



Contents list available <http://www.kinnaird.edu.pk/>

Journal of Research & Reviews in Social Sciences Pakistan

Journal homepage: <http://journal.kinnaird.edu.pk>



THE EFFECT OF SMALL-SCALE INDUSTRIES ON EMPLOYMENT LEVEL IN PAKISTAN

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Abstract

In globalization era, employment entire depends on industry sectors in a state. Pakistan industrial sector play a significant role in Pakistan employment. The textile, cigarette and sugar industries are direct and significant impact on employment in Pakistan. Therefore, cycle tyres and cement industry also positive impact on employment level in Pakistan. When these industries increase production, the employment also increases. Except cycle tyres are negative impact on employment in Pakistan. In this study, autoregressive lags distributed approach employed along with time series data period 1971- 2018. Small scale industries are the potent tool of employment generation and poverty reduction so it is suggested that much attention is paid on this sector.

Keywords

Employment, ARDL, Small Scale Industrial



1. Introduction

The modern world does not exist suddenly. It holds millions of movements. Industrial revolution started on 1700 in Britain. The industrial revolution changed the lives of humankind. It was first stage of globalization. (Taylor and Taylor, 2017) Today, we live in the fourth wave of globalization. (Maynard & Mehrrens 1996) In this wave human is finding modern techniques for growth and development. No state can survive without of sufficient production and sufficient employment. Production is the

primary activity in any economy of the world. Any unit of production which produces goods or services is known as firm. For example, a unit of sugar production is firm and all those firms which produces identical products is called industry example are sugar industry, textile industry, cement industry and shoe industry etc. Actually, there are millions of industries of different goods and services collectively they are called industrial sector also known as manufacturing sector. Usually, goods are

produced at different scales that is small scale, medium and large scale. (Sharafat *et al*, 2014; Khan, 2018) .The scale of production refers the position of plants, a producer adopted difference methods and techniques during production. According to economics theories, there are two types of production process small scale of production and large scale of production. Scale of production depends on mostly two factors capital and labor ratio. (Nsamba *et al* 2015) Small scale of production is a condition when a firm produces goods with small size due to lack of capital output and capital labor ratio. In contrast, if a firm employed more and more capital along with other factors and produces a number of items is called large scale of production. The optimum scale of production is a climax condition of firm which is exists when a firm gets maximum net economies. (Arora *et al* 2016; Kurochkina *et al* 2019). The relationship between the two parties on the basis of an agreement for any economic activity is known as employment. A person who hires the services of labor is called employer and the person who offered his mental and physical efforts for the sake of earning is called employee. (Yoshino and Taghizadeh, 2019) According to economic point of view a person who is able to work and willing to work is known as labor. Their aggregate is considered to be labor force. (Musah *et al* 2018) The numbers of labor force which is actually employed in economic activities is the level of employment of a country. “The market value of all final goods and services produced in an economy during one year is called GDP”. There are positive relationships among these three variables the installation of small-scale

industries is one of the major sources of employment and contribute a lot in the GDP. (Esiebugine *et al* 2018). Usually, small scale industries are labor intensive industries; it can be established in a short time period and with small amount of capital. Mostly the small-scale industries are owned by a signal person or family. In the small-scale industries, there is no need for a well-defined infrastructure and higher technological skills. Small scale industries can be easily established in both rural and urban areas of a country like rice husking, poultry farming, carpet industry, guar and sugar making and Bee keeping in rural areas and in urban areas there could be technical knowledge, credit and marketing facilities, consultancies, hand and power emerge industries, manufacturing of sports and leather goods, needlework and couture work etc. can be established. (Agburu *et al* 2017; Zotorive 2017). It can be established with few workers and less capital-intensive techniques. Small scale industries are less complicated and are helpful in achieving long run take off stage according to Rostow stages of production. The countries like Japan, Taiwan, Hong Kong, Singapore, developed small scale industries and now they are in advance stage of industrialization. The contribution of small-scale enterprise in Taiwan to nation’s development is 97% of establishment, Japan Contributing 99% and India share is 95% of all establishments. (Kimura and Obashi 2016). According to World Bank the total labor force engaged in agriculture is 49% in which 73% of the total labor force is females and 44 are male workers. In 2008 the percentage of labor forced employed in industries was 20.10%. In Pakistan small scale industries take a crucial position in

employment generation and contribution in the country growth and development. To check the contribution of small-scale industries in Pakistan is a difficult task because of unavailability of actual facts. Besides these government of Pakistan tried to estimate it and found that 29.9% contribution in industrial sector is because of small scale industries in 1980's and percentage of GDP is 4.6% in 1980's. the growth rate of small-scale industries in 1984 was 8.4% and in 2013-14 it decreased to 8.35%. Manufacturing sector provides a plenty of job opportunities. In this sector had absorbed 12.1% of the total labor force which increased to 15.4% in 1970. The small-scale industries have employed 16% of the total labor force employed in manufacturing sector. But due to energy crises and low wage rate the performance of small-scale industries decreased.

2. Review of Literature

(Junejo and Chandh, 2008) studied the topic of "growth and efficiency of small-scale industry and its impact on economic development of Sindh". It examined the growth, efficiency and reasons of backwardness of small-scale industries. It is one of the main sources of survive in many domestic areas in Pakistan. He said that education play a vital role in entrepreneurship. (Syed *et al* 2012; Nafees *et al* 2011) found that mostly small-scale industries are owned by families but they have less educational skills, and lack of managerial abilities. Therefore, have low growth rate. He recommended that small scale industries should be promoted in Larkana because it has a good contribution in economic development. (Khan, 2008) estimated the elasticities of employment with respect to expansionary factors.

He fined that in the small-scale wage elasticity's is negatively related with employment. Capital elasticity's is also negatively related with rate of employment. In the same way size of employment is positively related with value of product elasticities. Khan concluded that labor is scarce so that less labor will be used in production. The use of more capital-intensive technique will reduce the demand for labor and if both capital and labor is used in the same proportion has positive impact on rate of employment. As output its value increases it leads to increase labor demand. He suggested that for the expansion of small-scale industries every economy must pay attention on wages of labor, capital labor ratio and value of product. Because the product with higher price is tried to supply more this high price will affect consumer by the producers to overcome this problem the government must introduced supplementing policy to compensate the consumer and producers. The supply of labor is also dependent on wages and this is proved with the results. The increase in wages increases savings this leads to increase capital and investment and so as the labor demand and employment. (Morenikeji and Ohluchuku, 2012) examined the effect of small and medium scale activity in the production of employment in logos condition. They believe that for any economy to set their targets must achieve accelerated economic growth. They said that small and medium scale industries and young labor force played a fundamental role in economic development. The increase in organizational skills in youth reduced poverty and improved the standard of living. They used primary data for analysis which are collected through questionnaire and interview. They

concluded that small scale industries contribute a lot in the development and suggested to give a proper attention to small scale industries. (Quader and Abdullah, 2009) studied the constraints to small and medium scale enterprises: A Rotated factor analysis approach. They said that small and medium scale enterprises played a fundamental function in progress of weak economies. Although the sector is in front of multiple troubles i.e., raw material, imperfect market, implementation of power, transport, technological services and sponsorship etc. In many developing countries the industry does not more contribute in GDP. Due to these problems GDP does not extend. He concluded that in Bangladesh there is no specific policy for “small and medium scale enterprises” and is discriminated as compare to large firms. They suggested that policies should be made and focused on “small and medium scale” activities to adjust and protect them from bureaucratic colonization. (Afolabi and Olusely 2013) argued that “small and medium scale enterprises have a positive effect on economic growth while lending rate has negative effect on economic growth”. They studied that in policy making government usually does not consider the small and medium scale enterprises and give priority to large scale industries. This is the main obstacle in the way of small industry along with medium scale enterprises and its growth. They suggested that, the commercial bank allow to loan for this industry. (Gbandi and Amissah 2014) analyzed the problem of “financing options of small and medium enterprises in Nigeria”. They examined those under-developing countries like Nigeria for economic growth must focus on small and medium scale enterprises. It is

one of the major sources of domestic development i.e., generate employment, improved the local technology, developed indigenous entrepreneurship etc. it is poor contribution in Nigeria’s gross domestic product. Because unsuitable business milieu, low funding, poor management of skills and orthodox technology. They suggested that federal government and its agencies should give funds to small scale industries. (Khalique *et al* 2015; Waqas and Nawaz 2019) studied the “small and medium scale enterprises, capital, growth and poverty”. They examined that the relationship between the size of small and medium enterprises, economic growth and poverty reduction. They find a positive association between small and medium enterprises and GDP per capita. As a result, there is no clue that small and medium enterprises encompass a beneficial impact on income and poverty reduction. Thus the result does not support the direct subsidizing of small and medium scale enterprises to quicken economic growth and reduce poverty. (Berkowitz and Holland 2011) studied “Does Privatization Enhance or Deter small Enterprise Formation?” this paper examined the impact of privatization on small enterprises in post-socialist countries. They argued that in Russia Privatization Inhibited small enterprise formation. They concluded that large scale Privatization is the main cause of corruption in Russia which in turn effects the small enterprise formation. (Kadiri 2012) examine that the “small and medium scale enterprises and employment generation in Nigeria and the role of finance”. He examined the role of small and medium enterprises in employment generation and the competence of small and medium scale enterprises analysis the same as an effective

tool for employment creation. He observed that the lack of adequate finance is the main hurdle for the sectors to achieve its goal of employment generation and poverty reduction. He suggested that for achieving this goal the government combined the operation of formal and informal financial institution and provided the needed infrastructure that reduced the production cost, increased the retained earnings and reduced poverty.

3. Research Methodology

In this research study time series data is used. To find out the effect of small-scale industries on employment level in Pakistan for the period of 1971 to 2018. In this study used Autoregressive Distributed lags (ARDL) model (Pesaran and Shin, 1999). The ARDL model employed various researchers for short and long run association. The seven variables employed labor force (employment), cycle tyres, jute textile, cigarette, and Sugar are taken in this study. The employment (EMP) is dependent variable while cycle tyres (CTYR), total production of cloth (TEXT) and jute textile (JTEXT), cigarette (CIG), Cement (CEM) and Sugar (SUG) are independent variable. In research methodology mostly used two types of models mathematical and statistical or econometrics model. Now first we take mathematical form of the model.

$$LNEMP = f (LNCTYR, LNTEXT, LNJTEXT, LNCIG, LNCCEM, LNSUG)^1$$

¹ $EMP^{***} = \beta_0 * + \beta_1 ** CTYR^{****} + \beta_2 ** TEXT^{****} + \beta_3 ** JTEXT^{****} + \beta_4 ** CIG + \beta_5 ** CEM + \beta_6 ** SUG + \mu \dots \dots (1)$

B's are refers to parameters. In fact parameters split into intercept (also called constant) and slope (Coefficient). In equation (1):

* β_0 is intercept of the model and

** β_1, β_2 and β_6 refer the slope or coefficient CTYR, TEXT, JTEXT, CIG, CEM and SUG respectively.

Where

LNEMP = Employed labor force (employment) in million

LNCTYR = cycle tyres

LNTEXT = Total production of cloth in million square meters

LNJTEXT = Jute textile

LNCIG = Cigarette

LNCCEM = Cement

LNSUG = Sugar

3.1 Unit Root Test:

The first step of time series data is unit root test or the problem of non-stationarity. Due to this non stationarity time series may give us a result of spurious regression, as variable are non-stationarity and does not co integrate. Unit root test are conducted to test whether the time series are stationarity or not. Time series data will be called stationary if it has a constant mean or constant variance, or both. We used the following equation with lagged difference term (Gujarati 1999) when all variables are cointegrated at level I (0), and then we use simple linear regression. Therefore, if some variables integrated al level I (0) and someone at first difference I (1) but no one integrated at second difference I (2) then we used ARDL model. If you find cointegration then apply ECM or VECM, but if you do no find cointegration then apply VAR model.

The following equations are the ARDL approach:

*** The left side of the equal sign (=) in equation refers to dependent variable like EMP.

**** The right side of the equal sign in equation (1) is called independent variables like CTYR, TEXT, JTEXT, CIG, CEM and SUG (When a model consists of a single independent variable it is called simple or bivariate regression equation. If an equation consists more than one (two or more than two) then the model called multiple regression models.)

$$\Delta \text{LNEMP}_t + \beta_0 + \sum \beta_1 \Delta \text{LNCTYR}_t - i + \sum \beta_2 \Delta \text{LNTEXT}_t - i + \sum \beta_3 \Delta \text{LNJTAXT}_t - i + \sum \beta_4 \Delta \text{LNCIG}_t - i + \sum \beta_5 \Delta \text{LNCEM}_t - i + \sum \beta_6 \Delta \text{LNSUG}_t - i + \sum \lambda_1 \text{LNCTYR}_t - i + \sum \lambda_2 \text{LNTEXT}_t - i + \sum \lambda_3 \text{LNJTAXT}_t - i + \sum \lambda_4 \text{LNCIG}_t - i + \sum \lambda_5 \text{LNCEM}_t - i + \sum \lambda_6 \text{LNSUG}_t - i + \sum \varphi_1 \text{GDPPC} + \mu_t \dots \dots \dots (1)$$

Where *i* indicate the number of previous years (lags), delta (Δ) is referring the first difference and β_0 is intercept of the model. The μ is error term or residuals of the model. $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 refer the slope or coefficient of CTYR, TEXT, JTEXT,

CIG, CEM and SUG respectively and describe short run relationship and $\lambda_1, \lambda_2, \lambda_3, \lambda_4, \lambda_5$ and λ_6 represent the long run relationship among the variables. In ARDL bound test long run relationship find through F-statistic. Null hypothesis there is no cointegration within variables and alternative hypothesis there is cointegration within variables.

$H_0: \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = 0$ (There is no cointegration within variables)

$H_1: \lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq \lambda_5 \neq \lambda_6 \neq 0$ (There is cointegration within variables)

Table 4.1: Descriptive Statistics

	LNEMP	LNCTYR	LNCIG	LNCEMENT	LNJTEXT	LNSUGAR	LNTEXT
Mean	3.518088	8.227513	10.65138	9.104581	4.297905	7.582460	6.228360
Median	3.474756	8.268961	10.59695	9.013079	4.447931	7.785267	6.137602
Maximum	4.122446	8.581107	11.23333	10.62493	4.922896	8.860641	6.950911
Minimum	2.876949	7.254885	9.988380	7.865572	3.407842	5.926926	5.471850
	0.362694	0.231510	0.334490	0.867809	0.416821	0.810541	0.518170
Skewness	0.010529	-1.869874	-0.003956	0.279075	-0.757598	-0.445099	0.263330
Kurtosis	1.876904	8.534467	1.784666	1.826034	2.316368	2.037142	1.506964
Jarque-Bera	2.523576	89.23208	2.954198	3.379455	5.526343	3.439093	5.013054
Probability	0.283147	0.020413	0.228299	0.184570	0.063091	0.179147	0.081551

After carry out the ARDL bounds test we use error correction mechanism (ECM). The following ECM equation:

$$\Delta \text{LNEMP}_t + \beta_0 + \sum \beta_1 \Delta \text{LNCTYR}_t - i + \sum \beta_2 \Delta \text{LNTEXT}_t - i + \sum \beta_3 \Delta \text{LNJTAXT}_t - i + \sum \beta_4 \Delta \text{LNCIG}_t - i + \sum \beta_5 \Delta \text{LNCEM}_t - i + \sum \beta_6 \Delta \text{LNSUG}_t - i + \Omega \text{ECT} - i + \mu_t \dots (2)$$

4. Results and Discussions

4.1 Descriptive Statistics

In this research study the descriptive statistics are also calculated almost all the desired variables in which it is found that means. The means of our all

variables are positive. Similarly, the variation in this data is shown with the help of standard deviation. So, the standard deviation in the data of cycle tires, total production of cloth, jute textile and level of employment are 0.231510 thousand of tones, 0.518170 million square meters and 0.3 62692 million respectively. Therefore, the value of Jarque-Bera statistics represent that our variables are normal distributed or not. Our entire variables are normal distributed except CTYR variable. The value of CYTR is 0.02 which is less than at significant level

5% (0.05). Besides, other all variables Jarque-Bera Prob. Value is greater than 0.05.

4.2 Explanations of Correlation Coefficients:

Table 4.2 indicates correlation matrix. The employment and cycle tyres are positive correlated. The correlation between Jute textile and employment is also positive. The total production of cloth is positive correlated to employment. Thus, jute textile and total production of cloth increase or decrease

with employment increase or decrease respectively. The Sugar and Cement are also direct correlated with employment.

4.3 Explanations of Augmented Dickey Fuller (ADF) Test: In statistics the Dickey Fuller (DF) and Augmented Dickey Fuller (ADF) test is a unit root which shows whether an autoregressive model of order P (P-value) follows a random walk or not. In other words,

Table 4.2 Correlation Matrix

	LNEMP	LNCTYR	LNCIG	LNCEMENT	LNJTEXT	LNSUGAR	LNTEXT
LNEMP	1						
LNCTYR	0.30984776	1					
LNCIG	0.87454337	0.34023405	1				
LNCEMENT	0.98156153	0.26074323	0.83111314	1			
LNJTEXT	0.69652823	0.37525565	0.7053406	0.6716781	1		
LNSUGAR	0.94817364	0.32587105	0.7858013	0.9222285	0.7407425	1	
LNTEXT	0.64982887	0.02528807	0.5856477	0.7058787	0.1458156	0.4832151	1

it is used to test whether the data is stationary or not. If our variable is non-stationary then first convert into stationary. When it stationary then the stationary variables use in time series model. The variable cycle tyres (CTYR) are stationary at level and other six variables employment (EMP), Jute textile (JTEXT) total production of cloth (TEXT), cigarette (CIG), Cement (CEM) and sugar (SUG) are stationary at first difference at 95% level of significance with intercept.

4.4 Diagnostic Tests

The ARDL model considered valid if there is no serial correlation along with any heteroskedasticity and normality. The diagnostic problems serial correlation and heteroskedasticity described in table 4.4. Serial correlation chi-square value is bigger than 0.05 (Chi-squared value 0.5388). In this case, we do not reject null hypothesis rather we accept null hypothesis.

Table 4.3: Results of Augmented Dickey Fuller (Adf) Test

Variables	ADF Test Values	Critical Values @5%	Prob.	Order of Integration
LNCIG	-8.507920	-2.926622	0.0000	I (1)
LNCTYR	-4.184846	-2.925169	0.0018	I (0)
LNEMP	-8.679185	-2.926622	0.0000	I (1)
LNJTEXT	-6.009221	-2.926622	0.0000	I (1)
LNSUGAR	-9.392730	-2.928142	0.0000	I (1)
LNTEXT	-4.729109	-2.926622	0.0004	I (1)
LNCEMENT	-3.130455	-2.928142	0.0313	I (1)

On the other hand, if chi-squared value is large than at significant level (0.05) then accept null hypothesis. In aforementioned table our chi-squared value 0.06 which is larger than 0.05. In same case,

we do not reject null hypothesis. In a nutshell, our model is free from serial correlation and heteroskedasticity.

Table 4.4 Heteroskedasticity and Serial Correlation Tests

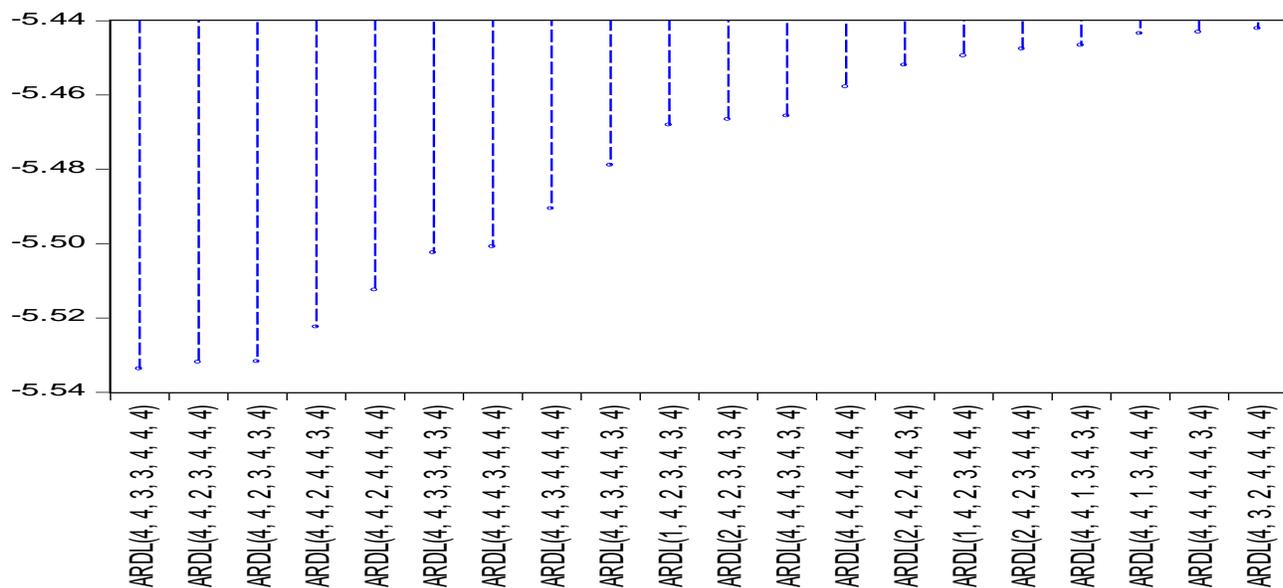
Heteroskedasticity Test			
F-Statistics	0.78202	Prob. F(32, 11)	0.7189
Obs* R-squared	30.57288	Prob. Chi-Square (32)	0.5388
Serial Correlation LM Test			
F-Statistics	2.2509507	Prob. F(4,7)	0.1361
Obs* R-squared	25.92279	Prob. Chi-Square (4)	0.0613

4.5 Lags selection criteria

The accurate lag length selection plays an essential role in predication. There are different lag lengths criteria but commonly use AIC and SIC. In this

study opted AIC. The statistical software Eviews-9 automatically selected four lags for employment, cycle tyres, jute textile, sugar and textile. Besides, three lags selected for cigarette and cement.

Akaike Information Criteria (top 20 models)



4.6 Bounds Test

After lag length criteria we check our variables are cointegrated are not. If it is cointegrated then we will find long run relationship. F-statistic value is greater than upper bound at significance level, it refers our variables exist long run relationship. In contrast, the

value of F-statistic is higher than the value of lower bound it means no long run relationship within the variables. In table 4.6, F-statistics value 5.225319 which are higher than upper bounds 3.61 at 5% level. As a result, our variables are cointegrated.

Table 4.6: Bound tests

F-statistic	5.225319	
Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Table 4.7 Long Run result

Table 4.7 indicates the long run result of among variables. The industrial sector plays a significant role employment. CTYR is positive and significant effect on employment. CTYR is most significant is 5% at level of significance. The slope value of CTYR is 0.186450 which is shows that when CTYR increase 1 unit, then 0.186450 increased our employment. The cigarette industry is also significant industry for employment in Pakistan. The coefficient value of cigarette is 0.228006 which is

indicates when 1 unit increase cigarette our 0.228006 increased employment. Cement industry is also one of the major sources of employment in Pakistan. Cement is significant and the coefficient value also proves positive effect on employment. The coefficient value of cement is 0.152504 which indicate, if 1 unit increase our cement, thus 0.152504 units increased employment. The jute textile is insignificant along with negative coefficient (-0.044510).

Table 4.7 Long Run results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.377428	0.359774	-3.387635	0.0000
LNCTYR	0.186450	0.030123	6.189546	0.0001
LNCIG	0.228006	0.039682	5.745822	0.0001
LNCEMENT	0.152504	0.043015	3.545350	0.0046
LNJTEXT	-0.044510	0.025123	-1.771700	0.1041
LNSUGAR	0.168841	0.032300	5.227342	0.0003
LNTEXT	0.084746	0.030508	2.777842	0.0180

It means when jute textile increases 1 unit our employment reduces 0.044510 units. In same case, Sugar is also a significant and positive outcome on employment in Pakistan. Sugar increase 1 unit as a result 0.168841 units' employment increase. The textile response is also positive and significant. The coefficient value textile is 0.084746 and it means 1 unit textile increase 0.084746 units employment increase. In a nutshell, all variables CTYR, CIG,

Cement, Sugar and Textile are positive and significant effect on employment.

4. 8 Short-run Results

Table 4.8 demonstrates the error correction term and it refers how much of the disequilibrium is valid if any point disequilibrium in the past which is adjusted in current point. The positive coefficient is referring to divergence and negative coefficient represents convergence. If the value of ECT is equal

to one (ECT =1), it means 100% of the adjustment occurs within the period or adjustment is direct and complete. Therefore, if the value of ECT is 50% (ECT = 0.5) then the adjustment occurs in each year when the ECT is equal to zero (ECT =0), then no adjustment occurs it refers there is no long-run

association exist or make any sense. In our study, the ECM value is negative (-0.999970) and significant which is shows convergence and we can bring to a close that -0. 9% of adjustment from short run to long run is happened each year.

Table 4.8: Short-Run Results

Variable	Coefficient	Std. Error	t-Statistics	Prob.
D(LNCTYR)	0.007990	0.018604	0.429492	0.6759
D(LNCIG)	0.085119	0.039470	2.156567	0.0540
D(LNCEMENT)	-0.069032	0.047226	-1.461751	0.1718
D(LNJTEXT)	0.035019	0.030671	1.141756	0.2778
D(LNSUGAR)	0.039245	0.026381	1.487634	0.1649
D(LNTEXT)	0.125982	0.063176	1.994141	0.0715
CointEq(-1)	-0.999970	0.212814	-4.698804	0.0007

Cointeq = LNEMP - (0.1864*LNCTYR + 0.2280*LNCIG + 0.1525*LNCEMENT -0.0445*LNJTEXT + 0.1688*LNSUGAR+ 0.0847*LNTEXT-3.3774)

4.9 Stability Test

After different test and methods and found a valid result. Now we find we prove the steadiness and stability of the model. To check the stability of a model we used a plot of CUSUM test. The CUSUM

plot consist three lines two red lines and one blue line. The red line indicates at 5% significant level. If the blue line crosses the red line, it means our model is instable. In our study, the blue line is inside the red line. Thus, our mode is stable.

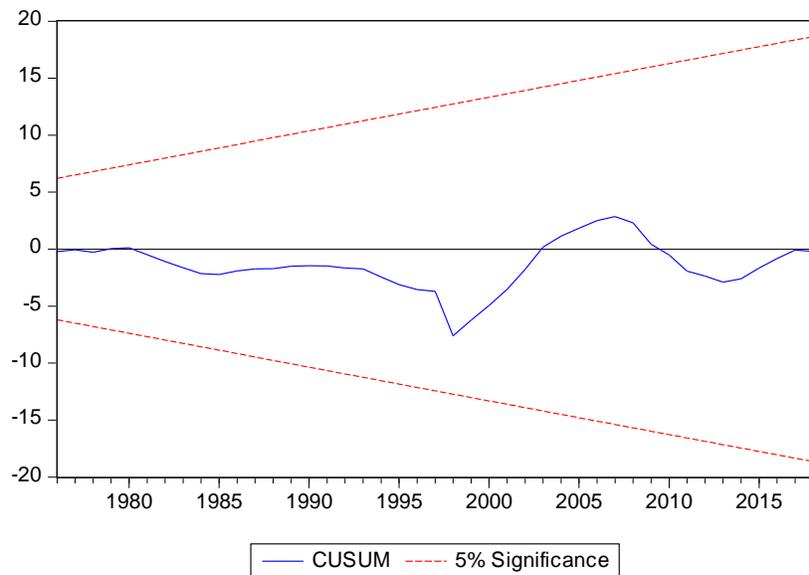


Figure-1 CUSUM test

5. Conclusion

The study shows that small scale industries on employment level in Pakistan for a period of 1971 to 2018. The study consist seven variables employed labor force (Employment) cycle tyres, cigarette, cement, total production of cloth (Textile), jute textile and sugar. Our all variables are not unit root at level and first difference. Thus, we used ARDL approach for short and long run. As a result, we found an affirmative and significant relationship both in short and long urn among the variables except jute textile. When production of sugar and cement are increase more and more labor force required. Similarly, textile production of cloth is also positive and significant impact on employment level. Furthermore, employment in one sector increase the production also increases in same sector along with other sectors.

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