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TESTING THE TWIN DEFICITS ISSUE FOR ROMANIA AND THE USE OF THE ABSORPTION ADJUSTED STRUCTURAL BUDGET BALANCE AS A SIGNAL INDICATOR OF PUBLIC FINANCE SUSTAINABILITY

This paper supports the use of the improved structural budget balance indicator, with an informational relevance for macroeconomic policies decision-makers from developing countries facing the issue of twin deficits - high budget and current account deficits (especially during the absorption periods). After reviewing the methodological aspects related to the use of the CAAB indicator (absorption adjusted structural budget balance), we test the causality relation between the current account deficit and the budget deficit. According to the obtained results, we support the estimate and the use of the absorption adjusted structural budget balance indicator as a signal indicator of public finance sustainability in Romania.

Keywords: absorption, structural budget balance, absorption adjusted structural budget balance, twin deficits issue.

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ТЕСТУВАННЯ ПОДВІЙНОГО ДЕФІЦИТУ В РУМУНІЇ І СТРУКТУРНИЙ БЮДЖЕТНИЙ БАЛАНС З ПОПРАВКОЮ НА ПОГЛИНАННЯ ЯК ПОКАЗНИК СТІЙКОСТІ ДЕРЖАВНИХ ФІНАНСІВ

У статті підтримано використання поліпшеного структурного показника бюджетного балансу з його першочерговим значенням для прийняття рішень з макроекономічної політики в країнах, що розвиваються та стикаються з питанням подвійного дефіциту — високого рівня дефіциту бюджету і рахунку поточних операцій (особливо під час періодів поглинання). Після розгляду методологічних аспектів, пов'язаних з використанням індикатора СААВ (структурний бюджетний баланс з поправкою на поглинання), проведено тестування причинного зв'язку між дефіцитом рахунку поточних операцій і дефіцитом бюджету. Отримані результати вказують на можливість використання структурного бюджетного балансу з поправкою на поглинання як показник стійкості державних фінансів в Румунії.

Ключові слова: поглинання, баланс структурного бюджету, структурний бюджетний баланс з поправкою на поглинання, проблема подвійного дефіциту.

Таб. 4. Фор. 4. Літ. 11.

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ТЕСТИРОВАНИЕ ДВОЙНОГО ДЕФИЦИТА В РУМЫНИИ И СТРУКТУРНЫЙ БЮДЖЕТНЫЙ БАЛАНС С ПОПРАВКОЙ НА ПОГЛОЩЕНИЕ КАК ПОКАЗАТЕЛЬ УСТОЙЧИВОСТИ ГОСУДАРСТВЕННЫХ ФИНАНСОВ

В статье поддержано использование улучшенного структурного показателя бюджетного баланса с его первоочередным значением для принятия решений по

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макроекономічної політиці в розвиваючихся країнах, сталканиваючихся з питанням подвійного дефіциту — високого рівня дефіциту бюджету і рахунку поточних операцій (особливо в час періодів поглинання). Після розгляду методологічних аспектів, пов'язаних з використанням індикатора СААВ (структурний бюджетний баланс з поправкою на поглинання), проведено тестування причинної зв'язи між дефіцитом рахунку поточних операцій і дефіцитом бюджету. Отримані результати вказують на можливість використання структурного бюджетного балансу з поправкою на поглинання як показателя стійкості державних фінансів в Румунії.

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During the period 2007-2008, Romania, Bulgaria and the Baltic States experienced the twin deficits issue — high budget and current account deficits, creating serious problems for the sustainability of their public finance. Under the terms of a foreign macroeconomic environment which is favourable to the decrease of risk premium at financial markets, of interest is also taking into account the increasing financial integration, regionally and worldwide. The CEE countries and the Baltic states have become highly dependent on short-term capital flows, characterized by a high volatility.

I. Introduction. Determination of the problem.

The countries mentioned above faced the problem of the domestic absorption explosion, this process causing double concern. The first one is determined by high volatility of sources for financing economic growth. As soon as the foreign capital flows decreased (as a result of the world financial crisis from 2008), at the beginning of 2009 (April) Romania had to ask for loans based on the stand-by agreement concluded with international creditors — the International Monetary Fund, the European Union and the World Bank in the amount of 20 bln euro, in order to cope with the risk of going into the crisis of liquidities in the budget.

The second problem is related to the incorrect assessment of Romania's fiscal position and, hence, of its public finance sustainability. The strong increase of the aggregate demand resulted in the occurrence of temporarily higher budget revenues — especially from taxes and indirect taxes as a sequence of the increase in consumption — thus determining a highly procyclic and irrational behaviour of the fiscal and budgetary decision-makers. The inability to separate the temporarily higher budget revenues from the permanently higher budget revenues resulted in excessive budget expenditure, salary rises over the labour productivity growth rates, and public investments with low and unprioritized multiplying effects. The main problem was to commit to permanent budget expenditure, which are hardly sustainable, thus the economy has begun to reduce its potential and be less efficient (Marinas, 2010).

The third problem is related to the previous one. The budget expenditure became so rigid that affected the "health" of public finance, creating the problem of a future tough fiscal adjustment. This was also the case of Romania (as some well as some other countries) during the period Q4:2008-2012. In our country, the rate of the fis-

cal adjustment was high enough, with the average decrease of 1.8% of the GDP per year of the structural deficit (Dinu et al., 2011).

The sovereign-debt crisis in the European Union has determined the necessity to reform the signal indicators for the analysis of public finance sustainability. However, many developing/emerging countries consider that the informational value provided by the structural budget balance indicator is insufficient, especially during the periods characterized by absorption.

Lately, it has been shown that, in order to make a correct assessment of a country's fiscal position in terms of public finance sustainability, the structural budget balance indicator is never enough, this indicator being obtained by adjustment depending on an economy's position on the economic cycle at a given moment. Based on the results of the researches by Jaeger and Klemm (2007) and Lendvai et al. (2011) we will demonstrate that the structural budget balance indicator should be improved, in order to also take into consideration the deviation of the current account balance from its sustainable level, particularly at the stage of economic cycle characterized by high absorption.

II. Calculation methodology for the absorption adjusted structural budget balance CAAB.

Lendvai et al. (2011) calculate the cyclically and absorption-adjusted budget balance (CAAB) by using the following sequence of equations:

$$CAB_t = \left(\frac{b}{y} \right)_t - \lambda(ygap)_t,$$

where λ_t represents the standard budget elasticity (used in the EU studies);

$$CAAB_t = \left(\frac{b}{y} \right)_t - \beta_t(ygap)_t - \gamma_t(agap)_t,$$

where λ_t is the elasticity of absorption (given by the share of taxes and indirect taxes in the GDP PIB). Considering the unit elasticity of indirect taxes in relation to the CAB absorption and linearity to the output, we obtain:

$$\beta_t = \lambda_t - \gamma_t,$$

where $(agap)_t = \left[\frac{(a_t - a_t^*)}{y_t^*} \right]$

and $a_t^* = y_t^* - ca_t^* + it_t$.

Symbols: b the real budget balance; y and y^* the actual, respectively potential output; $ygap$ and $agap$ output gap and absorption gap respectively; a and a^* absorption and potential absorption; ca^* current account norm; it the amount of revenues from abroad and net transfers.

Lendvai et al. (2011) consider that, according to the above equations, we may reach the following relation:

$$CAAB_t = CAB_t - \gamma_t(agap_t - ygap_t)$$

This relation is obtained starting from the hypotheses related to the unit elasticity of indirect taxes in relation to absorption and the linear relation of the CAB to the output.

Results: $CAAB = CAB_t - \gamma_t(agap_t - ygap_t)$

According to this formula, the authors' conclusions refer to the fact that "CAAB differs from CAB particularly when the share of indirect taxes in the output is high and when the dynamics of the absorption significantly deviates from this output".

In order to calculate and use the cyclically adjusted and absorption budget balance CAAB, we should test the correlation between the current account deficit and the budget deficit in Romania.

III. Testing the correlation between the current account deficit and the budget deficit: Romania's case.

Developing countries within the European Union (especially Romania, Bulgaria and the Baltic states) face the twin deficits problem — high budget and current account deficits. The tests for the hypothesis of twin deficits were performed in several economic researches, such as those of Blanchard (1985), Zietiz et al. (1990), Leachman and Francis (2002), Erceg, Guerrieri and Gust (2005). They found a statistical relevance in testing the correlation between budget deficit and current account deficit. Islam (1998) asserted the inverted causality from current account deficit to budget deficit (known as the strategy for targeting the current account).

In this section of the paper, we test the causality relation between the twin deficits considered as one of the main causes of the current crisis, by using econometric methodologies (error correction model, Engle and Granger cointegration).

The study uses the quarterly data for the period 2000-2011. The main variables are the budget deficit (DB) and the current account deficit (CC). The statistical data used for the analyzed period have been provided by the Ministry of Finance, the publications of Romanian National Institute of Statistics, the National Bank of Romania and the Eurostat. The data have been seasonally adjusted by means of the TRAMO-SEATS method. The procedure proposed by Engle and Granger (1987) related to the estimation of an error correction model has been used to test the relation between the budget deficit and the current account deficit in Romania during the period 2000-2011. The procedure uses an algorithm in 2 stages:

Stage 1. Testing the integration order of the variables.

The number of lags used for the stationarity tests have been selected according to the minimization criterion, using the Hanan-Quinn information criterion (HQ)1, Akaike information criterion (AIC) and Schwarz information criterion (SC). The condition necessary to test the cointegration relation is that the two series have the same integration order. The results of the ADF stationarity test reveals the fact that the above-mentioned series are 1st-order integrated, and this allows the investigation of the existence of a cointegration relation between the variables.

Stage 2. Estimates for the long-term relation between variables (ECM model).

The coefficients are estimated by using the OLS methodology for the same order-integrated series. The estimate for the coefficient is given in Table 2. The obtained results confirm the existence of a long-term relation between the current account deficit and the budget deficit. The coefficient is significant statistically and

it reveals the fact that 1% increase of the current account deficit in Romania will result in 0.43 deepening of the budget deficit in the long term.

Table 1. The results of the unit root tests upon the variables

VARIABLES	ADF Test
BUDGET DEFICIT	I(1)
CURRENT ACCOUNT DEFICIT	I(1)

Table 2. Testing the long-term correlation between the budget deficit and the current account deficit

Dependent Variable: DEF_BUG_SA				
Method: Least Squares				
Date: 12/08/12 Time: 14:34				
Sample (adjusted): 2000Q2 2011Q4				
Included observations: 47 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEF CONT CURENT SA	0.431167	0.100208	-1.426508	0.0084
AR (1)	0.924985	0.072715	11.20795	0.0000
C	-3.100191	0.711479	-2.951812	0.0051
R-squared	0.807870	Mean dependent var		-7.110795
Adjusted R-squared	0.797773	S.D. dependent var		3.549690
S.E. of regression	1.710592	Akaike info criterion		3.973258
Sum squared resid	128.7496	Schwarz criterion		4.091353
Log likelihood	-90.37157	Hannan-Quinn criter.		4.017698
F-statistic	77.04112	Durbin-Watson stat		2.080714
Prob(F-statistic)	0.000000			

Source: Author's estimates.

Also, according to the methodology found in economic literature, the co-integration relation between the integrated variables of the same order is accepted on the condition that the residue of the equation estimated between non-stationary variables is stationary. The results reveal that the residue of the equation is stationary, and thus its integration order being 0 (I(0)). The obtained results validate the initial hypothesis according to which the considered series (DB and CC) are cointegrated, and thus there is a long-term relation between them.

Moreover, in order to test the stability of the estimated model and of the long-term relation between the cointegrated variables, we have estimated below the ECM model. The obtained results are shown in Table 3. This model also confirms the existence of a short-term relation between variables, this short-term relation having a higher intensity than that in the long term. Thus, according to the results obtained based on the estimated models, the short-term result is the change of the current account deficit by 1%, which determined a similar change of the budget deficit by 0.63%.

Moreover, the ECM model provides significant information regarding the adjustment/correction coefficient of a variable according to the other one. First of all, the results of the model show that the residue of the series is negative, thus confirming the long-term convergence between the two twin deficits. According to the model estimated for Romania, it is shown that 48% of the budget balance's unbalance, produced by the current account's unbalance, will be adjusted quarterly.

Table 3. Testing the short-term correlation between the budget deficit and the current account deficit

Dependent Variable: DEF_BUG_SA1				
Method: Least Squares				
Date: 12/08/12 Time: 15:12				
Sample (adjusted): 2000Q3 2011Q4				
Included observations: 46 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEF_CURRENT1	0.639741	0.165911	-3.107064	0.0012
Ut	-0.481234	0.260210	3.783226	0.0012
C	-7.659801	0.720000	-13.52691	0.0000
R-squared	0.856656	Mean dependent var		-7.180618
Adjusted R-squared	0.841481	S.D. dependent var		3.556132
S.E. of regression	2.918453	Akaike info criterion		5.042978
Sum squared resid	366.2468	Schwarz criterion		5.162237
Log likelihood	-112.9885	Hannan-Quinn criter.		5.087653
F-statistic	11.90665	Durbin-Watson stat		2.016400
Prob(F-statistic)	0.000012			

Source: author's estimates.

IV. CAAB estimate for Romania. Comparison with CAB.

According to the calculated values of the current account's balance levels and using the algorithm presented above, we have calculated the values of the cyclically and absorption-adjusted budget balance CAAB. Table 4 includes the comparative data referring to the structural budget balance (CAB), the cyclically and absorption-adjusted budget balance (CAAB) and the cyclically and absorption-adjusted budget balance estimated by Lendvai et al. (2011) for the period 2005-2009.

Table 4. Comparative analysis of the author's estimates for CAB and CAAB

Indicators	CAB	CAAB
2000	-3.86	-5.32
2001	-3.22	-5.3
2002	-2.56	-0.25
2003	-2.14	-2.45
2004	-1.09	-5.38
2005	-0.70	-5.25
2006	-1.36	-6.26
2007	-2.90	-6.45
2008	-5.28	-7.68
2009	-7.20	-9.09
2010	-6.20	-8.09
2011	-3.89	-7.24
2012	-1.93	-6.04

Source: Author's estimates for CAAB Romania 2005-2009.

According to the author's calculations (Socol, 2012), the difference between CAB and CAAB has been 1.5% of the GDP on average during the period 2000-2001, then, in 2003 it dimmed, after which, during the period 2005-2007 it increased to 4-5% of GDP. Post-crisis, the difference between CAB and CAAB decreased to 2% of GDP, and it increased again to approximately 3.5-4% of GDP during the period 2011-2012 (an estimate for 2012).

V. Conclusions and recommendations. During the boom period (absorption gap), the big differences between CAB and CAAB in Romania denote the fact that the

macroeconomic policies should have been focused more on preventing the deepening of the current account unbalance, thus contributing to maintaining a sustainable macroeconomic environment.

Moreover, the signal capacity of the structural budget balance indicator CAB seems to be more reduced than that of CAAB, if the analysis made for the evolution of the last mentioned indicator had supposed the implementation of a more cautious fiscal and budgetary policy during the boom period. We may think of the fact that a cautious fiscal and budgetary policy, applied prior to the strong occurrence of the contagion effect and of the cumulative causality one in Romanian economy would have determined the necessity of a less large fiscal adjustment than that experienced by our country during the last 3 years.

The correction of the macroeconomic unbalances would have been less tough than that recorded lately, the recession would not have been so acute, Romania could have probably avoided going into the crisis of liquidity from Treasury during the first quarter of 2009. A minimum fiscal space would have existed for economic relaunch, the competitiveness losses would have been much smaller etc.

Note. The authors are grateful to Senior Lecturer PHD Marinas Marius for comments made during the preparation of this research.

Acknowledgment. This paper has been financed from the research program "Post-Doctoral studies in Economy: Continuous Training Program of Elite Researchers - SPODE", cofinanced by The Social European Fund through POSDRU 2007-2013, Contract no. POSDRU/89/1.5/S/61755.

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Стаття надійшла до редакції 20.07.2012.