IMPACT OF FISCAL POLICY ON VIETNAM'S ECONOMIC GROWTH

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Abstract

Fiscal policy plays a very important role in Vietnamese economy. In recent years, Vietnam's fiscal policy is gradually adjusted to the changes of the economy. By combining qualitative and quantitative methods to evaluate the impact of government spending on Vietnam's economic growth, this study finds that before 2011, Vietnam's fiscal policy was quite ineffectiveness and had negative effect on Vietnam's economic growth. Whereas, after 2011, those policies have been adjusted toward increasing effectiveness and contributing significantly to the country's economic growth.

Keywords: *Fiscal policy, growth, quantitative, Vietnam*

1. Introduction

Economic growth is one of the top priorities for many countries, especially those countries in transition like Vietnam. To achieve the expected growth target, governments can use many macro tools and policies to promote growth, including fiscal policies. By implementing fiscal policies, government can create impact on the economy in order to achieve the macroeconomic goals such as economic growth, job creation or inflation stabilization. Fiscal policy has a large impact on management and plays an important role in regulating the macro economy through mobilizing and using state financial resources.

In recent years, fiscal policy has contributed significantly to the economic growth of Vietnam. In the financial crisis in 2008- 2009, Vietnam implemented expansionary fiscal policy. Although this policy kept the economy not to decline sharply in the later period, it also led to budget deficit and increased the burden of repayment for the budget. Large budget deficit, high public debt, decreased budget revenue/GDP ratio and ineffective public spending, especially public investment, were all hindering sustainable growth. Since 2012, especially in recent years, in the context of pandemic Covid-19 has affected significantly to the entire socio-economic life of Vietnam, the Government of Vietnam is implementing policies towards strictly implementing revenue, saving, reducing the State budget deficit, supporting reasonable growth. To clarify the impact of fiscal policy on growth, this study uses a number of quantitative tools such as correlation analysis and econometric modeling to examine the impact of Vietnam's fiscal policy in various periods.

2. Method

To analyze the effect of fiscal policy on Vietnam's economic growth, the following methods are used:

- ***Correlation coefficient analysis***

Correlation coefficient is a statistical indicator measuring the strength and weakness of the relationship between two variables. The correlation coefficient is valid from -1.0 to 1.0. Correlation coefficient with a positive value implies that two variables haves the same direction, in contrast, the negative value implies an inverse relationship, the correlation coefficient is 0 implying two independent variables.

There are many types of correlation coefficients, but the most common is the Pearson correlation. This index measures the strength and cannot distinguish dependent and independent variables.

Formula

$\rho_{xy} = Cov(xy) / \sigma_x * \sigma_y$

In which:

ρ_{xy} : Pearson correlation coefficient

$Cov_{(x, y)}$: Covariance of variables x and y

σ_x : Standard deviation of x

σ_y : Standard deviation of y

- ***Multi-variable regression economic model (Hadjimichael model, 1994)***

This model evaluates impacts of capital, monetary policy and fiscal policy on economic growth based on Hadjimichael model (1994), which is described as follows:

$Yit = \alpha_{it} + \Upsilon * FMVar(t-1) + \beta * Xi(t-1) + c + \varepsilon it$

In which:

- Yit: Dependent variable
- FMVar: Variable representing fiscal policy[51]
- Xi: Control variables.
- c: Intercept
- Ɛ: Residual

The delayed fiscal targets and control variables in the model are due to:

[51] in Hadjimichael's original model, FMVar is Divestment of the Economy

First: The fiscal policies implemented in this year will have impact on the economy in the coming years, i.e. have a delayed effect.

Second: technically avoid the endogenous problem between dependencies and control variables

The model is applied in this research by following steps:

Step 1: Develop an integrated fiscal indicator

To build integrated fiscal indicator, principal component analysis method (dimensionality reduction) – PCA is used.

Principal Component Analysis (PCA) is one of the simplest methods for multivariate data analysis. The idea of this approach is to extract the greatest amount of information from single variables and indexes when combining them in ways through the least number of principal components (PC). In other words, PCA method allows the transformation from a large set of variables and its observations into a smaller set of variables but having full information of the initial variables. Through PCA, principal components (PC) are created by modeling the resonance capacity of single variables in different spatial directions, by which guarantees the maximum information of single variables and indices is retained in the principal components (Stock and Watson, 2002).

Step 2: Use the above Hadjimichael model to estimate the impact

Step 3: Analyze the results

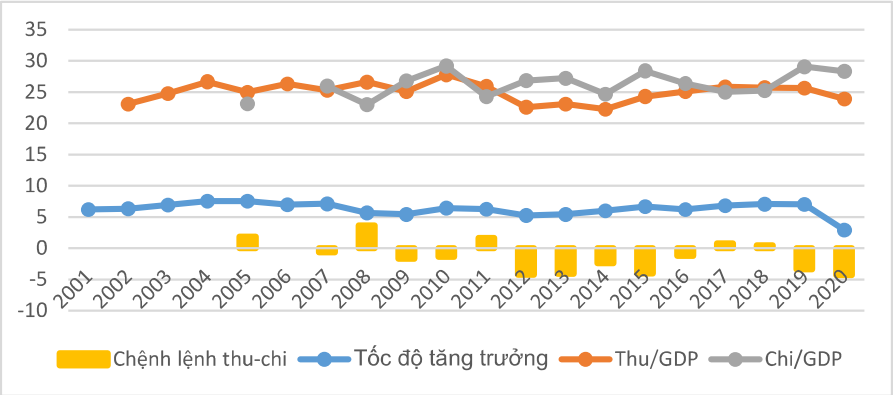
3. Results

Impact of fiscal policy on Vietnam's economic growth

In 2008-2011 when global economic crisis and recession appeared, Vietnam implemented expansionary fiscal policies to cope with. Although keeping the economy not to decline sharply during this period, those policies also led to a high level of overspending (about 6% in 2009), thereby increased the burden of repayment for the state budget. The large budget deficit, the declining budget revenue/GDP ratio and the ineffective public spending, especially public investment had certain effects on long-term sustainable growth.

Since 2012, Vietnam's economy started to recover and gained its growth momentum, in 2017 and 2018, the growth rate has reached 6.81% and 7.1% respectively; macro policies focus on macroeconomic stabilization and business support. Specifically, in term of fiscal policy, the Government is operating towards strictly implementing the items of revenue, saving, reducing the state budget deficit, and supporting reasonable growth.

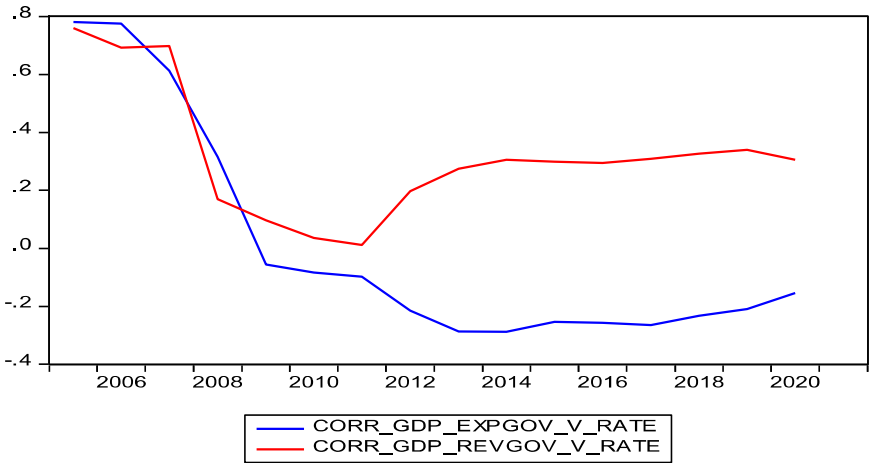
Figure 1: Budget revenue and expenditure and growth rate



Source: Author's calculations from GSO data

The relationship between specific fiscal policies and growth shows that before 2011, effectiveness of revenue-expenditure policy decreased quite rapidly, reflected in the correlation coefficient between revenues, spending and growth continued to decline from 0.8 to close to zero in 2011.

Figure 2: The correlation coefficient between revenue and expenditure - budget and growth rate[52]



Source: author's calculation from GSO data

However, since 2011, there has been a quite different effect between revenue and expenditure on growth.

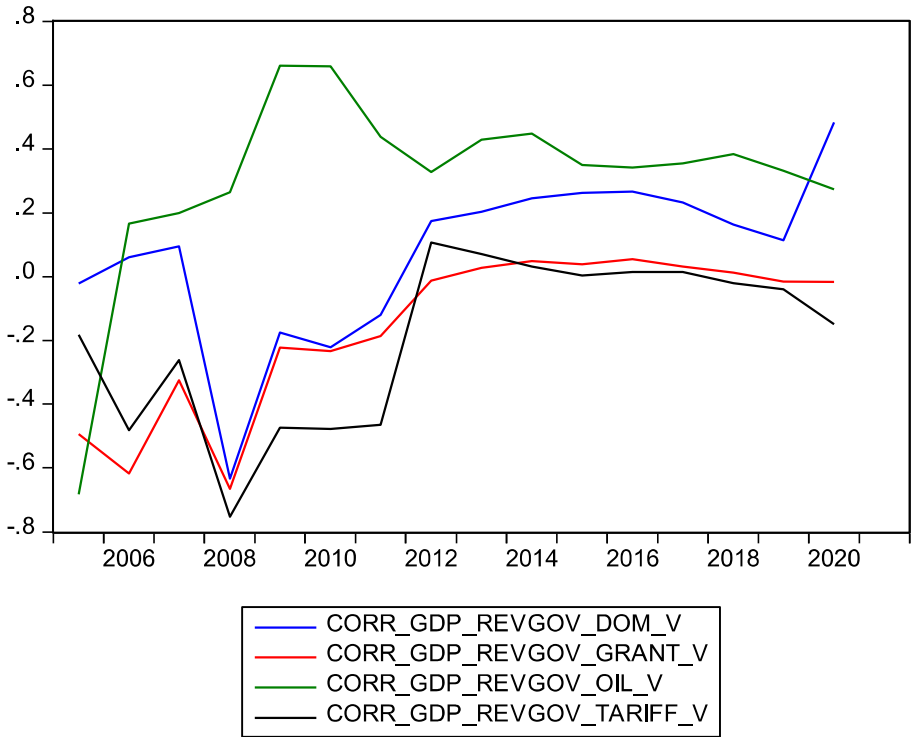
After 2011, revenue policy has had increasing positive effects on growth, while expenditure policy has not had any significant changes, and somehow restricted economic growth (negative correlation coefficient).

[52] CORR_GDP_REVGOV_V_RATE, CORR_GDP_EXPGOV_V_RATE: Correlation between revenue, spending/GDP and growth

Impact by composition of revenue and expenditure

Before 2011, the impact of revenue items on economic growth was instable, in which oil revenues have strong impact on economic growth of Vietnam, while revenues from tariffs have a minimal impact.

Figure 3: Correlation between revenues and GDP[53]



Source: Author's calculations from GSO data

After 2011, the impact of revenue sources on growth is relatively stable, which shows that the system of fiscal policies in Vietnam is gradually standardizing and stimulating growth. However, the order of effects of revenues on growth has not changed: the strongest effect was still revenue from crude oil and the lowest was revenue from import and export tariffs.

Impact by composition of expenditure

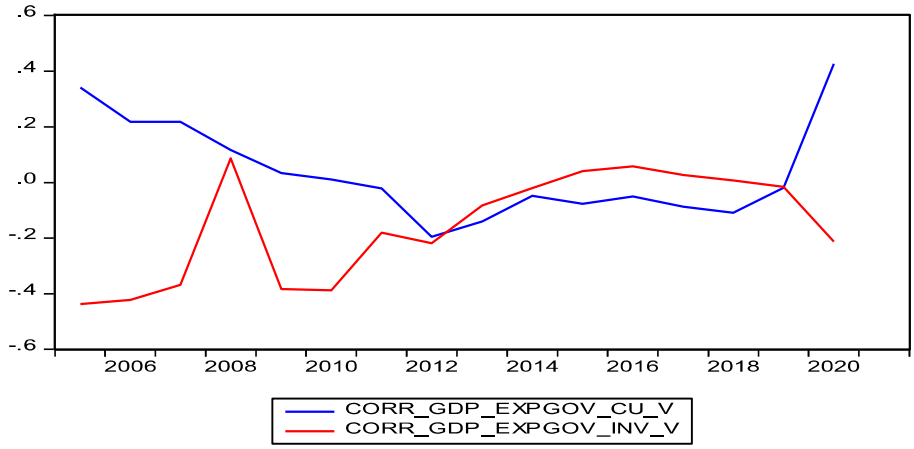
Before 2012, impact of recurrent expenditure on growth decreased gradually, especially in 2011 and 2012, recurrent expenditure not only did not have a positive impact, but also somewhat limited the growth rate. In term of spending for development, before 2012, there were large fluctuation in the impact of these expenditures on growth, but overall,

[53] CORR_GDP_EXPGOV_DOM_V,CORR_GDP_EXPGOV_OIL_V, ORR_GDP_EXPGOV_ TARIFF_V, CORR_GDP_EXPGOV_ GRANT_V: Correlation between domestic revenue, oil revenue, custom revenue, ODA revenue and growth

development spending had many limitations, causing negative effects on Vietnam's economic growth.

The impact of recurrent expenditure is stronger than the impact of development spending. This shows that before 2012, Vietnam's economic growth was based on spending (rely on demand side to stimulate economic growth).

Figure 4: Correlation between recurrent expenditure, development expenditure and GDP



Source: Author's calculations from GSO data

After 2012, impact of development expenditure was greater than recurrent expenditure, which shows that the expenditure policy has gradually changed and has a greater impact on the economy. However, this impact is still relatively small, showing that Vietnam's spending on investment for development is still ineffective. On the other hand, the negative correlation between recurrent expenditure and growth implies the burden of recurrent expenditure on the economy, which is hindering economic growth.

In the past two years, the Covid-19 pandemic has had multidimensional impacts on state budget expenditure. On the one hand, the Covid-19 epidemic forced the government to reduce spending and improve its efficiency, and avoid wasting in recurrent expenditure due to difficulties in revenues, reflected in increasing impacts of recurrent expenditure on economic growth in 2019 and 2020. Whereas impact of development spending has decreased, due to the fact that Covid-19 pandemic has slowed down the production activities, and affected the investment in production.

Quantitative effects of fiscal policy on growth

Use impact assessment model

Using Hadjimichael model to assess impacts, we have the equation:

$$Log\ (gdp) = \alpha_{it} + \Upsilon * INDEX\_GOV + \beta 1 * LOG\ (FCF\ (-1)) + \beta 2 * LOG\ (LF\_AC\ (-1)) + \beta 3 * LOG\ (OPEN\ (-1)) + \beta 4 * (YEAR = 2008) + (YEAR = 2009) + \beta 5 * (year = 2011) + \varepsilon$$

In which:

✓GDP: Gross domestic product (constant 2010)

✓INDEX_GOV: Integrated fiscal policy variable

✓FCF: accumulation of fixed assets

✓LF_AC: economically active workforce

✓OPEN: the openness of the economy

✓(YEAR = 2008) + (YEAR = 2009): Dummy variable of year 2008, 2009 = 1

✓(YEAR = 2011): Dummy variable of year 2011 = 1

✓Ɛ: Residual

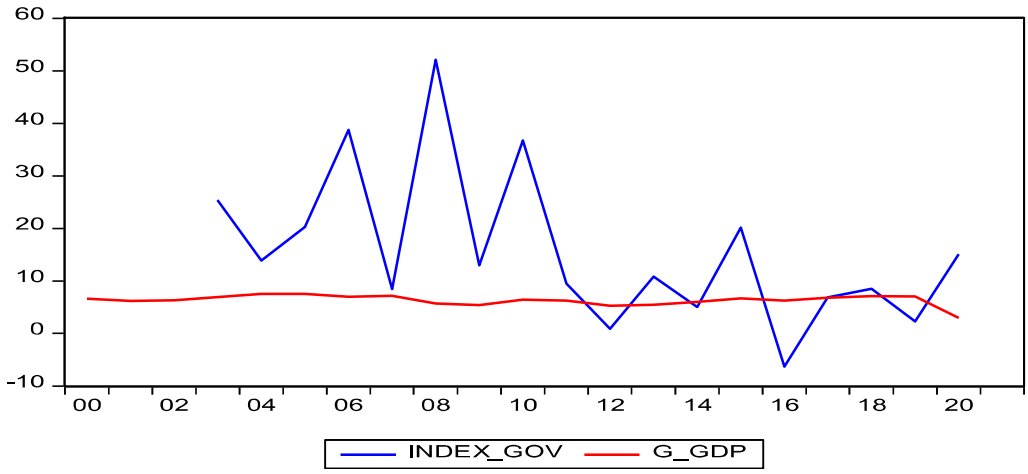
Data:

Data used in the analysis and estimation were collected from GSO from 2000 to 2020[54]

Develop integrated fiscal policy indicator

Using the dimensionality reduction method for fiscal and monetary indicators, we can get the integrated fiscal policy indicator (**Appendix 1**).

Figure 5: Integrated fiscal and monetary policy indicator[55]



Source: Author's calculations from GSO data

Estimated impact model

[54] Data for 2020 is estimated
[55] INDEX_GOV: integrated fiscal policy indicator, G_GDP: economic growth rate

When developing integrated fiscal policy indicator from component fiscal indicators[56] by applying PCA, the study finds that the coefficient of the integrated fiscal index is very small (-0.000977), which shows the inconsistent relationship between the integrated fiscal policy and growth.

Log(gdp) = - 0.000977*INDEX_GOV + 0.419992*LOG(FCF(-1)) + 0.8088760*LOG(LF_AC(-1)) + 0.002154*LOG(OPEN(-1)) - 0.036110*(YEAR=2008) + (YEAR=2009) - 0.087995*(year = 2011)

The coefficient - 0.000977 implies that Vietnam's fiscal policy still has problems that creating negative impact on growth, but the impact is quite small. This can be explained by the fact that the recurrent expenditure for the state apparatus of Vietnam is still very large while development spending is not effective.

Vietnam still grows in breadth, as the ratios for labor (0.8088760) and capital (0.419992) are very high. Whereas the coefficient of economic openness is small (0.002154) implying that Vietnam has not taken full advantage of economic integration.

4. Discussion and Conclusion

As Vietnam is a developing country with high openness, changes in the world economy would have great impact on Vietnam's economy. Both regional financial crisis 1997- 1998 started in Thailand, global financial crisis in 2017-2018, and Covid-19 pandemic have affected deeply to all socio-economic sectors of Vietnam. However, with the results achieved up to now, it can be affirmed that the Government's fiscal policies have been gradually adjusted to be effective and promptly support business and citizens.

However, in the current complicated and unpredictable context of Covid-19 pandemic, the fiscal policy needs towards cutting expenditure, increasing efficiency of spending especially development spending. In addition, the government needs to seek more sustainable revenue sources while strictly manage existing revenue by improving investigation in collecting fee and tax; carefully considering revenue from selling property, property right and increase in budget deficit and public debt in short-term.

5. References

1. General Statistics Office (2020). *Report on socio-economic situation of the years*. Statistics Publishing House.

2. General Statistics Office. *Annual monitoring statistics through the year*. Statistics Publishing House.

3. Nguyen Quang Dong, Nguyen Thi Minh, & Nguyen Manh The. (2012). *Econometrics.* National Economics University.

[56] Domestic revenue, oil revenue, custom revenue, ODA, recurrent expenditure and development spending

Appendix 1

Principal Components Analysis
Date: 04/05/21 Time: 01:45
Sample (adjusted): 2003 2020
Included observations: 18 after adjustments
Balanced sample (listwise missing value deletion)
Computed using: Ordinary correlations
Extracting 6 of 6 possible components

Eigenvalues: (Sum = 6, Average = 1)

Number	Value	Difference	Proportion	Cumulative Value	Cumulative Proportion
first	1.940335	0.620243	0.3234	1.940335	0.3234
2	1.320091	0.070412	0.2200	3.260426	0.5434
3	1.249680	0.511604	0.2083	4,510106	0.7517
4	0.738076	0.330370	0.1230	5.248181	0.8747
5	0.407705	0.063592	0.0680	5.655887	0.9426
6	0.344113	---	0.0574	6.000000	1.0000

Eigenvectors (loadings):

Variable	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6
G_REVGOV_DOM_V	0.512456	0.133577	0.407216	-0.330986	0.638948	-0.189511
G_REVGOV_OIL_V	0.395885	-0.330147	-0.445698	0.526550	0.400980	0.312396
G_REVGOV_TARIFF_V	0.152658	0.776296	-0.174588	-0.084210	-0.045562	0.578283
G_REVGOV_GRANT_V	0.564083	0.273672	0.009478	0.395216	-0.456826	-0.491871
G_EXPGOV_CU_V	0.480579	-0.441888	0.122113	-0.419211	-0.467834	0.405292
G_EXPGOV_INV_V	0.090627	-0.019062	0.768144	0.523611	-0.036413	0.354801

Ordinary correlations:

	G_REVGOV_DOM_V	G_REVGOV_OIL_V	G_REVGOV_TARIFF_V	G_REVGOV_GRANT_V	G_EXPGOV_CU_V	G_EXPGOV_INV_V
G_REVGOV_DOM_V	1.000000					
G_REVGOV_OIL_V	0.064067	1.000000				
G_REVGOV_TARIFF_V	0.170826	-0.101832	1.000000			

G_REVGOV _GRANT_V	0.430494	0.334784	0.331515	1.000000		
G_EXPGOV _CU_V	0.416187	0.297894	-0.221733	0.264054	1.000000	
G_EXPGOV _INV_V	0.136889	-0.253467	-0.175236	0.002485	-0.061750	1.000000

Appendix 2

Estimated results of fiscal policy and economic growth

Dependent Variable: LOG (GDP)
Method: Least Squares
Date: March 5, 21 Time: 8:00 PM
Sample (adjusted): 2003 2017
Included observations: 15 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INDEX_GOV	-0.000977	0.000487	-2.005786	0.0758
LOG (FCF (-1))	0.419992	0.069552	6,038512	0.0002
LOG (LF_AC (-1))	0.808876	0.076107	10,62812	0.0000
OPEN	0.002154	0.000757	2.843986	0.0193
(YEAR = 2008) + (YEAR = 2009)	-0.036110	0.024763	-1.458199	0.1788
YEAR = 2011	-0.087995	0.027240	-3.230405	0.0103

R-squared	0.994876	Mean dependent var	14.57694
Adjusted R-squared	0.992030	SD dependent var	0.268639
SE of regression	0.023983	Akaike info criterion	-4.333757
Sum squared resid	0.005177	Schwarz criterion	-4.050537
Log likelihood	38.50318	Hannan-Quinn criter.	-4.336774
Durbin-Watson stat	2.193496		