

Relationship between the Twin Deficit Hypothesis and the Inflation: Case of Turkey (2010-2019)

Burhan DOĞAN

Faculty of Economics and Administrative Sciences

Anadolu University,

Email: burhand@anadolu.edu.tr

Turkey

Burak SAYKAL

Faculty of Economics and Administrative Sciences

PhD Scholarship

Pamukkale University

Email: saykalburak@gmail.com

Turkey

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ABSTRACT

Twin deficit hypothesis; It emerges when budget deficits and current account deficits are observed simultaneously. Exchange rate fluctuations have an impact on both cost inflation and consumer inflation through production costs due to Turkey's import substitution mode of production. In this study, the relationship between the twin deficit hypothesis and consumer inflation was analyzed using VAR analysis and Granger causality tests using quarterly data between the periods 2010: Q1 and 2019: Q4. According to the results obtained; while the twin deficit hypothesis was not supported in Turkey in the period discussed, it was observed that the budget deficit and current account deficit increased inflation.

Keywords: Twin Deficit, Inflation, VAR, Turkish Economy, Current Account Deficit, Budget Deficit

Introduction

Following the budget deficits and current account deficits, which were commenced to be seen simultaneously in the United States of America and the other developed countries during the beginning of the 1980s, a great deal of research has started on these indicators in the economics literature. The simultaneous observation of high budget deficits and current account deficit is set forth as the 'Twin Deficit Hypothesis' in this scope. There should exist a positive and strong causality relationship between the budget deficit and the current account deficit for the validity of the hypothesis in addition to the definition of the twin deficit hypothesis, (Altunöz, 2014).

The approaches towards the twin deficit hypothesis focus on the Traditional Keynesian Theory and the Ricardian Equivalence Hypothesis. There is a strong relationship between budget deficits and current account deficits based on the Traditional Keynesian Theory. According to the theory based on the Mundell-Fleming model; in an open economy, the domestic interest rates increase due to the increase in budget deficits. there is a capital inflow to the country upon the increase in interest rates and as a result, the domestic currency gains value against the foreign currency. This increases the demand for imported goods. The increase in imports leads to the current account imbalances. So briefly, the traditional Keynesian view connects the increase in budget deficits to the import channel, which causes the current account deficit (Yaraşır, 2010). On the flipside; the Ricardian Equivalence Hypothesis emphasizes that the elimination of

budget deficits by borrowing or taxes will not lead to a change in domestic interest rates.

Therefore, there is the view that the current account balance will not change due to the fixed interest rates in this theory. In other words; under the Ricardian Equivalence, an individual with a rational expectation has a rational expectation that the government's use of borrowing to maintain the budget balance will not have an influence on the aggregate demand, and that the tax rates will be increased in the future to restore the budget balance. In such a case, there is an assumption that an individual with rational expectations will increase the savings without changing his consumption, and therefore there will be no effect on the current account balance.

The neoliberal foreign trade policies of Turkey, (which is amongst the developing countries) that commenced in the 1980s, and the financial liberalization policies during this period, lead to the formation of budget and current account imbalances (Üzümcü and Karaca, 2012). Since this period, both budget deficits and current account deficits commenced increasing rapidly.

The lack of sufficient financial infrastructure and depth in the country's economy and chronic high inflation figures are among the most important reasons for the high budget and current account deficits that have commenced to be seen in the Turkish economy (Doğru, 2014: 127). Due to the fact of the Turkish economy mostly has an import substitution mode of production, sudden fluctuations in exchange rates may affect the current account balance and the budget balance both directly and

indirectly through the general level of prices. This effect, called the transition effect, expresses the percentage change in the general level of prices through the production channel of the one percent change in exchange rates (Kara and Ögünç, 2008).

The price fluctuations in question affect prices directly and indirectly, and sudden price increases in production costs cause macroeconomic imbalances. When we look from the perspective of the Turkish economy, it can be concluded that there have been sudden fluctuations in exchange rates in recent years and, accordingly, the pass-through effect is high.¹

The relationship between the consumer price index, which represents the inflation, as of the periods discussed, between the budget deficits, which is described as twin deficit, and the current account deficit is studied by Vector Autoregression Analysis (VAR) analysis, variance decomposition, and impulse response analysis, and Granger Causality tests in this study. In this scope, the basis of the study is to examine the effects of exchange rate movements, which increased as a result of sudden capital movements, specifically in developing countries as of 2010, through the cost channel, and the dimensions of the relationship between consumer price index, budget deficits, and current account deficit.

In the first chapter, both the causes of budget deficits and the formation of current account deficits, and the views which comprise the basis of them in terms of the economy are briefly explained. Moreover, the formation of inflation and its effects on the economy have been discussed. In the second chapter, both the twin deficit hypothesis and literature studies on cost inflation are given. There are the methods applied, data, and findings obtained in terms of the researched periods in the last chapter.

Literature

Although there are many studies investigating the relationship between twin deficits and cost inflation in the economics literature, there are no sufficient studies that directly examine twin deficits and cost inflation.² In this chapter, a literature review on the subject will be given.

The annual data between 2003 and 2017 was analyzed through panel methods and panel regression methods in the study by Ayhan and Mangır (2019), in which the twin deficit hypothesis was studied in OECD countries. According to the results obtained; the twin deficit hypothesis was supported, in line with the Keynesian view. In addition; it emphasizes that increasing budget deficits cause foreign trade deficits to increase in OECD countries.

While Afonso and Rault (2009), in their study on OECD and EU Countries with Panel co-integration analysis supported the Ricardian equivalence hypothesis, the twin deficit hypothesis was denied and no relationship was determined between the budget deficit and the current account deficit.

Benli (2019) considers the impact of the savings-investment balance and public deficits on the current account balance with panel data analysis for the countries which are

considered as the fragile five. In this study, the data of the fragile five are analyzed by a panel fixed and random methods. Based on the results obtained; as it is concluded that the current account deficit consists of savings deficits, there is no significant causal relationship between the current account deficit and the budget deficit.

Bayar and Sayar (2019) studied the twin deficit hypothesis with panel data method between the years 1996-2017 in European Union countries and Turkey. Based on this; there has been a mutual causality between current account deficit and budget deficit in European Union countries and this sets forth the twin deficit hypothesis. On the other hand, there is no mutual causality relationship between the variables used in Turkey and does not support the twin deficit hypothesis under the Ricardian equivalence hypothesis.

Berk and Karayılmazlar (2017) stated that the relationship between budget deficits, inflation, and growth has been examined. Based on the results of VAR analysis established by using annual data between the years 1980-2015; it was concluded that the budget deficit variable has a direct effect on growth, current account deficit, and inflation, especially following the first period.

Daly and Siddiki (2009) stated, in their study on the OECD Country between the years 1960-2000, studied the twin deficit hypothesis with Structural Break Co-integration analysis. In his study, which supports the Ricardian equivalence hypothesis, the twin deficit hypothesis is rejected, especially in developed countries.

Doğan (2015) examined in his study, the relationship between inflation and interest rates during the 2003:02-2015:02 periods with Johansen Co-Integration and Granger causality analyses. As a conclusion of the results obtained, no mutual relationship was found between the variables used in the model. In addition; the causality has been observed from the inflation rate to the interest rates.

İpek and Akar (2016) studied the relationship between budget deficits and inflation with quarterly data between the 2004:01-2015:02 periods of the Turkish economy. They used the ARDL bounds test, Todo-Yamomota causality test, and Action-response functions in their research. They concluded that the increase in budget deficits affects inflation in the short and long term and that there is a bilateral causality relationship between the variables used according to the results which they obtained.

Kaygısız, Kaya, and Kosaklıoğlu (2016) examine the causal relationship between savings, investment, current account balance and growth for the Turkish economy between the years 1980 and 2014. In the study, the authors apply the Toda-Yamamoto causality test for the series that is stationary of different degrees, while they use the Granger causality test for the series that is stationary of the same order. Based on the results obtained; as there is no causality between growth, savings, and

¹ Central Bank of Republic of Turkey. "Agenda of Central Bank-2017". (https://tcmblog.org/wps/wcm/connect/blog/tr/main+menu/analizler/kurdan_enflasyona_gecis). Date of Access: October 10, 2021

² • Tülitme S. (2019). Empirical Analysis of Triple Deficit in Turkey (1984-2004). *Journal of Finance*. 165, 97-117

• Kaygısız A. D., Kaya G. D. and Köse Kahyaoglu L. (2019). Savings, Investment, Current Account Deficit and Growth in Turkey: A Causality Analysis on the 1980-2014 Period. *Çankırı Karatekin University Journal of Social Sciences Institute*. 7 (1), 273-300.

• Karabulut, Ş. (2018). Triplet hypothesis and analysis of its effects on fiscal policies in Turkey (Unpublished Ph.D. Thesis). Dokuz Eylül University Institute of Social Sciences.

• Benli A. (2019). An Empirical Research on the Validity of Triplet Gap in Fragile Five. *Journal of Anadolu University Faculty of Economics and Administrative Sciences*. 20 (2), 100-111

investments, a unilateral causality has been determined from growth, savings, and investments to the current account balance.

Korkmaz (2017) examined in his study, the factors³ affecting inflation rates using the regression analysis method. In this scope, variables that affect inflation rates are included in the model.

Oladipo and Akinbobola (2011) implemented a Granger causality analysis to determine the relationship between budget deficits and inflation for the Nigerian economy. Based on the analysis results; a One-way causality relationship was determined between the variables used in the model and it was concluded that budget deficits are the cause of inflation.

Tang (2014) pointed out that the current account deficit, budget deficits, and financial balances are co-integrated in the long run in his study with the ARDL bounds test approach for the American economy. Thus, the existence of a triple deficit was adopted in the period analyzed.

Tülümce (2013), concluded in his study of the existence of the triple deficit between 1984 and 2010, that there is no relationship between the current account deficit and the savings-investment deficit, and that the triple deficit hypothesis is not valid for Turkey between the periods discussed.

Oğuz (2013) in his thesis study in which fiscal policy and foreign trade relations were examined, the foreign trade budget balance was studied through VAR analysis and Granger causality tests by way of using the monthly data from the years 1998-2012. According to the results obtained, the existence of two-way causality has been proven. Based on this; the mutual causality relationship between the budget deficit and the current account deficit and the twin deficit hypothesis was accepted.

Viera (2000) used the ARDL model as an econometric method to explain inflation and budget deficits for the economies of 6 European Union countries such as Belgium, Italy, France, Germany, Netherlands, and England. In the study, it was concluded that there is a positive relationship between budget deficits and inflation in Italy and Belgium, and a negative relationship for the French economy.

Empiric Practice

In the econometric model created by using the variables of budget deficits/GDP, current account deficit/GDP, and consumer price index, quarterly data between 2010:01- 2019:04 will be used. First of all, the stationarity of the time series used in the model will be tested, then the VAR model will be established and Granger causality analysis will be conducted.

Data Set and Econometric Method

The period 2010:01-2019:04 has been analyzed with quarterly data in this study. From the data used in this scope; the consumer price index and current account deficit were obtained

from the Electronic Data Distribution System (CBRT EDDS) of the Central Bank of the Republic of Turkey, and budget deficit data was obtained from the Strategy and Budget Department. Since the variables utilized in the model show seasonality, Census X-13 was corrected for eliminating the seasonal effects. Thereafter, the logarithms of the time series used in the model were considered. In this scope; Logtufe represents the consumer price index, Logba represents budget deficits and Logca represents current account deficits.

Before carrying out VAR and Granger causality analysis, the stationarity of the time series used in the model should be tested. In the case of working with non-stationary time series, the problem of spurious regression, which indicates that there is no co-integration, can be encountered, which leads to unreliable results (Erdemir, 2014). Therefore, the method to be applied is determined depending on the degree of stationarity of the series. For a time series used in the model to be stationary⁴, the variance and mean of the series should not change over time.

After considering the differences in the time series used in the model, VAR analysis has proceeded. VAR analysis provides predictions regarding the future by clarifying the interactions of the variables in the model (Hoşafçı, 2011). VAR analysis examines the relationship between the delayed values of all variables in the model by including them in the model. Moreover, all the variables are accepted as endogenous without distinguishing between internal and external variables used in VAR analysis. In addition, since VAR analysis includes the lagged values of the variables used in the model, it becomes a predictive model and enables structural analysis (Uslu, 2016). To analyze the VAR model reliably, Impulse-Response functions and Variance decomposition methods should also be inspected (Erdogan and Erdogan, 2018). Therefore, in the study, first of all, unit root analyzes of the series were inspected, then VAR analysis, Impulse-Response functions, Variance Decomposition, and Granger causality test were implemented.

Empirical Analysis and Findings

Augmented Dickey-Fuller (ADF) and Philips Peron (PP) tests are used for the stationarity of the series used in the model in the empirical analysis. In this scope, the unit root test results of the variables in the empirical model are presented in Table 1⁵.

When Table 1 is inspected, it can be understood that the budget balance variable is stationary in all ADF and PP test statistical values. On the other hand, while it is not stable only in constant and trended values for both tests in the current account balance, it is stationary in other test statistics. The manufacturer prices, on the other hand, turn into a stable structure after taking the first difference for both tests.

³ Producer and consumer price index, GDP growth rate, money supply, time deposit interest rate, nominal wages, domestic real loan volume and real exchange rate in US dollars are included in the model.

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⁴ Reasons why time series are not stationary; trend or not seasonally adjusted (Açar, ışık and Açar, 2004).

⁵ In the study, the first differences of the series were taken and made stationary.

Table 1: ADF and PP Unit Root Tests

Variables	ADF				PP			
	Logarithmic Value of Variables		First Difference		Logarithmic Value of Variables		First Difference	
	Still	Still trending	Still	Still trending	Still	Still trending	Still	Still trending
Budget Balance	-5.03 (0.00*)	4.96 (0.00*)	-7.84 (0.00*)	-7.74 (0.00*)	-5.15 (0.00*)	-5.09 (0.00*)	-10.5 (0.0*)	-10.4 (0.00*)
Current Balance	-3.23 (0.02**)	-3.14 (0.11)	-8.86 (0.00*)	-9.07 (0.00*)	-3.12 (0.03**)	-3.14 (0.11)	-10.0 (0.0*)	-18.1 (0.00*)
Consumer Prices	-2.64 (0.09)	-3.04 (0.13)	-4.85 (0.00*)	-4.75 (0.00*)	-2.25 (0.19)	-2.14 (0.05)	-4.78 (0.0*)	-4.68 (0.00*)

Note: *, ** respectively; denotes 1% and 5% significance levels.

Table 2. Lag Lengths

Lag	Lr	Fpe	Aic	sc	Hq
1	51.50872	0.044932	5.408206	5.941288*	5.592108
2	14.21348	0.045842	5.414687	6.347896	5.736861
3	15.95081	0.041852	5.290941	6.6224096	5.751146
4	18.49305*	0.032158*	4.9644633	6.697735	5.562900*
5	10.77737	0.033958	4.911689*	7.044737	5.648017

Note: Akaike (AIC), Schwarts (SIC), Final Prediction Error (FPE), Hannan-Quinn (HQ) and (LR) information criteria are used.

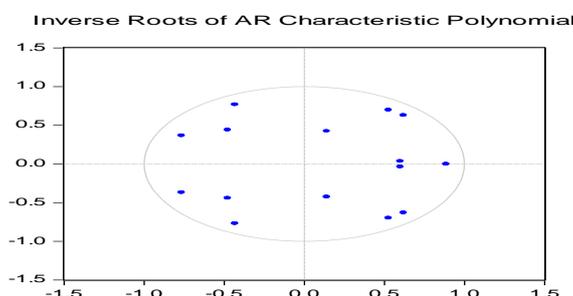
Table 3. Unit Root Results of VAR Model

Root	Module
0.886123	0.886123
-0.0620731	0.883498
-0.431483	0.881555
0.527315	0.874654
-0.765914	0.849288
-0.478044	0.649912
0.600217	0.601286

It is also significant to determine the appropriate lag length of the model used in the study. Based on this; the appropriate lag length of the model used in VAR analysis is shown in Table 2.

When Table 2 is examined, the appropriate lag length was determined as 5 based on the AIC information criterion. It is presented in Table 3 and Figure 1 that the appropriate lag length provides the stability condition in the model.

Figure 1. VAR Model Unii Root Circle

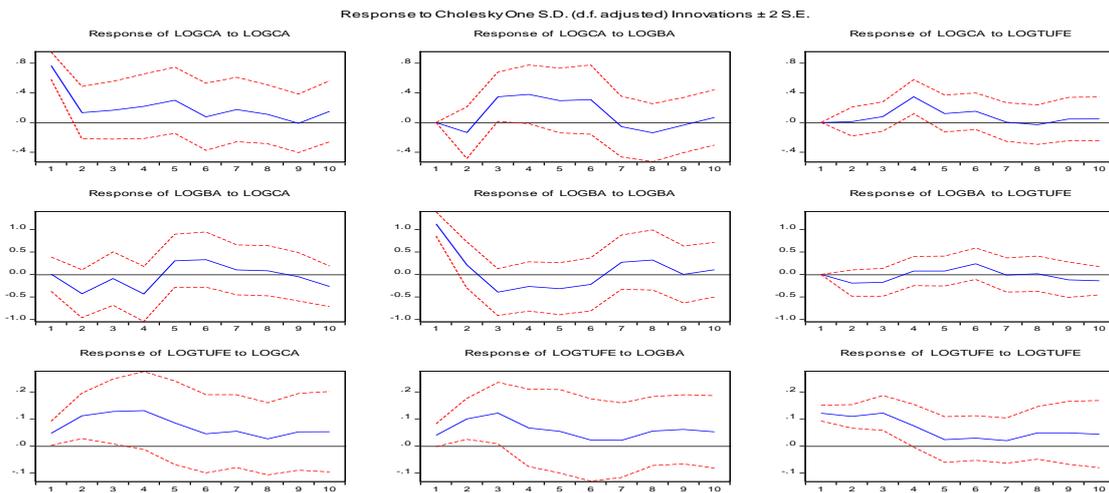


After determining the appropriate lag length in the VAR model and unit root tests, the diagnostic test results in the model are presented in Table 4.

Table 4: VAR Model Diagnostic Test Results

Tests	Test Values	Probability Values	Varying Variance Test		
			White Hete		
Autocorrelation test LM (4)	7.055573	0.6341	Chi Squared	Df	Possibility
j.Berra	4.304042	0.6356	1824.3810	180	0.3958

Chart 1. Action-Response Results



When Table 4 is studied, it can be seen that there is no diagnostic error at the 1% and 5% significance levels. It is seen that there is no problem of varying variance, autocorrelation in the established model and the model provides the assumption of normality.

The Action-Response analysis in the VAR model explains the effect of any shock given to one of the variables in the model on the other variable. (Karabulut, 2018). Based on this; Impulse-Response analysis results are presented in Graph 1.

According to the action-reaction results; when a one standard deviation shock is provided to the current account deficit variable, the budget deficit is; statistically completely meaningless. While the first two periods showed a decreasing

trend, the next two periods showed an increase. Against a standard deviation shock in the current account deficit variable, the consumer price index increased for about three periods, and this is statistically significant. Thereafter, it was seen that it lost its significance. Therefore, inflation is expected to increase with the increase in the current account deficit. Against the one standard deviation shock in the budget deficit variable, the consumer price index increased for approximately three and a half periods, and this is statistically significant. Later, it was seen that it lost its significance. The results obtained are in line with the literature and inflation is expected to increase as the budget deficit increases.

Table 5 Variance Decomposition Explains

Lag	Budget Balance			Current Balance			Consumer price index		
	Logca	Logba	Logtufe	Logca	Logba	Logtufe	Logca	Logba	Logtufe
1	0.003	99.99	0.00	100.00	0.00	0.00	11.88	8.52	79.59
2	11.98	85.59	2.41	97.03	2.93	0.02	27.65	21.93	50.40
3	11.13	84.95	3.91	81.34	17.79	0.85	31.27	26.69	42.03
4	19.10	77.21	3.67	62.45	25.90	11.63	38.12	24.47	37.39
5	21.58	74.81	3.60	60.11	28.85	11.03	40.46	24.68	34.85
6	24.18	70.17	5.64	55.23	33.06	11.70	40.93	24.43	34.62
7	23.77	70.76	5.46	56.06	32.50	11.42	41.92	24.09	33.97
8	23.03	71.72	5.24	55.67	33.08	11.23	40.69	25.14	34.14
9	22.98	71.26	5.74	55.55	33.09	11.35	40.14	26.11	33.73
10	24.72	69.00	6.26	55.96	32.74	11.28	40.02	26.59	33.38

Table 5. Variance decomposition explains what percentage of the shock in the variables in the model is due to itself, and what percentage is due to other variables. If in a Variance Decomposition, a variable is 100% explained by itself, that variable is interpreted externally (Özden & Uysal, 2020). Therefore, the order of the variables in the model is important for invariance decomposition.

When the variance decomposition results are studied in Table 5; 0.003% of the variance change of the budget balance variable at the end of the 1st period is due to the Logca variable, while 99.99% is due to itself. At the end of the 10th period, 24.72% is due to the logca variable, 69% to itself, and 6.26% to the log-tuff variable. It is seen that the effect of logca and logtufe has increased until the end of the 10th period.

At the end of the 1st period, 11.88% of the variance change of the Logtufe variable is due to the Logca variable, whereas 8.52% is due to Logba, and 79.59% is due to itself. At the end of the 10th period, 40.02% is caused by the variable Logca, 26.59% by Logba, and 33.38% by itself. It is seen that the effect of Logca and Logba has increased until the end of the 10th period. 100% of the variance change of the current balance variable at the end of the 1st period is due to itself. At the end of the 10th period, 55.96% originates from itself, 32.74% from Logba, and 11.28% from the Logtufe variable. It is seen that the effect of Logba and Logtufe has increased until the end of the 10th period.

Finally, causality results between the variables in the model were examined in the var analysis. Granger causality results are presented in Table 6.

Table 6: Granger Causality Analysis

The Dependent Variable	Descriptive Variable		
	Logba	Logca	Logtufe
Logba	-----	9.594 (0.08**)	3.913 (0.56)
Logca	8.058 (0.153)	-----	16.82 (0.004*)
Logtufe	12.36 (0.03*)	10.52 (0.06**)	-----

Note: *,** describe the 5% and 10% significance levels.

According to the Granger causality test; there is a one-way causality relationship from the Logca variable to the Logba variable. There is a bidirectional causality relationship from Logtufe to the Logca variable. In addition, there is a one-way causality relationship from the Logba variable to Logtufe. Based on the results obtained; it can be seen that the increase in the current account deficit and the budget deficit causes inflation.

Results and Suggestions

In this study, it is the goal to study the long-term relationship between the twin deficit hypothesis and inflation rates in the Turkish economy. With this purpose; by using quarterly data between 2010: Q1 and 2019: Q4, VAR analysis and Granger causality tests and Impact-Response analysis methods were implemented.

The fact that the VAR model utilized is significant clarifies that the variables used in the model act together in the long run. Based on the results obtained from the study, although a causality and impact-response relationship from the current account deficit to the budget deficits was determined, a causality and action-reaction relationship from the budget deficits to the current account deficits could not be determined. Consequently, a long-term relationship from budget deficits to current account deficits could not be determined, which does not support the

Keynesian and Ricardian views. Therefore, the twin deficit hypothesis is not valid in the Turkish economy in the period under consideration. However, based on the results of Impact-Response analysis and Granger causality results, it was concluded that both budget deficits and current account deficits cause inflation. Therefore, it is concluded that the increases in budget deficits and current account deficits in the period discussed in the study cause an increase in inflation rates.

In an emerging economy like Turkey, insufficient infrastructure and depth of the economy cause budget deficits and current account deficits. These macroeconomic imbalances that occur increase inflation rates that have become chronic on behalf of the Turkish economy. It is important to carry out structural reforms to prevent macroeconomic imbalances and to deal with the inflation problem.

It is essential to switch from the mode of production based on import substitution to domestic production with structural reforms. Thus; Increasing domestic production incentives should contribute to the reduction of inflation rates, the reduction of current account deficits through exports, and the elimination of budget imbalances through investment savings channels.

References

Akar S. and İpek E. (2016). “The Relationship Between Budget Deficit and Inflation: An Empirical Analysis for Turkey”, Marmara University Journal of Economics and Administrative Sciences, 38 (2), 167-189.
 Altunöz U. (2014). Testing the Twin Open Hypothesis with the Boundary Method: The Case of Turkey, Adıyaman University Journal of Social Sciences Institute, 7 (17), 425-446.

- Afonso, A. and Rault, C. (2009), "Budgetary and External Imbalances Relationship: A Panel Data Diagnostic", Cesifo Working Paper No: 2559, 1-38.
- Aras O. and Belke M. and Bolat S. (2011). Validity of the Twin Deficit Hypothesis in Turkey: Bounds Test Approach
- Ayan F. and Mangır F. (2019). Validity of the Twin Open Hypothesis in OECD Countries: Panel Data Analysis, Turkish Studies-Social Sciences, 14 (5), 2011-2026.
- Berk E. and Karayılmazlar E. (2017). The Effects of Budget Deficit on Current Account Deficit, Economic Growth and Inflation: The Case of Turkey. Pamukkale Journal of Eurasian Socio economic Studies. 4 (1), 26-36.
- Benli A. (2019). An Empirical Study on the Validity of Triplet Gap in Fragile Five. Anadolu University-Journal of the Faculty of Economics and Administrative Sciences. 20 (2). 100-111.
- Birkan, Ö. A. (2009). Inflation Targeting, Cost Inflation, Accumulation and Distribution. Ankara University Journal of the Institute of Social Sciences, 64 (4), 78-100.
- Daly, V. and Siddiki, J.U. (2009), "The Twin Deficits in OECD Countries: Cointegration Analysis with Regime Shifts", *Applied Economic Letters*, 16(11), 1155-1164.
- Doğan, B., Eroğlu, Ö., Değer, O. (2015), "Causality Relationship Between Inflation and Interest Rate: Case of Turkey", Çankırı Karatekin University Journal of the Faculty of Economics and Administrative Sciences, 6, 1-21.
- Dumrul C. Ve Maraş G. (2019). "Co-Integration Analysis with Boundary Test Approach of Budget Deficit and Inflation Relationship in Turkish Economy", *Erciyes University Journal of the Faculty of Economics and Administrative Sciences*, 54, 314-342.
- Doğru B. (2014). Is There a Relationship Between Budget Deficit and Inflation in High Inflation Periods? 1978-2002 Period. Case of Turkey. Eskişehir Osmangazi University İİBF Journal, 9 (1), 113-129.
- Erdemir, D. (2014). Triple Deficit Hypothesis (The Case of Turkey). (Unpublished Master's Thesis), Balıkesir University Institute of Social Sciences, Department of Economics.
- Erdoğan S. and Erdoğan A. (2018). "Analysis of Tanzi and Patinkin Effects in Turkey with VAR Method", Journal of Aksaray University Faculty of Economics and Administrative Sciences, 2018(1), 1-10.
- Kaygusuz M. (2001). Cost Inflation in Turkey and Reasons of Cost Inflation in Turkey. http://www.ceterisparibus.net/arsiv/m_kaygusuz2.doc> 01.10.2021.
- Kaygısız A. D., Kaya G. D. and Köse Kahyaoglu L. (2019). Saving, Investment, Current Account Deficit and Growth in Turkey: A Causality Analysis on the 1980-2014 Period. Çankırı Karatekin University Journal of the Institute of Social Sciences. 7 (1). 273-300.
- Kara, H. and Ögünç, F. (2008). "Inflation Targeting and Exchange Rate Pass-Through: Turkish Experience". Emerging Markets Finance & Trade. Volume 6.
- Karabulut, Ş. (2018). Triplet hypothesis and analysis of its effects on fiscal policies in Turkey (Unpublished PhD Thesis). Dokuz Eylül University Institute of Social Sciences.
- Korkmaz Ö. (2017). Determining the Factors Affecting Inflation Rates: An Application on Turkey. Dokuz Eylül University Journal of the Faculty of Economics and Administrative Sciences, 32(2), 190-142.
- Hoşafçı D. (2011). The Effect of Exchange Rate on Prices with VAR Analysis. (Published Master's Thesis), Istanbul University Institute of Social Sciences, Department of Business Administration, Department of Finance.
- Işık, N., Acar, M. and Işık, B.H. (2004). Inflation and exchange rate relationship: a cointegration analysis. Süleyman Demirel University Journal of the Faculty of Economics and Administrative Sciences, 9 (4), 325-340.
- Oktayer A. (2010). Relationship between Budget Deficit, Money Supply and Inflation in Turkey. Journal of Finance, 158, 431-447.
- Oguz S. (2013). Causality Relationship in Twin Offs: Turkey Practice for 1998-2012 Period, Hacettepe University Social Sciences Institute, Department of Finance, PhD Thesis.
- Oladipo, S. O. and Akinbobola, T. O. (2011). "Budget Deficit and Inflation in Nigeria: A Causal Relationship", Journal of Emerging Trends in Economics and Management Sciences, 2 (1): 1-8.
- Sayar G. and Bayar İ. (2019). Testing the Twin Deficit Hypothesis in Turkey and European Union Countries: Time Series and Panel Data Analysis (1996-2017). Aksaray University Journal of the Faculty of Economics and Administrative Sciences, 11 (4), 35-48.
- Solomon, M. J. and Wet W. (2004). "The Effect of Budget Deficit on Inflation: The Case of
- Şahin D. (2015). Validity of the Twin Deficit Hypothesis: Case of Turkey (1995-2013). Journal of Management and Economy, 22 (1), 49-59.
- Şimşek N. (2014). An Application on the Twin Open Hypothesis on Turkey. (Published Master's Thesis), Adnan Menderes University Social Sciences Institute Department of Finance.



- Uslu N. (2016). Analysis of the Relationship Between Economic Growth, Unemployment and Inflation with Vector Autoregressive Model: The Case of Turkey (2007-2014), (Published Master's Thesis), Dumlupınar University Social Sciences Institute Department of Economics.
- Uysal D. and Özden B. (2020). The Relationship Between Innovation and Economic Growth in Turkey. International Journal of Economics and Political Sciences Academic Research, 4 (10), 53-64
- Tang, T.C. (2014), "Fiscal Deficit, Trade Deficit and Financial Account Deficit: Triple Deficit Hypothesis with the U.S. Experience, Monash University Discussion Paper, 06/14.
- Tülümce Y. S. (2013). Empirical Analysis of Triple Deficit in Turkey (1984-2010). Journal of Public Finance, 165, 97-114.
- Central Bank of Republic of Turkey. "Diary of the Center 2017".
(https://tcmbblog.org/wps/wcm/connect/blog/tr/main+menu/analizler/kurdan_enflasyona_gecis). Date of Access: October 10, 2021
- Tosunoğlu Ş. et. al. (2012). Government Debts. Republic of Turkey Anadolu University Open Education Publications.
- Vieira, C. (2000), Are Fiscal Deficits Inflationary? Evidence for the EU, Economic Research Paper, 7, 1-16.