

# Discretionary fiscal policy in Vietnam over business cycles and inflation, 1990-2015

## Abstract.

This study examines the cyclicity of discretionary fiscal policy in Vietnam using annual time series from 1990 to 2015. The change in cyclically adjusted balance (fiscal impulse) is utilized as the indicator of active fiscal action, while the output gap as the proxy for business cycle. Evidence shows discretionary fiscal policy follows a procyclical trend over business cycles, but reversed since 2008. In addition, discretionary fiscal policy is more procyclical during recessions than in booms. Finally, discretionary fiscal policy tends to react to inflation in a stabilizing way, i.e., contractive after inflation surges and expansive after inflation dives. This suggests that Vietnam has been using discretionary fiscal policy to stabilize general price level rather than output cycles.

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# 1. Introduction

In order to perform its stabilization function, Keynesian economics implicitly suggest that discretionary fiscal policy should be countercyclical to the trade cycle. When the economy is in recession, fiscal policy should be expansionary to help the economy recover; when in booms, fiscal policy should be contractionary to reduce inflationary pressure from rising income and prices. Empirical research in this area over the past decade however shown that fiscal policy in developing countries are often procyclical, meaning they tend to amplify the business cycle. For whatever reasons, a procyclical conduct of fiscal policy induces price volatility, endangers the prospect of macroeconomic stability and economic growth in the medium and long run.

Vietnam as a low-middle income country in the Southeast Asia might not be an exception among the developing countries. Recent researches on cyclical behavior of fiscal instruments in Vietnam found that fiscal policy was also procyclical, but the conclusion is either lack statistically significant evidence (i.e., Thien and Hoi, 2016), or inconclusive (i.e., Nguyen T.H.K., 2016). Neither of the studies examines the macroeconomic factors that could influence the conduct of procyclical discretionary fiscal policy in Vietnam, though attempts have been made to study the impacts of fiscal policy on macroeconomic stability and economic growth. In line with these recent developments in research, this thesis asked two fundamental questions to validate previous findings and close the gap in the literature:

1. How did discretionary fiscal policy in Vietnam respond to business cycle?
2. Did price level influence the conduct of discretionary fiscal policy?

To answers these questions successfully, the following goals should be achieved:

- Introduce the theoretical frameworks that describe how fiscal policy works over cycles.
- Review the literature in the cyclicity of fiscal policy to find out what are known and what should be fulfilled.

- Research into the history of fiscal policy in Vietnam to find out the key characteristics of fiscal policy and identify structural breaks in data.
- Present suitable methodological approaches to answering the research questions effectively.
- Analyze economic performance and fiscal variables for Vietnam during the sample period.
- Give an ex-post empirical analysis of Vietnamese fiscal policy based on available data.
- Provide conclusions from empirical findings.

The structure of this master thesis is organized as followed. Chapter 2 presents the fundamental theories of discretionary fiscal policy, along with basic concepts, components, rules and critics of the discretionary fiscal policy. After theoretical considerations, Chapter 3 reviews state of the art in the literature about the characteristics and developments of fiscal policy's cyclicity around the world and in Vietnam. Chapter 4 explains in detail the steps and methodologies used in this research to estimate economic fluctuations, discretionary fiscal policy and the relationship between these variables. Chapter 5 delves deeper into the Vietnamese literature to study the evolution of fiscal policy in the Socialist Republic of Vietnam since its inception. Chapter 6, the main analysis of the study, attempts to answer the question of the cyclical conduct of Vietnam's discretionary fiscal policy and further investigates the relationship between price level and active fiscal measures. Chapter 7 summarizes the main findings, and the final section concludes this master thesis with some remarks.

## 2. Theories

Fiscal policy refers to the government's deliberate intervention in the market process to alter the outcome. The application of fiscal policy in practice is based on a book titled "the General Theory" written in 1936 by British economist John Maynard Keynes. Mankiw (1993) held that no book in economics has been more praised and more vilified than the General Theory published in the midst of the Great Depression. In the introduction of this classic, Keynes (1936:3) argued that the characteristics of the classical theory "happen not to be those of the economic society in which we actually live". Hence, Keynes proposed an analytical framework to include the government in it.

### 2.1 Keynes' baseline theory

The theory of fiscal policy began with a well-known national income accounting entity used to measure the aggregate level of economic activity in a given time:

$$Y = C + I + G + NX \quad (1)$$

Where,

- (C) is final household's consumption
- (I) is gross capital formation (investment)
- (G) is final government's final consumption
- (NX) is net export (export – import)
- (Y) is Gross Domestic Production (GDP)

Equation (2) makes it clear that governments can affect economic activity by influencing (Y) directly through fiscal policy (G), and influencing (C), (I) and (NX) indirectly.

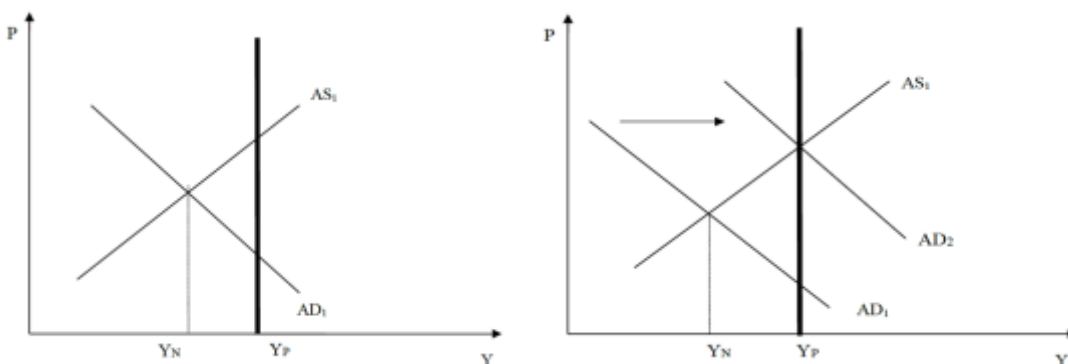
The government's consumption can affect household's consumption and private investment indirectly because of household's saving behaviors. For example, as government hires people to build public infrastructure (schools, airports, bridges, etc.), households have more income, and they spend a portion of this extra income to buy from others (increase consumption) and save the rest for the bank deposit. An additional saving as bank deposit means an extra investment.

Therefore an additional government spending can affect the level of consumption and investment in private sector indirectly.<sup>1</sup>

Fiscal policy can also affect import and export level indirectly through tariff and subsidy programs. For example, when the government raises the tariff on imported goods and spends a significant amount of capital to subsidize exports, fiscal policy as such pushes the trade balance towards a surplus zone. On the other hand, when government lower taxes on imports, price declines and so domestic demand for goods and services from oversea rises, pushing the trade balance towards the deficit zone.

Fiscal policy that increases aggregate demand (AD) directly through an increase in government spending or taxation is typically called expansionary. Fiscal policy, on the other hand, is considered contractionary if it aims to reduce demand through a tax hike or austerity program. Figure 2.1 and Figure 2.2 illustrate how discretionary fiscal policy can be used as a stabilization tool during recessions and booms. In this baseline model, an expansionary fiscal policy would shift AD curve to the right, while a contractionary fiscal policy would shift it to the left.

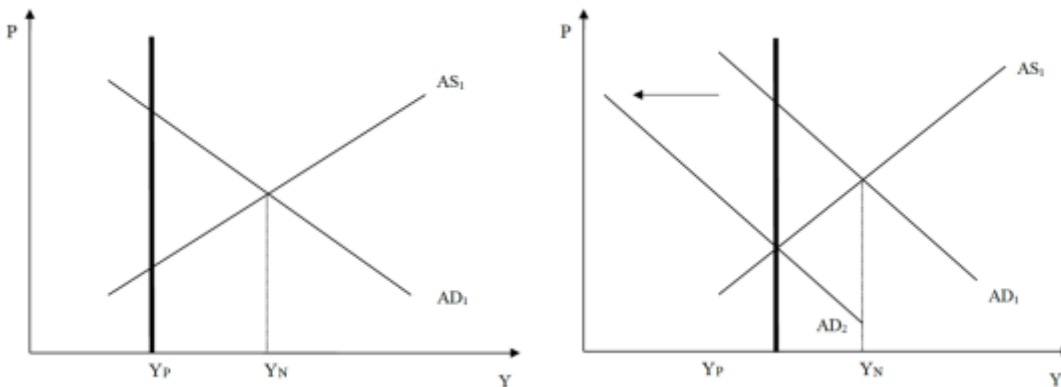
Figure 2.1 Recessions and expansionary fiscal policy



<sup>1</sup> In the word of Keynes (1936:63):  
 “Income = value of output = consumption + investment  
 Saving = income – consumption  
 Therefore, saving = investment”

During a recession, the growth of nominal GDP is less than the growth of potential GDP ( $Y_N < Y_P$ ). When this occurs, the government can boost aggregate demand by increasing spending or decreasing tax. Holding all else constant, AD curve will shift right. When actual GDP equals potential GDP ( $Y_N = Y_P$ ); the gap between actual GDP and potential GDP is 0. The economy is now operating at its potential level. A recession is resolved.

Figure 2.2 Booms and contractionary fiscal policy



During an expansion, the growth of nominal GDP exceeds the economy’s capacity to produce ( $Y_N > Y_P$ ). When this occurs, the government may impose higher tax rates or reduce expenditure to bring the economy back to its potential level, avoiding high inflation and instability. Holding all else constant, AD curve will shift left; equilibrium GDP moves back to its natural rate.

The national income accounting entity suggests that fiscal policy component (G) in equation (1) can be adjusted to manage the overall state of the economy. However, Holcombe (2004) argues that, because (G) is measured at cost rather than at market value, the bias toward increasing size of the government sector is inevitable. Further, (Y) is measured as homogenous aggregate demand, this leads to the bias towards quantity of outputs, while the measure of economic progress should be based on quality: “Economic progress comes partly from increases in the amount of output...but economic progress mostly is the result of changes in the nature of the goods and services the economy produces” (Holcombe, 2004).

## 2.2 Components of fiscal policy

From a theoretical and methodological point of view, fiscal policy can be decomposed into “discretionary” and “automatic” part. Discretionary fiscal policy refers to the government’s deliberate measures to adjust public spending or the level of taxation to stabilize fluctuations in economic activity. Discretionary fiscal policy is hence the “intentional” stabilizers. Automatic stabilization, on the other hand, refers to the governments' budget components (e.g., income taxes and welfare programs) that automatically adjusted to fluctuations in economic activity.<sup>2</sup> Because they act in such a way to smooth out output fluctuations automatically, the name “automatic” stabilizers came along.

Fatas and Mihov (2009) further defines a discretionary fiscal policy theoretically as a combination of three elements: automatic stabilizers, exogenous discretionary fiscal policy, and endogenous discretionary fiscal policy. Automatic stabilizers smooth out the cycles and are automatically triggered by the tax codes and spending rules. Exogenous discretionary fiscal policy refers to a change in spending or revenue that is not induced by the macroeconomic environment, whereas, the endogenous discretionary fiscal policy includes changes in spending or revenue in response to changing economic conditions.

### 2.2.1 Discretionary fiscal policy as a stabilization tool

Discretionary fiscal policy can be either countercyclical, procyclical, or acyclical to the movement of the business cycle. A countercyclical discretionary fiscal policy is a policy that is expansionary during recessions and contractionary during booms. By contrast, procyclicality occurs when discretionary fiscal policy is contractive during downturns, and expansive during upturns, intensifying output fluctuations. Acyclicity refers to situation when discretionary fiscal policy does not move in accordance with the state of the economy. This occurs when discretionary fiscal policy, such as the level of government’s expenditure, remains constant over the business cycle (neither expansionary or contractionary).

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<sup>2</sup> because tax revenues tend to be broadly proportional to GDP, while government expenditure tend to be independent of the business cycles (except for some items such as unemployment benefits).



By design, tax revenues and automatic stabilization are procyclical variables, as it automatically increases during booms and decreases during recession. When this procyclical component is netted out from the overall balance, what left is the fiscal policy that is discretionary and countercyclical. On the other hand, discretionary fiscal policy can be designed to be countercyclical to stabilize the business cycles, or either procyclical or acyclical to boost growth or curb inflation without concerning about the fluctuations. As such, discretionary fiscal policy as a macroeconomic stabilization tool should be a countercyclical variable.

Discretionary fiscal policy can also be more or less effective because of a concept known as the “multiplier effect”. The fiscal multiplier measures the impact of discretionary fiscal policy on output in the short-term. As the fiscal multiplier gives an additional shift in AD as people spend a portion of their income and save the rest, the size of the effect is depends on the saving/spending ratio. The size of fiscal multiplier is therefore determined by the consumer’s marginal decision to save. If the marginal propensity to save is small, the multiplier will have a large effect, i.e., a little change in government spending can result into to a substantial change in total output. Formally, the impact of fiscal multiplier is simply defined as “the ratio of a change in output ( $\Delta Y$ ) to a discretionary change in government spending ( $\Delta G$ ) or tax revenue ( $\Delta T$ )” (Batini et al., 2014):

$$\text{Impact multiplier} = \frac{\Delta Y_t}{\Delta G_t}$$

Where t can be a quarter or a year depending on the frequency of the data that is used in the study.

In theories, the mechanism behind fiscal policy may sound easy. Yet, the application of fiscal policy in practice is problematic for several reasons. First, uncertain lags and timing are those major concerns when implementing an active fiscal policy. How often should government adjust fiscal policy to fine-tune the economy keeping it near the potential rate? “Almost all economists, including most Keynesians, now believe that the government simply cannot know soon enough to fine-tune successfully. Three lags make it unlikely that fine-tuning will work. First, there is a lag between the time that a change in policy is required and the time that the government recognizes this. Second, there is a lag between when the government recognizes that a change in policy is required and when it takes action. The third lag comes between the time that policy is changed and

when the changes affect the economy” (Blinder, 2008). Because of these lags, the timing of active fiscal policy to fine-tune the economy is a very difficult task. By the time the policy becomes effective, the state of the economy may have already changed. A fiscal policy intended to be countercyclical may turn out to be procyclical if an economist gives an inaccurate assessment of the current and future state of the economy.

Second, application of active fiscal policy can also be problematic in cases where the government’s budgets that are not fiscally sustainable. Fiscal sustainability refers to “the government’s ability to maintain its current policies and satisfy its lifetime budget constraint without defaulting on its debt obligations.” (Burnside, 2005:6). Operationally, public debt should not be a concern for fiscal sustainability issue if the country is a monetary sovereign and does not owe too much in foreign-denominated currencies to the extent it cannot pay back. However, in cases where countries heavily relied on external sources of funding, whether it is the IMF or ECB<sup>3</sup>, a sovereign downgrade rating would put substantial question on the government's ability to spend wisely the liquidity they are not able to create.<sup>4</sup>

### 2.2.2 Automatic stabilizers as stabilization tool

To a great extent, a working tax system always serves as an automatic stabilizer. When the economy grows fast (wages rise), revenue from taxes for government also increases, subtracting money from the circular flow and reduce inflationary pressure. This automatic function also works during a recession, as automatic stabilizers provide the first line of defense, leaving more credits to the private sector through the tax structure and social welfare programs. Automatic stabilizers are not subjected to time lags, providing the first line of defense during economic downturns and upturns, requiring no change in existing laws and legislations. Automatic stabilizers always respond in a “timely, foreseeable and symmetrical manner” over the business cycle, moderating the overheating during booms and supporting economic activity during recessions (Debrun & Kapoor, 2010). The better the structure and design of automatic stabilizer, the smaller the potential need for deliberate fiscal measures.

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<sup>3</sup> e.g., Latin America debt crisis in 1970s, Greece government-debt crisis since late 2009

<sup>4</sup> In many cases, declare bankruptcy on debt might be considered as the best solution.

On the other hand, utilization of automatic stabilizers in macroeconomic planning could be restricted for the following reasons. First, the benefits brought about by automatic stabilizers are often insufficient in the context of large demand shocks. The reason for this might be that the spending or tax categories that reinforce the working of automatic stabilizers are not designed primarily for stabilization function. Rather, they are designed in the first instance to deliver economic equity or efficiency, with output stabilizing arising as a side benefit. Adjusting the underlying fiscal variables for stabilization purposes at large would disrupt the allocative and redistributive branches of government policy.

Second, Alesina (2000) finds that in cases where state revenues endogenously respond to asset price cycles, automatic stabilization does not necessarily synchronize with the business cycle. In cases where countries largely relied on oil revenue, for instance, a boom in international oil price when the domestic economy is slowing down may induce the swings in the business cycle rather than stabilize them, distort the effect of automatic stabilizers.

Finally, when designing tax codes and spending rules that serve as automatic stabilizers, policymakers should also consider the future impact of unfunded liabilities (i.e.: retirement benefits), as they may put substantial stress on public finances. Auerbach (2012) argues that “even if existing programs can be modified, a growing share of government budgets will be devoted to old-age entitlement programs, and both economics and politics suggest that this will reduce the flexibility of budget determinations.” The design of tax policy, hence, should take into account the dynamic developments of demography and migration to make sure the automatic stabilization function will work well in the long run.

### 2.3 Rules for fiscal policy

Before the Great Depression, the only accepted rule for fiscal policy was that government budget should not be adjusted in response to changes in the level of economic activity. Governments were “almost universally condemned as irresponsible if expenditures exceeded tax revenues except for accidental reasons. That is to say, deficits were not purposely allowed to occur in normal periods. Deficit financing was admitted to be unavoidable during times of war, but in non war periods

governments were careful to preserve financial integrity, a term which was held to be almost synonymous with the annually balanced budget” (Buchanan, 1960:115). Because this widely held view, the role of fiscal policy must rest with either the monetary policy or upon the automatic stabilizations: “automatic or quasi-automatic adjusting devices were expected to come into play and to prevent severe depressions or severe inflations.” (ibid:116). Before Keynes, annually balanced budget was a norm.

After Keynes’s “General Theory,” this norm seemed to be neglected. Large fiscal budget deficits for stabilization purpose became more acceptable after Keynes show that if no action is taken by the government to revive effective demand, the economy may fall into a permanent recession. If deficits by the public sector is a good thing for the private sector as suggested by Keynes, the question is, to what extent government can run a deficit? Indefinitely?

Abba Lerner, a Russian-born British economist, proposed an interesting though somewhat extreme proposition of what is known as “functional finance” – the backbone of modern monetary theory and Post-Keynesian economics. Lerner's work on public finance emphasizes the importance of budget deficit in stabilizing business cycles, maintaining that the budget should be in deficit at all times to keep output, employment, and prices at desired level (Lerner, 1943). In fact, there is no need for the government to balance the budget for any fiscal year. “Budget balance might be the result, but it should never be the aim, of budgetary planning” (Buchanan, 1960:124). In theory, the ultimate purpose of taxation is to control inflation, not in itself a source of income for the government, because the government can always create money at wish to pay for its debt denominated in its currency.<sup>5</sup>

It is necessary to note that at this point the world was still under the gold standard, the “barbarous relic” in the words of Keynes (1924:172), that restrained governments from macroeconomic engineering. James M. Buchanan, a Nobel laureate, wrote “the public finances” in 1960 when the greenback was still pegged to gold, yet he realized the merits of Lerner’s argument: “There seems no doubt that functional finance would be the best of the three rules if the economy were to be

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<sup>5</sup> Taxes can also be used to redistribute income (progressive income tax), deliver social justice (fines), protect people (“sin” taxes – tax on wine, cigarettes, etc.)

guided by a single decision-making agency, a despot, benevolent or otherwise. But this sort of decision making cannot, and should not, exist in a democratic society” (Buchanan, 1960:125).

USD 20 trillion.<sup>6</sup> That’s about the amount of US public debt at this point, and the Trump administration is planning to spend more and cut tax further. Furthermore, US’s government spending shows no sign of declining after WWII.<sup>7</sup> Evidently, functional finance, characterized by consistently large budget deficits over a long time, has become a formula for macroeconomists after the collapse of Bretton Wood system regardless a country is a democracy or autocracy. Nowadays, with a floating exchange rate regime, a monetary sovereign is not revenue-constrained (but could be credit-restrained by the public and the existing legal framework). As long as such monetary sovereign can create new fiat money which they have the monopoly upon and demand for that fiat money still exists, the only concern should be the inflationary force that withdraws the purchasing power from the hardworking people by inflating away their saving accounts. Leave politics aside, the budget deficit might not a bad strategy for the sovereign government with its own currency and central bank, if price level can be kept stable with monetary policies.

## 2.4 Critics of discretionary fiscal policy

The 1970s was a hard time for discretionary fiscal policy. To explain stagflation, several schools of economics emerged simultaneously, questioned the effectiveness of discretionary fiscal policy in achieving its output stabilization function.

The question in focus had support from theoretical contributions of consumer theory and the Austrian school of economics, whose models rigorously built on the so-called “rational expectation revolution”. Early theoretical models by Lucas (1973, 1976), Barro (1974), as well as Sargent and Wallace (1975), introduced and formalized the concept of consumer’s expectations into macroeconomic models, at the same time raised serious doubts about the effectiveness of Keynes’s effective demand management policies.

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<sup>6</sup> <http://www.usdebtclock.org/>

<sup>7</sup> [http://www.usfederalbudget.us/past\\_spending](http://www.usfederalbudget.us/past_spending)

Friedman's (1957) permanent income hypothesis as one of the main pillars of consumer theory set out to attack the concept of fiscal multipliers and the effectiveness of discretionary fiscal policy in Keynes' model. The permanent income hypothesis simply states that rational economic agents tend to expect their income to fall in the future for any deficit spent or tax cut at status quo. These agents will thus rationally respond by saving a larger portion of their income in expectation of a future tax hike. In other words, if the marginal propensity to consume of transitory income is small, the fiscal multiplier would have much lower impact on aggregate demand than previously described in the Keynesian model.

Similar to Friedman's hypothesis, the life-cycle theory of saving maintains that consumers are also forward-looking, meaning the household's consumption level now depends on the household's lifetime wealth expectations (Ando and Modigliani, 1963). In this model, a discretionary measure will only "boost aggregate demand to the extent that consumers do not anticipate that the debt will be repaid in their lifetime" (Chouraqui, 1990). The shorter the time horizon upon which life-cycle consumers base their decisions, the more likely it is that short-run discretionary fiscal policy will be effective. When consumers behave dynastically to a full extent, in a way that they not only think about saving for their retirement but also for their children and grandchildren, the Ricardian Equivalence could occur. Under this condition, fiscal policy has no effect at all on the level of output, since any increase in spending now would fully translate into an equal amount saving by rational consumers who expect taxes to increase.

While Keynes perceives most of the output fluctuations as unwanted, the Austrian school of economics, whose work very much influenced by F.A. Hayek (1933) and Joseph Schumpeter (1961), Ludwig Von Mises (Mises et al., 1996)), sees these cycles as an inevitable result of an evolutionary social system with rational economic agents and imperfect information. Schumpeter termed this feedback loop as "creative destruction," whereby economic activity always adapts to "real" factors, such as technological innovations, changes in modes of organization, and international competitiveness. In a Schumpeter's model of creative restructuring, "production factors must be reallocated away from contracting activities and into newly expanding ones" (Dreze 2001:182). From the perspective of neoclassical growth theory, these supply-side, independent parameters (i.e.: the Harrod-Domar model) already included, in the words of Sollow

(in Dreze 2001:20): the psychological and sociological propensity to save, technologically determined capital intensity, the demography and sociology of the labour force, and the rate of innovation.

Here, across Classical and New Classical arguments, what matters most is how productivity, the true engine of growth, can be improved in the long run, and they assert that with self-correcting mechanism prices are always moving towards new equilibriums. In a Classical world without market failures, a discretionary fiscal measure would likely to paralyze the invisible hand, and for that reason, “the world that they describe quite plainly needs no macroeconomic policy” (Hahn 1985:75).<sup>8</sup>

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<sup>8</sup> Hahn (1985:75) continued, “Keynesians were concerned with the problem of pushing the economy back to its natural rate, not beyond it. If the economy is there already, we can all go home”.

### 3. State of the Art in the Literature

In theory, optimal fiscal policy should be either countercyclical or acyclical. In the neoclassical theories, Barro's (1979) "tax-smoothing" hypothesis suggests that, for a given path of spending, tax rates should be stable over the output cycle, and the automatic stabilization should move in a procyclical fashion. However, in Keynesian theory, if the economy is in recession, fiscal policy can be useful to bring the economy back to its full employment rate by serving as a countercyclical stabilization tool.

In practice, a vast range of literature has suggested that fiscal policy is often procyclical in developing countries. Gavin and Perotti (1997) first found out fiscal policy's procyclicality in 13 Latin American countries. Talvi and Vegh (2000) later observed that procyclicality was not only the problem in Latin America, but other developing countries across the world also follow this pattern. In particular, Lane's analysis (2003), through a panel data of 46 countries globally, shows that most Caribbean countries were procyclical as well. Kaminsky, Reinhart, and Vegh (2005), with a paper titled "When it rains, it pours: Procyclical Capital Flows and Macroeconomic Policies", provided the most data intensive evidence across 104 developing countries. They observed that fiscal policy was procyclical in most developing countries, especially in middle-high income countries. This finding was further supported by Ilzetzki and Vegh (2008) based on quarterly data from 46 countries during 1960-2006. At this point, there has been an established consensus among economists that fiscal policy in many, though not all, developing countries are procyclical.<sup>9</sup>

Many of the mentioned papers above also attempted to find out the reasons behind this puzzle. The two main reasons are:

- 1) Credit constraints: during booms, poor countries can borrow more easily and they tend to do so to run a budget deficit. In bad times, poor countries cannot borrow, or can do

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<sup>9</sup> Also, Catao and Sutton (2002), Manasse (2006)



so only at very high interest rates. This may explain why government's spending is often procyclical (Gavin & Perotti, 1997 ; Kaminsky et al., 2005).

- 2) Political constraints: when more resources are available, the common-pool problem is more severe. The fight over common resources intensifies ("the voracity effect"), leading to more public spending and larger fiscal deficit (Lane and Tornell (1998), Lane (2003)). Following the "starve the Leviathan government" argument, Alesina and Tabellini (2005) pointed out that procyclicality emerges in a democratic system because voters try to hold their corrupt governments accountable, therefore in booms they demand higher utility for themselves, forcing the government to run a budget deficit (de Granado, Gupta and Hajdenberg 2013).

Recent papers in political economy also found convincing evidence of mechanisms behind the procyclical conduct of fiscal policy. Woo (2009) suggests that social polarization plays an important part in shaping the volatility behavior of fiscal policy over the business cycles. In line with political distortions proposal, recent research by Carneiro and Garrido (2015) found that institutional quality drives cyclicity of fiscal policy, based on a sample of 180 countries around the world. The article is innovative in a way that the authors account for endogeneity problem by using the Acemoglu et al.'s (2011) white-settlers data as an instrument for institutional quality. It was also pointed out by Cicek and Elgin (2010) that fiscal policy in countries with a larger size of shadow economy is more likely to be procyclical, based on a sample of 78 countries. Overall, there is substantial evidence in cross-country literature showing that procyclicality is the result of poor institution and bad governance.

A study by Frankel, Vegh, and Vuletin (2013) however points out a reversal trend recently. The paper summarized the trend in fiscal cyclicity in 21 developed countries and 73 developing countries over two periods, 1960-1999 and 2000-2009. Similar to earlier research, the paper found significant statistical evidence that developing countries are mostly procyclical, while the most developed ones are countercyclical during 1960-1999. However, this situation seems to reverse during 2000-2009. Many developing countries have graduated from procyclical fiscal policy, whereas some developed countries converted their countercyclical fiscal policy into procyclical.

Recent findings in a Bank of International Settlements working paper also found that fiscal policy became more countercyclical during the Great Recession in Latin America, but they have turned procyclical again over the past few years (Alberola et al. 2016). In fact, research focus on single country's fiscal behavior has found that fiscal policy follows a familiar pattern. For instance, Ghosh and Misra (2014) found that fiscal policy in India has been procyclical over an extended period; however, procyclicality tends to be replaced by more countercyclical measures in response to the global economic downturn 2008-09. Interestingly, Koirala (2015) suggests that countercyclicality also occurred in developing country like Nepal, but only strong during the 2000s, while there is a mild procyclicality during the period 2011-13.

In the case of Vietnam, Thien and Hoi (2016) and Nguyen H.T.K. (2016) are the only two papers that focus on the issue of fiscal policy cyclicity, but their conclusions are not clear cut. Before these papers, an early study conducted by Erbil (2011) for 28 developing oil-producing countries during 1990-2009 which include Vietnam in the sample also attempted to find out the cyclical behavior of fiscal policy. The results suggested that all of the fiscal variables in the models are strongly procyclical, especially in low-income group where Vietnam belongs. He further found that for this group the quality of institutions and political structure appear to be significant in determining the cyclicity of fiscal policy.

In a single-country analysis, by analyzing the changes in various indicators: economic growth, inflation, budget deficit, public expenditure and the size of government bonds market, Thien and Hoi (2016) concluded that Vietnam had ineffective procyclical fiscal policy in the past, and hence they proposed a more countercyclical approach by institutionalizing a new state's budget management rule.

Another research in this field for Vietnam was conducted by Nguyen H.T.K. (2016). In this article, she pointed out that the work by Thien and Hoi (2016) seems "less convincing without any statistically significant evidence." The author instead used the Autoregressive Distributed Lag models to assess the cyclicity of government spending over the period 1990-2014. The results show that the current fiscal balance depends on the previous year fiscal balance, but the effects are

only moderate. The short-run dynamic structure further suggests that Foreign Direct Investment negatively correlates with fiscal balance, but the impact direction of growth and debt on fiscal balance is not conclusive in the short run. About the cyclical behavior of fiscal policy, the author hardly finds any conclusive outcome, but mostly favor procyclicality.

Research has shown that fiscal policy in developing countries is often procyclical, due to various reasons such as political constraints, imperfect credit market and institution, but this pattern seemed to reverse recently. Vietnam is not an exception to this phenomenon, as research found that various fiscal indicators for Vietnam also procyclical, but the evidence is either weak (Thien and Hoi, 2016) or inconclusive (Nguyen H.T.K. 2016). To close this gap in literature, this research asked the question of procyclicality again and went one step further to include inflation in the model and netted out the effect of automatic stabilizers from fiscal policy using the IMF approach to compute the cyclically adjusted balance.

## 4. Methodology

The data for Vietnam from 1990 to 2015 are collected from Asian Development Bank, International Monetary Fund, and World Bank. Time series data on general government's expenditure, revenue and overall balance for 1990-2015 are retrieved from Asian Development Bank. Data for GDP at current prices (in local currency unit), and CPI are extracted from the World Bank's resources. The inflation series for Vietnam from 1980 is obtained from International Monetary Fund's World Economic Outlook database. All nominal prices are deflated with GDP deflator before analysis. Data in real prices are standardized before regression analysis. Software used for data preparation, analysis and presentation include Microsoft Excel and R.

To assess the cyclicity of discretionary fiscal policy over the business cycle, the following steps are proposed. First, estimates of output gap as a proxy for business cycles are extracted by time linear and Hodrick-Prescott filter. The linear detrending method calculates potential GDP as a function of time, whereas HP-filter provides the estimate of output gap by solving the minimization problem on the original GDP series. Next, the cyclically adjusted balance (CAB) as an indicator for discretionary fiscal policy (the component of the budget that does not respond to business cycles) is constructed following the methodology described in the IMF technical guide and manual (Fedelino et al., 2009). The change in CAB further gives the measure of fiscal impulse. By construction, a positive value of fiscal impulse implies an expansive discretionary fiscal policy compared to a benchmark year, whereas a negative value suggests a contractive action by the government compared to the benchmark. In this study, the point of reference for fiscal impulse is the previous year. Finally, by regressing output gap, inflation and lagging fiscal variables on fiscal impulse and selected control variables, the relationship between these variables shall be revealed. The following section describes the above steps in detail.

## 4.1 Estimating potential GDP and output gap

Measuring potential GDP and its deviation from real (or nominal) GDP as an indicator of output gap is the first step for determining when and how much discretionary fiscal policy is needed. When real GDP is higher than potential GDP, price level is likely to increase because effective demand exceeds the capacity of economy to produce. Vice versa, when real GDP is lower than potential GDP, the output gap is negative, a recession is likely to occur. The conception of output gap is therefore to quantitatively measure the deviation of real GDP from its trend, the level of output an economy can potentially produce in the long run. Any large deviation from this long-term trend indicates the need for government to intervene with fiscal measures.

Researches in business cycle theory have developed a number of methods to estimate potential GDP, however, each method of estimation can yield quite distinctive results. Since no methods can be argued to be superior than others, it is recommended to use different detrending techniques and then compare them to each other (Nguyen Ngoc Anh, 2013).

### 4.1.1 Time Dentrending

Time linear detrending is a simple method to obtain the trend from a time series. This approach assumes potential output is a function of time, and the residuals are the deviation of real output from potential output. Potential output is estimated with the following equation:

$$Y_t^* = \alpha_0 + \alpha_1 trend$$

Where,  $Y_t^*$  is potential output,  $\alpha_1$  is the parameter estimated by the linear model with the assumption that potential output is a function of time. In practice, time linear detrend is often applied to detrend the logarithm of real GDP series. The main advantage of time detrend method is its simplicity in the calculation. However, a significant disadvantage is that it assumes that there is a constant, time linear trend. For that reason, the cycles extracted from this method would likely to ignore small the fluctuations in the real GDP series.

#### 4.1.2 The Hodrick-Prescott filter

The Hodrick and Prescott (1980) filter (henceforth, HP-filter) is also a standard technique to remove the fluctuations from time series data. The HP-filter removes a smooth trend  $\tau_t$  from a time series  $y_t$  by solving the minimization problem with respect to a variable  $\tau_t$  (Ravn & Uhlig, 2010):

$$\min_{\tau} \left( \sum_{t=1}^T (y_t - \tau_t)^2 + \lambda \sum_{t=2}^{T-1} [(\tau_{t+1} - \tau_t) - (\tau_t - \tau_{t-1})]^2 \right)$$

Where  $\lambda$  is a user-defined parameter that penalizes the fluctuations in second differences of  $x_t$  (ibid). A higher  $\lambda$  implies a higher loss for trying to approximate the trend, and hence a more pronounced cycle. As  $\lambda \rightarrow 0$ , the estimated trend is identical to the real series ( $y_t$ ). As  $\lambda \rightarrow \infty$ , the estimated trend becomes more identical to a linear trend.

In adjusting HP-filter's smoothing parameter for annual data, different rules has been suggested. The smoothing parameter for quarterly data is agreed to be 1600, but for annual data, there are a number of proposals. First, by multiplying the value of  $\lambda$  for quarterly data (1600) with the square of the alternative sampling frequency, Backus and Kehoe (1992) suggests the value of 100 for annual data, which is widely used across literature. Second, Cooley and Ohanian (1991) suggests to set  $\lambda = 400$  by adjusting the smoothing parameter linearly with the frequency of data. Finally, a recent article by Ravn & Uhlig (2010) suggests that one should adjust the smoothing parameter to the fourth power of the observation frequency ratios, and hence a proposed value of 6.25 for annual data. Following these proposals, I adjust the smoothing parameter to be 100 and 6.25, and keep in mind that the larger the value of smoothing parameter, the smoother the trend, the more pronounced output gap.<sup>10</sup> It is also important to note that I also adjusted the smoothing parameter to be 400 as suggested by Cooley and Ohanian (1991), but this value seems too large; when applying to detrend real GDP series this approach seemed to produce artificial business cycles, and therefore the result is not included here.

The obtained values of output gap by three approaches presented above are then used as input to compute the cyclically adjusted balance (CAB). The purpose of the CAB is to show how the budget would look like if the effects of business cycles are netted out. The next section describes the methodology to obtain CAB.

## 4.2 Computing cyclically adjusted balance

To compute the cyclically adjusted balance (CAB) for Vietnam, the paper follows the methodology described in the IMF Technical Notes and Manual (Fedelino et al., 2009). The overall balance is decomposed into into cyclical and cyclically adjusted components, with the assumption of unitary elasticities for government's revenue and zero elasticity for expenditure. This is also known as the aggregated approach (when elasticities are used to measure the sensitivity of total revenue and spending to the output gap), in contrast with the disaggregated method proposed the OECD (with elasticities specific to various revenue and expenditure items) (ibid).

From a methodological point of view, the overall balance can be decomposed into a cyclically adjusted and cyclical component:

$$OB = CAB + CB \quad ^{11} \quad (1)$$

Where, OB is the overall balance, CAB is the cyclically adjusted balance, CB is the cyclical balance. The purpose of computing cyclically adjusted balance is to show the underlying position of fiscal policy, the exogenous component, after endogenous component is removed.

Since the changes in one side of our equation equal the change in another, the change in overall balance can be written as:

$$\Delta OB = \Delta CAB + \Delta CB - \Delta INT \quad (2)$$

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<sup>11</sup> The overall balance is by definition the government's net revenue:  $OB = R - G$

where  $\Delta CAB$  is the changes in cyclically adjusted balance,  $\Delta CB$  is the changes in cyclical balance,  $\Delta INT$  is the changes in interest payment. Interest payments are often separated from analysis because they are not correlated with cyclical changes. Excluding interest payment from (1) gives:

$$\Delta CAB = \Delta OB - \Delta CB \quad (3)$$

The changes in CAB is the difference between the changes in OB and CB. Changes in cyclical balance represent the impact of cyclical component - the automatic stabilizer, whereas changes in CAB indicate the intended contribution of discretionary fiscal policy on the domestic demand.

As OB is known (the difference between revenue and expenditure) and CAB can be calculated, the CB will be the difference between OB and CAB:  $CB = OB - CAB$ . Obtaining CAB requires an estimate of the output gap and elasticities of revenue/expenditure to the output gap. Output gap is the difference between actual and potential output:

$$\text{gap} = \frac{Y - Y^*}{Y^*} \quad (4)$$

Where, Y is actual output and Y\* is potential output, gap is output gap, often expressed as percentage of potential GDP. To estimate potential output, linear detrending and HP-filter have been applied.

After getting cyclically adjusted revenue and cyclically adjusted expenditure separately, the difference of them yields CAB:

$$CAB = R^{CA} - G^{CA} \quad (5)$$

Cyclically adjusted revenues can be obtained by adjusting actual revenues for the effect of the deviation of potential from actual output, with the revenue elasticity  $\epsilon_{R,Y}$  defining the size of the cyclical effect:



$$R^{CA} = R \left( \frac{Y^*}{Y} \right)^{\varepsilon_{R,Y}} \quad (6)$$

Where,  $R^{CA}$  is cyclically adjusted revenue,  $R$  is nominal revenue and  $\varepsilon_{R,Y}$  is the elasticity of expenditure with respect to the output gap. This is based on the assumption that the ratio of cyclically adjusted revenue to actual revenue moves together with the ratio of potential output to actual output:  $\frac{R^{CA}}{R} = \left( \frac{Y^*}{Y} \right)^{\varepsilon_{R,Y}}$ . Under the assumption of unitary revenue ( $\varepsilon_{R,Y} = 1$ ), equation (6) can be rewritten as:

$$R^{CA} = R \left( \frac{Y^*}{Y} \right) \quad (7)$$

Cyclically adjusted expenditures can be obtained likewise:

$$G^{CA} = G \left( \frac{Y^*}{Y} \right)^{\varepsilon_{G,Y}} \quad (8)$$

Where,  $G^{CA}$  is cyclically adjusted expenditure,  $G$  is nominal expenditure and  $\varepsilon_{G,Y}$  is the elasticity of expenditure with respect to the output gap. Under the assumption of a zero expenditure elasticity,  $\varepsilon_{G,Y} = 0$ , cyclically adjusted expenditure is equal to actual expenditure,  $G^{CA} = G$ , in which the business cycle does not trigger any response in expenditure levels and the cyclical expenditure component is zero. This is based on the assumption that expenditure is viewed as discretionary in its entirety, and thus independent from the business cycle. While this may provide a reasonable approximation in some cases, in practice, some expenditure items (such as welfare spending) may exhibit a cyclical pattern.

From (5), (7) and (8), the cyclically adjusted overall balance (CAB) can be rewritten as:

$$CAB = R \left( \frac{Y^*}{Y} \right)^{\varepsilon_{R,Y}} - G \left( \frac{Y^*}{Y} \right)^{\varepsilon_{G,Y}} \quad (9)$$

Following the finding of OECD estimates (Fedelino et al., 2009), we also assume unitary elasticity of revenue (as revenue is positively related to GDP) and zero elasticity of expenditure (most

expenditure items except few are not related to GDP). With aggregate revenue and expenditure elasticities can be assume to be 1 for revenues and 0 for expenditures, (9) becomes:

$$CAB = R\left(\frac{Y^*}{Y}\right) - G \quad (10)$$

The cyclically adjusted balance is, by construction, free of economic fluctuations. Changes in CAB can quantify the impact of discretionary fiscal policy on the economy. A widening in CAB implies an expansionary fiscal policy stance, or in other words, to an intended positive contribution of discretionary fiscal policy to aggregate demand (Bornhorst et al., 2011). Following this logic, fiscal impulse as the indicator of discretionary fiscal policy is methodologically constructed as:

$$FS = -CAB, \quad (11)$$

$$FI = \Delta FS = FS_t - FS_{t-1} \quad ^{12} \quad (12)$$

where: FS is fiscal stance  
 $FI > 0$  implies expansionary discretionary fiscal policy stance  
 $FI < 0$  implies contractionary discretionary fiscal policy stance  
 $FI = 0$  implies neutral fiscal policy stance

Fiscal impulse ( $\Delta FS$ ) is the first difference between 2 periods, the change in CAB from one year to another. Discretionary fiscal policy is said to be expansionary if CAB widens ( $FI > 0$ ), contractionary if CAB contracts ( $FI < 0$ ).

### 4.3 Regression analysis

Given discretionary fiscal policy reacts to the output gap, we can summarize the behavior of discretionary fiscal policy from an econometric point of view by using a regression model as follows:

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<sup>12</sup> Fiscal indicators should be scaled to potential GDP (Fedelino et al., 2009)

$$FI = \alpha + \beta gap + \delta FI_{t-1} + \varepsilon$$

Where FI is fiscal impulse— a measure of discretionary fiscal policy,  $\alpha$  is the constant, *gap* is output gap, and  $\varepsilon$  is error term.  $FI_{t-1}$  is one-period lagged fiscal impulse as a percent of potential GDP, a control variable account for the persistence in fiscal balances. The regression model follows the idea that policymakers are motivated by the goals of output stabilization (fiscal impulse should respond countercyclically to output gap) and fiscal sustainability (if deficit in previous year was too high, deficit in current year should be reduced). The cyclicity of discretionary fiscal policy is determined by looking at the sign and size of the coefficient  $\beta$ . In particular, when  $\beta > 0$ , FI is procyclical to output gap; countercyclical when  $\beta < 0$ ; and acyclical if  $\beta = 0$ .

To test the hypothesis if discretionary fiscal policy respond to price level, inflation is also incorporated into the model as followed:

$$FI = \alpha + \beta gap + \phi \Delta inflation + \delta FI_{t-1} + \varepsilon$$

Where,  $\Delta inflation$  is the first difference between 2 periods, an indicator that captures the change in inflation.

Following the finding that Vietnam's fiscal policy has been more countercyclical in recent years (Pham The Anh, 2013), a new variable is created to see whether the discretionary fiscal policy has been countercyclical or procyclical since 2008. A dummy variable was created, D2008, which takes the value of 1 for every year since 2008, 0 elsewhere. Multiplying this interaction variable with output gap (D2008\*gap), we have a proxy discretionary fiscal policy since 2008.

Likewise, to find out whether fiscal policy reacts differently to different phases of the cycle I created two interaction variables: RECESSION (1 for negative output gap; 0 otherwise) and BOOM (1 for positive output gap; 0 otherwise). RECESSION\*gap similarly takes only the negative values from output gap; while BOOM\*gap takes only the positive ones.

## 5. The evolution of fiscal policy in Vietnam

After the Vietnam War (1955-1975), the North and South Vietnam was united. The Socialist Republic of Vietnam was born in 1975 and followed a centrally planned economy since its inception. The economy under central planning and heavy subsidy system was not efficient, manifested in weak economic performance, large fiscal deficits and high inflation. To improve the economic system, by the end of 1986, the National Assembly of Vietnam passed a comprehensive set of legislations, in Vietnamese *chính sách Đổi Mới* (Doi Moi), to radically transform the command economy into a more open, market-oriented one.

### 5.1 Large fiscal deficits and high inflation before Doi Moi

Fiscal policy before Doi Moi could be described as expansionary for a number of reasons. First, the government budget under central planning acted as “planned distributor and a pool of fund for the state sector. All revenues, including companies’ profit, if any, were transferred to the budget; and all losses were financed by the budget through direct and indirect measures” (Tran and Pham, 2003:75). The characteristics of a centrally planned economy made the government budget expansionary as a consequence, since government had to use budget expenditure to cover massive loss for the inefficient state actors during this period.

Second, hardly any revenue from taxes and fees were collected before 1990 due to the economy’s poor performance and an incomplete tax system (Tran and Pham, 2003). The government’s revenue relied mainly on two sources: agricultural tax and state capital fees, whereas major tax categories such as corporate tax and income tax were non-existent before 1990. Third, even though revenue was limited, the demand for government spending was remarkably high to service Vietnam’s industrialization process after independence. This enormous gap between revenue and expenditure was largely offset by the aid from Soviet countries, allowing the Vietnamese government’s budget deficits to remain large for almost 15 years after independence.

Heavily relying on external funding, a sudden drop in capital flow from overseas in the 1980s triggered a major shock to the government’s fiscal position. The economic and political

polarization during the Cold War and the Vietnam’s position in this context made it difficult for Vietnam to borrow from the international creditors such as the IMF or ADB.<sup>13</sup> Under this circumstance, to keep the economy rolling, the government at the time had no choice but to increase the money supply to finance large budget deficits.

Between 1986 and 1990, on average 63 percent of the government’s budget deficit was financed by printing money. The result was, no surprisingly, very high rate of inflation. As Table 5.1 shows, inflation surged to 454 percent in 1986 and sustained above 300 percent level for two years. Inflation is always and everywhere a monetary phenomenon.<sup>14</sup> In case of triple-digit inflation, this is more likely a monetary event.

Table 5.1. Inflation (1985-1990)

Year	1985	1986	1987	1988	1989	1990
Inflation (% change, y-o-y)	92	454	360	374	96	36

Source: World Economic Outlook, IMF

By the late 1980s, the government realized that financing large fiscal deficits by rapidly expanding the money supply in a short time wasn’t a good idea since it brought about high and unexpected inflation. To put inflation under control, an appropriate response the Vietnam’s government took was to print less money. To finance a deficit without inflating the Vietnamese Dong further the government had no choice other than borrowing from or taxing the private sector; whereas borrowing from international institutions seemed to be impossible for Vietnam at that time, given all the conditions of “structural adjustments” by the IMF. This political and economic situation could likely to incentivize the central government to take action to reform the budget revenue to finance its spending.

<sup>13</sup> During this period, Vietnam was isolated regionally by the ASEAN and internationally by the UN and the US because of Vietnamese military occupation of Cambodia. The result was economic isolation until c.a 1995 (Freeman, 1993)

<sup>14</sup> Friedman, M. (1974): “Inflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output.”

In general, the budget's revenue before Doi Moi (1986) accounted for a small share of GDP, due to an incomplete tax system and primitive collection procedure. On the other hand, expenditure flows relied heavily on the Soviet aid. The sudden fall in external funding in the second half of the 1980s, therefore, encouraged the government to reform the domestic tax system, to control inflation and maintain price stability.

## 5.2 Tax reforms and high tax collection rate, 1990-2011

Indeed, since the early 1990s, the Vietnamese government took various actions to improve the tax system. The first phase of tax reform started at the beginning of the 1990s when the National Assembly passed important tax laws applying to various economic sectors and their components (Nguyen Van Phung, 2015). The modern tax system included important tax categories, such as Special Consumption Tax, Personal Income Tax, Corporate Income Tax. Fiscal decentralization further helped tax collection procedures become more efficient, withdrawing excessive money circulating within the private sector, at the same time improving the fiscal position of the central government. The four phases of tax reform are summarized in Table 5.2.

Table 5.2 Three phases of tax reforms in Vietnam (1990-2010)

	Time	Main developments
First phase	1990-1995	<ul style="list-style-type: none"> <li>• SCT and agricultural land use tax, housing and land tax, income tax on high earners, license tax, fees and charges were introduced in the first phase of tax reform.</li> <li>• Main tax pillars include profit tax and turnover tax.</li> </ul>
Second phase	1996-2005	<ul style="list-style-type: none"> <li>• Modern tax categories were introduced: VAT and CIT, while SCT was amended to include more goods and services.</li> <li>• Fiscal decentralization was implemented during this period. In particular, the first State Budget Law was approved in 1996 and later revised in 1998.</li> <li>• A new State Budget Law was approved in 2002, under which subnational governments (provinces, districts and</li> </ul>

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communes) are granted the rights to collect tax on behalf of the central government, make taxing more efficiently.<sup>15</sup>

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Third phase	2005-2010	<ul style="list-style-type: none"><li>• Revised VAT (2008) and SCT (2005, 2008). Opening tax base by reducing the numbers of goods and services which are VAT exempted, while expand the application of SCT to private yacht and jet.</li><li>• Import taxes were further reduced to meet the requirement of WTO. CIT and PIT were also reformed in 2007 and 2008.</li><li>• Other tax categories were also introduced, such as natural resource tax (2009), non-agricultural land use tax (2010), environment protection tax (2010).</li></ul>
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Sources: Nguyen Van Phung (2015), Nguyen and Anwar (2011)

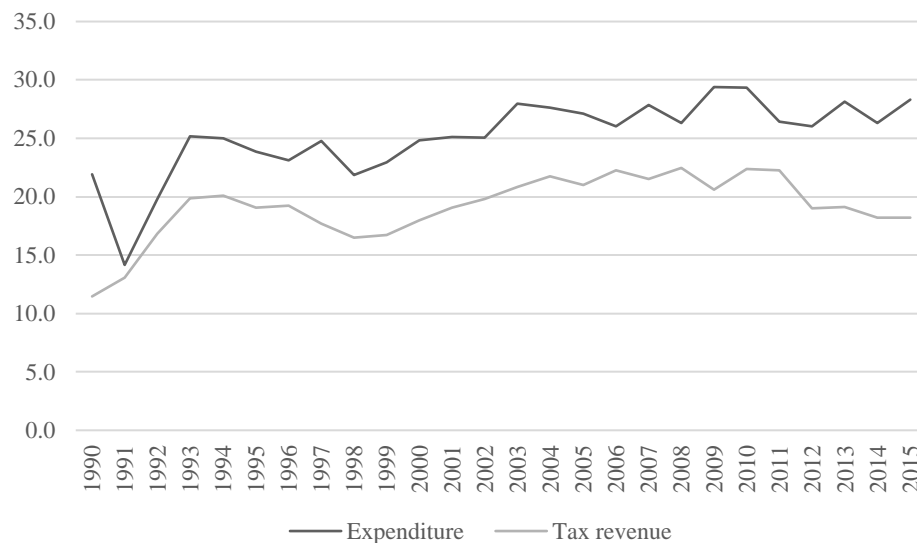
Note: VAT: value-added tax; SCT: special consumption tax; PIT: personal income tax; CIT: corporate income tax

As a result of the first stage of tax reform (1990-1995), revenue from taxes went up from 13 percent of GDP in 1991 to 19 percent in 1993 and stayed stable at this level until 1996. However, in response to the severe economic slowdown during 1998-2000 triggered by the regional financial crisis, the Vietnam government decisively implemented an expansionary fiscal policy through tax cuts and a generous package of fiscal stimulus (Tran and Pham, 2003:77-78). Specifically, tax revenue was cut down to 16 percent in 1998, while expenditure increased by almost two percentage point from 1996 to 1997. But overall, revenues from tax significantly improved from 1991 onwards, as shown in Figure 5.3.

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<sup>15</sup> However, little autonomy was granted when it comes to spending decisions. Understand the characteristics of local conditions, Vietnam's central government decided to take gradual and cautious steps toward fiscal decentralization. The rationale was to limit the possibilities of corruption at local government level, and this is the reason put forth by Nguyen and Anwar (2011) to explain why the impact of expenditure decentralization on growth is negative in Vietnam.

Figure 5.3 Expenditure vs Tax revenue (% of GDP)



Source: ADB

Note: expenditure is the government’s final expenditure, while tax revenue only includes revenue from taxes and fees.

During 2006-2010, total revenues and grants were quite stable at a high level, around 30 percent of GDP on average. Remarkably, a proportion of revenue from crude oil in total budget revenue was decreasing gradually, from 6.9 percent in 2007 to 3.1 percent of GDP in 2011 (Pham The Anh, 2013). Before 2009, government’s revenues from taxes and fees showed no signs of declining. State budget final accounts in 2010 demonstrated that such rate remains at 22.3 percent level, but from 2012 onwards, tax revenues were significantly reduced to stimulate the domestic economy, stood at 19 percent 2013 and 18 percent in 2015.

On the expenditure side, the government budget expenditure was separated (but not completely) from state corporate finance, and a hard budget constraint was introduced whereby state companies had to be accountable for their business, being responsible for their profits and losses (Tran and Pham, 2003:76). The government gradually reduced and eventually eliminated subsidies to SOEs, thus substantially reducing current expenditure and financing from the state budget to cover losses of these enterprises. However, the result of this reform during this period was limited: the government expenditure as a share of GDP consistently rising. During 1990-1993, spending averaged 18.6 percent. This figure reached 25 percent in 1993 and remained broadly constant at



this level until 1997. Besides, to respond to the adverse effect of the Great Recession, government expenditure was increased by almost 2 percent of GDP.

### 5.3 Fiscal policy in response to the Global Economic Downturn in 2009

In 2009, in order to respond to the global economic downturn accompanied with a number of pressures onto the domestic economy, the government of Vietnam implemented various measures to prop up aggregate demand, i.e., interest subsidy for small and medium businesses, public investment, tax exemption, and social welfare programmes. This stimulus package (almost 10 percent of GDP) was divided into two parts, the first part was approved and implemented in the early 2009, and the second one is the extension of the first package, began from the last quarter of 2009. In essence, the second stimulus package was introduced to link short and medium term economic goals, ensuring the economy continue its recovery path out of the recession, at the same time stabilizing macroeconomic volatility and secure social welfares in the last months of 2009 and early months of 2010.

Table 5.4 Vietnam's Fiscal stimulus measures

No.	Policy measures	Size
1	Interest subsidy 4%	VND 17000 billion
2	State Development investment	VND 90800 billion
3	Tax holiday and exemption	VND 28000 billion
4	Other spending for social security and economic downturn prevention	VND 9800 billion
Total		VND 145600 billion (USD 8 billion)

Source: Government's report to the National Assembly (2008)

According to the General Statistics Office (2009), Vietnam had recovered from the global economic recession much better than other countries in the region. In particular, GDP increased by 5.3 percent in 2009, of which growth for the last quarter reached almost 6.9 percent. Inflation declined from 23 percent in 2008 to 6.5 percent in 2009. In the first quarter of 2010, Vietnamese economy continued to show positive signs of recovery with the growth of gross domestic income reached 5.8 percent, almost twice as much as growth in the first quarter of 2009. GDP growth for second quarter increased by 6.2 percent, lifting growth for the first 6 months of 2010 to 6.1 percent level compared to the previous year. Overall Vietnam has escaped from the global economic downturn relatively well.

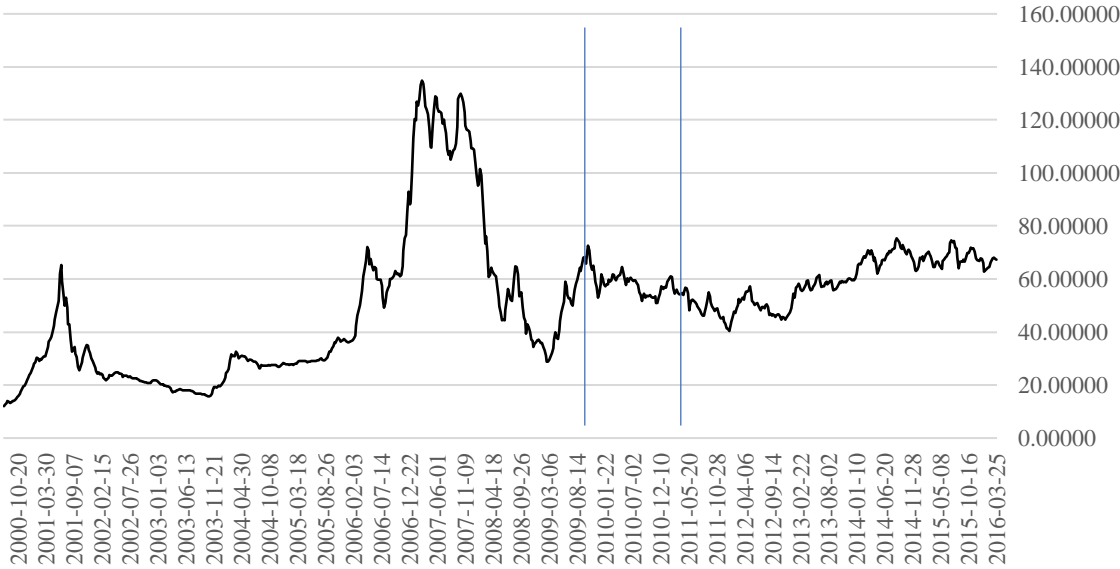
Apart from its role in recovering the economy from recession, it is important to note some problems with this large stimulus program. In terms of policy goals, the main target group for the interest subsidy program is small and medium enterprises (SMEs) who need to raise capital and expand business activities. But evidence from research shows that commercial banks might be benefited from this package the most (Vo, 2010).

According to report from State Bank of Vietnam, by the end of 2009, only 20 percent of SMEs received the subsidy from this package (Vo, 2010). Over 51 percent of small and medium enterprises operating in Danang city said in a survey that they did not have any access to the interest subsidy program, and nearly 30 percent of 400 enterprises surveyed said they were negatively affected by the government's fiscal stimulus package in 2009 (Vo et al., 2009). The reason is that small and medium enterprises, especially small ones find it difficult to access relevant information about this package and to meet requirements for loan. To get 4 percent support from the government for their loans, businesses must register profit for the past 2 years, no overdue debt and no tax arrears.

On the other hand, in 2009, although the Vietnamese economy was still experiencing a lot difficulties, the commercial joint stock banks listed on the Vietnamese stock index (HASTC; HOSE) posted very high profit, up to several trillion VND (Vo, 2010). This may implies that the capital flow from the stimulus package could be driven into speculation.

Actual market developments in Vietnam’s stock market in 2009 and the first 7 months of 2010 also proved this. Vietnam stock market in 2009 grew spectacularly, with an average increase of the whole year about 40 percent as shown in Figure 5.5. From the beginning of 2010 until the mid-2010, despite the Vietnamese economy has shown signs of positive growth, stock market was quite quiet. In August 2010, the composite stock price index dropped deep, almost 10 percent from previous month high. One of the causes of this development might be that, as the first stimulus package ended, cash flow into the stock market plummeted as a result.

Figure 5.5 Composite Stock Price Index  
(weekly average, first week of January 2007=100, local index)



Source: ADB

#### 5.4 Tax cuts, 2011-2015

Since 2011, to revive the economy and push spending among business communities the Vietnamese government reduced its budget revenue significantly via the implementation of various tax reduction and tax deferral schemes, especially for small and medium enterprises (SMEs). Slower economic growth in 2012 (5.2 percent; compared to 6.2 percent in 2011) allowed the government to extend its support to SMEs through a series of expansionary measures. In Vietnam, SMEs are regarded as the most important economic sector, contributing about 47 percent of GDP and 40 percent of the State Budget, and accounting for 97 percent of over half a million registered

businesses in Vietnam (Nguyen and Sea, 2013). The revenue cut was therefore meant to be an expansionary fiscal policy measure in the short term, revitalizing demand within the domestic sectors.

Specifically, the Vietnam's National Assembly passed Resolution 29 granting various tax reliefs, including 30 percent Corporate Income Tax (CIT) reduction in 2012 to eligible SMEs (including cooperatives) and labour intensive enterprises (those use a large number of laborers in the areas of production, processing of agricultural, forestry and fishery products, footwear and electronic components, textiles and garments, and construction of socioeconomic infrastructures). CIT rate continued to be lowered in 2013 (25 percent) and 2014 (22 percent) (News, 2017). Moreover, a number of tax deferral schemes were introduced, which included: a 9-month deferral of pre-2010 CIT payments until October 2012, a deferral of 2011 CIT payment to January 2013, a nine-month deferral of the VAT liability of June 2012, a six-month deferral for the VAT liability of April and May 2012 (Nguyen and Sea, 2013). In addition to the tax cuts granted to SMEs, the Resolution 29 also giving exemptions to individuals through legislative changes in Personal Income Tax (PIT). A tax-free threshold was applied uniformly at USD 220 for the personal and business income, instead of being taxed at a flat rate of 5 percent, applied for only six months from July to December 2012; dividends and investment income were also not subjected to PIT in 2012 (ibid).

When these tax cuts were implemented, they received positive feedbacks from the people and business community, for their readiness in response to the economic situation at that time. Not only these measures removed difficulties for enterprises in an environment of high inflation, but they also helped companies to reduce the capital stress, improved production efficiency, and competitiveness of businesses. In essence, these tax reductions were countercyclical discretionary fiscal policy, because it made budget revenue components expansionary during a recession, and only lasted for a short time.

This chapter has discussed the fact that fiscal policy in Vietnam has experienced significant developments both on revenue and expenditure side of the budget after Doi Moi. This reflects an active use of fiscal policy, through adjustments in spending and tax in responses to the changes in the economic environment. Before 1990, under a centrally planned system, expenditure was high, but little revenue was collected due to weak economic performance and a primitive tax system. This gap was largely offset by the Soviet aid until the mid-1980s. After 1990, on the revenue side, the improvements in tax system helped the government to accomplish and maintain a modern and efficient tax system, serving as an inflation-curbing tool, at the same time providing more space for the central government to increase its spending from 1990 onwards. On the expenditure side, indeed, the refinement of taxation secured the government's position on expansionary discretionary fiscal policy throughout the years, incentivized the government to increase spending without fear of high inflation and macroeconomic volatility. In 2009, the government implemented a large fiscal stimulus to revive the economy in the context of the recession. Though in 2010 the economy seemed to recover, from 2011 to 2015, difficulties arose again, required the government to take action to further reduce taxes for individuals and businesses in the short run.

## 6. Analysis of the study

The purpose of this section is to find out the historical responses of discretionary fiscal policy to business cycle through an *ex-post* empirical analysis of macroeconomic and fiscal factors in Vietnam from 1990 to 2015. The dynamics of output and inflation will be discussed in depth, while various indicators are compiled and presented here to give the readers a comprehensive overview of the economic situation in Vietnam during this timeframe. After the analysis of macroeconomic conditions, the rest of this chapter is devoted to find out the stabilization characteristic of discretionary fiscal policy over cycles and price level through graphical and regression analysis.

### 6.1 Economic growth & business cycles

During 1990-2015, Vietnam witnessed high but unsteady economic growth. Annual growth rate of GDP over the past 15 years averaged 6.8 percent. Specifically, from 1990 to 1997, Vietnam experienced very high and impressive economic growth. Economic growth reached 9.5 percent in 1995, while average growth for 1990-1997 stood at 8.0 percent. After the 1997 Asian financial crisis, Vietnamese economic growth decelerated substantially, dropped to 5.8 percent in 1998 and 4.8 percent in 1999. On average, growth from 1998 to 2002 only stood at 6.0 percent.

From this point onwards, although the economy showed several signs of recovery since 2003 and surged to 7.5 percent in 2005 and remained above 7.0 percent until 2007, the adverse effects of the Global Economic Downturn lowered Vietnamese growth rate to 5.7 percent in 2008, then 5.4 percent in 2009. Since then, growth fluctuated at 5.8 percent during the period 2008-2015. Table 6.1 summarizes the economic performance of Vietnam over the period 1990-2015. Figure 6.2 further shows the growth performance with a 4-year moving average.

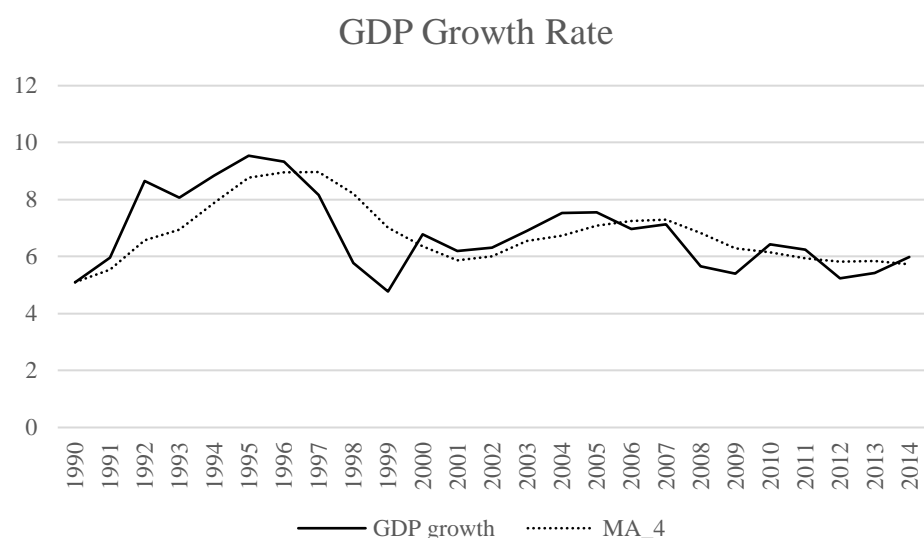
Table 6.1 GDP growth rate (%), 1992-1997, 4 phases of 2 cycles

Year	1990-1997	1998-2002	2003-2007	2008-2015
GDP growth	8.0	6.0	7.2	5.8

Source: World Bank; own calculations.

Note: 2 economic cycles can be “guesstimated” as shown above.

Figure 6.2 GDP growth rate (% , annual), 1990 – 2014.

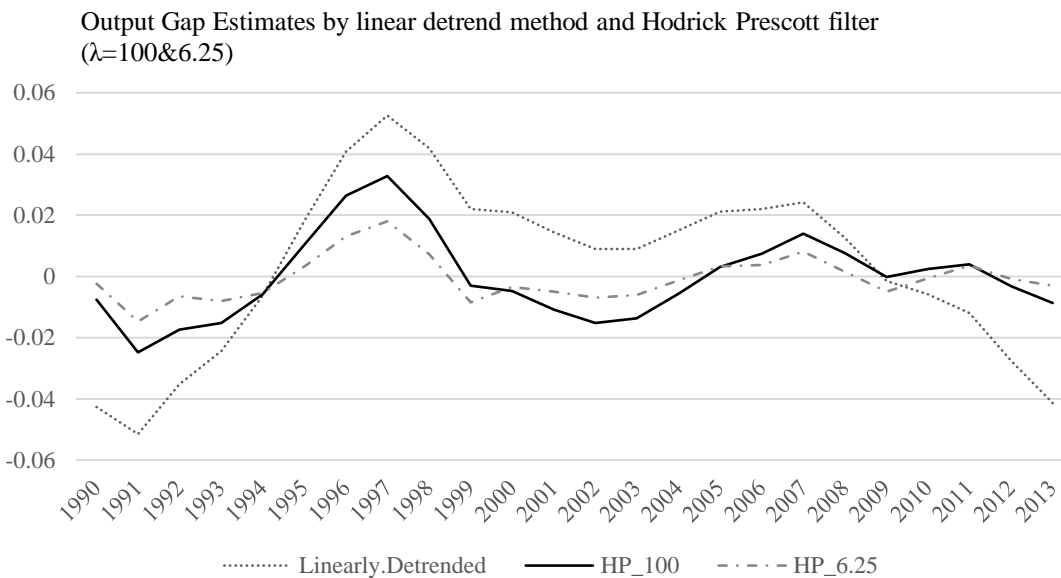


Source: World Bank

The 4-year moving average of GDP growth rate supports the “hypothetical” cycles proposed in Table 6.1. The Simple Moving Average is also one way to smooth out the trend (the action) by filtering out the noise from random fluctuations, by averaging our values over 4-year period with equal weight for each value. Two recessions can be identified as 1998-2002 and 2008-2015. Two booms occur in 1990-1997 and 2003-2007. However, GDP growth as an indicator for output fluctuations cannot quantify the deviation of real output from its trend.<sup>16</sup> Figure 6.3, thus, presents the estimates for output gap.

<sup>16</sup> Two techniques have been used to compute output gap, i.e., time linear detrending and HP-filter. In the case of HP-filter, I adjusted the smoothing parameter to be 100 and 6.25. The results obtained from smoothing parameter 400 are not presented here due to its lack of precision (after compared to the estimates of output gap for Vietnam in Nguyen et al., (2013) and Maliszewski (2010)).

Figure 6.3 Output Gap Estimates by linear detrend method and Hodrick-Prescott filter



Note: Values are expressed in logarithm.

Figure 6.3 illustrates estimates of the output gap obtained with three approaches, and the linearly detrended series seems to provide the most distinctive estimation. Moreover, it seems to ignore small fluctuations in the output gap, i.e., 1999-2004. The correlation between linearly detrended series and HP-filtered series ( $\lambda=100$ ) is indeed 0.65, and 0.49 in the case of HP-filter ( $\lambda=6.25$ ). Using HP-filter ( $\lambda=6.25$ ), the cycles become less pronounced as anticipated. The estimates from two HP-filter smoothing parameters are strongly correlated, with  $r=0.95$ . When correlating these estimates of output gap with economic growth, HP-filter ( $\lambda=100$ ) series generates the strongest correlation ( $r=-0.42$ ), compared to HP-filter ( $\lambda=6.25$ ) ( $r=-0.38$ ) and linear detrending method ( $r=-0.1$ ).

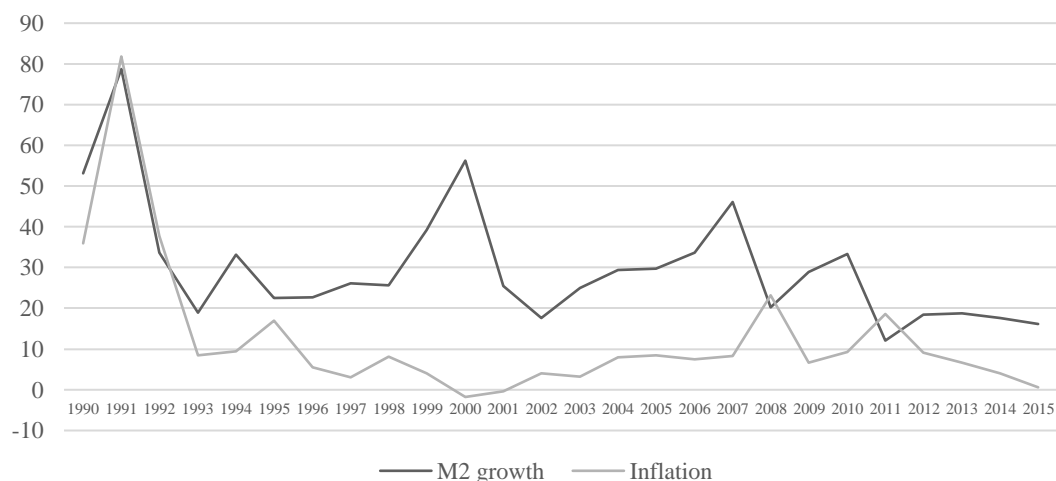
In practice, a macroanalyst should be cautious about setting a suitable smoothing parameter, as inappropriate smoothing parameters could ignore real cycles ( $\lambda$  too low) or produce artificial cycles ( $\lambda$  too high). An inaccurate judgment of the output gap may result in a wrong application of fiscal policy, for instance, being expansive when there is no concrete evidence of a negative output gap, or being contractive when booms are only artificial and short-lived. Good estimates for output gap, hence, would contain an analysis of qualitative sources and establish some stylized facts about the long-term growth dynamics and potential structural changes in the time series.



## 6.2 Inflation and the deficits

In general, inflation in Vietnam was unsustainably high during 1990-2015. For instance, inflation reached 23.1 percent in 2008 from the previous year of 8.3 percent. In 2012, inflation rose to 18.7 percent from prior year of 9.2 percent. After 2011, inflation gradually declined, stood at 0.6 percent in 2015. We also note that the economy was experienced deflation during 1999 and 2000 (-1.7 percent and -0.4 percent, respectively).

Figure 6.4 M2 growth (y-o-y percentage change) and inflation (y-o-y percentage change).



Source: ADB

Note: nominal M2 values are deflated to obtain real M2 price before calculating M2 growth rate.

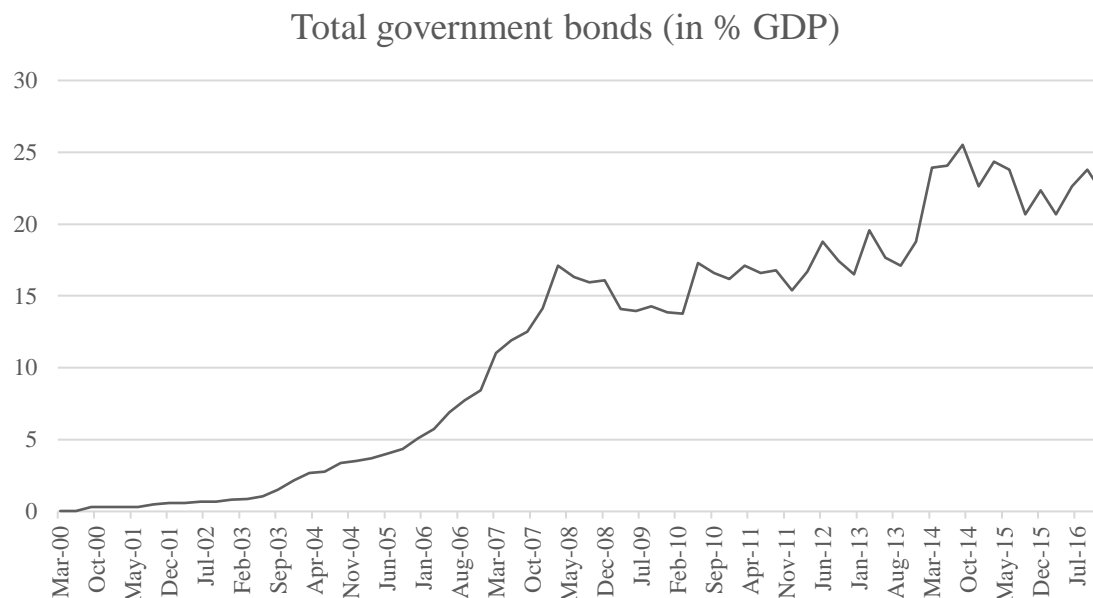
The most common way to finance a budget deficit and create inflation is through expanding the money supply. Figure 6.4 shows that government increased the money supply M2 rapidly during recessions (1998-2000), while inflation seemed to appear out of nowhere after few years. M2 growth reached 56 percent in 2000, but price level remained very low at -2 percent, though slowly rising to 8 percent by 2004. M2 growth reached 46 percent in 2007, but inflation was still stable, stayed at 8.3 percent. Inflation peaked in 2008 at 23 percent, one year after a sudden growth in M2 to 46 percent level, from the previous year at 33.5 percent.

An identical series of event happened in 2010 and 2011. M2 growth surged by 33 percent in 2010, and in 2011 inflation rose by over 18 percent. The budget deficit was also high in 2009 (-4.2 percent) and 2010 (-2.1 percent). Recent developments, however, show that, though budget deficit was increasingly expansive from 2012 to 2015 (totaled -17.4 percent), inflation was declining gradually from 9.1 percent in 2012 to 0.63 percent in 2015, lowest since 2001. With M2 on average grew by only 17 percent during 2012-2015, the lowest level for the past 15 years, this indicates that government found alternative ways to finance its budget deficits.

An alternative way to finance a budget deficit is by issuing new bonds. Pham The Anh (2013) argues that in Vietnam, government's spending financed by issuing bonds could indirectly cause inflation. In practice, government bonds issued by the State Treasury are not directly sold to the State Bank of Vietnam, but the commercial banks can bid for these newly issued bonds. Commercial banks take a portion of these bonds and use it as collateral to borrow from the State Bank and get cash in return through open market operation or repo discount window. In the end, this operation could indirectly increase the money base, resulting in high inflation, according to the findings in Pham The Anh (2013).

To extend this argument, Figure 6.5 shows the size of government bonds market from 2000 to mid-2016. Government bonds market in Vietnam was almost non-existent in Vietnam before 2003 but increased substantially onwards. By the last quarter of 2002, total market size was only 2 percent of GDP, rapidly plunged to 16 percent by the first quarter of 2007. In 2014, the total size of bonds market reached 25 percent of GDP. This development in bonds market could somehow justify high inflation in 2008, but could not possibly explain the surge in 2011.

Figure 6.5 Size of government bonds market (% GDP)



Source: ADB

For the other explanation, as Thien and Hoi (2016) argue, fiscal policy in Vietnam causes inflation through the channel of unproductive public investment. Before the Great Recession 2008-09, Vietnam was already in a possibility of falling into a mini-crisis of itself when signals of overheated growth in 2007 (growth reached 7.5 percent). M2 growth also peaked in that year at 46 percent, and FDI made a historical record at over 71 billion USD (Thien and Hoi, 2016). “Under that context, pouring more money into investment would not be able to translate into additional output. Thus the government expanding expenditure only pushed demand for goods, price going up was unavoidable” (ibid).

The authors further maintain that budget deficit occurring in many consecutive years is a signal of “potentially long-run instability of the economy” and for that reason they proposed a set of rules to institutionalize countercyclical fiscal policy in Vietnam as presented in Table 6.3.

Table 6.3. Proposed rule of budget balance management

GDP growth	> 7 %	≥6.5 % & <7 %	<6.5 %
Budget balance	Minimum surplus of 0.5 % GDP	Surplus or balanced	Deficit not exceeding 3 % GDP

Source: Thien and Hoi (2016)

This proposed rule is not applicable in the case of Vietnam for several reasons. First of all, for a developing country, running large deficits is very important to sustain growth if inflation is under control. There's no need to restrain the budget balance based on the rate of GDP growth. Assume next year growth increases to 8 percent, but price level reduces to -1 percent. In this case, should the government target a budget surplus of 0.5 percent as proposed in Table 6.3? Probably not, for this is the change in the real level of output, and money becomes even more expensive. Rising GDP growth accompanied by low and stable inflation, in this case, reflect new growth dynamics being established due to a number of global and domestic factors. The global factors may include new trade deals, rising demand abroad, surging oil price. The internal factor could be that government has modified existing laws to incentivize entrepreneurship and technology across major industries and sectors, underpin competition between domestic and international products.

Moreover, in the case where a country gets struck by a severe economic crisis, a hard constraint for deficit not exceeding 3 percent of GDP could be a barrier to an economic recovery. In general, a good budget management rule should also take into account the change in general price level, in other words, inflation rate.

Table 6.4 Planned deficit (% of GDP), and actual deficit (% of GDP), inflation (annual change, %)

Fiscal Year (FY)	Planned deficit	Actual deficit	Inflation
2006	-5.0	1.2	7.5
2007	-5.0	-0.9	8.3
2008	-5.0	0.6	23.1
2009	-4.8	-4.2	6.7
2010	-6.2	-2.1	9.2

2011	-5.3	-0.5	18.6
2012	-4.8	-3.4	9.1
2013	-4.8	-5.0	6.6
2014	-5.3	-4.4	4.1
2015	-5.0	-4.6	0.6

Sources: The Government Office's portal (chinhphu.vn) and IMF's WEO (inflation data)

Table 6.4 makes it evident that the Vietnam's government has each and every year set the target level for budget deficit constraint of around 5.0 percent of GDP since FY2006 (data before this point are not available). The change in planned deficit measures the government's intention to use fiscal policy in the following year. Assume that policymakers cannot predict the actual level of budget deficit next year and the plan is not subjected to fiscal sustainability issue, any increase or decrease in the planned deficit would reflect the additional amount of fiscal effort the government willing to add into the economy through discretionary measures. Based on this assumption, following observations can be made about the deficits in the case of Vietnam.

First, there's a large discrepancy between the planned and the actual deficit. For instance, planned deficit during FY2006-FY2008 was consistently at -5 percent level, implying the intention for a neutral fiscal policy stance (neither expansionary nor contractionary). However, the actual budget deficit was not constant as planned. Moreover, when the economy slowed down in 2008-2009, the planned deficit for FY2010 reached -6.2 percent, implied the intention from the authorities to stimulate aggregate demand with the state budget. Although the intention was expansionary, the actual deficit in FY2010 was contractionary compared to FY2009, declined by -2.1 percent. This observation is disturbing: why did the central government reduce fiscal effort against the plan when the economy slowed down as such in 2009?

This unresolved question may take us to the second finding. The plan for budget deficit seemed to be adjusted to control inflation. In particular, even though in 2008 growth dropped to 5.7 percent, the projected deficit was contractionary compared to last year (by a net change of 0.2 percent). This is very likely because inflation peaked to 23 percent in 2008. This pattern repeated in 2011

when inflation rose to 19 percent, the government promptly cut back the planned deficit for FY2012 to -4.8 percent, a fall of 0.5 percentage point compared to previous year's plan. The change in proposed budget could therefore possibly reflect the intention of the government to curb high inflation, and since discretionary fiscal policy measures this intention ex-post, fiscal impulse as the change in discretionary fiscal balance is very likely to respond to the immediate change in inflation.

To test this hypothesis, inflation as an indicator of price level is included in the regression model to see if the government has deliberately used fiscal policy to control inflation, apart from its traditional role as output fluctuations stabilizers. The next section set out to empirically examine the relationship between discretionary fiscal policy, business cycle and price volatility in Vietnam.

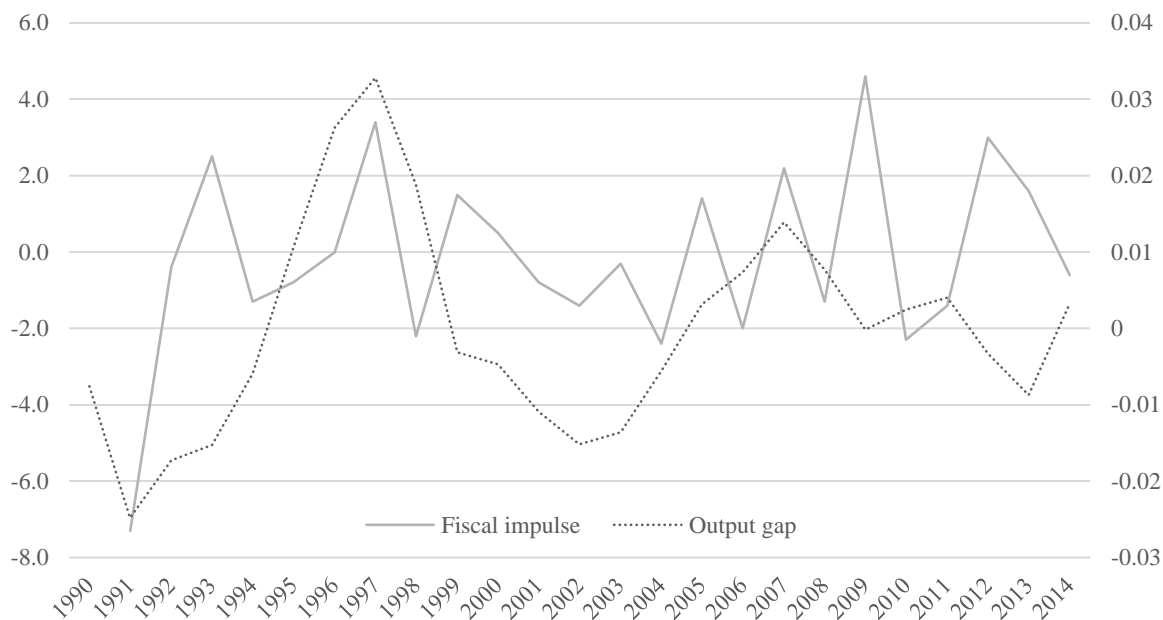
### 6.3 Cyclicalities of discretionary fiscal policy in Vietnam

Changes in CAB can quantify the expected impact of discretionary fiscal policy on the economy. The actual impact, of course, depends on the fiscal multiplier and various factors. Fiscal impulse by construction captures these changes in CAB to a benchmark, and in our case, the point of reference is the previous year. A positive (or negative) value of fiscal impulse implies an expansionary (contractionary) discretionary fiscal policy. Through the analysis, fiscal impulse is expressed as the percentage of potential GDP, a "natural" scaling variable, as suggested by Fedelino et al. (2009).

#### 6.3.1 Graphical analysis

From a graphical depiction of fiscal impulse over output gap, we can roughly estimate the cyclicalities of discretionary fiscal policy in Vietnam in the study periods. A discretionary fiscal policy is countercyclical if fiscal impulse shows an upward trend accompanied with a recession (negative output gap). In other words, countercyclicalities occur when fiscal impulse moves in the opposite direction with output gap. On the other hand, procyclicalities happen when fiscal impulse moves in the same direction with the measures of the output gap. In this light, Figure 6.5 shows the cyclicalities of discretionary fiscal policy in Vietnam by putting these elements into one chart.

Figure 6.5 Output gap and Fiscal impulse (as percentage of potential GDP).



Note: Output gap is calculated with HP\_100.

The chart above illustrates the year-over-year change in discretionary fiscal policy stance over the fluctuations in output level. The movement of fiscal impulse over business cycles shows a pattern of procyclicality over time. For instance, for the period from 1990 to 1994, fiscal impulse was -1.46 percent on average, implying fiscal impulse during this period was contractionary, whereas the output gap remained negative. From 1995 to 1998, real GDP rose above potential GDP, creating a positive output gap. Moreover, the pattern of procyclicality was very clear in 4 years from 1995 to 1998, as fiscal impulse seems to move in the same direction with output gap. In particular, fiscal impulse was expansionary in 1997, reached 3.4 percent at the peak of the output cycle. In 1998, when the output gap was closing, fiscal impulse also dropped to -2.2 percent. In general, before 1998, fiscal impulse was procyclical, except for 1994.

During 1999 – 2004, the economy operated under potential level, indicated by a negative output gap. Fiscal impulse was contractionary overall, averaged at -0.5 percent during this period. After this point, Vietnam began to speed up since 2005, and by 2007 the economy began to produce beyond its potential level. Even though a positive output gap widened, a fiscal contribution of 2.2

percent added to aggregate demand. When the economy fell into crisis due to the global economic downturn 2007-8, fiscal policy stance contracted by 1.3 percent in 2008, compared to 2007.

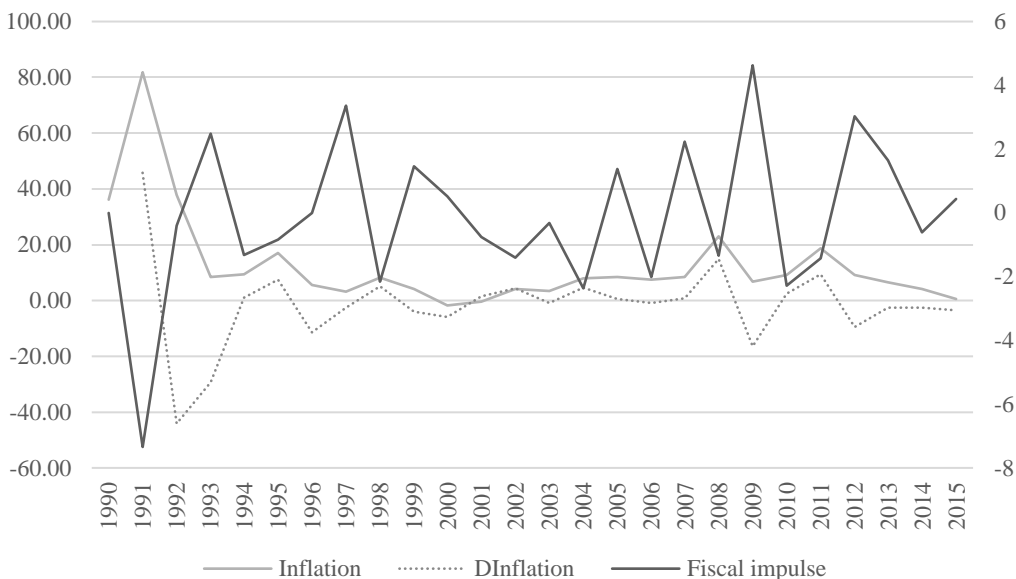
There have also been periods when Vietnamese discretionary fiscal policy was countercyclical, moving in the opposite position with output gap. For instance, a discretionary measure was taken in 1999, adding 1.5 percent to the domestic demand. In retrospect, by 1998 growth at this point already tumbled to 4.8 percent, almost half of the rate from the peak in 1997. In 1999, growth recovered somehow, increased to 5.8 percent, but the economy was still stuck under its potential level, indicated by a negative output gap. The discretionary fiscal policy measure taken in 1999 can, therefore, be characterized as countercyclical.

Discretionary fiscal policy's countercyclicality seemed to be most profound since 2008. In particular, in 2009 when facing a sudden shock in domestic demand, fiscal impulse reached 4.6 percent, largest change since 1990. This fiscal stimulus was necessary in the situation where the level of output all around the world retreated substantially. From 2012 to 2014, a clearer pattern of countercyclicality exhibits. When the economy was at the trough of the output cycle, fiscal impulse was ever more expansionary, adding in total 4.0 percent of effective demand from 2012 to 2014.

Overall graphical analysis has shown that Vietnam's active fiscal policy underwent a procyclical conduct in the past but turned to be more countercyclical during the aftermath of the Great Recession 2008-09. Figure 6.6 further shows the conduct of discretionary fiscal policy over price level. This chart reveals that fiscal impulse tended to move in the opposite direction with inflation, especially with inflation, although this finding is not conclusive due to the lack of evidence. For that reason, we also test the hypothesis if fiscal policy responded to the change in inflation in our regression models.



Figure 6.6 Fiscal impulse and Inflation



Note: DInflation:  $\Delta$ inflation, first difference between 2 periods.

### 6.3.2 Regression analysis

Table 6.7 Cyclicalities of discretionary fiscal policy (HP\_100). Explained variable: Fiscal impulse

Explanatory Variables	Model				
	(I)	(II)	(III)	(IV)	(V)
gap (HP_100)	0.34*	0.29*	0.33*		
	(1.79)	(1.91)	(2.31)		
lagged_variable	-0.32	-0.04	-0.05	-0.10	0.01
	(-1.61)	(-0.25)	(-0.32)	(-0.62)	(0.06)
$\Delta$ inflation		-0.68***	-0.55***	-0.64***	-0.71***
		(-3.71)	(-3.11)	(-3.58)	(-3.69)
D2008*gap			-1.02**		
			(-2.13)		
RECESSION*gap				0.74**	
				(2.46)	
BOOM*gap					0.26
					(1.07)
Adjusted R <sup>2</sup>	0.11	0.43	0.52	0.49	0.37

Notes: t-statistics in parenthesis. \*\*\*  $p < 1\%$ ; \*\*  $p < 5\%$ ; \*  $p < 10\%$ . Output gap is estimated with Hodrick-Prescott Filter, smoothing parameter 100.

Table 6.7 presents the results from regression analysis of the cyclical nature of discretionary fiscal policy in Vietnam during 1990-2015. The two main hypotheses are tested: (1) discretionary fiscal policy responded to the change in output procyclically, and (2) price level has an effect on the conduct of discretionary fiscal policy.

Model (I) shows that fiscal impulse is positively correlated with output gap, though the relationship is not strong and tends to vanish when other measures of output gap being used as shown in table 6.8 and table 6.9. The positive value of output gap's coefficient suggests procyclicality of fiscal impulse over whole the period 1990-2015.

While fluctuations in output have a procyclical impact on fiscal impulse, model (II) suggests inflation is even a better indicator of the changes in fiscal stance. In particular, results from this model show that fiscal impulse is negatively correlated with inflation (statistically significant at 1 percent). This evidence implies, when inflation surges, fiscal impulse in the following year tends to be contractionary, whereas in the case when inflation declines, fiscal impulse tends to be more expansionary. Changes in output gap and inflation together can explain 43 percent of the variance in fiscal impulse measured as the change in cyclically adjusted balance from one year to another. In all specifications containing the proxy for inflation, the relationship between fiscal impulse and inflation is statistically significant at 1 percent level, which indicates a strong impact of inflation on fiscal impulse over time.

Another hypothesis, which is tested in Table 6.7, is that the government reversed its course of discretionary fiscal policy after 2008. This hypothesis was motivated by three findings: (1) many developing countries have graduated from procyclicality (Frank et al. 2013); (2) Vietnam is among those countries who have pursued more countercyclical fiscal policy recently (Pham The Anh, 2013; Thien and Hoi, 2016); and (3) evidence from historical and graphical analysis suggested that this reversal trend occurred since 2008. To test this hypothesis, I added an interaction variable

D2008 to the model, which take a dummy of 1 for every year since 2008. Model (III) in Table 4 shows that after 2008 Vietnam's government has pursued more countercyclical fiscal policy. This regression, which includes inflation, trend, output gap, and lagged fiscal impulse, has the highest explanatory power among all five specifications, explaining 52 percent of the variation in fiscal impulse.

The next two regressions try to find whether fiscal policy responded differently to different phases of the cycle. To test these hypotheses, I created an interaction variable, RECESSION, which takes a value 1 for a negative value of output gap and 0 elsewhere. Then I multiply the variable *gap* with this dummy variable to create a new indicator for recessions as shown in Table 6.7. The procedure is the same to create an index for periods of booms. Results from model (IV) show that when the output gap is negative, discretionary fiscal policy tends to be more procyclical (statistically significant at 5 percent level). The effect is stronger with HP\_6.25 (Table 6.9; p-value < 0.01), while remaining the same with linear detrended estimates of the output gap (Table 6.8; p-value < 0.05). In booms, fiscal impulse remains procyclical, but statistically insignificant across all specifications.

Table 6.8. Cyclicity of discretionary fiscal policy (method = linearly detrend)

Explanatory Variables	Model				
	(I)	(II)	(III)	(IV)	(V)
gap (linearly.dentrended)	0.26 (1.27)	0.29* (1.91)	0.33** (2.21)		
lagged_variable	-0.30 (-1.45)	-0.02 (-0.11)	-0.02 (-0.13)	-0.02 (-0.11)	0.00 (0.00)
$\Delta$ inflation		-0.73*** (-4.04)	-0.63*** (-3.50)	-0.75*** (-4.22)	-0.71*** (-3.73)
D2008*gap			-1.02** (-2.13)		
RECESSION*gap				0.58** (2.19)	
BOOM*gap					0.38 (1.24)

Adjusted R <sup>2</sup>	0.04	0.44	0.51	0.46	0.38
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Notes: t-statistics in parenthesis. \*\*\* p < 1%; \*\* p < 5 %; \* p < 10 %. Output gap is estimated as residuals of the linear time trend of real GDP.

Table 6.9. Cyclicalities of discretionary fiscal policy (HP\_6.25)

Explanatory Variables	Model				
	(I)	(II)	(III)	(IV)	(V)
gap (HP_6.25)	0.24 (1.21)	0.34* (2.27)	0.30* (1.89)		
lagged_variable	-0.31 (-1.51)	-0.04 (-0.25)	-0.01 (-0.05)	-0.03 (-0.25)	-0.00 (-0.00)
Δinflation		-0.77*** (-4.32)	-0.79*** (-4.33)	-0.91*** (-5.79)	-0.71*** (-3.66)
D2008*gap			0.42 (0.76)		
RECESSION*gap				1.04*** (4.04)	
BOOM*gap					0.19 (0.81)
Adjusted R <sup>2</sup>	0.04	0.47	0.46	0.63	0.36

\*\*\* p < 1%; \*\* p < 5 %; \* p < 10 %. Output gap is estimated by Hodrick-Prescott Filter, with smoothing parameter 6.25

An ex-post analysis of Vietnam's discretionary fiscal policy over business cycles has shown that Vietnam experienced high economic growth over the past 15 years. From 1990 to 2015, the Vietnamese has underwent two output cycles: the first cycle began since 1990 to circa 2002 (trough to trough), and the second cycle from 2003 to 2015 (trough to trough). Even though inflation throughout this period was much lower than that before 1990, it remained highly unpredictable. Researches in this area show that inflation was likely caused by two channels: growth in money supply (M2) and government bonds. There's also a weak evidence implying that the Vietnamese government has intended to use the (planned) budget deficit as a tool to curb inflation. This finding

motivated the author to include inflation in the regression analysis of discretionary fiscal policy's cyclicalities over business cycles.

In light of this idea, our evidence shows that fiscal impulse as a proxy for discretionary fiscal policy follows a procyclical trend, although the relationship is not strong, and this trend reversed since 2008. The results also suggest that discretionary fiscal policy is more procyclical during downturns than in upturns. Finding from regression analysis further demonstrates that discretionary fiscal policy tends to stabilize inflation: contractionary when price level surges and expansionary when price level declines.

## 6. Summary of findings

Theoretical and empirical considerations suggest that discretionary fiscal policy by the government has a substantial impact on economic activity in the short run. Legislators can deliberately use the government budget, i.e. revenue and expenditure, to adjust other macroeconomic variables in the economy, or can also rely on the work of automatic stabilizers, if stabilization is the primary concern.

Based on cross-country data, literature finds that fiscal policy is often procyclical in developing countries. Vietnam as a low-middle income country has witnessed high economic growth thanks to Doi Moi policies, but strong growth also came along with unexpected inflation. Research on Vietnam found procyclical fiscal conduct over business cycles, but the findings are inconclusive, and no attempts are made to see why fiscal policy respond in such a way. To close this gap in the literature this research asked the question of procyclicality again and went one step further to include inflation in the model and netted out the effect of automatic stabilizers from fiscal policy using the IMF approach to compute the cyclically adjusted balance. To estimate the output gap linear detrending and Hodrick-Prescott filter with two suggested values for smoothing parameters (100 and 6.25) have been used throughout the analysis. Once estimates of fiscal impulse and output gap were obtained, our regression analysis was performed with fiscal impulse as a dependent variable; inflation and output gap as regressors, while further controlled for structural change in time and different phases of business cycles.

Findings show that the cyclical characteristic of discretionary fiscal policy in Vietnam is similar to that of many developing countries, which is procyclicality. Evidence shows that fiscal impulse as a proxy for discretionary fiscal policy follows a procyclical trend, although the relationship is not strong, and this trend tends to reverse after 2008. The results also suggest that discretionary fiscal policy is more procyclical during recessions than in booms. The evidence further demonstrates that discretionary fiscal policy tends to stabilize inflation: contractionary when price level surges and expansionary when price level declines.

## Conclusion

For a developing country, the conduct of active fiscal policy faces many challenges. The first set of uncertainties consists of exogenous factors: regional and international macroeconomic environment. The second round of problems are endogenous: history, political system, social tension, and various factors related to the domestic economy, especially price volatility. However, the toughest task for an efficient conduct of fiscal policy lies within the ability of the government itself to change its policy course over a short period in response to the changing economic conditions.

In cases where the general price level behaves atypically, it is even more important for the government to remain flexible, actively changing fiscal policy stance over time to respond to significant fluctuations in output and prices. Flexibility is, hence, an art that every government should master for the successful practice of macroeconomic management.

“Government is an art that sometimes call for deregulation and laissez-faire, sometimes for intervention...The trick for government, or, less pejoratively, the art of government, is to decide when and how much to intervene, and when and how rapidly to turn away”.

Charles P. Kindleberger, (1985:21)

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