


**THE RELATION BETWEEN FINANCIAL DEVELOPMENT, FOREIGN DIRECT INVESTMENTS AND EMPLOYMENT: GRANGER CAUSALITY TEST FOR TURKISH ECONOMY**

Mehmet Emre Ünsal\* 

**Abstract**

*Financial development and foreign direct investments are expected to affect employment positively by contributing to economic growth. Within the framework of this expectation, this study aims to investigate how financial development and foreign direct investments in Turkish economy affect employment. For this purpose, a Time Series Analysis is carried out by using the data on Turkish economy for the period of 1988-2017. In this analysis, employment is selected as the dependent variable, while financial development and foreign direct investments are chosen as the independent variables. With regards to determination of variables in this way, this study provides a new contribution to the literature. According to the results of the Johansen Cointegration Test, there is no long-term causality between the variables. Based on the results of the Granger Causality Test that is carried out based on the VAR model, there is a positive causality from both financial development and foreign direct investments towards employment in the short-term.*

**Keywords:** *Financial Development, Foreign Direct Investments, Employment.*

**JEL Classification:** *E44, E24, C32*

**FINANSAL GELİŞİMİŞLİK VE DOĞRUDAN YABANCI YATIRIMLAR İLE İSTİHDAM ARASINDAKİ İLİŞKİ: TÜRKİYE EKONOMİSİ ÜZERİNE GRANGER NEDENSELLİK TESTİ**

**Özet**

*Finansal gelişmişlik ve doğrudan yabancı yatırımların ekonomik büyümeye katkı sağlayarak istihdamı olumlu yönde etkilemesi beklenmektedir. Bu çalışma, bu beklenti çerçevesinde Türkiye ekonomisinde finansal gelişmişlik ve doğrudan yabancı yatırımların istihdamı nasıl etkilediğini araştırmayı amaçlamaktadır. Bu amaçla, 1988-2017 döneminde Türkiye ekonomisine ait veriler kullanılarak Zaman Serisi Analizi yapılmıştır. Bu analizde istihdam bağımlı değişken olarak, finansal gelişmişlik ve doğrudan yabancı yatırımlar bağımsız değişkenler olarak belirlenmiştir. Değişkenlerin bu şekilde belirlenmesi bakımından çalışma literatüre yeni bir katkı sağlamaktadır. Johansen Eşbütünleşme Testi sonuçlarına göre değişkenler arasında uzun dönemli bir nedensellik bulunmamaktadır. VAR modeli çerçevesinde yapılan Granger Nedensellik Testi sonuçları göre ise; kısa dönemde hem finansal gelişmişlikten hem de doğrudan yabancı yatırımlardan istihdama doğru pozitif bir nedensellik bulunmaktadır.*

**Anahtar Kelimeler:** *Finansal Gelişmişlik, Doğrudan Yabancı Yatırımlar, İstihdam.*

**JEL Sınıflaması:** *E44, E24, C32*

\* Dr. Öğretim Üyesi, İstanbul Üniversitesi, Siyasal Bilgiler Fakültesi, Siyaset Bilimi ve Kamu Yönetimi Bölümü, İktisat Anabilim Dalı, mehmet.unsal@istanbul.edu.tr

## **1. Introduction**

Employment is one of the most important macroeconomic indicators of the economy of a country. Those who want to obtain information about the economy of a country primarily consider the rate of unemployment which is defined as the part of the total labor force that is not employed. Researching the factors that increase employment and reduce unemployment has a significant place in the economics literature. Such that, there are several studies which used data on a country or a group of multiple countries to investigate the effects of various independent variables such as exports, imports, foreign direct investments, human capital, R&D spending, economic stability, financial development, liberalization, freedoms and corporate structure on employment.

Financial development and foreign direct investments have very important roles on macroeconomic performance of an economy. These roles especially occur on economic growth and employment. The countries which have a developed financial systems have also high growth rates (Kanberoğlu, 2014: 126). By means of a developed financial system, capital markets provide more loanable funds and thus the investments of real sector increase (Karaçayır and Karaçayır, 2016: 14). Credit and deposit volume that affects real economy through accelerating consumption and investment causes high growth and low unemployment rates (Göçer, Mercan and Bölükbaş, 2015: 68). Likewise, the growth models based on capital formation, employment and technology claim that foreign direct investments accelerate economic growth and decrease unemployment by the help of the transfers of new technologies and expertness (Çeştepe et al., 2013: 4). Transfer of knowledge and skills also provides productivity growth effect on the economy of host country (Ekinci, 2011: 72). Moreover, foreign direct investments extend economic activity and create new employment opportunities with the increasing competition and new production and management techniques (Peker and Göçer, 2010: 1187)

This study aimed to examine how financial development and foreign direct investments affect employment. For this purpose, a Time Series Analysis was carried out by using data on Turkish economy. The hypothesis of the study was that both financial development and foreign direct investments affect employment positively. The study consists of sections on literature review, method and dataset, implementation and conclusion.

## **2. Literature Review**

Ünalımsı (2002: 3-8) carried out a study on Turkish economy for the period of 1970-2001 to investigate the relationship between financial development and economic growth. In the study, Granger Causality Test was used for the estimation while domestic credits, private credits, broad money supply and total deposits were determined as the variables of financial development. According to the results, there was a long-term bidirectional causality between financial development and economic growth in Turkish economy. Kandır, İskenderoğlu and Önal (2007: 317-323) studied the relationship between financial development and economic growth in Turkish economy for the period of 1988-2004. In the study were the Johansen Cointegration and Vector Error Correction Models were used, the loans given by banks to the private sector and volume of activities in the stock market were used as indicators of financial development. According to the results of their analysis, there was no causality from financial development to economic growth in Turkish economy in the short-term or long-term. These results were interpreted as the fragile nature of the financial system and insufficient numbers of rules that regulate this system. Doğan and Değer (2007: 317-323) studied the relationship between financial development and economic growth in Indian economy for the period of 1970-2013. In the study where the Johansen Cointegration and Granger Causality Models were used, the loans given by banks to the private sector were used as the indicator of financial development. According to the results, there was a long-term causality from financial development to economic growth in Indian economy. Güneş (2012: 79-82) conducted a Time Series Analysis for Turkish economy for the period of 1988-2009 and investigated the relationship between financial

development and economic growth. The study used the ratio of money supply to national income as a representation of financial development and the ratio of the employment in the finance sector to the total level of employment. According to the results obtained in the study where the Vector Error Correction Model was used as the method, there was a causality from economic growth towards employment in the finance sector. Despite this, there was no causality from financial development towards economic growth. Le, Gasbarro and Gullen (2014: 8-14) conducted a Time Series Analysis for the United States economy for the period of 1966-2011 and investigated the relationship between financial development and economic growth. The study used the stock market development and banking development as the representations of financial development. According to the results, there was a short-term bidirectional causality between economic growth and financial development in USA. Aslan and Yılmaz (2015: 28-37) carried out a study on Turkish economy for the period of 1980-2010 to investigate the relationship between financial development and economic growth. In the study where Johansen cointegration and Granger causality analysis around the Solow growth model, money supply, loan volume, securities and interest rates were determined as the variables of financial development. According to the results of the analysis, there was a long-term causality in Turkish economy from financial development towards economic growth. This way, it was especially emphasized that employment may be increased with the help of financial development. Siddique and Majeed (2015: 662-679) conducted a study on five South Asian countries for the period of 1980-2010 to examine how financial development affected economic growth. In the study where domestic credit to the private sector represented financial development, the Panel Cointegration Model was used as the estimation method. According to the results, there was a long-term causality from financial development to economic growth in South Asian countries.

Shabbir et al. (2012: 261-264) studied the relationship between financial development and employment in Pakistan economy for the period of 1973-2007. In the study where the ARDL Bound and Granger Causality Tests were used, the money supply, average market capitalization, domestic credit to private sector and assets with the State Bank of Pakistan were used as the indicators of financial development. According to the results, financial development indicators had positive effects to reduce the unemployment rate in Pakistan economy. Kanberoğlu (2014: 88-91) researched the relationship between the development of the finance sector and unemployment in Turkish economy based on data on the period of 1985-2010. In the study where money supply, private sector loans, stock values and total financial assets were used as indicators of the financial sector, a multivariable linear regression analysis was carried out. Accordingly, money supply affected unemployment negatively, and private sector loans reduced unemployment. Göçer, Mercan and Bölükbaş (2015: 73-79) investigated how loan volume affected employment and economic growth in Turkish economy for the period of 2000-2012. Following cointegration analysis, dynamic regression analysis was used in the study which reported that loan volume accelerated economic growth and reduced unemployment in the long run. Karaçayır and Karaçayır (2016: 15-18) conducted a study on Turkish economy for the period of 2006-2015 to examine how financial development affected unemployment. In the study where domestic loan volume represented financial development, the Autoregressive Distributed Lag Model was used as an estimation method. According to the result of the analysis, financial development reduced unemployment in the short run, while there was no statistically significant relationship between these two variables in the long run.

Choe (2003: 47-55) examined the period of 1971-1995 for their study on 80 countries and investigated how foreign direct investments affected economic growth. In the study, Panel VAR Model and Granger Causality Test were carried out for the analysis. According to the results, there was a bidirectional causality between foreign direct investments and economic growth. Çeştepe et al. (2013: 20-28) used the data for the economy of Turkey for the period of 1974-2011 to investigate the effects of foreign direct investments on economic growth. The study which used Toda-Yamamoto Causality approach determined that foreign direct investments did not have any contribution on growth in

Turkey. Özgür and Demirtaş (2015: 82-88) examined how foreign direct investments affected economic growth by using the 1992-2013 data of Turkish economy. According to the results of the study where Granger Causality Analysis was used, foreign direct investments affected economic growth positively in the long run in Turkey.

Ajaga and Nunnenkamp (2008: 4-12) examined the period of 1977-2001 for their study on the United States economy and investigated how foreign direct investments affected employment. In the study, Johansen Cointegration Test and Granger Causality Test were carried out for the Time Series Analysis. According to the results, there was a long-term bidirectional causality between foreign direct investments and employment in USA. Peker and Göçer (2010: 1188-1192) used quarterly data for the economy of Turkey for the period of 2000-2009 to investigate the effects of foreign direct investments on unemployment. The study which used the ARDL Bound Test approach determined that foreign direct investments did not have any contribution in the long-term on reducing the rate of unemployment. According to the short-term analysis results, foreign direct investments affected employment positively. The difference between the short-term and long-term results was interpreted as those who make foreign direct investments initially eliminating excessive employment and creating new employment later. Ekinci (2011: 78-89) examined how foreign direct investments affected economic growth and employment by using the 1980-2010 data on the economy of Turkey. According to the results of the study where Granger Causality Analysis was used, foreign direct investments affected economic growth positively in the long run. Despite this, no causality relationship was found for the long-term results from foreign direct investments towards economic growth. Based on these results, it was speculated that foreign direct investments in Turkish economy usually turn towards acquisitions and do not result in new investments. Pinn et al. (2011: 80-87) examined the period of 1970-2007 for their study on Malaysia and investigated how foreign direct investments affected employment. In the study, ARDL Bound Test and Vector Error Correction Model were carried out for the Time Series Analysis. According to the results, there was a short-term causality from foreign direct investments to employment in Malaysia. Saray (2011: 393-399) investigated the relationship between foreign direct investments and employment in Turkish economy by using data on the period of 1970-2009. According to the results of the Vector Error Correction Model that was applied for Time Series Analysis, there was no causality from foreign direct investment towards employment in Turkish economy. In the author's opinion, this result was caused by that, in Turkish economy, foreign direct investments turn towards sectors such as finance and telecommunications that have limited employment capacity rather than sectors such as the manufacturing and tourism sectors. Sandalcılar (2012: 279-283) examined the period of 1980-2011 for their study on Turkish economy and investigated how foreign direct investments affected employment. For the Time Series Analysis, a Granger Causality Test was carried out after the Johansen Cointegration test. According to the results of the analysis, there was no causality from foreign direct investments towards employment. This result which did not agree with the theoretical expectations could be explained by that foreign direct investments that arrive in Turkey are usually in the form of acquisition of and mergers with existing facilities.

Causality analysis is one of the most commonly used methods in similar studies in the literature. In our study, causality analysis was used with reference to these similar studies. Ersin (2015) used causality analysis for MINT countries in the relationship between exports and growth. Ersin and Baş (2019) also took into account the causality analysis in the relationship between social spending and growth for Southern European Countries. Yüksel and Zengin (2016) tested the relationship between import, export and growth with a causality analysis. In Yüksel's (2017) study, the effect of R & D Expenditures on exports and growth was again tested with causality. In addition, Ersin and Ergeç (2018), Ergeç and Ersin (2019), Yüksel et al. (2017), Dinçer et al. (2017), Yüksel and Canöz (2017), Kurum and Oktar (2019) used causality analysis in their studies.

### 3. Method and Dataset

In the implementation part of this study, a Time Series Analysis was carried out for the purpose of determining the effects of financial development and foreign direct investments on employment in Turkish economy. In this analysis on the data of the period of 1988-2017, the data were collected from the database of the World Bank for employment which was determined as the dependent variable and financial development and foreign direct investments which were determined as the independent variables. In the analysis, “domestic credit provided by the financial sector” was used as the data to represent financial development. The relationship between these variables was investigated using the regression model that is seen in Table 1.

**Table 1: Regression Model**

$EMP_t = \beta_0 + \beta_1 FD_t + \beta_2 FDI_t + U_t$	
Variable	Explanation
EMP <sub>t</sub>	LN(Employment)
FD <sub>t</sub>	LN(Financial Development)
FDI <sub>t</sub>	LN(Foreign Direct Investment)
U <sub>t</sub>	Error Term.

### 4. Implementation

In the time series analyses that were carried out with the regression model that is seen in Table 1 by using the data on the period of 1988-2017 for Turkish economy, in order to avoid the problem of spurious regression, it was needed to test the stationarity of the series to be analyzed. Augmented Dickey-Fuller Unit Root Test was determined for testing the stationarity. “This test decides about the presence of a unit root in the data generating mechanism by using the ordinary least squares (OLS) estimator” (Paparoditis and Politis, 2018: 955). Estimation model of the Augmented Dickey-Fuller Unit Root Test is seen in Equation 1 (Zivot and Wang, 2007: 120) and Table 2 shows the results of this test.

$$y_t = \beta' D_t + \phi y_{t-1} + \sum_{j=1}^p \psi_j \Delta y_{t-j} + \varepsilon_t \quad (1)$$

**Table 2: Augmented Dickey-Fuller Unit Root Test**

Variable	Level		First Difference	
	Statistic	P-Value	Statistic	P-Value
EMP	-1.925	0.3203	-4.467	0.0002
FD	-4.009	0.0014	-8.508	0.0000
FDI	-1.330	0.6154	-5.449	0.0000

According to the results that may be seen in Table 2, the series that were to be used in the time series analyses contained unit roots on level values at the significance level of 1%, while they became stationary upon taking their first difference. Following this result, Johansen Cointegration Test must be done for the purpose of determining the method of time series analysis. Johansen Cointegration Test based on the relationship between rank of the matrix and characteristic roots is the generalized multi-equational model of The Engle-Granger Method (Kutlar, 2017: 254). Vector Autoregression Model of the Johansen Cointegration Test is seen in Equation 2 (Hjalmarsson and Österholm, 2010: 54) and Table 3 shows the results of this test.

$$\Delta y_t = \mu + \Pi y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-i} + \varepsilon_t \quad (2)$$

**Table 3: Johansen Tests for Cointegration**

Selection-Order criteria			
FPE	AIC	HQIC	SBIC
3	4	3	1
Maximum Rank	Eigenvalue	Trace Statistic	5% Critical Value
0	.	27.7734*	29.68
1	0.43103	13.1113	15.41

As seen in Table 3, according to the Trace Statistic, there was no error term and no cointegrated equation in the model. Therefore, there was no cointegration in the regression model that was used in this study. As there was no cointegration in the model, there was no long-term relationship between the variables that were used in the analysis. The short-term relationship between the variables should be determined by the Granger Causality Test within the scope of the Vector Autoregressive Model (VAR). The result of the Granger Causality Test that was carried out with this purpose may be seen in Table 4.

**Table 4: Results of Granger Causality Test**

Equation	Excluded	chi2	Prob > chi2
D_emp	D.fin	11.455	0.043
D_emp	D.fdi	26.208	0.000
D_emp	ALL	56.997	0.000

As seen in Table 4, according to the chi2 statistics, the H0 hypothesis that stated that there was no causality from financial development towards employment was rejected on the significance level of 5%. In addition to this, the H0 hypothesis that stated that there was no causality from foreign direct investments towards employment was also rejected on the significance level of 5%. According to

these two findings, the financial development and foreign direct investments affected employment positively in Turkish economy in the period of 1988-2017. The results of the other tests that were carried out at the end to determine whether or not the regression model was statistically significant and valid are shown in Table 5.

**Table 5: Other Tests**

Test		chi2	Prob > chi2
Lagrange Multiplier Test	Lag1	11.5768	0.23823
	Lag2	12.5461	0.18424
Jarque-Bera Test	D_emp	0.441	0.80204
	ALL	3.091	0.79739

According to the result of the Lagrange Multiplier Test that are shown in Table 5, the hypothesis H0 that stated that there was no autocorrelation in the regression model that was created for the time series analysis was not rejected. Additionally, according to the results of the Jarque-Bera Test, the hypothesis H0 which stated that the residuals were normally distributed was also not rejected. These results showed that the regression model was statistically significant and valid.

## 5. Conclusion

This study investigated how financial development and foreign direct investments affected employment in Turkish economy for the period of 1987-2017. According to the results of the Time Series Analysis carried out by a Granger Causality Test in the scope of the VAR model that was adopted due to its suitability for the dataset used in the study, there was no long-term causality from financial development and foreign direct investments towards employment in Turkish economy. According to the short-term analysis results, there were positive causality relationships from both financial development and foreign direct investments towards employment in Turkish economy.

The short-term results obtained in the study agreed with both the economic theory and the hypothesis of this study. Moreover, in line with the results of the studies of Shabbir et al. (2012), Kanberoğlu (2014), Göçer, Mercan and Bölükbaş (2015), Karaçayır and Karaçayır (2016), this result may be considered to have been caused by the increase in employment in the finance sector by initial development of the finance sector. Additionally, with the help of financial development, increase in employment spread towards all sectors thanks to the increase in savings and expansion of ways of turning these savings into new investments. Similarly, compatible with the results of the studies of Ajaga and Nunnenkamp (2008), Peker and Göçer (2010), Ekinci (2011), Pinn et al. (2011), foreign direct investments also contributed to the economic growth in Turkey with the help of technology transfers and efficiency-increasing effects, and thus, affected employment positively.

In the light of these results, it is clear that, finance sector should be developed by keeping money supply under control to increase employment (Kanberoğlu, 2014: 91), loan volume should be used as a policy instrument that supports economic growth and employment without increasing inflation or current account deficit (Göçer, Mercan and Bölükbaş, 2015: 79) and in order to reduce unemployment in both the short run and long run, the finance sector should be developed in a way to increase investments and reduce current account deficit (Karaçayır and Karaçayır, 2016: 18). In addition, for increasing employment in Turkish economy, it is needed to implement policies that develop the finance sector and encourage foreign direct investments. Examples to such policies may be listed as reducing the fragility of the finance sector with new laws and rules, increasing loan volume in a way

that would not accelerate inflation and promoting foreign direct investment's usage in sectors with insufficient employment rates.

## REFERENCES

- Ajaga, E., & Nunnenkamp, P. (2008). Inward FDI, value added and employment in US states: A panel cointegration approach. *Kiel Working Paper*, 1420, 1-22.
- Aslan, N., & Yılmaz, O. (2015). Finansal gelişme ve büyüme ilişkisinin solow modeli ile analizi: Türkiye üzerine bir çalışma. *Finansal Araştırmalar ve Çalışmalar Dergisi*, 7(12), 17-39.
- Choe, J. I. (2003). Do foreign direct investment and gross domestic investment promote Economic growth?. *Review of Development Economics*, 7(1), 44-57.
- Çeştepe, H., Yıldırım, E., & Bayar, M. (2013). Doğrudan yabancı yatırım, ekonomik büyüme ve dış ticaret: Toda-yamamoto yaklaşımıyla Türkiye'den nedensellik kanıtlar. *Akdeniz Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 13(27), 1-37.
- Dinçer, H., Yüksel, S., & Adalı, Z. (2017). Identifying Causality Relationship between Energy Consumption and Economic Growth in Developed Countries. *International Business and Accounting Research Journal*, 1(2), 71-81.
- Doğan, B., & Değer, O. (2016). Enerji tüketimi, finansal gelişme ve ekonomik büyüme ilişkisi: Hindistan örnekleme. *Journal of Yasar University*, 11(44), 326-338.
- Ekinci, A. (2011). Doğrudan yabancı yatırımların ekonomik büyüme ve istihdama etkisi: Türkiye uygulaması (1980-2010). *Eskişehir Osmangazi Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 6(2), 71-96.
- Ergeç, E. H., & Ersin, İ. (2019). The Relationships between Public Expenditure and Sectorial Employment in Turkey. *BİLTÜRK Ekonomi ve İlişkili Çalışmalar Dergisi*, 1(2), 150-168.
- Ersin, İ. (2018). İhracata Dayalı Büyüme Hipotezinin Test Edilmesi: MINT Ülkeleri Örneği. *Ekonomi İşletme ve Maliye Araştırmaları Dergisi*, 1(1), 26-38.
- Ersin, İ., & Baş, H. (2019). Güney Avrupa Refah Ülkelerinde Sosyal Harcamalar ve Ekonomik Büyüme Arasındaki İlişkinin İncelenmesi. *SGD-Sosyal Güvenlik Dergisi*, 9(1), 193-213.
- Ersin, İ., & Ergeç, E. H. (2018). Harcama Bileşenleri ve Sektörel İstihdam Arasındaki Nedensellik İlişkisi. *Yönetim ve Ekonomi Araştırmaları Dergisi*, 16(Özel Sayı 1), 161-180.
- Göçer, İ., Mercan, M. & Bölükbaş, M. (2015). Bankacılık sektörü kredilerinin istihdam ve ekonomik büyüme üzerindeki etkileri: Türkiye ekonomisi için çoklu yapısal kırılmalı eş bütünleşme analizi. *Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 33(2), 65-84.
- Güneş, S. (2012). Finansal gelişmişlik ve büyüme arasındaki nedensellik testi: Türkiye örneği. *Doğuş Üniversitesi Dergisi*, 14(1), 73-85.
- Hjalmarsson, E., & Österholm, P. (2010). Testing for cointegration using the Johansen methodology when variables are near-integrated: size distortions and partial remedies. *Empirical Economics*, 39(1), 51-76.
- Kanberoğlu, Z. (2014). Finansal sektör gelişimi ve işsizlik: Türkiye örneği. *Ekonomik ve Sosyal Araştırmalar Dergisi*, 10(1), 83-93.



- Kandır, S. Y., İskenderoğlu, Ö. & Önal, Y. B. (2007). Finansal gelişme ve ekonomik büyüme arasındaki ilişkinin araştırılması. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 16(2), 311-326.
- Karaçayır, E., & Karaçayır, E. (2016). Yurtiçi kredi hacminin işsizlik üzerindeki etkisi: Türkiye uygulaması. *KMÜ Sosyal ve Ekonomik Araştırmalar Dergisi*, 18(30), 13-18.
- Kurum, M. E., & Oktar, (2019). S. Zorunlu Karşılık Politikasının Enflasyon Üzerindeki Etkisi: Türkiye Örneği. *Ekonomi İşletme ve Maliye Araştırmaları Dergisi*, 1(3), 186-204.
- Kutlar, A. (2017). *Ekonometrik zaman serileri*. Kocaeli: Umuttepe Yayınları.
- Le, Kim-Song, Hassan K, Gasbarro D, and Cullen G. (2014). The relation between financial development, energy consumption and economic growth: empirical evidence for the United States. Available at SSRN: <http://ssrn.com/abstract=2484279> (accessed on 11th July, 2019)
- Özgür, M. I., & Demirtaş, C. (2015). Finansal gelişme ve doğrudan yabancı yatırımların ekonomik büyüme üzerindeki etkileri: Türkiye örneği. *NWSA-Social Sciences*, 10(3), 76-91.
- Paparoditis, E., & Politis, D. N. (2018). The asymptotic size and power of the augmented Dickey Fuller test for a unit root. *Econometric Reviews*, 37(9), 955-973.
- Peker, O., & Göçer, İ. (2010). Yabancı doğrudan yatırımların Türkiye'deki işsizliğe etkisi: Sınır testi yaklaşımı. *Ege Akademik Bakış Dergisi*, 10(4), 1187-1194.
- Pinn, S. L. S., Ching, K. S., Kogid, M., Mulok, D., Mansur, K., & Loganathan, N. (2011). Empirical analysis of employment and foreign direct investment in Malaysia: An ARDL bounds testing approach to cointegration. *Advances in Management and Applied Economics*, 1(3), 77.
- Sandalcılar, A. (2012). Türkiye'de yabancı doğrudan yatırımların istihdama etkisi: Zaman serisi analizi. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 26(3-4), 273-285.
- Saray, M. O. (2011). Doğrudan yabancı yatırımlar-istihdam ilişkisi: Türkiye örneği. *Maliye Dergisi*, 161(2), 381-403.
- Shabbir, G., Anwar, S., Hussain, Z., & Imran, M. (2012). Contribution of financial sector development in reducing unemployment in Pakistan. *International Journal of Economics and Finance*, 4(1), 260-268.
- Siddique, H. M. A., & Majeed, M. T. (2015). Energy consumption, economic growth, trade and financial development nexus in South Asia. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 9(2), 658-682.
- Ünalnı, D. (2002). The Causality between financial development and economic growth: The case of Turkey. *The Central Bank of the Republic of Turkey Working Paper*, 3,1-12
- Yüksel, S. (2017). The impacts of research and development expenses on export and Economic growth. *International Business and Accounting Research Journal*, 1(1), 1-8.
- Yüksel, S., & Canöz, İ. (2017). Does Islamic Banking Contribute to Economic Growth and Industrial Development in Turkey. *İkonomika*, 2(1), 93-102.
- Yüksel, S., & Zengin, S. (2016). Causality relationship between import, export and growth rate in developing countries.
- Yüksel, S., Canöz, İ., & Özsarı, M. (2017). Causality relationship between interest rate of deposit banks and profit share rate of islamic banks in turkey. *İkonomika*, 2(2), 131-148.

Zivot, E., & Wang, J. (2007). *Modeling financial time series with S-Plus®* (Vol. 191). Springer Science & Business Media.