Does Trade Openness Boost Economic Activity Rate? A Case Study of Pakistan

Naghmeen Shehbaz[1]

Abstract

The focal intension of the study was to examine the impact of Trade Openness (TO) on Economic Activity Rate (LFPR) in Pakistan, during the time period of 1980-2013. Data on all variables is collected from WDI. LFPR is dependent variable and TO is independent variable while PCI, Health, and FDI are included in model because they can effect LFPR. Time Series data is used and after checking stationarity through unit root test VAR model used for empirical analysis. The results show that all variables are significant. The main independent variable (TO) is positively related with LFPR. PCI and Health is also positively related with LFPR but FDI shows negative relationship with LFPR due to other factors. Based on the empirical analysis study suggest that trade openness policies are beneficial for Pakistan.

Key words: Labor force participation rate, Trade openness, Pakistan

1. Introduction

Adam Smith's Wealth of Nation argued for free trade and open economies. As Openness to trade refers to the degree to which countries have trade with other countries or economies. The trading activities include import and export, FDI, borrowing and lending repatriation of funds abroad. Trade openness can be calculated as $\frac{\boldsymbol{real\ X + real\ M}}{\boldsymbol{real\ GDP}}$. But due to lack of data and difficulties in calculation of values in real terms, trade openness is calculated as trade (% of GDP) in this study.

Countries trade with each other because trading typically makes a country better off. In international trade, competition occurs at the firm level, while citizens of every country can gain benefit from trade. Citizens enjoy a greater variety of goods and services, and generally at a lower cost. If a country decided to open its border to trade, its citizens would specialize in the activities which they do best. Specializations lead to higher productivity, higher income, and better living of standards. The higher the volume of international trade is, higher is the degree of openness. So for this purpose Pakistan open his borders to trade in early 1980's.

LFPR is a key component in long term economic growth for all countries, almost as important as productivity. The LFPR also explains that how an increase in the unemployment rate can occur simultaneously with an increase in employment. Means that when there employment increases then how much people become unemployed. As if large amount of small factions become employed, then increase in the number of unemployed workers can outpace the growth in employment. The LFPR can decrease when the rate of growth of population outweighs that of the employed and unemployed together.

Mostly, poor countries are abundant in unskilled labor and have comparative advantage in it. With a realistic exchange rate, open economies provide incentives that poor countries employ workers and compete in international market by improving growth of export industries. No country has maintained satisfactory growth through inward-oriented development policies. While, by trading workers gain skills and, as growth continues, producers move up the value added goods. When there are more benefits of trade openness

[1] *M.Sc. Economics Student, University of Gujrat, Pakistan*

for people of opened economies then on the other hand there are some costs that reduces the revenues of government which in turn shifts the burden of increased taxes in domestic country on masses.

Reduction of transportation and communication costs has enabled a "chopping up" of the value added chain as different components are produced in countries where costs are lowest. Integration of production across national boundaries can give accelerated growth and major productivity.

Liberalization of international trade is a major factor that contributing to the successes of past sixty years. Through successive rounds of trade negotiations under the GATT and WTO, in industrial countries the average level of tariffs on manufacturing goods fell from 45-50 percent (in 1948) to an average of about 3% today.

The problem under investigation is that whether trade openness, health, FDI and PCI affect (Positively or Negatively) LFPR in Pakistan. And what measures are needed to improve LFPR for high economic growth of Pakistan. Before this attempt mostly studies focus on female labor force participation rate (FLFPR) and male labor force participation rate (MLFPR). But there is no study on the relationship of Trade Openness (TO) and overall LFPR. SO to fill this gap, this study examines the relationship of LFPR and TO (Trade openness) with time series data in Pakistan for the period of 1980-2013, where LFPR is used to measure economic activity rate.

1.1 Objectives of the study

The ***major objective*** of the study is too identified and examines the importance of trade openness to influence LFPR in Pakistan. The study will suggest policy measure for the government and policy makers and helps to promote Trade openness and improve LFP.

The specific objectives are given below:

- To find out the relationship and frequency with which TO an LFP relate?
- To suggest policy measures for better health facilities and PCI.
- To fill the gap between studies and to provide new ideas for further research /work.

2. Literature Review

When there is no obstruction on trade or exist free trade then LFPR can increase or decrease in country, means relationship between TO and LFPR vary from country to country. So after this study we can find that either the relationship between TO and LFPR in Pakistan is positive or negative.

Holt (2010) assess the relationship between health and labor market participation for working age adults in New Zealand from 2002-05. LFPR is taken as dependent variable while health and chronic diseases as independent variable. After collection of data from first three waves of the survey of family, income and employment(SoFIE),by using various health measures, the results show that health is significantly related to LFP even after accounting for certain types if endogeneity (by self-rated health). The results of the standard regression models including individual chronic disease indicate that five out of the nine chronic diseases considered have a significant negative relationship with LFP once other factors are controlled for. This study also illustrates that an additional 66800 people may participate if they had excellent health about 3.6%. They recommend that with improvements in health, LFPR increases persistently and would be greatest change in status from not working to working full-time.

Mushtaq et al. (2013) investigates the effect of health on changing labor force participation during Pakistan's economic transition in the 1980's. In Pakistan from 1975-2011.Health expenditures, life expectancies, secondary school enrolment are taken as

independent variable and LFP as dependent variable. Age dependency, trade openness, population per bed, gross capital formation and mortality rate were included in "Z" variable. After collecting of data from FBD (various issues) GOP and WDI (2012), ARDL co-integration techniques to estimate the short and long run elasticity, while the Wald coefficient restrictions tests was used to determine the dynamic short run causality between variables. This study found that IMR, GCF, SSE, decreases the LFPR in the long run. But invest in short run, also finds that health expenditures have positive and significant impact on LFP in the short run but disappear in the Long run. Trade liberalization has a positive effect in the short run, while negative effect is observed in the long run. They recommended that health expenditures must be increased and properly utilized means policy direction must be changed in such a way that people will able to get health care services.

Gannon and Nolan (2004) seek to quantify the effects of disability on LFPR in Ireland for the first time. LFPR is taken as dependent variable and disability as independent variable. Firstly, calculating data from the living in Ireland Survey, 2000and the Quarterly National Household Survey Disability Module 2002, we look at the relationship between participation and self-reported disability. The results shows that percentage of individual, reporting an illness or disability in he (LIS) is rather higher than the percentage reporting a longstanding illness or disability in QNHS special Module (at 16.6% versus 10.8%).Secondly, by using Cross section data, results of this analysis shows that the LFPR for women is much lower than men, means that predicted participation rate for men and women severely limited by a longstanding illness or disability is only 25% and 10 % respectively on average.

Faridi et al. (2009) explore the impact of education on FLFP in Pakistan. This study is based on primary source of data (Stratified and simple random sampling, interview) using 164 females (15-64) from both urban and rural areas of Bahawalpur Tehsils (Bahawalpur pure and Yezman) and also uses Logit Regression Model for analysis. The study concludes that all the education levels except basic level of education up to middle level have a positive and significant impact on the female LFPR. The impact of educated Father and Mother on LFP is positive and insignificant. While educated spouses have positive and significant effect on wives' employment. Author suggested that the education facilities (technical, vocational and job oriented education) should be provided generally in Pakistan and particularly in the study area to the females.

Gaddis and Pieters (2012) seeks to fill the gap about gender effects of trade reforms and investigates the impact of Brazil's 1987-1994 trade liberalization on LFP of women. The data for the analysis are drawing from several different data sources. Firstly, from Brazil National Household sample Survey (PNAD) for 1987-1996.Secondly, from Kume, Piani and de Souza (2003) and tabulated in Abeu (2004) for the period 1987-1999.Also use concordance tables developed by Ferea, Leite and Wai-Poi (2010). The results shows that average nominal tariffs were unilaterally lowered from 54.9 to 10.2 percent and most non-tariff trade barriers were lifted between 1987-1994.While on aggregate the female LFPR in Brazil increased from 46-53 percent. Study also shows that states with greater exposure to trade Liberalization experienced faster increase in female LFPR and employment. The analysis focuses on the short to medium-term effects of trade liberalization. The study suggests that both push and pull factors caused women to join the LF.

Munnell (2014) investigates the impact of baby boomers on LFP. The study shows that as the baby boom entered the labor force, economists quickly recognize that the natural rate was not a fixed number but could change in response to the characteristics and composition of the labor force. Also, concludes that the ageing of population has dramatically reduced labor force participation since 2000. The decline in LFP will continue until 2020, when all baby boomers have mode out of their primary working years.

Dixon (2003) investigates the implication of population ageing for labor market. After calculating data from office for national statistic and labor force survey study raised issues include the need to maintain the employability of older workers who wish to remain in work, the need to maintain the relevance older workers skills, and the need to insure the mobility levels are sufficient for adjustment to future changes in the location and composition of jobs. Also effects of past changes in the age structure of the population indicates that demographic changes can influence aggregate or age group- specific employment rates, unemployment rates and wages.

Zimmer and Guzman (2013) focus on the importance of LFPR and evaluate several factors that may play a part in once active participation in the work force. The study examines nine years of data collected from 2002-2010.The data includes statistics for the 50 states and the district of Colombia, which were assembled into a panel set containing 4849 observations. A fixed effects model was constructed using LFPR as dependent variable and GDP, PCI, Cost of living adjustment, homeownership, population educational attainment, older (65 years), and state (binary) as independent variables. Results show that higher personal income and educational attainment level does serve to increase the rate of LFP. While, the cost of living, a state overall population or economic growth do not seem to significantly change the rate. At which those between the ages of 16 and 65 either work or actively seek employment. As expected, the labor force participation rate does go down as the ratio of senior citizens (age 65 and older) increases. To a lesser degree, home ownership also decreases the rate of labor participation, perhaps due to the effect it has on worker mobility.
Cai (2007) estimates the relationship between health and LFP. Panel data simultaneous data model is used to examine the relationship and also to control the unobserved heterogeneity between health and LFP. The two-stage and full information maximum likelihood estimation methods were used to estimate the model. Using the HILDA data, results show that health has a positive and significant effect on LFP for both male and females but, the reverse effect from LF status to health shows different results for male and female. For males a negative and strongly significant reverse effect was founded, while positive and weakly significant effect was founded for females.

Laplagne et al. (2007) estimates the effect of health and education on LFP. Three models of LFP rate estimated with near-identical variables based on the same data set separately for men and women (standard multinomial logit, panel multi-nomial logit and simultaneous equations). Using the HILDA data (2001-2004), the health and education marginal effects produced by the three models strongly confirm the importance of human capital for participation in paid work.

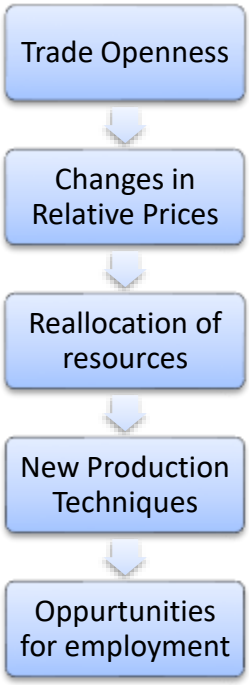
Wamboye (2012) focuses on the impact of an economic and trade structure on women's relative access to work for 38 SSA countries and for two sub groups (mineral exporters and non-mineral exporters). FE (fixed effects) and 2SLS (Two Stage Least Square) estimation techniques were used on unbalanced panel data for 1991-2010. Findings suggest that trade liberalization has gendered employment effects, with the direction depending on the structure of the economy. But more accurate or robust findings are that infrastructure of the country plays a determining role in gendered labor market outcomes.

3. Theoretical Framework

This section will present the relative theoretical background on the relationship between trade openness and LFPR. In fact there is no exact consensus on the relationship between Trade openness and employment rate or LFPR. But some policy makers believe that liberalization (economic globalization) would bring about a reduction in the level of employment, when the products of domestic firms can't compete favorably with the imported goods/products. Others believe that it will enhance the level of employment in the domestic

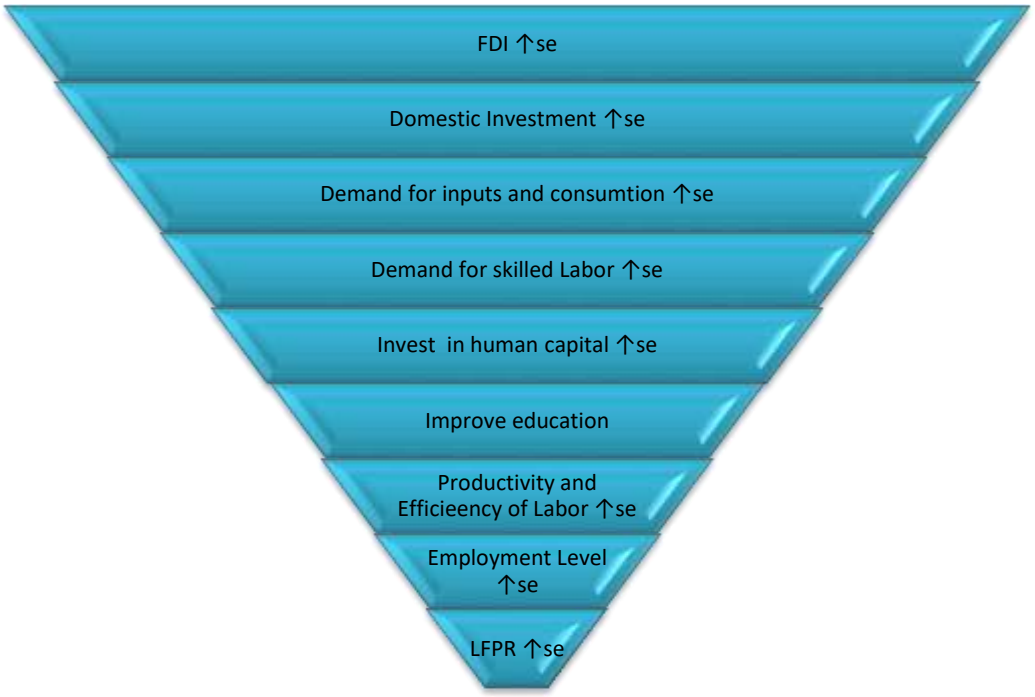
economy as the producers would be encouraged of imported products to produce imported goods locally, which will generate/increase employment. Different studies found different results in short run and long run. According to some studies, trade openness and health expenditures have a positive effect in the short run but a negative effect of trade openness in the long run and no effect or effect disappear in the long run. While, as education facilities increase or education increase there must be increase in LFPR and when there is better opportunities available to labor means better wages then obviously LFPR increase.

In fact due to trade openness there is change in relative prices and then recourses are reallocating and use new production techniques. So employment opportunities increase for labor and LFPR increase as a result. We can show this relation by smart art graphically as:



The health and education marginal effects have more importance for participation in paid work. (*Laplagne et al., 2007)*

Foreign direct investment means foreign ownership of factories, land and mines etc. Economic globalization also can be measured through higher FDI.



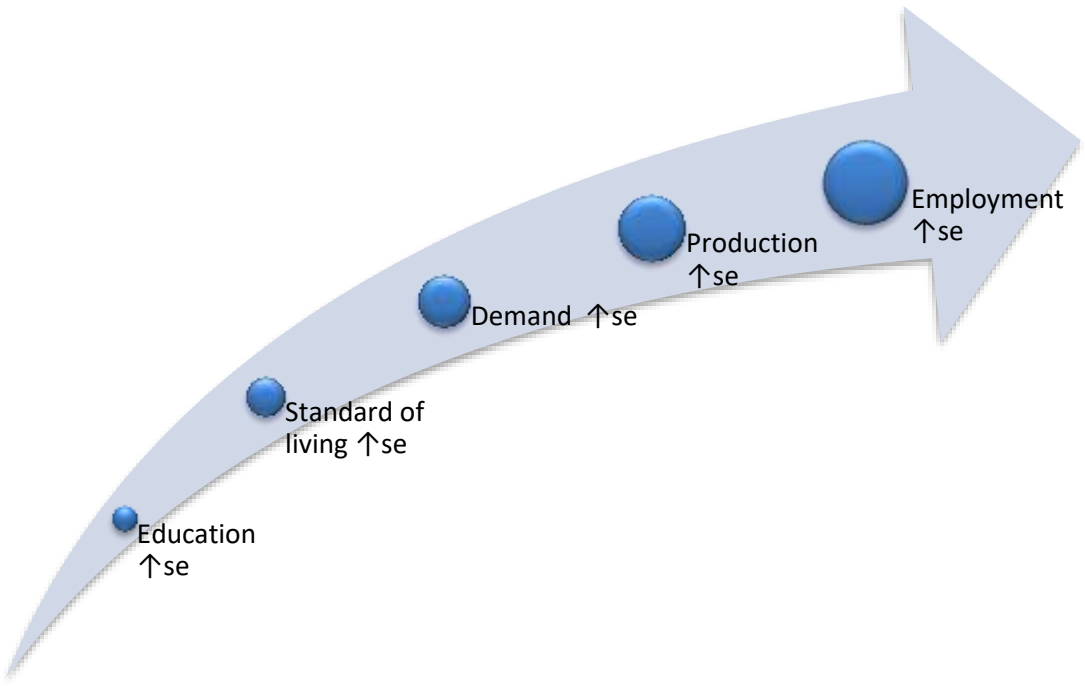
Other determinants of LFPR

Information and Communication Technology

It is expected that Information and communication technology have positive effect on LFPR. As usage of information and communication technology increases, geographical boundaries become narrow, transaction cost decreases, and competition increase in international market. It also encourages people to get higher education with lesser transportation cost and improve economic activity rate.

Education

Education levels except basic level of education up to middle level have a positive and significant impact on the female LFPR. The impact of educated Father and Mother on LFP is positive and insignificant. While educated spouses have positive and significant effect on wives' employment (Faridi et al., 2009). As education increase people will be more conscious about health facilities and increase their standard of living. Consumption pattern of people will change; people will move towards luxuries goods from consumer goods and local goods to branded goods, so to produce branded goods or imported goods producers of domestic country would raise/improve their production techniques and to fulfill the demand of people increase their production and as a result employment opportunities increase and to increase standard of living people increase LFP.

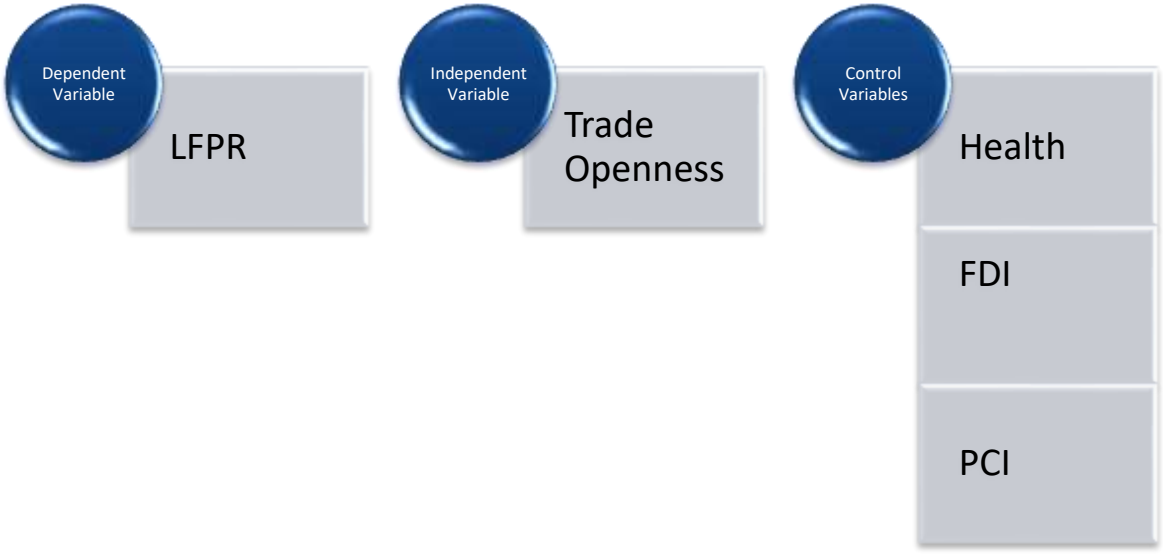


4. Materials and Methods

This section will provide the explanation on data and method that used for empirical estimation of variables and to check the relationship between TO and LFPR.

Data source and collection:

Time series data is used for this study. Data on all variables is collected from World Bank (world Development Indicator) for the period of 1980 to 2013. Details of all variables are given as under.



Model and Description of Variables

Based upon the theoretical review the proposed model for the present study is as under:

LFPR= f (TO, FDI, Health, PCI)

Dependent Variable

Dependent variable is labor force participation rate which is used to measure economic activity rate.

Independent Variables

- Trade openness: Trade openness is measured by trade as (% of GDP)
- Foreign direct investment: Foreign direct investment, net inflows (% of GDP)
- Per Capita Income: GNI per capita
- Health: Health expenditures total (%age of GDP)

Dependent Variable

- Dependent variable of the present study is LFPR. This is used to measure economic activity rate.
- "Labor force participation rate is the proportion of the population ages 15 and older that is economically active: all people who supply labor for the production of goods and services during a specified period." (World Bank)

Econometric Model:

$$LFPR=\beta_1+\beta_2 TO+\beta_3 FDI+\beta_4 Health+\beta_5 PCI$$

Other Variables

Per Capita Income: Per capita income is the most important factor that can effect LFPR. Data on per capita income is collected from WDI for the period of 1980-2013. Per capita income is measured by GNI Per capita growth (annual %). "GNI per capita is gross national income divided by midyear population"

Health: World Health Organization (WHO) defined health as "A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" in 1948. Data on Health is collected from WDI and measured by health expenditures in percentage form.

FDI: Foreign direct investment (FDI) is a measure of foreign ownership of productive assets, such as factories, mines and land. FDI can be used to measure financial openness and for growing economic globalization. FDI stimulates domestic investment which can increases demand for inputs and as a result consumption increase and to increase production demand for skilled labor would also rise. Open economies which have skilled workforces tend to attract larger amount amounts of FDI than closed economies.

FDI is not only a major source of finance and employment. But for developing country's Govt. FDI can also be used for acquiring managerial and organizational practices, Technology and skills access to market. Foreign investors increase their investment in other countries, if there are more locational advantages than their own country. In developing countries FDI is most important factor to alleviate its skills and resource constraints. Data on FDI is collected from WDI for the period of 1980-2013. And take FDI inflows to measure the impact of financial openness on LFPR.

Methodology

First step in methodology is to check the stationarity of series by using the Dicky fuller augmented test of unit root test. So variables are stationary as LFPR at Level, PCI at Level, Health at Level, TO at 1st difference, FDI at 1st difference. After checking stationarity of variables VAR model is used for empirical analysis in this study. (by using E-views 7.00)

Summary Statistics

Table presents the summary statics on all variables as LFPR, TO, FDI, Heath, and PCI. Summary statistics of data show that our main independent variable (trade openness) "TO" exhibits significant variations during the period of 1980-2013. It ranges from 28.13 to 38.91 and deviation from mean is 2.55 percent. On the average, share of trade openness in labor force participation is 34.20 in Pakistan during the period of 1980-2013.

The main dependent variable is a measure of economic activity rate which is LFPR. All variables are in the form of percentage. LFPR ranges from 32.20 to 53 and shows 3.58 percent variation from mean. On the average during the underlying period LFPR was 48.64 in Pakistan.

Table: Summary statistics

Variable	Mean	Min	Max	Std. D
LFPR	48.64	32.20	53.00	3.58
TO	34.20	28.13	38.91	2.55
Health	62.80	58.07	67.57	2.69
PCI	2.22	-3.27	6.89	2.42
FDI	0.94	0.10	3.67	0.86

All variables show smaller variations in sample. Data on Health shows that it ranges from 58.07 to 67.57 and on average are 62.80. It shows the 2.69 percent deviation from mean. The average share of Per capita income in LFPR is 2.22 during the underlying period and ranges from -3.27 o 6.89. FDI can affect labor force participation rate but its average share is only 0.94 and shows the deviation from mean is 0.86 percent. It ranges from 0.10 to 3.67.

Results and Discussion

This section will exhibits the summary of empirical results on labor force participation rate and all the independent variables mainly trade openness. The dependent variable is LFPR which is measure of economic activity rate and measured as "Labor force participation rate, total (% of total population ages 15+)" and independent variable is trade openness which is measured by the trade as %age of GDP. The empirical results are presented in table form as

Table 1: Vector Error Correction Estimates

Cointegrating Eq:	CointEq1
LFPR(-1)	1.000000
TO(-1)	-35.87119 (6.77019) [-5.29840]
HEALTH(-1)	-42.98759 (13.0381) [-3.29708]
PCI(-1)	-67.63212 (11.2319) [-6.02141]
FDI(-1)	49.53688 (21.4318) [2.31138]
C	3965.843

Error Correction:	D(LFPR)	D(TO)	D(HEALTH)	D(PCI)	D(FDI)
CointEq1	-0.005528 (0.01283) [-0.43088]	0.001688 (0.00641) [0.26326]	-0.000659 (0.00060) [-1.09931]	0.024974 (0.00759) [3.29212]	-0.003232 (0.00157) [-2.05438]

Table 1 show that all variables are significant in this study because t-value is greater than 2. For interpretation of results through VAR model signs of coefficients consider opposite means if there is negative sign then consider it positive at the time of interpretation. Trade openness (TO) is positively related with LFPR, because when there exist free trade or no barriers in trade due to more facilities and awareness LFPR increases. If there is one percent increase in trade openness then coefficient shows that LFPR will increase by 35.87% and vice versa.

Data on Health shows that it is significant because t-value is greater than 2 and positively related with LFPR. Health is the most important factor that effect LFPR because if labor is active then they can actively perform their responsibilities. Results shows that there is direct relationship between LFPR and Health, if there is 1% change in health facilities will change LFPR by 42.98%.

PCI has positive impact on LFPR, because as PCI of people increases there are more incentives for labor and as a result LFPR increases. As table shows that PCI is statistically significant and if there is 1% increase in PCI, LFPR will increase by 67.63% means have greater effect or importance. t-value of FDI shows it is significant but negatively related with LFPR. As 1% increase in FDI, LFPR will decrease by 49.53% which indicates that as FDI increase in Pakistan, employment opportunities increase but wages do not increase as much as opportunities increase by FDI. So in Pakistan results of FDI shows that it has negative impact on LFPR due to other factors during the underlying period of 1980-2013.

Conclusion and Policy Recommendations

As some studies shows that trade openness is more important for countries to improve their economy and growth, the results of this study also shows that TO (Trade openness) is positively related with LFPR. PCI and Health shows relationship as in previous studies means they are positively related with LFPR. But data on FDI in Pakistan shows opposite results due to other factors like wages.

On the basis of empirical analysis it is recommended that there must increase or improve trade structure in Pakistan to improve their LFPR and also for economic growth. Govt. should give more incentives to industrial sector to increase their production. Politicians can take measures for further trade liberalization because it increases economic growth, LFPR and process was facilitated by falling transportation and communication cost. There is a need of awareness for policy makers to make policies for better locational advantages in Pakistan to increase FDI.

References

- Baharom, A.H., Habibullah, S.M., & Royfaizal, R.C. (2008). The relationship between trade openness, foreign direct investment and growth: Case of Malaysia. MPRA Paper No. 11928 posted 4. December2008 15:47 UTC
- Cai, L., & Kalb, G. (2004). Health status and labour force participation: Evidence from the HILDA data. *Melbourne Institute*, Working Paper No. 4/04, March
- Cai, L., (2007), The relationship between health and labour force participation: Evidence from a panel data simultaneous equation model, Melbourne Institute Working Paper Series Working Paper No. 1/07, February.
- Chuang, Y. (2000). Human capital, exports and economic growth: A causality analysis for Taiwan, 1952-1995, *Review of International Economics*, Vol.8,4, 712-720
- David, L. H. (2007). A guide to measure of trade openness and policy
- Dayioglu, M., & Kirdar, G. M. (2010). Determinants of and trends in labor force participation of woman in Turkey. SPO and WB, WP.5
- Dixon, S. (2003). Implication of population ageing for the labor market. *Labor Market trends*,67-76
- Faridi, Z. M., Malik, S., & Basit B, A. (2009). Impact of education on female labor force participation in Pakistan: Empirical Evidence from primary data analysis. *Pakistan Journal of Social Sciences*, Vol.29, 1, 127-140
- Forbes, M., Barker, A., & Turner, S. (2010). The effects of education and health on wages and productivity. *Productivity Commission Staff*, Working Paper, Melbourne, March
- Fujita, S. (2014). On the causes of declines in the labor force participation. *Ten Independence Mall*, Philadelphia,
- Gaddis, I., & Pieters, J. (2012). Trade liberalization and female labor force Participation: Evidence from Brazil. *IZA*, Discussion Paper.6809
- Gannon, B., Nolan, B. (2004). Disability and labor force participations in Ireland. *The Economic and Social review*, Vol.35, 2, 135-155
- Hyder, A., & Behrman, J. R. (2011). International trade openness and gender gaps in Pakistani labor force participation rates over 57 Years. PSC Working Paper Series, 4-7
- Jacobson, P. J. (1990). Labor force participation. *The Quarterly Review of Economics and Finance*, Vol.39, 597-610
- Laplagne, P., Glover, M., & Shomos, A. (2007). The effects of health and education on labour force participation. *Australian Productivity Commission.*
- Mushtaq, A., Mohsin, A., & Zaman, K. (2013). Effects of health on changing labor force participation in Pakistan. *A Springer Open Journal*

- Sajid, S., & Ullah, S. (2014). Does trade openness boosts gender equality in employment: A case of D8 countries. *J. Asian Dev. Stud*, Vol.3, 2, ISSN 2304-375X
- Stern, S. (1989). Measuring the effect of disability on labour force participation. *The Journal of Human Resources*, Vol. 24 (3), 361-395
- Wessels, J. W. (2001). The effect of minimum wages on the labor force participation rates of teenagers. *Employment policies Research*
- Zimmer, E. T., & Guzman A, D. (2013). What's behind the labor force participation rate? *Indiana Business Research Center*, Vol.14, 2