Exports and Employment in Afghanistan: An Econometric Model Using (ARDL) Bounds Test Approach

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Abstract

Assimilation into the world economy and trade is essential for development, employment, and poverty eradication. Therefore, employment in the recent economic era brought out to be a burning issue in the emerging economies. Employment has social, economic, and environmental relations in any society. The improvement of export initiatives can boost the employment level up to a new rise. The main focus of this study is to find out the impact of exports of goods and services on the labor force of Afghanistan by applying the bounds testing (ARDL) approach to cointegration for the period 2004 – 2016. The tests suggest that the variable of exports of goods and services is bound together in the long-run when employment is the dependent level. The associated equilibrium correction was also significant confirming the existence of the long-run relationship. The results indicate also that there is no significant Granger causality from exports to employment and vice-versa. In addition, all diagnostic tests met the requirement of no rejection of null hypotheses such as using no specification, Ramsey's RESET test, Jarque-Bera test, and White Heteroskedasticity test. Moreover, the CUSUM and CUSUM square test shows that the model is structurally not stable. The study suggests various postulations such as supporting more investment in various sectors of the economy by providing loans, banking facilities and incentives and tax relief for manufacturers that provide employment. Notwithstanding, the study also proposes such productive and supportive policies for trade and foreign sectors to encourage the increase of exports.

Keywords: Afghanistan, Economy, Employment, Export, ARDL.
JEL Classification: O53, C22, J30, J64, E31

Introduction

In economics in order to bring optimum utilization of skills and resources, the country needs to technically focus on mobilization of its labor forces (Dizaji & Badri, 2014). Afghanistan in its last three decades has faced several problems regarding economic stabilization, growth and employment generation. Employment plays a critical rule in the dynamism of a person's standard living. Every society strives for the maximization of social wellbeing, and social wellbeing is dependent on per capita income, rational distribution of income, development of education, health and welfare facilities and social, economic, cultural and political participation of men and women. A society with higher employment and economic opportunities would benefit from higher social welfare because contribution in the business market would upsurge production, per capita income and eventually total social welfare, and hasten economic development. Developing countries should pay due consideration to this substance should they pursue the hastening of development, because development encompasses symphonic changes in the economy and social structures for the disposition of a fair system and the development of quality of life for people

(Aswicahyono, Brooks, & Manning, 2011). Specified this framework, we ought to ponder the export sector's possible demand for labor in order to measure if it is actually possible to pawn high unemployment in a country like Afghanistan by mounting exports. By extension, a greater volume of exports will bring not only greater sales abroad but also the displacement of goods imported to the domestic market (Bayerl, Fritz, & Ander, 2008). Additionally, exports errand specialty, permitting profits to accumulate from economies of scale (Helpman & Krugman, 1989). Export-driven companies also are apt to be more technologically innovative and their technical improvement feasts during the course of the entire economy (Grossman & Helpman, 1993). growth in export capacity would upsurge local product and employment level in numerous fields (food processing, industry, agriculture, etc.), development in quality and rise competition due to higher supply capacity and better products and the balance of payments for countries. Afghanistan during the last two decades faced a regional geopolitical and economic tension that causes our domestic production Afghanistan Exports - actual data, historical chart and calendar of releases - was last updated in February of 2018.[2] Afghanistan is the 104th largest export economy in the world. In 2016, Afghanistan exported $482M and imported $3.77B, resulting in a negative trade balance of $3.29B. The top exports of Afghanistan are Grapes ($96.4M), Vegetable Saps ($85.9M), Other Nuts ($55.9M), Knotted Carpets ($39M) and Tropical Fruits ($33.9M), using the 1992 revision of the HS (Harmonized System) classification. Its top imports are Wheat Flours ($664M), Peat ($598M), Ornamental Trimmings ($334M), Inedible Fats and Oils ($316M) and Petroleum Gas ($296M). The top export destinations of Afghanistan are India ($220M), Pakistan ($199M), Iran ($15.1M), Iraq ($10.1M) and Turkey ($9.1M). The top import origins are the United Arab Emirates ($1.6B), Pakistan ($1.37B), the United States ($912M), Kazakhstan ($486M) and India ($472M). Afghanistan borders China, Iran, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan by land and Afghanistan by sea.[3] The Afghan labor market is not to come in a rising picture. Moreover, lack of labor specialization in Afghanistan faced a huge problem in increasing the export capacity domestically. Therefore, the skilled and semi-skilled labors of neighboring countries have taken a big space during these two decades. The economic activities were widely interrupted by the Soviet invasion and civil war, which were responsible for the mass destruction of the country's limited infrastructure. However, the fall on the Taliban forces in 2001 and infusion of billions of US dollars improved trading significantly. Trading is mainly done with neighboring countries.[1] In Afghanistan, exports account for around 20 percent of GDP. Afghanistan main exports are carpets and rugs (45 percent of total exports); dried fruits (31 percent) and medicinal plants (12 percent). Main export partners are Pakistan (48 percent of total exports), India (19 percent) and Russia (9 percent). Others include Iran, Iraq, and Turkey. This page provides - Afghanistan Exports - actual values, historical data, forecast, chart, statistics, economic calendar and news.

characterized by a young and fast-growing workforce. Decades of conflict, international migration, and relatively high fertility rates make Afghanistan—together with Pakistan and Nepal—one of the youngest countries in South Asia.[4] The share of the population aged 15 or below is as high as 51.3 percent, meaning that more than one in every two Afghans is economically dependent.[5] Afghanistan's population pyramid is characterized by a wide base that will maintain a sustained rate of growth in the number of new labor market entrants for the decade to come, especially in rural areas. It is estimated that the labor market will have to accommodate an annual flow of 400,000 to 500,000 new labor market entrants over the coming five to 10 years.[6] Households are the first employer in Afghanistan, while the formal labor market is very thin and dominated by the public sector. As common to other fragile and less developed countries, self-employment working arrangements are the most common form of employment in Afghanistan, both in rural and urban areas where they account for 43 percent

[1] Economywatch.com/Afghanistan/export-import

[2] tradingeconomics.com/Afghanistan/exports

[3] The Observatory of Economic Complexity/Afghanistan. You can find at: https://atlas.media.mit.edu/en/profile/country/afg/#Exports

[4] World Bank (2011): "More and Better Jobs in South Asia."

[5] The dependency ratio—defined as the number of children aged 0-15 over the working age population (16 and above)—is 52.44 percent and 46.68 percent in rural and urban areas, respectively.

[6] These estimates were obtained using UN population projections by age categories and by gender, and assuming that age group and gender specific labor market participation rates will remain stable over the next 5-10 years. Projections based on National Risk and Vulnerability Assessment (NRVA) population data lead to similar results—approximately 470,000 new labor market entrants per year.

and 49 percent of the total, respectively. Afghan households represent the first source of jobs in Afghanistan. Including unpaid family work, Afghan households are responsible for as much as 77 percent of total employment nationwide, or about 5.8 million jobs. If one was to aggregate the number of self-employed, contributing family workers and day laborers into a broader 'informal employment'[7] category, the formal labor market share will result to be extremely low, representing only 9.4 percent of total employment nationwide. As expected, formal employment is more common in urban areas, mainly due to the contribution of public jobs, which represent 20 percent of total employment in Afghan cities and twice the number of salaried jobs in the private sector, nationwide.

Agriculture is the largest sector of employment in Afghanistan. Workers employed in the agriculture sector represent 60 percent of total employment, meaning that three out of five workers have their main source of income in farm-related activities. This share is, of course, higher in rural areas, where employment in agriculture in almost 70 percent. Employment in agriculture is mainly characterized by small family businesses that half of the time produce for mere subsistence and seldom provide enough resources to sustain families throughout the year.

During the years 2002 – 2017, Afghanistan faces a steady growth of manufacturing and agricultural technology amid of the labor productivity that was applied traditionally. Technology as per Kiley's (1998) saying, can bring a contractionary shock to the permanent employment due to efficiency and effectiveness of work. Time and wages are much important while considering the manufacturing and agricultural exports. Notwithstanding, arguments regarding the numerical significance of technology as a source of business cycles, technology's consequence on employment is predictably observed as expansionary. Recently, a number of studies – Jordi Gali (1999), Michael Kiley (1998), and Susanto Basu, John Fernald and Miles Kimball (2005) have conveyed that advantageous technology shudders may condense total hours worked in the short run. This is an imperative result for the reason that if it is deep-rooted, the variation persuaded by technological advancement may interrupt a simple fact of the business cycle: output and employment stalwartly co-move.

A joint economic insinuation of technology is that it generates an opposite association between productivity and employment levels. As stated by economic theory, one would forestall employment levels to upsurge, due to intensifications in the productivity of the labor force, but this has not been the case owing to novelty and technology. The evolution of technology has efficaciously accomplished to escalate economic growth for nations by hovering output, competence and output levels, inconsistently at the cost of fettering employment prospects within particular segments. Sequentially, the gross domestic product would uplift because of the growth of technology even as median income and employment statistics may certainly shrink at the same time, engendering larger disparity. Therefore, it can be said that technology is probably to slog on the breach between the rich and poor as richer individuals and nations will be unfilled with more prospects (i.e. employment and investment) compared to those with softer skills and trifling education.

Literature Review

A technological shudder will certainly drop the demand for low skilled workers, nonetheless, it is likely that such workers will be capable to re-train and search employment somewhere else. This conversely hinges on the elasticity of the labor force in respects to variations in technology. If a labor market is extremely malleable and approachable to technological vagaries, then employment levels are doubtful to be abridged or even possibly snowballing in the future. A smaller amount of skillful workers will require to stay integral with technology movements by emerging IT, social and even inventive skills.

A positive relation between trade and employment in Japan in period 1975-2006 has been found out with a significant approach to the decision. The major findings are threefold. First, the demand for worker-hours from exports increased but this is not large enough to offset the decreases in demand for worker hours from domestic final demand. As a result, total worker-hours

[7] According to ILO's definition of informality, informal employment refers to jobs without any written contract and lacking social security coverage. The concept was adopted in the form of guidelines by the 17th International Conference of Labor Statisticians (ICLS) in an attempt to capture the increase of unprotected jobs in both formal and informal sector (OECD; 2009).

in Japan have declined since 1990. Second, the demand for employment from exports has increased since 1985 both in manufacturing and non-manufacturing. This result implies that the manufacturing exports affected indirectly non-manufacturing employment through inter-industry linkages. Finally, the overall demand for working-hours from exports and domestic final demand declined between 1980 and 2006 although it increased slightly in manufacturing after 1995 (Kiyota, 2011).

Sous and others (2012) studied the relation between EU export and employment in period 2000-2007. In addition, the study finds that the exports of goods and services to the rest of the world supported around 25 million jobs in Europe in 2007 (an increase of 3 million since 2000). Two main additional insights stand out from this analysis: the importance of the complementary relation between the Single Market and external trade for job creation in Europe, and the servicification of the employment supported by exports.

The late 18th century manifested the start of a transference in countries' industrious activities away from agriculture headed for industry (Malan, 2015). Industrialization is extensively acknowledged as a restorative to growth, as mirrored in growing per capita income and a more well-versed and fecund economy (Kemp, 2013). Industrialization is traditionally viewed as having started in Britain, from where it spread to Europe and North America in the early 19th century. Not all countries were able to embrace change with the same degree of success, and this led to the phenomenon of 'advanced' countries and more 'backward' countries. The bumpy extent of industrialization ever since the middle of the 19th century was the key aspect backing to the blunt divisions we see in the world today amid the developed and developing economies (Szirmai, 2012).

It is indistinct from the literature that industrialization played a noteworthy part in altering the atmosphere of manufacturing so that it suited a basis of significance to an economy. Innumerable studies (Kuznets, 1966; Chenery et al., 1986; Chenery & Pack 1988) that emphasis on industrializing economies along with the developed economies of nowadays show that at an aggregate level, economic development is considered by structural transformation viz. manifest by the initial progress and ultimate decay of industries.

During the 1970s, Afghanistan's industry was motionless at a newborn phase, backing 10-13% of GDP. A significant part of the industry was in the public sector (either through direct nationalization or through the nationalization of banks in 1975-76). These industries were primarily handing out primary goods (cotton textile industry, urea fertilizer, cement, and other construction materials, food processing). Nonagricultural private enterprises were moderate in nature, expressly the handiworks industry (according to official statistics, it contributed to 9% of the GDP and employed 300,000 persons in 1981 (Nyrop, 1986). According to employment data from UNIDO, in 1988 textiles represented a third of industry, while food products and the chemical industry each represented 15-20% of employment in the industry.

Lapadre (2011) has deliberate the relation between trade and employment and wage levels in Italy through time series data for 1999-2008. He concluded that main implemented policies in Italy help the correspondence and compatibility of employment and wage levels against foreign tremors.

Falk and Wolfmayr (2005) studied the impacts of employment on the trade of intermediary inputs for seven European Union countries for 1950-2000 and in the result it was found out that the effect of materials import on total employment is negative and significant for countries with low wage levels.

Sousa and others (2012) studied the relation between EU export and employment in period 2000-2007. Hitherto, the research concluded that the exports of goods and services to the rest of the world reinforced around 25 million jobs in Europe in 2007. Two main additional perceptions stand out from this analysis: the significance of the corresponding relation between the single market and external trade for job creation in Europe, and the servicification of the employment reinforced by exports.

Data Sources and Description of Variables

Our study uses the annual time series data covering the period from 2002 to 2016. The data were retrieved from the World Bank database. The considered variables are Employment as an independent variable and Exports as a dependent variable.

Our whole dataset comprises of fifteen years of annual observations from 2002 to 2016. The descriptive statistics are shown in table 1 and unveils that the average of labor force is 7926248 with the standard

deviation of 1380419. The average for Export is 4.65E+10 with the standard deviation of 2.12E+10.

All the variables are right-skewed. Kurtosis statistic of the variables shows that only INF and COAL are platykurtic (short-tailed or lower peak). A Jarque–Bera test shows that the residuals of Employment and Export are not normally distributed.

Table 1. Statistical Analysis of Descriptive Variables

	EMPLOYMENT	EXPORT
Mean	7926248.	4.65E+10
Median	7549815.	4.98E+10
Maximum	10551800	9.25E+10
Minimum	5934968.	2.27E+10
Std. Dev.	1380419.	2.12E+10
Skewness	0.508030	0.490134
Kurtosis	2.222101	2.271221
Jarque-Bera	1.023439	0.932527
Probability	0.599464	0.627342
Sum	1.19E+08	6.97E+11
Sum Sq. Dev.	2.67E+13	6.31E+21
Observations	15	15

Econometric Methodology and Empirical Results

Econometric Model

We specify the following equation to investigate the effects of exports on employment of Afghanistan economy:

$$\ln(Emplt) = \beta_0 + \beta_1 \ln(Exprt) + U_t \qquad (1)$$

Where Empl, and Expt represent employment and exports. Ln represents the natural logarithmic form of the series. Parameters β_0 and β_1 are the long-run elasticities of exports with respect to employment respectively. Engle and Granger (1987) test, maximum likelihood-based Johansen (1988), Johansen (1991) and Johansen-Juselius (1990) tests are the most widely used methods to investigate Cointegration (long-run relationship) among variables. These methods necessitate that all the variables included in the model must be stationary at first difference, i.e. I(1). Because of numerous econometric benefits over other methods of co-integration, this approach has extended wide recognition. This approach is equally good if all variables in a model are I(0) or I(1) or even marginally assimilated (Pesaran & Pesaran, 1997). ARDL approach to co-integration offers vigorous consequences and splendid unswerving approximations of the long-run coefficients in case of small samples (Pesaean & Shin, 1998).

$$\Delta \ln(Emplt_t) = \beta_0 \sum_{i=1}^{q} \beta_{1i} \Delta \ln(Emplt_{t-1}) + \sum_{i=0}^{q} \beta_{2i} \Delta \ln(Exprt_{t-1}) + \beta_{3i} \ln(Emplt_{t-1})$$

$$+ \beta_{4i} \ln(Exprt_{t-1}) + U_t \quad (2)$$

where Δ is the first difference operator, q is optimal lag length, β_1 *and* β_2 represent short-run dynamics of the model and β_3 and β_4 are long-run elasticities. Before running the ARDL model we tested the level of integration of all variables because if any variable is I(2) or above ARDL approach is not applicable. For this, we use ADF test and PP. In order to find out the long-run relationship as given in the aforementioned equation (1), we conducted the bounds test of equation (2), i.e. lower bound and upper bound. The null hypothesis assumes no cointegration among variables. If the value of F-statistic is greater than the upper bound, then the null hypothesis is rejected and if it is less than the lower bound then null hypothesis is accepted and if it falls between the lower and upper bounds the test is inconclusive. After testing cointegration we use Akaike Info Criterion to select the optimal lag length of variables. An error correction version of equation (2) is given as follows:

$$\Delta \ln(Emplt_t) = \beta_0 \sum_{i=1}^{q1} \beta_{1i} \Delta \ln(Emplt_{t-1}) + \sum_{i=0}^{q2} \beta_{2i} \Delta \ln(Exprt_{t-1}) + \lambda EC_{t-1} + \varepsilon_t \quad (3)$$

Where q^1 and q^2 represent optimal lag length, λ is the speed of modification parameter and EC signifies the error correction term derived from long-run relationship as given in equation (2).

Empirical Findings

Unit Root Tests

In time series analysis, before applying the causality test the variables must be tested for stationarity. Therefore, in this research we use the conventional ADF test, the Phillips-Perron test following Phillips and Perron (1988) and the Dickey-Fuller generalized least square (DF-GLS) de-trending test proposed by Elliot et al. (1996).

The ARDL bounds test is centered on the supposition that the variables are I(0) or I(1). As a result, before applying this test, we require to find out the order of the null hypothesis of non-stationarity for all the variables used in this study (Table 3). It is, integration of all variables using the unit root tests. The propose is to make certain that the variables are not I(2) so as to elude counterfeit consequences. In the occurrence of variables integrated of order two, we cannot interpret the values of F statistics provided by Pesaran et al. (2001).

The findings of the stationarity tests indicate that all variables are non-stationary at level. These results are given in Table 2. The ADF, the Phillips-Perron and DF-GLS tests applied to the first difference of the data series reject

consequently, worth concluding that all the variables are integrated of order one.

Table 2. ADF and PP unit root tests at level on log levels of variables

Variables	ADF[2] Test				PP[3] Test[4]		
	AIC[1] Lag	t – Stat	Critical Value at 5%	Critical Value at 10%	t – Stat	Critical Value at 5%	Critical Value at 10%
Lnemployment (*)	3	3.0797	-1.9777	-1.6020	6.5666	-1.9684	-1.6043
Lnemployment (**)	3	2.3484	-3.1753	-2.7289	0.3031	-3.0988	-2.6904
Lnemployment (***)	3	-5.320	-3.9333	-3.4200	-1.2279	-3.7911	-3.3422
Lnexport (*)	3	-0.935	-1.9740	-1.6029	-1.1630	-1.9684	-1.6043

Lnexport (**)	3	-0.604	-3.1449	-2.7137	-0.7987	-3.0988	-2.6904
Lnexport (***)	3	-2.645	-3.9333	-3.4200	-2.4843	-3.7911	-3.3422

[1] Akaike Info Criterion [2] Augmented Dickey-Fuller [3] Phillips-Perron
*model without intercept and trend ** model without trend ***model with intercept and trend
[4]In PP Test - Spectral Estimation Method and Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

Table 3. ADF and PP unit root tests on first differences of log levels of variables

Variables	ADF[2] Test				PP[3] Test[4]		
	AIC[1] Lag	t – Stat	Critical Value at 5%	Critical Value at 10%	t – Stat	Critical Value at 5%	Critical Value at 10%
Lnemployment (*)	3	-0.9446	-1.9740	-1.6029	-0.8670	-1.9709	-1.6036
Lnemployment (**)	3	-3.7139	-3.2126	-2.7476	-1.6570	-3.1199	-2.7011
Lnemployment (***)	3	-2.1881	-4.0081	-3.4607	-1.7828	-3.8289	-3.3629
Lnexport (*)	3	-3.4413	-1.9709	-1.6036	-3.4413	-1.9709	-1.6036
Lnexport (**)	3	-2.8126	-3.1449	-2.7137	-3.7908	-3.1199	-2.7011
Lnexport (***)	3	-2.6280	-3.8753	-3.3883	-3.7084	-3.8289	-3.3629

[1] Akaike Info Criterion [2] Augmented Dickey-Fuller [3] Phillips-Perron
*model without intercept and trend ** model without trend ***model with intercept and trend
[4]In PP Test - Spectral Estimation Method and Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

Optimal Lags Selection

In table 4 it shows that the optimal lags selected by AIC and SC model is 4.

Table 4. Optimal Lags

Lag	Log	LR	FPE	AIC	SC	HQ
0	5.804084	NA	0.001718	-0.691652	-0.619307	-0.737255
1	50.35164	64.79644	1.11e-06	-8.063934	-7.846900	-8.200743
2	59.89725	10.41340	4.54e-07	-9.072227	-8.710504	-9.300243
3	65.33752	3.956563	4.81e-07	-9.334095	-8.827683	-9.653317
4	102.0045	13.33345*	3.02e-09*	-15.27355*	-14.62245*	-15.68398*

*indicates lag order selected by the criterion
LR: sequential modified LR test statistics (each test at 5% level)
FPE: Final Prediction Error
AIC: Akaike Information Criterion
SC: Schwarz Information Criterion
HQ: Hannan-Quinn Information Criterion

Bounds Test

Outcomes of long-run relationship are profound to lag-length designated in the model (Bahmani-Oskooee & Ng, 2002). Table 5 depicts the calculated F-statistics to select optimal lag-length in the model. As said by

Pesaran et al. (2001), with lag of order 1 the lower and upper bound values at 5% significant level at n = 1000 are 3.62 and 4.16. Therefore, we conclude that there is long-run relationship among the variables.

Table 5. Bounds Test for the checking Cointegration

F-Bounds Test				Null Hypothesis: No levels relationship
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	659.2662*	10%	3.02	3.51
k	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58
Actual Sample Size	11		Finite Sample: n=35	
		10%	3.223	3.757
		5%	3.957	4.53
		1%	5.763	6.48
			Finite Sample: n=30	
		10%	3.303	3.797
		5%	4.09	4.663
		1%	6.027	6.76

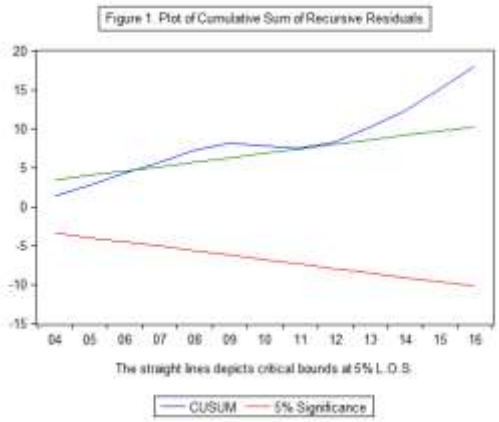
*If the F-statistics value is greater than the I(1) value at 5% L.O.S., it concludes there exists Cointegration; there is a long run relationship in projected variables (Pesaran, Shin, & Smith, 2001).
Note: If the F-statistics falls into the bounds then the cointegration test becomes inconclusive. In this case following (Kremers, Ericsson, & Dolado, 1992) and (Banerjee, Dolado, & Mestre, 1998), the error correction term will be a useful way for establishing cointegration.

Table 6 comprises the consequences of error correction depiction of the selected ARDL model. Coefficients of the variables with Δ sign display the short-run elasticities. Consequences signify that in the short-run *Exprt* once again is the significant factor (with the largest coefficient and largest t-ratio) of *Exports levels*. However, the variable *Exprt* affect the employment level at 5% significant level. There is a negative relationship in the short run. The co-efficient of error correction term (-0.136598) is significant at 5% level. Highly significant negative sign of the error correction term underpins the actuality of long-run relationship among the variables. Nonetheless, the speed of adjustment from the previous year's uncertainty in export to the current year's equilibrium is 13.658%.

The analysis tested the constancy of the selected ARDL based on error correction model using the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ) stability testing technique stated by (Brown, Durbin, & Evans, 1975). CUSUM and CUSUMSQ plots have been revealed in figure 1 and 2 correspondingly. Meanwhile, both the plots remain not within critical bounds at 5% level of significance, we conclude that the model is structurally unstable.

Table 6. Error Correction Representation of the Selected ARDL Model Dependent Variable Δ ln(Emplt)

ECM Regression Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNEMPLOYMENT(-1))	-0.250988	0.020042	-12.52312	0.0507
D(LNEMPLOYMENT(-2))	0.225707	0.013934	16.19807	0.0393

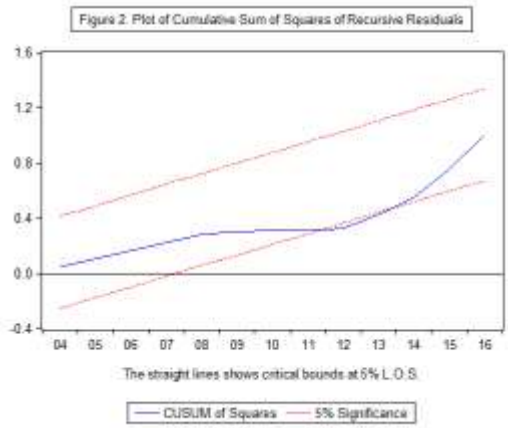


D(LNEMPLOYMENT(-3))	-0.031055	0.007037	-4.413243	0.1419
D(LNEXPORT)	-0.017568	0.000303	-57.94238	0.0110
D(LNEXPORT(-1))	0.043324	0.000892	48.58013	0.0131
D(LNEXPORT(-2))	0.026138	0.000417	62.61821	0.0102
D(LNEXPORT(-3))	0.019539	0.000584	33.43177	0.0190
CointEq(-1)*	-0.136598	0.001773	-77.02854	0.0083

R-squared	0.999971	Mean dependent var	0.037706
Adjusted R-squared	0.999904	S.D. dependent var	0.015983
S.E. of regression	0.000157	Akaike info criterion	-14.52635
Sum squared resid	7.39E-08	Schwarz criterion	-14.23697
Log likelihood	87.89490	Hannan-Quinn criteria.	-14.70876
Durbin-Watson stat	3.248276		

*p-value not compatible with t-bounds distribution

In figure 2 it is shown that the line got out of the critical bounds with a slight difference. The year 2012 and 2013 shows that there has been an instability within the structure applied.



The diagnostic tests given in the Table 7 are studied from the restricted error correction (short-run) model (RECM). The Lag-range multiplier tests are implemented to test the null hypotheses of no serial correlation in the residuals for lag-four periods. Hypotheses cannot be rejected (p-values are 0.1189). The Null hypothesis of no mis-specification is not rejected by the calculated Ramsey's RESET test statistic (p-value is 0.9134). The null hypothesis of normality is not rejected according to the Jarque-Bera normality test (p-value is 0.4120). Performing the Breusch-Pagan-Godfrey heteroscedasticity test confirms that there is no heteroscedasticity in the residuals (p-value is 0.1357). In conclusion, the null hypothesis of no serial correlation at up to 4 lags is tested is not rejected (p-value is 0.1556). All diagnostic test results ratify that all needed circumstances for the restricted error correction model are met.

In table 8 the Chow Breakpoint and Chow Forecast tests are applied to study significant structural break in the data in 2012 and over the period 2005 – 2016.

We choose 2012 as a breakpoint because in this year certain economic instability arose amid the U.S. aid was in an ebb level. The F-statistics do not indicate any structural break, while the log likelihood ratio indicates a structural break.

Table 7. Diagnostic tests from the Restricted Error Correction Model

Null Hypothesis	Test Statistics	df	p-value
Breusch-Godfrey serial correlation test	$\chi2$=7.3407	1	0.1189
Normality (Jarque-Bera test)	$\chi2$=0.4120	1	0.8138
Homoscedasticity	$\chi2$=2.4434	1	0.1180
Ramsey's RESET test statistics	$\chi2$=0.01539	1	0.9012

Table 8. Statistical output for stability tests

	Forecast period, Breakpoint	F-statistics	Prob. Of F-statistics	Log likelihood ratio	Prob. Of Log likelihood ratio
Chow Forecast Test	2005 – 2016	1.5872	0.5572	44.9708	0.0000
Chow Breakpoint Test	2012	5.4402	0.0228	10.3154	0.0058
Wald Statistic	2012	10.8804	0.0043		

Findings of short-run Granger causality tests are depicted in table 9. In the short-run, the F-statistics on the explanatory variables suggests that at the 5% level there is no Granger causality from exports to employment and vice-versa. These results indicate that there is no significant Granger causality from exports to employment.

Table 9. Results of Short-run Granger Causality

Null Hypothesis:	Obs	F-Statistic	Prob.
LNEXPORT does not Granger Cause LNEMPLOYMENT	11	4.89235	0.1769
LNEMPLOYMENT does not Granger Cause LNEXPORT		1.79143	0.3888

Conclusion and Suggestions

Job's accessibility to the desired position is quite a big issue these days in the market. Hence, employment is one the crucial concerns of communal developers since societal growth in any country is eventually dependent on personnel resources. As a result, devoting special attention to employment and its contributing factors are of importance. Due to that, the seamless and suitable deployment of human resources in a country have a duty to be considered as one of strategic development goals. Upsurge in technological upgradations and the use of such technologies in handicraft and semi-handicraft industries brought out a huge gap in employment rate. Hitherto, the labor specialization during the determined era also diminished the employment level in spite of the enhancement in the export levels of Afghanistan. However, as the relation got negative, it simply clarifies that Afghanistan's industries got affected badly with the technological trend in terms of employment and labor specialization. The matter of fact is that during that time our neighbor countries such as Pakistan and Iran, brought a wide attention in area of specialization and technicalities. This occurred because the U.S. coalition along with its allies were indulged in Afghan civil war post-Taliban

period. Education level was at the basic stage. Therefore, there was a need to use and give support to the specialized tasks during the operations. Unluckily, the specialized labor force of Afghanistan was so less that majority were indulged with U.S. operations and sights. In this study, by utilizing autoregressive-distributed lag modeling (ARDL) bounds test approach, the effect of export on employment in Afghanistan's economy was studied. The estimated long-term and short-term models are reliable in both terms of explanatory power and significance of regression. The results of this study revealed that the elasticity of export to total employment for 2004-2016 was negative and highly significant. In addition, all the diagnostic test results approve that all desired situations for the restricted error correction model are met. Also, the following points are proposed to increase employment rates in Afghanistan:

1. Supporting various investment schemes in different sectors of the economy by availing loans, banking facilities and inducements and tax relief for manufacturers that provide employment;
2. Executing suitable policies for trade and international and domestic sectors to support the increase of exports;
3. Applying steadying policies for exchange rates to enlarge trade with neighboring countries;
4. Increase handicraft industries that strongly employ labors in various fields.

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