The Effect Of The Income Of Revenue To The Agrıcultural Productıon: Turkey Example

Selcan Üçgöz and Prof.Dr.Zeynep Karaçor

Selcuk University Economy Doctoral Student, Konya, Turkey,
Selcuk University Faculty, Konya, Turkey

ABSTRACT

The aim of this research is to introduce the effects of decoupling payments on agricultural production in Turkey during the period of 1980-2017. According to the result of the study; According to coefficients of ARDL model for long-term, direct income support effects positively agricultural production. This result is statistically significant. Although a positive influence in the short term, but the result was not statistically significant. Added to the other independent variables in the analysis over the years the number of tractors used in Turkey effects positively on agricultural production. This result is statistically significant short-term and long-term. Taking into account that represents the number of tractors in the agricultural mechanization, mechanization of the agricultural sector, plays an important role in terms of an increase in production.

Key Words: Direct income support, Agricultural Product, Economic Growth, Turkey, ARDL

1. INTRODUCTION

The agricultural sector maintains its importance in the economy with its share in foreign trade and employment, both in its production and in its contribution to other sectors. The agricultural sector is supported more or less in financial and / or technical terms by all the countries in the world because of its inherent negative characteristics and its indispensable nature.

Objectives of agricultural policies; to increase the welfare level of the agricultural sector by developing agricultural production in accordance with domestic and foreign demand, protection and development of natural and biological

resources, strengthening food security and security, increasing productivity, strengthening of agricultural markets, development of producer organizations and rural development. (Ministry of Agriculture and Rural Affairs , 2006).

Major agricultural support tools; Direct Income Support (DGD) Payments, Difference Payments, Animal Husbandry Supports, Environmental Protection of Agricultural Areas (ÇATAK) Program Supports, Compensatory Payments, Product Insurance Payments, Rural Development Supports and other supports.

The system of direct income payments is an agricultural policy instrument that is used to achieve the objectives of agricultural policies. In the restructuring process in agriculture, it is aimed to fill the gap caused by the abolition of traditional supports with DGD applications. (Abay vd, 2005: 12). Direct income support is to provide income support to farmers, regardless of production and prices. It is a government revenue payment system made by the government to the target producer population without establishing a direct relationship between the amount of production and support (Yükseler, 1999: 14). After starting and starting the practice, it led to positive and negative discussions. It is argued that the positive views do not affect production, consumption and exports and are not affected by world prices and there is no social loss in production and consumption as well as trade diversion. Among the negative views, the issues that do not affect agricultural production, create imbalances, lack of sufficient infrastructure, increase imports and migration from rural to urban areas will be discussed. The United States, Mexico and Romania are the countries implementing direct income support.

In Turkey, based on the government's price intervention up to the 2001 crisis, they have made agricultural subsidies. However, these supports were far above world prices. These policies have encouraged low production activities and caused high prices to sell food products above world prices. Turkey's Direct Income Support, signed with the IMF in 1999 stand-by agreement and signed with the World Bank in 2001 "Agricultural Reform Implementation Project" (TRUP- ARIP) the provisions in accordance with, has started to be implemented by the Government 57 th.

2002-2007 period in Turkey, "Emergency Measures Transformation and Change" era, the period 2008-2012 "Sectoral Development and Sustainable Agriculture for Development" as the term is discussed. The 5-year Action Plan and

Agricultural Vision covering the period 2008-2013 were prepared and 13 basic Laws on Structural Change in Agriculture were published. In 2011, the Ministry of Agriculture and Rural Affairs; The Ministry of Food, Agriculture and Livestock was restructured under the name of the Ministry of Agriculture and Livestock and the current interest rates of agricultural loans were reduced to 0-5 percent. T. C. Ziraat Bank A.Ş. and agricultural subsidies granted through the Agricultural Credit Cooperatives; 52 new support applications were initiated and re-organized based on quality, health, efficiency and rural development.

2. MATERIALS AND METHODS

Although the production function refers to the relationship between the output and the inputs, it is very difficult for all the inputs entering the production process to be included in the function, both unnecessarily and thus, it is very difficult to create and predict a function. For this reason, the path followed in the applications is to be classified into more general categories by subjecting them to a classification and to be included in the production function in this way. Especially in macro level studies, all inputs are divided into two general categories as capital and labor (Odhiambo vd., 2004: 30).

In our study, agricultural gross domestic product was used as a measure of agricultural production. In addition, agricultural supports were included in the study on a total basis and some of the determinants of agricultural production as control variables were added to the model.

In recent years, the most commonly used method for making economic analyzes is to benefit from pre-collected data such as statistics bulletins or annuals. Such data are generally economic data collected in different periods such as national income, foreign exchange rates, investments, expenditures, interest rates, imports and exports, which provide time series information. By using this data, it is possible to determine the value and direction of the relationship between the series and to make prospective determinations. Therefore, time series are of great importance for economic research. Time series have the effects of various factors that vary depending on time and time (Newbold, 2000; 777-785).

Time series are examined under two headings as stationary and non-stationary series according to their deviations from the mean. If the mean and variance of the time series examined do not show a symmetric change or are free of series periodic fluctuations, such series are called stationary time series. (Akdi, 2003; Kurtlar; 2002).

If each of the series used in the analysis becomes static at different levels, then the delayed autoregressive (ARDL) method developed by Peseran, Shin and Smith is used.

As the advantages of the ARDL approach that can be used when the variables are stationary at different levels; delayed values, a low number of observations to achieve healthy results and a dynamic error correction model can be reached with a linear conversion (Shrestha ve Chowdhury, 2005; 15). Ordinary Least Squares (OLS) based on the ARDL approach can be applied to all, regardless of whether the variables are I (0), I (1) or both I (0) and I (1) (Peseran vd.2001). While the Johansen cointegration test requires large samples for valid purposes, this approach also provides effective results in small volume samples. In addition, the dynamic error correction model (ECM), which can be derived from ARDL by a simple linear conversion, combines short-term, long-term dynamics with long-term dynamics without leading to loss of information (Banerjee vd, 1993; 52).

ARDL model consists of two stages. First, the F statistic values calculated in the unrestricted error correction model (Unrestricted Error Correction Model-UECM) are compared with the table values in Peseran (2001). If the calculated F value is greater than the upper critical value, the existence of cointegration between the series indicates the existence of a long-term relationship between the series. (Erdoğan ve Bozkurt, 2008;30). ARDL models are established to determine long-term and short-term relationships after cointegration is found. Akaike (AIC), Schwarz (SBC) and Hannan-Quinn krtik values and the presence of inter-series autocorrelation are taken into consideration in determining the number of delay. (Öztekin ve Erataş, 2009; 13).

In our study, the effect of direct income support on agricultural production will be first modeled by using only DGD series, and then a model will be added as an

explanatory variable to the main determinants of agricultural production. We can write the model as follows.

$$TARGDP_t = \alpha + \beta DGD_t + y^1 X_t + \varepsilon_t \qquad (2.1)$$

In the equation (2.1), TARGDP represents agricultural growth, FDD direct income support and X control variables. From here;

$$\Delta targdp_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i}\Delta targdp_{t-i} + \sum_{i=0}^{m} \alpha_{2i}\Delta dgd_{t-i} + \sum_{i=0}^{m} \alpha_{3i}\Delta X_{t-i}$$
$$+ \alpha_4 targdp_{t-1} + \alpha_5 dgd_{t-1} + \alpha_6 X_{t-1} + u_t \qquad (2.2)$$

The cointegration relationship in equation (2.2); H0 = α4 = α5 = α6 = 0 is done by testing the hypothesis. The F statistic calculated for any significance level was found in Peseran et al. (2001), if it falls outside the upper and lower critical values in the study, a definite interpretation is possible without considering the degree of integration of variables. The fact that F statistic is greater than the upper critical value shows that there is a long-term relationship between the series and that it is less than the lower critical value does not have a long-term relationship. If the F statistic is between the critical values, no conclusions can be reached and other cointegration tests are taken into account, taking into account the degree of integration of the series (Gürgür ve Karaca, 2007; 19). In ARDL model, the dependent and independent variables in equation (2.1) and (2.2) must be determined according to the AIC and SBC criteria. The lag length that provides the smallest critical value is selected as the lag length of the model. In case the model created with the selected delay length contains consecutive dependencies, the delay length that provides the second smallest value is taken and this process is continued until the sequential dependency has not disappeared (Karagöl vd., 2007; 76).

After the existence of the cointegration is determined by the process described above, the cointegration relationship between the variables is estimated with the help of equality in the form of ARDL.

$$targdp_t = \beta_0 + \sum_{i=1}^{m} \beta_{1t}\, targdp_{t-i} + \sum_{i=0}^{m} \beta_{2t}\, dgd_{t-i} + \sum_{i=0}^{m} \beta_{3t}\, X_{t-i} + u_i$$

(2.3)

Following the determination of the long-term cointegration relationship with Equation (2.3), the following ARDL model is estimated to determine the short-term relationships between the dependent variable and independent variables using error terms;

$$\Delta targdp_t = \delta_0 + \sum_{i=1}^{m} \delta_{1t}\, \Delta targdp_{t-i} + \sum_{i=0}^{m} \delta_{2t}\, \Delta dgd_{t-i} + \sum_{i=0}^{m} \delta_{3t}\, \Delta X_{t-i} + ECM_{t-1} + u_t$$

(2.4)

In order to make the predictive results of the model revealing the short-term relationships healthy, Breusch-Godfrey sequential dependency, the error of re-modeling in Ramsey regression, Jargue-Bera normality and White-variance test are examined.

In the study between the years 1980-2017, of direct income support in Turkey it will be tested for effects on agricultural production. In addition, some of the determinants of agricultural production were added to the model as explanatory variables. In the monitored economic process, ARDL (Autoregressive Distribution Lag) model will be applied. The data set used as direct income support in general in Turkey is set to test the impact on agricultural production. The process followed when testing these effects can be explained as follows. First, the series that make up the balance, the Central Bank of the Republic of Turkey (TCMB), Food, Agriculture and Livestock Ministry, Provincial Directorate of Agriculture, Turkey Statistical Institute (TUIK) was obtained. Then, the data of 1980-2017 were realized. All of the variables used in the analysis were seasonally adjusted and logarithms were taken by moving averages.

Time series properties of the data in our study were examined by Dickey-Fuller (DF) unit root tests. These tests are frequently used in empirical studies and are included in newly published econometrics textbooks.

The time series properties of the variables were taken into account and logarithm was used in the application. The data were used annually between 1980-2017. The series included in the model were used in the study as follows; The data

used in our study, agricultural production Turkey comes directly support the model 1 as the examination of the effect of direct income support (DGD), Turkey agricultural production (TARGDP) and also independently of explanatory variables 2 are added to the model employed (IST), sown area (ALAN), tractor (TRAK), fertilizer (GUB), temperature (SIC), precipitation (YAG), agricultural export (TARIHR) and agricultural import (TARITH). Critical values are automatically generated by the Eviews program and are based on MacKinnon (1996) values.

Değişkenlerin seviyelerine uygulanan DF ve ADF test sonuçları değişkenlerin durağan olmadığını göstermiştir. After determining the appropriate number of delay for the model, the cointegration relationship between the series is investigated with the boundary test approach. Test statistics calculated according to the boundary test results showed that the upper critical values in Peseran (2001) exceeded the 5% significance level. This result shows that there is a long-term level relationship between the variables that are subject to analysis. Firstly, 1. In the model, explanatory arguments will be added as an independent variable, in addition to direct income support in the second model and direct income support.

3. RESULTS AND PROPOSALS

ARDL Model-1

Only the ARDL model (1) can be established as follows to determine the long-term relationships in which DGD is taken.

$$targdp_t = \beta_0 + \sum_{i=1}^{m} \beta_{1t} \, targdp_{t-i} + \sum_{i=0}^{m} \beta_{2t} \, dgd_{t-i} + u_i$$

(3.1)

Table 1. ARDL Model (1) Long Term Coefficients (3.4.)

Variable	Coefficient	Std. Error	t-statistic

DGD	4.899462	0.389014	12.59457(0.0000)
C	-23.12740	2.924114	-7.909199 (0.000)
Diagnostic Tests			
R^2: 0.85	F-İst: 158.623 (0.000)		D.W. İst: 1.08

According to the long-term ARDL model coefficients, direct income support positively affects agricultural growth. This result is statistically significant. DGD series representing direct income support positively affected the TARGDP series, which represents agricultural production / growth. According to the results in Table-1, an increase of 1% in direct income support will lead to an increase of 4.89% in agricultural growth. Therefore, we can say that there is a positive relationship between direct income support and agricultural growth.

The short-term relationship between variables was investigated according to ARDL approach based error correction (ECM) model (1).

$$\Delta targdp_t = \delta_0 + \sum_{i=1}^{m} \delta_{1t} \Delta targdp_{t-i} + \sum_{i=0}^{m} \delta_{2t} \Delta dgd_{t-i} + ECM_{t-1} + u_t$$

(3.2)

Table-2. ARDL Model (1) Short-Term Coefficients (3.4.)

Variable	Coefficient	Std. Error	t-statistic
DGD	4.651537	0.382858	12.14952 (0.0000)
C	-21.24527	2.892351	-7.345329 (0.000)
ECM(-1)	0.479443	0.180387	2.657853 (0.0135)
Diagnostic Tests			
R^2: 0.87	F-İst: 87.956 (0.000)		D.W. İst: 2.11

According to the results of Table-2, the error correction factor is positive and statistically significant. In our model, the error term coefficient was found to be 0.4794. In this case, when the 1 / ECMT-1 result is evaluated, it is possible to say that a possible deviation in the long-term relationship of the variables in the short-term will be corrected after almost 2 years.

ARDL Model- 2

In order to determine the long-term relationships, the ARDL model (2), which was taken in the other independent variables as well as the DGD, can be established as follows.

$$
\begin{aligned}
targdp_t = \beta_0 &+ \sum_{i=1}^{m} \beta_{1t}\, targdp_{t-i} + \sum_{i=0}^{m} \beta_{2t}\, dgd_{t-i} + \sum_{i=0}^{m} \beta_{3t}\, alan_{t-i} \\
&+ \sum_{i=0}^{m} \beta_{4t}\, gub_{t-i} + \sum_{i=0}^{m} \beta_{5t}\, sic_{t-i} + \sum_{i=0}^{m} \beta_{6t}\, tarihr_{t-i} \\
&+ \sum_{i=0}^{m} \beta_{7t}\, tarist_{t-i} + \sum_{i=0}^{m} \beta_{8t}\, tarith_{t-i} + \sum_{i=0}^{m} \beta_{9t}\, trak_{t-i} \\
&+ \sum_{i=0}^{m} \beta_{10t}\, yag_{t-i} + u_i
\end{aligned}
$$

(3.3)

Table-3. ARDL Model (2) Long-Term Coefficients (3.2.4.4.1.2.3.1.1.2.)

Variable	Coefficient	Std. Error	t-statistic
DGD	0.097582	0.430054	0.226907 (0.0144)
ALAN	-7.737722	4.164695	-1.857932 (0.0787)
GUB	-0.501719	0.321160	-1.562208 (0.1347)
SIC	0.575246	1.460633	0.393833 (0.6981)
TARIHR	-0.428395	0.790163	-0.542161 (0.5940)
TARIST	0.742894	1.332084	0.557693 (0.5836)
TARITH	-0.332728	0.368113	-0.903875 (0.3774)
TRAK	18.10830	2.583962	7.007957 (0.0000)
YAG	-1.422406	0.806939	-1.762718 (0.0940)
C	-138.8124	51.53493	-2.693560 (0.0940)
Diagnostic Tests			
R^2: 0.99	F-İst: 215.4798 (0.000)		D.W. İst: 0.90

According to the long-term ARDL model coefficients, direct income support positively affects agricultural growth. This result is statistically significant. DGD series, representing direct income support, positively affected the TARGDP series, which represents agricultural production / growth in the long run. According to this result, we can say that there is a positive relationship between direct income support and agricultural growth.

ALAN series representing the cultivated lands in Turkey, GUB series representing the fertilizer used years, YAG series representing as the average amount

of rainfall, TARIHR representing agricultural exports series, TARITH series representing agricultural imports; it negatively affected the TARGDP series, which represents agricultural production / growth. Therefore, we can say that there is a negative relationship between these series and agricultural production / growth. The result is statistically insignificant at 5%.

Turkey experienced in years as the average temperature representing the SIC series, represent the number of people employed in agriculture who TARIST +15 age range; it has positively affected the TARGDP series, which represents agricultural production / growth. We can say that there is a positive relationship between these series and agricultural growth. The result is statistically insignificant at 5%.

TRAK series tractors are used as representing the number of years in Turkey; it has positively affected the TARGDP series, which represents agricultural production / growth. We can say that there is a positive relationship between the number of tractors and agricultural growth. The result is statistically significant at 5% level. Considering that the number of tractors represents mechanization in agriculture, mechanization / technology in the agricultural sector plays an important role in terms of increase in production.

The short term relationship between the variables was investigated according to ARDL approach based error correction model (ECM).

$$
\begin{aligned}
\Delta targdp_t = \ & \delta_0 + \sum_{i=1}^{m} \delta_{1t} \Delta targdp_{t-i} + \sum_{i=0}^{m} \delta_{2t} \Delta dgd_{t-i} + \sum_{i=0}^{m} \delta_{3t} \Delta alan_{t-i} \\
& + \sum_{i=0}^{m} \delta_{4t} \Delta gub_{t-i} + \sum_{i=0}^{m} \delta_{5t} \Delta sic_{t-i} + \sum_{i=0}^{m} \delta_{6t} \Delta tarihr_{t-i} \\
& + \sum_{i=0}^{m} \delta_{7t} \Delta tarist_{t-i} + \sum_{i=0}^{m} \delta_{8t} \Delta tarith_{t-i} + \sum_{i=0}^{m} \delta_{9t} \Delta trak_{t-i} \\
& + \sum_{i=0}^{m} \delta_{10t} \Delta yag_{t-i} + ECM_{t-1} + u_t
\end{aligned}
$$

(3.4)

Table 4. ARDL Error Correction Model (2) and Short-Term Coefficients (3.2.4.4.1.2.3.1.1.2.)

Variable	Coefficient	Std. Error	t-statistic
DGD	0.088750	0.348905	0.254367 (0.8021)

ALAN	-8.071681	4.436746	-1.819280 (0.0855)
GUB	-0.406036	0.216591	-1.874666 (0.0772)
SIC	0.915857	1.568989	0.583724 (0.5666)
TARIHR	-0.572133	0.781666	-0.731940 (0.4736)
TARIST	0.017835	1.372875	0.012991 (0.9898)
TARITH	-0.392770	0.358999	-1.094070 (0.2883)
TRAK	17.60207	2.277281	7.729423 (0.0000)
YAG	-1.100030	0.700031	-1.571401 (0.1335)
ECM(-1)	0.422917	0.226581	1.866519 (0.0783)
C	-123.4696	49.85753	-2.476447 (0.0234)
Diagnostic Tests			
R^2: 0.99	F-İst: 212.9327 (0.000)		D.W. İst: 1.003

According to the results in Table-4, the error correction factor is positive and statistically significant. The coefficient of error terms in our model was found as 0,4229. In this case, when the 1 / ECMT-1 result is evaluated, it is possible to say that a possible deviation in the long-term relationship of the variables in the short-term will be corrected after almost 2 years.

Moreover, the effect of direct income support on agricultural growth is positively 0.08% according to the short - term error correction coefficients. However, this result is not statistically significant. However; The number of tractors used for agricultural production in Turkey over the years also has positive effects in the short term as 17.6%. This result is statistically significant. Considering that the number of tractors represents mechanization in agriculture, mechanization in the agricultural sector plays an important role in terms of production increase.

Considering the results of agricultural supports, some suggestions can be presented;

Those who produce support on the soil or the owner of the soil must be determined. A realistic approach should be made clear about who benefits from support. In order to benefit from the direct income support application of small farmers, the expenditures they will have to pay may be more than the support payment and therefore there are those who do not register with the registration ÇKS (Farmer Registration System). Even if there is no contribution to production, only the landlords who have registered on the land have received a manufacturer's certificate, the only renters who have never seen their land in the cities for many years have

benefited from these payments and the real producer is out of the system. Record mechanisms to record these situations that prevent the application of the desired goal.

Payments must be paid at the appropriate time according to the harvesting / planting / planting times or demands of the producers.

In order to be able to work on agricultural supports, it is necessary to solve the problems encountered in the provision and sharing of data. In case the current situation cannot be determined, it is not realistic to study on the effectiveness of the supports.

It should be ensured that the support system is designed in such a way as to increase the producer's income.

Differential Payment Support can be supported more effectively in products with high supply deficit.

Age and dried fruits, vegetables, hard wheat, milk and dairy products, livestock, such as export potential and high value-added products and branded products can be supported more effectively.

It should be ensured that the product exchanges are established and that the prices are formed in the free market and that there are no negative interventions in the operation.

Organic and good agricultural practices should be supported and disseminated.

The rural and agricultural database should be established more professionally.

Rural settlement planning and return to villages should be supported, and the renewal and development of villages should be supported.

Contract production should be expanded; the production of strategic, economic and advantageous products should be supported.

In order to increase the competitiveness of enterprises, production costs should be reduced, production facilities should be modernized and quality of inputs should be increased. Excessive price increases in basic production inputs, such as fertilizers, seeds, pesticides, agricultural machinery and diesel oil, have caused the producers to significantly reduce their profits and even cause losses.

Training and extension activities should be strengthened, institutional and legal infrastructure of education should be strengthened and tourism should be developed in rural areas.

Formations such as cooperatives and unions should be developed and expanded by using the regulatory role. To change the negative ideas in Turkey to ensure that the management of these institutions and corporate transparency,

Detailed land surveys and land inventory should be made and land use plans should be made. Moreover, producers who want to produce in real sense but do not get support due to cadastral problem should be supported and problems should be solved. By changing the law of inheritance, ensuring the integrity of the land should also be regulated by legislation.

In agricultural production, environmentally compatible input use and technology should be disseminated and gene resources protected.

In addition to direct income support, supervised credit support policies and tax advantages should be supported by agriculture.

Supporting the cooperation between the university and the agricultural sector, transferring the scientific methods to the agricultural sector and creating the studies that can increase the efficiency.

REFERENCES

Abay,vd, (2005), Changes in Agricultural Policy in Turkey, http://www.zmo.org.tr/resimler/ekler/1ce689121e39821_ek.pdf?tipi, 30.08.2016

Abler, D., (2001), "A Synthesis of Country Reports on Jointness between Commodity and Non-commodity Outputs in OECD Agriculture." OECD Workshop on Multifunctionality, Paris.

Akdi Y. (2003).," *Time Series Analysis"* Ankara: Bıçaklar Bookstore.

Aksoy, M.A., Beghin, J.C., (2005), Global Agricultural Trade and Developing Countries, The World Bank.

Babacan, A., (1999), Direct Income Payments System in General Agricultural Policies, DPT Master thesis, December, 37s.

Banerjee, A., Galbraith, J. ve Hendry, D. (1993). *Cointegration, Error Correction and Econometric Analysis of Non-tationary Data*. Oxford University Press, Oxford.

DPT, (2000), Eighth Five-Year Development Plan: Agricultural Policies and Structural Arrangements Special Commission Report, No: 2516-534, 67s.

Engle, R.F, ve Granger C.W.J. (1987) "Co-integration and Error Correction: Representation, Estimation and Testing", Econometrica, 55, 251-276.

Eraktan G. , Abay C. , Miran B. Ve Olhan E. , (2004) , "Direct Income Support System and the promotion of agriculture in Turkey Results" İTO (İstanbul Ticaret Odası) No: 2004-53.

Erdoğan, Seyfettin ve Hilal Bozkurt, (2008), "Life expectancy Economic Growth Relationship in Turkey: An Analysis Model with ARDL", Journal of Information Economics and Management, Skin:3, Number:1, 2008-30.

Granger, C.W. ve Newbold, P., (1974), "Spurious Regressions in Econometrics", Journal of Econometrics, 35: 43-159.

Gujarati, D.M., (1999), Basic Econometrics, İstanbul: Literatür Publishing, Trans: Ü.Şenesen ve G.G.Şenesen.

Gujarati Damodar N. (1995). *Basic Econometrics.* Third Edit, MC-Graww-Hill, USA.

Gürgür, T. ve Karaca, O. (2007). Determinants of Real Interest Rates in Turkey, *International Economy and Foreign Trade Policies*, 2(3).

Hızarcı, B. (2007). Analysis of Public Expenditure and Economic Growth by Wagner's Law: The Case of Turkey. Master Thesis. *Zonguldak Karaelmas Üniversitesi Sosyal Bilimler Enstitüsü*. Zonguldak.

Karagöl, E., Erbaykal, E. ve Ertuğrul, H. M. (2007). Turkey Relationship with Economic Growth in Electricity Consumption: Bound Test Approach.*Doğuş Üniversitesi Dergisi*, 8(1).

Newbold Paul (2000*). "Statistics for Business and Economics*," trans: Ümit Şenesen. İstanbul: Literatür Publishing.

Odhiambo, W. et al. (2004), "Sources and Determinants of Agricultural Growth and Productivity in Kenya" , Productive Sector Division Kenya Institute for Public Policy Research and Analysis , KIPPRA Discussion Paper No. 34 March 2004.

Öztekin, Didem ve Filiz Erataş, (2009) "Net Portfolio Investment and Real Interest Evaluation of the Relationship Between Frame Global Crisis: The Case of Turkey", EconAnadolu 2009: Anadolu International Conference in Economics, June 17-19 2009, Eskişehir.

Pesaran, M.H., Shin, Y., Smith,R.J., (2001), "Bounds testing approaches to the analysis of long run relationships", Journal of Applied Econometrics**,** *S*pecial issue, 16,289-326.

Sevüktekin, Mustafa ve Mehmet Nargeleçekenler (2007). *Econometric Time Series Analysis***,** (2. Baskı), Nobel Yayın Dağıtım Ltd.Şti., Ankara.

Shrestha, Min B., Khorshed Chowdhury;(2005), ARDL Approach to Testing the Financial Liberalisation Hypothesis, *University of Wollongong Economics of Working Paper Series,* WP 05-15, June 2005, http://www.uow.edu.au/commerce/econ/wpapers.html, (11.04.2016).

Şahin, H., (2002); Turkish Economy, Ezgi Bookstore, Bursa, 553s.

Şahinöz, A., (2001); Turkey Economy Sectoral Analysis, İmaj Bookstore, Ankara, 534 s.

T. C. Ministry of Food, Agriculture and Livestock, http://www.tarim.gov.tr/

T. C. Ministry of Development, http://www.dpt.gov.tr/Kalkinma.portal

Central Bank of the Turkish Republic, http://www.tcmb.gov.tr/

General Directorate of Agricultural Enterprises, http://www.tigem.gov.tr

Turkish Statistical Institute, http://www.tuik.gov.tr

Yükseler, Z., (1999), Agricultural Support Policies and Evaluation of Direct Income Support System, DPT, August, 24s.