

Relationship between Current Account Balance and Budget Balance: A Descriptive Analysis

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Abstract:

This research investigates the Relationship between Current Account Balance and Budget Balance: A Descriptive Analysis. Data were collected from secondary sources. Data were analyzed by using SPSS-21 version. It was revealed that In graph 1 behaviour of variable Bd is shown in 16 observations or countries. It is the average value of the given countries in the past decade (2001-2013) while in graph 2 same exercise is done with the variable Ca. We can see that the trend or behavior of both variables is different checked in graph 3 for most corrupt nations. But for more accurate and detailed results to check the behavior and relationship of both variables and therefore its also one of the major reasons that we are moving to the regression analysis.

Key Words: Relationship Current, Account Balance, Budget Balance, Descriptive Analysis

Introduction

In **Keynisian** hypothesis theory or Mundle flaming theory (bi-directional), researchers like, Frenklend and Razin (1986), Yi (1993) and Baxter (1995) found the causality between both. Chen (2006) also found positive relationship between twin deficits. Ahmed (1986-87) found that there is causality run in budget deficit to trade deficit. Roubini (1988) concluded that a 1 unit change in budget deficit effects current account 0.22-0.98. Lane (1998), Piersanti (2000) took 17 OECD countries' data separately and found relevant result. Piersanti incorporated expectations and proved it right. Salvatore (2006) proved it for G7 countries. Yoichi Matsubayashi (2005) proved it through separating private and public accounts. Ball (1990) found positive relation between deficits. MURTHY and PHILLIPS (1996) proved it true in long run for U.S through maximum likelihood method. AQEEL and NISHAT (2000) proved it for Pakistan. Sidiqi (Journal of Commerce vol 3) proved it with JJ method for Pakistan.

Twin deficit shows that fiscal deficit will ultimately result in trade deficit or there is a relation between trade and budget deficit.

Budget deficit = (S-I) + Trade deficit

Twin deficit hypothesis shows the relationship between budget deficit and trade deficit. Deficits to an economy is often considered bad but there is difference in opinion in economists about the advantages and disadvantages of deficits, like it's not a problem at all according to Mankiw (2006), he said if exports increase then trade deficit increase, but if foreigners purchase assets in our country then our exports will be low and trade deficit would be worsen, so if trade deficit increase then let it increase, while Krugman and Bernanke (2006) are follower of traditional twin deficit hypothesis which says trade deficit is bad. While some are in between both above described concepts like Roubini (1988) found that a portion of budget deficit (almost 22%) is compensated with capital inflow while rest effects trade deficit due to high exchange rate.

There is a lot of work done in twin deficit hypothesis's validity. It was basically emerged from U.S economy in 1980's when the problem of twin identified and significantly researched, but with passage of time twin deficit was checked in different countries individually and also in groups to compare. Basically there are following 4 major findings or differences among the researchers in literature.

In **Recordian** view, researchers found that there is no significant causality or reverse causality between both deficits and both are indifferent from each other and can't effect each other. Ferrero (2010) proved it for G7 countries and said that fiscal policy is least relevant to trade. Evans (1985-88) found that there is no significant relationship among both. Miller and Russek (1989); Dewold and Ulan (1990) also proved it. Bernardina Algieri (2012) proved it with Granger causality and todayamoto. (reduced form strict model used)

In **reverse causality** view, researchers like Kayhan, Bayat, Yüzbaşı (2013) with bootstrap process-based Toda-Yamamoto causality and frequency domain analysis methods found that there is reverse causality between budget deficit and trade deficit which run from trade deficit to budget deficit and no significant relation from fiscal deficit to current account deficit. They found that budget deficit effects current account deficit positively in short and medium term. While in long run it's not effective because in long run current account deficit effects budget deficit. Kalou, Paleologou (2012) used multivariate vector correction and corrected structural breaks and proved it. Ramchandrar (1998) tested 5 developing countries and except Malaysia all results were reverse causality's. Saeed and

Khan(2012)proved it for Pakistan.(checked through Granger causality).(so policy implication not only fiscal deficit correction enough)(for small economies)

Table “1” shows the simple correlation between the 16countries’ current account balances and budget balances.

Table “1”

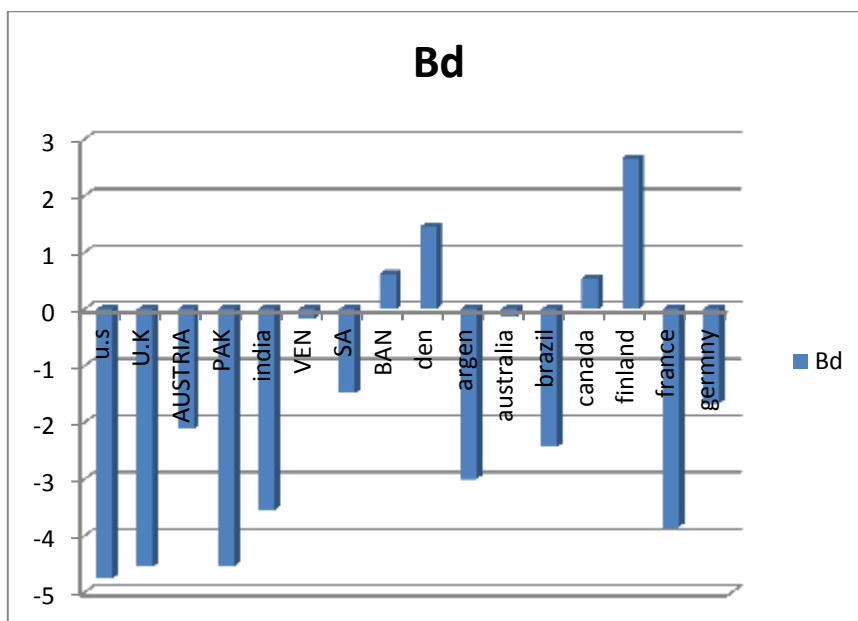
Country	Correlation	Country	Correlation
U.s	-0.97201	Denmark	-0.70138
U.K	-0.25133	Argentina	0
Austria	0.356998	Australia	-0.80163
Pakistan	0.022395	Brazil	-0.49683
India	0.641269	Canada	0.947066
Venzvila	0.644647	Finland	0.669892
South Africa	-0.67068	France	0.462704
Bangladesh	-0.80606	Germany	0.48932

Data given in table “1” is the correlation between average value of current account balance and budget balance over a decade (2001-2013). Theory says that there is positive relationship between current account balances and budget balances, while in the table given above we can see that theory is failed in case of U.s, U.K, South Africa, Bangladesh, Denmark, Argentina, Australia, and Brazil. While it seems true in case of Pakistan, Austria, India, venzuila, Canada, Finland, France and Germany(remember that logic or reasoning to defend the former countries’ –ve sign is not easy or true as data is not of short term rather it is average of more than a decade, so it depicts the long run trend or correlation between current account balances and budget balances.).

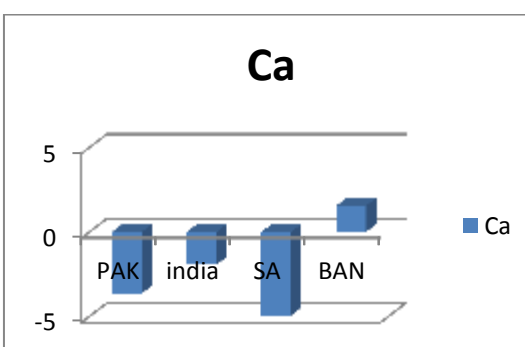
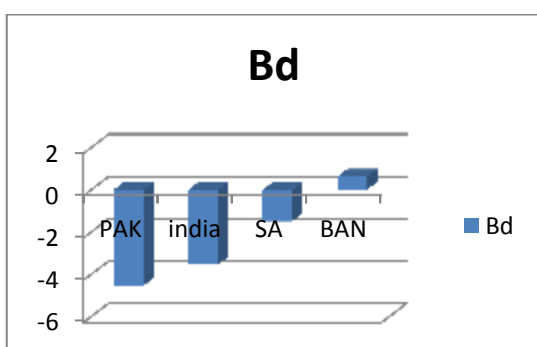
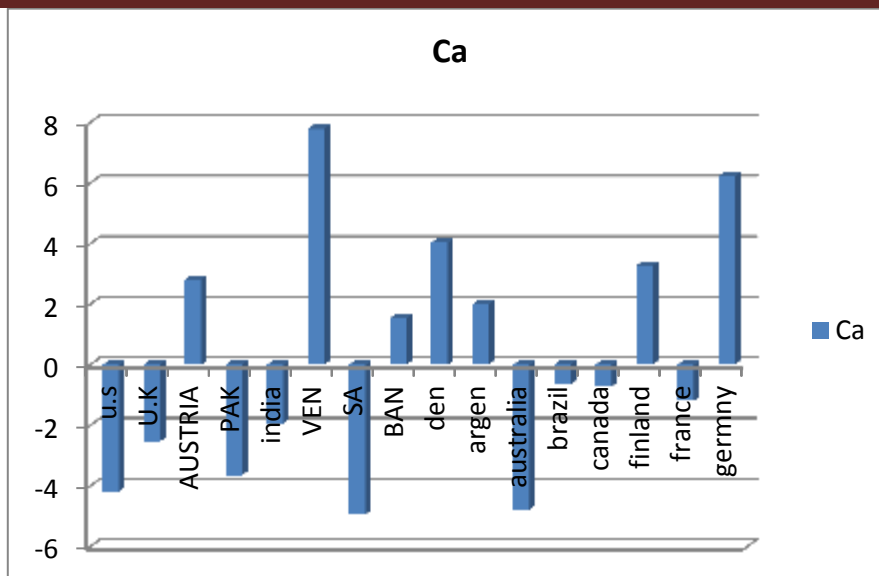
Therefore, we can say that we observe two extreme cases in the table “1” . First of them is pro-twin deficit e.g. Canada showing that budget deficit is hugely positively related with current account balance (0.947066), this is in favour of twin deficit hypothesis. While second is Anti-twin deficit e.g. U.s showing that budget deficit is not causing current account deficit instead of it both balances have a strong negative relation with each other(-0.97201).

So we cant check or determine the twin deficit hypothesis’ validity through simple correlation and this is the first reason that we will have to move to the regression analysis.

Graph 1



Graph 2



In graph 1 behaviour of variable Bd is shown in 16 observations or countries. It is the average value of the given countries in the past decade (2001-2013) while in graph 2 same exercise is done with the variable Ca. We can see that the trend or behavior of both variables is different checked in graph 3 for most corrupt nations. But for more accurate and detailed results to check the behavior and relationship of both variables and therefore its also one of the major reasons that we are moving to the regression analysis.

Regression analysis evidence:

Theory presented in literature review suggests or says about the validity of twin deficit hypothesis, which is basically a positive relationship between budget balances and trade balances, which cant be determined through simple correlation so keeping in view the mundle flaming model and the methodology we are following , our suggested regression line is

$$Ca_t = b_0 + b_1BD_t + b_2G_t + b_3GR_t + b_4Ca_{t-1} + \mu \quad (1)$$

Here Ca is current account balance, BD is budget balance, G is annual growth rate of GNP, GR is growth of rest of world. While bi are coeffecients of the regression. This regression is best to check th validity of twin deficit hypothesis in panel data, But due to our data specification and constraints we will remove the lagged dependent variable from independent side , because in cross sectional data lagged dependent variable cant be found easily. Now if we try to regress this regression line for our data we will have a near singular matrix because our data is cross sectional and variableGRt is a constant term for every observation, so we will have to drop this variable as well so we will drop it. But now the strength of model is significantly decreased because two relevant variables are dropped so we will have to incorporate two relevant variables to maintain the strength of the model. So we will introduce a new regression line as

$$Ca = b_0 + b_1BD + \mu \quad (2)$$

We have 4 options in given data set and regression line framework (to check the 4 functional forms linear-linear, linear-log, log-linear, log-log) but we can't check it due to insufficient observations so we will only check the linear-linear. We checked all four possibilities through Ramsey test but only linear function is giving sensible indicator .So we will estimate this linear regression line only.

In table 2 regression results are given

Table “2”

Dependent Variable: CA
Method: Least Squares
Date: 12/26/13 Time: 00:54
Sample(adjusted): 18 33
Included observations: 16 after adjusting endpoints
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.572581	1.140711	1.378598	0.1897
BD	0.819851	0.237010	3.459149	0.0038
R-squared	0.653538	Mean dependent var		0.193521
Adjusted R-squared	0.178791	S.D. dependent var		3.921046
S.E. of regression	3.553275	Akaike info criterion		5.490085
Sum squared resid	176.7607	Schwarz criterion		5.586659
Log likelihood	-41.92068	F-statistic		4.265744
Durbin-Watson stat	2.318070	Prob(F-statistic)		0.057919

Table “3”

Dependent Variable: CA
Method: Least Squares
Date: 12/26/13 Time: 00:53
Sample(adjusted): 18 33
Included observations: 16 after adjusting endpoints
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.122553	1.303963	1.627771	0.1276
BD	0.745431	0.264072	2.822834	0.0144
DUMMY	-2.700612	1.518434	-1.778551	0.0987
R-squared	0.696488	Mean dependent var		0.193521
Adjusted R-squared	0.222871	S.D. dependent var		3.921046
S.E. of regression	3.456594	Akaike info criterion		5.485805
Sum squared resid	155.3246	Schwarz criterion		5.630666
Log likelihood	-40.88644	F-statistic		3.150910
Durbin-Watson stat	1.971218	Prob(F-statistic)		0.076603

We can see in table “2” that all coefficients have signs according to theory and BD coefficient also has positive sign which represents the validity of twin deficit hypothesis. Coefficient of BD is statistically significant at both 5% and 10 % level of significance. The coefficient of BD shows that due to one unit increase in budget deficit there is 0.81 units increase in the average value of current account balance, which validates and confirms the results of Frenkel and Razin(1986), Yi(1993) and Baxter(1995) Chen (2006) Ahmed(1986-87) Roubini (1988) Lane(1998) , Piersanti (2000) Salvatore (2006), Yoichi Matsubayashi (2005) Ball(1990) MURTHY and PHILLIPS(1996) AQEEL and NISHAT(2000).

Now we will return again to the results of table “2”. The coefficient of multiple determination (R²) is 0.65 which is showing that explanatory variables are explaining the explained variable 24 % in given 16 countries’ data which is if not a good enough value then it’s also not a bad value of R². This value will be considered quite good. After correcting heteroscedasticity error terms decreased and coefficients are more significant because value of probability decreased after correction of heteroscedasticity.

D-W statistics indicates that there is no autocorrelation among the data observations (2.31). Over all model is significant, significance of model can be seen through F-stat value.

Therefore we can conclude that the relationship between both deficits empirically exists. So we are now sure about the Mundell Fleming model’s validity and twin deficit hypothesis.

It is credit worthy to note that estimating equation “2” with a dummy variable incorporated named dummy which will take value 1 if nation is corrupt and 0 otherwise then we will reestimate equation “2” as

$$Ca = b_0 + b_1BD + b_2dummy + \mu \quad (2)$$

We can see in table “3” that dummy’s value shows that in most corrupt countries like Bangladesh, India, Pakistan, and South Africa’s current account deficits are highly or severely inverse dependent on budget deficit than that of least corrupt nations. After introducing dummy we can see that in least corrupt countries current account balances are positively related to each other while in most corrupt countries, these are negatively related with each other. R² is increased after introducing dummy in the model. Twin divergence in most corrupt countries can be seen.

Conclusion and policy implication:

We have checked the twin deficit hypothesis’ validity in 16 countries’ cross sectional data, some of the countries are categorized as most corrupt and some of them as least corrupt by HDI and WDI. We took cross sectional data and found that there is a positive relation between current account balance and budget balance, then we incorporated a dummy variable and found that in most corrupt nations there is negative relationship between both balances and in least corrupt nations there is a positive relationship between current account balance and budget balance. So finally we can conclude that there is twin deficit in least corrupt countries while twin divergence in most corrupt countries.

So we can say that in a least corrupt country only a single policy (fiscal policy) can stabilize the economy and reduce both of deficits while in a most corrupt country both fiscal and trade policy will be used to stabilize the economy because in later case if only fiscal policy will be implemented to reduce budget deficit then it will reduce budget deficit but will increase the trade deficit.

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