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BALANCE OF PAYMENTS CONSTRAINED GROWTH IN TURKEY: EVIDENCE FROM ARDL BOUND TESTING APPROACH

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ABSTRACT*. *The aim of this study is to empirically test the validity of Thirlwall's Law in Turkey during the period of 1980:1-2006:4 using an Autoregressive Distributed Lag (ARDL) Bounds testing approach. The empirical results reveal that import is cointegrated with relative price and income. The estimates of the long run elasticities from this function are used to compute the equilibrium growth rate. The difference between the equilibrium and actual economic growth rates are small. Nevertheless, results from regressions of equilibrium growth rates indicate that the Thirlwall's law does not hold for Turkey.

KEYWORDS: growth, balance of payments, Thirlwall's Law, ARDL, Bound Test, Turkey.

JEL classification: C32, E12, F14, F43.

Introduction

The balance of payments constrained growth model (BPCG), originally due to Thirlwall (1979), has generated considerable interest among Post Keynesians. Post-Keynesian authors have emphasized in the last decades that the balance of payments constitutes the main constraint to growth. In this respect, Post-Keynesians have refuted neoclassical views that assume a supply-constrained economy, and have extended Keynes's principle of effective demand into the long run. Hence, growth is seen as being demand-led.

The balance of payment constrained growth model states that the rate of growth in an individual country is restrained by the balance of payment as the economy cannot grow faster than what is consistent with the balance of payment equilibrium, or at least consistent with a sustainable deficit in the balance of payments. The theoretical basis for this relationship is that if a country's growth rate results in a rate of import growth exceeding that of exports, the resulting deterioration in the balance of payments, impedes the process of economic growth and consequently reduces economic growth (Girdzijauskas, 2008). The interpretation of this result is that balance of payments deficits restrict the rate of growth to a level consistent with a sustainable position in the external sector. The resulting rate of economic growth is called the balance of payments equilibrium growth rate to distinguish it from the actual rate of economic growth. The fact that the two growth rates differ provides an explanation of why growth rates differ between countries (Thirlwall, 1979). In this case, overall economic growth can be accelerated by manipulating Harrod's foreign trade multiplier.

Thirlwall's model emphasizes that the dynamic Harrod foreign multiplier determines long-term economic growth. While the neoclassical approach links variations in growth rates among countries to differences in the growth of factor supplies and productivity, Thirlwall's model stresses that demand factors induce economic growth. In an open economy, the dominant constraint upon demand is balance of payment (BOP). The basic idea of Thirlwall's approach highlights how BOP affects the growth performance of countries. He introduced a simple analytical model to show that if a country's external indebtedness cannot expand indefinitely then its long-run rate of economic growth will be restricted by its foreign trade performance, more precisely by the size of the income elasticity of its imports relative to the pace of expansion of its exports. In its simplest expression the model is referred to as Thirlwall's law. His analytical contribution was later extended to allow for the influence of foreign capital flows on economic growth (Thirlwall and Hussain, 1982). In recent years, it has been further revised to ensure that the economy's long-run growth is consistent with a sustainable path of foreign indebtedness (McCombie and Thirlwall, 1997; Moreno-Brid, 1998-99, 2003).

Several researchers have attempted to test Thirlwall's law empirically; see McGregor and Swales (1986, 1991), Bairam (1988), Andersen (1993), Atesoglu (1993), Hieke (1997), McCombie (1997), Moreno-Brid, (1999), León-Ledesma (1999), Moreno-Brid and Pérez (1999), López and Cruz (2000), Christopoulos and Tsionas (2003), Perraton (2003), Pacheco-López and Thirlwall (2005), Razmi (2005), and López and Thirlwall (2006).

Moreno-Brid (1999) paper applies the basic balance-of-payments constraint (BPC) model to the analysis of Mexico's economic growth in 1950-1996. The results tend to show significant and positive cointegration between the growth of Mexico's real exports and real output, thus giving support to the BPC-model as a relevant hypothesis to explain Mexico's long-term economic growth. Jayme Jr (2003) applied the Thirlwall's balance-of-payments constraint model to Brazilian economic growth in the period 1955-98, using cointegration techniques. The results show that there is a positive cointegration between growth in exports and long-term economic growth in Brazil, which support the fact that external factors constrain Brazilian economic growth. Christopoulos and Tsionas (2003) reassess the empirical evidence for Thirlwall's law in seven industrial countries by using panel unit root and panel cointegration tests including Johansen maximum likelihood cointegration tests over the period 1960-1999. The empirical results reveal that imports are cointegrated with terms of trade and income (although residual-based tests indicate the opposite). They find that, with the exception of Australia, Thirlwall's law holds.

The study of Razmi (2005) applies the balance-of-payments-constrained growth model to India. Johansen's cointegration technique is employed to estimate trade parameters. Short-run adjustments are explored within a vector error correction framework. The average growth rates predicted by various forms of the BPCG hypothesis are found to be close to the actual average growth rate over the 1950-1999 periods, although individual decades display substantial deviations. López and Thirlwall (2006) applied the balance of-payments-constrained growth model to 17 countries of Latin America over the period 1977–2002. A trend increase is found for Latin America as a whole and for some individual countries, and the balance of-payments equilibrium growth rate was found as a good predictor of growth performance in nine of the seventeen countries. There is no evidence that the balance of payments equilibrium growth rate has increased in Latin America as a result of trade liberalization.

As a conclusion, most of these studies accept the hypothesis that a country's economic growth is subject to the long-run balance of payments constraint.

Nowadays, balance of payment deficit has become a very important issue for developing countries and Turkey has no exception. This study is first of its kind in investigating the hypothesis of balance of payments constrained growth for Turkey. The purpose of this paper is to analyse the prospects for economic growth in Turkey on the basis of the balance of payment constrained growth theory in the period 1980:1-2006:4. This study explores the elasticities of demand for imports of Turkey using Autoregressive Distributed Lag (ARDL) Bounds testing approach and tests the Thirlwall's hypothesis of balance of payments constrained growth.

The remainder of the paper is organized as follows: the model, data and methodology are presented in *Section 1*; the empirical results are discussed in *Section 2* and the last section summarizes the findings of the paper.

1. Model Specification, Data and Methodology

Traditional version of Thirlwall's (1979) model can be presented in the following three equations:

$$m = \alpha(p_f - p_d) + \pi y \tag{1}$$

$$x = \phi(p_d - p_f) + \sigma z \tag{2}$$

$$p_d + x = p_f + m \tag{3}$$

Equations (1) and (2) are export and import demand functions, respectively; equation (3) is current account equilibrium. where *x* and *m* are the growth rates of real export and real import, *y* and *z* are the growth rates of domestic and world income, respectively. $(p_d - p_f)$ is the growth rate of relative prices, $\alpha, \pi, \phi, \sigma$ are elasticities. We have the restrictions $\alpha, \phi < 0$ and $\pi, \sigma > 0$. Substituting (1) and (2) into (3) and solving for y, we have the following equilibrium rate of growth:

$$y^* = \frac{(1+\phi+\alpha)\cdot(p_d - p_f) + \sigma z}{\pi} \tag{4}$$

Substituting (2) into (4), we get following:

$$y^* = \frac{x + (1+\alpha)\cdot(p_d - p_f)}{\pi} \tag{5}$$

We suppose that the Marshall-Lerner condition holds or that relative prices do not change in the long-run, then (5) becomes:

$$y^{**} = \frac{x}{\pi} \tag{6}$$

Equation (5) and (6) represent the basic forms of Thirlwall's. From initial balance of payment equilibrium and assuming no relative prices changes, a country's balance of payments constrained growth rate is determined by the ratio of external demand growth to the income elasticity. Countries cannot exceed this without making relative prices or capital inflows fall.

Following the empirical literature, we start from an import demand equation in level.

$$\ln M_t = a + \alpha \ln(TT_t) + \pi \ln(Y_t) + \varepsilon_t \tag{7}$$

where M and Y are real import and GDP (fixed at 1987 prices), respectively. TT is the terms of trade ratio (P_M / P_D). Here, P_D is GDP price deflator and P_M is import price deflator. However, export prices may only reflect the producer price index of exported goods, thus we use the GDP deflator instead of the export price deflator to prevent any error problem. ε_t is an error term. α, π are the long-run elasticities. Estimates of α are expected to be negative and π is expected to be positive.

The quarterly time series data are taken for period 1980:1-2006:4 from the Central Bank of the Turkish Republic (http://www.tcmb.gov.tr). All series were seasonally adjusted to remove the seasonal effects by using Census X-12 quarterly seasonal adjustment method.

This study employs a recently developed Autoregressive Distributed Lag (ARDL) Bounds testing cointegration procedure by Pesaran and Shin (1999) and Pesaran *et al.* (2001). They argue that the ARDL cointegration procedure has several advantages over the commonly practiced cointegration procedures like Engle-Granger (1987), Johansen (1988) and Johansen and Juselius (1990). First, the ARDL procedure can be applied whether the regressors are I(1) and/or I(0). This means that the ARDL procedure has the advantage of avoiding the classification of variables into $I(1)$ or $I(0)$ and no need for unit root pre-testing. Second, while the Johansen co-integration techniques require large data samples for validity, the ARDL procedure is the more statistically significant approach to determine the cointegration relation in small samples. Third, the ARDL procedure allows the variables to have different lags, while this is not feasible with conventional cointegration procedures. Finally, the ARDL procedure employs a single reduced form equation, while the conventional cointegration procedures estimate the long-run relationships within a context of a system equation.

Equation (7) may be represented by the following ARDL form:

$$\begin{aligned}\Delta \ln M_t &= a + \sum_{i=1}^{n1} \beta_i \Delta \ln(M_{t-i}) + \sum_{i=0}^{n2} \alpha_i \Delta \ln(TT_{t-i}) + \sum_{i=0}^{n3} \pi_i \Delta \ln(Y_{t-i}) \\ &\quad + \omega_1 \ln M_{t-1} + \omega_2 \ln TT_{t-1} + \omega_3 \ln Y_{t-1} + \mu_t\end{aligned} \tag{8}$$

Lag selection may be based on criteria such as the Akaike Information Criterion (AIC) and the Schwarz Bayesian Criterion (SBC). The null of no cointegration is $H_0 : \omega_1 = \omega_2 = \omega_3 = 0$ and the alternative is $H_1 : \omega_1 \neq 0, \omega_2 \neq 0, \omega_3 \neq 0$.

Two sets of critical values are generated. The upper bound critical values refers to the I(1) series and the lower bound critical values to the I(0) series. If the calculated *F*-statistics lies above the upper level of the band, the null is rejected, indicating cointegration. If the calculated *F*-statistics is below the lower critical value, we cannot reject the null hypothesis of no cointegration. Finally, if it lies between the bounds, a conclusive inference cannot be made without knowing the order of integration of the underlying regressors. The upper limit of the critical values for the F-test (all I(1) variables) can be obtained from Pesaran *et a*l. (2001). Recently, the set of critical values for the limited data (from 30 observations to 80 observations) were developed by Narayan (2004).

If there is a cointegration among the variables, the following long-run model is estimated:

$$\ln M_t = a_1 + \sum_{i=1}^{n1} \beta_{1i} (\ln M)_{t-i} + \sum_{i=0}^{n2} \alpha_{1i} (\ln TT)_{t-i} + \sum_{i=0}^{n3} \pi_{1i} (\ln Y)_{t-i} + \mu_t \tag{9}$$

The short-run dynamics can be derived by the following model:

$$\Delta \ln M_t = c_2 + \sum_{i=1}^{n1} \beta_i \Delta (lnM)_{t-i} + \sum_{i=0}^{n2} \alpha_i \Delta (\ln TT)_{t-i} + \sum_{i=0}^{n3} \pi_i \Delta (\ln Y)_{t-i} + \psi ECM_{t-1} + \xi_t \tag{10}$$

where ψ is the coefficient of error correction model (ECM). ECM, defined as:

$$ECM_t = \ln M_t - c_1 + \sum_{i=1}^{n1} \beta_{1i} \ln(M_{t-i}) - \sum_{i=0}^{n2} \alpha_{1i} (lnTT_{t-i}) - \sum_{i=0}^{n3} \pi_{1i} (\ln Y_{t-i}) \tag{11}$$

The coefficient of ECM, ψ, shows how quickly variables converge to equilibrium and it should have a statistically significant coefficient with a negative sign.

2. Empirical Results

2.1. Estimated Long-Run Coefficients

Table 1 presents the ARDL (1,0,2) model that is based on the Schwarz Bayesian Criterion (SBC). After selecting the ARDL model, we estimated the long-run coefficients with their asymptotic standard errors and the error correction model. Estimated model has passed several diagnostic tests that indicate no evidence of serial correlation and heteroskedasticity. Besides this, the ADF unit root test for the residuals revealed that they are stationary.

Table 1. Estimated Coefficients of the Import Demand Equation

Variables	**ARDL(1,0,2)**		**Long-Run**
Constant	-5.0132 [0.000]		-16.1271 [0.000]
lnM(-1)	0.6892 [0.000]		
lnTT	0.0695 [0.301]		0.2236 [0.287]
lnY	2.3118 [0.000]		2.4634 [0.000]
lnY(-1)	-1.1273 [0.000]		
lnY(-2)	-0.4188 [0.027]		
ECM			-0.3108 [0.000]
ARDL	(1,0,2)	RESET	0.269 [0.870]
R^2	0.6113	NORM	0.680 [0.712]
Adj. R^2	0.5915	HET	0.291 [0.589]
SEE	0.0501	ADF	-10.61 (-4.87)
LM	2.965 [0.564]	F	3.84

Notes:
SEE is the standard error of the regression.
LM is the LM test for serial correlation with a χ^2 distribution with four degrees of freedom.
RESET is Ramsey's specification test with a χ^2 distribution with only one degree of freedom.
NORM is a test for normality of residuals with a χ^2 distribution with two degrees of freedom.
HET is test for heteroskedasticity with a χ^2 distribution with only one degree of freedom.
ADF is unit root test statistics for residuals and its %5 critical value is in ().
F is the ARDL cointegration test. The upper limits of the critical value based on Pesaran *et a*l. (2001) and Narayan (2004) are 3.77 and 3.59 for %10 significance level.

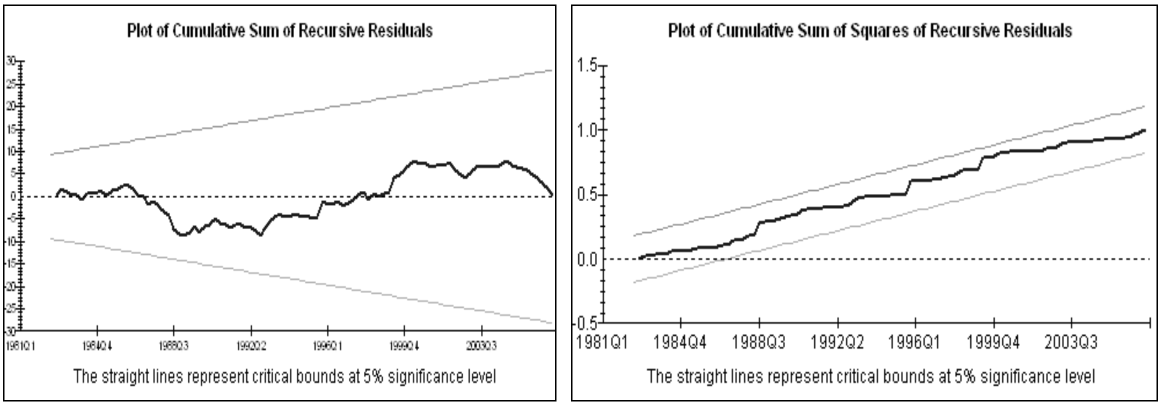

Figure 1. **Plot of Cumulative Sum Test and Cumulative Sum of Squares**

Figure 1 presents the plot of cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) test statistics that fall inside the critical bounds of 5% significance. This implies that the estimated parameters are stable over the sample period. F-test results indicate that there is evidence of a long-run relationship between the variables at 10% significance level. The relative price elasticity of demand for import is expected as negative, but its estimated value is positive and statistically insignificant. The income elasticity of demand for import is higher (2.46) and statistically significant at 1% confidence level. Error correction term (ECM) is also negative (-0.31) and statistically significant at 1% confidence level. ECM indicates that any deviation from the long-run equilibrium of import demand is corrected more quickly to return the long-run equilibrium level.

2.2. Test of Thirlwall's Hypothesis

There are two proposals to test the Thirlwall's law. *First*, if equilibrium growth rates coincide with actual growth rates or difference between two growth rates, (y^*-y), close to zero, the Thirwall's law holds. *Second*, the equilibrium growth rates regress as a function of the actual growth rates. If Wald test cannot reject the joint hypothesis that intercept coefficient is zero and the slope coefficient is unity, Thirlwall's law holds. McCombie and Thirlwall (1994, ch.5) suggest that it is more appropriate to regress predicted growth rates as a function of actual growth rates. Because, the predicted growth rate is derived from estimates of the parameters, it is subject to errors.

Table 2. Test of Thirlwall's Hypothesis

π	**y**	**x**	**$y^* = x / \pi$**	**y^* -y**
2.46	1.11	3.12	1.27	0.16

π	Income elasticity of demand for import
y	Actual economic growth rate
x	Growth rate of real export
$y^* = x / \pi$	Predicted economic growth rate
y^* -y	Differences between predicted and actual economic growth rates

Notes: Growth rates computed as the first differences of logarithm of series.

Table 3. Regressing Equilibrium (y^*) Growth Rate

$$y^* = \underset{[0.0000]}{0.0114} + \underset{[0.1854]}{0.1245}\, y$$

R^2=0.017 Adjusted R^2=0.008 SEE= 0.025 Wald = 91.68 [0.0000]

Note: SEE is the standard error of the regression. Wald is joint test that constant term is zero and the slope coefficient is unity. It has a χ^2 distribution with two degrees of freedom. P-values are in [ ]. White heteroskedasticity-consistent standard errors & covariance estimator is used.

Table 2 presents the equilibrium growth rate, actual growth rates and the difference between two growth rates. The equilibrium growth rate (y^*) calculated from equation (6) may used to test the Thirlwall's hypothesis. The differences between two growth rates are very small (0.16 %) and close to zero. But, that is a limited evidence for the Thirwall's law. On the other hand, results from regressions of equilibrium growth rates indicate that Thirlwall's law does not hold. Wald tests can strongly reject the joint hypothesis that intercept coefficient is zero and the slope coefficient is unity at 10% confidence level (see *Table 3*). According to all results, the Thirlwall's hypothesis is not confirmed by data.

Conclusion

This study has explored elasticities of demand for imports for Turkey using Autoregressive Distributed Lag (ARDL) Bounds testing approach and tested the Thirlwall's hypothesis of balance of payments constrained growth for the period of 1980:1-2006:4. Our findings indicate that the Thirlwall's law hypothesis of balance of payments constrained growth is not confirmed data. While difference between the equilibrium and actual economic growth rates are small, results from regressions of equilibrium growth rates show that the Thirlwall's law does not hold for Turkey. Wald test rejects the joint hypothesis that intercept coefficient is zero and the slope coefficient is unity for the regressing of the equilibrium growth rates against the actual growth rates. An explanation for the failure of Thirlwall's law can be explained with the changing relative prices and fluctuations of capital flows in Turkish Economy largely due to the 1994, 1999 and 2001 financial crises occurred.

References

Andersen, S.P. (1993), "The 45o-Rule Revisited", *Applied Economics,* Vol. 25, No 11, pp. 1279-1284.

Atesoglu, H.S. (1993), "Balance of Payments Constrained Growth: Evidence from the United States", *Journal of Post Keynesian Economics*, Vol. 15, No 4, pp. 507-514.

Bairam, E. (1988), "Balance of Payments, the Harrod Foreign Trade Multiplier and Economic Growth: The European and North American Experience 1970-85", *Applied Economics*, Vol. 20, No 12, pp. 1635-1642.

Christopoulos, D.K., Tsionas, E.G. (2003), "A Reassessment of Balance of Payments Constrained Growth: Results from Panel Unit Root and Panel Cointegration Test", *International Economic Journal,* Vol. 17, No 3, pp. 39-54.

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

Hieke, H. (1997), "Balance of Payments Constrained Growth: A Reconsideration of the Evidence for the U.S. Economy", *Journal of Post Keynesian Economics*, Vol. 19, No 3, pp. 313-325.

Girdzijauskas, S. (2008), The Logistic Theory of Capital Management: Deterministic Methods. Monograph No 1, *Transformations in Business & Economics*, Vol. 7, No 2(14), Supplement A, pp.20-163.

Jayme, Jr., G.F. (2003), "Balance-of-Payments-Constrained Economic Growth in Brazil", *Brazilian Journal of Political Economy,* Vol. 23, No 1, pp. 62-84.

Johansen, S. (1988), "Statistical analysis of cointegration vectors", *Journal of Economic Dynamics and Control,* Vol. 12, pp. 231-254.

Johansen, S, Juselius, K. (1990), "Maximum likelihood estimation and inference on cointegration with appplications to the demand for money", *Oxford Bulletin of Economics and Statistics,* Vol. 52, pp. 169-210.

Leon–Ledesma, M.A. (1999), "An Application of Thirwall's Law to the Spanish Economy", *Journal of Post Keynesian Economics,* Vol. 21, No 3, pp. 431-439.

Lopez, J., Cruz, A. (2000), "Thirlwall's Law and Beyond: The Latin American Experience", *Journal of Post Keynesian Economics,* Vol. 22, No 3, pp. 477-495.

López, P.P., Thirlwall, A.P. (2006), "Trade liberalization, the income elasticity of demand for imports, and growth in Latin America", *Journal of Post-Keynesian Economics,* Vol. 29, No 1, pp. 41-61.

Mccombie, J.S.L., Thirlwall, A.P. (1994), *Economic Growth and the Balance of Payments Constraint*. Basingstoke: Macmillan.

Mccombie, J.S.L. (1997)," On the Empirics of Balance of Payments Constrained Growth", *Journal of Post Keynesian Economics,* Vol. 19, No 3, pp. 315-375.

Mccombie, J.S.L., Thirlwall, A.P. (1997), Economic growth and the balance-of-payments constraint revisited. in Arestis et al. (eds): Markets, Unemployment and Economic Policy. Routledge, New York.

Mcgregor, G.P., Swales, K.J. (1986), "Balance of payments constrained growth: a rejoinder", *Applied Economics,* Vol. 18, No 12, pp. 1265–74.

Mcgregor, G.P., Swales, K.J. (1991), "Thirlwall's law and balance of payments constrained growth: further comment on the debate", *Applied Economics,* Vol. 23, pp. 9–20.

Moreno-Brid, J.C. (1998-1999), "On capital flows and the balance-of-payments constrained growth model", *Journal of Post Keynesian Economics*, Vol. 21, pp. 283–9.

Moreno-Brid, J.C. (1999), "Mexico's Economic Growth and the Balance of Payments Constraint: a cointegration analysis", *International Review of Applied Economics,* Vol. 13, No 2, pp. 149-159.

Moreno-Brid, J.C., Perez, E. (1999), "Balance of Payments Constrained Growth in Central America: 1950-1996", *Journal of Post Keynesian Economics*, Vol. 21, No 2, pp. 131-147.

Moreno-Brid, J.C. (2003), "Capital Flows, Interest Payments and The Balance of-Payments Constrained Growth Model: A Theoretical And Empirical Analysis", *Metroeconomica,* Vol. 54, No 2 & 3, pp. 346-365.

Narayan, P.K. (2004), "Reformulating Critical Values for the Bounds F-statistics Approach to Cointegration: An Application to the Tourism Demand Model for Fiji" Discussion Papers 2004, Department of Economics, Monash University, Victoria.

Pacheco-Lopez, P., Thirlwall, A.P. (2005), "Trade Liberalisation, the Balance of Payments and Growth in Latin America", Working paper, No. 0505, Department of Economics, University of Kent, UK.

Perraton, J. (2003), "Balance of payments constrained growth in developing countries: an examination of Thirlwall's hypothesis", *International Review of Applied Economics,* Vol. 17, pp. 1–22.

Pesaran, H.M., Shin, Y. (1999), Autoregressive distributed lag modeling approach to cointegration analysis, in: S.Storm (Ed.) Econometrics and Economic Theory in the 20th Century:The Ragnar Frisch Centennial Symposium, Chapter 11. Cambridge University Press.

Pesaran, M.H., Shin, Y., Smith, R.J. (2001), "Bounds testing approaches to the analysis of level relationships", *Journal of Applied Econometrics*, Vol. 16, pp. 289–326.

Razmi, A. (2005), “Balance of Payments Constrained Growth Model: The Case of India”, *Journal of Post Keynesian Economics,* Vol. 27, No 4, pp. 655-687.
Thirlwall, A.P. (1979), “The Balance of Payments Constraint as an Explanation of International Growth Rate Differences”, *Banca Nazionale Del lavoro Quarterly Review*, No 128, pp. 44-53.
Thirlwall, A.P., Hussain, M.N. (1982), “The balance of payments constraint, capital flows and growth rates differences between developing countries”, *Oxford Economic Papers*, Vol. 34, pp. 498–509.

PROBLEMINIS MOKĖJIMŲ BALANSO AUGIMAS: ARPS METODO TAIKYMO TURKIJOJE REZULTATAI

Ali Acaravci, Ilhan Ozturk

SANTRAUKA

Šiuo tyrimu išnagrinėtas Turkijos importo paklausos elastingumas, panaudojant autoregresinio paplitimo slankų (ARPS) modeliavimą bei testavo Thirlwall hipotezę dėl probleminio mokėjimų balanso augimo per 1980 sausio mėn. – 2006 balandžio mėn. laikotarpį. Autorių rezultatai rodo, kad Thirlwall dėsnis duotuoju atveju nebuvo patvirtintas. Tuo atveju, kada skirtumas tarp pusiausvyros ir realaus ekonominio augimo normų yra mažas, regresinės analizės rezultatai nusako, kad Thirlwall dėsnis negali būti taikomas Turkijai. Nesėkmingas šio dėsnio taikymas Turkijai gali būti paaiškintas besikeičiančiomis reliatyviomis kainomis ir kapitalo srautų svyravimais Turkijos ekonomikoje, atsižvelgiant į 1994, 1999 ir 2001 metų finansinės krizės pasekmes.

REIKŠMINIAI ŽODŽIAI: autoregresinio paplitimo slankų (ARPS) modelis, augimas, mokėjimų balansas, Thirlwall dėsnis, Turkija.