Economic development and female labour participation in SAARC countries: a test of the U-shape hypothesis

By

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MSAE

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Declaration

It is hereby declared that

1. The thesis submitted is my own original work while completing degree at BRAC University.
2. The thesis does not contain material published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
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Abstract

The paper explores whether there exists U shaped hypothesis among the 8 SAARC countries. It first looks at the SAARC nations by implementing the fixed effects model and then analyses the countries individually to see if the relationship between economic growth and the female labour force participation (FLP) holds. The U-shaped hypothesis states that when an economy is in the rudimentary stage of development, it experiences high rates of FLP; more women are involved in the agricultural sector. As the country undergoes transformation, the FLP falls. Finally, when the nation has embraced modern economy, more women join the labour market. Additionally, this paper also highlights the country specific barriers that prevent women from joining the workforce and gives policy recommendations that each of the South Asian economies can adopt to promote greater FLP.

Keywords: Female labour force participation; South Asia; U-shaped hypothesis; women; employment; labour market

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List of Acronyms

ADB - Asian Development Bank
FLP - Female Labour Force Participation
FLPR - Female Labour Force Participation Rate
GCC - Gulf Cooperation Council
GDP - Gross Domestic Product
GNH - Gross National Happiness
ILO - International Labour Organization
JICA - Japan International Cooperation Agency
RMG - Ready-made Garments
SAARC - South Asian Association for Regional Cooperation
SCD - Systematic Country Diagnostic
SME - Small and Medium Enterprises
SNA - System of National Accounts
TVET - Technical and Vocational Education Training
WB - The World Bank

Chapter 1

1 Introduction

South Asia, home to few of the fastest growing economies, has booming GDP growth rate of about 6.9 (Rama & Revenga, 2018). However, this fast growth rate does not not always translate into alleviation of poverty, fast employment or even gender equality. Employment rate has been facing a decline in this region of the world where women are in the worst end of the spectrum. Varying female labour participation rates exist here; Afghanistan is at 20%, the lowest in the group while Nepal has a high rate of 85 (World Bank). According to the Asian Development Bank (2016), women in this region have not embraced the labour market, despite gains in economic growth, decline in fertility rates and increase in the number of girls enrolling in schools. These suggest that there are existing constraints that prevent women from partaking in the labour market. This paper investigates the reasons as to why women in the South Asian region do not have higher market participation, explores the prevalent U shape hypothesis and provides few country specific policy recommendations that can adopted.

This paper provides a comparative review of the literature and situation in South Asia. The remainder of this paper is structured as follows: chapter 2 reviews the literature on female labour force participation. Chapter 3 presents the methodology used here. Chapter 4 focuses on the situation in South Asia in general and the scenario in each of the SAARC nations while section 5 discusses the results. Chapter 6 provides the limitation of this study, chapter 7 suggest few recommendations for South Asia and chapter 8 concludes the paper.

1.2 Motivation

Why is the issue of increasing female labour force participation rate an important one? And why has there been so many extensive analyses on the issue? Encouraging more women in the job market has two twofold advantages. According to ADB's paper on female labour force participation in Asia (2016), decreasing the gender gaps in education and work can lead to a 30% rise of the Asian economy. And the rise in the female workers can translate into greater empowerment of women. Additionally, Verick (2014), FLPR is both a driver as well because of growth. On surface, decreased fertility rates, greater educational attainments and women marrying much later on in their lives will translate into greater economic opportunities and seizing them. However, that is not always the case; there is more factors that weigh in when it comes to women joining the workforce. These are the reasons why this topic has chosen for this paper.

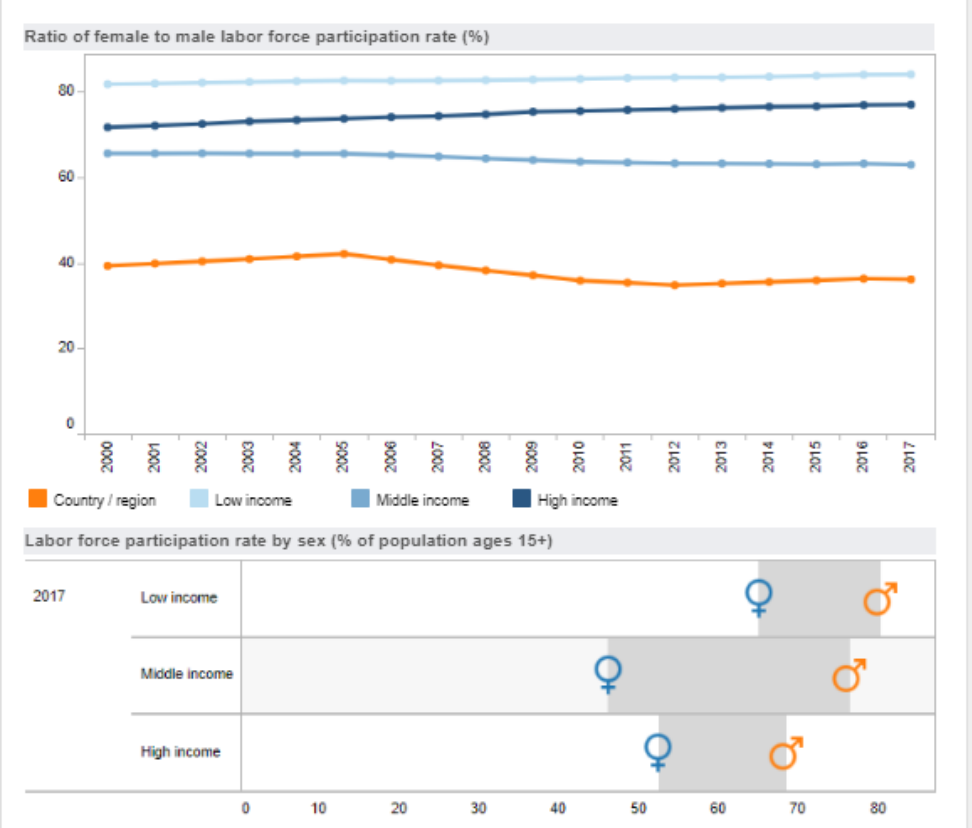

Figure1: Ratio of female to male labour force participation rate (Source: Gender Data Portal, WB)

Chapter 2 Theory and evidence

The U-shaped hypothesis mentions that at low levels of income and economic development, agriculture becomes the dominant form of economic activity and women participate in the labor force in large numbers often as unpaid family workers in the family farm or business. During the process of economic development, there occurs structural change in terms of production and labour allocation; and the economy becomes more market oriented. In this situation, family production for its own use decline and consumption goods are produced in institutionalized enterprises. This leads to rise in income of families and generally causes a fall in work force participation of women mainly due to their displacement from more mechanized agriculture on one hand and their relatively lower level of education and skill than that of men to be absorbed in modern sector jobs on the other. Many other social customs, traditions, culture and household responsibilities come to play as hindering factors of women's work participation. Finally, when women's education and skill improve, their participation level in labour force increases and completes the U-shaped curve in the process of economic development. (Boserup, 1970, Durand, 1975; Psacharopoulos, Tzannatos, 1989; Goldin, 1995, Verme 2015).

Chapter 3 Methodology

3.1 Model

The econometric model has been used for each of the countries where

$$Y=\beta0+\beta1lgdp+\beta2lgdp^2+\beta3unempl+\beta4urban+\beta5fertlity+\beta6primarynet+\beta7secondarynet+\beta8tertiarynet+\mu$$

Where,

Y: female labour force participation rates, which is the dependent variable
lgdp: logarithmic transformation of GDP per capita of each country
lgdp2: square of logarithmic transformation of GDP values
unempl: the unemployment rates from 1990 to 2017
urban: the number of people residing in the urban areas
fertility: the number of total births per woman
primarynet: net enrollment of female students in primary schools
secondarynet:net enrollment of female students in secondary schools
tertiarynet: net enrollment of female students in tertiary schools

μ: the error term

Gdp, lgdp2, unempl, urban, fertility, primary net, secondary net and tertiary net are all independent variables.

Here bo is the y-intercept, which measures the female labour force participation rate when all the dependent variables are considered as zero; b1 is the parameter that shows the extent to which one-unit change in log GDP per capita has an impact on female labour force participation rate, holding all else constant. And b2 similarly shows the effect on Y caused by lgdp2, Ceteris Paribus.

When all the data is pooled together, the fixed effect model is used to analyze FLPR of SAARC nations.

3.2 Data

The World Bank collects development indicators extensively. For this paper, the data of each of the SAARC nation's GDP per capita, unemployment rates, fertility rates, urban population, primary, secondary and tertiary net enrollment has been used for the past 28 years, starting from the year 1990 to 2017. Additionally, the data on their female labor participation rate is taken from the ILO's latest available dataset. Any missing data has been extrapolated using the assumption that the data follows a trend.

3.3 Research Questions

The key research questions of this paper are as follows:

i) What is the U-shape hypothesis?
ii) Does it hold for the SAARC nations?
Iii) Do all the countries face the same problems when it comes to joining the workforce?
iv) What are the constraints specific to each economy?
v) What can be done to encourage increase in female labour force participation (FLP)?

Chapter 4 Test using country data

In this section, individual countries of the South Asian region as well as all of them as a whole are examined. Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and SriLanka are thoroughly analysed to explore the female labour participation rates. Each country has their own unique reasons for the FLPR rates, their own path towards growth and their own set of constraints that hold women back. The models for regression are based on the availability of data. The following section discusses them and provides country specific policy recommendations.

South Asia is one of the fastest growing regions in the world. The past two decades have marked progress of women all across the world in terms of gender equality in the society. However, women's prospects for work are still miles away from being equal to that of men. (World Employment Social Outlook 2018). The same report highlights that women not only are less likely to participate in the labour market than men but are also less likely to find employment. And this is a global phenomenon.

The employment rates among women in South Asia are consistently below the estimated U-shaped curve. Despite significant growth of the economy, fall in fertility rates and increased female education, there is still low FLP. (ADB 2016). Nations in the South Asian region are situated on the left-hand side portion of that curve. This means that a rise in income per capita will lead to a decline in participation rates, according to the World Employment Social Outlook (2018).

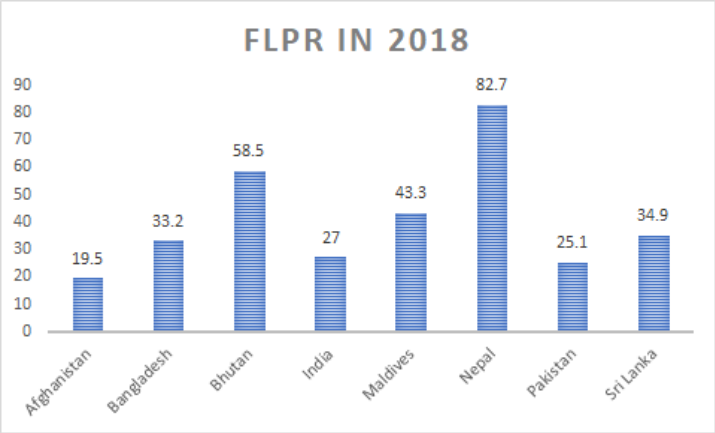

Figure 2: FLPR in South Asian Countries

Agriculture is the sector that employs highest number of the working age population in this region. Almost 40% of people employed in both Nepal and Bhutan are engaged here; in India and Afghanistan, agriculture accounts for about quarter of the jobs. The second largest employer is the service sector. Sri Lanka is the only country in the region that has the highest employment in this industry. While for Bangladesh, this accounts for 21%. The lowest employment is observed for the manufacturing industry and it is true for all the countries. (Jobless Growth 2018).

According to ADB (2016), social norms urge women to take up household responsibilities and this act as a major constraint. Additionally, women's limited mobility, restrictions on 'appropriate

jobs' and their lack of access to information act as barriers. The table below depicts the results of fixed effects model done on South Asia's panel data that is provided in Appendix A.

Fixed Effects Within Regression

Flpr	Coefficient	P>|t|
lgdp	-108.031***	0.000
lgdp2	16.7490***	0.000
unempl	0.4099698**	0.016
urban	-0.2058828	0.115
fertility	-6.028415***	0.000
primarynet	0.086152***	0.000
_cons	226.7078	0.000

Prob > F = 0.0000
F (6, 210) =63.50

***Significant at 1% level
**Significant at 5% level

Table 1: Fixed Effects Regression for South Asia

The p value is less than 5%. This means that all the coefficients of the model are not equal to zero, indicating that the model is good. Moreover, except for urban, all the other variables are significant at 1% or 5% levels.

4.1 Afghanistan

Introduction

Afghanistan is landlocked country whose geostrategic location has invited the nation to decades of war and instability. As a result, its economy suffered heavily and so did its people. The nation has a population of about 36 million most of which reside in the rural areas. The fertility rate has started to experience somewhat of a decline only after 2003 and has reached to about 4.5 in 2017. According to the ILO 2017 report, only a mere 54% of the population is of legal working. The same report highlights that Afghanistan's female labour force participation rate is 60% points lower than that of its male's. It faces a high youth unemployment rate, followed by a bit lower value of female unemployment rate. 62.9% of the labour force is accounts for the vulnerable employment, where most workers are self-employed in the agricultural sector. (ILO 2017). Thus, these workers face low job and income security. The Afghani FLPR is the lowest in the South Asian region, even though over the years, more women have been joining the labour force. It is also one of the lowest in the world. (Desai & Li, 2016).

Snapshot of current scenario in Afghanistan

Agriculture is central to Afghani economy. And development of this sector can be a key element to build the country back. But in this effort, both the involvement of male and female workers are required. As depicted in the graph below, the FLPR was lowest during the 2000s after which it has risen till it reached 2005; the graph then had faced a U to reach a 17.3 in 2017. Formal employment is mostly dependent upon agriculture and medium skilled level occupations like for clerical, service and sales workers, skilled agricultural and trade workers, plant machinists and assemblers.

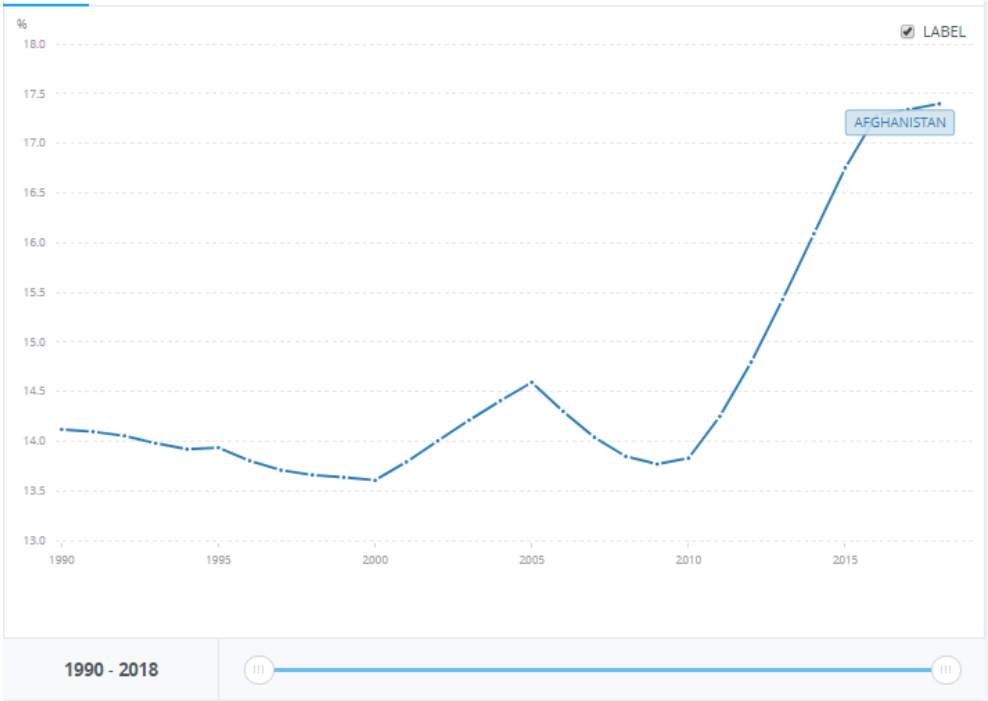

Figure 3: Labor force participation rate, female (% of female population ages 15-64) in Afghanistan

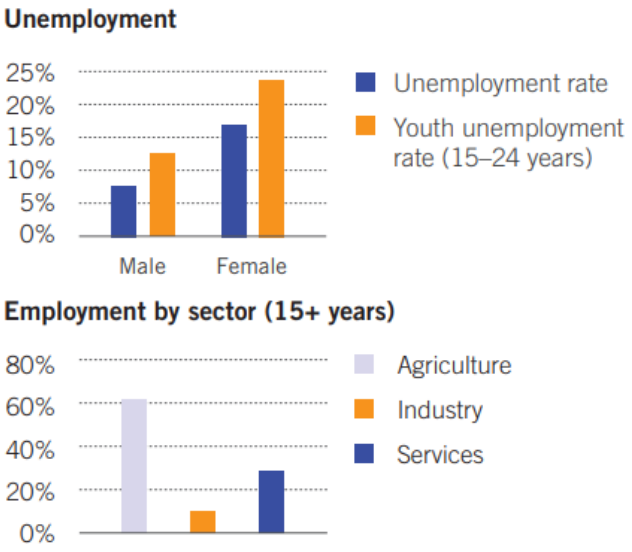

Figure 4: Basic employment statistics for Afghanistan, 2017 (taken from ILO, 2017)

For three decades, the Afghan women has little or no access to educational institutes and training facilities, eventually driving them away from the public life. (World Bank 2008). The presence of the Taliban regime had further halted their growth. As a result, a generation of low educated women with less skills and low literacy rate have remained behind the world and its progress.

Women in Afghanistan largely participate in agriculture and home-based activities, not receiving any monetary compensation for them. To make matters worse, the pool of unemployed females is much higher than males. Thus, these women can get access to safe TVET Programs to help them out.

Reasons for low FLP in Afghanistan

Here are few of the reasons why there is such low participation of female workers in Afghanistan:

Firstly, lack of security and prevalence of high violence limits women's FLPR. (Desai & Li 2016). With the curse of political wars and instability plaguing Afghanistan, women are less likely to be leaving home and engaging in work. The authors believe that even men become really concerned during such violent times, causing increased difficulty for the women to be mobile. In 2014, the total incidence of violence was 32,033 according to their assumptions. There exists a negative relationship between FLPR and violence. This is further reinstated by women's belief that they should go out for work in the areas where there are low incidences of violence, says Desai and Li.

Secondly, irrespective of gender, there is low levels of education attained by the Afghani people. According to the latest survey results, lack of educational attainment and skills were reported as the biggest setback why women there could not join the workforce. According to WDI (2015) and Survey of Afghani people (2015), as the FLPR has increased over the years, the levels of education attained by the women engaged in work has declined. Thus, maybe the women in Afghanistan could bypass their way into the labour market.

Thirdly, in the Afghani culture, women are the caregivers. Their child rearing responsibility might prevent them from working. Nevertheless, Desai and Li states that this is not true for Afghanistan where the difference in the average number of young children between women in and not in the labor force is not significant. Neither is the age of first marriage of women different between the cohorts who are employed and those who are not. Existing literature highlight that the culture of early marriage and prevalence of high fertility prevents women from being employed.

Fourthly there are provincial differences in the restrictions imposed on women. Pashtun women fare more conservative in nature when it comes to gender roles while women belonging in the minority communities have greater participation. It can be said that since the minority groups have lower income levels, their participation is more permissible, out of necessity.

Fithly, just like many other South Asian countries, norms prevailing in Afghanistan can explain why such low rates exist for women.

Test for U shaped hypothesis

Regressors	OLS	p>| t |
Log of GDP per capita	-5.811	0.679
Square of log of GDP per capita	-1.597	0.564
Unemployment	-0.644	0.506
Urban	-0.990***	0.000
Fertility	-5.889***	0.000
Primary net	0.372***	0.001
Constant	98.929	0.000
R squared	0.9558	
Adjusted R squared	0.9432	
F ratio	75.70	
Number of observations	28	

***significant at 1% level, **significant at 5% level

Table 2: Female participation rates regression in Afghanistan

Here both the coefficient of log of GDP per capita and the coefficient of square of log of GDP per capita are negative; according to Verme (2015), this indicates accelerations of decreasing FLPRs. In addition, as the U-shaped hypothesis suggests, with extremely low levels of education, we would expect high FLFP due to poverty and economic status. In Afghanistan, this does not seem to be the case (Desai and Li 2016). Only the variables urban, primary net and fertility are significant at 1% level. The sign associated with fertility does make sense as there exists negative relationship between FLP and fertility. The sign

for primary net is also meaningful. However, the table suggests that urbanization and FLP in Afghanistan have inverse relationship. This is not generally observed.

Further Tests

The coefficients of primary net, urban and fertility are significant at 1% level while rest of the variables are insignificant. At the same time, the R squared value is very high. So some further tests are carried out. At first the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity is run and the table below depicts the result. And to further confirm the results, the residuals of the data are plotted.

Ho: Constant variance	
Variables: **fitted value of flpr**	
Chi2 (1)	1.11
Prob > chi2	0.291

Figure 5: Breusch-Pagan/Cook-Weisberg Test for heteroscedasticity

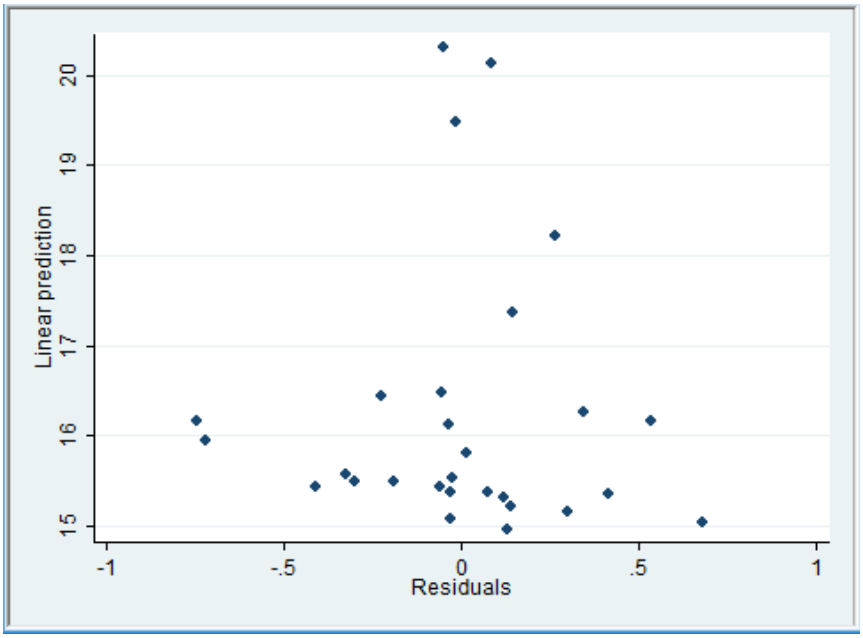

Figure 6: Graphical Test for heteroscedasticity

The scatter plot shows no clear pattern and the p value of the Breusch-Pagan test 0.2911, which is greater than 0.05. Thus, the data for Afghanistan does not suffer from heteroscedasticity. Next, the test for multicollinearity is done.

	years	flpr	lgdp	lgdp2	unempl	urban
years	1.0000					
flpr	0.7247	1.0000				
gdp	0.8761	0.6674				
lgdp	0.8633	0.6542	1.0000			
lgdp2	0.8699	0.6583	0.9993	1.0000		
unempl	-0.7861	-0.3628	-0.7284	-0.7239	1.0000	
urban	0.9979	0.7586	0.8764	0.8833	-0.7650	1.0000
fertility	-0.9316	-0.8230	-0.9445	-0.9507	0.6614	-0.9510
primarynet	0.8644	0.5870	0.8487	0.8387	-0.8334	0.8533
resid	-0.0040	0.2102	0.0000	0.0000	0.0000	0.0000
yhat	0.7422	0.9777	0.6692	0.6734	-0.3711	0.7759
	fertil~y	**primar~t**	**resid**	**yhat**		
fertility	1.0000					
primarynet	-0.7920	1.0000				
resid	-0.0000	0.0000	1.0000			
yhat	-0.8418	0.6004	0.0000	1.0000		

Table 3: Test results for multicollinearity

Variable	VIF	1/VIF
lgdp	2949.79	0.000339
lgdp2	2742.92	0.000365
fertility	78.58	0.012726
urban	68.15	0.014673
primarynet	21.73	0.046009
unempl	5.34	0.187121

Mean VIF	977.75

Table 4: Variance Inflation Factor

Both the tests indicate the presence of multicollinearity as majority of the VIF values are way higher than 5 and as many variables have pairwise correlation of more than 0.8.

Ramsey Reset test using powers of the fitted values of flpr	
Ho: model has no omitted variables	
F (3, 10) =	3.18
Prob > F =	0.0490

Table 5: Ramsey Reset Test

The p value is not less than 0.05 so the model does not suffer from omitted variables. Next, the specification test is run, and the results are depicted in the tables below.

Number of observations = 28
F (2, 25) = 277.59
Prob > F = 0.0000
R-squared = 0.9569
Adj R-squared = 0.9535
Root MSE = 0.33191

flpr	**Coef.**	**P > | t |**
_hat	0.1161405	0.917
_hatsq	0.0252189	0.432
_cons.	7.647599	0.433

Table 6: Specification test

Both the variable of prediction_hat and the variable of squared prediction _hatsq are insignificant. Thus, the model suffers from specification error.

Policy Recommendations for Afghanistan

The elimination of the Taliban era marks the increased empowerment of women in Afghanistan. However, greater FLPR are required to reconstruct the nation and the following policy recommendations can be a starting point:

1. FLP can be addressed in the context of security to ensure that regional violence is reduced; this will encourage women to work.
2. Governmental actions and initiatives to promote education and training of women, perhaps aiming towards gender equality in terms of education, can help attract more women in the Afghani labour market.
3. Spreading awareness and information about the success stories of women all across the world can help change sociocultural norms gradually. This can be done through the use of television along with mobile phones. With increased TV ownership in Afghanistan, this can be a feasible solution.
4. Promoting female leaders in the villages can alter prevalent gender roles. This can be achieved by introducing quota for women at the community levels, as stated by Desai and Li (2016). According to existing literature, such gender quotas have been proven to be effective in many nations and can be adopted in Afghanistan. However, it should be noted that the quotas should promote women to be in decision making roles instead of forcing them to merely participate, to obtain empowerment.

4.2 Bangladesh

Introduction

Bangladesh, despite being a lower-middle-income country, has seen remarkable economic growth over the decade; its growth rate has been more than than 6%. According to the World Bank, the nation has reduced poverty and raised its literacy rate, life expectancy and food production per capita. Since 1990s, Bangladesh has seen a rise in its female labour force participation alongside with the acceleration of its development; yet it is still low when compared to some East and South East Asian economies. (Rahman & Islam 2013). The authors also point out that the fast-paced expansion and availability of micro-credit in the rural regions, coupled with the readymade garment industries in urban areas have led to hike in the number of females joining the Bangladesh's labour market. Nevertheless, the overcrowding in one sector can be somewhat risky.

Snapshot of current scenario in Bangladesh

The relationship between economic growth and female labour force participation (FLFP) is not a simple one. Often factors like educational attainment, fertility rates, unemployment rates and persisting social norms have their roles to play. Girls have outnumbered boys in secondary school attendance. But the labour force participation rates merely reflect a partial picture. (Verick & Chaudhary 2014).

The country has experienced drastic increase in women's employment rates over the past three decades. But it is still considerably low, even by South Asian standards. (Das, 2008). Except from the Middle Eastern nations, South Asian countries have always had low rates of female labour force participation. ILO states that less than one in three women in South Asia are participating in the labour market. Bangladesh lies in the lower end of the spectrum only second to Pakistan (Das, 2008). The nation has reduced its fertility by half, from its inception in 1971 till the year 2004; the focus on primary and secondary schooling have seen dramatic improvements in educational attainments of girls; there has been a rapid rise in female employment (Das, 2008). But still there is a long road ahead. 85.1% of the total employed in 2016-17 were in informal employment in Bangladesh. For the female, the share was 91.8%. (Rahman & Al-Hasan).

The diagram below depicts its FLP. As shown in the graph, Bangladesh's FLP has been on the rise; in 1990 it was at 19.9% and in 2018 it has become 29.3%. Women's participation have seen a boost as they were employed mostly as garment workers, teachers or healthcare officials. But Bangladesh, having the female unemployment rate of 34% while the world is at 50%, means that much must be done. (CPD 2018). A possible explanation could be the issue that women in Bangladesh focus mainly on home-based work and domestic services for which they do not report income. (Das, 2008). And also, the fact that they are employed in informal sectors. FLFP has remained an understudied issue in Bangladesh; most of the studies done analyze the issue through the poverty lens and not from the labour market perspective, says the same report.
Sinha (2017), using modified Solow-Swan (1958) growth model has shown that increase in FLP by 11% on an average within the next 5 years would add 1% point each year to Bangladesh's GDP.

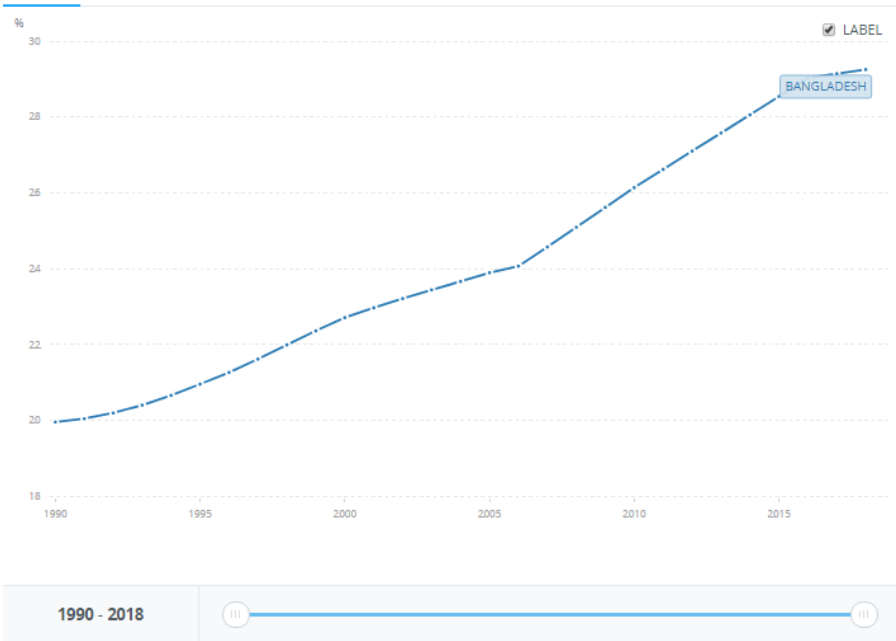

Figure 7: Labor force participation rate, female (% of female population ages 15-64) in Bangladesh

Reasons for low FLP in Bangladesh

Rahman and Al-Hasan point out that an rise in the FLP will contribute towards equalizing and inclusive growth. The following aims to shed light on the existing trend of increasing female labour participation in Bangladesh and why the rise is not as much as it should have been.

Firstly, there has been dramatic decline in fertility rates that has help boost FLP. According to the World Bank, between 1971 and 2004, the country has halved its fertility rates. It has been so impressive that more girls now attend secondary schools than boys, girls who would have been married off and out of school. The World Bank Development Series Report highlights that Bangladesh's drastic decline in fertility rates has not be an initiative to empower women but rather an effort to tackle overpopulation.

Secondly, increase in secondary education for girls have played a key role in rising FLP in Bangladesh. For the last twenty years, incentive schemes such as providing stipends to girls who went to secondary schools and remained there, has been an effective policy. Mammen and Paxson (2000) believe that the secular rise in the levels of education, especially secondary education for girls is what has accelerated Bangladesh's achievements in the last two decades. Nevertheless, son preference prevails in Bangladesh; there are incidences of low parental investment in girls' education as girls are married off.
Thirdly, trade openness, establishment of readymade garments sector and introduction of microfinance and have boosted FLP. Hundreds of young girls walking to garment factories for work every morning has become a visual that represents progress in Bangladesh in the metaphorical sense. (Mammen and Paxson 2000). Gender Equality and Development (2012) has

found a strong correlation between openness to international trade and female employment in developing nations. It is the reason why Bangladesh is the only South Asian economy that has not experienced decline in FLP. Women who resided near garment factories were more likely to be employed (Heath and Mobarak 2014). Additionally, micro credit facilities in the rural regions have led to more women rearing livestock and running their own businesses. These rural women have found empowerment and their voices along with income.

Moreover, FLP can be poverty driven where women work to cope up with economic shocks. If such is the case, then a high FLP will not translate into empowered women or gender equality. Women might be engaged in risky, unprotected work, exploited and paid less wage. According to Verick and Chaudhary (2014), women entering the labour market can be a coping mechanism to counteract the shock that has hit their households. He also states that high FLP in developing nations can be an indicator of poverty instead of their choice.

The fifth reason why more women are not entering the labour market is because their bound by domestic responsibilities. In Bangladesh, much like in any other South Asian country, gender roles are omnipresent; men will earn, and women look after the house and raise children.

Sixth reason is the tradition of purdah (veil). Bangladesh's rural society has a cultural limitation placed upon women where they are not free to interact with males outside of their families. (ADB). This is something that Muslim women experience and for this reason families do not prefer to supply female labour, leading to lower FLP. Much of this purdah has become less stringent in villages where televisions have infiltrated.

Additionally, discrimination, limited information on jobs, geographic mobility of poor rural women and the higher cost of accessing work can act as deterrents, discouraging more women to be a part of the labour force.

Test for U shaped hypothesis

Regressors	**OLS**	**p>| t |**
Log of GDP per capita	74.259***	0.000
Regressors	**OLS**	**p>| t |**
Square of log of GDP per capita	-13.932***	0.000
Unemployment	0.112	0.363

Urban	0.995***	0.000
Fertility	3.505***	0.001
Primary net	0.002	0.783
Secondary net	0.094***	0.000
Tertiary net	0.032	0.653
Constant	-111.170	0.001
R squared	0.9983	
Adjusted R squared	0.9975	
F ratio	1361.45	
Number of observations	28	

***significant at 1% level, **significant at 5% level

Table 7: Female participation rates regression in Bangladesh

The table above fits the existing literature of the U-shaped hypothesis. Verme (2015) states that a positive coefficient for log of GDP per capita and negative coefficient for its square can indicate an inverted U-shape. He also states that it might also be the case that Bangladesh has passed the saddle point of the U curve and is now experiencing stagnation in its FLP. The U-shaped hypothesis holds for Bangladesh. However, it cannot be concluded with certainty that the nation has passed the saddle point.

Further Tests

The variables unemployment rate, primary net and tertiary net are not significant at 1% or 5% levels. And form the table above, it can be noted that the R squared value is unreasonably high. Therefore, few other diagnostic tests are run on the data for Bangladesh.
Both the scatter plot and the p value of the Breusch-Pagan test indicate that there exists no heteroscedasticity.

Ho: Constant variance	
Variables: **fitted value of flpr**	
Chi2 (1)	1.33
Prob > chi2	0.2486

Table 8: Breusch-Pagan/Cook-Weisberg Test for heteroscedasticity

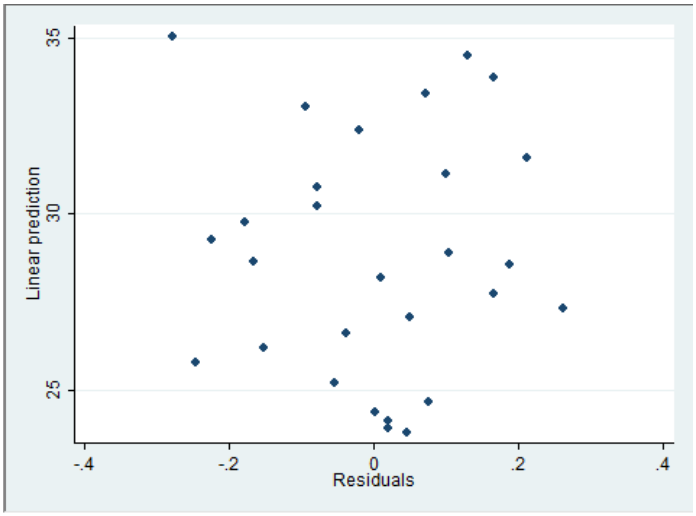

Table 9: Graphical Test for heteroscedasticity

Additionally, the tests for multicollinearity are also run and the results are given below.

	years	**flpr**	**lgdp**	**lgdp2**	**unempl**	**urban**	**fertil~y**
years	1.0000						
flpr	0.9946	1.0000					
lgdp	0.9652	0.9809	1.0000				
lgdp2	0.9573	0.9755	0.9994	1.0000			
unempl	0.8790	0.8582	0.7776	0.7638	1.0000		
urban	0.9896	0.9928	0.9865	0.9827	0.8347	1.0000	
fertility	-0.9796	-0.9584	-0.8994	-0.8855	-0.9060	-0.9420	1.0000
primarynet	0.8915	0.9082	0.9218	0.9217	0.6889	0.9093	-0.8379

secondarynet	0.9229	0.9207	0.8663	0.8573	0.8528	0.8778	-0.9377
tertiarynet	0.9282	0.9508	0.9841	0.9869	0.6937	0.9619	-0.8477
resid	0.0060	0.0417	0.0000	0.0000	0.0000	0.0000	-0.000
yhat	0.9952	0.9991	0.9817	0.9764	0.8589	0.9936	-0.9593
	primar~t	**second~t**	**tertiat~t**	**resid**	**yhat**		
primarynet	1.0000						
secondarynet	0.8246	1.0000					
tertiarynet	0.9335	0.8255	1.0000				
resid	0.0000	0.0000	0.0000	1.0000			
yhat	0.9090	0.9215	0.9516	0.0000	1.0000		

Table 10: Test results for multicollinearity

Variable	VIF	1/VIF
lgdp2	14353.36	0.000070
lgdp	12341.73	0.000081
urban	557.79	0.001793
fertility	395.34	0.002529
tertiarynet	79.21	0.012625
secondarynet	55.14	0.018136
unempl	9.56	0.104640
primarynet	8.70	0.114931
Mean VIF	3475.10	

Table 11: Variance Inflation Factor

Both of these tests are run to check if there is linear association between two or more explanatory variables. For the data for Bangladesh, multicollinearity is present.

Ramsey Reset test using powers of the fitted values of flpr	
Ho: model has no omitted variables	
F (3, 16) =	5.77
Prob > F =	0.0072

Table 12: Ramsey Reset Test

Number of observations = 28
F (2, 25) = 7172.10
Prob > F = 0.0000
R-squared = 0.9983
Adj R-squared = 0.9981
Root MSE = 0.14879

flpr	**Coef.**	**P > | t |**
_hat	1.023053	0.000
_hatsq	-0.0003957	0.881
_cons.	-0.3311858	0.882

Table 13: Specification test

The model specification test, linktest, creates two new variables, the variable of prediction_hat, which should be significant. And the variable of squared prediction _hatsq which should not be significant. So, we look at their p values and the table is consistent; the model for Bangladesh does not suffer from any misspecification problem.

Moreover, in order to be sure that the model used is correct and that there are no missing variables, the Ramsey Reset Test is carried out. Since p is not less than 0.05, the model does not suffer from omitted variable.

Policy Recommendations for Bangladesh

The following policy advice can be adopted by Bangladesh:

1. Rahman and Islam (2013) believe that the Bangladesh's economy and female employment in urban areas are heavily reliant on the RMG sector; other sectors' growth are either too low or they do not hire large number of women as the RMG sector does. Thus, the government has to create more jobs for women in other sectors to diversify risk and to ensure greater FLP.
2. Access to quality education, beyond secondary level, plays a significant role to improve employment outcomes for women (Verick & Chaudhary 2014). Therefore, the governmental initiatives to encourage women's education, especially beyond secondary level, needs to continue. As stated earlier, the stipend programme has been successful to attract girls in secondary schools in Bangladesh. The same incentive can also be applied at undergraduate level (Rahman & Islam 2013). However, Schultz's (1988) warning needs to be heeded; quality of schooling should not be reduced; apt actions can be taken so that these graduates do not remain unemployed.
3. According to the World Bank Development Series, employment opportunities for women in the formal sector has been a better alternative to early marriage and has reduced fertility rates. Thus, stakeholders need to ensure that the transition of women from school to work occurs smoothly. There can also be increased effective training programs in place that can reduce the gap between the existing skill set of women and the skill sets required by the market.
4. Rahman and Islam (2013) points out that access to microcredit has been monumental to empower women in Bangladesh but these women need to engage in more productive enterprises. SME Foundation and the Bangladesh Bank can provide financial help to female entrepreneurs to achieve this.
5. Rahman and Islam (2013) also suggest that government's initiative to distribute land to the poorer households can help; household assets such as land have positive impact on FLP.
6. To further encourage women to join the workforce, alternatives has to be there for females to choose that will reduce their burden of household chores.

4.3 Bhutan

Introduction

Bhutan, located in between China and India, has been termed as one of the smallest but fastest-growing economies in the world by the World Bank. With a population more than 807610, it has also earned the title of being a nation that has successfully reduced poverty. With rapid economic growth, it has made great efforts to reduce gender gaps and to promote equality. Access to health, education and asset ownership has also been on the rise in Bhutan. The ongoing hydropower projects in the nation and the service sector, especially tourism, are likely to support growth. However, this middle-income nation's vulnerability to natural disasters can pose a great threat towards further economic development.

The highest employment is seen in agriculture with 60%. But there is low productivity growth there. Additionally, there is limited development in the private sector which makes Bhutan's

transition at a very slow pace. Nevertheless, the FLPR in Bhutan remains one of the highest in the region. However, the World Bank (2018) states that most women are still engaged in family based agricultural work and a small portion are in paid jobs. One key element that Bhutan has is gender equality, something that is missing in other South Asian nations and developing countries across the world.

Snapshot of current scenario in Bhutan

In 2016, the primary enrollment rate was 98.8% for girls and 97% for boys (WDI). Though the number of girls representing in the secondary institution has been on the rise, there is still some lags in the tertiary education sector. In the Central and Western regions of Bhutan, a a matrilineal system exists, where women inherit the family's land and is considered the head of the family. This empowers them and gives them economic choices. Bhutan has made progress in terms of increasing its share of women in the labour market. However, the quality of the jobs involving women is a major issue. The diagram below illustrates the overall trend in FLPR in Bhutan from 1990 onwards. It shows that the rate was lowest in 2014 while it reached its peak in 2012. There has been a general upward trend from 1990 to 2009, after which fluctuations took place. Finally, the FLPR is at 40.1. Since basic health care facilities are provided in Bhutan for free along with free primary and secondary education, the people are equipped with better lives.

JICA (2017) highlights the important issue that there are limited job opportunities for women in urban Bhutan due to the mass migration from the rural regions. The same report shows that the sectors where women employees exceed that of men are agriculture and forestry, manufacturing, retail and hotels and restaurants. According to the Labour Force Survey Report (2015), around 60% of unemployed are women.

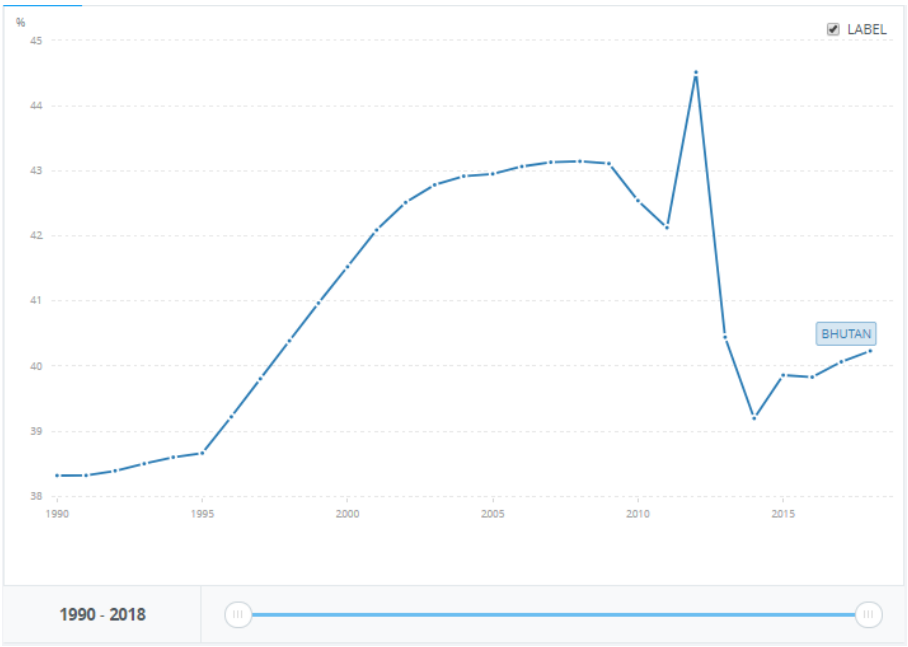

Figure 8: Labor force participation rate, female (% of female population ages 15-64) in Bhutan

Reasons for low FLP in Bhutan

First, Bhutanese customs and traditions and the general perception in Bhutan about women's role as a homemaker, their responsibilities towards household chores and in childcare limit their access to educational and job opportunities. (JICA 2017). There is no restriction on women to be involved in agriculture or in community activities; still their responsibilities tied them down. So did stereotypical gender roles. These norms might make girls' parents feel that investing in education is pointless.

Secondly, poor performance of girls in math and science decreases their chances of getting into publicly funded higher secondary schools. Since private schools in Bhutan is very less in number, girls at a younger age lag behind in getting education to enter the job markets. (ADB). According to Priyadarshini (2014), limited number of schools scattered here and there posed a major constraint too for girls. She adds that reasons like security, lack of female teachers and gender biased curriculum might affect girls too. Females are also less likely to have completed formal education than their male counterparts.

The third reason why women are not entering the workforce is that fewer jobs are available for women in Bhutan. There exist high unemployment rates for women, especially in urban areas where female graduates find it hard to secure a job. This is further confirmed by the Labor force survey data from 2012 indicating higher unemployment rates for women than men, at all levels of education; women, despite having the same level of education as their male counterparts in Bhutan cannot seem to find work.

Fourthly, multiple work burdens limit their chances. Women in Bhutan have family responsibilities, responsibilities in their own community as well as economic ones. Bhutan's Gross National Happiness (GNH) Index in 2010 had indicated that women work an hour more than men per day. Starting from collecting firewood to maintaining farm roads, such unpaid, voluntary tasks make them overworked. (Bhutan Gender Analysis).

The fifth reason is that there exist low literacy rates among the adult women of Bhutan. They cannot keep up with the modernized society that is continually evolving. So, their lack of basic skills limits their options of economic activity and disqualifies them from participating in leadership roles in the political parties both during local and national elections. (ADB). This can also explain the poor representation of women as elected officials and in civil services.

Moreover, there is lack of information on ethnic groups that reside in Bhutan; most data revolve around the dominant community Ngalops. As a result, there is little to no information on most vulnerable and marginalized women. (Priyadarshini, 2014).

Lastly, poor transportation system and lack of access to finance for Bhutanese female entrepreneur's act as barriers.

Test for U shaped hypothesis

Regressors	**OLS**	**p>| t |**
Log of GDP per capita	-108.727	0.195
Square of log of GDP per capita	16.333	0.242
Unemployment	1.097	0.115

Regressors	**OLS**	**p>| t |**
Urban	7.341***	0.000
Fertility	22.058***	0.000
Primarynet	0.546***	0.000

Secondary net	-1.580***	0.000
constant	-40.540	0.758
R squared	0.9696	
Adjusted R squared	0.9589	
F ratio	91.01	
Number of observations	28	

***significant at 1% level, **significant at 5% level

Table 14: Female participation rates regression in Bhutan

U shape hypothesis holds for Bhutan; the coefficient of log of GDP per capita is negative while the coefficient of square of log of GDP per capita is positive. However, the first term is significant at 20% level while its square is significant at 25% level. With only primary net, secondary net, fertility and urban being significant at 1% level and R squared value being too high, the diagnostic tests to check for multicollinearity, heteroscedasticity and the model specified here are run.

Further Tests

Ho: Constant variance	
Variables: **fitted value of flpr**	
Chi2 (1)	2.64

Prob > chi2	0.1045

Table 15: Breusch-Pagan/Cook-Weisberg Test for heteroscedasticity

The scatter plot shows no clear pattern and the p value of the Breusch-Pagan test 0.1045. Thus, the data for Bhutan does not suffer from heteroscedasticity. Next, the data is checked for the presence of multicollinearity. Both the tests confirm its presence, as shown in the results table given below. It is known that if the coefficients of the VIF of the variables are more than 5 or 10,

then the issue of multicollinearity is of concern; such is the case for most of the variables of Bhutan.

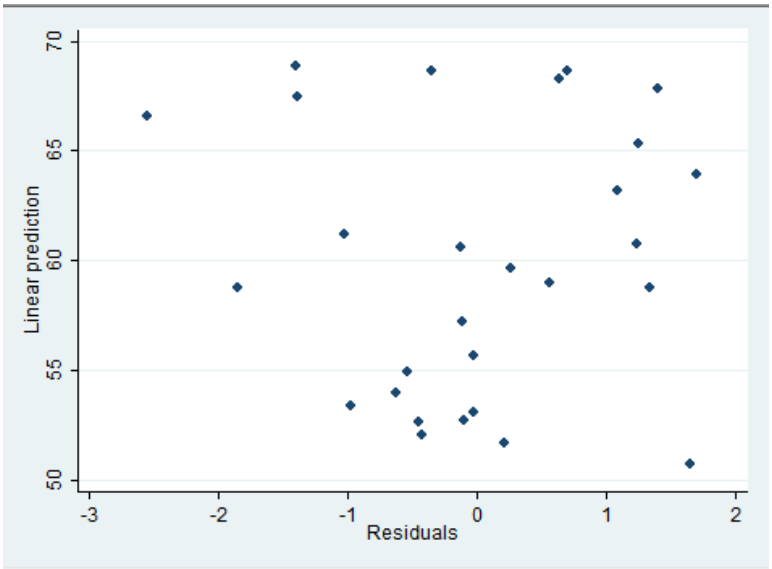

Figure 9: Graphical Test for heteroscedasticity

Variable	VIF	1/VIF
lgdp2	9139.16	0.000109
lgdp	8681.11	0.000115
urban	1199.68	0.000834
fertility	488.82	0.002046
secondarynet	364.48	0.002744
primarynet	61.54	0.016250
unempl	5.41	0.184874
Mean VIF	2848.60	

Table 16: Variance Inflation Factor

	years	flpr	gdp	lgdp	lgdp2	unempl	urban

years	1.0000						
flpr	0.6601	1.0000					
gdp	0.9591	0.5356	1.0000				
lgdp	0.9853	0.6785	0.9767	1.0000			
lgdp2	0.9838	0.6604	0.9830	0.9995	1.0000		
unempl	0.7082	0.8727	0.6513	0.7495	0.7392	1.0000	
urban	0.9982	0.7011	0.9482	0.9852	0.9823	0.7375	1.0000
fertility	-0.9740	-0.7660	-0.8788	-0.9497	-0.9415	-0.7556	-0.9827
primarynet	0.9271	0.8325	0.8469	0.9343	0.9245	0.8305	0.9432
secondary net	0.9905	0.5951	0.9844	0.9874	0.9898	0.6833	0.9840
resid	-0.0013	0.1745	-0.0052	0.0000	0.0000	0.0000	0.0000
yhat	0.6706	0.9847	0.5449	0.6891	0.6707	0.8863	0.7120
	fertil~y	**primar~t**	**second ~t**	**resid**	**yhat**		
fertility	1.0000						
primarynet	-0.9673	1.0000					
secondary net	-0.9375	0.8980	1.0000				
resid	-0.000	0.0000	0.0000	1.0000			
yhat	-0.7779	0.8455	0.6044	-0.0000	1.0000		

Table 17: Test results for multicollinearity

Ramsey Reset test using powers of the fitted values of flpr	
Ho: model has no omitted variables	
F (3, 17) =	1.97
Prob > F =	0.1570

Table 18: Ramsey Reset Test

If the p values are observed, it can be seen from the figure that the variable of prediction_hat is not significant as well as the variable of squared prediction _hatsq. So, there might be specification error. Similarly, the Ramsey Reset is also run. P value is 0.1570, so model does suffer from omitted variable. The effect of the omitted variable can be captured by the error term.

Number of observations = 28
F (2, 25) = 399.77
Prob > F = 0.0000
R-squared = 0.9697
Adj R-squared = 0.9673
Root MSE = 1.1314

flpr	**Coef.**	**P > | t |**
_hat	1.282107	0.166
_hatsq	-0.0023437	0.756
_cons.	-8.403109	0.757

Table 19: Specification test

Policy Recommendations

1. Technical and vocational education training (TVET) is significant to meet the labor requirements of Bhutan's market-oriented private sector. it is important that the Bhutanese government allow women to become competitive in the labor market by tailoring TVET according to the women's needs. This will increase the women's opportunities to earn income along with men. This can also reduce the female unemployment rates prevalent in the economy. (Gender Equality Results 2011).

2. There can be initiatives to make training and or training centers gender-equitable so that women are encouraged to participate. This can be done by gender sensitization of training staff, flexibles modes of delivering training, being located at places that are convenient for women, having separate toilets for men and women etc. (ADB 2011).
3. Setting up regional hubs and mobile training teams that have access to local communities in rural areas and can open opportunities for the rural women.
4. Governmental initiatives to improve roads can have direct economic and social benefits.

5. Greater focus on the quality of education provided for girls can help them improve in math and science and in turn assist them to secure white collar and governmental positions.
6. Mass media campaigns can slowly disintegrate norms and gender roles; but it is a long-term process and needs repeated exposure to lead to behavioral change in Bhutanese society.

4.4 India

Introduction

India has been known as one of the rising power houses of the world. With a population of more than 1.2 billion, it has been termed as the world's largest democracy and third largest economy in terms of purchasing parity. India's economic growth has been commendable in the past few decades. The World Bank expects its growth to be more than 7% per year. Along with its economic gains, India has been successfully reducing its poverty levels; its extreme poverty has dropped from 46% to 13.4%, according to the World Bank. The nation aims to be a high-middle income economy by 2030.

However, India's growth did not translate into greater female labour force participation. FLP in rural regions have been falling substantially while it has been stagnant for urban women. (Klasen 2017). Unemployment rate has remained stable over the years, according to Verick and Chaudhary (2014). They also state that the share of workers have declined from the agricultural sector while increasing in the non-farming ones. This indicates that the Indian economy is going through a structural transformation. While its economic performance has been persistently strong, it has been uneven.

Snapshot of current scenario in India

Gender disparity is experienced the most in the South Asian region; Afghanistan, Pakistan and India being the nations where it is the greatest (Verick & Chaudhary 2014). India's fertility has declined rapidly while educational attainment has been improved over the years. These would indicate that there has been greater female labour force participation. In other regions like Latin America, the Middle East and North Africa, similar trends have led to quite a rise in FLP (World Bank, 2012). However, the same is not true for India. India has made considerable progress; women's access to secondary education has increased. But jobs are not created in sectors that can readily absorb women, mainly in the rural regions (Verick & Chaudhary 2014). If the low rate of FLP continues, the nation can experience labour shortages as well as weaker growth. (Klasen 2017).

Despite strong economic growth and increase in wages and incomes, India is facing a decline in FLP which is quite puzzling. Women account for mostly unpaid work and are overrepresented in the informal sector. Occupation segregation, strengthened by gender norms, cause women to crowd in certain sectors or concentrate in particular roles. There are some positions are not 'socially acceptable' for them to be engaged in. And this has stemmed from the prevailing social

norms that exist in India. Women are mostly seen to cluster in agriculture, sales and handcraft manufacturing industries. However, according to Verick, these sectors have not experienced employment growth for many years, naturally halting growth in women's employment. The diagram below represents the overall trend in India's FLP. The highest rate is experienced in 2005 and since then, there has not been much improvement.

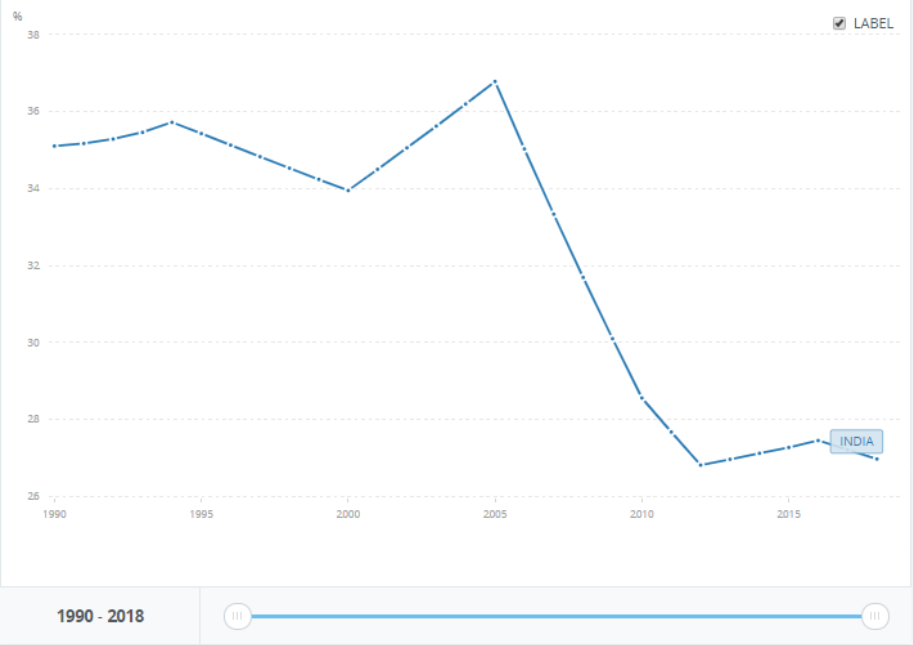

Figure 10: Labor force participation rate, female (% of female population ages 15-64) in India

Female labour force drives the growth of an economy; increased participation rate increases the potential for a country to grow at a faster rate (Verick & Chaudhary 2014). So if India wants to achieve its goal of becoming a high-middle income nation, it needs to increase its female labour force participation. Nevertheless, participation is an imperfect indicator of women's economic empowerment; women in many countries join the labour force as a coping mechanism to deal with economic shocks in the household. So, the widespread involvement of females in the labour market might not always translate into a good thing. (Verick & Chaudhary 2014)

Reasons for low FLP in India

Economic and social factors interact in a complex way at household and macro level and shape a woman's decision to join the labour force. (Verick & Chaudhary 2014)

Firstly, one possible reason why India might have such low FLP despite its economic growth is because it is behaving according to the U-shaped hypothesis, believes Klasen (2017). Based on existing literature, it might seem that India's FLP is now in the falling portion of the U. Structural transformation and urbanization has has led to withdrawal of women from the labour market. (Verick & Chaudhary 2014).

Secondly, Klasen and Pieters (2015) explore in their paper the reasons why married women in the urban areas have faced a stagnation. They have found that a rise in the household income, increase in husband's education, district-level labour demand and falling attachment of highly skilled women from the labour market have led to the decline in FLP. But a decrease in fertility and increase in educational attainment work in the opposite direction and help boost FLP. This leads to a net stagnation. The authors also highlight that jobs that are deemed more appropriate for women, for instance in the education, healthcare and public service sectors, have not grown in the same magnitude to incorporate all the educated women who are seeking these positions. And this had led a fall in their participation.

Thirdly, in the rural regions of India, there is decline in FLP due to lack of agricultural and non-agricultural jobs available for women. (Chatterjee et al. 2015, Kannan et al. 2014, Chand et al. 2014 & Kapsos et al. (2014). There has been growth, but the growth has been somewhat 'jobless,' translating into even a smaller number of women engaging in labour market.

Fourthly, Lahoti and Swaminathan (2016) found out that the structural change in the economy has also made engaging in work harder for women. The agricultural sector shrunk while the manufacturing and service sectors have expanded. Women have very low share in the manufacturing industries and there has not been significant shifts of female workers in this sector, resulting in the males to dominate in number. Verick and Chaudhary (2014) argue that gender norms are boosted by occupational segregation in India.

Fifthly, marital status and having children under 5 shape women's decision to stay in the labour market. For a married woman, decision to work outside is usually a household decision (Sudarshan & Bhattacharya 2009). In contrast to married cohorts, single women do not have that much of household responsibilities; their decision to work is not contingent upon the husband or in-law's decision about seeking employment. There is less repression. Socio cultural norms confine women within the four walls and limit their participation (Verick & Chaudhary 2014).

Lastly, error in measurement might also explain the low and stagnating FLP in India. Much of women's work is not documented or accounted for in the official statistics. Women mostly engage in home-based works that contribute to non-market activity; their works tend to be under reported and overlooked. (Verick & Chaudhary 2014). Mazumdar and Neetha (2011) believe this to be one of the potential reasons to explain India's low FLP.

Test for U shaped hypothesis

Regressors	OLS	p>| t |
Log of GDP per capita	65.609	0.260

Square of log of GDP per capita	-14.176	0.180
Unemployment	1.610	0.135
Regressors	**OLS**	**p>| t |**
Urban	2.358**	0.031
Fertility	6.958**	0.050
Primary net	0.113***	0.001
Tertiary net	-0.203**	0.033
Constant	-142.218	0.195
R squared	0.9758	
Adjusted R squared	0.9673	
F ratio	115.19	
Number of observations	28	

***significant at 1% level, **significant at 5% level

Table 20: Female participation rates regression in India

The table shows that the value of log of GDP per capita is positive while its square is negative indicating that India is experiencing an inverted U shaped, as per existing literature. However, since both the values are not significant at 5% levels, we cannot rely on them much for inference. Bhalla and Kaur (2011), Lahoti and Swaminathan (2013), Rao et al., (2010) all suggest that India's U shape is not yet evident.

Further Tests

Since the variables like log of GDP per capita, its square and unemployment are not significant at 5% levels and the R squared value is quite high, further tests are run to ensure that the data for India does not suffer from multicollinearity, heteroscedasticity or that the model specified here

is incorrect. Both graphical tests and formal tests are run to confirm the presence or absence of such issues.

Ho: Constant variance	
Variables: **fitted value of flpr**	
Chi2 (1)	0.14
Prob > chi2	0.7073

Figure: Breusch-Pagan/Cook-Weisberg test for heteroscedasticity

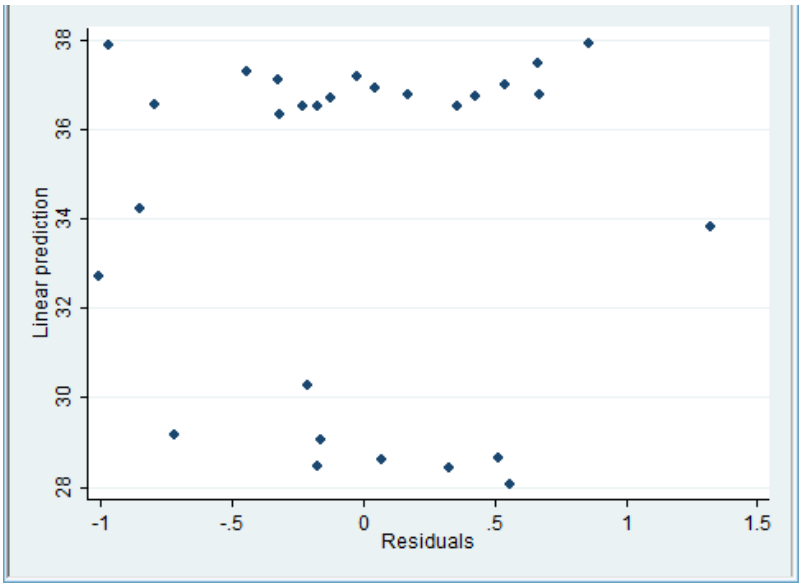

Figure 11: Graphical Test for heteroscedasticity

The graphical test shows that there is no visible pattern when the residuals are plotted for the data indicating that data does not suffer from heteroscedasticity. The Breusch-Pagan/Cook-Weisberg test further confirms it. Its p value is greater than 0.05.

	years	**flpr**	**gdp**	**lgdp**	**lgdp2**	**unempl**	**urban**
years	1.0000						
flpr	-0.830	1.0000					
gdp	0.9441	-0.9315	1.0000				
lgdp	0.9752	-0.8852	0.9801	1.0000			
lgdp2	0.9723	-0.8954	0.9857	0.9995	1.0000		

unempl	-0.3615	0.7422	-0.6065	-0.4843	-0.5066	1.0000	
urban	0.9936	-0.8680	0.9725	0.9853	0.9854	-0.4448	1.0000
fertility	-0.9972	0.8202	-0.9289	-0.9712	-0.9667	0.3414	-0.9852
primarynet	0.7946	-0.4687	0.7118	0.7917	0.7813	-0.1053	0.7816
tertiarynet	0.9221	-0.9339	0.9705	0.9360	0.9435	-0.6014	0.9526
resid	0.0029	0.1556	0.0046	-0.0000	-0.0000	0.0000	-0.0000
yhat	-0.8407	0.9878	-0.9437	-0.8961	-0.9065	0.7513	-0.8787
	fertil~y	**primar~t**	**tertia~t**	**resid**	**yhat**		
fertility	1.0000						
primarynet	-0.7986	1.0000					
tertiarynet	-0.9042	0.6348	1.0000				
resid	0.0000	-0.0000	-0.0000	1.0000			
yhat	0.8303	-0.4745	-0.9454	-0.0000	1.0000		

Table 21 : Test results for multicollinearity

Variable	VIF	1/VIF
lgdp2	15486.90	0.000065
lgdp	14423.97	0.000069
urban	365.57	0.002735
fertility	200.17	0.004996
tertiarynet	31.76	0.031486
unempl	6.92	0.144583
primarynet	5.11	0.195671
Mean VIF	4360.06	

Table 22: Variance Inflation Factor

Both the pairwise correlation coefficients between the variables and variance inflation factor are investigated. Generally, if the coefficients of the variables are more than 0.8, it indicates the presence of multicollinearity. And if the VIF value is between 1 and 5, it means that the variables are moderately correlated; greater than 5 means highly correlated. Except for primarynet, all the other VIF values are high, indicating the presence of multicollinearity. Next the Ramsey Reset test is run on the data.

Ramsey Reset test using powers of the fitted values of flpr	
Ho: model has no omitted variables	
F (3, 17) =	1.52
Prob > F =	0.2455

Table 23: Ramsey Reset Test

As the table above shows, the p value is not less than 0.05 so the model does not suffer from omitted variables. Next, the specification test is run, and the results are depicted below.

Number of observations = 28
F (2, 25) = 528.38
Prob > F = 0.0000
R-squared = 0.9769
Adj R-squared = 0.9750
Root MSE = 0.59048

flpr	**Coef.**	**P > | t |**
_hat	-0.2697634	0.819
_hatsq	0.019275	0.287
_cons.	20.62411	0.288

Table 24: Specification test

The model specification test creates two new variables, the variable of prediction_hat, which should be significant. And the variable of squared prediction _hatsq which should not be

significant. Here we see that both are insignificant at 5% levels. Thus, there exists specification error.

Policy Recommendations for India

Verick and Chaudhary (2014) believes that to encourage more women to join the labour market in India, policy interventions need to tackle both demand and supply sides. The authors also mention that merely increasing the FLP would not translate into empowerment and growth; rather it must be ensured that women have access to decent jobs. The following recommendations can be adopted by India considering its low and almost stagnant FLP:

1. Time-use surveys can be used when analyzing FLP. It can provide a holistic picture by including activities performed by women that are categorized by System of National Accounts (SNA), Extended SNA and non-SNA. (Hirway, 2002; Hirway and Jose, 2011). This as a result can eliminate the issue of underreporting women's labour force participation by capturing their "invisible work".
2. Ensuring equal access to employment opportunities across all sectors/industries and lowering wage differentials between male and female workers can boost FLP. This can also help to alleviate gender barriers.
3. Vocational training can be provided to women so that they can easily find jobs in the growing manufacturing and service sectors. It can also increase their likelihood of being self-employed, as put forward by Verick and Chaudhary (2014).
4. India can continue its efforts to promote higher education of women as it can increase their access to formal, salaried jobs.

4.5 Maldives

Introduction

Maldives is an island nation with a population of about 400,000 people. The last decade has marked its transformation from a low-income to middle-income economy and the World Bank deems Maldives as development success story. While a different scenario prevailed before the 2004 tsunami, the natural disaster can be said to be a blessing in disguise; it had opened the economy to international donors, which in turn was the driver of rapid growth.

Its GDP has reached to $10,675 in 2017 and continues to grow at a rate of 7.1% (The World Bank). Tourism and fisheries are the main drivers of economic growth (Dayal & Didi 2001). However, Maldives is an interesting case when it comes to gender disparity. Despite being an Islamic state, women in this South Asian nation face very little discrimination in education, health and survival (El-Horr & Pande, 2016). The egalitarian laws ensure that women are not discriminated against in the public sphere, something that lacks in its neighboring nations. This puts Maldives ahead in the race. But there is more to the story than what meets the eye. In the private sphere where Sharia Law prevails, women face obstacles which ultimately might hamper their participation in the public sphere, points the same report.

Snapshot of current scenario in Maldives

Maldives experiences high female labour force participation rate but they are mostly employed in the lower echelons of the economy, says El-Horr and Pande (2016). In 1990, FLFPR was 20.5%; it has increased over the years to reach a peak in 2006 with 54.72% and experienced decline afterwards with 44.89% in 2017 (World Bank, 2018).

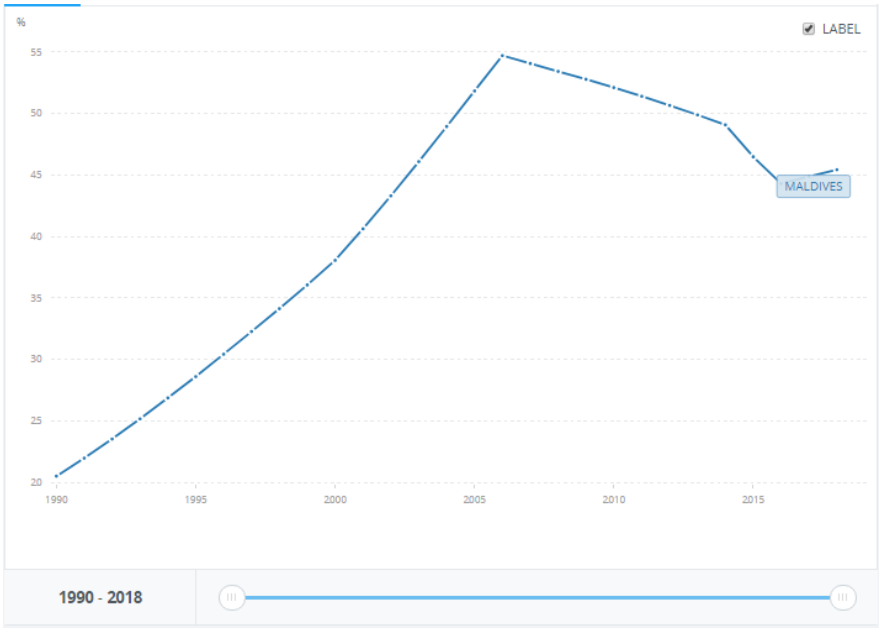

Figure 12: Labor force participation rate, female (% of female population ages 15-64) in Maldives

The diagram illustrates the trend in FLFPR in Maldives. Universally, women are less likely to be employed than men; the same is true for Maldives. Nevertheless, Maldivian women have often been described as the most emancipated in Asia as well as in an Islamic State. (Abdulghafoor, Thayyib & Naadha, 2015). El-Horr and Pande highlights that, on paper, no gender bias exists when it comes to primary and secondary schooling in Maldives. But the scenario is not uniform; in urban areas, girls are more likely to be in school than boys, according to DHS 2009. But the same is not true for rural girls; they are 60% more likely not to be in school or in work, when compared to rural boys.

The nation has adopted a liberal version of Islam where few restrictions on women are imposed. “The country’s constitution guarantees equal access for women and men to the rights and freedoms provided by it,” says El-Horr and Pande. This has ensured that there is universal primary education for both boys and girls.

Additionally, the fertility rates have gone down in the last three decades; birth control is legal, but abortion is not, due to Islamic beliefs. The primary enrollment rate for girls have faced fluctuations over the years; till 2004 there has been an increase after which Maldives faced steady decline. Even though patriarchy exist, and Sharia Law is practiced in private spheres of Maldives,

Government has taken many attempts to initiate gender equality and to reduce the dichotomy existing in public-private spheres.

Women in Maldives are mostly employed in agriculture, forestry, small scale manufacturing, health and social work, education, hotels, restaurants and in wholesale and retail trade. (ADB, 2015). Tourism, one of the most essential sectors of Maldivian economy, is dominated by men. And its flourishment has led to the decline in cottage and handicraft industries where women were previously engaged. (Dayal & Didi, 2001). While fishery did have high rate of female labour participation in the past, the mechanization of the post-harvest aspect of it has reduced their scope form female workers. Government is the biggest employer in the nation. But women's work is limited to the "softer" ministries, less lucrative public sectors of health, education and family. (El-Horr & Pande, 2016). They do not hold decision making positions, unlike their male counterparts.

Reasons for low FLP in Maldives

Despite having existing laws in place, despite governmental efforts, despite the prevalence of liberal islamic beliefs, why are women held back in joining the workplace?

Firstly, women in Maldives face hurdles in inter island mobility; most Maldivian women do not own any means of transport to travel. There is lack of cheap, efficient public transport to alleviate this issue; there is greater risk for them to travel alone. Thus, they cannot move to islands where there is job training or tertiary institutes. Secondly, sociocultural norms play a vital role too. Parents do not allow young women to travel to other islands to seek education, training or even work. Resort islands are often stigmatized due to their exposure to tourists and their 'immoral practices'. Girls and women living away from home is frowned upon in the Maldivian society. Thirdly, there is limited childcare facilities for women working in the resorts. Fourthly, there is prevalence of unequal gender roles in the private sphere; women's priority is thought to be in the house, focusing on childcare and chores; anything else is considered secondary. (El-Horr & Pande, 2016, International Trade Union Confederation 2009, Abdulghafoor,Thayyib and Naadha, 2015, Maldives Systematic Country Diagnostic, 2015).

Even though there are women employed in the education and health sectors, El-Horr and Pande posit the reason behind it; it because women are socially accepted as teachers and health providers that these sectors employ female workers.

Maldives has a dichotomy. In the public sphere, there is gender equality while in the private sphere, social conservatism prevails. El-Horr and Pande fear that all the efforts gained by Maldives in gender equality in education, health etc. can be reversed if such dichotomy continues to exist. ADB in its 2007 study had highlighted that Maldivian women remain an underutilized resource. Abdulghafoor et. al in their study additionally finds that "they are also a 'frustrated' resource due to their perceived marginalisation from the development agenda at local level especially. Thus, even though Maldives has experienced greater emancipation of women than its South Asian counterparts, the employment opportunities for females are still limited.

Test for U shaped hypothesis

Regressors	**OLS**	**p>| t |**
Log of GDP per capita	585.544**	0.012
Square of log of GDP per capita	-79.200**	0.017
Unemployment	6.442***	0.001
Urban	-0.505	0.550
Fertility	5.854***	0.090
Primary net	-0.176	0.924
Constant	-1048.966	0.015
R squared	0.9742	
Adjusted R squared	0.9669	
F ratio	132.40	
Number of observations	28	

***significant at 1% level, **significant at 5% level

Table 25: Female participation rates regression in Maldives

Here, the coefficient of Log of GDP per capita is positive while the coefficient of Square of log of GDP per capita is negative. According to Verme (2015), this indicates the inverted U shape; meaning that Maldives has passed the saddle point of the U curve and is now experiencing a stagnation of female labour force participation rates.

Further Tests:

Since the two variables, namely urban and primary net are statistically insignificant, and since R-squared value is high, the data might **suffer from multicollinearity**. It might also be the case that there exists **heteroscedasticity**. So, tests are run for its presence, both graphical and formal ones. Additionally, the model's specification is also tested.

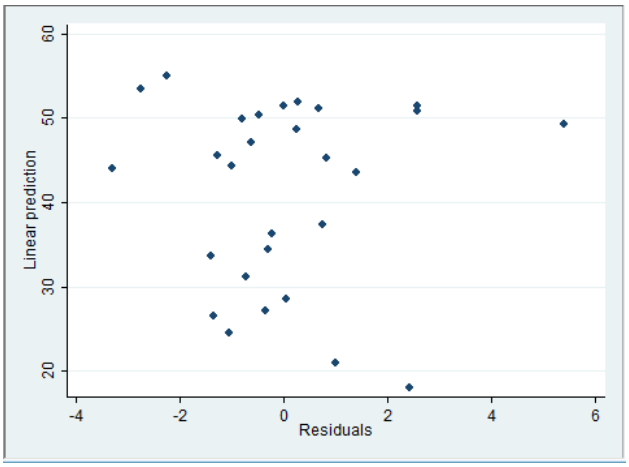

Figure 13: Graphical Test for heteroscedasticity

There is no visible pattern when the residuals are plotted for the data indicating that data does not suffer from heteroscedasticity. Breusch-Pagan/Cook-Weisberg Test also confirms the result.

Ho: Constant variance	
Variables: **fitted value of flpr**	
Chi2 (1)	2.26
Prob > chi2	0.1331

Table 26: Breusch-Pagan/Cook-Weisberg Test for heteroscedasticity

The table below displays all the pairwise correlation coefficients between the variables. This along with the variance inflation factor confirms the presence of multicollinearity problem.

	years	**flpr**	**lgdp**	**lgdp2**	**unempl**	**urban**	**fertility**
years	1.0000						
flpr	0.8499	1.0000					
lgdp	0.9938	0.8834	1.0000				

lgdp2	0.9947	0.8686	0.9995	1.0000			
unempl	0.9762	0.8827	-0.4843	-0.5066	1.0000		
urban	0.9705	0.7506	0.9853	0.9854	-0.4448	1.0000	
fertility	-0.8939	-0.9442	-0.9712	-0.9667	0.3414	-0.9852	
primarynet	-0.7942	-0.5094	0.7917	0.7813	-0.1053	0.7816	
resid	-0.0195	0.1605	-0.0000	-0.0000	0.0000	-0.0000	
yhat	0.8642	0.9870	-0.8961	-0.9065	0.7513	-0.8787	
	primar ~t	**resid**	**yhat**				
primarynet	1.0000						
resid	0.0000	1.0000					
yhat	-0.5161	-0.0000	1.0000				

Table 27: Test results for multicollinearity

Variable	VIF	1/VIF
lgdp2	34095.92	0.000029
lgdp	33116.64	0.000030
urban	268.11	0.003730
fertility	106.11	0.009424
unempl	54.34	0.018403
primarynet	19.36	0.051654
Mean VIF	11276.75	

Table 28: Variance Inflation Factor

Number of observations = 28
F (2, 25) = 489.19

Prob > F = 0.0000
R-squared = 0.9751
Adj R-squared = 0.9731
Root MSE = 1.8268

flpr	Coef.	P > | t |
_hat	0.7500003	0.011
_hatsq	0.0033081	0.368
_cons.	4.300243	0.387

Table 29: Specification test

There is no specification error here, as seen from the table above. Similarly, the Ramsey Reset is also run. P value is 0.0000, so model does suffer from omitted variable.

Ramsey Reset test using powers of the fitted values of flpr	
Ho: model has no omitted variables	
F (3, 10) =	14.78
Prob > F =	0.0000

Table 30: Ramsey Reset Test

Policy Recommendations for Maldives

There exist egalitarian laws in Maldives that provides women access to health and education. While much of South Asian families deny daughters these rights, Maldives stand out as an exception. But this does not mean that women here do not face barriers when achieving higher education or preventive healthcare facilities. Moreover, the recent spread of conservative religious beliefs has led to decreased support for gender equality. Women, unlike men, are more susceptible to domestic violence; they are less likely to have control over household assets and have limited mobility. (El-Horr & Pande). The following provides some recommendations:

1. Incorporation of women's' issues into national development plans (Dayal & Didi, 2001). This can be a long-term goal that will help empower women.
   2. Adequate research and analysis can be done in sectors or projects where FLP is considerably low. Based on it, appropriate actions and or policies can be formulated that

fits the individual needs of each of the sectors or projects. This specific targeting will ensure better results in terms of employing women workers rather than going for the 'one size fits all' policies.

3. The traditional and or socio culturally perceived role of women needs to be addressed to eliminate the negative attitude that is associated with working women. Once the stigma is broken it will advocate greater inclusion in the Maldivian economy, especially in the thriving Tourism sector. (Dayal & Didi, 2001).

4. Facilities such as child care services that support women's participation can be an immediately implemented in the sectors where it is feasible to do so. These child care institutes have a two-fold advantage; one it will generate work for more women, thus, increasing their participation. And secondly it will encourage more women to join the labour force.

5. According to an ADB study, vocational training is looked down upon by the people in Maldives. They see it as an easy alternative to general education, especially for students who have weak educational achievements. The government as well as institutions such as ADB, ILO and the World Bank can advocate the importance of vocational training to match skill set with a job.

6. Provision of cheap public transport and governmental actions to increase the ownership of vehicles for women to solve the issue of inter-island mobility.

4.6 Nepal

Introduction

Nepal is a landlocked nation, nestled between economic giants China and India. The World Bank classifies it as a low-income country with a diverse population of approximately 29.3 million in 2017. The last twenty years had marked the progress of the nation in terms of reducing poverty (Systematic Country Diagnostic 2018). However, the same report also identifies its low GDP growth, growing at 4% annually and its stunted productivity growth. When compared to other South Asian countries, Nepal's economic growth is weak. (Raju & Rajbhandary 2018).

The largest employer is the agricultural sector, accounting for 67% of the total employment and responsible for only 1.3 percentage points of growth, says the World Bank. And most of these workers in this sector is women. Raju and Rajbhandary (2018) in their paper further highlight that in the rural areas of Nepal, majority female workers are self-employed in agriculture. This might to be one of the reasons as to why Nepal experiences high rates of female labour participation.

Snapshot of current scenario in Nepal

Nepal, despite being a patriarchy, has been termed as an outlier in South Asia due to high rates of female participation. The FLPR had a value of 83.7 in 1990. Over the years, it has experienced fluctuations to reach to 85.4 in 2017. Lowest FLPR was hit in 2008. While this is great in terms of getting women to work, the quality of work that the females are engaged in is not so good. In fact,

according to ILO's Labour Market Update (2014), Nepal's case is like many low-income nations where women seek work out of necessity, to escape poverty. This phenomenon is also consistent with the existing literature of the U-shaped hypothesis. Even the percentage of young rural females who are neither employed nor attending school has risen. (Raju & Rajbhandary 2018).

As stated earlier, women's work is mostly focused on agricultural sector or confined within low-wage informal activities. Female workers residing in urban areas partake in cottage industries or engage in petty trade. (Lokshin & Glinskaya 2008). When compared to other South Asian economies, the greatest number of women are involved in agriculture in Nepal (90%) (Human Development in South Asia 2002). Acharya (2003) believes that 94% of them are women from rural areas of Nepal where opportunities are very very limited. In 2017, 82.8% of females were employed in agriculture, compared to 81% in 2000. While the percentage has increased for this sector, it has faced declined for women employed in industry and in-service sector, according to the World Bank's gender portal. Despite rise in FLPR, the unemployment rate for females have increased too. But the most drastic hike has been in the percentage of female employed contributing as family worker, from 12.9 in 2000 to 60.9 in 2017.

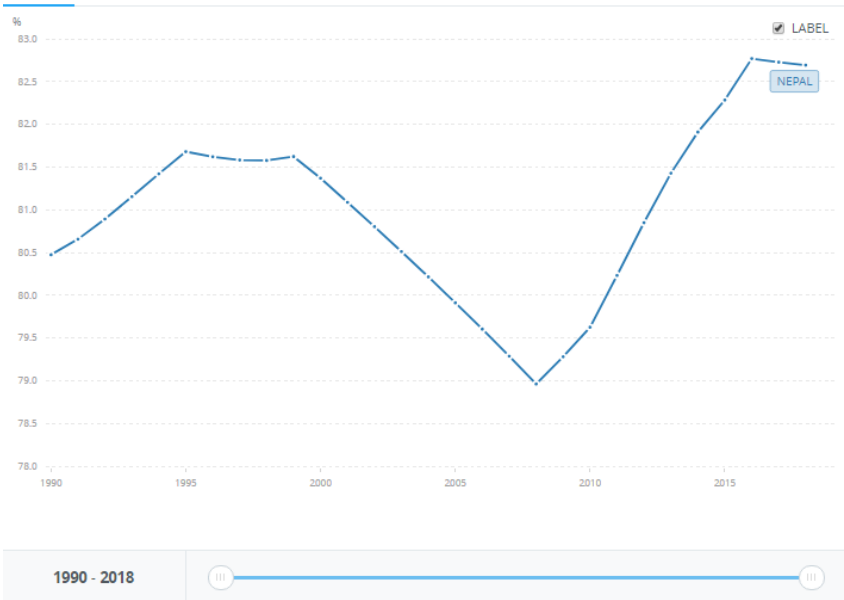

Figure 14: Labor force participation rate, female (% of female population ages 15-64) in Nepal

The diagram depicts the overall trend in FLFPR in Nepal.

Restrictions are placed on women and on their mobility in Nepal too, just like in any South Asian country. But these vary according to geography. Women from the Tibeto-Burman communities face less constraints; they are free to conduct business outside of their households are respected for earning money (Acharya, Mathema & Acharya 1999). However, their Indo-Aryan counterparts wear purdah (veil) and are not permitted to work. What both these regions share is the economic status of women, which is lower than that of men's? Additionally, women residing in Kathmandu have higher chance of working when compared to women from other urban areas of Nepal and in Rural Western Terai (Lokshin & Glinskaya 2008).

Article 43 of the Constitution of Nepal 2015 focuses on the rights of women that include rights to lineage, right to safe maternity and reproduction, right against all forms of exploitation, and equal rights in family matters and property (Bhattarai 2017). This be a great step towards giving Nepalese women control over their own lives.

In terms of educational enrollment, there is little difference between males and females, for primary and secondary schooling, based on the World Bank data. Surprisingly, there are more females completing primary school and lower secondary education than their male counterparts. This might indicate the success of the governmental effort to incorporate gender equality.

Reasons for low FLP in Nepal

Why is there a high rate of women workers in Nepal? Despite having high FLP rates, why is there still no economic progress in the nation? The following reasons shed some light into Nepal's case.

First, thousands of rural Nepali men migrate to Malaysia, India and GCC countries due to lack of employment opportunities in their home country (ILO 2014). This migration can have opposing effects on women joining the labour force. Inflows of remittances can act as a deterrent, preventing the wives from working. Since their husbands have earn greater wages by working abroad, there is no monetary incentive for them to contribute in the household. On the other hand, with the men missing, women will have to take on dual responsibility; they take care of the households as well as look after the agricultural side present in all rural Nepali households. Whether the migration of husbands will increase or decrease women's labour market participation will depend on factors such as the amount of wages earned, the number of dependent family members, purchase of land etc. According to Seiff and Shahi (2017), women becomes involved in making key household decisions, and handling the finances. This gives them autonomy which they previously did not enjoy.

The migration of male workers in Nepal moreover has led to feminization of agriculture. (Bhadra & Shah 2007, Acharya et al, 1999). This refers to the phenomena where women are having increased involvement in the agricultural production. Not only does migration leads to this, more male workers entering non-farming sectors can cause feminization of agriculture too. These can be one of the reasons why Nepal has been experiencing such high FLPRs.

Secondly, Nepal is still in its rudimentary stage of development that heavily relies on agricultural sector. "On the supply side, the large agricultural sector has performed poorly, accounting for only 1.3 percentage points of growth" highlights the SCD report (2018). ILO's Labour Market Update for 2017 stated that most workers are employed in the agricultural sector of Nepal. And the work has little or no involvement of technology. Thus, poor, unskilled women can find jobs in this sector. Kafle (2015) feels that women participating in works in agriculture or for their family members for subsistence might be an indication that Nepal might be in the left arm of the U-shaped hypothesis. Thus, it can be assumed that Nepal has not yet undergone structural transformation.

Thirdly education of women can affect their participation in the Nepali labour market. Kafle (2015) has found significant negative relationship between education and women's employment in Nepal. The rationale is such that women who have pursued higher education also have husbands who have attained more education than them. So, these men might earn higher and there is no financial need for the wives to be engaged in the labour market. The author also mentions the push and pull factors; Klasen and Pieter (2012) argue that women who has attained low levels of education, join the labour force out of their necessity. So, there is a 'push' factor mechanism at play. On the other hand, women who have attained highest levels of education seek better jobs, better lives and better opportunities. Thus, they are pulled to India or any other country other than Nepal where there is greater return on their investments.
Fourthly, the cultural and social norms persisting in the Nepalese society can discourage women to work. The population of Nepal is diverse, and each cohort of people have their own set of ideologies regarding women and work. For instance, Lokshin and Glinskaya (2008) states that women belonging to the Dalit or Muslim community in Nepal have greater chances of being engaged in work, when compared to other ethnic groups. Additionally, as mentioned earlier, women who belong to the Indo-Aryan community face constrained lives where working is not permitted by the socio-cultural practice.

Lastly, there might be a difference in definition and or measurement of what constitutes as work and what does not in each specific region. This can lead to an inflated or deflated digit for FLPR. For example, according to ILO report (2014), collection of firewood by women to cook in their households is considered a work in Nepal where in India it is not since the firewood would be used for own consumption. Thus, such discrepancies can lead to differences.

Test for U shaped hypothesis

Regressors	OLS	p>| t |
Log of GDP per capita	-53.769***	0.004
Square of log of GDP per capita	10.425***	0.003
Unemployment	0.394***	0.005
Urban	2.194***	0.000
Fertility	6.735***	0.000

Primary net	-0.022	0.102
Tertiary net	0.106***	0.004
Constant	98.124***	0.002
R squared	0.9593	
Adjusted R squared	0.9450	
F ratio	67.31	
Number of observations	28	

***significant at 1% level, **significant at 5% level

Table 31: Female participation rates regression in Nepal

Here, the coefficient of log of GDP per capita is negative while the coefficient of square of log of GDP per capita is positive. According to Verme (2015), significant coefficients where beta hat1 less than zero and beta hat2 more than zero is consistent with the U-shape hypothesis. Therefore, U holds for Nepal.

Further Tests

As seen in table above, all the coefficients are all significant at 1% level. However, the R-squared value of 0.9593 and the adjusted R-squared value of 0.9450 are high which is quite alarming. It might be the case that the data suffers from **multicollinearity** and or **heteroscedasticity.** So diagnostic tests are run along with tests to check if the model used is correctly specified.

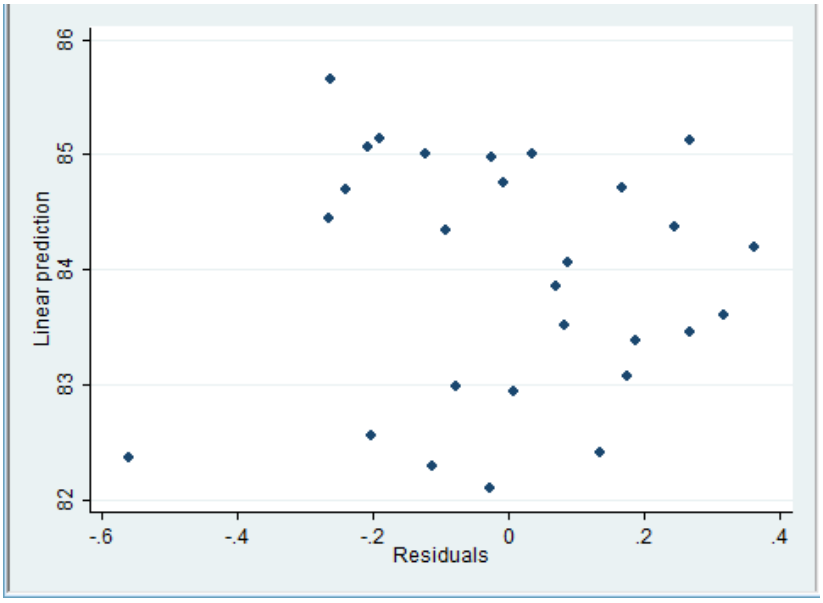

Figure 15: Graphical Test for heteroscedasticity

Ho: Constant variance	
Variables: **fitted value of flpr**	
Chi2 (1)	0.47

Prob > chi2	0.4918

Table 32: Breusch-Pagan/Cook-Weisberg Test for heteroscedasticity

The scatter plot shows no clear pattern and the p value of the Breusch-Pagan test 0.4918. Thus the data for Nepal does not suffer from heteroscedasticity.

	years	**flpr**	**lgdp**	**lgdp2**	**unempl**	**urban**	**fertilil~y**
years	1.0000						
flpr	-0.1765	1.0000					
lgdp	0.9616	-0.1812	1.0000				
lgdp2	0.9572	-0.1608	0.9996	1.0000			
unempl	-0.5075	0.5754	-0.3298	-0.3077	1.0000		

urban	0.9966	-0.1936	0.9396	0.9337	-0.5680	1.0000	
fertility	-0.9962	0.2529	-0.9622	-0.9563	0.5390	-0.9940	1.0000
primarynet	0.8484	-0.2573	0.9176	0.9177	-0.2315	0.8211	-0.8596
tertiarynet	0.8161	-0.0095	0.8913	0.8957	-0.0551	0.7786	-0.8123
resid	-0.0066	0.2018	0.0000	0.0000	-0.0000	0.0000	-0.0000
yhat	-0.1789	0.9794	-0.1851	-0.1642	0.5875	-0.1977	0.2582
	primar~t	**tertiar~t**	**resid**	**yhat**			
primarynet	1.0000						
tertiarynet	0.8691	1.0000					
resid	0.0000	0.0000	1.0000				
yhat	-0.2628	-0.0097	0.0000	1.0000			

Table 33: Test results for multicollinearity

Variable	VIF	1/VIF
lgdp2	6603.32	0.000151
lgdp	6042.12	0.000166
urban	448.26	0.002231
fertility	214.23	0.004668
tertiarynet	9.46	0.105686
unempl	8.54	0.117125
primarynet	7.99	0.125133
Mean VIF	1904.85	

Table 34: Variance Inflation Factor

To test for multicollinearity both the pairwise correlation coefficients between the variables and the variance inflation factor for the data set is run. Both the tests indicate the presence of multicollinearity.

Ramsey Reset test using powers of the fitted values of flpr	
Ho: model has no omitted variables	
F (3, 17) =	3.82
Prob > F =	0.0293

Table 35: Ramsey Reset Test

The test indicates the presence of specification error. Similarly, the Ramsey Reset is also run. P value is 0.0293, so model does suffer from omitted variable. The effect of the omitted variable can be captured by the error term.

Number of observations = 28
F (2, 25) = 405.47
Prob > F = 0.0000
R-squared = 0.9701
Adj R-squared = 0.9677
Root MSE = 0.1909

flpr	**Coef.**	**P > | t |**
_hat	21.0592	0.004
_hatsq	-0.1196918	0.006
_cons.	-840.3057	0.006

Table 36: Specification test

Policy Recommendations for Nepal

Here are few policy recommendations that Nepal can adopt to engage more women in the labour force and to provide better quality of work for them.

1. Provide sufficient and suitable opportunities for the country's youth so that they do not migrate out. (Raju & Rajbhandary 2018). And ensure political stability to prevent

productive cohorts from leaving the nation. (ILO 2017). Thus, the government can promote investment in private sector to create more jobs and to increase their quality as well. This can help Nepal get productive employees and entrepreneurs who will be satisfied not to migrate. (SCD 2018).

2. Government can focus on the tourism industry of Nepal to create jobs for women and to generate greater revenue.
3. Strengthen the existing labour laws and policies that promote employment of both male and female workers. (Raju & Rajbhandary 2018). Poorly implemented laws and policies are the same as having no existing laws and or policies. Thus, the government, along with the international institutes and local NGOs need to increase their commitment and capacity to ensure that these are properly implemented.
4. Targets of national policies should not be arbitrarily based but rather should be based on evidence. Pilot programs can act to check for the feasibility of a policy in the real rural/urban areas of Nepal to ensure that organizational arrangements are made specifically, operational plans are doable and that resources flow according to the need. (Raju & Rajbhandary 2018).
5. Encourage women to be hired in the decision-making positions of each organizational hierarchy.

4.7 Pakistan

Introduction

Pakistan with a population of 197 million has India and Afghanistan as its neighbours. Among all the South Asian economies, it lies in the lower end of the growth spectrum with 5.8% GDP growth rate, according to ADB. According to the World Bank, Pakistan is on the road towards accelerated growth but there is still some macroeconomic instability that needs to be combatted. Improved performances in the agricultural and the service has led to the economic growth while the poverty rate has been on the decline. Despite having economic growth, Pakistan experiences a low female rate participation rate (Fatima & Sultana 2009). According to ADB, it is at 25%, well below the rates for countries with similar levels of income. (ADB 2016). Here, women are more represented in low-pay occupations, such as skilled agriculture and technical work, and are relatively underrepresented in better-paid occupations like management. (ADB).

Snapshot of current scenario in Pakistan

Women in Pakistan are mostly involved in work at home or in farms. Even though the number of women joining the workforce has been growing in both rural and urban regions, it is still lagging behind when compared to other South Asian nations. (Fatima & Sultana 2009). According to Asian Development Bank, Pakistan's female employment rate is at 25%, well below the rates for countries with similar levels of income. The report also states that the level of education does not help with the lag much; only around 25% of women with a university degree in Pakistan are working. It represents a loss of potential productivity and the empowerment of women.

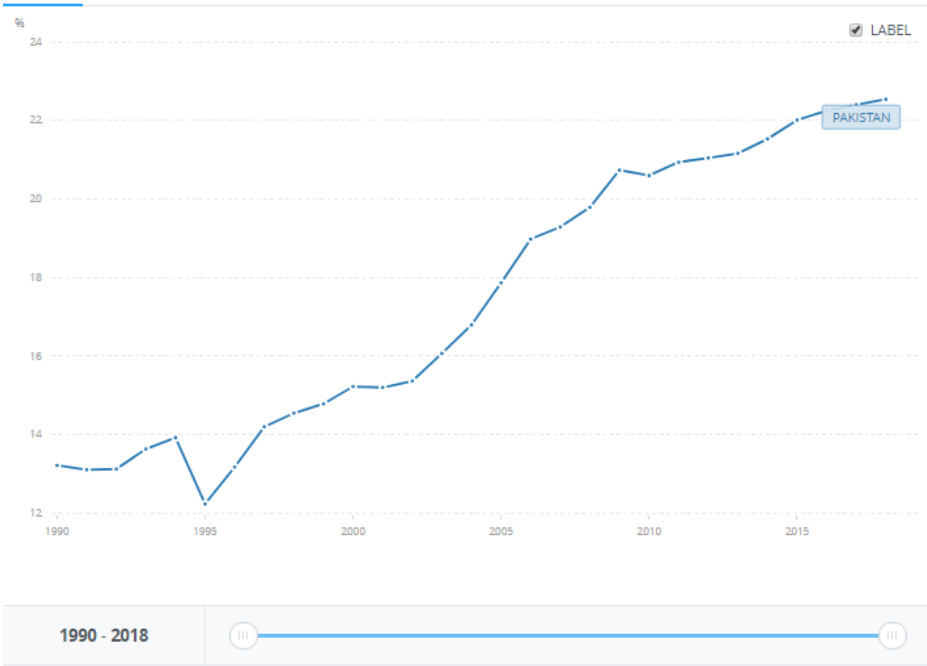

Figure 16: Labor force participation rate, female (% of female population ages 15-64) in Pakistan

The diagram above depicts the overall trend that Pakistan experiences in terms of its FLPR.

In the year 1990, it started off with 14.5 and it reached its lowest in 1995 with 12.9. After 1995, Pakistan had experienced an overall increase in its FLPR finally in 2017, it was at 26.3. The low participation rates are observed both in the rural as well as in the urban regions. However, participation rates are higher in rural than in urban. (Fatima & Sultana 2009). This might be due to the fact that the rural women are forced to work in the agricultural sector or for their family members, out of their need.

Fatima (2014) finds that village women who are engaged in work have greater say in the use of contraceptives and in household expenditures compared to those who do not work. Thus, work has an empowering effect on women that Pakistan might be missing out on.

Pakistan, a Muslim majority country does have restrictions placed in the lives of women. Ray (2000) argues that due to the restrictions on women's mobility, Pakistani household rely more on child labour. He believes that increasing FLPR can reduce child labour. Not so surprisingly, 40% of women not working stated that the men did not give them the permission while 15% themselves do not want to venture outside (ADB 2016). The reason for these restrictions are a combination of by cultural, social and religious norms, safety and crimes and the availability of transport facilities that are good in quality.

However, even though education t plays an essential role to influences women to work, it is not that effective in Pakistan where even the educated women do not join the labour force. This did

not stop Pakistan from investing in women's education just like other developing nations. This is because girl's education is a preferred policy to promote development. (Fatima & Sultana 2009).

Furthermore, studies have shown that marriage can also deter women from engaging in work in case of Pakistan; female labour force participation is inversely related to marital status. Married women have to look after their children. (Fatima & Sultana 2009).

Another factor that explains FLPR is unemployment rate. The higher the unemployment rate, the less likely will be for a woman to find a job. (Fatima et al 2009). But it has two opposing effects; if there is high unemployment rate, women may find it hard to find work, so negative relationship. On the other hand, when there is a high rate of unemployment for men, their wives might look for jobs to deal with the shock of the situation. In this case there is positive relationship.

Reasons for low FLP in Pakistan

There exists male bias in the South Asian culture that automatically puts women at a disadvantage. (Mammen & Paxson 2000). Apart from this reason of male preference, this section shed some light as to why there might be such a smaller number of women joining the workforce.

Firstly, low wages offered to women might explain the low FLPR In Pakistan. (ADB 2016). With lower monetary compensations, Pakistani women might not be incentivised to join the labour market; they instead focus on their household and childbearing responsibilities that have been conditioned as women's 'primary role' in life. The cost associated with leaving the home and seeking work outweighs the benefit for the women in Pakistan. Additionally, women may willingly accept lower wages in return for flexibility or physical security, which may partially explain why self-employment and home-based work are common among women in Pakistan and Indonesia. (ADB 2016).

Secondly, occupational segregation of women along with low demand in the occupations considered suitable for women adds on to the problem, according to the report done on Pakistan by the ADB (2016). Cheema et al. (2012) find that a large number of firms do not hire women workers at all. This is consistent with gender norms that deem specific works as suitable for women along with the increase in cost that revolves around hiring women (like providing security for them). Being a teacher of health worker has been 'feminized' in many cultures of the world; existing literature claim that people are more comfortable seeing women in these caring and nurturing roles as they are mothers and caregivers. Thus, such beliefs lead to occupational segregation by gender and prevent women from entering in many sectors that seem too "manly" for them. Additionally, many firms in Pakistan might see the added cost of hiring women as an extra burden; they chose the easy path and hire their male counterparts instead.

Thirdly, the existing norms and exposure, the religious beliefs and social taboos play a key role in deterring women from the labour market. Gender norms not only define certain kinds of jobs that are deemed fit for women but sometimes can be as extreme as restricting them for participating in the labour force altogether. In the Pakistani society, much like in any other South

Asian nation, men are considered as the breadwinners of a family (ADB 2016). Moreover, Pakistan is a Muslim majority nation; here women are not allowed to freely mingle with the opposite sex, let alone leave their homes to work with them. While urban Pakistan is not so conservative, such sociocultural norms are prevalent in the rural regions.

Fourthly, women who work outside of their homes are not deemed as “respectable” in many social settings in Pakistan. (World Bank 2006). This social stigma can deter women from participating in the labour force. For unmarried young women, this social stigma can be a very big reason for not seeking work; it might prevent her from ‘marrying up’ the social hierarchy. For the married women in Pakistani, trying to maintain the ‘respectability’ of the husband and the in-laws ranks higher than the need to work and gain empowerment.

Fifthly, there is mobility and safety concerns in Pakistan. Even if the working environment is safe for the women, travelling to work might not be. (ADB 2016). In surveys, Pakistani women have often cited being harassed on public transports, either by male passengers or by the bus staff. In a situation like this, one might suggest that women buy their own vehicles and solve the issue. Nevertheless, there is social taboos about women riding bicycles or motorcycles by themselves, forcing them to rely on male members of their households for help. (ADB 2016). This makes the matter even more complex, limiting women’s mobility in the urban regions as well as in the rural ones. This is the very same reason why younger women cannot commute to seek higher education or training to secure better jobs, adding on to the low rates of female labour participation. Ejaz (2007) highlights that female labor force participation is positively related with vehicle ownership in the household. Thus, women who can travel in their own means of private vehicles feel safer and can go to work outside of their homes. The mobility constraints are felt more severely in the rural regions.

Test for U shaped hypothesis:

Regressors	**OLS**	**p>| t |**
Log of GDP per capita	-218.159	0.053
Square of log of GDP per capita	40.194**	0.047
Unemployment	0.197	0.069
Urban	-1.550	0.104
Fertility	-2.931	0.135

Primary net	0.193**	0.003
Tertiary net	0.424**	0.002
Constant	361.043	0.063
R squared	0.9834	
Adjusted R squared	0.9776	
F ratio	169.17	
Number of observations	28	

***significant at 1% level, **significant at 5% level

Table 37: Female participation rates regression in Pakistan

Here, the coefficient of log of GDP per capita is negative while the coefficient of square of log of GDP per capita is positive. Therefore, U holds for Pakistan. Pakistan is probably in the left arm of the U, and still not undergoing transformation; its economy is still reliant on the agricultural sector. However, due to the reasons stated above, there exists low FLPR.

Further Tests:

As the R squared value is so high and as few of the variables are not significant at 1% and 5% levels, the data is checked for the presence of **heteroscedasticity** and multicollinearity.

Ho: Constant variance	
Variables: **fitted value of flpr**	
Chi2 (1)	0.00

Prob > chi2	0.9951

Table 38: Breusch-Pagan/Cook-Weisberg Test for heteroscedasticity

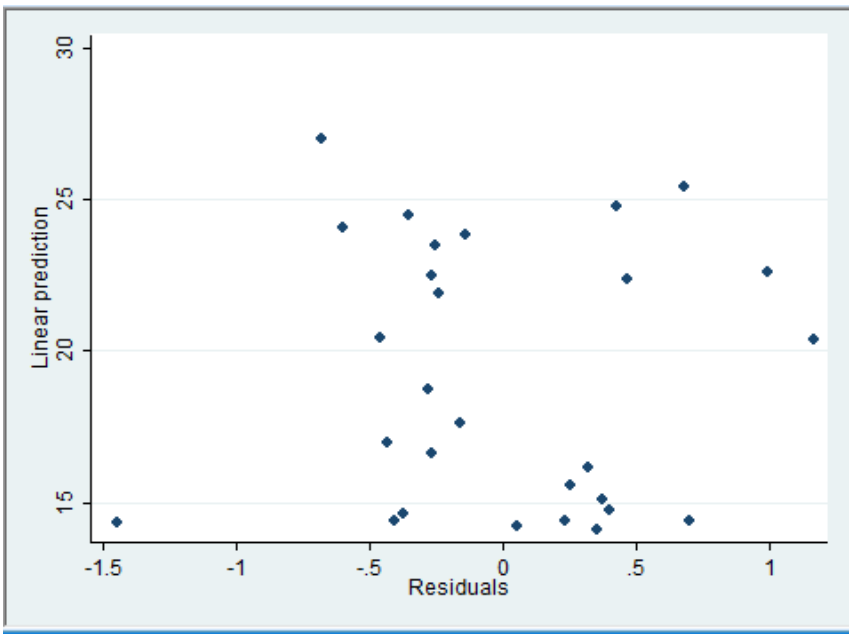

Figure 17: Graphical Test for heteroscedasticity

Both the graphical test and the Breusch-Pagan test confirm that the data is homoscedastic; if it was indeed heteroscedastic, the scatter plot would have shown a clear pattern and the p value is greater than 0.05, so we cannot reject the null hypothesis of constant variance.

	years	flpr	gdp	lgdp	lgdp2	unempl	urban
years	1.0000						
flpr	0.9672	1.0000					
gdp	0.9498	0.9676	1.0000				
lgdp	0.9693	0.9790	0.9891	1.0000			
lgdp2	0.9673	0.9788	0.9921	0.9997	1.0000		
unempl	-0.4926	-0.5461	-0.6513	-0.6214	-0.6279	1.0000	
urban	0.9940	0.9732	0.9733	0.9780	0.9783	-0.5348	1.0000
fertility	-0.9725	-0.9089	-0.8551	-0.9007	-0.8944	03385	-0.9425
primarynet	0.9676	0.9592	0.9230	0.9571	0.9530	-0.4989	0.9569
tertiarynet	0.9133	0.9503	0.9531	0.9494	0.9518	-0.6473	0.9330
resid	0.0029	0.1289	-0.0058	-0.0000	-0.0000	-0.0000	0.000
yhat	0.9749	0.9917	0.9765	0.9873	0.9870	-0.5507	0.9814

	fertil~y	primar~t	tertia~t	resid	yhat		
fertility	1.0000						
primarynet	-0.9448	1.0000					
tertiarynet	-0.8225	0.8748	1.0000				
resid	-0.0000	0.0000	0.0000	1.0000			
yhat	-0.9165	0.9673	0.9583	-0.000	1.0000		

Table 39: Test results for multicollinearity

Variable	VIF	1/VIF
lgdp2	32220.29	0.000031
lgdp	30339.06	0.000033
urban	400.48	0.002497
fertility	145.09	0.006892
primarynet	28.99	0.034490
tertiarynet	13.21	0.075702
unempl	2.90	0.345186
Mean VIF	9021.43	

Table 40: Variance Inflation Factor

Both the the pairwise correlation coefficients between the variables and the variance inflation factor for the data set is run in order to test for multicollinearity. The results suggest that data suffers from multicollinearity. Finally, the Ramsey Reset test and the linktest are carried out. The results table for the latter show that there is no specification error; as p value in Ramsey Reset test is less than 0.005, model does suffer from the problem of omitted variable.

Ramsey Reset test using powers of the fitted values of flpr	
Ho: model has no omitted variables	
F (3, 17) =	3.39

Prob > F =	0.0422

Table 41: Ramsey Reset Test

Number of observations = 28
F (2, 25) = 754.29
Prob > F = 0.0000
R-squared = 0.9837
Adj R-squared = 0.9824
Root MSE = 0.57738

flpr	Coef.	P > | t |
_hat	1.240751	0.002
_hatsq	-0.0061343	0.499
_cons.	-2.250402	0.504

Table 42: Specification test

Policy Recommendations

The participation of women workers is important and desirable both on equity and efficiency grounds. (Mujahid & Zafar). The following policy recommendations might help nudge Pakistan to achieve greater FLPR.

1. Policy Considering the restrictions on female mobility and the influence of social norms that emphasize the role of women in the home, a relevant policy goal for Pakistan may be to ease entry for women into sectors that are already female-friendly. (ADB 2016). Norms can be changed by making working women visible as well as exposing the nation to women in leadership roles. This is consistent with the evidence found from other countries, as suggested by Fogli and Veldkamp (2011). So existing initiatives that bring women in leadership roles should be targeted to involve more Pakistani women. (ADB 2016).
2. Ensure that workplaces are safe for women. This can be done by spreading awareness about Pakistan's Law against sexual harassment in workplace that has been in place since 2010. The government can seek ILO's help to ensure that more female workers are hired and retained and that they feel safe in the appointed firms.
3. White collar jobs are labelled as more appropriate for the Pakistani women to be engaged in as stated by ADB. Thus, governmental action should focus on secondary and tertiary education of girls so that they can get these white collar jobs. The quality of the education

provided is essential to translate the skills acquired in the labour market. This emphasis on education will also help change the social norms persistent in Pakistan. Additionally, ADB report states that the quality and relevance of vocational training for women should also be rigorously assessed. This is because of the prevalent occupational segregation in Pakistan and the low FLPR for middle levels of education. By easing entry into the education sector, such as through increasing school enrollments, encouraging the creation of private schools, and promoting good quality of education, Pakistan could further grow its FLFP (ADB 2016)

4. Public transportation system can increase women's mobility in Pakistan. Most cities and major rural areas need to have state provided transportation to help women travel or commute. There are nations which have 'women only' public vehicles. This can be adopted in Pakistan where close contact between the opposite sexes is seen as taboo and a big reason why women cannot take up jobs far away from home.
5. Improve public safety for women to ensure greater participation.
6. The governmental efforts should continue to promote quality secondary and tertiary education for women. This is because, as female's educational attainment increases, opportunities for them to be engaged in service sector increases. (Mujahid & Zafar)

4.8 Sri Lanka

Introduction

According to Solotaroff, Joseph & Kuriakose (2017), the highest contributor to the GDP in Sri Lanka has been a combination of the construction, transportation, domestic trade, banking and insurance sectors, accounting for 50% of the total increase in GDP between 2009 and 2014. Second largest share consists of manufacturing and services with 44.7% while agriculture accounts for only 5.3%. This contraction in the agricultural sector is an indicator that Sri Lankan economy is undergoing structural transformation. (Solotaroff, Joseph & Kuriakose 2017)

Snapshot of current scenario in Sri Lanka

Sri Lanka is a middle-income country that has high rates of female education and low fertility rates. It has experienced a high economic growth of more than 6% annually for the last ten years. Despite all these, it is ranked as the 14th largest gender gap in labour force participation across the world by World Economic Forum. (Solotaroff, Joseph & Kuriakose 2017). Though the nation has been a role model for many gender outcomes in the South Asian regions, its FLPR are still low when compared to Thailand or even Malaysia. (Solotaroff, Joseph & Kuriakose 2017). High unemployment rates for women and low participation rates exist here. It is surprising; even though women are well educated in Sri Lanka, they are less likely to be engaged in work. As the illustrated below, there has been a lot of fluctuations in FLP over the years.

The highest rate was in 1990 with 48.7 while the lowest in 2012 with 36. In 2017, Sri Lanka's FLP is at 38.5, according to the ILO's database.

Since the government aims for the nation to reach the status of upper-middle income country, Sri Lanka needs to encourage more women to join the labour force. According to Sinha (2012), if the rate of female labour force participation can be increased by 15% it will mean tha 1 million workers will join the labour market annually. Sri Lanka has been going through structural transformation and its FLP has been falling; urban women continue to participate the least while most decline has been observed for women to work on tea and other plantation estates, points out Solotaroff, Joseph & Kuriakose (2017). They also state that the highest FLP rates are observed among Indian Tamil women while lowest for Sri Lankan Moor women.

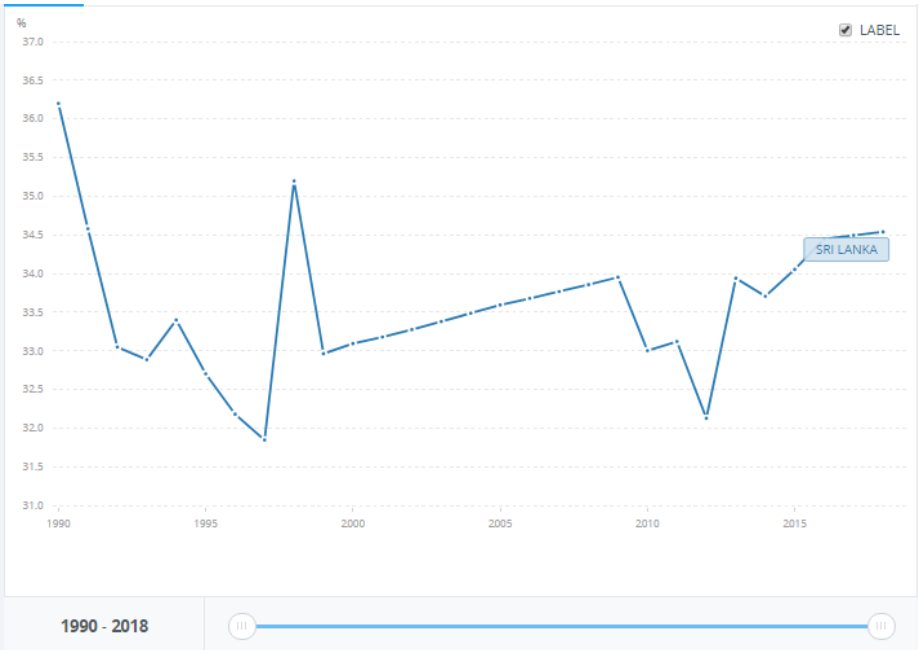

Figure 18: Labor force participation rate, female (% of female population ages 15-64) in Sri Lanka

Reasons for low FLP in Sri Lanka

First of all, disproportionate household roles and responsibilities fall on Sri Lankan women and this significantly lowers their chances of joining the labour market, Solotaroff, Joseph & Kuriakose (2017). Employers and families expect women to either not be part of the labour market and to quit it when they are married and have children. Women are expected to tend to household chores and look after their children which leads to poverty of time. There is less social support for women to join the labour market. These act as deterrents for Sri Lankan women, especially after marriage and child birth.

The second reason is closely related to the first. By lowering their chances of LFP by 4.4%, marriage is known to penalize women in Sri Lankan labor markets, says Solotaroff, Joseph and

Kuriakose (2017). However, over the years, the penalty has shrunk. The same report says that marriage causes a 26% drop for a women's LFP.

Similarly, having younger children, aged 5 or below, in the household is associated with lower participation for women. The same factor on the other hand does not have significant effect on men. This once again points fingers at the prevalent socio-cultural norms that inhibit women from working. Increased share of household duties and the issue of marriage and children all fall under the umbrella of social and gender norms, inhibiting women from joining work.

Fourthly, there is a lack of human capital mismatch; women are not acquiring the proper skills demanded by job markets (Solotaroff, Joseph & Kuriakose 2017). To make matters worse, occupational segregation also exists in Sri Lanka. Though more women are attending universities than men, women can only secure medium skills jobs while men secure highly skilled employment opportunities. Women tend to opt for humanities and arts while the industry looks for candidates with technical skills says the authors. They also highlight the fact that women tend to seek governmental jobs which have very few openings. The reason there is a mismatch is because Sri Lankan women are believed to seek employment where there is no need for technical knowledge. As a result, they are underrepresented in technical and vocational education and training (TVET). Since the Sri Lankan civil war, it has become even more difficult for women to translate their educational qualifications into high skilled and high paying jobs. Solotaroff, Joseph & Kuriakose (2017)

The fifth reason for low FLP in Sri Lanka despite human development gains is gender discrimination; in job search and in the hiring process it prevails in Sri Lanka just like it does in other South Asian economies. Here both active and institutional form of gender discrimination prevails that leads to wage gaps, discriminatory workplace practices, higher unemployment rate for women and low FLP. (Solotaroff, Joseph & Kuriakose 2017). The same report states that wage disparities are most experienced in the private, informal sector and least present in public sector. Moreover, male workers are preferred over female counterparts in hiring, at all levels.

Lastly there is a lack of safe and comfortable transportation to work that discourages women to tackle yet another hurdle and to get to work.

Test for U shaped hypothesis

Regressors	OLS	p>| t |
Log of GDP per capita	-188.310**	0.025
Square of log of GDP per capita	27.700**	0.023

Unemployment	-1.091**	0.018
Urban	12.579	0.238
Fertility	14.304	0.156
Primary net	-0.229	0.279
Constant	124.392	0.673
R squared	0.7238	
Adjusted R squared	0.6449	
F ratio	9.17	
Number of observations	28	

***significant at 1% level, **significant at 5% level

Table 43: Female participation rates regression in Sri Lanka

As depicted in the regression table above, the coefficient of log of GDP per capita is less than zero while the coefficient of square of log of GDP per capita is more than zero. So U-shaped hypothesis holds for Sri Lanka.

Further Tests

Further tests are done to check for multicollinearity and or heteroscedasticity.

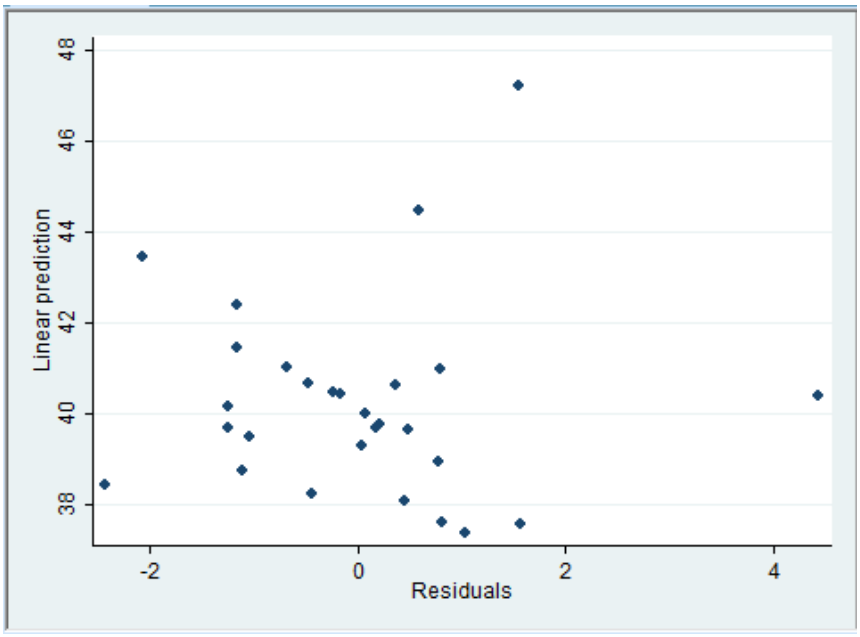

Figure 19: Graphical Test for heteroscedasticity

Ho: Constant variance	
Variables: **fitted value of flpr**	
Chi2 (1)	0.27

Prob > chi2	0.6055

Table 44: Breusch-Pagan/Cook-Weisberg Test for heteroscedasticity

Both the test confirms that there exists no heteroscedasticity for Sri Lanka. The scatter plot shows no clear pattern and the p value of the Breusch-Pagan test 0.6055.

Now the data is tested for the presence of multicollinearity where the independent variables might be correlated. Two tests are run to rule this problem out; the pairwise correlation coefficients between the variables and the variance inflation factor for the data set is run. If VIF =1, there exists no multicollinearity and if it is greater than 1, there is evidence of its presence. It can be seen from the tests that multicollinearity exists.

	years	**flpr**	**gdp**	**lgdp**	**lgdp2**	**unempl**	**urban**
years	1.0000						
flpr	-0.6870	1.0000					

gdp	0.9267	-0.6083	1.0000				
lgdp	0.9774	-0.6831	0.9736	1.0000			
lgdp2	0.9723	-0.6721	0.9810	0.9994	1.0000		
unempl	-0.9629	0.6914	-0.8370	-0.9285	-0.9169	1.0000	
urban	-0.8330	0.6625	-0.6890	-0.8144	-0.7986	0.8970	1.0000
fertility	-0.8935	0.7339	-0.8795	-0.8887	-0.8876	0.8559	0.6503
primarynet	-0.7951	0.5299	-0.6113	-0.7488	-0.7315	0.8094	0.8604
resid	-0.0042	0.5256	-0.0001	0.0000	0.0000	-0.0000	-0.0000
yhat	-0.8049	0.8508	-0.7150	-0.8029	-0.7900	0.8126	0.7787
	fertil~y	**primar~t**	**resid**	**yhat**			
fertility	1.0000						
primarynet	0.5124	1.0000					
resid	-0.0000	-0.0000	1.0000				
yhat	0.8626	0.6229	-0.0000	1.0000			

Table 45 : Test results for multicollinearity

Variable	VIF	1/VIF
lgdp	7279.15	0.000137
lgdp2	6151.49	0.000163
unempl	27.93	0.035806
fertility	13.07	0.076511
primarynet	10.98	0.091102
urban	8.78	0.113951
Mean VIF	2248.56	

Table 46: Variance Inflation Factor

Ramsey Reset test using powers of the fitted values of flpr	
Ho: model has no omitted variables	
F (3, 10) =	2.59
Prob > F =	0.0850

Table 47: Ramsey Reset Test

The model specification test, linktest, creates two new variables, the variable of prediction_hat, which should be significant. And the variable of squared prediction _hatsq which should not be significant, so we look at their p values. And as it can be seen from Figure, both the variablea are not significant at 5% levels. Thus, there is specification error. Similarly, the Ramsey Reset is also run. P value is 0.0850, so model does suffer from omitted variable. The effect of the omitted variable can be captured by the error term.

Number of observations = 28
F (2, 25) = 36.79
Prob > F = 0.0000
R-squared = 0.7464
Adj R-squared = 0.7261
Root MSE = 1.3229

flpr	**Coef.**	**P > | t |**
_hat	-3.440021	0.259
_hatsq	0.0532274	0.148
_cons.	92.23676	0.149

Table 48: Specification test

Policy Recommendations

The following outlines few policy recommendations that can help Sri Lanka get more women to join the labour force:

1. The government along with ILO and other stakeholders can address occupational segregation by investmenting in human capital and skills that are most demanded in the labor markets. This can reduce, if not eliminate the prevailing mismatch there exists between the skills acquired by women and the ones that the technical knowledge the employers seek.
2. Gender equality can be promoted in the private sector. This can help drive women's attention towards jobs in private sectors by making them more lucrative in terms of reduced gender wage gaps. There can also be awareness campaigns to change their preference away from jobs in public sectors, which are known to have fewer openings, when compared to the number of candidates willing to apply for the position.
3. The availability of facilities such as maternity leave, provision of child care centres can make formal jobs in the private sector appealing.
4. There can be initiatives to provide safe, comfortable transportation to work or to ensure accomodations for women. (Solotaroff, Joseph & Kuriakose 2017). Safer transports can considerably reduce the harassment Sri Lankan women face in public transports or public spaces when they commute to work. While on the other hand, provision to stay near the workplace can take away the commuting factor altogether.
5. The government can design programs specifically aimed at the already-vulnerable groups as their participation in the labour market is on a downhill, according to Solotaroff, Joseph and Kuriakose (2017). This will need to include greater presence of financial institutions and TVET programs tailored to meet the demands of the local labour market. Moreover, the authors believe that the jobs in the area can be based on comparative advantage or near the coast to gain trade benefits with Sri Lankan neighbours.

Chapter 5 Discussion of the Result

Country	lgdp	lgdp2	U holds	Inverted U
Afghanistan	-5.811	-1.597	No	-
Bangladesh	74.259***	-13.932***	Yes	Yes
Bhutan	-108.727	16.333	Yes	No
India	65.609	-14.176	Yes	Yes

Country	lgdp	lgdp2	U holds	Inverted U
Maldives	585.544***	-79.200***	Yes	Yes
Nepal	-53.769***	10.425***	Yes	No
Pakistan	-218.159**	40.194**	Yes	No
Sri Lanka	-188.310**	27.7000**	Yes	No

***1% significant level
**5% significant level

Table 49: Summary of U shaped-hypothesis holding for South Asian countries

Chapter 6 Limitation of the study

Women and their involvement in the labour market is a difficult topic to unravel and to fully understand. Their participation is largely influenced by their caste, religion, marital status, along with sociocultural norms. These factors play at multiple levels in the society and deter women from joining the workforce. (Verick & Chaudhary 2014).

Chapter 7 Recommendation for South Asia

The following can be adopted by South Asia in order to address its low FLP:

1. Address policy and institutional frameworks that help to mold the chances of employment for the South Asian female labour force Verick and Chaudhary. (2014).

2.Promote childcare and other institutional/legal measures to ease the burden of domestic duties. (Verick and Chaudhary 2014).

3. Formalization of key areas of female dominated informal sectors (World Employment and Social Outlook 2018)

4.Continued efforts to encourage female employment in formal education, enrolling women in vocational training and entrepreneurship programs can help women secure quality jobs.

5. Expand the coverage of child-related services and promoting a more even redistribution of family responsibilities across members of the household (World Employment and Social Outlook 2018)

All constituent interest groups (especially governments, employers and trade unions) need to work towards these policy recommendations.

Chapter 8 Conclusion and future works

The paper addressed the issue of U shaped-hypothesis in the South Asian countries by first conducting the fixed effects model for all the eight countries and then by running individual regressions for them. It has been found out that whenever the hypothesis holds, nations are in the left arm of the U. Additionally, the paper few of the reasons why such low FLP is experienced by Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. Further studies can be done to explore the U-shaped hypothesis of these nations through more elaborate and rich research methods.

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Appendix A

Years	FLPR	gdp	lgdp	lgdp2	unempl	urban	fertility	primary-net	country code
1990	15.3039999	191.0026898	2.281039483	5.203141124	13.41699982	18.316	7.466	29.69897079	11
1991	15.37300014	182.6148729	2.261536145	5.114545737	12.03100014	18.597	7.479	28.28223991	11
1992	15.43500042	174.227056	2.241115598	5.022599124	10.64500046	18.882	7.502	26.86550903	11
1993	15.44499969	165.8392391	2.219687296	4.927011694	12.36800003	19.17	7.535	30.63105965	11
1994	15.44099998	157.4514222	2.197146588	4.827453128	12.29899979	19.462	7.572	42.35823059	11
1995	15.5010004	149.0636053	2.173371621	4.723544203	8.701999664	19.757	7.606	45.38521957	11
1996	15.33199978	140.6757884	2.148219358	4.614846409	11.13799953	20.055	7.63	48.41220855	11
1997	15.18500042	132.2879715	2.121520357	4.500848625	11.10900021	20.356	7.635	51.43919753	11
1998	15.09300041	123.9001546	2.093071848	4.380949762	11.01299953	20.661	7.616	32.67969894	11
1999	15.05000019	115.5123377	2.062628373	4.254435805	11.06900024	20.97	7.569	26.50918961	11
2000	15.02499962	107.1245208	2.029888892	4.120448915	11.18400002	21.282	7.494	21.87195015	11
2001	15.34399986	117.4096908	2.069703944	4.283674417	11.58399963	21.596	7.392	21.72319984	11
2002	15.72000027	187.845095	2.273799859	5.1701658	8.690999985	21.915	7.271	71.64971161	11
2003	16.09000015	198.7285436	2.29826025	5.282000176	8.852999687	22.237	7.136	96.89071655	11
2004	16.41699982	219.1413528	2.340724338	5.478990428	10.0010004	22.562	6.988	108.4999008	11
2005	16.69099998	250.2941299	2.398450664	5.752565589	8.470000267	22.895	6.827	101.4768372	11
2006	16.21800041	272.563077	2.435467023	5.931499622	9.05700016	23.237	6.651	104.9143906	11
2007	15.76799965	369.835796	2.568008944	6.594669935	7.802000046	23.587	6.46	101.78228	11
2008	15.40999985	373.3611163	2.572129086	6.615848037	8.755000114	23.946	6.254	103.4005737	11
2009	15.22299957	445.8932979	2.649230945	7.018424598	6.704999924	24.313	6.038	99.16368103	11
2010	15.24300003	553.3002894	2.742960897	7.523834484	7.821000099	24.689	5.816	102.1638489	11
2011	15.82299995	603.5370231	2.780703916	7.732314271	8.229999542	25.074	5.595	99.371521	11
2012	16.5970001	669.009050	2.82543199	7.98306594	7.93599987	25.468	5.38	105.09497	11

	2	9	3	9				83	
2013	17.51300049	638.6125432	2.805237444	7.86935712	8.451999664	25.871	5.174	105.9838715	11
2014	18.48999977	629.3452504	2.798888959	7.833779405	8.706000328	26.282	4.981	107.3679276	11
2015	19.46899986	569.5779229	2.755553148	7.593073149	8.86400032	26.703	4.802	107.2253571	11
2016	20.21100044	561.7787463	2.749565305	7.560109364	8.840999603	27.132	4.635	107.0827866	11
2017	20.26799965	585.8500638	2.767786482	7.660642007	8.836999893	27.57	4.468	104.6107025	11
1990	23.84000015	297.5679945	2.473586218	6.118628778	2.101999999	19.811	4.494	80.89054108	12
1991	23.93099976	284.7256059	2.454426526	6.02420957	2.200000048	20.257	4.314	84.17195893	12
1992	24.10899925	285.0955051	2.45499037	6.026977718	2.298000097	20.61	4.146	87.45337678	12
1993	24.37100029	291.7144894	2.464958001	6.076017946	2.417000055	20.966	3.99	90.73479463	12
1994	24.7140007	290.6524529	2.463373992	6.068211426	2.515000105	21.328	3.846	94.01621248	12