



## THE EFFECTS OF GLOBALIZATION ON EMPLOYMENT: BOUNDS TEST APPROACH IN TURKEY SAMPLE



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### ABSTRACT

*The increase of economic, political, social, and cultural relationships between the countries with globalization has resulted in a shift from industrial society to information society. With knowledge-intensive work being replaced by labor-intensive work in the process of globalization, economic and social structural transformation has occurred. Globalization affects the countries economically and socially. One of these affected areas is employment. In this study, ARDL (Autoregressive Distributed lag) bound test approach was analyzed using Turkey's data in 1970-2011 to find about the effects of globalization on employment. As a result of analysis, it was found out that the series were in a co-integration correlation. The findings showed that globalization affected employment positively in the long term, and the deviations in the series in the short term are removed in the long term.*

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### Contribution/ Originality

This study contributes to the existing literature by method, sample and the time period. This study is one of very few studies which have investigated the relationship between globalization (KOF) and employment.

### 1. INTRODUCTION

Globalization is the case that the world becomes united in one market with the current growth in the worldwide markets and going beyond the national borders (Şaylan, 1997). Globalization is the socio-economic integration throughout the world and it is one of the most popular topics of international economy. It is a process in which the events, decisions, and movements occurring in a part of the world affect the other parts in a meaningful way (Pradhan, 2010). According to Norris (2000) globalization is understood as a process that removes national boundaries, integrating national economies, cultures, technologies, and governance, and producing complex relations of mutual interdependence (Norris, 2000). Globalization process is recently one of the most debated issues. With the technological advances and the acceleration of globalization, it is defined as the global integration of economic, social, cultural, and politics on an international scale.

Under the global economic framework, some describe globalization as a movement in the direction of increasing world economic integration through the reduction of barriers to exchange and increased international flows of capital and labor force (Chang and Lee, 2010). Additionally, according to Rees and Edwards (2006) the economic globalization is the increase in the functional unity of the national economy. As defined by Dreher (2006) globalization has a positive impact on the welfare of the country. In this sense, globalization has recently carried out a very important structural and economic transformation. With the advent of globalized economies, socio-economic structures and economies of the countries are affected by this structural change. In this case, international interdependence increases and countries become more dependent on the events and decisions that take place in different countries. With the globalization trend, both developed and developing countries has entered into a rapid process of interaction. The most remarkable feature of this process is that the societies eventually keep up with capital, labor, and service mobility. In this respect, boundaries are eliminated, and more countries are entering into efforts to find cheaper and more qualified labor. Moreover, labor (employment), labor provision, and working conditions have entered the globalization process too (Koray, 1997). Labor and employment's entering into the globalization process changes the production and consumption concepts of the countries<sup>1</sup>.

In this study, the effects of KOF (2015) (German acronym for "Konjunkturforschungsstelle" (Economic Research Center)) globalization index as a whole on employment were studied in the sample of Turkey by ARDL (*Autoregressive Distributed lag*) bound test approach by using the data derived in 1970-2011 period. In studies in the literature, there are many studies which are based on unemployment, instead of employment, data that covers a long term. In this context, this study is expected to contribute to literature with regards to the period covered, methods and sample. The theoretical aspects of the relationship between globalization and employment were discussed in the study, the information about the development of globalization in Turkey was given, and literature review was conducted. Then, empirical studies were conducted and the conclusions in light of these findings were analyzed.

## 2. THEORETICAL FRAMEWORK

In this section, conceptual information regarding globalization and the globalization index were given. Additionally, the relationship between employment and globalization, and the globalization trend in Turkey are discussed.

### 2.1. Globalization Concept and Globalization Index

It is very challenging and difficult to define globalization in bold lines. It is observed that many more concepts were produced based on adding prefixes to globalization especially after the 1980s. Global politics, global communications, global finance, and global poverty are some of them (Çeken *et al.*, 2008). Although the globalization concept is meant to be used for changes in various disciplines, it is correct to suggest that this concept is mainly associated in economic context. For instance, Özel (2012) defined that globalization is the elimination of the factors that impede the entry of goods and services to the country as well as the free movement of goods and technology that are necessary of production.

There are two basic reasons that complicate the concept of globalization. Firstly, this concept does not have an internationally-regarded definition, and secondly globalization has diverse dimensions that make it difficult to evaluate it all in a single index (Martens *et al.*, 2008). New tools were developed to investigate the effects of globalization. In this context, there are many parameters that make up globalization. Most dimensions of globalization are strongly related to each other, so including them separately in a regression induces collinearity

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<sup>1</sup> For globalization and structural change, see McMillan, Rodrik and Verduzco-Gallo (2014).

problems (Dreher, 2006). Therefore, KOF globalization index makes it possible to test the effects of globalization as a whole. Unlike the other indices, KOF<sup>2</sup> globalization index considers the different dimensions of globalization and it offers comprehensive evaluation opportunity by weighting economic globalization by different parameters. Many studies are trying to demonstrate the effects of globalization on the basis of this index (Potrafke, 2014).<sup>3</sup>

Globalization has been discussed by its different dimensions and consequences in academic studies. However, as a whole, economic globalization index covered by the social and political dimensions were structurally suggested by Dreher (2006). Accordingly, the increase in economic integration is moving parallel to the political and social integration in time. In this regard, different dimensions of globalization affect one another. Dreher (2006) reviewed globalization in four main domains, and he prepared four different indices. This index is composed of one globalization index and three sub-indices as a whole. The sub-indices are economic globalization, political globalization and social globalization.<sup>4</sup> This index, which is named as KOF globalization index, makes it possible to test the effects of globalization both separately and as a whole (Dreher, 2006).

The components of globalization are shown in Table 1.

**Table-1.** Components of index of globalization

<b><u>A-Data on economic integration</u></b>
1-) Actual Flows
a-) Trade (in percentage of GDP)
b-) Foreign direct investment (in percentage of GDP)
c-) Portfolio investment (in percentage of GDP)
d-) Income payments to foreign nationals (in percentage of GDP)
2-) Restrictions
a-) Hidden import barriers
b-) Mean tariff rate
c-) Taxes on international trade (in percentage of current revenue)
d-) Capital account restrictions
<b><u>B-Data on political engagement</u></b>
a-) Embassies in country
b-) Membership in international organizations
c-) Participation in UN Security Council missions
<b><u>C-Data on social globalization</u></b>
1-) Data on personal contact
a-) Outgoing telephone traffic
b-) Transfers (in percentage of GDP)
c-) International tourism
d-) Telephone average costs of call to USA
e-) Foreign population (in percentage of total population)
2-) Data on information flows
a-) Telephone mainlines (per 1000 people)
b-) Internet hosts (per capita)
c-) Internet users (as a share of population)
d-) Cable television (per 1000 people)
e-) Daily newspapers (per 1000 people)
f-) Radios (per 1000 people)
3-) Data on cultural proximity
a-) Number of McDonald's restaurants (per capita)

Resource: Dreher (2006).

<sup>2</sup> The best index to measure all dimensions of globalization is given as KOF globalization index. See Samimi, Lim and Buang (2012). for other indices.

<sup>3</sup> See the link for the studies that were conducted with KOF index: <http://globalization.kof.ethz.ch/papers/>.

<sup>4</sup> For detailed information, see Dreher (2006); Dabour (2000); Dreher, Gaston and Martens (2008); Rao, Tamazian and Vadlamannati (2011).

Indices related to the table above are valued between 0 and 100. In this measure, 0 value represents that there is no globalization, while 100 value shows that globalization was fully completed.

## 2.2. The Relationship between Globalization and Employment

After the end of World War II, progress experienced in many Asian countries is pronounced as a significant outcome of globalization. But the increasing income inequality as a result of the economic crisis emerged in 2008 has led to the questioning of globalization (Potrafke, 2014). When evaluated in general terms, it is known that many scientists concluded that there is a positive net effect of globalization (Dreher, 2006)<sup>5</sup>.

The impact of globalization on employment is a central issue of contemporary political economy. From the point of view of workers in developed countries, although globalization is often seen as a threat, increased employment in developing countries is seen as a major contribution to reducing poverty and meeting the Millennium Development Goals<sup>6</sup> (Rama, 2003). However, the impact of globalization on labor markets and the mechanisms in global economy may lead to job creation (Jenkins, 2006). Especially in developing countries the importance of the relationship between globalization and employment is increasing. This relationship is surprisingly<sup>7</sup> difficult for many reasons, because globalization is a multi-faceted phenomenon, and each facet may have different effects on employment, varying by country, time, industry, policies and the like<sup>8</sup>. It comes as a part of large array of economic, technical, social, legal and policy changes, each with interactions and feedbacks, making it difficult to separate the effects of globalization (Lall, 2003). In this context, there are a variety of ways in which globalization affects labor: the most important ones are through increased trade, foreign direct investment (FDI) and international technology transfer. Empirical research has given much more attention to the effects of trade on labor markets than to the impacts of FDI<sup>9</sup>. However, employment creation is regarded by governments as an important potential contribution that FDI can make to their economies (Jenkins, 2006). According to the generally accepted view, by means of FDI technology transfer will increase, rise in efficiency and competitiveness of the industrial sector will be ensured, costs of quality product manufacturing will decrease, and all these factors will increase export performance and they will affect employment positively (Sun, 1996; Barrell and Pain, 1997; Borensztein *et al.*, 1998; Jayaraman, 1998; Javorcik, 2004). Additionally, FDI may adversely affect employment in different ways. In today's world where competition conditions are more difficult, multinational enterprises (MNEs) are thought to capitulate on worker rights in order to reduce costs (Young and Tavares-Lehmann, 2008). When FDI is made in the host country, increase in demand in the labor market is experienced. This will eventually lead to the deterioration of the balance of payments and affect employment negatively (Apergis *et al.*, 2006). For instance, Feenstra and Hanson (1997) found out in their study on the sample of Mexico in 1975-1988 time of period that FDI in the country results in the increase of demand for skilled labor and the payments increased at 50% per period. On the other hand, foreign investors' running the most skilled workforce within their own firms and leaving less qualified workers to local firms is one of the other negative impacts (Lipsey and Sjöholm, 2005).

According to Selamoğlu (2002) recently accelerating technological developments, intensifying international trade, reduction of low-level manufacturing jobs, and competition are the main factors that affect employment. Furthermore, post-industrial society transformation and globalization accelerates the interaction between these factors

<sup>5</sup> See Jansen, Peters and Salazar-Xirinachs (2011); Jiang (2015); Felbermayr, Prat and Schmerer (2011).

<sup>6</sup> For the effects of globalization on labor in developing countries, see Rama (2003).

<sup>7</sup> See Ghose (2000).

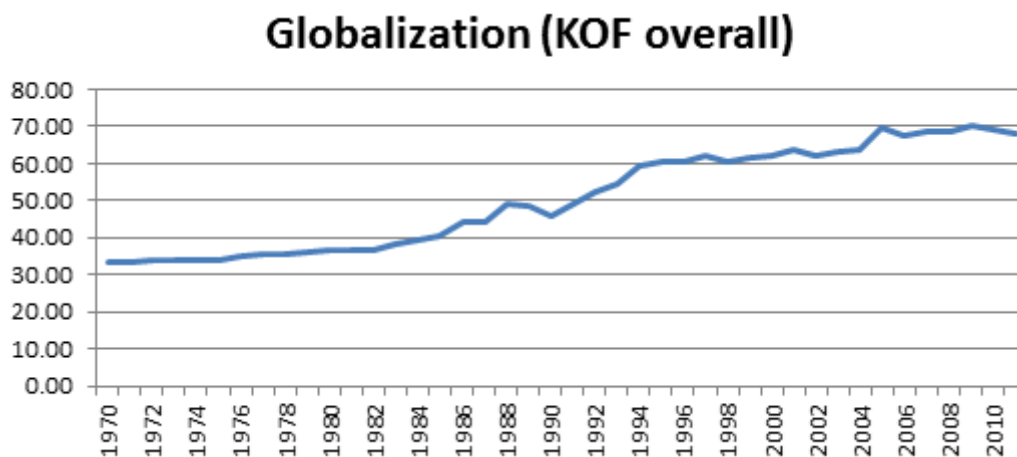
<sup>8</sup> For more information, see O'Rourke and Williamson (2000); Lindert and Williamson (2001).

<sup>9</sup> See Baldwin (1995); Sen (2002); Doğan and Can (2016).

that has an effect on employment (Selamoğlu, 2002). With increased interaction, globalization shifts from post-industrial society to information society. While change from industrial society to the information society is observed in the world, economic and structural change is inevitable with knowledge-intensive work replacing labor-intensive work. At the same time, the countries which cannot keep up with the structural transformation brought by globalization in the world are facing the problem of unemployment (Erdoğan, 1999). In this regard, the impact of globalization on employment is important.

### 2.3. Globalization in Turkey

Turkey's economy has given importance to global integration movements and involved in them since the foundation of Turkish Republic. Especially with the structural transformation after 1980, Turkey has started its integration process with the world economy by experiencing first trading then financial liberalization process. While there have been occasional declines in globalization index, it is seen that the country is in a rising trend. This can be regarded as the indicator of Turkey's more and more integration to globalization. In the course of globalization, Turkey's economy as a whole is presented in Figure 1.



**Figure-1.** Globalization Trends in Turkey (1970-2011)

**Resource:** The table is made by the authors by using KOF Globalization Index

It is seen that Globalization (overall) index shows a horizontal progress between years 1970-1978. In the same period, it is known that protectionist trade policies and more distant policies against foreign investment were pursued. However in 1980s, liberal policies have increased the trend of globalization. As can be seen from the graph, the index seems to be in upward trend in the recent times.

### 3. EMPIRICAL STUDIES

Much of the existing literature on globalization and employment falls into the tradition of received comparative advantage theory that defines globalization as a rise in trade (Lall, 2003). This is a very comprehensive approach, and allows for rigorous econometric testing of the causal link between enhanced trade (globalization) and employment.

In his study conducted for OECD countries, Baldwin (1995) studied the effects of trade and foreign direct investment on employment and salaries. According to the findings, it was concluded that the changes occurring in labor supply, demand, and technology are more significant than the changes experienced in employment and salaries.

Ghose (2003) analyzed the relationship between trade liberalization and manufacturing employment. Despite growing trade and Foreign Direct Investments (FDI), the positive effect between growth in manufacturing products trade and manufacturing employment is only applicable for a limited number of newly industrialized countries.

A study which theoretically analyzes the relationship between employment and globalization in the context of developing countries was conducted by [Lall \(2003\)](#). This study suggested that globalization could provide more employment opportunities for the developing countries. It was also underlined that the effect of globalization on employment varies depending on the competences of every country.

One of the studies about the relationship between employment, globalization, and FDI was conducted by [Jenkins \(2006\)](#) in the sample of Vietnam. With the increase of FDI in 1990s, economic integration has also increased. According to the study results, although there is a significant share of foreign companies in the manufacturing industry, direct employment was limited because of high labor productivity and prior low value-added firms in Vietnam.

The social impact of globalization in developing countries was theoretically studied by [Lee and Vivarelli \(2006\)](#). It was expressed by the researchers that the impact of globalization on employment varies in different regions of the world.

[Dutt et al. \(2009\)](#) present a model of trade and search-induced unemployment, where trade results from Heckscher–Ohlin (H-O) and/or Ricardian comparative advantage. Using cross-country data on trade policy, unemployment, and various controls, and controlling for endogeneity and measurement-error problems, they found fairly strong and robust evidence for the Ricardian prediction that unemployment and trade openness are negatively related. Using panel data, they also found an unemployment-increasing short-run impact of trade liberalization, followed by an unemployment-reducing effect leading to the new steady state.

[Aremo et al. \(2010\)](#) tested the interaction between globalization and labor (employment) in Nigeria by Johansen co-integration and error correction model (ECM). According to study findings, globalization has both long term and short term negative effects on employment.

The dynamic effect of globalization on unemployment in the Iranian sample was researched by [Meidani and Zabihi \(2012\)](#) based on the data derived from the period 1971-2006. Trade intensity index (ratio of total exports and imports to GDP) was used to measure globalization level. Findings suggest that globalization has a significant and negative effect on unemployment.

[Stepanok \(2013\)](#) analyzed the effect of trade liberalization between two identical economies on unemployment. Results show that trade liberalization has a steady state effect on unemployment that is negative for countries with a relatively larger R&D sector and positive otherwise.

[Davidson et al. \(2014\)](#) tested the ability of the labor market to efficiently match heterogeneous workers to jobs within a given industry and the role that globalization plays in that process. Using matched worker–firm data from Sweden, strong evidence was found out that openness improves the matching between workers and firms in industries with greater comparative advantage. This suggests that there may be significant gains from globalization that have not been identified in the past globalization may improve the efficiency of the matching process in the labor market.

## 4. ANALYSIS

### 4.1. Dataset and Method

In this study, which covers the period between 1970 and 2011, the number of people employed and globalization data were used to test the relationship between globalization and employment. The employment data used in this study was taken from [Penn World Table \(2015\)](#) and globalization series were received from KOF (Overall) Index of Globalization. In this respect, the stability of the series was tested by Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) techniques. The presence of co-integration between the series was tested by [Pesaran et al. \(2001\)](#) bound test.



Econometric method developed by Pesaran *et al.* (2001) was used in determining the relationship between the variables. This method, which is named as bounds testing approach (ARDL), is more flexible and useful in comparison with the ones developed by Engle and Granger (1987); Johansen (1988) and Johansen and Juselius (1990). Among the limitations of those methods are instability of the series which are involved in model and requirement for stability as a result of the difference process. However, there is no such limitation in ARDL method. Therefore, the series involved in the model can be stable in different levels (Tang, 2003). Additionally, the other major advantage of the bounds test approach is that it can be applied to studies that have a small sample size (Narayan and Narayan, 2004). Furthermore, as long as the ARDL model is free of residual correlation, therefore endogeneity is less of a problem (Jalil, 2012). In short, ARDL can be defined as a method in which the dependent variable is I(1), and even though the dependent variables are in different levels of stability (I(1) or I(0)), this method can suggest whether co-integration is available or not.

Study papers of Meidani and Zabihi (2012) and Aremo *et al.* (2010) were taken as base in order to determine the effects of globalization on employment<sup>10</sup>. Model to be used in practice is formed as follows:

$$EMP_t = \alpha_0 + \alpha_1 GLOB_t + \varepsilon_t \quad (1)$$

EMP stands for employment, GLOB stands for globalization, and  $\varepsilon_t$  stands for disturbance in this equation. Unrestricted error correction model (UECM) model is needed before bounds test approach. Bounds test can be possible only after this model Pesaran *et al.* (2001) emphasized that the validity of bounds test is firmly dependent on the inexistence of problems such as different variance, autocorrelation etc. in unrestricted error correction model. The model created in this respect was formulated as follows.

$$\Delta EMP_t = \alpha_0 + \sum_{i=1}^m \alpha_{1i} \Delta EMP_{t-i} + \sum_{i=0}^m \alpha_{2i} \Delta GLOB_{t-i} + \alpha_3 EMP_{t-1} + \alpha_4 GLOB_{t-1} + \varepsilon_{1t} \quad (2)$$

The terms used in this equation are similar to the ones used in the first equation. In this equation, m stands for optimum time lag, and  $\Delta$  stands for difference.

Time lag used in ARDL model is significant for both long-run and short-run period analyses. Optimum time lag in this study was identified based on Schwarz Information Criteria (SC). Considering the series in annual periods, time lag was set to maximum four.

In bounds testing approach,  $H_0: \alpha_3 = \alpha_4 = 0$  hypothesis was tested. The acceptance or rejection of this hypothesis is decided by F test, and it is compared and contrasted by Pesaran *et al.* (2001) table lower and upper critical values. If the sample is small, Narayan (2005) critical value is considered. If the test statistic exceeds their respective upper critical values, then there is evidence of a long-run relationship, if below we cannot reject the null hypothesis of no co-integration and if it lies between the bounds, inference is inconclusive. If the test statistic exceeds its upper bound, then we can reject the null of no co-integration regardless of the order of integration of the variables (Morley, 2006).

Co-integration analysis examines the status of the series that move together in the long-run. If the series act together in the long-run, whether or not a possible deviation can be eliminated is identified by error correction model (Tari, 2011). In other words, the error correction model result indicates the speed of adjustment back to long run equilibrium after a short run shock (Jalil, 2012). However, error correction model may not always work (Tari, 2011).

Short term analysis between variables was investigated by ARDL error correction model. Adapted version of the model is as follows:

$$\Delta EMP_t = \alpha_0 + \sum_{i=1}^m \alpha_{1i} \Delta EMP_{t-i} + \sum_{i=0}^m \alpha_{2i} \Delta GLOB_{t-i} + \alpha_3 ECT_{t-1} + \varepsilon_{1t} \quad (3)$$

ECT is the error correction term in the equation. Error correction term ( $ECT_{t-1}$ ) stands for one delayed values of error terms obtained in the long-run. This term gives information about to what extent this error will be fixed in one

<sup>10</sup> While unemployment is dependent variable in Meidani and Zabihi (2012). study, it is employment in Aremo, Gabriel and Adele (2010). study.

term later regarding the deviations between the series. Also considering the relevant coefficients, it is possible to calculate at how many periods later the deviation will disappear.

## 4.2. Empirical Findings

In this part of the study, respectively the stability test of the series, co-integration test, and short and long-term analyzes were performed.

### 4.2.1. Unit-Root Test

Whether the series contain unit roots or not was tested by Augmented Dickey Fuller (ADF) and Phillips Perron (PP) tests. Hypotheses of both tests are as follows:

$H_0$ : It has unit-roots, the series is not stationary.

$H_1$ : It has no unit-root, the series is stationary.

It was observed that the series are not stationary in level values but they were made to be stationary as a result of the difference operation. All of the series are I (1). In line with this, no handicap is considered in the implementation of the ARDL model.

The resulting test values are presented in Table 2.

Table-2. ADF and PP Unit Root Test Results

Variables		Augmented Dickey-Fuller (ADF) Test statistics		Phillips-Perron (PP) Test statistics	
		Level	First Difference	Level	First Difference
EMP		-1.748(0)	-4.996(0)*	-2.054(3)	-5.003(2)*
GLOB		-2.095(0)	-6.449(0)*	-2.108(1)	-6.449(1)*
Significance Level	% 1	-4.198	-3.605	-4.198	-3.605
	% 5	-3.523	-2.936	-3.523	-2.936
	% 10	-3.192	-2.606	-3.192	-2.606

Note: Value in brackets in the ADF test are lag latency values which were chosen by Schwarz Information Criterion (SIC), and the maximum latency is 9. Optimal lag latency in PP test was based on Bartlett kernel (default) spectral estimation method and Newey-West Bandwidth (Automatic Selection) criterions. \* represents 1% significance and \*\* represents 5% significance.

Looking at the results in Table 1, it is seen that the employment and globalization series are not stationary in I(0) value but they are I(0) stationary in the first difference.

### 4.2.2. Co-integration Analysis

Schwarz Information Criterion (SIC) for determining the length of the delay model for the limit test is given in Table 3. In testing that takes the maximum length of delay as 4, it was decided based on SC that the optimum length of delay is 1. However, in 1 delay, SC is at its minimum value and there is no autocorrelation problem.

Table-3. Lag Length for Bound Test Results

Model	SIC	Specification
1	1.682345*	ARDL (1,0)*
2	1.715146	ARDL (2,0)
3	1.767570	ARDL (1,1)
4	1.785970	ARDL (3,0)

Note: Lag length criteria of SIC (Schwarz Information Criterion) is defined as 4.



To perform the co-integration test, firstly UECM (Unrestricted Error Correction Model) in the second equation was predicted. F statistics regarding the predicted model were compared with Pesaran *et al.* (2001) and Narayan (2005) critical values. The obtained results are reported in Table 4.

Table-4. Bound Test Results

k	F-statistics	Critical Values	Pesaran <i>et al.</i> (2001) Critical Value		Narayan (2005) Critical Value		Conclusion
			Lower Bound	Upper Bound	Lower Bound	Upper Bound	
2	4.20**	% 1	4.94	5.58	5.89	7.33	Co-integration available
		% 5	3.62	4.16	4.13	5.26	
		% 10	3.02	3.51	3.73	4.37	

Note: \*\* It shows the significance in the level of 5%. Critical values represent Case III,  $k=2$  critical values of the studies of Pesaran *et al.* (2001) and Narayan (2005). UECM was taken as maximum “4” as it indicates annual data. Prediction results were obtained based on Schwarz Information Criteria (SIC).

Looking at Table 4, calculated F-statistic is at 5% the level of significance, which means it is over the critical values, according to Pesaran *et al.* (2001) and Narayan (2005). From this point, it was concluded that there is co-integration between the series. The existence of co-integration suggests that the series act together in the long-run.

4.2.3. Long Run Analysis

In the study in which maximum delay is calculated as 4, the most suitable long run model equation is ARDL (1,0) model without autocorrelation expressed in equation (3). Statistical graphics of 20 ARDL model best suited for long-term analysis are given in Figure 2.

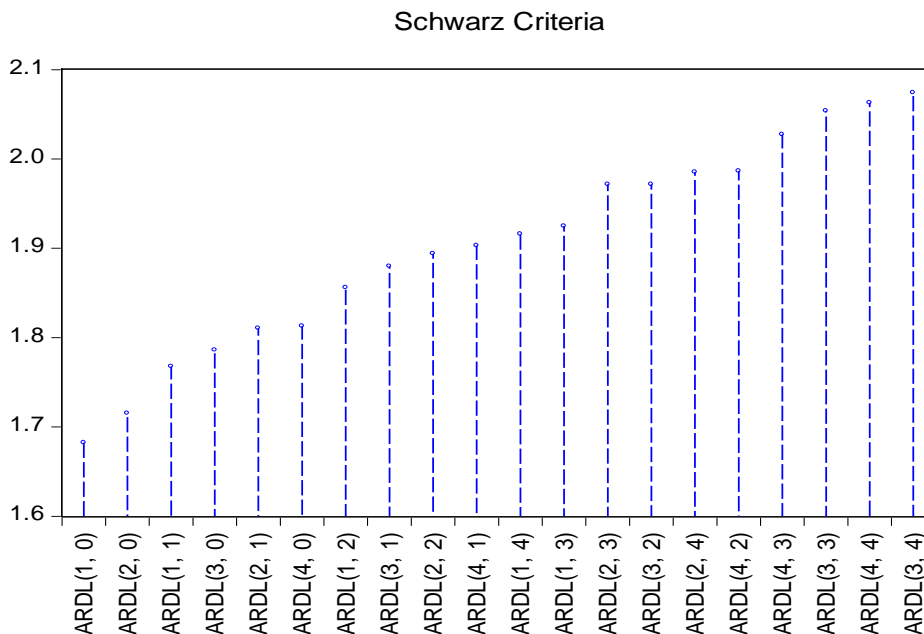


Figure-2. Best 20 Models for Long-Term Analysis based on SIC  
Resource: The graph is obtained from the results of the analysis made by Eviews9 Program.

Following the findings, long run relationship was predicted by ARDL (Autoregressive Distributed Lag) model. The results show that optimum lag long-rung model is ARDL model (1,0) and it is reported as follows:

Table-5. ARDL (1,0) Model Estimation Results and Long Run Coefficients

Variable	Coefficient	t-statistic	Probability
EMP <sub>t-1</sub>	0.851	9.730	0.000
GLOB	0.027	1.678	0.101
C	1.499	1.771	0.084
Long Run Coefficients			
GLOB	0.183	4.667	0.000
C	10.090	4.711	0.000
Diagnostic Tests			
R <sup>2</sup> = 0.96	F <sub>ist</sub> = 506.45 (0.00)	χ <sup>2</sup> <sub>BG</sub> = [2.35] (0.30)	F <sub>RR</sub> = [0.14] (0.70)
R̄ <sup>2</sup> = 0.96	DW = 1.49	χ <sup>2</sup> <sub>JB</sub> = [25.91] (0.00)	χ <sup>2</sup> <sub>BPG</sub> = [5.30] (0.07)

Note: DW is Durbin-Watson statistic; BG is Breusch-Godfrey autocorrelation test; RR is Ramsey model building error; JB is Jarque-Bera normality test; BPG is Breusch-Pagan-Godfrey heteroscedasticity statistics in diagnostic tests. Values in parentheses () represent probability values.

$$EMP = 10.090 + 0.183.GLOB \quad (4)$$

(0.000) (0.000)

Diagnostic tests performed as a result of the results obtained are shown under Table 5. In this context, it indicates that the model equated is quite acceptable. A 1% increase in globalization in the long term results in 0.183% increase in employment. Cusum test of model also shows that the regression coefficients are stable (see Figure 3).

As a result of empirical studies, it is concluded that globalization affects employment positively and the coefficients are statistically meaningful. Based on this result, it can be claimed that globalization in Turkey increases employment less than expected.

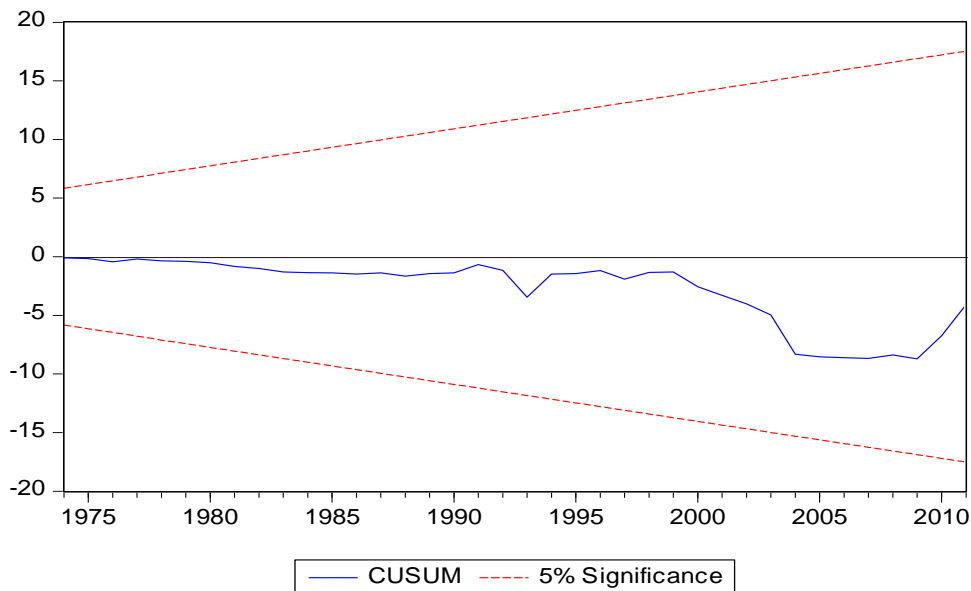


Figure-3. CUSUM Test

Resource: The graph is obtained from the results of the analysis made by Eviews9 Program.

#### 4.2.4. Short Run Analysis (Error Correction Model)

After it was decided that the series are co-integrated in the long run, short run analysis was conducted. Error correction model's estimated results showed that the most appropriate model is (1,0) model and the related results are reported in Table 6.

Table-6. ARDL (1,0) Model Estimation Results and Short Run Coefficients

Variable	Coefficient	t-statistic	Probability
$\Delta$ GLOB	0.006	0.165	0.869
C	-0.000	-0.000	0.977
ECT <sub>t-1</sub>	-0.160	-3.366	0.018
Diagnostic Tests			
$R^2 = 0.12$	F ist.= 2.281 (0.072)	$\chi^2_{BG} = [2.25] (0.43)$	$F_{RR} = 2.89 [3] (0.04)$
$\bar{R}^2 = 0.08$	DW= 1.810	$\chi^2_{JB} = 25.91(0.00)$	$\chi^2_{BPG} = [2.38] (0.07)$

Note: DW is Durbin-Watson statistic; BG is Breusch-Godfrey autocorrelation test; RR is Ramsey model building error; JB is Jarque-Bera normality test; BPG is Breusch-Pagan-Godfrey heteroscedasticity statistics in diagnostic tests. Values in parentheses () represent probability values.

According to the results in Table 6, GLOB positively affects employment with one period delay and this is statistically meaningful. The coefficient of error correction term is negative and it is statistically meaningful. In this context, the possible deviations between the series will approximately disappear after 6 terms (1/0.16). According to Narayan and Smyth (2006) it is decided that the deviations occurring in the short term among the series that move together in the long run are converged into the long run values in a fluctuating way. The term error correction of model is working. This means that the deviations occurring in the short term among the series that move together in the long run disappear and the series are again converged to the long-term equilibrium value.

## 5. CONCLUSION

Growth and expansion of economic and social relations between the countries with globalization have resulted in a rapid transition from industrial society to information society. In the globalization process, labor-intensive work was replaced by knowledge-intensive labor. Globalization is affecting the country economically and socially. One of these domains is the employment. Foreign investments are not only expected to bring knowledge and capital but also new employment opportunities. In this context, there are multi-dimensional and dynamic relationship between globalization and employment. In addition, they are expected to affect one another as well.

In this study, the data covering the period between 1970 and 2011 was researched in the context of globalization's possible effects on Turkey's employment. It was concluded that there is a co-integration relationship between globalization and employment variables, and long and short run ARDL analysis were conducted.

The findings suggest that globalization has a positive and meaningful effect on employment. Globalization can be said to increase employment. A 100% increase in globalization leads to 18% increase in employment. The obtained results are generally in line with the expected theories.

As a result of short run analysis, it was found out that model's error correction term coefficient was negative and statistically meaningful. In this respect, deviations occurring in the short run are converged to long run equilibrium values. Additionally, the fact that coefficient of error correction term is negative and its t-statistics is meaning can be interpreted as a finding that globalization is the reason for employment (Granger, 1988).

It is widely accepted that globalization increases the scale of production in the country by enhancing competition with the outside world and the production quality, and it contributes to the expansion of the volume of employment. With globalization, while capital gain the freedom of labor worldwide, it keeps labor within national boundaries. The countries and sectors which rapidly developed and gained knowledge and information technology have always solved the employment problems much more easily.

In today's Turkey's approach to capital, it necessary to be outward-oriented in world market in the framework of integration, to enable export-oriented industrial integration with high added value and competitiveness, and to develop an industrial structure with high quality human resources. Based on this fact, policies shall be adopted for the opening of new business areas, stable growth shall be realized, economic policies shall be consistent, special

programs must be initiated for those who become unemployed as a result of privatization, policies on working hours should be revised, and public agencies offering employment services must be set for faster and high quality service in order to protect and increase employment in Turkey.

Towards 2023<sup>11</sup>, it is essential for Turkey to have the potential of competing in the globalized world market by realizing the necessary technological and organizational reforms in all sectors. Thus, the impact level of globalization on employment is expected to rise with reforms in this regard.

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<sup>11</sup> Due to the 100<sup>th</sup> anniversary of the Turkish Republic, 2023 is the date set for the government's aimed objectives.

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