

# Impact of Labour Force Participation on Economic Growth in Pakistan

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## ABSTRACT

This study found the short run and long run relationship between the economic growth, labour force participation and gross fixed capital formation. The time series data is used from the time period of 1980 to 2012 which is collected from Pakistan Bureau of Statistic, State Bank of Pakistan and World Bank. Initially Augmented Dicky Fuller and Phillip Perron tests are used to that shows gross fixed capital formation is stationary on first difference but other variable station on level and intercept. Furthermore, Johnson Co-integration test shows that the long run relationship exist between the variable. The vector error correction model indicated that economic growth has negative insignificant, gross fixed capital formation positive significant and labour force participation has negative significant relationship in short run.

**Keywords:** Labour Force Participation, Gross Fixed Capital Formation.

## 1. INTRODUCTION

The Gross Domestic Product describes as the value of final goods and service which were produced within the boundaries of countries during the time period of one year. The Gross Domestic Product used as a proxy variable of economic growth. The active population, who produce goods and services to fulfill the requirements of the society and in other words number of people who's available for work and their ages above then 16 years are included in labour force. The developing countries faced the problem of low level of labour force participation. However different studies shows that there is a strong relationship between economic growth and labour force participation rate. The skilled labour force enhance the economic growth (Duval, Eris & Furceri 2010).

Developed as well as developing countries wants to speed up there Gross Domestic Product because its playing a very important role in any economy. At In 1960s Pakistan economy were seen as a role model for the world. In 1960s the average annual growth rate of Pakistan was 6.8% but in 1970s it was decreases to 4.8% due to political instability and separation of East Pakistan.

### 1.2. Objective of the study:-

- To find the impact of labour force participation on economic growth.
- To find the impact of gross fixed capital formation on economic growth.

### 1.3. Hypothesis:-

Ho: Labour force participation and gross fixed capital formation has no impact on Economic growth in Pakistan.

H1: Labour force participation and gross fixed capital formation has impact on Economic growth in Pakistan.

## 2. LITERATURE REVIEW

### 2.1. Introduction of the Chapter:-

There is lot of work has been done on international level to estimate the impact labour force participation and gross fixed capital formation on economic growth. In first section of this literature review this study discussing the Theoretical Frame Work, in second section mention the Empirical Frame Work and in third section conclude this chapter.

### 2.2. Literature Review:-

Denton, Spencer (1997) investigated the population, labour force and long term economic growth. They used the trend analysis technique. They found that the major proportion of the Canadian population is aging. Their ages are more than 65 year, population growth rate also declined, the main reason is low fertility rates and further decline are anticipated if immigration continues at recent levels. The labour force participation of Canadian population was also declined. Now the Canadian economy is mostly dependent on immigration for labour force growth.

Duval, Eris & Furceri (2010) found the labour force participation hysteresis in industrial countries: Evidence and causes. They used the impulse-response function approach to find the magnitude effect of labour force participation on industrial sector. They used the sample data of 30-countries from the time period of 1960 to 2008. However, their result shows that adverse economic shocks have persistent effects on aggregate labour force participation. Their results also point out that the partial participation hysteresis would be expected if only because of cohort effects.

Mehak (2007) investigated the determinants of female labor force participation in Pakistan, an empirical analysis of PSLM (2004-05) micro data. She used the logit and probit technique to determine the factor affects female

labor force participation. She used the Pakistan Social and Living Standards Measurement Survey 2004-05 data. Empirical results suggest that age, educational attainment and marital status have significant and positive effects on female labor force participation (FLFP). When women belong to the nuclear family and have access to vehicles, they are more likely are they to participate in economic activities, whereas a large number of children and the availability of home appliances reduces the probability of FLFP.

Mujahid, Zafar (2012) investigated the Economic Growth-Female Labour Force Participation Nexus: An Empirical Evidence for Pakistan. They used the time series data from 1980 to 2010. They applied the ARDL technique to determine the nexus between the economic growth and female labour force participation. The result shows that there is a long run relationship between female labor force participation and economic growth in case of Pakistan.

Sarwar, Abbasi. (2013) analyzed the women’s labor force participation in Pakistan. They adopted the data from Pakistan Bureau of Statistics and World Bank. They simply used the trend analysis technique which shows that female labor force participation below the international standard and developed countries. Moreover, most of the female working in informal sector like agriculture. The factor behind the gender discrimination is political, economic and cultural that adversely affected the female labor force participation in Pakistan.

**2.3. Conclusion:-**

The above literature reviews shows that labour force participation and gross fixed capital formation have positive relationship with economic growth when the labour force participation and gross fixed capital formation increases then the economic growth also increases.

**3. DATA AND METHODOLOGY**

**3.1) Introduction of the Chapter:-**

This chapter described that what kind of data and econometric techniques are used to estimate the impact of Labour Force Participation on Economics Growth and also discussed that what kind of methodology adopt and why used those variables to estimates the impact. In first section of this chapter discussed about the variables and data and in section focusing on the methodology. In third section elaborates the economic techniques which we are using and in fourth section we conclude this chapter.

**3.2) Selection of Variables and Data:-**

The data used in this study are time series data for the time period of 1980 to 2012. The data collected from *Labour Force Survey* initiated by Pakistan Bureau of Statistics and *World Data Bank* published by World Bank. This study used the Economic Growth as Dependent Variable, Labour Force Participation and Gross Fixed Capital Formation as explanatory variables. Literature Reviews shows that there is positive relationship between Labour Force Participation, Gross Fixed Capital Formation and Economic Growth.

Data Description				
S.No.	Variable	Time Period	Data Type	Source of Data
1.	GDP	1980 to 2012	Time Series	World Data Bank
2.	Labour Force Participation Rate	1980 to 2012	Time Series	Pakistan Bureau of Statistics
3.	Gross Fixed Capital Formation	1980 to 2012	Time Series	State Bank of Pakistan

**3.3) Methodology:-**

Therefore, this study used the Cobb-Douglas Production Function then the model specified as follow:-

$$Y = A.K^\alpha .L^\beta \text{-----(i)}$$

Where Y shows the GDP used as proxy variable of economic development, A represented the technological progress, K denoted to capital stock and L represent labour force. However the above equation is used to develop the econometric model to find out the relationship between Labour Force Participation and Economic Growth.

Initially this study used the unit root test to find out the stationary of the data through Augmented Dickey-Fuller test and Philip perron test. Furthermore, to find out the long run and shot run relationship between education and economic development this study used the Co-integration and Vector Error Correction Model respectively. Take a natural log to make the above equation linear.

$$\ln Y = \ln A + \alpha \ln K + \beta \ln L \text{-----(ii)}$$

This study re-writes this equation is as under:-

$$\ln Y = \alpha + \beta 2 \ln(LFP) + \beta 3 \ln(GFCF) + \mu \text{-----(iii)}$$

Where

- Y = GDP
- LFP = Labour Force Participation
- GFCF = Gross Fixed Capital Formation

**3.4) Economic Techniques:-**

To estimate the impact of labour force participation on economic growth initially this study used the Augmented

Dicky Fuller test for Unit Root to check whether variables are stationary or station. Gross Domestic Product (GDP) and Labour Force Participation on level and intercept and Gross Fixed Capital Formation is stationary on first difference then used the Co-integration and Vector Error Correction model.

### 3.5) Conclusion:-

Fifth Chapter, Methodology and Data discussing about the data type, data time period and data source. Further developed an equation in this chapter that showing the variables and also mentioned what kind of econometric techniques are used in this study to estimate the impact of Labour Force Participation on economic growth.

## 4. EMPIRICAL RESULTS

Previous studies show that the Gross Domestic Product (GDP) has a positive relationship with Labour Force Participation and Gross Fixed Capital Formation (Duval, Eris & Furceri (2010). Further this study used the Co-integration and Vector Error Correction model to find out the long run and short run relationship between the labour force participation, gross fixed capital Formation and economic growth.

**Table-1**

**Unit root Test (Augmented Dickey Fuller and Phillip Perron Tests):**

Variable	ADF		Philip Perron	
	Level	First Difference	Level	First Difference
LN_GDP	-3.691760*	-5.458445*	-3.620731*	-17.23780*
LN_LFP	-4.900216*	-9.035075*	-4.900216*	-17.55460*
LN_GFCF	-1.368225	-4.771298*	-1.368225	-4.704446*

Three levels of critical value 1%, 5% and 10%. Number of “ \* ” signs show that at how many levels of critical values, variable is stationary. E.g. at level of ADF test GDP (-3.691760\*) variable is stationary at 1% levels of critical values.

The unit root test shows that variables are stationary or non-stationary. The two tests augmented dickey fuller and Phillip Perron tests are used to check the stationary. The results intimate that GDP is stationary at level and intercept in augmented dickey fuller as well as Phillip Perron. Labour Force Participation is also stationary on level and intercept in both ADF and Phillip Perron tests. Gross Fixed Capital Formation is stationary at first difference and intercept in ADF as well as Phillip Perron. All the variables are not stationary on same level so this study used the Co-integration model technique.

**Table-2**

**Cointegration Rank Test (Trace):**

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.439543	34.01335	29.79707	0.0154
At most 1 *	0.337146	16.06425	15.49471	0.0410
At most 2	0.101475	3.317018	3.841466	0.0686

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level  
 \* denotes rejection of the hypothesis at the 0.05 level  
 \*\*MacKinnon-Haug-Michelis (1999) p-values

**Table-3**

**Cointegrating Coefficients (normalized by b'S11\*b=I):**

LN_GDP	LN_LFP	LN_GFCF
2.630703	4.543167	-7.774251
0.471851	-15.35711	-6.113127
-0.798212	5.302554	-11.65497

The tables-2 of Cointegration Rank Test have shown that there is at least 2 cointegration equations exist which confirms that there is a long run relationship between the variables. Then there is confirmed that the presence of error correction model. The table-3 shows the cointegration coefficients, which indicates that LN\_GDP has negative insignificant, LN\_LFP has positive significant and LN\_GFCF has negative significant relationship between the variables in long run. Thus this study further tested the error correction model. This model indicates the short run relationship between the variables.

**Table-4**

**Vector Error Correction Model:-**

<b>Error Correction:</b>	<b>D(LN_GDP)</b>	<b>D(LN_GFCF)</b>	<b>D(LN_LFP)</b>
<b>CointEq1</b>	-0.256297	0.087239	-0.076254
	(0.25065)	(0.02448)	(0.04501)
	[-1.02253]	[ 3.56314]	[-1.69434]
<b>D(LN_GDP(-1))</b>	-0.237369	-0.015625	0.043275
	(0.23568)	(0.02302)	(0.04232)
	[-1.00716]	[-0.67871]	[ 1.02262]
<b>D(LN_GFCF(-1))</b>	-3.280183	-0.012310	0.623596
	(1.64483)	(0.16067)	(0.29534)
	[-1.99424]	[-0.07662]	[ 2.11148]
<b>D(LN_LFP(-1))</b>	0.307814	-0.049410	-0.398249
	(0.88890)	(0.08683)	(0.15961)
	[ 0.34629]	[-0.56905]	[-2.49521]
<b>C</b>	-0.067364	-0.009083	0.004074
	(0.09820)	(0.00959)	(0.01763)
	[-0.68602]	[-0.94693]	[ 0.23105]

The Vector Error Correction Model showing the short run relationship between the variables. The results of the vector error correction model indicated that LN\_GDP has convergence, LN\_GFCF divergence and LN\_LFP convergence from the equilibrium from in short run. However the results also indicated the disequilibrium of the variable.

**5. CONCLUSION**

This study investigated the relationship between labour force participation, gross fixed capital formation and economic growth, for this purpose time series data used from the time period of 1980 to 2012, which is collected from Pakistan Bureau of Statistics, World Bank and State Bank of Pakistan. Initially Augmented Dicky Fuller and Phillip Perron tests are used to find out stationary of variable the results shows that economic growth and labour force participation are stationary on level and intercept on both test but the gross fixed capital formation is stationary on first difference. Furthermore, this study used the Johnson Co-integration test that shows the long run relationship exist between the variable. The vector error correction model indicated that economic growth showing convergence, gross fixed capital formation showing divergence and labour force participation also showing convergence in short run.

**6. RECOMMENDATION**

- There is need to build a new education institutes that makes labour skilled, which is enhance the economic growth of Pakistan.
- There is a need to build new training institutes that provide the trained labour, that helpful to increase the economic growth of Pakistan.
- There is a need that government should promote the gross fixed capital formation through monetary policy.
- If the interest increases then the saving also increases that will be converted in to investment and it enhance the economic growth.

**7. REFERENCES**

Denton, F. T., Spencer, B. G., (1997). Population, labour force and long-term economic growth. Hamilton, Ont.: *Research Institute for Quantitative Studies in Economics and Population*, McMaster University.  
 Ejaz, M. (2007). Determinants of Female Labor Force Participation in Pakistan An Empirical Analysis of PSLM (2004-05) Micro Data. *Lahore Journal of Economics*.

- Duval, R., Eris, M., & Furceri, D. (2010). Labour Force Participation Hysteresis in Industrial Countries: Evidence and Causes.
- Mujahid, N., & uz Zafar, N. (2012). Economic Growth-Female Labour Force Participation Nexus: An Empirical Evidence for Pakistan. *The Pakistan Development Review*, 51(4), 565-586.
- Sarwar, F., & Abbasi, A. S. (2013). An In-Depth Analysis of Women's Labor Force Participation in Pakistan. *Middle East Journal of Scientific Research*, 15(2).

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