

TWIN DEFICITS: AN EMPIRICAL ANALYSIS IN THE CASE PAKISTAN

Masood Mashkoor Siddiqui¹

Abstract

Twin deficit is investigated in this study by employing the data of 1971 to 2008 in the case of Pakistan. For econometrics evidence this study is used JJ cointegration approach and rolling window estimation method. The results of JJ cointegration verify long run relationship among the budget deficit and trade deficit.

Key Words: Budget Deficit, Trade Deficit,

JEL Classification: C11, C22

INTRODUCTION

Theoretical and empirical literature shows different explanation of twin deficit. According to Keynes the trade deficit is positively related with budget deficit i.e. budget deficit leads to a trade deficit and, a trade deficit improve only when surplus in budget. Mundell/Fleming [1/2] stated that government deficit spending increases in the case of international capital mobility. When domestic interest rate is higher than world interest rate there is possibility of net capital inflow from abroad and the domestic currency will appreciate. Thus current account balance deteriorates due to rise in imports and fall in exports. Conversely no relationship between the twin deficits has suggested by the Ricardian Equivalence Hypothesis (REH).

The empirical studies on twin's deficit showed ambiguous explanations. Evans [2] supported Ricardian Equivalence Hypothesis by using the data of G-7 countries. Abell [4] concluded budget deficit

cause trade deficit indirectly not directly. Rosenweig and Tallman [5] concluded on the basis of empirical results that budget deficit leads trade deficit. Vamvoukas [6] supported the hypothesis of trade deficit cause trade in the case of Greek economy by using the cointegration approach. Khalid and Guan [7] conducted comprehensive study in the case of develop and developing countries. They found cointegration relationship in the case of developing countries and also rejected cointegration between twins deficit in the case of developed countries.

Saleh et al. [8] found long run relationship between the budget deficit and current account deficits. Saleh [9] partially supported the Keynesian view that trade deficit and budget deficit associated. Chowdhury & Saleh [10] suggested that the relationship exists between the current account, budget deficit and savings & investment gap. They found that trade openness has positively effect on the current account deficit, but is statistically insignificant. Gulzar et al [11] empirically prove that the long run relationship exist between the current account balance and the balance of trade, domestic saving, total consumption and workers remittances.

Tahir et.al [12] examines that the long run relationship exists between the two deficits and also shows bidirectional causal relationship. Acaravci [13] concludes long run relationship exists between budget deficit and current account imbalances and empirical results also indicate that the direction of causality runs from the budget deficit to the current account deficit. Thus the aim of this empirical work is to determine the association between these twin deficits in the case of Pakistan by employing the annual time series data from 1971 to 2009. This study is provided empirical evidence by using the JJ

¹ Dr. Professor, Chairman, Department of Commerce, Federal Urdu University of Karachi, Karachi, Pakistan. E-mail drmasoodmashkoor@yahoo.com

cointegration and rolling window estimation method. Remaining paper is organized as follows. Section II explains theoretical background and estimation methodology Section III discusses empirical results and final section IV gives conclusion.

THEORETICAL BACKGROUND

Positive relationship between trade deficit and budget deficit has proposed by the Keynesian model of open economy. This

$$Y = C + I + G + (X - M) \text{-----(1)}$$

model in mathematical form we can write as

Where in equatin-1 Y (gross domestic product) is the sum of C (private consumption expenditures), I (gross private domestic investment expenditures), G

$$Y = C + S + T \text{-----(2)}$$

(government expenditures) and X-M (net exports). Conversely, this relationship explain as in equation-2

Replacing (2) in (1) and reorganized

$$(X - M) = (S - I) + (T - G) \text{-----(3)}$$

expression as,

Equation (3) proposes net exports equal private and public savings. The Mundell Fleming Model explains that the increase in the government's budget deficit could lead to an increase in the trade deficit through increased consumer spending². Furthermore, the Keynesian absorption theory argues that an increase in the budget deficit would induce domestic absorption and therefore import expansion, causing a current account deficit.

ESTIMATION METHODS AND EMPIRICAL RESULTS

This empirical work is used annual data from 1971- 2008. Data has taken from State Bank of Pakistan, various publication and Pakistan Economic Survey. Both trade deficit and budget deficit has used as percentage of the GDP (Gross Domestic Product) for econometric estimation this study has used natural logarithms forms. For estimation evidence this empirical investigation is used augmented dickey fuller unit (ADF) root test in order to determine the order of integration and long run relationship between among the variables is determined by using the JJ cointegration and rolling regression methods.

INSERT TABLE-1 HERE

Table-1 indicates that the both variables LBD and LTD are integrated order one. These results are supported that we can apply the JJ cointegration method to investigate the long run relationship. Johansen [14] cointegration test is based on

the two statistics i.e. λ_{trace} and λ_{max} statistics. If these statistic (λ_{trace} and λ_{max}) show the different results in favor of cointegration vectors then Johansen [14] proposed λ_{trace} has based to conclude the results. So this empirical investigation is used the λ_{trace} to determine the long run vectors between the variables.

INSERT TABLE-2 HERE

Table-2 represents the result of JJ-cointegration method to long run relationship. The results confirm the long run relationship between trade deficit and budget deficit and also specify that there are two cointegrating vectors.

Rolling Regression Results

² See Fleming [2]; Mundell [1].

This study also employs the rolling window estimation, the main advantage of this method, it is estimated the coefficients of each observation in the sample. Figure-1 demonstrates that before 1986 and 1996 to 1999 the trade deficit significantly effect on the budget deficit and 1987 to 1991 the trade deficit reduce the budget deficit. From, 1992 to 1995 and 2000 to 2007 trade deficit near zero impact on budget deficit.

Insert Figure-1 Here

Figure-2 explains that the before 1986 the budget deficit almost zero impact on the trade deficit and 1987 to 1991 budget deficit reduce trade deficit. Budget deficit highly and positively leads the trade deficit from 1992 to 2008 except the 2000 and 2001.

Insert Figure-2 Here

CONCLUSION

Relationship between the twin deficits is empirically tested in this empirical research by employing the JJ cointegration and rolling regression estimation model. The results of JJ cointegration method confirm the long run relationship between budget deficit & trade deficit. Rolling regression results have showed before 1986 and 1996 to 1999 the trade deficit significantly effect on the budget deficit and conversely budget deficit cause trade deficit from 1992 to 2008 except the 2000 and 2001.

REFERENCE

Mundell, Robert A., (1968) *International Economics*, Macmillan, New York.

Fleming MJ, (1967) 'Domestic Financial policies under fixed and floating exchange rates' Working paper 9, IMF.

Evans, P. 1989. "Do Budget Deficit Affect the Current Account?" Ohio State University, Working Paper.

Abell, John D., (1990), "The Role of the Budget Deficit During the Rise in the

DollarExchange Rate from 1979-1985", *Southern Economic Journal*, Vol. 57, No. 1, pp. 66-74.

Rosenweing, J.A. and E.W. Tallman. 1993. "Fiscal Policy and Trade Adjustment: Are the deficits Really Twins?" *Economic Inquiry*, 31.

Vamvoukas, G. A. (1997) A Note on Budget Deficits and Interest Rates: Evidence from a Small Open Economy. *Southern Economic Journal* 63, 803-11.

Khalid, A. M. and T.W. Guan (1999), .Causality Tests of Budget and Current Account Deficits: Cross-Country Comparisons,. *Empirical Economics*, 24(3), 389-402.

Saleh, A. S., Nair, M., and Agalewattee, T. (2005), "The Twin Deficits Problem in Sri Lanka: An Econometric Model", *South Asia Economic Journal*, Vol. 6, No. 2, pp. 221-239.

Saleh, A. S (2006). Long Run Linkage between Budget Deficit and Trade Deficit in Lebanon: Results from the UECM and Bounds Tests. Available on http://econpapers.repec.org/article/ijejournal/v_3a14_3ay_3a2006_3ai_3a1_3ap_3a29-48.htm.

Chowdhury, K and Saleh, A.S (2007). Testing the Keynesian Proposition of Twin Deficits in the Presence of Trade Liberalisation: Evidence from Sri Lanka after War: the case of a bridge too far? Available on : <http://econpapers.repec.org/paper/uowdepec1/wp07-09.htm>

Gulzar, S (2008). Causes of Fluctuation in the Current Account Balance of Pakistan. Available on : <http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=04669051>.

Mukhtar, T; Zakaria, M and Ahmed, M (2007). An Empirical Investigation for the twin deficit hypothesis in Pakistan. *Journal of Economic Cooperation*, 28(4),67-80.

Acaravci, et.al (2008), "Twin deficits phenomenon: empirical evidence from the ARDL bound test approach for

Turkey", Bulletin Statistics Economics
AUTUMN.
Johansen, S.1995, Likelihood-Based
Inference in Cointegrated Vector

Autoregressive Models (New York:
Oxford University Press).

Table-1 Unit Root Results

<i>Regressor</i>	<i>ADF</i>
<i>LBD</i>	-1.37
<i>LTD</i>	-1.71
Δ <i>LBD</i>	-6.31*
Δ <i>LTD</i>	-5.66*

Note: *: 1% level of significant

Table-2 Cointegration Results

<i>Hypothesized</i>	<i>Trace Statistic</i>	<i>0.05 Critical Value</i>	<i>Prob.</i>
<i>None</i> *	24.33	18.39	0.00
<i>At most 1</i> *	8.52	3.84	0.00

**Fig- 1 Coefficient of LTD and its two*S.E. bands based on rolling OLS
(Dependent Variable: LBD ; Total no. of Regressors: 2)**



Fig-2 Coefficient of LBD and its two*S.E. bands based on rolling OLS
(Dependent Variable: LTD ; Total no. of Regressors: 2)

