

## The relationship between budget deficits and current account deficits

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**Abstract:** The significance of budget and current account deficits dates back to 1980s which trade and budget deficits dramatically increased in the United States. Two theories have been arisen about twin deficits: Keynesian theory and Ricardian equivalence. According to Keynes theory, the budget deficit affects the domestic and foreign economy, while the Ricardian equivalence negates any relationship between budget deficit and other economic sectors including domestic or foreign. In this paper, two visions are theoretically studied and eventually the impact of budget deficit over the variables of domestic sector (private consumption and economic growth) and variable of foreign sector (current account deficit) within the period of (1985-2006) will be analyzed. The review of this issue has been conducted for different countries (70 countries) which according to the world development indicators are categorized into 3 groups of high, middle and low- income countries. A summary of the acquired results would not affirm the relationship between the budget deficit and current account deficit, consumption and economic growth in the period of study in high-income countries. This relationship remains in force in middle and low income countries, in other words Ricardian equivalence is rejected in these countries.

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### 1. Introduction

The subject of budget and current account deficits (twin deficits) has been discussed in the economic literature since 1980s. This is a period in which the budget and current account deficits dramatically increased in the United States; the advent of this phenomenon has encouraged many economists to consider it as the agent of macroeconomic imbalance especially in developing countries, in spite of Keynesian theorem which considers the public sector as the balancing factor. Since there are specific problems in developing countries as foreign debts, very high inflations, balance of payments problems, parallel currency markets, the occurrence of various external shocks. Two views of Keynesian and Ricardian equivalence have been shaped about the effects of budget deficits over the economic variables (domestic and foreign section), that these two perspectives disagree with each other in countless ways. Keynesian theory is about the fiscal policy which is the key element in twin deficit hypothesis. The primary analysis of Keynesian was based on the assumption that fiscal policy can influence over the private sector consumption just by current disposable income. According to this theory by taxes cut or expansionary fiscal policies which has been financed through the public debt, the national saving declines as private disposable income and private consumption increase. Investment cut in order to be used in investment depends on the degree of economic openness for

transferring capital. In countries with closed capital transfers, the investment decreases the same rate which the investment has been decreased because there is no possibility for borrowing from abroad. Therefore by the expansion of financial sectors, the domestic investment usually declines followed by increasing domestic interest rates. In economies with no restriction in funds transition we might not observe any interest rates increase by the entry of foreign credits and therefore the investment remains unchanged. In this regard, reduction of national saving corresponds with current account deficit increase which lead to twin deficit of current account and financial. So, the forgoing view could represent strong and predictable effects of tax cut, transfer payments and a rise in government spending. The second view is Ricardian equivalence theory which is about the effect of budget deficits over saving, investment and current account. According to this theory, the periodic tax transfer and budget deficits have no effect on real exchange rate and consequently the capital investment and current account balance would not change. In other words, the lack of relationship between twin deficits falls in the view of Ricardian equivalence. Accordingly, the present study reviews the twin- deficits hypothesis through the method of integration for 70 countries during the period of 1985-2006. The investigated countries in international arena based on their income are categorized into 3 groups of high- income, middle-income and low- income countries which the

twin deficit theory is analyzed by classification of selected countries income separately. The questions raised in this paper are as follows:

1. Whether twin deficit theory is approved about the relationship between the budget and current account deficits in selected countries?
2. What relationship is there among budget deficit, private sector consumption and economic growth? (as domestic variables )

## 2. Different views about the relationship of twin-deficits

In concern to all represented discussions about twin deficit, now we would like to examine different views about budget deficits relation over the domestic and foreign variable sector. The first scope is Ricardian equivalence which discusses about the ability of government's financing which would affect aggregate demand level and consequently current account. Namely, this theory states that the clear path of budget, substitution of public debt instead of taxes has no effect over the aggregate demand or interest rate. Because the current tax cut means higher future taxes. Therefore government's borrowing would adjourn only the taxes to future and the consumers as taxpayers would predict higher future taxes, and thereby consumer's periodic budget constraints and also the consumption will remained unchanged by government's funding decisions and raise disposable income due to the tax cut would totally be saved. According to Ricardian equivalence theory, the consumers would react to tax cut when saving rise and this private saving rise would be used by purchasing government's issued bonds and suggesting them to pay future higher taxes. Thus, the private saving increases the same budget deficit rate, national saving and interest rates would remain unchanged. In a setting of open economy there would also be no effect on current-account balance through taxes cut and or social security programs. Desired private saving rise by enough to avoid having to borrow from abroad, therefore budget deficits would not lead to current-account deficits. Ricardian main logic is that the deficits would be obtained only by timing taxes. This logic is obtained for incuriosity between the payment of 1 dollar tax in current period and payment of 1 dollar plus interest in future.( In Ricardian view it is assumed that individual is far-sighted rational optimizer). As timing taxes would not modify the personal permanent income or household budget, change in timing of taxes can not alter individual consumption decisions. The second view in this context is about Keynes. Keynesian perspective argues about two hypotheses: first, misallocation of resources at full employment level, second: a significant part of population is being

consisted of myopic or liquidity constrained people. The second hypothesis ensures that the total consumption is very sensitive to disposable income changes (Pascal Bensey 2006).

In other words, people have more tendencies to use their own current disposable income; therefore, increasing government expenditure and or temporary taxes cut have a significant and immediate impact on aggregate demand. Many advocates of Keynes including Eisner (1989) believe that there is no need to substitute budget deficits for private capital investment. From their viewpoint the increase in government's real commitment may lead to demand surplus and this causes the increased production or public price level or both of them. In compiling the modern theory of Modigliani life cycle (1961), the increased government commitment to private sector means the wealth rise in people budget constraint. When a person tries to increase its life period to a desirable level or maximum welfare, this wealth increasing is allocated within current and future demands in order to be manifested in current consumption and future planned increment. Based on theory of "asset allocation" the private inventory increased from the government debt causes the demand for real assets income generating. If the efficiency of government debt and real assets is highly correlated, the government debt will be considered as a substitute for real assets. However when they are not perfect substitutes, the real wealth rise resulted from increased government debt will accelerate the demand for real assets. This along with future expected consumption rise lead to increase the demand for investment. Whether this increased demand will affect the real product rate? The reply depends on the capability of economy in increasing product which is related to unemployment and useless resources in the country. In case of there is no lack of involuntary unemployment and useless resources the increase in demand can't immediately result to more production and its only effect is higher prices. But according to Keynesian perspective who believed in the entire unemployment and joblessness of public resources, the budget deficits not only cause GNP raise but help the growth of its components: consumption and capital financing. In this case budget deficits would not be substituted for investment and capital market but on the contrary it encourages saving and capital fund (in spite of this reality which interest rates have been increased). It is obvious that based on the Keynesian scope, more wealth in private sector due to the public debt, more consumption would be supplied through the use of unemployment sources. From the mechanism aspect of budget deficits effect over foreign economic sector, based on Keynesian perspective, by increasing

wealth in private sector due to high public debt, more consumption of foreign goods incorporated with domestic goods will occur and in this case more import will happen from abroad. In addition, the interest rates increment in domestic sector in the conditions of floating exchange rates may result to new investment from abroad which its results are monetary value increase and loss of ability in competition with foreign goods. Obviously, following the path eventually result to more commercial balance deficits and worsening current account net. Vamvoukas (1998) has studied the relation between the budget deficit and real product in Greek within the framework of Ricardian equivalence and Keynesian theory. The desired regression model is as follow:

$$Y_t = k_0 + k_1 D_t + k_2 U_t + E_t$$

$$D_t = \lambda_0 + \lambda_1 Y_t + \lambda_2 U_t + C_t$$

Yt indicates real GDP according to market price and Dt budget deficit and Ut is unemployment rate. His empirical findings support Keynesian theory and indicate a significant and positive relationship between budget deficit and real product. Cebula (1995) considering the case of budget deficit effect on U.S. economic growth concludes that budget deficit is the cause of decline in economic growth rate. Also Easterly and Schmidt (1994) in their studies on developing countries (Ghana, Morocco, Ivory Coast, Pakistan, Chile, Colombia and Thailand) have investigated the relationship between budget deficit and trade deficit and real currency rate and have stated in an overall conclusion that there is a positive relationship between trade and financial deficits which support this theory that financial deficits will less result in trade deficit which in turn might result to decline real currency rate. Carlos (2006) has studied Ricardian Equivalence and Feldstein's puzzle in Egypt with annual data 1974-1989. The applied variables in this article include: foreign debt, budget deficit, public consumption, gross domestic product, disposable income, wealth, current account, and trade balance and capital market. The result reveals that there is a long run poor relationship between two deficits and implies that tax increasing is the cause for budget deficit decline but doesn't optimize foreign deficit. Also he has run a causality test for studying twin deficits of budget and current account and concluded that due to the significance of oil export and its revenue which has given a specific characteristic to Egypt economy, current account deficit is the cause for budget deficit and there is a direct relation between oil price, foreign balance and deficit. Ajili studies the empirical relation between current account and budget deficits in small developing economy (Tanzania). The main

object is testing the credit of Ricardian equivalence in respect of other scopes in developing economy. The absence of positive and significant relationship between current account and budget deficits means the credibility of Ricardian equivalence. While the long run relationship between twins deficits would deny the credibility of this vision. Hashemzade and Wilsen (2006) have studied in selected countries the relationship between twin deficits. They argue that the last decade financial policy mirrors the financial policy of 1980s. This is a very obvious that budget deficit growth would be reflected in current account growth. Twin deficits are reversible. The increment in federal government budget deficit, U.S. current account deficit and other countries is another spark in foreign and domestic deficit which has affected the capable growth of domestic economy. The relation between budget and current account deficits has been into consideration and was discussed for a long time and empirical tests has been done in the early 1990s. The traditional view which is attributed to Keynesian theory is that when an economy is performing lower than the capacity of complete employment, budget deficit will induce the whole sections of aggregate demand including import demand. Budget deficit will dramatically increase foreign deficit by the export decline in compensation of increased import. Following this view, budget deficit, domestic interest rate and also the currency rate will be increased. Therefore, the combination of higher interest rate and robust currency cause current account and trade balance deficit. Many researchers have applied Ricardian equivalence theory to show that budget deficit is mainly due to the taxing cut which might result in public income and public savings decrement. Whereby, taxing cut has influenced public saving decrement and caused the expansion of budget deficit and on the other hand private saving rise. From this viewpoint it has been shown that other features of public financing (e.g. debt vs taxes) has no effect on real interest rate, aggregate demand and private expenditures. Hashemzade and Wilsen have studied the above theory in countries of Egypt, Iran, Jordan, Kuwait, Morocco, Oman, Syria, Turkey and Yemen their findings revealed that there is unclear and controversial cooperation between twin deficits. Twin deficits depend on related changes to tax system, trade model, currency rate and domestic/international forces. Bartolini and Labiri (2006) have estimated the below equations for OECD countries and also other 26 countries about testing twin theory:

$$C/Y = \beta_1 + \beta_2 (FISCDEF/Y) + \beta_3 (G/Y) + \beta_4 (D/Y) + \beta_5 (YG) + \beta_6 PG$$

$$CA/Y = \alpha_1 + \alpha_2 (FISCDEF/Y) + \alpha_3 (G/Y) + \alpha_4 (D/Y) + \alpha_5 (YG) + \alpha_6 PG$$

C is private consumption,  $GDP=Y$  and  $fiscdef$  is budget deficit and  $G$  government consumption,  $D$  is government debt,  $YG$  is growth of  $GDP$  and  $GP$  is population growth and  $CA$  is current account balance. According to Ricardian theory current account and consumption are not sensitive to financial deficit changes. Their model by using technical panel has been estimated for the time period of 1972-1998 about 26 countries and time period of 1972-2003 about OECD countries. The findings of estimation reveal that per dollar increment in fiscal deficit in example countries is associated with 33-37 cents increment in private consumption. This finding shows that consumption is considerably sensitive to fiscal policy changes. The changes in national saving has similar changes in current accounts. Therefore, their survey is closer to the pure Ricardian view (based on it by per dollar tax cut, private consumption would remain unchanged). This view is more Ricardian about U.S rather than other countries. Hussain Samadi has surveyed the impact of government budget deficit and the path of financing on trade balance in Iran economy during the years of 1338-70. In this research, initially the relation between government budget deficit and the trade balance has been into consideration. Then based on results obtained a model consisting of 6 behavioral equations for price level, public-sector functions, import demand, real income and expenditures of private sector and also five alliance relationships for domestic aggregate demand, total state general revenue, domestic credit, money supply and trade balance has been arranged and evaluated. Also the impact of different fiscal policy on trade balance and other variables of model in five scenarios by the use of model and technical simulation have been investigated. The results of simulation show the effect of change in government expenditures which cause higher prices level and worsening trade balance due to the increment in budget deficit (for the reason of government expenditure rising) and financing through central bank debt (scenario 1) and foreign resources (scenario 2). Also the simulation shows that deficit financing through the decrement in private sector financing (scenario 3) and also adjustment (decrease) in government expenditures in a way that the ratio of budget deficit to gross domestic product will be consolidated at the level of year 1356 (scenario 4) even ever after and eventually the increase of 10 percentage in real export of country (scenario 5) would result to increment in trade surplus. This increasing in scenarios of (4) and (5) is associated with general price level rise but in scenario (3) is accompanied by general price level cut. Davood Manzour in a complete research has done a survey in the cliché of endogenous growth

model about the effects of government consumption expenditures and taxes considering a closed economy for Iran and reliance on real economy sector and disregarding monetary economic division. The results show the ratio of government transition payments to gross domestic product and the ratio of government funding expenditures to gross domestic product has a positive effect on long-run growth rate. While, the ratio of government current income taxes to gross domestic product and also the level of per capita income of previous period have a positive and significant effect on real GDP per capita growth rate. Also accessibility to foreign currency besides other government fiscal variables has a positive and significant impact on non-oil annual growth rate of country; it means that non-oil annual product takes a great impact through currency obtained by oil export. He assessed positive effect of human capital on long-run economic growth by considering the ratio of government educational expenditures to growth domestic product as human capital indicator in growth equation while affirming the previous expected results. He in relation with the component of government tax on long-term growth concluded that labor income tax and capital income tax have a negative and significant impact on per capita growth rate while consumption taxes and import taxes have a positive and significant impact on growth. Masoume Fouladi, has examined the impact of government construction spending on economic growth and compared it with private sector funding. She has categorized the government consumption expenditure into three sections of current, construction and transition spending by estimating model with the object of justifying the government activities and concluded that export has a positive and statistically significant impact on economic growth that the reason can be found in major oil and gas export share from growth domestic product. Labor growth rate also shows a positive effect on growth rate but though the positive effect of constructing expenditures growth on GDP but it is trivial. The effect of government constructing expenditure over the economic growth at the level of one percent is reversible, it means that this theory of government consumption expenditure growth rate is static and integrated from zero level is approved.

### 3. Experimental results

The purpose of this section is to revise budget deficit effect on private consumption sector, economic growth and current account deficit among several countries with different income level by using panel data. This review first classifies the mentioned countries based on World Development Indicators

into different income groups (high, middle and low income countries) this classification is as follows:

Then the review of required variables based on the evaluation of budget deficit effect on private consumption, economic growth and current account deficit on all income groups are assessed and estimated by comparative method. The model used in this study, is being designated within the standard framework of twin theory literature. As described in above discussions, one theorem of Ricardian equivalence vision is the infinite lifetime of people which private credit variable (approximate of wealth) has been tested in this theory. Ricardian equivalence would not be ruled out if private credit increases as high as consumption rate. Because people predict government debt as a wealth and would alter their consumption expenditure in case of net worth increase, but if the private credit has no effect on consumption it means that people have infinite lifetime and Ricardian condition is established. About the variable of open economy we can state that regarding the available literature in economic growth context, the more open economy the more economic growth would occur and also export/import and total trade in ratio of GDP has a positive effect on growth. According to the theoretical and empirical principles, the twin hypothesis can be represented into following models:

$$CP = \alpha_0 + \alpha_1 DEFICIT + \alpha_2 Y + \alpha_3 OPEN + \alpha_4 W \quad (1)$$

$$Yg = \gamma_0 + \gamma_1 DEFICIT + \gamma_2 Y + \alpha_3 OPEN + \gamma_4 W \quad (2)$$

$$CA = \beta_0 + \beta_1 DEFICIT + \beta_2 Y + \beta_3 OPEN \quad (3)$$

All data used in this section for three different income groups during 1985-2006 have been compiled from World Development Indicators and International Financial Statistics. The data are as follows :

1-Gross Domestic Products (Y): this variable has been calculated based on million dollars for different countries.

2. Budget deficit (deficit): this variable has been calculated as a fraction (-) and or surplus (+) and in million dollar terms.

3. Degree of economy openness (open): the ratio of total exports and imports to Gross Domestic Product (GDP)

4. Current account deficit (CA): this variable is calculated based on millions dollars terms and is equivalent to the difference between exports and imports.

5. Private consumption sector (CP): is considered based on millions dollars terms for all countries

6. Private credit (W): private credit sector in ratio of Gross Domestic Product is calculated for all countries based on percentage. This variable is used as the proxy for private wealth.

### 3.1. Test requirements

#### 3.1.1 Unit root test and convergence

For the panel data model, the artificial regression has the same proof as time series model. Thus, it is necessary to apply unit root test and convergence in compiled model to ensure the accuracy and validity of the results. It is necessary to use unit root test for each dependent and independent variables including a waste to ensure the existence of convergence. There are several unit root tests in panel data which have been listed in the articles by Maddala (1998), Baltagi (2000) and other issues. Here we use the test by Im, Pesaran and Shin (1997). Other tests consist of Pedroni test (1997, 1999), the test by Levin-lin (1992), parametric and non-parametric tests and residual-based test by kao (1999). The base of Im, Pesaran and Shin test (1997) is augmented Dickey-Fuller test (ADF) which initially was done for each section of panel data (each variable individually) and then the average statistics of Dickey-Fuller would be calculated. Test results of variables for models (1) and (2) are listed in the table below. Residual regression test for the convergence is also being done.

Table 1: selected countries in each income group

Group	Countries
Countries with high income	Germany, Italy, USA, Japan, Canada, Australia, Belgium, Denmark, Finland, S. Korea, New Zealand, Hungary, Norway, Portugal, UK, Swiss, France, Island, Ireland, Greece
Countries with middle income	Iran, Algeria, Argentine, Honduras, Marrakesh, Egypt, Peru, Serilanka, Tanzania, Thailand, Paraguay, Venezuela, Ecuador, Chile, Kostunica, Armenia, Malaysia, Mexico, Bolivia, Trinidad, Panama, Jordan, Dominican, Russia, Syria, Indonesia, Azerbaijan, Elsalvadur, Guatemala, Lebanon, Georgia, Turkey, Oman
Countries with low income	India, Bangladesh, Pakistan, Senegal, Togo, Zambia, Nigeria, Ghana, Yemen, Guinea, Chad, Kenya, Butane, Borkinafasu, Madagascar, Ruanda

IPS test for the residual equations was performed for identical convergence test and the long-run relationship between the variables has been confirmed.

#### 3.1.2. F test, the significant test of group

In order to test the equal width from the source F statistic value has been calculated and this question has been proposed, whether equal width from the source is identical for different levels or not? If the calculated statistic of F is larger than the table F value, the hypothesis of H0 which indicates the identical equal width from the source would be rejected. According to the Table (3) the calculated F values is larger than table F value. Thus, the effects of countries group would be accepted and estimation of different equal widths from the source should be in to consideration.

Table 2: Unit Root Test for once differentiated variables

Probability	IPS	Mean t	Variable
0.000	-17.98	-3.63	CA
0.000	-12.51	-3.007	CP
0.000	-14.62	-3.23	W
0.000	-25.84	-5.22	DEFICIT
0.000	-9.99	-2.66	Y
0.000	-21.95	-4.1	OPEN

Table 3: the significant test of group F

Selected Countries	Current account model	Private section consumption model	Economic growth model
Countries with high income	44.4	117.47	27.2
Countries with middle income	17.05	141.51	34.5
Countries with low income	17	107.39	23.6

3.1.3. Hausman test, the selective test between constant or random effects

Hausman test is used to examine the selective test between constant or random effects. The constant effects method omit different cross sectional effects by entering virtual variables and random effect method typically overcome the heteroskedasticity of inter-group . As discussed, Hausman test was conducted in order to determine which method (constant and random effect) is more suitable for estimation. The null hypothesis of this test indicates the lack of relationship between distributed component of equal width from the source and explanatory variables and random effect model.

While the opposite hypothesis means that there is a correlation between desired distributed component the explanatory variable, and due to the correlation between the distributed component and explanatory variable and for this reason we confront with the problem of incompatibility ,thereby it is better to apply constant effects method in case of accepting H1 ( rejecting H0). In respect of H0 hypothesis, both constant and random effects are efficient but the constant effect method is inefficient (Wooldridge, 2000). According to table below, the calculated is larger than table . So the hypothesis of H0 is rejected. Since random effects are inefficient therefore constant effects method should be conducted for estimation.

Table 4: the selection test between constant and random effects

Selected Countries	$\chi_k^2$		
	Current account model	Private section consumption model	Economic growth model
Countries with high income	22.3	258.18	17.9
Countries with middle income	105.47	475.23	30.5
Countries with low income	95.23	237.26	11.8

3.2. The estimation of model and results analysis

In this section, the equations (1) (2) and (3) for selected countries (with three different income groups) are examined by constant effect and ordinary least squares (OLS) methods for the period of 1985-2006.

3.2.1 High-income countries

In this part, the effect of budget deficit over current account and private sector consumption and economic growth in 20 high-income countries will be reviewed.

Prior to addressing the variables coefficient, as it can be seen , all estimated coefficients are totally matched within the theoretical expectations and framework and according to statistics test of estimated coefficients all model coefficients in 5% level are significant. The numbers in parentheses represent t statistics that are significant for all variables considered in model.

$$CP = 0.001DEFICIT + 0.003W + 0.01Y$$

$$(t) \quad (3.67) \quad (2.36) \quad (2.01)$$

$$Yg = -0.007DEFICIT + 0.97OPEN + 1.01AR(1)$$

$$(-0.11) \quad (95.8) \quad (132.1)$$

$$(t) \quad CA = 0.004DEFICIT + 1.04OPEN + 4.8Y$$

$$(1.99) \quad (1.17) \quad (2.7)$$

(t) Budget deficit variable coefficients (0.0001) has a positive and trivial effect on consumption and is statistically significant and private credit sector coefficient represents that 0.0003 increase rate in consumption due to wealth increase ( private credit) and actually has a trivial effect on consumption change, in other words it is closer to Ricardian Equivalence theory. The results of budget deficit over growth suggest that economic growth would be higher in case of economy openness. Also it was expected that budget deficit may have a negative effect on growth, the estimated coefficient of budget deficit would be negative but insignificant. Deficit increase led to growth decline while ineffective in high-income countries. Also the relationship between budget and current account deficits considering positive estimated model results is equivalent to 0/0004 and represents that there is no relationship between twin deficits in high-income countries and in other words Ricardian Equivalence theorem is confirmed in these countries.

### 3.2.2 Middle-income countries

The object of this survey is the revision of budget deficit effect on current account deficit and private sector consumption and economic growth regarding 33 middle-income countries.

$$CP = 0.05DEFICIT + 0.02W + 0.9Y$$

$$(3.21) \quad (1.17) \quad (2.7)$$

$$(t) \quad Yg = -0.075DEFICIT + 0.16OPEN$$

$$(-2.1) \quad (1.8)$$

$$(t) \quad CA = 0.22DEFICIT + 0.42OPEN + 1.92Y$$

$$(1.48) \quad (1.73) \quad (2.31)$$

(t) As it suggests, all estimated coefficients are matched with theoretical expectations and framework and according to estimated coefficient statistics all model coefficients are accepted and significance in the level of %5. Following we analyze the obtained values and coefficients in our estimation. As you see the positive coefficient of budget deficit (0.05) represents private sector increase in per unit of budget deficit rise. In other words, in examined countries the increase rate in private sector has been

accelerated in per unit of decline. The coefficient obtained for private wealth suggests that there is a positive and ascending relationship between consumption and wealth (0.02). Among effective explanatory variables on private sector in these countries, income, budget deficit and private credit have respectively the most influence on consumption. The model results suggest a negative relationship between budget deficit and economic growth in middle-income countries. In these countries, per unit increase in budget deficit would lead to 0.075 declines in economic growth. The rate of economic openness also has a positive effect about 0.16 on economic growth. The positive coefficient of budget deficit (0.22) represents the increase in the levels of current account balance in per unit of budget deficit increase. In other words, the current account deficit increase rate in per unit of budget deficit has ascending movement in these examined countries. The variable of economic openness rate has a positive and significant on current account deficit and generally it reveals a correlation of twin deficits in middle-income countries which support the Keynesian theorem.

### 3.2.3 Low-income countries

The estimated results in intended models for twin deficit test in 17 low-income countries are as follows:

$$CP = 0.08DEFICIT + 0.03W + 0.06Y$$

$$(2.32) \quad (1.05) \quad (1.98)$$

$$(t) \quad Yg = -0.081DEFICIT + 0.12OPEN$$

$$(-2.2) \quad (1.41)$$

$$(t) \quad CA = 1.6DEFICIT + 2.3OPEN + 2.6Y$$

$$(1.55) \quad (1.32) \quad (2.01)$$

(t) The obtained coefficients for budget deficit variable are positive and about (0.08) and indicate ascending movement (relationship) between budget deficit and consumption. This coefficient rejects Ricardian theorem. The obtained coefficient for private wealth sector indicates positive and ascending relation between consumption and wealth (0.03). It means that individuals assume tax cut as a part of wealth and in case of government commitment increase, private sector consumption would increase as well. Income variable coefficient represents that due to income increase, consumption rate has been also increased (0.06). There is a negative relation between budget deficit and economic growth in low-income countries. In case of one unit budget deficit coefficient increase result to economic growth decline about 0.081 in these countries. The economic

openness rate has also a positive effect on economic growth about 0.12. The obtained results of budget deficit effect on current account deficit represent the positive relation between budget and current account deficits. One unit increase per budget deficit may lead to 1.6 unit increase in current account deficit. So it is concluded that twin deficits are in line and typically support Keynesian theorem.

#### 4. Conclusion

This article is trying to survey budget deficit relation on domestic sector variable( private sector consumption and economic growth) and foreign sector variables( current account deficit) contemplating two vision, Ricardian Equivalence and Keynesian theorem in inter-countries way. The selected countries are classified into 3 income groups based on International Development Indicators and twin deficit theory has been into consideration in form of equation for each income group countries to be able to examine the budget deficit effect on current account deficit and private sector consumption and economic growth. In Keynesian theory which is based on assumption of unemployment resources in the economy, the government saving cut and even government negative saving may lead to consumption increase and thereby income increase and consequently saving increase through the coefficient spread. Thus according to this theory, the initial government saving cut may eventually be compensated by higher level of saving due to the more employment and income growth. However, in the offsetting of Keynesian theory, in budget deficit changes are assumed to be temporary. The Ricardian view is described as: in a stable way of government expenditures, budget deficit cut through present taxes cause more taxes paid in future and the current value of increase in future taxes would be identical with current taxes cut. Therefore insight and rational behaving people know that government spending would be supplied at present or in future through the taxes. In this framework budget deficit rise, negative saving and or primarily taxes cut have no effect on national saving, because total investment cut by increasing private sector saving would be compensated by just equivalent government saving cut which is the same Ricardian compensation and this means individual right prediction of future taxes debt which are reflected and applied in their own current saving behavior. It is theoretically unclear which theory has the privilege to be accepted and this is an empirical issue in verifying or refuting a theory which will be achieved by empirical studies. In summary, the research results can be stated as follows:

1. In middle and low-income countries due to the consumer's liquidity constraints, uncertainty to tax indicators, capital market disruption can not embrace Ricardian equivalence theorem.
2. In middle and low-income countries private consumption expenditures raise high as budget deficit increase, it means private and government spending are complementing and thereby fiscal expansion has an expanding effect on aggregate demand. While in high-income countries this coefficient is close to zero and implies fiscal policy inefficiency.
3. In middle and low-income countries private consumption raise high due to the wealth increase and indicates that individuals assume it a permanent increment and thereby one part of Ricardian equivalence theory resembling infiniteness of lifetime would be rejected while in high-income countries it is vice versa.
4. Budget deficit has a negative effect on economic growth in middle and low-income countries and in high-income countries has a negative but significant effect on growth. In these countries economic growth is related to its economic openness.
5. Budget deficit has a positive effect on current account deficit in middle and low-income countries. The coefficient of this indicator would support Keynesian scope.
6. In high-income countries the effect of budget deficit on private sector consumption and current account deficit estimably is about zero and indicates that Ricardian equivalence in these countries has been established.

The results of research showed that Ricardian equivalence is established in high-income countries while in middle and low-income countries it is closer to Keynesian perspective. This is also applicable to high and low-income people. High-income individuals would behave in Ricardian manner and low-income people are sensitive to tax level and their consumption is affected by tax cut. If twin deficit would be assumed appropriate, namely if budget deficit would lead to current account deficit, the best applicable policy is reducing budget deficit through tax increase. Because private income reduction after taxes would reduce the consumption of imported commodities and eventually financial stability would directly affect budget deficit decline and indirectly foreign trade deficit decline as well.

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