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Navigating Cyclicality of Fiscal Policy in Vietnam : An Empirical Investigation

Hien Nguyen Thi Kim *

Abstract: *While fiscal policy has been operated counter-cyclically in most of the developed countries (DCs), the reverse trend has been found in most of the low income developing countries (LDCs). This conclusion has been drawn in the literature during the past decades based on the correlation between fiscal and business cycle indicators. This phenomenon of LDCs is more pronounced during recessions due to the limitations in the credit markets as well as other social - political distortions. This paper is the first effort to introduce an empirical investigation on the cyclical behavior of fiscal instruments in Vietnam using Autoregressive Distributed Lag (ARDL) model. Fiscal balance is used as an indicator of fiscal instruments while business cycle is revealed via real GDP growth rate. In ARDL model, apart from the short-run effects, the long-run relationship between real GDP growth rate, public debt, net inflows of foreign direct investment, and fiscal balance is settled. Though the findings of cyclicality are inconclusive in the specification, it is suggested to pay more attention to pro-cyclicality and Vietnamese government should implement a counter-cyclical fiscal policy so as to regulate the economy much better.*

Keywords: Business cycle, pro-cyclical, fiscal policy, Vietnam.

Introduction

Along with the economic fluctuations experienced by most of the nations around the world, there are different theories trying to answer the macroeconomic question that how governments should stabilize the economies. One of the most famous theories favored by many authorities is the Keynes's theory in which fiscal policy is considered as an important stabilization instrument. Governments are recommended to change their spending and taxation system to minimize instabilities during different economic situations. If this is the case, an economy had should run a countercyclical fiscal policy. Specifically, during recessions, there should be an increase in government expenditure and a decrease in tax revenues which then leads to a budget shortfall. On the contrary, an economy will pick a contractionary fiscal policy during booms by cutting public spending or raising tax revenues, which probably results in a budget surplus. Most researchers have acknowledged that this phenomenon seems to be a rule in DCs. However, LDCs have witnessed the opposite trend as running fiscal policy pro-cyclically. Particularly, government expenditure tends to increase along with the rise of budget deficit even in good times. Therefore, fiscal policy seems not to be the optimal choice for LDCs to smooth business cycles, especially during recessions.

*Lecturer, Faculty of Finance-Banking and Business Administration, Quy Nhon University, Vietnam.
E-mail: nguyenkimhien@qnu.edu.vn

In a worse situation, a pro-cyclical fiscal policy could be able to deteriorate the economy, which was referred to as "When it rains, it pours..." by Kaminsky, Reinhart, and Végh (2005). Many hypotheses have come up with two main causes related to the failure of credit markets and other political-social economic issues.

Based on the empirical studies with panel dataset including Vietnam, Vietnam is concluded as one of the LDCs running a pro-cyclical fiscal policy. However, there has not been any single research conducted in Vietnam. This paper is the first effort to provide empirical evidence of Vietnam's cyclical fiscal policy by using the ARDL model to consider the relationship between primary fiscal balance and real GDP growth rate. Moreover, this study takes into account other variables, including external debt stocks, public and publicly guaranteed; and net inflows of foreign direct investment in order to determine how public debt and external capital flows affect Vietnam's fiscal behavior.

The paper is structured as follows. Section 2 briefly introduces the concepts and hypotheses about business cycles and the cyclicality of fiscal policy, as well as summarizes methodologies and findings of related studies. The research method of Vietnam's cyclical fiscal policy is constructed at the end of section 2. Section 3 focuses on the results and discussion which are followed by the conclusion presented in section 4.

Literature Review

Generally, there has not been a unified concept of the business cycle. It is commonly described via short-term economic fluctuations of macroeconomic variables such as GDP and employment. In the U.S, The National Bureau of Economic Research. defined the starting and the ending points of time of each period as "business cycle peak" and "business cycle trough" respectively (Mankiw & Ball, 2010).

The General Theory of Employment, Interest, and Money raised by John Maynard Keynes (1936) was referred to as a solid framework for examining business cycle. While the Classical theory paid much attention on prices' flexibility and self-adjustment in the long run, Keynes not only explained short-run economic distortions primarily based on "sticky price" but also raised "irreducible uncertainties" as critical causes of long-run non-potential economic level (Mankiw & Ball, 2010). Because prices are not able to respond to shocks immediately, GDP and employment are supposed to adjust correspondingly to the so-called fluctuations. Thus, the government should stabilize short-term shocks by using a sound fiscal mechanism (or counter-cyclicality). The Neoclassical synthesis in the 1950s also agreed on the "sticky prices", however, this school rejected government's interference. The main idea suggested by these economists lies in the "rational expectations". If the government increases expenditure, people will prefer saving to spending due to their prediction of increasing taxes or inflation in the future. Life-cycle hypothesis by Franco Modigliani and permanent-income hypothesis by Milton Friedman play an important role in explaining Keynes's paradox in reality (Mankiw & Ball, 2010).

Each hypothesis shows reasonable standpoints, however, Keynes's ideas have become a significant basis for most of the governments to follow. Based on the assumption of Keynesian effect, Kaminsky et al. (2005) presented definitions of fiscal pro-cyclicality,

counter-cyclicality and a-cyclicality. In their paper, fiscal cyclicality was defined in terms of policy instruments including government expenditure (g), tax rate (t), tax revenue (T), primary fiscal balance (FB), and other indicators as a proportion of GDP. Normally, a countercyclical fiscal policy tends to be contractionary in good economic times (booms) and expansionary at bad times (recessions). To resolve economic shocks, it is reasonable for governments to keep lower (higher) expenditure and higher (lower) tax rates at good (bad) time. On the contrary, a pro-cyclical fiscal policy refers to higher (lower) government expenditure and lower (higher) tax rates in booms (recessions), which will reinforce the business cycle. A-cyclicality involves constant government spending and tax rates that do not vary systematically with the business cycle. In this case, fiscal instruments have no effect of stabilizing and reinforcing on business cycles. Therefore, based on theoretical correlations between g, t and business cycle respectively, unambiguous conclusions for cyclical behavior of fiscal policy could be drawn.

Regarding a-cyclicality, the tax rate is defined to be unchanged during the cycle. While tax base automatically surges in booms and scales down in recessions, the correlation between tax revenues and the business cycle is positive. The same result occurs in the case of fiscal balance. However, the correlation of g/GDP and business cycles is negative because g is also constant, whereas those of T/GDP, FB/GDP and business cycles are ambiguous.

In principle, it is plausible to confirm positive correlations of T, FB and the business cycle while that of g/GDP and business cycles is negative in case of counter-cyclicality. Similarly, correlated trends between T/GDP, FB/GDP and business cycles are not clear.

In the last case of pro-cyclicality, as tax rate and tax base tend to move reversely, correlations between T, FB and the business cycles are inconclusive. Because g increases during booms, the correlation between g/GDP and the cycle could get any values. The same conclusions are also true for other fiscal indicators as a proportion of GDP.

To summarize, using g and t is the optimal choice for drawing a straight conclusion on the cyclical behavior of fiscal policy. In practice, there is no systematic data on tax rates, so g becomes the best indicator. T and FB are only unambiguous indicators as their correlations with business cycle are negative or zero which then clearly indicates pro-cyclicality. The indicator of g/GDP also produces a useful result if its correlation with cycle is zero or positive. In the rest of cases, any conclusions on cyclical fiscal policy should be formed carefully. Hence, in order to identify Vietnam's fiscal characteristics, this paper follows definitions of cyclicality raised by Kaminsky et al. (2005) as examining fiscal balance as a fiscal indicator.

In this field, there are few studies for single nations except for the U.S and several DCs where sufficient data are available. Most of the papers have concentrated on cross-section or panel data. The study by Gavin and Perotti (1997) was the first providing evidence of fiscal pro-cyclicality in 13 major Latin American economies over 1968-1995. By simultaneously regressing fiscal surplus change (as a share of GDP) on economic growth rate and trade change, they showed that OLS coefficient for industrial economies is significantly positive while that for Latin America is positive and not significantly different from zero. Besides, the two contrast pictures between DCs and Latin America were even more pronounced at different economic episodes: good times and bad times. In that test, bad times were

defined as years during which output growth rate is less than its average rate minus one standard deviation and vice versa.

Lane (2003a) presented comprehensive panel data of 46 countries, including (1) industrial, (2) East Asian, (3) Latin America and (4) Caribbean countries whereby the cyclical patterns in each group were pointed out. With regard to fiscal policy indicators, fiscal surplus coefficients were shown to be significantly positive in the first two groups that nominated counter-cyclicality while that for the last group they were not. Meanwhile, there was not much difference in the cyclical behavior between groups based on tax ratio. In another paper by Lane (2003b) the author used cross-section data across OECD to address different cyclicality levels across spending categories in which wage government spending was the most obvious channel. The paper by Arreaza, Sorensen, and Yosha (1998) also pointed out empirical evidence of pro-cyclical fiscal policy in OECD via various fiscal indicators, such as government expenditure, transfers, subsidies, and tax revenues. While these researchers permitted some cross-country hetero-characteristics by splitting samples into smaller groups according to the average level of budget deficit and fiscal institutions' structures, Lane (2003b) allowed greater consideration of country-by-country heterogeneity via single regressions and more detailed decomposition of government expenditure. Lane's outstanding contribution is to concurrently carry out regressions on actual level and trend level by exploiting HP-filter (Hodrick-Prescott Filter) which was previously implemented by Stein, Talvi, and Grisanti (1998); Agénor, McDermott, and Prasad (2000).

Kaminsky et al. (2005) are known as the prominent researchers in this field for their paper titled "When it rains, it pours: pro-cyclical capital flows and macroeconomic policies". This study uncovered cyclical behavior of both fiscal and monetary instruments as well as their interactions in LDCs. The paper is outstanding due to not only its impressive data for 104 countries over 1960-2003 but also its appealing approach including concomitantly exploiting HP-filter and BP-filter. They divided the whole sample into different economic episodes and undertook various indicators such as GDP cyclical components (or output-gap), net capital inflows and other fiscal and monetary indicators. Fiscal policy was remarked to be pro-cyclical in most LDCs, especially in middle-high income countries: "turning sunny days into scorching infernos and rainy days into torrential downpours". This viewpoint was then supported by Ilzetzki and Végh (2008) relying on quarterly data of 49 nations during 1960-2006 by undertaking instrumental variables and simultaneous equations.

Previously, Talvi and Vegh (2005) underlined that political distortions resulted in fiscal pro-cyclicality of 36 LDCs. The HP-filter was also used to extract trend components and these conclusions are true in both cases of government spending and taxation. Interestingly, Alesina, Campante, and Tabellini (2008) made a complementary study on how political distortions in OECD and non-OECD countries interact with the cyclical behavior of macro policies. Different regression models were performed with dependent variables being budget surplus and total government spending net of transfers respectively, and independent variables being output-gap, lagged-dependent variables and control variables. The output-gap was defined as the log deviation of GDP from its trend, whereas control of corruption and democracy were also taken into account as governance indicators.

One major article written by Frankel, Vegh, and Vuletin (2011) summarized the changes

of fiscal cyclicality in 21 DCs and 73 LDCs over 1960-1999 and 2000-2009 respectively, by exploiting the correlations between government expenditure and GDP. It was revealed from the study that: (1) during both periods, most DCs have been successfully running counter-cyclically, however, the opposite trend seems popular in LDCs; (2) while many LDCs converted their pro-cyclical fiscal policy into a countercyclical fiscal policy, some DCs converted their countercyclical fiscal policy into pro-cyclical fiscal policy over time.

With regard to the reasons, many authors have come up with two main channels related to the imperfect credit markets (Gavin & Perotti, 1997; Kaminsky et al., 2005) and political - economic distortions (Alesina et al., 2008; del Granado, Gupta, & Hajdenberg, 2013) in LDCs. Starting with the first outlook, LDCs that inherently depend on external financial flows not only have difficulties in borrowing credits but also face more pressure to repay in recessions. Therefore, the optimal policy should be contractionary at that time. On the contrary, they can easily borrow and hence increase public expenditure during booms. It is also consistent to consider the second viewpoint where different interests from various social groups drives the government to raise public expenditure more proportionally than GDP change during good times. Generally, this problem is rooted from the lack of transparent governance, information on government balance sheets of liabilities, especially the instance of debt accumulation, thus, the voters cannot exactly judge the economic state. They do not trust the corrupt government who may use part of tax revenues mis-appropriately. Hence, during booms, those voters tend to demand more utility via public spending or transfers, which in turn forces the government to increase debt and then budget deficit. This was verified and termed as "voracity effect" by Lane and Tornell (1998); Lane (2003b). In addition, social polarization also plays a part to explain the volatile behavior of fiscal policy in the business cycles Woo (2009).

In case of Vietnam, there has not been much literature on the fiscal policy's characteristics. The only authors calling for interest in Vietnam's fiscal cyclicality are Thien and Hoi (2016). By separately taking the fluctuations of various indicators into account, including economic growth, inflation, budget deficit, public expenditure and government bonds, they inferred Vietnam's ineffective pro-cyclical fiscal policy and proposed a counter-cyclical one for the government. It is remarked as the first effort to identify fiscal cyclicality in Vietnam, but it seems less convincing without any statistically significant evidence. Thus, there is a need of much sounder proof which is only revealed in empirical investigations.

Methodology

The previous section summarized the results as well as the corresponding explanations of fiscal pro-cyclicality in most LDCs including Vietnam. Assume that Keynesian effect does exist, Vietnam probably runs a pro-cyclical fiscal policy which makes business cycles more serious. This section introduces an empirical strategy to uncover that suspicion, which is a plausible adaptation of previous researches in Vietnam's particular circumstance.

The main aims of the research include: (1) to measure pro-cyclicality via the coefficients' signs of fiscal and business cycle indicators; and (2) to examine whether fiscal pro-cyclicality in Vietnam has any relationships with public debt and net inflows of foreign

direct investment. The full regression model is as follows (where t subscript denotes years).

$$FB = c_t + \beta * CYCLE_t + \gamma_i Z_{it} + \epsilon_t$$

FB denotes primary fiscal balance. As discussed above, fiscal balance is only helpful if β gets negative or zero which directly indicates pro-cyclicality. As advised by Kaminsky et al. (2005) other indicators as a share of GDP should not be applied because of their misleading instructions.

$CYCLE_t$ is a measure of the business and cycle it is represented by the real GDP growth rate (GROWTH). Z_{it} vector implies other variables including external debt stocks, public and publicly guaranteed (DEBT); net inflows of foreign direct investment (FDI). DEBT and FDI are included to examine whether there are any relations between fiscal behavior and credit markets via public debt and capital flows. It is based on the same suspicion as referred in previous studies that an LDC often faces the pressure of interest payment at good times, so DEBT could be more likely related to pro-cyclical fiscal behavior. Furthermore, the existence of private investment projects, especially from foreign investors might reduce the government's expenditure demand in terms of public projects or result in government's increasing tax revenue. If this is the case, a shortfall in FDI may be a source of an increase in government expenditure or a decrease in tax revenue. In this manner, log of public debt (LDEBT) and log of foreign direct investment inflow (LFDI) are taken.

The dataset was collected and recalculated from the World Bank's website (comprising GROWTH, DEBT, FDI), Asian Development Bank (including FB) over the maximum period of 1990-2014. FB series is recalculated based on the data of fiscal deficit as percentage of GDP sourced from ADB website. The real series is calculated by using the GDP deflator sourced from the World Bank (See note 1). In case of time series, they need testing whether they are stationary or not through ADF (Augmented Dickey-Fuller) test. In this paper, because some series are not conclusively integrated at the same level and some of them are sensitive to structural break, ARDL is then applied as the way it was designed to examine the potential long-run relationship and short-run effects between the variables.

Results and Discussion

Some main descriptive statistics of the variables are summarized in Table 1. In this case, FB series is non-normal with p-values (Jarque-Bera) being small perhaps due to the data shortage.

Table 1
Descriptive Statistics

	FB	GROWTH	LDEBT	LFDI
Mean	-73615.900	6.798	5.813	4.837
Maximum	-8133.889	9.540	6.257	5.269
Minimum	-239255.700	4.773	5.591	4.183
Std. Dev.	59917.250	1.358	0.186	0.278
Skewness	-1.266	0.521	0.720	-0.365
Kurtosis	3.817	2.246	2.668	2.588
Prob.(Jarque-Bera)	0.025	0.422	0.320	0.694
Observations	25	25	25	25

Source: Authors Estimation

Based on ADF test results showed in Table 2, it could be concluded that all the series are non-stationary in normal conditions.

Table 2
ADF Tests of Stationary

ADF test statistic		FB	GROWTH	LDEBT	LFDI
Level	Intercept	-0.371	-2.242	-2.750 *	-2.368
	Trend & Intercept	-4.062 **	-4.431 **	-1.480	-2.218
	None	2.641	-0.239	-1.257	1.402
1st difference	Intercept	-7.316 ***	-4.483 ***	-4.859 ***	-3.628 **
	Trend & Intercept	-3.834 **	-4.141 **	-5.511 ***	-3.585 *
	None	-6.907 ***	-4.223 ***	-4.855 ***	-3.559 ***

Source: Authors Estimation
Null hypothesis: The series has a unit root
, **, *: Null hypothesis is rejected at α = 10%, 5%, 1% respectively*

Though ADF tests may be helpful in indicating the integrated levels of the variables in normal conditions, it is not powerful enough to give information on the variables' structural break (Sharif & Raza, 2016; Alam, Raza, Shahbaz, & Abbas, 2015; Raza, Shahbaz, & Nguyen, 2015). If their sensitiveness to structural break is not removed or handled, ARDL results are not trustworthy. In this sense, Breakpoint Unit Root Test is exploited as a robust check.

Table 3
Breakpoint Unit Root Test

ADF test statistic		FB	GROWTH	LDEBT	LFDI
Level	t-statistic	-4.739	-4.414	-5.353	-14.813
	p-value	0.132	0.249	0.029	<0.01
1st difference	t-statistic	-7.102	-6.476		
	p-value	<0.01	<0.01		

Source: Authors Estimation
, **, *: Null hypothesis is rejected at α = 10%, 5%, 1% respectively*

Breakpoint unit root test reveals that none of the series is I(2) and that is sufficient to perform ARDL model. However, FB and GROWTH are sensitive to structural break while LDEBT and LFDI are not. Particularly, because the break date in FB is suggested

to occur in the year 2008, I construct a dummy variable, named BREAK, taking value zero from year 1990 to 2008 and one from year 2009 onwards. Figure 1 shows a clear-cut graph of how FB is sensitive to structural break.

As estimating ARDL model, the study uses the maximum number of lags to be 4 and 3 for dependent variable and regressors respectively, due to the data availability whereas BREAK dummy variable, an intercept and linear trend are included as fixed regressors.

The results of bounds test are summarized in Table 4. As the calculated F-statistic is 96.25883 higher than the upper bound critical value of $I(1)$ at the 5% significance level, which is 4.23, the null hypothesis can be rejected and there is strong evidence to conclude the long-run relationship between the variables.

Figure 1: Plot of fiscal balance

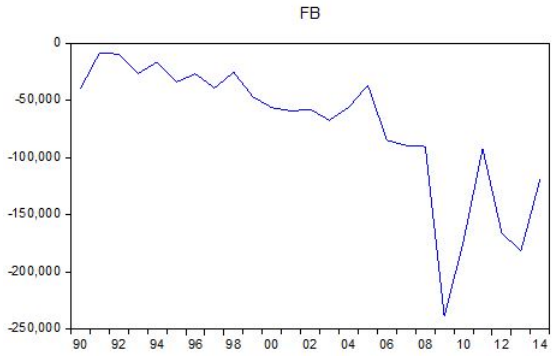


Table 4
Bounds Test for Long-run Cointegration

		Critical values for bound testing					
k	F-statistic	**10%**		**5%**		**1%**	
		I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
3	96.25883	2.97	3.74	3.38	4.23	4.3	5.23

Source: Authors Estimation
Null hypothesis: No long-run relationships exists

There is an identical ARDL with the optimal lags being (4,3,3,3) selected automatically based on SC and AIC criteria (Raza, 2015; Raza, Sharif, Wong, & Karim, 2016; Jawaid, 2014; Jawaid & Raza, 2015). By going through how well some ARDL specifications perform in terms of minimizing SC and AIC (Figure 2), ARDL (4,3,3,3) is likely the best fit model. ARDL (4,3,3,3) is then estimated when most of the coefficients in the model are significant at 5% significance level (p-values in Table 5), R-squared value is very high and the whole model is significant as well.

Figure 2: Some ARDL specifications in terms of minimizing SC and AIC

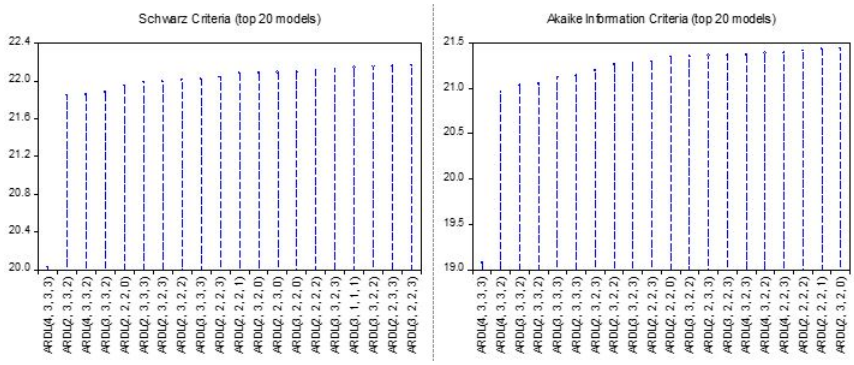


Table 5
ARDL (4,3,3,3) model

Variable	Coefficient	Std Error	P-value
FB(-1)	-1.203	0.147	0.015
FB(-2)	-1.348	0.147	0.012
FB(-3)	-0.351	0.097	0.068
FB(-4)	0.827	0.214	0.061
GROWTH	139814.100	29286.200	0.041
GROWTH (-1)	-186639.200	38768.860	0.041
GROWTH (-2)	139712.800	26410.460	0.034
GROWTH (-3)	-60795.690	12914.320	0.042
LDEBT	1010971.000	223331.800	0.046
LDEBT(-1)	-1737732.000	375676.400	0.044
LDEBT(-2)	1749919.000	343235.400	0.036
LDEBT(-3)	-341747.600	76864.190	0.047
LFDI	-648903.100	120331.000	0.033
LFDI(-1)	840202.500	189335.000	0.047
LFDI(-2)	190940.700	34184.510	0.031
LFDI(-3)	252569.500	71679.720	0.072
BREAK	-887318.400	146788.600	0.026
C	-7610261.000	1526452.000	0.038
@TREND	28353.190	6622.180	0.051
R-squared	0.999	Prob (F-statistic)	0.005
Adjusted R-squared	0.995	Durbin-Watson stat	2.411

Source: Authors Estimation

Regarding the effect of fiscal balance itself, table 5 shows that the fluctuations of the current government's fiscal balance is statistically determined by the fiscal balance at the previous times (1-lagged and 2-lagged). In other words, the state budget at the current period will fall into deficit if the economy experiences a fiscal surplus at 1-lagged and 2-lagged times. However, the effects are not too big due to the small values of the coefficients. By contrast, fiscal balance at the current time will increase rapidly along with a small increase in economic growth rate occurring in the same period or at 2-lagged time. The impact of economic growth rate at 1-lagged and 3-lagged times on fiscal balance follows a reverse manner. It is nearly similar in case of public debt. The state budget is positively

correlated with the rise of the current and 2-lagged public debt, but negatively involved in the increase in 1-lagged and 3-lagged public debt. Lastly, the influence of foreign direct investment on fiscal status is found to be positive mostly at the previous times but negative at the current time.

The short-run dynamic model (restricted ECM) is estimated with the coefficient of ECT(-1) being negative and very significant as it should be (Table 6). This absolute value bares the speed and tendency of convergence to equilibrium in the long-run. Overall, the adjustment of the whole model is quite fast despite the shocks in the short-run. Especially, all coefficients of short-run effects are very significant with p-values being approximately zero. A quick look at the coefficients implies the negative relationship between D(LFDI) and D(FB), however, the impact direction of D(GROWTH) and D(LDEBT) on D(FB) is not conclusive in different periods. The same finding is set in case of lagged D(FB). This short-run dynamic model is still helpful to forecast the changes in fiscal balance if one of the regressors is supposed to fluctuate while the others are kept constant.

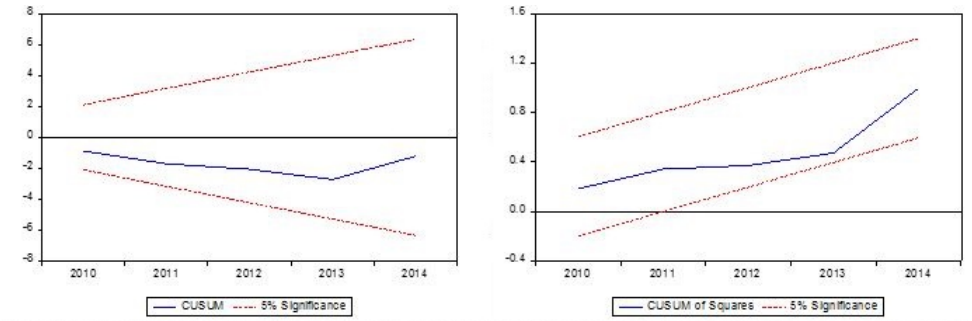
Table 6
Short-run dynamic structure

Variable	Coefficient	Std. Error	Prob.
D(FB(-1))	0.855	0.083	0.000
D(FB(-2))	-0.479	0.024	0.000
D(FB(-3))	-0.816	0.056	0.000
D(GROWTH)	138138.400	8127.129	0.000
D(GROWTH (-1))	-77992.230	4748.529	0.000
D(GROWTH (-2))	60159.360	3112.685	0.000
D(LDEBT)	999154.300	59227.410	0.000
D(LDEBT(-1))	-1390636.000	85718.390	0.000
D(LDEBT(-2))	338967.200	17307.620	0.000
D(LFDI)	-641621.000	36318.870	0.000
D(LFDI(-1))	-438675.600	22819.920	0.000
D(LFDI(-2))	-248725.400	17745.460	0.000
D(BREAK)	-878811.300	42611.000	0.000
C	-7487576.000	443288.100	0.000
ECT(-1)	-3.037	0.180	0.000
R-squared	0.999	Prob(F-statistic)	0.000
Adjusted R-squared	0.997	Durbin-Watson stat	2.351

Source: Authors Estimation

Finally, the restricted ECM appears to be a good model as it passes all diagnostic tests. The model residuals are normally distributed, serial independent without heteroskedasticity. The results of the Wald test demonstrate the model as a good fit and there is no signal of omitting variables via a Ramsey RESET test. In addition, the model is stable because a quick check of the CUSUM and CUSUM of squares reveals the blue lines to vary in 5% significance bound lines (Figure 3).

Figure 3: Plot of CUSUM and CUSUM of Squares Test for Restricted ECM Stability



The straight lines represent the critical bounds at 5% significance level

Conclusion

The biggest contribution of this paper lies in the effort to demonstrate empirical evidence of cyclical fiscal policy in Vietnam over 1990-2014 via exploiting the ARDL model. Using this estimation specification on fiscal balance and real GDP growth rate allows us to consider the relationship between fiscal instrument and the business cycle.

In ARDL model, it hardly finds a decisive outcome regarding Vietnam's fiscal cyclicality during the past years. Nonetheless, among the three possibilities of pro-cyclicality, counter-cyclicality or a-cyclicality, I am in favor of the first case. I particularly pay attention to the potential when economic growth occurs along with a budget surplus due to the more powerful effect of tax increase compared with government spending. In simple terms, the tax base's rise may get balanced or transgress the tax rate's decrease, that in turn pushes tax revenue and fiscal surplus along with growth even if public expenditure is still surging. It is stated that the proportion of tax revenue as percentage of GDP is higher in Vietnam rather than in other regional countries where most of the conditions are very homogeneous (Thien & Hoi, 2016). In company with the decreasing trend in taxes in the long-run under the conditions in bilateral and multilateral agreements, I suppose that the Vietnamese government would put more effort into the domestic tax system improvement to obtain more tax revenues such as corporate or personal income tax because the agreements mostly focus on import tax.

There is another important point that needs clarification. Although the finding meets the prior expectation indicating Vietnam's pro-cyclical fiscal policy, it is still ambiguous whether this decision is effective to stabilize the economy. If Keynes's theory works, the finding emphasizes that Vietnam's fiscal policy has been running pro-cyclically and is able to reinforce the business cycle instead of stabilizing it. Therefore, more attention should be paid to the operation of Vietnam's fiscal instruments. However, Frankel et al. (2011) proposed that while many LDCs converted their pro-cyclical fiscal policy into a countercyclical fiscal policy, some DCs converted their countercyclical fiscal policy into pro-cyclical fiscal policy. It raises some doubt that (1) counter-cyclicality may not be the optimal choice for all countries in all situations, or (2) it is advanced countries' mistake to

run a wrong macroeconomic policy where Greece may be an example. With the former one, GDP is neither the unique measure of a society's progress nor its well-being. Therefore, it is not the only measure of recession, which means there is more than fiscal policy to stabilize the economy. Nevertheless, I pay more attention to the latter case, especially when Vietnamese government spending has little sound effects on regulating the economy (Anh, 2011). Along with the continuous increase in total government expenditure even during good times, recurrent spending intends to surge, public spending for development expresses an opposite trend and crowds out private investment, which is a waste of budget resources. Overall, Vietnam has experienced public deficit, increasing public debt, unstable growth, especially at good times when the macroeconomic instruments tend to strengthen growth rate instead of stabilizing the business cycle. Hence, I strongly recommend that the Vietnamese government should choose a right fiscal policy: a counter-cyclical one by running a contractionary policy during good times and an expansionary one during bad times. Some potential resolutions are to streamline bureaucracy, reduce administrative expenses, lessen recurrent expenditure, cut down inefficient public projects, and save more at good times.

In ARDL model, long-run causality relationship between economic growth rate, public debt, net inflows of foreign direct investment, and fiscal balance is found. The speed and tendency of convergence to equilibrium are presented, which refers a quite fast adjustment of the whole model despite the shocks in the short-run. In the long-run, public debt has a positive relation with fiscal balance. It can be the case if tax revenue is regulated to surge strongly enough to overpower government expenditure and then a fiscal surplus happens. As discussed, this should not be expected in terms of the bad impact on the interests of the future generations. Apart from the principal repayment, the pressure of interest payments should be cautiously taken by the government. Vietnam is currently a developing country with a high demand of capital and it has borrowed a lot from other advanced countries and international organizations. Even though Vietnam's current public debt (percentage of GDP) still lies in the safe threshold, I suggest the government should put more consideration on a rational management policy of public debt in the long-run.

Regarding foreign direct investment, it has some potential to promote the fiscal surplus in the long-run whereas the impact channel could also be clarified via tax revenue. While the contradicting arguments over FDI's impact(s) on the economy have not come to an end, this paper slightly advocates its positive contribution to tax revenue or government expenditure, i.e. public investment. According to General Statistics Office of Vietnam (2011) FDI inflow to Vietnam has been increasing recently especially beginning from year 2007 as Vietnam joined the World Trade Organization. However, Vietnamese government seems not to have taken much advantage of the capital flows from abroad. In such a favorable condition, the government should attract more foreign private investors for investment and development projects whereas the government's burden would be reduced. They should help to cut down some public projects which are not really necessary or efficient or at least offer more tax revenues.

Nevertheless, the relation between FDI and fiscal balance is reversed in the short-run and this strengthens the idea that there are untapped benefits of FDI. Contrary to this, the manner of how economic growth rates and public debt affect fiscal balance in the

short-term does not show a clear stance in different lagged periods.

In summary, the findings might face inconsistence to some extent due to data availability for Vietnam. However, it is still significant to show empirical evidence of fiscal cyclicality and the impact tendency of the regressors on fiscal balance in ARDL model. In this field, other studies could be conducted to re-examine the cyclical characteristic of Vietnam's fiscal policy by disaggregating government spending into education expenditure, health expenditure, transfers, and subsidies, etc. to judge its real effectiveness to the economy. In the same way, it is possible to extend the research for Vietnam's credit market in relation with a political system, social inequality and other governance indicators.

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