Political Cycles, Government Spending, and Efficiency of Indonesia' Local Governments

Chalil, Tengku Munawar

Osaka School of International Public Policy (OSIPP), Osaka University. Machikaneyama 1-31 Toyonaka, Osaka, Japan

18 July 2018

Political Cycles, Government Spending, and Efficiency of Indonesia' Local Governments

Tengku Munawar Chalil*

July 21, 2018

Abstract

The paper presents a test of the relationship between rational political cycles with the government spending behavior and its efficiency by using extensive data set of whole Indonesian municipalities/cities from 2008-2014. The results show that politicians/local leaders in Indonesia tend to maximize their preference during the election year but anticipate the election time through strategy to deceive voters.
JEL : I31, H72, D72, D78
Keywords : election, political cycles, government expenditure

1 Introduction

There are large studies report that political cycles influence government expenditure. For example, Rogoff (1990) suggested that high pre-election expenditures that are visible to voters may serve as a signal of "competence," meaning the ability to provide more public goods. A politician on running re-election, therefore, increase spending especially items that voters observe to gain popularity. Drazen and Eslava (2005) present a model that during pre-election, incumbent manipulates spending before the election process with favor to rational voter even though at initial voters and politicians have personal preferences for different types of government spending.

Several studies have been done to investigate the influence of political cycles on government expenditure. Cross-country data investigation on this issue was first tested by Brender and Drazen (2008). Drazen and Eslava (2005) provide evidence of their model by using data on local public finances in Colombia. Sakurai and Menezes-Filho (2008) investigate this issue in Brazilian municipalities. Veiga and Veiga (2007) explore the case of Portuguese municipalities for increasing expenditures when election time. Blais and Nadeau (1992) investigated the case of ten provinces in Canada to show the effect of electoral cycles to government expenditures. The closest paper with this research is paper by

*Osaka School of International Public Policy (OSIPP), Osaka University. Machikaneyama 1-31 Toyonaka, Osaka, Japan. Email: c-tengku@osipp.osaka-u.ac.jp. Phone: +819055987384

Sjahrir, Kis-Katos and Schulze (2013) (Hereafter, SKS). They found that the impact of PBC not reliable in an indirect election system since incumbents do not have an attachment to dominant political parties; therefore, they do not have an incentive to use the discretionary budget. The impact becomes strong when incumbent facing a direct election.

This study reports the tests of political cycles to government expenditure; further, it influences to decomposed government expenditure. This study employs an extensive and precise dataset covering all Indonesian municipalities from period 2008 -2014. By adding political variables and year of election, we can obtain the effect of political cycles on government spending.

I use data of Indonesian municipalities not only to enrich literature on political business cycles (PBC)[1], but also decentralization literature. The Indonesian government has experienced unique decentralization that allowing municipality/city governments to take benefit of their full revenue and expenditure discretion. This decentralization allows politicians in the office only focus on providing service in their electoral, not to satisfy upper tier government such as provincial government or central government. Furthermore, the obtained data set provides detail expenditure, revenue, development output, and region accessories data which is allowing the investigation of political cycles effect in detail. The data set is more detailed compared to Sakurai and Menezes-Filho (2008); Geys (2007) data but quite similar with Veiga and Veiga (2007). This study is also updated the research by Sjahrir, Kis-Katos and Schulze (2013) where they have limited sample about the effect of PBC in Indonesia, especially the dynamic after direct election policy. This paper offers wide and details expenditure objective in comparison with SKS paper. Furthermore, this paper investigated the relation between PBC and government expenditure efficiency, which is different with SKS paper.

This study is using the fixed effect estimator to eliminate the regional heterogeneity, obtain a robust result. For timing, not only effect of the election year is observed but also lagged variables of the election year are also investigated.

The paper presents some empirical findings that in decentralizing Indonesia, government spending and voter favorite items spending fall during an election year. The result remains robust even though decomposed expenditures are employed. Furthermore, personnel expenditure which is acts as a politician favorite spending menu is increasing during an election year. It contradicts with other papers argumentation that politician increases voter preferred menu during the election year to capture a higher share of rational voters for re-election. However when a lag of election are employed, two-years lag contributes positive significant to government expenditure and voter favorite spending menu.

These findings show new evidence that in Indonesia, politicians prefer to maximize their utilities during an election year. Instead, to get a higher share of rational voters, politicians show spending investment outcome to the voter, which observed after a year after expenditure procured or before the election

[1]The studies on this area are abundant, for example see Veiga and Veiga (2007), Baleiras and da Silva Costa (2004), Geys (2007),Brender and Drazen (2008) ,Rosenberg (1992), and Sakurai and Menezes-Filho (2008)

year. However, during election time, the politician is rational and faces a risk that he/she will be not elected. Therefore, at this time politician prefers to maximize their utilities in this period. The paper elucidates this phenomenon by showing a shred of evidence that a high level of cost inefficiency as a proxy of self-interest preference of politicians has a tremendous impact only during the election year. Therefore, the politician enjoys two advantages in the election year, first is not losing popularity because of the fruit of fierce spending results before the election and the second is immense profits extracted from budget inefficiency.

This study is organized as follows. The next section builds the theoretical foundation on political cycles and government expenditures. Section 3 reviews the political cycle and government expenditure structure in Indonesia. Section 4 explains the hypotheses statement and empirical specification including data and model. Section 5 reports the results and discussion. Finally, the last section withdraws several conclusions and policy recommendations.

2 Literature Reviews

The first study on political cycles theory was presented by Nordhaus (1975). He shows that the incumbent would manipulate the economy to gain an electoral vote. In their model, the incumbent pushes the monetary and fiscal policy during a pre-election year, i.e., lowering the unemployment rate. During an election year, voters observed a condition on what they rationally expect. In essence, the officeholder repeatedly tricked the voters for their campaign interest.

Another theoretical study was presented by Rogoff (1990). He presents a model that politicians have quite anticipated the election. The incumbent has the advantage to observe information in the office; therefore, he has an incentive to bias pre-election fiscal policy toward observed government expenditures, away from government investment. In equilibrium, however, voters can deduce the leader's current competency by the degree to which he distorts tax and expenditure policy. Voters' decision should be governed by which candidate offers them higher expected post-election welfare.

Based on both model, most empirical studies have made use of national-level or municipal-level data on elections, policies, and economic outcome. Rosenberg (1992) tested a hypothesis that a local authority incumbent who does not stand for re-election effects a higher budgetary deviation in the pre-election period than a comparable incumbent who does not seek re-election. Employing 15 Israel's municipalities data, he shows that Incumbents were not seeking re-election exhibit a deviation equivalent to 47% of the development budget, while those seeking re-election exhibit a 12% deviation.

Geys (2007) used a dataset of local public debt in 296 Flemish municipalities (1977-2000), they find that the election-year hike in debt growth rates increases with the number of parties in the College of Mayor and Aldermen in Flemish municipalities. They argue that the level of political fragmentation of the government affects both the need for and possibility to engage in opportunistic

policy cycles.

Sakurai and Menezes-Filho (2008) use a new panel of more than 2,000 Brazilian municipalities over 13 years (1988-2000) to analyze the influence of public expenditures on the probability of mayors reelection. They suggest that mayors who spend more during their terms of office increase the probability of reelection or a successor of the same political party. In particular, higher capital spending over the years preceding elections and current expenditures in election years are beneficial to Brazilian incumbent mayors.

Veiga and Veiga (2007) present a test of rational political business cycle models using a dataset of Portuguese municipalities from 1979-2001. Their results reveal that the opportunistic behavior of local governments. In pre-electoral periods, they increase total expenditures and change their composition favoring items that are highly visible to the electorate.

The SKS paper did an empirical work on testing PBC on government spending in Indonesia municipals/cities from 2001 to 2008. They present that the municipal/city which has an indirect election, PBC does not show any significant result to total expenditure and administrative spending. They argue that politicians under indirect election scheme have little incentive to manipulate the expenditure to gain vote since sponsored party not hold domination on parliament. Consequently, those who are seeking the election has little loyalty to the sponsored party. However post-2005, the stipulation of Law 32/2004 mandated the direct election for all municipals and regents. As a result, they found PBC has a substantial impact on government expenditure since incumbents have an incentive to gain an electoral vote by spending the discretionary budget to targeted indecisive voters.

The paper is aimed to complete the work by SKS with adding an investigation of PBC to budget allocation and its efficiency using the cost minimization approach. Also, the study on Indonesia political cycles is under-researched both national and sub-national level.

3 Political Cycle and Government Expenditure Structure

Decentralization in Indonesia was governed by the constitution years 1945. Local governments have authority to serve the citizen and have right to receive a fiscal transfer from central. The local governments mainly provide public goods such as infrastructure, education, health, social protection, and other necessary public services. Expenditure discretion dominates revenue discretion decentralization in Indonesia. The elected leader of local government has full control to plan, budget, and execute their authorities to fulfill their function as a government.

The elected leaders have a five-year period in charge in the office based on Law No. 22 years 2014 on Local Government[2]. The leader can participate in

[2]Indonesian' laws that govern the election mechanism are changes three times post-

the next round election when their contract in the office is expired. The Law regulates that incumbent only allowed to take participation for only once. If they got elected again and wanted to continue to the third election, they can offer as a vice-leader candidate. In simple, a politician can take office for an extended period if they win the election in a row.

The elected leader has full control to decide the budget, full control on spending but limited control on revenue or setting the tax rate. Law No. 33 years 2004 governs the authority of local government on planning and budgeting. The law limits that Local Government only have control of commercial tax, restaurant tax, and charge levies. These type of tax do not have a significant effect on the voters in comparison with income tax and property tax. From the expenditure side, the local governments are free to set their budget balance but not allowed to deficit more than 10%. Through acceptance with the local senate, they set the budget for one fiscal year (January to December). The stipulated budget plan will be executed in the next year.

The setting that is explained by Nordhaus (1975) is fit than the model by Rogoff (1990)[3]. In Indonesia, the executed output is seen by the voter by a year forward when the budget plan approved by the local leader. Rogoff (1990) model of rational opportunistic business cycles assumes that current local tax and results of some investments made by the municipality are observed immediately by the voters. Nordhaus (1975) suggested that the analysis should employ a lag of year dummy of election to observe significant results. The next section offers the hypothesis statement and an empirical specification using Nordhaus's suggestion.

4 Hypotheses and Empirical Specification

4.1 Hypotheses on political cycles and government expenditure

There are several hypotheses to be tested in this paper:

Hypothesis 1: Politician anticipates the election by reducing tax and increase the budget at the pre-election stage.

Consider a model of two-period expenditure that is pre- and post-election. The incumbent controls expenditure allocation on both periods since budget determination for next fiscal year period (post-election) is also under incumbent administrative. The following derivation is following Rosenberg (1992). Let μ as a public satisfaction of government that depends on the supply of government services and tax levy, such that:

independence. First was Law 23/1999 on Regional Government, then replaced by Law 32/2004 on Local Government and Local Autonomy, then the latest in Law 22/2014 on Local Autonomy

[3]Even though Nordhaus (1975) model using state example because it is related to the national macroeconomic outcome, but it remains relevant to apply in municipal/city level.

$$\mu = V(X_1) + V(X_2) - H(T) \tag{1}$$

X_1 and X_2 are pre-election and election spending respectively, T is aggregate tax, with $V' > 0, V" < 0$ and $H' > 0, H" < 0$.

Let ρ as a probability of incumbents win the election, the vNM utility for the incumbent is given by:

$$C = U(X_1) + \rho U(X_2) + (1 - \rho)W(Y) \tag{2}$$

Where $W(Y)$ is utility from alternative income (Y) if incumbent loses the election. ρ and Y depend on how good the incumbent track record, which reflected by public satisfaction μ.

$$\rho = f(\mu) \tag{3}$$
$$Y = Y(\mu) \tag{4}$$

If incumbent go for re-election, he prefers utilities on office than other alternative income, so that:

$$F = U(X_2) - W(Y) > 0 \tag{5}$$

Maximized preference on office rather than other employment with respect to second stage expenditure is given by:

$$\frac{dF}{dX_2} = U'(X_2) - W'Y'\frac{d\mu}{dX_2} \geq 0 \tag{6}$$

Incumbent maximizes his utility, C with constraints given in (1),(3), and (4):

$$\frac{dC}{dX_1} = U`(X_1) + k\frac{d\mu}{dX_1} = 0 \tag{7}$$
$$\frac{dC}{dX_2} = \rho U`(X_2) + k\frac{d\mu}{dX_2} = 0 \tag{8}$$

Where $k = \frac{d\rho}{d\mu}[U(X_2) - W(Y) + (1 - \rho)W'Y'] > 0$ since $U(X_2) - W(Y) > 0$, subtracting (8) to (7), deriving $\frac{d\mu}{dX_1}$ and $\frac{d\mu}{dX_1}$ from (1), it can be obtained:

$$\frac{U'(X_1) - \rho U'(X_2)}{k} = V'(X_2) - V'(X_1) \tag{9}$$

Equation (9) implies that $X_1 > X_2$. Suppose that $X_1 \leq X_2$, then transitivity implies $U'(X_1) \geq U'(X_2) > \rho U'(X_2)$, thus L.H.S is strictly positive, but if $X_1 \leq X_2$ then $V'(X_2) - V'(X_1) \leq 0$ which contradicts L.H.S. Thus spending on lag of election is greater than spending due on election times.

For illustration, the incumbent weight of unity under certainty on the pre-election stage but had to weight ρ under uncertainty in the post-election stage. Risk-averse incumbent should put $X_1 > X_2$.

Another hand, tax rate directly affected public satisfaction as proposed in (1). Reducing the tax rate at the time of election increase the probability of being elected.

Hypothesis 2: Politician raises voter preferred spending higher than non-voter preferred in the preceding election.
Since government expenditure can be decomposed, politician offers many menus of spending to voters and the voters pick on menus that are suited to them. Voters care for expenditures that are directly related to their needs, which usually the primary public services. These services are education, infrastructure, health, housing and public facilities. Drazen and Eslava (2005) divide the government spending into two types, the first is "targeted spending" which are spending to provide service to voters. The second is "non-targeted spending" which categorize a good that only has values to the politician but not to the voters. In their work extension, Drazen and Eslava (2004) argue that politician targets the swing voters by addressing these spending to them. Electoral manipulation takes shape as increasing portion of targeted spending rather than an increase in the overall budget since the politicians are well-aware of voter preference.

Hypothesis 3: Self-interest bureaucrats created a peak of public spending inefficiency only at the election year
Conybeare (1984) discussed the idea where bureaucrats tend to overproduce and technically inefficient for providing public service. Migué, Belanger and Niskanen (1974) viewed the inefficiency where budget legislator maximizes the budget that is untouched for production which in particular for politician' satisfaction expenditure. In this sense, inefficient bureaucrat increases stated budget more than minimum cost over equivalent per-unit public good produces. In relation with the first hypothesis, indeed technical inefficiency during is observed in every term of budget cycles however during election time, politician weight spending on personal satisfaction the most which are captured by the peak of the inefficiency of public spending.

4.2 Empirical Model

The empirical specification follows Veiga and Veiga (2007), which is written as follows:

$$y_{it} = \alpha_0 + \beta_1 Election_{it} + \beta_i X_{it} + c_i + e_t + \epsilon_{it}$$

Where y_{it} is the interested dependent variables, which are government expenditure (including its decomposition, i.e., capital spending, routine spending, grant, and subsidy), budget balance, and tax. $Election_{it}$ is dummy variable that states the timing of election in municipal i in year t. X_{it} is control vari-

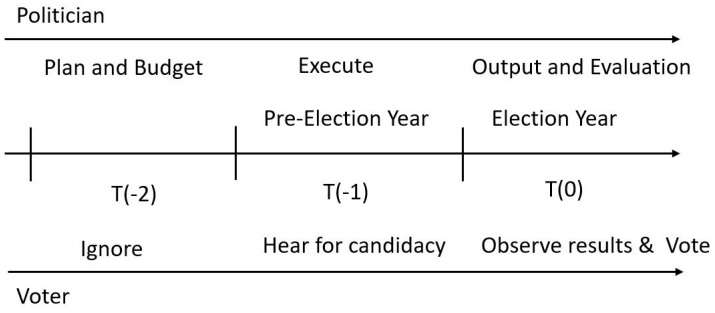

Figure 1: Political Stage and Voters' Perception

ables which are population, per-capita GDP, and household income. c_i, e_t, and ϵ_{it} are regional fixed terms, national trend error, and panel error.

The other model is employing lag of election since Nordhaus (1975) noticed that voters do not directly observe the result of development from budget expenditure plan. Therefore to show the results of investment to a voter in the campaign year, the politician should budget the fiscal expenditure two years before the election year. Figure 1 demonstrates the process.

For $k \in (1, 2)$, the empirical specification with lag is written as follows:

$$y_{it} = \alpha_0 + \beta_k Election_{i(t-k)} + \beta_i X_{it} + c_i + e_t + \epsilon_{it}$$

This paper employs a fixed effect estimation to obtain robust results and eliminating the regional effect. For $k \in (0, 1, 2)$, both equations therefore is expressed as follows:

$$\dot{y_{it}} = \alpha_0 + \dot{\beta_k} Election_{i(t-k)} + \dot{\beta_i} X_{it} + e_t + \dot{\epsilon_{it}}$$

The mentioned models are useful to test *hypothesis 1* and *hypothesis 2* but to test *hypothesis 3*, inefficiency measurement must be clearly defined. Therefore, the technical inefficiency is measured by the gap between the observed cost to produce public goods over possible observed minimized cost with equivalent public goods produces (Chalil, 2018). The Time-variant Stochastic Frontier Analysis can measure technical inefficiency by using a cost minimization function for a panel data (Kumbhakar and Lovell, 2003).

For observed public goods produces, the panel efficiency model takes form as follows:

$$
\begin{aligned}
lnC_{it(j)} &= \beta_{0t(j)} + \sum_{n} \beta_{nit(j)} lnX_{nit(j)} \\
&\quad + \varepsilon_{it(j)} - \mu_{it(j)} \\
\beta_{it(j)} &= \beta_{0t(j)} - \mu_{it(j)} \\
\beta_{it(j)} &= \omega_{i(j)1} + \omega_{i(j)2} t + \omega_{i(j)2} t^2 \\
\hat{\mu}_{it(j)} &= \hat{\beta}_{0t(j)} - \hat{\beta}_{it(j)} \\
TE &= exp(-\hat{\mu}_{it(j)})
\end{aligned}
$$

Where $C_{it(j)}$ is policy objective j expenditure in municipal/city i at time t. $x_{it(j)}$ represents output factors that is a number of output product factor that provided by municipal/city government i at time t. $\varepsilon_{it(j)}$ is time-variant random noise and $\mu_{it(j)}$ is time invariant inefficiency terms, both are assumed to be *i.i.d.*. The time-variant inefficiency is defined as difference of maximum intercept of output factor with estimated intercept ($\hat{\beta}_{0t(j)} = max_i(\hat{\beta}_{it(j)})$) (Kumbhakar and Lovell, 2003).

There are two spending objectives for measuring technical inefficiency. Health spending and education spending are selected since it accounts for a plenty portion of the government budget. Additionally, the voters concern about it since it is the basic needs (fundamental goods/services on voter's preference). Therefore, the sizes of inefficiency that captured on these expenditures reflect the interest of bureaucrats. If the size is immense, then the bureaucrats are "self-oriented" where they care about maximizing their self-preference. If the size is tiny, then the bureaucrats are "voter-interest" where they care about maximizing voter preference.

For cost inefficiency of health services; immunization coverage, morbidity rate, and birth by nursery are chosen as a proxy for goods or services on health produces with following health expenditure as observed cost. For inefficiency of education services, Literacy rate and net enrollment ratio for elementary, junior high, and high school level are the representatives of products of education service with following education expenditure as observed cost.

4.3 Data

The interested independent variable is the timing of the election. Since the data of exact election year is not available, a dummy variable is created. The variable takes value one if it is a one year lag of the first-year period of a mid-term development plan. Data of municipal/city development plan document is available on the Ministry of Development Planning. The period of Municipal/city mid-term development plan document tells us about an effective year when the local leader takes the office. Therefore I assume that lag of the first period of mid-term plan document is the election year. The rest of the variables are available on the Indonesian Database for Policy and Economic Research (INDO-DAPOER), The World Bank. The panel data covers 488 municipals/cities from 2008 to 2014.

The following paragraph is the description of the dependent variables:

- *Budget Balance*: is the balance sheet of local government i in year t. This variable presents a test if local leader takes advantage to reduce the deficit (or surplus) during the election year. The variable is in billion rupiahs with adjustment from the 2010 year based;
- *Original Tax or Retribution*: is an amount of retribution, charge levies, and original tax (in Billion Rupiah, adjusted with the 2010 year based). A negative relation gives a hint about the local leader tends to reduce tax to gain vote shares;
- *Total Expenditure*: is total expenditure (in billion Rupiahs, adjusted with the 2010 year based) of local government. A negative relation implies the politician maximizes their revenue at election year. However, a positive coefficient on the lag two election implies that politician cares on investment outcome;
- *Capital Expenditure*: is expenditure (in billion Rupiahs, adjusted with the 2010 year based) by the local government to gain fixed asset or investment. Since the politician made an immense investment before the election, therefore, the coefficient of lag two election is positive;
- *Personnel Spending* expenditure (in billion Rupiahs, adjusted with the 2010 year based) related to personnel officers spending including wage, honorarium, transportation cost, and operation cost. If a politician maximize their preference on an election year, the correlation should be positive;
- *Grant*: is a grant (in Billion Rupiah, adjusted with the 2010 year based) to the lower-tier government, the public company, NGO, and citizens which is not binding;
- *Subsidy*: is not binding expenditure (in Billion Rupiah, adjusted with the 2010 year based) for a special purpose, i.e., stabilizing price, reviving economy, and others; and,
- *Functional Expenditure*: is a decomposed expenditure into several basic service functions. There are eleven functions: agricultural, economic, education, environmental, health, housing, infrastructure, social protection, public law, and tourism-related function.

The other dependent variable is the cost inefficiency of health and education expenditure. The listed output products as a proxy of public service provided in these sectors are listed as follows:

- *Percentage of children taking immunization*: is a percentage of children taking immunization in the nearest public hospital to a population of eligible children for immunization;

- *morbidity rate*: is a proportion with which disease appears in a population;
- *Birth by Nursery*: is a percentage of childbirth attended by an official nurse;
- *NER elementary*: is a percentage of children enrolled in elementary school to the population of children of elementary school age;
- *NER junior high*: is a percentage of children enrolled in junior high school to the population of children of junior high school age;
- *NER senior high*: is a percentage of children enrolled in senior high school to the population of children of senior high school age;
- *Literacy rate*: is a percentage of literate people in the total population.

Several control variables are employed to control panel heterogeneity, which are:

- *Fiscal Transfer Received*: is an amount (in billion Rupiahs, adjusted with 2010 year based) of fiscal transfer from central government to municipal/city i in year t;
- *Total Population*: is the number of population (in thousand persons) in municipal/city i in year t;
- *Per Capita GDP*: is annual per capita GDP (in thousand rupiah, adjusted with 2010 year based) in municipal/city i;
- *Household spending*: is annual household expenditure (in thousand rupiah, adjusted with 2010 year based) in municipal/city i;

Table 1 presents the statistical summary.

5 Results

Table 2 presents the first estimations. The estimations are using OLS fixed effect estimator. This table only employs election year as the interested variable, and it shows the strong evidence that budget balance, total expenditure, and capital expenditure fall in such large amount during the election year. The coefficients are statistically significant at 1% confidence level.

The results confirm the first hypothesis where the local leaders maximize their preference during the election year. Local leaders not only maximize their benefit facing the risk of failure to be elected but also trap their competitor who will take office next period if incumbents are not elected. Since the output of expenditure procurement when local leader out of office is delay observed, they can criticize new government based on results of development which are they initially set. It is the reasons why coefficients of total expenditure, capital expenditure, and budget balance are significantly negative. A positive sign of

personnel expenditure coefficient means the politician extracts their benefit by taking shares of government expenditure, but the coefficient is not statistically significant.

Since voters directly observe the tax rate, politicians play their strategy by reducing tax to gain popularity. The fall of tax amount in election years shows this phenomenon. The coefficient is negative and significant at 1% level, which supports the hypothesis. However, politicians are not likely increasing subsidy and grant during election time since the coefficients of grant and subsidy are not significant at any level.

Table 3 presents the results when lags of the election year are employed. Column (1) presents similar results with table 2. Column (2) presents the result during the pre-election period. There are not many changes in politicians behavior in this period, but at this period politicians reduce the personnel expenditure. Column (3) shows the results that comply with the prediction. Since the politicians anticipate the election and strategically showing the investment results during the election year, they are budgeting an increase spending for investment which is proxied by capital spending. The coefficient for capital spending is positive and statistically significant in this period (lag two years before the election). Since capital spending accounts a large share of total spending, total expenditure also increase.

Tax is not affected since politicians not seeking any popularity during this period. Personnel spending is positive and significant at 1% level indicates that politicians allocate massive operation cost for execution in the next period, and budget balance is positive. Deploying election and its lag, grant, and subsidy are not affected.

Table 4 is showing an empirical test of the second hypothesis where the expenditure is decomposed into 11 types of function. This decomposition allows us to understand which menu is favorite and can be physically observed by the voters. Rogoff (1990) model tells us that opportunistic politicians can also signal competence by strategically managing the composition of expenditures, increasing spending on items highly visible to the electorate and decreasing spending on those items that are not so visible.

Revisits table 1, local governments concentrate their expenditure on infrastructure, education, health, and general administration since this type of expenditures consume a significant portion of the budget. Education, health, and infrastructure expenditure are closely related with essential public services, which are the voter favorite menus of spending.

In the election year, the politicians trap the next winner of election contest by reducing the budget of these spending. The coefficients of election year on infrastructure, education, and health spending are negative and statistically significant.

In lag (2) year of election, I expect a positive sign since politicians invest a plenty amount for this spending and enjoy the fruit of investment in this sector during the election year. The coefficients are positive for infrastructure and health but not significant at any confidence level. The items are significant and positive during this period only tourism, and environmental related spending

but this menus are not voters' favorite.

Finally, table 5 presents an empirical test of the third hypothesis. It should be noted that the cost efficiency that is produced by panel frontier range from 0 (perfect efficient) to infinity (perfect inefficient). The relevant results are presented in panel B. The impact of the election year for both health and education expenditure cost inefficiency are significantly large and positive. In comparison with the impact of the period before the election year, the coefficients are small (0.01) or equal to zero. These results confirm the third hypothesis that cost inefficiency has the enormous value only at election year. This evidence elucidates politicians maximize their "self-interest" preference when facing risk before stripped out from the office. Politicians carefully not reveal their self-interest action by increasing personnel budget during election year since the voters have access to monitor public budget in general[4]. Therefore, they deceive the voters by not to increase personnel expenditure in the election year but taking profit on budget execution, which is captured by cost inefficiency in providing public services. The deceived voters do not see something wrong on the budget plan, and they do not have symmetric information about how the budget is executed. As a consequence, politicians do not lose popularity while enjoying the profit from a manipulated budget.

6 Conclusion

This paper provides empirical evidence of political cycles and government expenditure in Indonesia. Using a large dataset local government expenditure covering the 2008-2014 period, the local leaders tend to manipulate their expenditure in anticipation of the election.

Depart from Nordhaus (1975) model; the paper shows that local leaders maximize their benefit during the election year by reducing investment-related expenditure, but reduce the tax rate at this period to deceive the voters. However, the politicians correctly anticipate the election by showing the voters of development results on the election year, which is a fruit of investment they do on two years lag of budgeting process. The positive sign of capital expenditure two years before the election shows this fact.

When expenditure is decomposed into function spending, politician significantly reduces spending for voter favorite spending menu at the year of the election means it does not affect the election outcome. Conversely, when employing the crucial lag, politician tends to increase spending for voter preferred menu, but there is no adequate evidence to infer the relationship. Overall, the findings in this paper similar with Veiga and Veiga (2007) who use Portuguese municipals data but contrary with Drazen and Eslava (2005) who use Colombia data. Further, this paper explores the effect of the election on spending

[4]Law No.32 years 2004 on Local Government, Law No.25 years 2004 on National Development Planning System, and Law No.14 years 2008 on Public Information Disclosure states that the local governments are mandated to consult their budget plan to the public and publish the budget document in local media (electronic or non-electronic).

inefficiency where the previous papers not. Indeed, politicians maximize their self-interest profit on election year since they face a risk of not elected but not afraid to lose popularity since they deceive the voters by the fruit of spending before the election.

This paper offers the evidence that politicians play an unhealthy strategy to compete with other competitors through expenditure manipulation. In some case, it will create development discontinuity and instability in the dynamic of the government office also distrust of voters to the government. Therefore, higher tier government should act as a fair judge or referee on observing local leaders behavior when they set a development plan and budget. Higher tier government can take several policies for illustration providing technical assistance and monitoring for planning and budgeting process in municipal/city level, limiting deficit, and relaxing budget revision when the winning candidate takes office.

References

Baleiras, Rui Nuno, and José da Silva Costa. 2004. "To be or not to be in office again: an empirical test of a local political business cycle rationale." *European Journal of Political Economy*, 20(3): 655–671.

Blais, André, and Richard Nadeau. 1992. "The electoral budget cycle." *public choice*, 74(4): 389–403.

Brender, Adi, and Allan Drazen. 2008. "How do budget deficits and economic growth affect reelection prospects? Evidence from a large panel of countries." *American Economic Review*, 98(5): 2203–20.

Chalil, Tengku Munawar. 2018. "(In)Efficiency of Village Government Spending in Indonesia: A Meta-Frontier Analysis." *Osaka University, Working Paper*.

Conybeare, John AC. 1984. "Bureaucracy, monopoly, and competition: A critical analysis of the budget-maximizing model of bureaucracy." *American Journal of Political Science*, 479–502.

Drazen, Allan, and Marcela Eslava. 2004. "Political budget cycles without deficits: how to play favorites." *University of Maryland, mimeografiado*.

Drazen, Allan, and Marcela Eslava. 2005. "Electoral manipulation via expenditure composition: theory and evidence." National Bureau of Economic Research.

Geys, Benny. 2007. "Government weakness and electoral cycles in local public debt: Evidence from Flemish municipalities." *Local Government Studies*, 33(2): 237–251.

Kumbhakar, Subal C, and CA Knox Lovell. 2003. *Stochastic frontier analysis.* Cambridge university press.

Migué, Jean-Luc, Gerard Belanger, and William A Niskanen. 1974. "Toward a general theory of managerial discretion." *Public choice*, 17(1): 27–47.

Nordhaus, William D. 1975. "The political business cycle." *The review of economic studies*, 42(2): 169–190.

Rogoff, Kenneth S. 1990. "Equilibrium political budget cycles." *The American Economic Review*, 80: 21–36.

Rosenberg, Jacob. 1992. "Rationality and the political business cycle: The case of local government." *Public choice*, 73(1): 71–81.

Sakurai, Sergio Naruhiko, and Naercio Aquino Menezes-Filho. 2008. "Fiscal policy and reelection in Brazilian municipalities." *Public Choice*, 137(1-2): 301–314.

Sjahrir, Bambang Suharnoko, Krisztina Kis-Katos, and Günther G Schulze. 2013. "Political budget cycles in Indonesia at the district level." *Economics Letters*, 120(2): 342–345.

Veiga, Linda Gonçalves, and Francisco José Veiga. 2007. "Political business cycles at the municipal level." *Public choice*, 131(1-2): 45–64.

Table 1: Summary Statistics

Variable	N	Mean	SD	Min	Max
Political Cycles Variables					
Timing of Election	3316	0.18	0.38	0	1
Dependent Variables (In billion Rupiah)					
Budget Balance	2147	9.86	192.45	-5461	976.42
Original Tax or Retribution	2775	183.11	264.52	0	5583.16
Total Expenditure	2154	771.19	509.18	39.31	4942.25
Capital Expenditure	2664	203.49	487.17	0	23624.39
Overhead Spending	2680	401.01	295.77	0	2541.13
Grant Spent	2679	$1e^{-4}$	$6e^{5}$	$5e^{-7}$	0.01
Subsidy Spent	886	$2e^{-5}$	$4e^{-5}$	$2e^{-7}$	$4e^{-4}$
Function expenditure					
General Administration Function Spending	2179	212.09	152.85	2.91	2956.72
Agricultural Function Spending	2172	30.21	29.64	0	1061.02
Economic development function spending	2176	16.38	21.53	0	690.65
Education function spending	2176	259.47	230.48	0	3298.4
Environmental related function spending	2176	14.94	39.8	0	1158.32
Health service function spending	2177	71.79	65.41	0	1777.82
Housing and public facilities function spending	2177	5.1	15.69	0	253.6
Infrastructure related spending	2177	115.57	130.67	0	3145.71
Social protection function spending	2177	6.13	6.5	0	127.61
Public, Law, and order function spending	2177	7.57	5.79	0	107.05
Tourism related function spending	2177	3.98	7.24	0	204.02
Public Services Provided					
NER Elementary	3290	93.9	11.66	7	198
NER Junior high	3290	68.3	14.13	1	170
NER Senior high	3286	50.5	14.42	0	110
Literacy rate	3290	93	14.49	11	198
% Birth by nursery	3289	76.84	22.12	0	190
Immunization coverage	3290	93.9	13.48	3	198
Morbidity rate	2808	31.08	9.98	7	94
Control Variables					
Fiscal Transfer Received	2329	580.82	382.34	21.18	6171.13
Total Population	2821	496.15	618.51	6.14	5202.1
GDP per Capita (In thousand Rupiah)	2820	9212.71	18141.83	40.69	$3e^{5}$
Household Spending (in thousand Rupiah)	2844	569.59	221.29	170.93	2018.04

Table 2: Election Year with Government Revenue and Expenditure

Variables	**Budget Balance**	**Tax**	**Total Expenditure**	**Capital Expenditure**	**Personnel Expenditure**	**Grant**	**Subsidy**
Timing of Election	-18.02^{***}	-12.63^{***}	-30.67^{***}	-30.38^{***}	2.62	$-3e^{-6}$	$5e^{-6}$
	(6.86)	(4.89)	(7.59)	(4.66)	(4.07)	(0.00)	(0.00)
Fiscal Transfer Received	-0.82^{***}	-0.04^{***}	0.14^{***}	0.08^{***}	0.05^{***}	$1e^{-7***}$	$-7e^{-8***}$
	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	$(2e^{-8})$	$(3e^{-9})$
Total Population	0.57^{***}	0.6^{***}	1.14^{***}	0.3^{***}	0.54^{***}	$7e^{-7***}$	$2e^{-7***}$
	(0.1)	(0.06)	(0.11)	(0.07)	(0.06)	(0.00)	$(1e^{-8})$
GDP per Capita	$-1e^{-3*}$	0.01^{***}	0.01^{***}	$-4e^{-4}$	0.01^{***}	$2e^{-9}$	$-1e^{-9***}$
	$(7e^{-4})$	$(4e^{-4})$	$(8e^{-4})$	$(5e^{-4})$	$(4e^{-4})$	(0.00)	$(2e^{-10})$
Household Spending	0.07^{**}	0.32^{***}	0.39^{***}	-0.09^{***}	0.36^{***}	$2e^{-7*}$	$4e^{-8*}$
	(0.03)	(0.02)	(0.04)	(0.02)	(0.02)	(0.00)	(0.00)
Constant	177.1^{***}	-328.1^{***}	-140.6^{***}	46.21	-127.0^{***}	$-4e^{-4***}$	$-3e^{-5}$
	(46.78)	(26.84)	(51.81)	(31.83)	(27.8)	$(1e^{-4})$	(0.00)
Observations	1,765	1,876	1,765	1,764	1,765	1,439	554
R-squared	0.638	0.451	0.402	0.082	0.469	0.06	0.16
Number of id	488	488	488	488	488	487	291

Notes: Dependent variables are in Billions Rupiah. The estimations were carried using fixed effect model. Standard errors in brackets; *** denotes significance at 1% level, **at 5% and * at 10%.

Table 3: Election Year (lag) with Government Revenue and Expenditure

Independent Variable	(1) Election Year	(2) Election Year (Lag 1)	(3) Election Year (Lag 2)
DepVar:			
Budget Balance	-18.02^{***}	-22.17^{***}	14.24^{***}
	(6.86)	(7.1)	(4.89)
Tax	-12.63^{***}	3.9	0.51
	(4.89)	(5.21)	(5.21)
Total Expenditure	-30.67^{***}	-18.30^{***}	14.75^{***}
	(7.6)	(7.89)	(5.56)
Capital Expenditure	-30.38^{***}	-13.01^{***}	8.63^{***}
	(4.67)	(4.91)	(3.49)
Personnel Expenditure	2.63	-8.46^{***}	6.85^{***}
	(4.08)	(4.28)	(2.74)
Grant	$-3e^{-6}$	$1e^{-6}$	$-4e^{-6}$
	$(2e^{-5})$	$(2e^{-5})$	$(1e^{-5})$
Subsidy	$5e^{-6}$	$-2e^{-6}$	$3e^{-7}$
	$(4e^{-6})$	$(4e^{-6})$	$(5e^{-6})$
Control	YES	YES	YES
Number of ID	488	488	488

Notes: Dependent variables are in Billions Rupiah. Control variables are fiscal transfer received, total population, per capita GDP, and household spending. The estimations were carried using fixed effect model. Standard errors in brackets; *** denotes significance at 1% level, **at 5% and * at 10%.

Table 4: Election Year (lag) with Decomposed Government Expenditure

Independent Variable	(1) Election Year	(2) Election Year (Lag 1)	(3) Election Year (Lag 2)
DepVar:			
Voter Favourite Spending			
Education function spending	−12.88***	3.95	-0.83
	(6.56)	(6.91)	(8.14)
Infrastructure related spending	−15.5***	−9.84**	5.75
	(5.53)	(5.81)	(7.17)
Health service function spending	−4.78**	−4.13*	2.44
	(2.85)	(3)	(3.89)
Housing and public facilities function spending	-0.51	-0.92	0.33
	(0.61)	(0.64)	(0.66)
Voter Non-Favourite Spending			
General Administration Spending	-2.68	-3.56	3.29
	(5.26)	(5.49)	(6.98)
Agricultural Function Spending	−4.18***	-0.59	1.26
	(1.64)	(5.21)	(2.25)
Economic development function spending	-1.69*	-1.46	-0.07
	(1.16)	(1.21)	(1.58)
Environmental related function spending	−2.36**	−2.31*	2.40***
	(1.45)	(1.52)	(1.14)
Social protection function spending	−0.76***	−0.44*	0.36
	(0.29)	(0.31)	(0.32)
Public, Law, and order function spending	0.00	-0.27	0.01
	(0.23)	(0.24)	(0.28)
Tourism related function spending	-0.52	-0.65	1.07**
	(0.39)	(0.41)	(0.58)
Control	YES	YES	YES
Number of ID	476	476	476

Notes: Dependent variables are in Billions Rupiah. Control variables are fiscal transfer received, total population, per capita GDP, and household spending. The estimations were carried using fixed effect model. Standard errors in brackets; *** denotes significance at 1% level, **at 5% and * at 10%.

Table 5: Technical Inefficiency and Election

Panel A			
DepVar:	**Health**	**DepVar:**	**Education**
Variables	**Expenditure**	**Variables**	**Expenditure**
Immunization Coverage	-0.16^{**}	NER Elementary	0.36^{***}
	(0.07)		(0.02)
Morbidity rate	-0.13^{***}	NER Junior High	0.72^{***}
	(0.03)		(0.01)
% Birth by Nursery	0.14^{***}	NER Senior High	-0.13^{***}
	(0.04)		(0.01)
		Literacy Rate	0.37^{***}
			(0.02)
t	-0.09^{*}	t	41.39^{***}
	(0.05)		(1.45)
t^2	-0.03^{***}	t^2	-20.93^{***}
	(0.01)		(0.72)
Constant	3.64^{***}	Constant	-1.05^{***}
	(0.30)		(0.13)
Observations	2,161	Observations	2,157
Number of id	488	Number of id	488
Log-Likelihood	-944.8	Log-Likelihood	-1996
lambda	0.26	lambda	0.51
TE Mean	0.58	TE Mean	0.35
S.D.	0.34	S.D.	0.29
Panel B			
DepVar:	**Health (TE)**	**DepVar:**	**Education (TE)**
Variables		**Variables**	
Election Year	0.25^{***}	Election Year	0.26^{***}
	(0.00)		(0.00)
Election Year (Lag 1)	-0.01^{**}	Election Year (Lag 1)	0.00
	(0.00)		(0.00)
Election Year (Lag 2)	0.01^{**}	Election Year (Lag 2)	0.00
	(0.00)		(0.00)
Control	Yes	Control	Yes

Notes: Dependent variables are in Billions Rupiah. All variables in Panel A are taking logarithmic form. The estimators were carried using ML Time-Variant Stochastic Frontier. The estimations on Panel B were carried using fixed effect model. Standard errors in brackets; *** denotes significance at 1% level, **at 5% and * at 10%.