods and services like healthcare, education, etc., which again will increase the GDP (the multiplier effect)

Increased labor force participation rate is one way to promote economic growth and to reduce the GDP gap that exists between developed countries and Pakistan. We know that increased employment will result in increased GDP. So to close the gap we need the labor force participation to improve. Todaro (2012) argues that an increase in labor force expands the production possibility frontier of a country; given its potential to absorb the new human resource.

The positive correlation between economic growth and the well-being of a country and female employment is well documented by previous studies (Woytek, 2013). Besides significant GDP gains he argues that increasing female labor force participation will have significant effect on economic development of developing countries, as females are more likely to spend their money on the family welfare and primarily on children's education Heintz (2006) states that if more women participated in paid work, it can be the single most important factor in reducing poverty.

The analysis of the level and characteristics of female labor force participation in Pakistan is important for a list of reasons. First it will provide a basis for policy formulation for employment and human resource development. Second it will provide scientific inputs for the extent and sources of gender inequality. Third it will shed light on the loss of potential production due to low female labor force participation.

This paper specifically focuses on increasing female labor force participation rate for Pakistan as they are extremely low compared to other countries. As 2014, female labor force participation reached to 25%, however it is still low compared to men (84%). Additionally Pakistan is one of the 5 countries with the lowest female labor force participation rate (Schwab, 2014). The paper will discuss the implication of a hypothetical increase in FLFP on GDP. Increase in FLFP has more consequences then mere economic (GDP gains). As has been established by many studies there is a two way relationship between female labor force participation and economic development. Higher female LFP leads higher economic development and higher economic development leads higher economic growth (Biffl, 2007; Goldin, 1994; Seguino, 2007).

1.5 Aim of the study

The main purpose of the study is in twofold. The first is the measurement of the loss in GDP due to low female labor force participation in Pakistan in absolute terms. The second is the estimation of the macro determinants of FLFP in Pakistan

1.6 Structure of the Study

The first chapter of the study gives an introduction to the topic with a background on the female labor force participation in Pakistan and the world. Chapter two analyses

the position of women on the Pakistan's labor market. The third chapter provides the relevant literature review as the relationship between economic growth and female LFP and determinants of female LFP. The fourth chapter of the study gives the data and methodology. Chapter five consists of three parts. The first part estimates the production loss of Pakistan economy due to low female LFP. The second part of the fifth chapter introduces the estimation method of the macro determinants of female LFP and provides the empirical findings of the estimation. Part three discusses the findings of the estimation. The last chapter gives the summary of the study, the conclusions and recommendations for further studies.

The study is divided into two main parts as Part I: Estimation of the loss in GDP due to low female labor force participation following the model of John Bryant (2004) and Part 2: Investigation of the macro determinants (causes) of low female labor force participation of Pakistani women through estimation of macro determinants of female labor force participation.

1.7 Method of the Study

To measure the loss in GDP due to low female labor force participation we employed the model suggested by Bryant et.al (2004). Bryant and his colleagues in their study named "Labor Force Participation and GDP in New Zealand" measure the loss in GDP due to low female labor force participation by assuming a hypothetical increase in female labor force participation level to men's level. Then they calculate the increase in GDP due to the increase in female participation. They assume the new female enterer productivity is same as the existing female workers. The difference between the actual GDP and the hypothetical GDP represent the loss in GDP due to low labor force participation.

We use the same method to measure the loss in GDP due to low female labor force participation in Pakistan. We also aim to go further from the original study and use women's contribution by sectors since women in Pakistan mostly concentrated in few sectors compare to men. We used the data provided by Pakistan's official Bureau of statistics labor force surveys for the years 2012-2013 for both parts of the study; the calculation of the loss and for the estimation of the female LFP determinants.

For the second part of the study, first we identified the determinants of female labor force participation by reviewing the previous studies findings than regressed female LFPR on identified macro variables as education, fertility rate, GDP growth rate, and unemployment.

Chapter 2

ANALYSIS OF THE POSITION WOMEN ON PAKISTAN LABOR MARKET

Great gender inequality exists between men and women in Pakistan. The World Economic Forum in 2014 ranked Pakistan as the second worst country in the entire world in terms of gender equality (WEF, 2014).

To understand the position of women on the labor market of Pakistan. The first thing that needs to be realized is that women's position on Pakistan labor market is different for various areas and classes. Factors that need to be considered are the urban/rural divide, the impact of tribal, feudal and capital formation on women's lives.

2.1 History

Historically, the time that Pakistan was part of the India, due to the Muslim community influence in the 19th century women was forced to wear the "purdah". The purdah was meant to isolate men and women social contact. The first empowering women movement was brought about by the reformer Syed Ahmad Khan. He argued that women should have equal education opportunities as men and advocated for female literacy. Muhammad Ali Jinnah, the founder of Pakistan continued this vision. He brought his sister Fatima Jinnah to the political front as a role model. Inspired by Fatima Jinnah many women's organizations and groups established, especially in the urban areas of Pakistan.

In 1947, after the independence of Pakistan, women were entitled the right to vote under the Pakistan Ordinance. They were reaffirmed and finally voted in the 1956 elections under the interim constitution. In 1956 Pakistan had a reservation of seats for women in the parliament.

However Pakistan due to strong cultural norms and religious beliefs still could not completely remove all obstacles and gender inequality persists in all areas. The inequalities such as the education and employment gap and limited women's properties compared to men pointing to the fact that despite efforts the gap still persist (Monazza, 2009). The culture of Pakistan is still patriarchal and the percentage of women participating to the paid work is extremely low (24%), (WB, 2013). The following section gives a brief overview of the position of women on Pakistan's labor market by main sex-specific labor market indicators as LFPR, unemployment rate, wage and status in employment.

2.2 Position on the labor market

2.2.1 Labor force participation

Female LFPR in Pakistan has shown a steady increase in recent years but as mentioned before a lot of problems still exist. The following graph shows the trend of the female LFPR since 1990 to 2013.

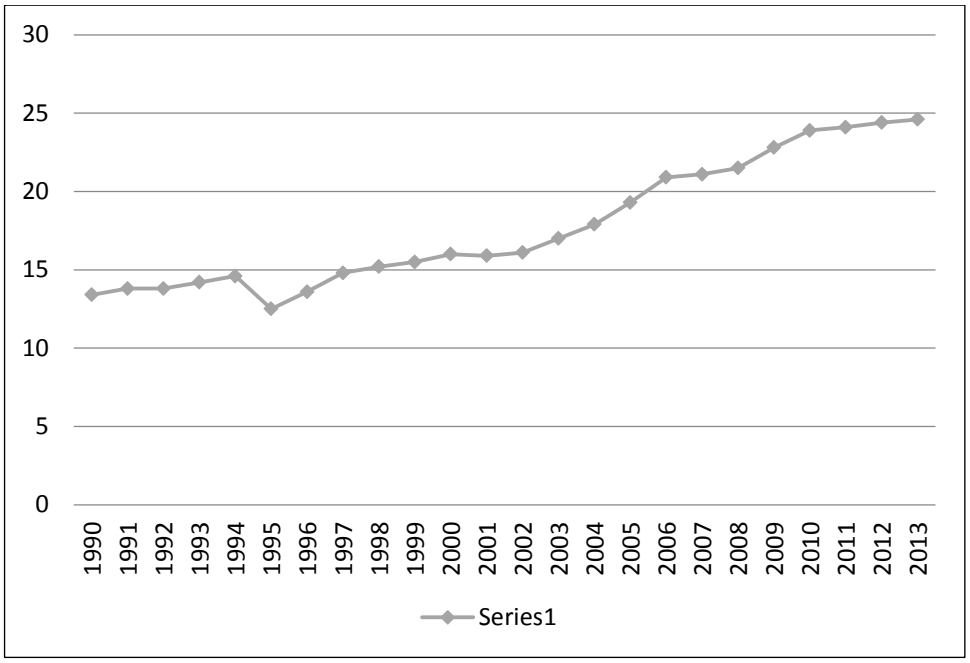

Figure 2. Female Labor Force Participation 1990-2013

As can be seen from Figure 2 female labor force participation has been increasing for the last decade. The graph shows a steady increase in FLFP From 12% in 1990, to around 24.5% in 2013. The growth is slow but gradual. However Pakistan still lags far behind in comparison to other countries. A factor that needs to be considered over here is that of Islam and religious belief of Muslims in Pakistan that women should stay at home and observe "purdah" (Lim, 2002) and the gender gap in education. Female to male literacy rate was 58.7 (UNICEF, 2012).

Pakistan`s female labor force participation rate is low even compared to some of other Muslim countries. Figure 3 gives the comparison of labor force participation of Pakistan with other developing countries.

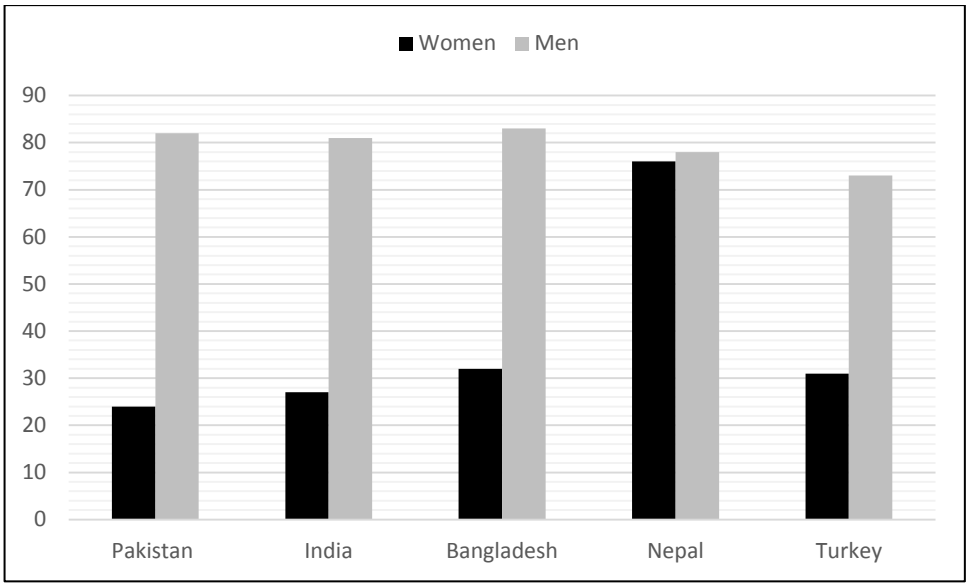

Figure 3. Gender gap in female LFPR in selected developing countries

As is obvious from Figure 3 Pakistan`s female LFP is amongst the worst as compared to some other selected countries with similar cultural characteristics such as Turkey, Nepal, Bangladesh and India. The reason for selecting these countries is the similarity in culture and religion. Also they are all Asian countries like Pakistan. Figure 3 shows that amongst all these countries Pakistan's gender gap in LFP is the highest (around 58%) while Nepal`s is the lowest (around 2%). Turkey and India have lower gap than Pakistan, 42 and 54% respectively. Bangladesh is also above Pakistan with 51% gender gap in LFP. One interesting thing is that male labor force participation is high (83%) and even higher than the selected and the other countries in the region.

One thing that does need to be considered here is the chance of underreporting of female labor force in the labor force survey. This is discussed in more detail in the data and methodology section of the study. The majority 63.8% of the employed women are agricultural workers (PBS, 2013). Other occupations that females

concenrated are elementary (15.2%) and craft & related trade workers (10.2%) (PBS, 2013).

2.2.2 Unemployment

The unemployment level of Pakistan in 2012-2013 stood around 6.54% on average. Female unemployment was higher than men unemployment level. It was 9.19% which could be another factor worth considering why female labor force participation is low.

2.2.3 Wages

The wage gap is another indicator of the gender gap. The following table gives the average wage for men and women in the years of 2010-2011 and 2010-2013.

Table 1. Average Wage in Pakistan

Average Wage in Rupees	2010-11			2012-13		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**
Total	**9715**	**10211**	**6422**	**12118**	**12804**	**7869**

In 2012-2013 the average pay for females was 7869 rupees while for men it was 12804 rupees. This could be partly due to the crowding effect (Robinson, 1998).

2.2.4 Occupational Segregation

Farming is the main occupation for females as 63.8% of females are in the famring occupation, 15.2% in elementary occupations and 10.2% are in craft & related trade workers. These three occupations account for 74.5% and 75.6% of females in 2011 and 2013 respectively. Out of every 4 employed women 3 of them in these occupations. Concentration of men in limited number of occupational categories is also high however, it is 15% lower compared to women (60% in 2011 and 64% in 2013). Besides, the difference between percentage of employed men and women

working as legislators/senior officials & managers is striking. While 11% of men working as legislators/senior officials & managers, only 1.7% of women in this occupation. That is indicating vertical occupational gender segregation. A complete detailed occupation list is provided in Table 2 below for the years 2010-2011 and 2012-2013.

Table 2. Female Major Occupational Groups

Major Occupational Groups	**2010-11**			**2012-13**		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Legislators/senior officials & managers	11.3	14.0	1.7	11.5	14.3	1.6
Professionals	1.8	1.9	1.4	1.7	1.9	1.5
Technicians & associate professionals	5.3	5.0	6.6	5.5	5.1	6.6
Clerks	1.2	1.6	0.1	1.4	1.7	0.2
Service workers/ shop & market sales workers	4.7	6.0	0.4	6.5	8.2	0.7
Skilled agricultural & fishery workers	37.6	30.4	**62.3**	37.6	30.1	**63.8**
Craft & related trades workers	15.0	16.3	**10.5**	14.7	16.0	**10.2**
Plant/ machine operators & assemblers	3.5	4.5	0.1	4.8	6.1	0.2
Elementary (unskilled) occupations	19.6	20.3	**16.9**	16.3	16.6	**15.2**

2.2.5 Status in employment

Malik (2009) states “Women entrepreneurs are seen in subordinate roles; with low levels of education and technical skills; low exposure to business; lacking role models; lacking peer support and business associations; low incomes and poor investment capacity” (Malik, 2009). Around 60% of the women that are

entrepreneurs work in the boutiques, parlor, bakery, handicraft and garment industry (Malik, 2009).

Chapter 3

FACTORS THAT AFFECT WOMEN'S POSITION ON THE LABOR MARKET

3.1 Literacy rate

There has been a steady increase in female literacy rate in Pakistan ever since the independence. Figure 4 shows the trend of literacy rates in Pakistan from 1981 to 2009.

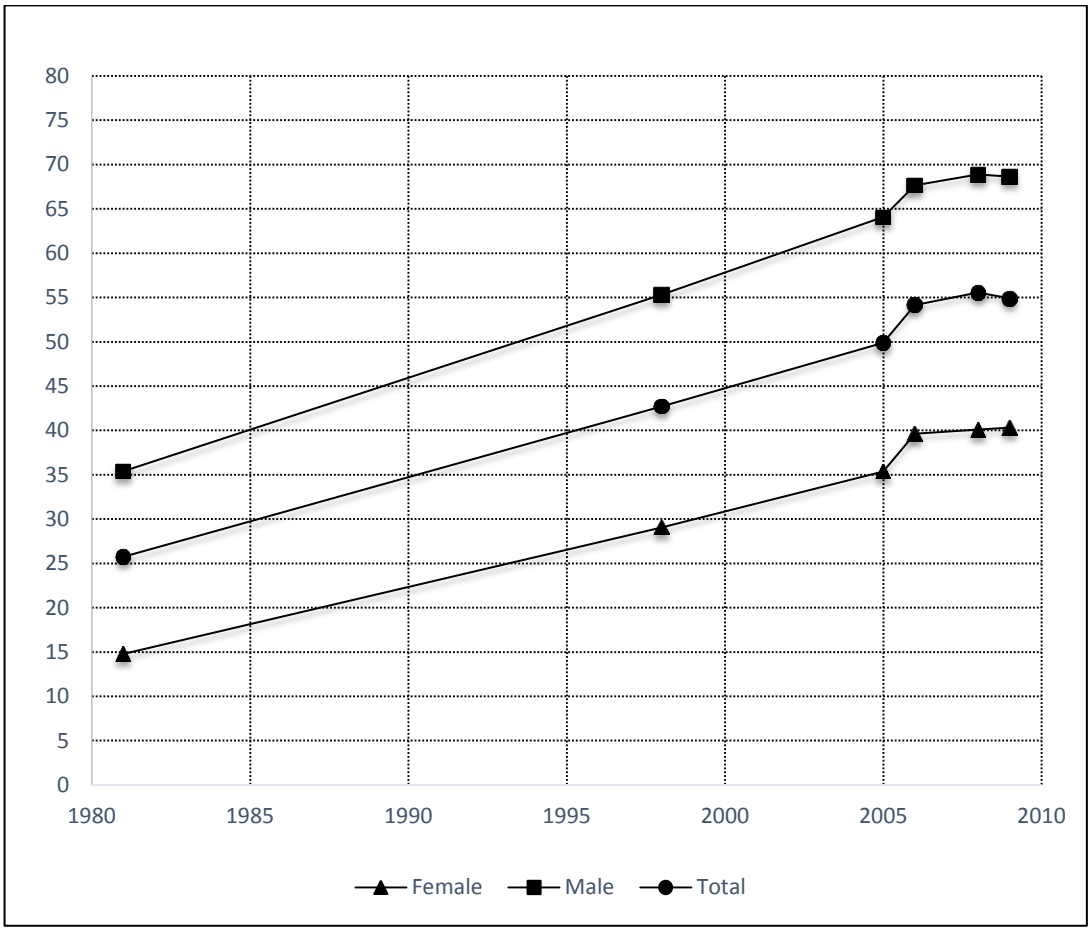

Figure 4. Literacy Rate 1981-2009

As can be seen from Figure 4 the literacy rate for men and women has steadily increased over the years. From 1951 the female literacy level was just 12.20% and increases till 2009 to 45%.

For the sake of a better comparison, the literacy rate is compared to Asian countries with similar characteristics. This gives a better analysis as it takes into account multiple cultural and religious factors.

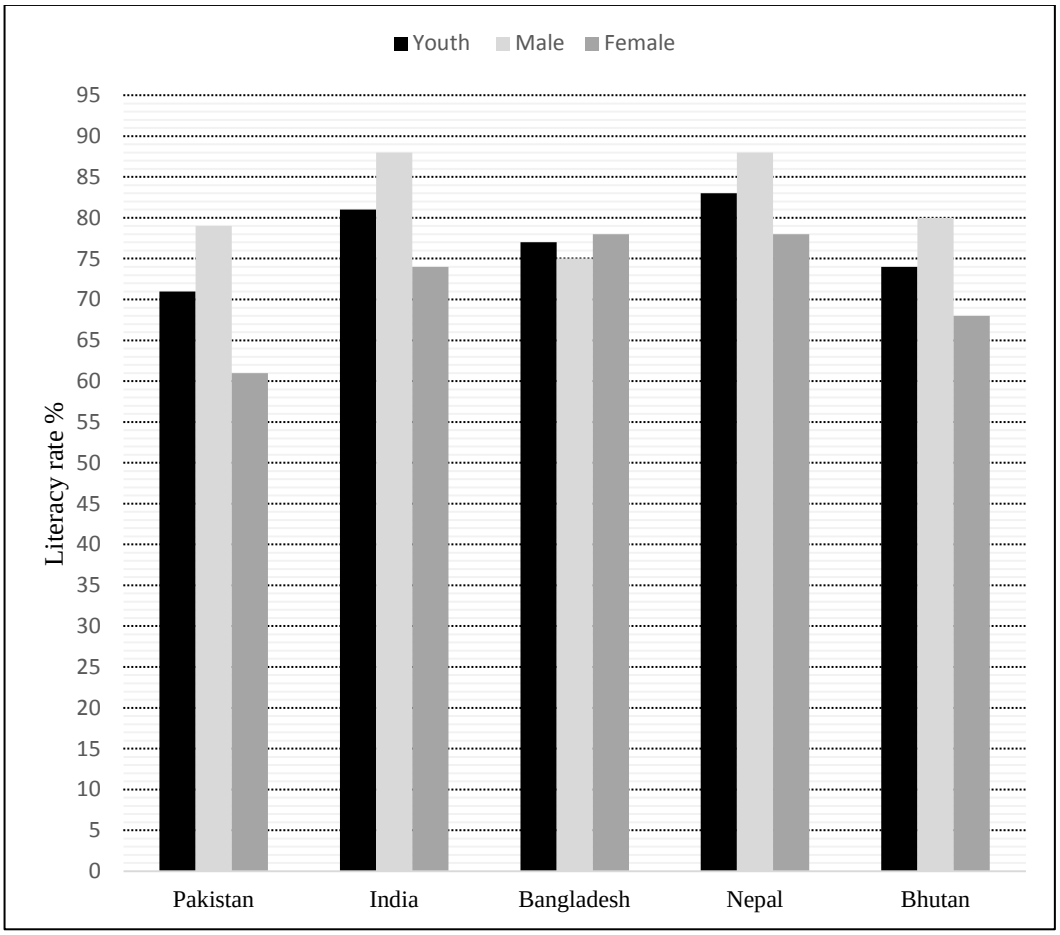

Figure 5. Literacy rates for selected countries and Pakistan

As can be seen from Figure 5 Pakistan`s female literacy rate is lowest amongst the countries. Even as compared to India which shares with Pakistan most of the cultural norms and some of the religious factors. Pakistan lags behind. India has a literacy

rate of 74% in 2012 for females while for Pakistan the literacy rate is 61% for women.

Despite government stating and declaring that all children from the age of 5 should go to school until the primary education, still a lot of women do not. According to estimates by the, Education for All Global Monitoring Report (UNESCO, 2011) there were 7.621 million children out of school. Most of them (58%) were girls.

3.2 Cultural norms and education

According to recent statistics, the female literacy rate stands at 61% Compared to the male literacy rate of 71.1% (PBS, LFS 2012-2013). The educational policies in Pakistan have mainly focused on achieving education equality between men and women and to reduce the gender gap in education. The problem is the limiting effect of the cultural norms on human capital investment. The belief that women's main purpose is to take care of the house and to produce and cater for children render education of women useless (Sultana, 2014). On the other hand there are programs in Pakistan that encourages women to be good house wife by providing training for home management skills, which are much preferred by society as compared to getting formal education (Cynthia, 2010). These conflicting ideas makes the struggle for gender equality more difficult.

3.3 Early Marriage and Early Motherhood

According to the law the marriage age in Pakistan is 18 years old for men and 16 years old for women (Palash, 2014). However this is not the common practice and many women are married before age 16. Due to this reason many complication arise, one of them being the birth of children when the mother is still very young. Due to the responsibility that the child entails (such as feeding, dressing etc.), female`s

cannot enter labor force (as taking care of the children consumers there time, leaving them little or no time to work outside the house). Thus early marriage result in early motherhood which hinders women's labor force participation (Palash, 2014).

The Dowry[1] system is another problem that exists in Pakistan. This basically assigns women a very low social status from birth. The groom before the marriage asks for heavy finances from the bride's family as a prerequisite for marrying the husband. Most of these practices are carried out in economically less developed, low income regions of Pakistan. Besides, due in most of the time bride's family has to take loans or some other form of help to pay the grooms family it created dowry related violence in which the husband abuses the wife (Mufti, 2009). After the marriage if the conditions that have been put place by the husband or the groom`s family are not met they threaten and may break the marriage. This is a constant scare for the family of the bride. This is bad for the bride and her family for many reasons, one huge reason amongst which is that they already have heavy loans that they took for the marriage. This puts a huge burden on the wife to be a good housewife. Hence the main focus is on housekeeping and not on economic activity (Mufti, 2009).

3.4 Rural/Urban Differences

The status and level of women varies greatly in rural and urban areas. The women in urban areas enjoy higher status compared women in the rural areas. The women in urban areas have full access to education and hence their literacy rate is comparable to men. Rural and tribal areas on the other hand don't have the same opportunities (Cynthia, 2010) the condition is much poor in the rural areas of Pakistan. Although the women are granted a legal right to education they are strongly prohibited from

[1] Dowry is an amount of property or money brought by a bride to her husband on their marriage

studying and going to school in the rural areas of Pakistan. They are highly discriminated and also at times there have been violent crimes reported on women attending schools. The crimes can sometimes get as heinous as acid throwing (UNESCO, 2011).

Female education level of women in the urban advanced areas such as the cities of Islamabad is high as compared to the rural areas. In Islamabad, female literacy stands at 87% in 2007 whereas in tribal areas it stood at 22% in 2007 (PBS, 2007).

3.5 Other cultural/Religious factors

In addition, "for Pakistan to significantly improve its female labor force participation rates, it will have to address a range of structural barriers and social constraints, many of which are reinforced by Islamization" (Coleman 2004). The problem lies in the fact that Islamic people view women as keepers of the house and want them to stay inside the house and not take part in economic activity.

Furthermore women who do work are often paid less than minimum wage, because they are seen as lesser beings in comparison to men, and "their working conditions vis-à-vis females are often hazardous; having long working hours, no medical benefits, no job security, subjected to job discrimination, verbal abuse and sexual harassment and no support from male oriented labor unions" (Abbasi 2013).

3.6 Women's Constitutional rights in Pakistan

The low female labor force participation is not due to discrimination in the constitutional, political or land rights. Women and men in Pakistan are equal before law. Under the Sharia law and also the Pakistan`s Islamic Republic constitution of 1958 and 1973, legally females are equal to men in terms economic, social and

political rights. This holds for all things such as work, education and property ownership. The constitution of 1973 outlawed gender discrimination of all types.

3.7 Political Rights

Constitutionally there is no restraint for women in Pakistan in the political and government sphere. The women also have a reserve seat quota. In 1988, Benazir Bhutto (Peoples Party) was elected as the first and till date only female prime minister of Pakistan (Najeeb, 2008). The percentage of women representatives in the parliament is 21% in 2013 (WB, 2013).

Chapter 4

LITERATURE REVIEW

4.1 Literature review of GDP and Labor force participation of females

This section reviews the literature on female labor force participation both within and outside the Pakistan. The first part is the literature review on female labor force participation and GDP. The second part of the literature review focuses on the literature on determinants of female labor force participation.

One of the essentials papers for this study was the paper on female LFP and GDP in New Zealand by Bryant et al. (2004).The methodology used in our study was taken from this paper. Bryant and colleagues argue in their paper how an increase in female labor force participation could close the gap between New Zealand and wealthier OECD countries. Their model assumes a hypothetical increase in labor force participation for females. They take into account the fact that new workers coming into the market are not as productive as the old ones. They find that raising female labor force participation rate of women aged 25-34 in the country by 28800 generates an extra income of 1215million dollars in GDP. The result is substantial. The result gets even better when they assume the labor force participation of male and female both become the same as the average of the top OECD countries with GDP increasing by 6101 million dollars. This is a total change of 5.1% increase from actual GDP of New Zealand in 2004.

Another interesting paper on the subject of how GDP and FLFP are related is the paper (Mujahi et al., 2013). They find that Pakistan exhibit similar characteristics to the U-shape relationship between female labor force and GDP. They test empirically this relationship over the period of 1980-2011. They find that there is indeed a long run and U-shaped association between economic development and female labor force participation in Pakistan using ADF Unit Root Test.

Tsani et al.'s paper (2012) shows the relationship between female labor participation and economic development in southern Mediterranean countries. They show this relationship by using two-step methodology and those are econometric exercise and general equilibrium modeling. The findings of the first method show a U-shaped relation between female labor force participation and economic growth. Further analysis suggests that the factors which will affect female decision to participate in labor force include personal, economic and labor market conditions. Results of the analysis also suggest that if growth of the economy is slow, it will decrease female participation and if economic growth increases, female participation in labor force will also increase. To achieve a high level of female participation cultural norms and legal codes should be modernized by introducing reforms in legislations and education.

4.2 Literature review of Determinants

Female labor force participation has been a widely discussed topic in the last three decades. Many researchers wrote papers on the determinants of FLFP. This section summarizes some of the key papers and their findings in this topic. The literature review mainly focuses on papers written in Pakistan. However some international studies are also included for better understanding of the topic.

4.2.1 International Literature Review

Relationship between working hours and female labor force participation was one of the first study (Mincer, 1962) who analyzed labor force participation of women over lifetime. He tried to find the relationship between working hours and female labor force participation. He found that there is a negative relationship between the lifetime wealth (the family income) and number of children. An increase in family income and number of children decreases women labor force participation. However education, experience, and tenure have a positive relationship with female labor force participation rate.

Another paper (Cipollone, 2013) looking at the macro determinants of female labor force participation on the European labor market finds positive relationship between Female LFP and social policies and institutional factors. Labor market reforms explain almost 25% of the actual increase in labor force participation for young women and over 30% for more skilled women (highly educated women). However interestingly they found that the effect the market reforms on low skilled female workers is low.

The paper (Dayıoğlu, 2010) on determinants of and trends in labor force participation in Turkey found that an important factor in the low female labor force participation rate for is mainly urbanization process. This is also confirmed by many other studies (Tsani et al., 2012; Tanaka, 1986). Tanaka states that as urbanization increases female labor force participation rate decreases until the economy reaches a certain GDP level after which the female labor force participation rate increases. This is known as the U-shaped relationship between GDP and female labor force participation.

Another factor worth considering in female labor force participation is the age effect which states that in urban areas FLFP goes up first until age 29 and after which it starts to go down. For the rural population this is different FLFP and age have an inverse relationship meaning that as age increase FLFP goes down (Dayıoğlu, 2010).

Summary of the findings: The international studies suggest a multitude of factors that contribute to female labor force participation such as age, urbanization, fertility, education and cultural norms. Studies found that female labor force participation increases with higher education, more liberal cultural norms and lower fertility. In both rural and urban areas as age increases, FLFP goes down. GDP is linked in a U-relationship with FLFP. As GDP increases, first FLFP goes down (until a point is reached) after which as GDP increases, FLFP also increases.

4.2.2 Studies in Pakistan

There is considerable number of studies on the determinant of FLFP for Pakistan. Most studies look at the micro determinants. Studies on macro determinants of FLFP are limited.

Mumtaz (2009) find that education is one of the most fundamental determinant of female labor force participation in Pakistan. He found that as the educational level of female's increase their participation also increases. He also found that the presence of children in early age is also a determinant FLFP. If women had children at an early age it was less likely participate to the labor market. In his conclusion he said that education as it also results in better employment for the person is the most necessary condition for female labor force participation.

According to Ahmad and Hafeez (2007) the two main factors that influence female labor force participation are that of education and economic conditions of a country. By using data of married women from the city of Mani Bahauddin (district of Punjab, Pakistan) they found that human capital variable is the fundamental determinant of women earning.

4.2.3 Fertility and female employment in Pakistan

Zeba and ShahnazKazi (1989) conducted a survey of 1000 women in Karachi and found that women who employed had a lower fertility rate than women who did not work. They also found that women with a higher status in employment had almost half the size of the family as those women who had a lower status in work. In addition they found that women in higher status were more likely to marry late. They found that childcare responsibilities do not have any effect on the fertility rate and employment for higher status women as they could afford maids.

Ejaz (2007) using the data from Pakistan Social and Living Standard Survey (2004-2005) found that the most important factors that have a significant effect on female labor force participation are education, age and marital status of women. He found that as the number of vehicles in the family increased and if the family was nuclear, then the possibility of women to participate labor force was higher. He also found a negative relationship between female labor force participation and availability of home appliances in the house and the number of children.

Faridi (2011) found that for the district of Punjab, Pakistan, women who had low level of education are mostly self-employed. Self-employment was also found to be highly correlated with experience and age. Another factor that he took into account was the wage of the husband. He found that women were more likely to be in self-

employment if the husband's age was higher. Other factors that had a major impact were the number of children, the location and the number of dependents in the family. The data was gathered through a survey in the city of Bahawalpur. He found that as education increases, the female labor force participation also increases. Another finding that decrease the probability of women to participate labor force was having children at an early age.

4.2.5 Changing role of women in society of Pakistan

Shah (1981) studied the changing role of women in Pakistan from the years of 1951 to 1981. He did his study for all four provinces of Pakistan. He found that the decision of participating in the labor force for women was negatively related to the socio-economic status of the family. He examined and tried to determine some of these demographic and socio-economic factors that affected female labor force participation decision. The socio-economic factors that were considered in the study included factors like husband`s education, the observance of "purdah" and the ownership of durable goods. All these factors found to be negatively related to female labor force participation. He also found as the number of early motherhood increased females were less likely to participate in the labor force. An interesting finding of the study was that the women in nuclear families were less likely to join to the labor force.

The positively correlated factor to the female labor force participation was female education level. His conclusion was that the government should focus to increase women's education level.

Summary of the findings of the literature review: For Pakistan, the literature review suggests, the most important factors are that of fertility and education. Education has

a positive impact on FLFP. Fertility decrease also increases FLFP. GDP exhibits the U relationship for Pakistan as well. Nuclear families and families which observe "Purdah" have daughters that are less likely to participate in FLFP.

Chapter 5

DATA AND METHODOLOGY

5.1 Data

In the first part of the study that calculates the increase in GDP due to a hypothetical increase in FLFP, the source of the data is from Pakistan Bureau of Statistics, Labor Force Survey's data (2010-2013). Most papers on Pakistan use this data due to its reliability and large number of sample size.

However the paper titled "What is the Female Labor Force Participation Rate in Pakistan?" (AtifIkram and AzeemaFaizunnisa, 2003) challenges the labor force survey reporting of the statistics for female labor force participation and argues that the figure is incorrect. They argue that the actual figure might be higher than reported in labor force surveys for two reasons. One that men were interviewed and due to cultural stigma that exists in admitting that women work outside house they underreport women's participation. Secondly the underreporting might be due to the lack of knowledge of the male proxy. However due to the lack of availability of data other than labor force survey, we assume that the figures to be correct.

The main source of the data for Part II that analysis the determinants of labor force participation of women in Pakistan is the World Bank. The data is unfortunately only available for Pakistan of FLFP for very few years and hence our analysis in this part has to be restricted to the time series data analysis of the years 1980-2013.

5.2 Methodology

5.2.1 FLFP and GDP

This particular paper calculates the extra GDP that will be generated due to an increase in the female labor force participation in Pakistan. The extra GDP is computed by taking into account the "extra GDP per new employee" and "the number of new female employees entering the workforce". The paper looks at the plausible GDP for the year 2011-2012 and 2013-2014 that might have taken place if the female labor force participation was equal to the hypothesized increased values instead of the actual participation rates. Amongst many ways to go about finding this GDP the paper replicates the model used by Bryant et al (2004). In their study on the potential increase in female labor force in New Zealand they investigate how an increase in female labor force participation could close the gap between New Zealand and wealthier OECD countries. They take into account the fact that new workers coming into the market are not as productive as the old ones. They find that raising female labor force participation rate of women aged 25-34 in the country by 28,800 generates an extra income of 1,215 millions of dollars in GDP.

In this study we applied their model to Pakistan Case. We assume a hypothetical increase in labor force participation of females in Pakistan. We set three scenarios. In the first scenario: total equality scenario, the number of female and males in the labor force is assumed to be equal. This scenario sacrifices some realism in order to get a hypothesized GDP value. The reason for using this method is to show that raising female labor force participation has huge substantial GDP returns.

The new female workers that enter the labor force are bound to have different productivity levels and work different hours as compared to the existing workers. Ideally the estimates for the GDP that is generated by the new worker should incorporate factors such as skills, experience, the tax factors due to increased employment and the new labor-capital ratio. Each of these factors has substantial economic significance and surely do effect GDP in the short and long run.

As the main purpose of the paper is just to show the huge substantial GDP growth that could be had due to an increase in female labor force participation these factors are not taken into account. Hence the paper does not account for the tax effect, capital-labor ratio and productivity and considers them ceteris paribus.

In the second scenario: FLFP=OECD average FLFP scenario, the paper assumes that female labor force participation rate becomes equal to the average rate of OECD countries. It then calculates the number of increased workers and the GDP per extra worker to come up with a figure for the possible GDP that Pakistan could have had.

In the third scenario: FLFP=Asia average FLFP scenario, the rate of the female labor force participation in Pakistan is assumed to be equal to Asia`s female labor force participation. The reason for this is that this incorporates many factors such as culture and area. The social norms, the cultural stereotypes are considered to be incorporated using this scenario. This is probably the best method and a more realistic one. This could be a potential policy target for the government.

This model does not take into account lower wages for the entering workers. The reason for this is that already all of the women workers are working below the

minimum wage rate. It is not possible that they earn less money than this. The official figure for the year of 2012 for the minimum wage is as below.

Table 3. Minimum wages

S.no	Category of workers	Minimum wage rate for 8 hours working day	Minimum wage rate 26 working day
1	Adult unskilled workers employed in industrial undertaking in Punjab	Rupees 346/-	Rupees 9000/-
2	Juvenile unskilled workers employed in industrial undertaking in Punjab	Rupees 346/-	Rupees 9000/-

5.2.1.1 Assumptions of the scenarios

- The average wage rate of existing worker and new worker is the same.
- The average hours worked of the new worker and the old worker is the same.
- There is perfect mobility and competition in the market.
- The unemployment rate remains the same.
- The increase in supply is met by an increase in demand.
- Everything else remains the same.

5.2.2 FLFP and determinants for Pakistan

Part two estimates the determinants of female labor force participation in Pakistan. Female labor force participation regressed on macro variables provided by the previous studies on micro and macro determinant of female labor force participation. Such as real GDP per capita, female literacy rate, fertility rate and unemployment rates. The model is as follows:

FLFR=B0+B1*LGDP+B2*lit+B3*Fer+B4*Une+B5 +Ɛ

Dependent variable

FLFP = female labor force participation rate

Independent variables are:

GDP =Annual Growth of GDP

Edu =Literacy rate

Fer =fertility

Une =unemployment rates.

GDP:

We use real GDP per capita (Annual growth %) as one of the main determinants of female labor force participation. The literature suggests a U-term relationship between GDP per capita and female labor force participation. So the paper expects a negative relation or a positive relation between the FLFP and real GDP per capita (Annual growth %) based on where Pakistan stands on the U-curve.

Unemployment:

Unemployment rate is used as proxy of labor market discrimination that hinders women's participation to the labor force. Higher female unemployment represents women's unequal job opportunities compared to men.

Fertility rate:

As the fertility rate increases (average number of children per women) increases, FLFP decreases as the mother (in a patriarchal society like Pakistan) has to take care of the children. The paper expects a negative relationship.

Literacy rate:

Literature suggests that as female education level improved, FLFP increases. The paper expects a strong positive correlation between the two variables.

Chapter 6

RESULTS

6.1 Calculations of GDP loss

For the first part of the paper, the calculation of the GDP loss due to low female labor force participation is as the following.

For all three parts the following calculations were made.

1) First average wage was taken monthly for females. For females the average wage was 6422 Rupees for 2010-2011 and 7869 Rupees for 2012-2013.
2) Then labor force in absolute numbers (millions) were taken for females and males for the years 2010-2011 and 2012-2013.
3) Then three different scenarios were created.
    a) In the first scenario, it was assumed that female and male labor force became equal.
    b) In the second scenario, it was assumed that male and female in absolute numbers differed by the same % gap that exists in the OECD countries. The OECD gap was calculated as follow. Then it was assumed that the same % gap of 16% in 2010-2011 and 15.7% 2012-2013 exists in Pakistan. To accomplish this 83.8% females of the absolute number of males were assumed to be working in 2010-2011 and 84.15 in 2012-2013.

Table 4. OECD gap (2010-2013)

OECD	2010	2011	2012	2013
Male	72.8	73	73.2	73.2
Female	56.6	56.8	57.2	57.5
Gap	16.2	16.2	16	15.7
Women Working per 100 man	83.8	83.8	84	84.3
Average 2010/2011 and 2012/2013		**83.8**	**84.15**	

c) In the third scenario, it was assumed that male and female in absolute numbers differed by the same % gap that exists in the selected "Asian" countries. The Asian countries gap was calculated as follow. Then it was assumed that the same % gap of 39% in 2010-2011 and 38.75% 2012-2013 exists in Pakistan. To accomplish this 61% females of the absolute number of males were assumed to be working in 2010-2011 and 61.25 in 2012-2013.

Table 5. Asian countries gap

	2010	2011	2012	2013
Bangladesh female	57	57	57	57
Bangladesh Male	84	84	84	84
Bangladesh Gap	27	27	27	27
Turkey Female	28	29	29	29
Turkey Male	71	72	71	71
Turkey Gap	43	43	42	42
Indonesia Female	51	51	51	51
Indonesia Male	85	85	84	84
Indonesia Gap	34	34	33	33
India Female	29	28	27	27
India Male	81	80	80	80
India Gap	52	52	53	53
Total Gap	156	156	155	155
Average Gap	39	39	38.75	38.75
Average 2010/2011 and 2012/2013		39	38.75	
Women working/per 100 man		61	61.25	

4) The new females that originated from all these scenarios were calculated by subtracting the existing females from the number we received from the three new scenarios.
5) Then female unemployment rate was taken into account and the number of new females that would become unemployed were calculated and subtracted from the new females that were generated.
6) The new females were multiplied (after taking unemployment into account) with the average wage. It was assumed the number gained was the extra GDP generated.
7) The extra GDP that was calculated was added to the existing GDP and then the GDP % change was calculated.

6.1.1 Scenario 1

For scenario 1: Total Equality Scenario. Table 6 reveals the size of the GDP loss if number of women in the labor force equal to the number of men.

Table 6. Total Equality Scenario

Wages (In Rupees)	**2010-2011**	**2012-2013**
Male	10211	12804
Female	6422	7869
Labor Force (In million)	**2010-2011**	**2012-2013**
Male	43.95	45.89
Female	13.29	13.76
GDP (In billion Rupees)	211.8	215.1
New female Participants	32.66	32.13
Unemployed rate (%)	8.9	9.0
Unemployed people	2.91	2.89
New Employed Females	29.75	29.24
Wage	6422	7869
Extra Revenue Generated	1.91075E+11	2.30076E+11
Previous GDP	2.118E+11	2.118E+11
New GDP	4.02875E+11	4.41876E+11
% Change	47%	52%

As can be seen from Table 6, the total equality scenario (which is that female labor force becomes equal to the male labor force) the increase in GDP is substantial. For the year 2011-2012 the GDP increases by 47% and for the year of 2012-2013 the GDP increases by 52%. The loss of GDP is huge and should serve as a shock to government of Pakistan and around the world. Of course the scenario is completely hypothetical and in the real world complete equality does not exist. Hence we try to measure the GDP loss assuming that Pakistan`s FLFP becomes equal to OECD countries. Something which is achievable and has been achieved by these developed countries. This takes us to scenario 2.

6.1.2 Scenario 2

Scenario 2: FLFP=OECD average FLFP is the increase of FLFP to OECD countries' average. The OECD country average for the year of 2011-2012 was 61.75 %, for 2012-2013 it was 62.45% (World Bank, 2014). Replicating this average for Pakistan for the same year gives the following results.

Table 7. FLFP=OECD average

Wages (In rupees)	**2010-2011**	**2012-2013**
Male	10211	12804
Female	6422	7869
Labor Force (In absolute numbers)	**2010-2011**	**2012-2013**
Male	43.95	45.89
Female	13.29	13.76
GDP (In billion rupees)	211.8	215.1
Total Female Worker in OECD Scenario	36.8301	38.61644
New female Participants	23.5401	24.85644
Unemployed rate	8.9	9.0
Unemployed people	2.10	2.24
New Employed Females	21.45	22.62
Wage	6422	7869
Extra Revenue Generated	1.38E+11	1.78E+11
Previous GDP	2.12E+11	2.12E+11
New GDP	3.5E+11	3.9E+11

% Change	39%	46%

The GDP increase if Pakistan female labor force participation becomes the same as that of OECD countries is 39% for the year of 2011-2012 and 46% for the year of 2012-2013. In a more realistic scenario, we see that the loss has decreased from the idealistic situation in scenario 1. Still though the losses are substantial.

To make the model more realistic, we created another scenario. As Pakistan is a developing country, it is more pragmatic to compare Pakistan to Asian countries (where Pakistan is situated) rather than comparing to OECD countries. That is why scenario 3 was created which is as below.

6.1.3 Scenario 3

Scenario 3: FLFP=Asia average FLFP, assumes that female labor force participation rate of Pakistan becomes equal to selected Asian countries. The selected Asian countries were as follows;

Turkey

India

Bangladesh

Indonesia

The reason for selecting these countries was similarity in culture, religion and economic performance. The average FLFP gap of these four countries for the year 2011-2012 was 39% and for the year 2012-2013 it was 38.75%. Data was collected for these countries from the World Bank website and their arithmetic average was taken for the analysis. Table 8 provides the calculation steps and the findings of this scenario.

Table 8. FLFP=Asia average

Wages (In rupees)	**2010-2011**	**2012-2013**
Male	10211	12804
Female	6422	7869
Labor Force (In million)	**2010-2011**	**2012-2013**
Male	43.95	45.89
Female	13.29	13.76
GDP (In billions of Rupees)	211.8	215.1
Total Female Worker in Asia Scenario	26.8095	28.107625
New female participant's	13.5195	14.347625
Unemployed rate (%)	8.9	9.0
Unemployed people	1.20	1.29
New Employed Females	12.32	13.06
Wage	6422	7869
Extra Revenue Generated	79095050619	1.0274E+11
Previous GDP	2.118E+11	2.118E+11
New GDP	2.90895E+11	3.1454E+11
% Change	27%	33%

In this scenario the increase in GDP for the year 2010-2011 was 27% and for the year 2012-2013 was 33%. This could be a potential policy target for the government of Pakistan. This is a highly achievable goal and the results should be quickly taken into account as Pakistan can have significant GDP gains due to this.

Limitations of the model:

A completely perfect model would take into account multiple factors such as the result of increase in supply, capital labor ratio and tax etc. However the purpose of this estimation was not to build a complete perfect model but to show empirically that the increase in female labor force participation has significant impact on GDP.

A comment on possible over and under estimation of GDP value obtained by this method is made below. Again this is a brief comment as the purpose is not to take

every factor into account but highlight some of the main factors that might lead to over and underestimation of the values obtained.

6.2 Why results might be overestimated

- Supply might not be met by demand.
- Unemployment might increase.
- Wages might go down as a result of increase in GDP.

6.3 Why results might be underestimated

- Two way relation between economic growth and FLFP.
- Long term effects such as increase in human rights, reduction of gender inequality.
- Long term effect-secondary returns to increase in FLFP such as females becoming better models to children, reduced fertility rate (associated with FLFP). Reduced fertility affects resources of the economy by putting fewer burdens on them. So there might be long-term benefits.

6.4 Empirical Findings of Part 2: Estimation of Determinants of Female Labor Force Participation

The regression was run for the 2 different econometric models. The first econometric model has the following shape.

**The reason for running two different econometric models was the Multicollinearity that existed between fertility and literacy. Hence in the first model, the fertility was dropped and in the second model literacy was dropped.

$$FLFP = B_0 + B_1 \text{Literacy rate} + B_2 \text{ Unemployment} + B_3 \text{ GDP per capita} + \varepsilon$$

Table 9. Regression Results Model 1

```
      Source |       SS       df       MS              Number of obs =      24
-------------+------------------------------           F (3,   20)        = 106.58
       Model | 246.583382      3  82.1944608           Prob > F          = 0.0000
    Residual | 15.4233688     20  .771168441           R-squared         = 0.9411
-------------+------------------------------           Adj R-squared     = 0.9323
       Total | 262.006751     23  11.3915979           Root MSE          = .87816

------------------------------------------------------------------------------
        FLFP |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Unemployment | -.2109896   .0675466    -3.12   0.005    -.3518893   -.0700899
    Literacy |  .3258547   .0253401    12.86   0.000     .2729961    .3787133
GDP per capita | -.0398612   .0971366    -0.41   0.686    -.2424845    .1627621
       _cons |  6.721746   1.577235     4.26   0.000     3.431692    10.0118
------------------------------------------------------------------------------
```

The model is extremely significant with an R2 of 94.1%. All the variables have the expected sign.

Interpretation:

1-Literacy rate:

The Literacy rate has the expected sign and comes out to be significant. Although the coefficient is smaller than expected. From the model we can make the following interpretation. “As literacy increases by 1%, FLFP increases by .3% keeping everything else constant.”

There is a good reason for this. Looking at the data, we can see that literacy rate has increased a lot over the years going from 24% to 52% from 1980 to 2013 while FLFP has just increased from 12% to 22% (World Bank, 2014) and there are other factors that have had more impact on female labor force participation than literacy rate. This result is in keeping with the theory for the positive relation but it seems

that just increasing literacy rate is not enough to increase female labor force participation in Pakistan.

2-Unemployment:

The sign for the unemployment is also in keeping with the theory. Unemployment has an inverse relation with FLFP. As unemployment of females is high this might cause other women not to join in the female labor force as they expect they will not find a job and will be disappointed. From the model we can make the following interpretation. "As Unemployment decreases by 1%, FLFP increases by .21% keeping everything else constant."

3-GDP per capita (annual % increase):

The GDP per capita increase has very little or no effect on FLFP judging from the coefficient of the variable. It is not significant as P-value is more than .05. One possible reason for the low magnitude of the GDP per capita is that Pakistan is experiencing economic growth but that does not seem to be translating in FLFP increase. There seems to be no relation between the two variables.

The second model was run for the variables.

$FLFP = B_0 + B_1$ Fertility rate $+ B_2$ Unemployment $+ B_3$ GDP per capita $+ \mathcal{E}$

Table 10. Regression Results Model 2

Source	SS	df	MS	Number of obs = 24
Model	239.187219	3	79.729073	F (3, 20) = 69.88
Residual	22.8195323	20	1.14097662	Prob > F = 0.0000
				R-squared = 0.9129
				Adj R-squared = 0.8998
Total	262.006751	23	11.3915979	Root MSE = 1.0682

FLFP	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Fertility	-2.858008	.2785394	-10.26	0.000	-3.439031	-2.276985
Unemployment	-.2997414	.0783477	-3.83	0.001	-.4631718	-.136311
GDP per Capita	-.0429161	.1183265	-0.36	0.721	-.2897409	.2039088
_cons	33.01238	1.184679	27.87	0.000	30.54118	35.48358

The model is extremely significant with an R2 of 91.29%. All the variables have the expected sign.

1-Fertility:

As expected fertility has a negative sign. The magnitude of the coefficient is big as expected and it can be interpreted from the model that this is the most important factor in FLFP. The variable is significant and does have an effect on FLFP. This is to be expected and is keeping in view with the literature and theory. As females have less children, they can have more time to work. From the model we can make the following interpretation. "As fertility decreases by 1%, FLFP increases by 2.86% keeping everything else constant."

2-Unemployment:

From the model we can make the following interpretation. "As Unemployment decreases by 1%, FLFP increases by .3% keeping everything else constant."

3-GDP per capita (annual % increase):

There seems to be no relation between the two variables.

Chapter 7

CONCLUSION

There were two main aims of the paper. One to find the increase in GDP due to a hypothetical increase in FLFP and second to find the macro determinants of FLFP. For the first aim further three scenarios were created. In the first scenario "Complete equality" scenario, the loss incurred due to the low female labor force participation was 52% of the GDP of Pakistan for the year 2012-2013. For the second scenario "FLFP=OECD Average FLFP" the loss incurred was 46% of the GDP of Pakistan for the year 2012-2013. For the third scenario "FLFP=Asian Average FLFP" the loss incurred for the year was 33% of the GDP of Pakistan for the year 2012-2013. All these losses are substantial and even if Pakistan was to increase its FLFP to the Asian average, substantial gains can be made in the economy

For the second part of the thesis. A regression was run to find the macro determinants of FLFP in Pakistan. The variables that were suggested by the studies were literacy, fertility, unemployment and GDP of a country. Two different econometric models were run due to the multicollinearity between literacy rate and fertility rate. It was found that literacy rate has a small positive but significant effect on FLFP. Fertility was found to be the most important determinant of FLFP. As fertility decreases by 1%, FLFP increases by 2.86% keeping everything else constant. Unemployment also had a significant negative effect on FLFP. GDP was

found to be insignificant in determining FLFP suggesting that Pakistan right now is on the bottom of the U-curve.

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