

# Investigating the Co-integration between Exports and Female Employment: A Case Study of Pakistan

Ayesha Ajaz\*

[ayeshaaajaz.uaf@gmail.com](mailto:ayeshaaajaz.uaf@gmail.com)

## Abstract

Female's employment play fundamental role in the economic development. Exports play essential role for boosting the female employment. Exports and female employment have been improved over the time that become a good source of growth in Pakistan. The study used time series data from the period 1985 to 2013. Unit root tests are used to explore the stationarity of time series data. The present study investigates the Co-integration among economic determinants by employing Johansen's Co-integration test and Error Correction Model. Empirical findings of the study indicate that export, government spending, education spending by the government and value addition in industries are positively associated with female employment in Pakistan. This study recommended that the government should enhance spending on education that promote female employment. Moreover, government should take suitable actions to execute export oriented policy. It is the need of time for development of any developing nation, value addition in industries requisite to be supported by the government to enhance the female employment.

**Key Words:** Female Employment, Exports, Unit Root tests, Johansen's Co-integration test, Error Correction Model.

## 1. Introduction

Females play an imperative role in the development of any nation. Females' contribution in economic activities are improved globally (Siddiqui and Siddiqui, 1998). Female employment play a crucial role in the household welfare. Every society strive for boosting the household welfare and growth (Kazi and Raza, 1991). Females are employed in a variety of sectors such as in the industry, agriculture, exports and services in Pakistan. Pakistan is a developing country. In fact, Pakistan is the 6<sup>th</sup> heavily populated country from the Asian countries. Pakistan's population is growing rapidly over the time. The high population growth has confirmed that huge number of individuals willing to work. Females found a half of the society and the problem raises that if half of the population do not contribute in labor market, how the progress target can be achieved (Faridi, 2009). Exports play essential role for boosting the female employment and growth. Pakistan's exports are mainly raw food items, cotton, cement, marble, textiles, surgical, leather and sports goods etc. Exports level also improved over the time. Pakistan has been go through the procedure of economic liberalization that give push to exports (Pakistan Encyclopaedia, 2014). Although, female's employment depends on education level of females, exports, government expenditures in term of investment and value addition in industries. These factors significantly affect the female employment. Textile sector has played significant role for the generation of female employment opportunities over the time. Pakistan's

industrial sector is a noteworthy impact on GDP. The share of industrial sector is 20.30 percent of GDP. Industrial sector's growth rate is 3.62 percent in 2014 (GOP, 2014). Female's contribution in the industrial sector would upsurge from past decades in Pakistan. Consequently, female's employment help to combat economic crises. Economic crisis is the main problem of Pakistan where female have required for work. It is considered that female's educational level positively linked with female employment (Ejaz, 2007). Female contribution rate in labor market is 20.1 percent in 2014. Literacy rate of women is 66 percent in urban areas of Pakistan in 2014. Government spending also significantly determine the female employment level that enhance the growth of any economy. Public investment's growth rate is 25.56 percent in 2014 (GOP, 2014). A number of factors remain to drop Pakistani female's full contribution in the labour market. In Pakistan, most of the females work in informal sectors. Informal sectors are centered on comparatively high levels of female's employment. The level of income in the informal sectors are less than the level of income settle in the formal sectors. Female employment is increasing regardless to the social constraints of Pakistan.

The specific objective of the present study is to examine the Co-integration among exports, female employment, government spending, education spending by the government and the industrial value addition in Pakistan to evaluate that which factor effect to improve female employment. Furthermore, the study also aim to analyze the short run relationship between exports and female employment in Pakistan. Finally, the study recommend suitable policies regarding improvement in female employment to assess a sustainable development.

The present study is distributed into five chapters. Chapter 1 is about the introduction and theoretical background of the study. Review of literature is presented in the chapter 2. In the chapter 3 data and methodology have been described. The results are reported in chapter 4.

Finally, conclusions and policy implications of the study are presented in chapter 5.

## 1.1 Theoretical Background

Supporters of the Keynes emphasize to manage the Aggregate Demand. They emphasized that Aggregate Demand level have a potential to rise employment level. In fact, variations in employment rate are correlated to the variations in Aggregate Demand. Although, variations in Aggregate Demand can alter the production levels as well as employment level. They suggest that recession and ineffective demand are the core causes of unemployment. By effective demand, the government can generate more jobs through rise in Aggregate Demand (Branson, 1997). Net Export is a robust component of Aggregate demand which clearly shows the significance of exports to bring Effective Aggregate Demand. Consequently, Effective Aggregate Demand give push to the female employment level of any economy. Export is the significant factor for economic development. Export is progressive influence to employ economic development policies, job opportunities for females and low cost production.

Exports' growth is positive effect on the workers' income (Xu, 2000). Thus, export plays a fundamental role in the choice of economic development policy, hence any variation in the extent of export would affect employment level, growth and development.

## 2. Review of Literature

The issue of exports and female employment opportunities greatly influence on the development. Wood (1991) studied the female employment by using the time series data from 1980 to 1985. The study indicated robust connection between export extension and female labor force in the industrial sector. The study used very small sample size. Catagay and Ozler (1995) examined the impact of globalization on female's employment. The study emphasized in the improvement of trade and export related activities that are intensely associated with the industrial employment. Moghadam (1999) also revealed that globalization greatly influence on employment. The study exposed that rise in trade would upsurge the economic growth of the economy in term to boost the employments opportunities. The study focused on the global economy that enhance the capital as well as increase the labor force of women. The study emphasized on the importance of women role that play significant effect on the development. Yasmin and Khan (2005) analyzed the impact of trade on employment. The study found that trade and employment have been positive association over the time in Pakistan. The results of the study clearly depicted that trade has positive source for employment generation in the industrial sector of Pakistan over the time. The study mainly focus on trade liberalization. Goldar (2009) studied the effect of trade on employment in India. In the study OLS approach employed to evaluate the impact of trade on employment. This study revealed that exports have positive impact on the employment of India. The study unable to applied the more significant approach to analyze the impact of export on employment in India. Sousa et al. (2012) studied the relationship between exports and employment. The study employed time series data from 2000 to 2007. The study exposed that exports significantly improve the employment level in the Europe. This study unable to explore the long run relationship between exports and employment, ignore to examine the role of female employment in the development.

Even though, studies about Cointegration between export and female employment is very rare.

The matter has not attracted extensively to researchers so far.

## 3. Materials and Methods

Time series data from 1985 to 2013 is used to evaluate the long run relationship between export and female employment. The data has been employed from the Economic Survey of Pakistan and World Development indicators 2015. The time series data include total female employed labor, exports, government expenditures, education expenditure by the government, and value addition in industry.

### 3.1 Methodology

In the time series data analysis initially, we have to inspect the stationarity of the time series data. A stationary time series data varies nearby a constant mean and variance over the time. The co-integration between exports and female employment in Pakistan is studied in the following ways: Firstly, it is observed whether a time series has a unit root or not then further applied the methods.

#### 3.1.1 Unit Root tests

Augmented Dicky fuller (1979) and Phillip Perron (1988) tests are employed to examine in time series data to explore about the time series data unit root or not. These tests are showed that non-stationarity is proved for the existence of a unit root in the data. ADF test used to check for non-stationarity in the time series. PP test is also used to check the nonstationary.

However, PP test is a non-parametric amendment to the typical ADF test.

#### 3.1.2 Johansen's Co-integration test

The Johansen's test (1988) used to check the co-integration. In fact, Johansen's Co-integration test more suitable to assess the long run relationship among variables. Engle and Granger (1987) also emphasized on the importance of Johansen's test that show the linear combination of two or more nonstationary series may be stationary. Hence, Johansen co-integration is applied for econometric estimation of time series data.

### 3.2 Econometric Model

$$Femp = \beta_0 + \beta_1 Exp + \beta_2 GExpnd + \beta_3 GEdExpnd + \beta_4 IndValu + \epsilon$$

**Femp** = Female Employment

**Exp** = Exports

**GExpnd** = Government Expenditures

**GEdExpnd** = Government Expenditures on Education

**IndValu** = Value Addition in Industry

The econometric analysis in the study is centered on the above equation.  $\beta_0, \beta_1, \dots, \beta_4$  are the regression coefficients of the existing equation.  $\epsilon$  is a random error term.

#### 4. Results and Discussions

Before applying the co-integration test, in the study unit root tests has employed in order to investigate the stationarity, Augmented Dickey-Fuller test (1979) and Phillips and Perron (1988) test are used. The results of both tests ensure that all variables are stationary at first difference. The results of the Augmented Dickey Fuller and the Phillips and Perron tests are reported in Table 4.1. Table 4.1 shows that the null of unit root cannot be rejected for any of the variable at level. Conversely, the null hypothesizes of unit root are rejected for first differenced variables, specifying that all variables are first differenced stationary I (1).

**Table 4.1 Stationary Tests**

Variables	ADF		PP	
	Level	First Difference	Level	First Difference
<b>Femp</b>	-2.01	-2.28*	-2.08*	-3.35**
<b>Exp</b>	-1.64	-3.66**	-2.19	-3.01**
<b>GEdExpnd</b>	-2.04	-4.95**	-3.12*	-4.076**
<b>GExpnd</b>	-2.36	-3.48**	-3.05	-4.08**
<b>IndValue</b>	-2.33	-3.12**	-3.33	-4.22**

Author's own estimation.

Note: \* and \*\* represents significance at the 1 and 5 percent levels

**Table 4.2 Co integration Results**

Trace test	Critical Value 5 Percent	Hypothesized No. of CE(s)
120.48	94.15	None
94.21	68.52	At Most 1
64.58	47.21	At Most 2
41.87	29.6	At Most 3
17.12	15.41	At Most 4
3.93	3.76	At Most 5

Author's own estimation

After employing the ADF and PP tests, it is considered that all the variables are stationary at first difference. Therefore, Johansen co-integration (1988) test employed to test long run relationship among the given variables. The results of this test presented in Table 4.2 that clearly show that female employment significantly associated with exports, education expenditure by government, government expenditure in term of investment, industrial value addition in the Pakistan. These results intensely favor with the study objectives.

**Table 4.3 Error Correction Model for the Short run Relationship between Export and Female Employment**

Regressor	Coefficients	Standard errors	Z-Statistics
Intercept	.2196	.186	1.18
Exp	.363	.580	6.26***

Authors' own estimation

\*\*\*shows significant at 1 percent.

The result of Error Correction Model is reported in Table 4.3. The results indicated that the short run relationship between export and female employment is positive and statistically significant in Pakistan.

## 5. Conclusions and Policy Implications

This study has been completed with the aim to analyze the relationship among female employment, export, government expenditures, education expenditures and industrial value addition in Pakistan using the time series data from 1985 to 2013. Mainly to realize the significance of exports on the female employment in the long run Johansen's Cointegration test employed. The results of Johansen's Cointegration test expose that there are 5 cointegrating vectors, which specifies the long run relationship among variables. Although, given variables significantly impact on the female employment in Pakistan. Error Correction Model's results significantly show the short run relationship between export and female employment. The positive and significant relationship between exports and female employment reveals that exports' growth is essential for increasing female employment to rise economic growth. Export, government expenditure, government education expenditure and value addition in industries have positive impact on female employment. Based on the results, the present study recommends that Government of Pakistan should enhance the overall government spending in term to offer easy loans facilities, tax relief for manufacturers that would enhance

the female employment level. The government should expand industrial value addition to increase female employment in Pakistan. The policy makers should be concentrate on the implementation of suitable policies regarding trade and foreign sectors to rise exports in Pakistan.

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