

# Money Manipulations

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Political Business Cycles in the Developing World

**Nipun Tulshian**

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Professor Marti G. Subrahmanyam

Faculty Adviser

Dean Peter Henry

Thesis Advisor

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## I. INTRODUCTION

In the growing field of political economy, the topic of the political business cycle has been studied heavily, with developments that have taken the modern theories far from the original ones proposed in the 1970s and early 1980s. The idea of an incumbent government manipulating the economy to better its chances for reelection has implications not only in the political and economic standing of a country, but for that country's development and progress as a whole. Knowing more about the potential actions of politicians can help both internal and external forces make better decisions about how to coordinate their actions in such countries. As such, the political business cycle has generated much study that has applications for a vast range of people and organizations.

I will examine the political business cycle in developing countries from all parts of the globe. My paper will consist of three sections which build upon each other in trying to develop a greater understanding of the political business cycle. The first section will look to draw on previous studies and run a basic regression that assesses the extent to which there was a political business cycle in developing countries from 1980-2005, while at the same time disaggregating its impact using different fiscal and monetary policy indicators. Previous studies such as those by Drazen, Brender, Shi and others mentioned in the References have often touched on one or two of these aspects when looking at the political business cycle, but none have put them all together to create a global study of developing countries that looks at both monetary and fiscal policies over a period of nearly 30 years.

After establishing evidence of the political business cycle, the second part of the study will focus on whether it differs significantly across countries as well as over time. This idea of

differing political business cycles is much more recent and has not been looked at in depth yet, so there is no set of prevailing theories unlike the first study. Countries have shown differing mixes of policy balance, election-related proximity effects and other political business differences that have not been studied in depth.

Finally, the third part of the study will attempt to explain any differences in political business cycles that were found in the second study. I will look at the interaction effects of characteristics that cut cleavages across the countries such as levels of freedom, age of political institutions, economic growth and other defining attributes. This three-stage process will attempt to shed some light on what causes the political business cycle, how it differs between countries and which characteristics are more significant in determining its impact from country to country.

## II. LITERATURE REVIEW

### A. Developed Countries

Much of the early literature on the subject focused on developed nations, especially OECD nations. A key study that set the tone for the modern study of the political business cycle was Alesina and Roubini's 1992 study<sup>1</sup> of the political business cycle in OECD nations with previous theories formulated in the 1970s and 1980s as a backdrop. The two specific studies mentioned were Nordhaus' initial study proposing the opportunistic model of the political business cycle and Hibbs' partisan theory.

The findings concluded that Nordhaus' ideas regarding the impact on output and unemployment were rejected overall and that there were not long-term permanent partisan differences in output and unemployment as suggested by Hibbs. Instead the study confirmed short-term partisan differences in output and unemployment while finding long-term partisan differences in inflation as proposed by Alesina's own rational partisan theory. While this study

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<sup>1</sup> Alesina, Alberto and Nouriel Roubini. "Political Cycles in OECD Economies." *The Review of Economic Studies*, 59.4 (1992): 663-688.

is useful in clearing away the rigid theories of the older studies that focused on overall output and unemployment, it limited itself to OECD nations, which over time proved themselves to be less fitting to the political business cycle as developing nations which were examined in later papers.

Alesina and Summers<sup>2</sup> together further examined the impact of central bank independence and attempt to look specifically on how it affects overall economic performance. They theorize that with the presumed increase in inflation-averse policies due to increased central bank independence, the price for lowered inflation volatility is reduced overall performance as measured by several factors such as GNP growth and GNP growth per capita. The sample set of countries is limited to 16 developed nations.

A significant finding is that with increasing bank independence, there is a marked decline in inflation volatility that is expected due to the increased risk-aversion stemming from the nature of non-politicized monetary policy as opposed to biased monetary policy that may be manipulated by those in power. This stability of monetary policy has implications for the country's impact from the political business cycle. But the data does not provide any significant correlations between central bank independence and overall economic performance. The expected trade-offs from reduced inflation volatility do not materialize. The authors noted that this article is only a very straightforward analysis of the data and that further research is warranted to look at how central bank independence affects differences in economic performance between countries. More importantly, more recent literature has de-emphasized overall economic performance and focused more on the impact of monetary and fiscal policies. Independent central banks would seem to be less subject to the whims of the government, and countries with such as system should see smaller monetary cycles relative to other countries. At

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<sup>2</sup> Alesina, Alberto and Lawrence H. Summers. "Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence." *Journal of Money, Credit and Banking*, 25.2 (1993): 151-162.

least one of my hypotheses will involve central bank independence as I also believe it affects the stability of monetary policy significantly in developing countries.

As opposed to many articles which looked at broad sets of nations and differing uses of electoral impact, Heckelman and Berument<sup>3</sup> examined the impact of endogeneity in countries that often call for early elections, in this case the United Kingdom and Japan. They used Hausman tests and instrumental variable routines as their testing methods to account for endogeneity and then subsequently test for evidence of opportunistic election timing. Their findings indicated that although Japan had a monetary cycle that was consistent with its elections, there is no clear evidence for the political business cycle in either country and instead both exhibited signs of opportunistic election timing.

This article demonstrated a key need for me to take into account countries that often have incumbents calling for snap elections. Opportunistic election timing is definitely an interesting theory that needs further research but for the purposes of my paper I would like to exclude countries that are likely to do this or use a control variable for economic shocks to account for any elections that may be influenced by economic conditions. I am looking to find the impact of electoral timing on economic policy and performance, and endogenous election timing introduces simultaneity bias that will skew the results. Removing countries that often have incumbents calling for snap elections or using control variables for economic shocks will be one of the many steps involved in cleaning the data I used in the model.

As opposed to the other articles Drazen's paper<sup>4</sup> discussed trying to prove the idea that monetary policy is more passive while fiscal policy is active in the political business cycles. This review of the political business cycle did not have any new studies, but it did make several points about what other articles have said. The major conclusion was that there is an increase in

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<sup>3</sup> Heckelman, Jac C., and Hakan Berument. "Political Budget Cycles and Endogenous Elections." *Southern Economic Journal*, 64.4 (1998): 987-1000.

<sup>4</sup> Drazen, Allen. "The Political Business Cycle after 25 Years." *NBER Macroeconomics Annual*, 15 (2000): 75-117.

fiscal activity pre-election, accompanied by monetary policy that accommodates these fiscal manipulations. Post-election fiscal policy emphasizes austerity to account for the pre-electoral changes and is again accompanied by the requisite monetary policy. While this article did not answer any questions, it did provide a good summary of political business cycle theory for developed nations and also helped develop my theory that fiscal and monetary policy are linked and both need to be considered when studying the political business cycle.

#### B. Developing Countries

Karen Remmer's article<sup>5</sup> focused on the affects of the political business cycle in Latin America during the recent democratizations that took place in the region. The findings included that the expected pre-electoral monetary expansion and post-electoral monetary contraction do not exist and instead there is post-electoral stabilization along with pre-electoral disequilibrium.

But the sample size used was extremely small and selective, limiting itself to Latin America over a period of 11 years with only competitive elections involving a transfer of power being included. There is also an excessive focus on monetary imbalances and no significant mention of fiscal measures used by the government.

Another more recent study<sup>6</sup> by Schamis and Way also looked at Latin America in regards to the political business cycle and again looked at monetary manipulations, specifically exchange-rate policies. The authors termed the idea, exchange-rate based stabilization (ERBS) and examined why leaders continued to use it seeing as how there is much literature and historical data showing its ill effects. The authors did a thorough job of creating a robust experiment that included many independent variables. Beyond simply examining the prevalence of ERBS, they went further and also looked at variables that tried to explain what conditions are

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<sup>5</sup> Remmer, Karen L. "The Political Economy of Elections in Latin America, 1980-1991." *American Political Science Review* 87.2 (1993): 393-407.

<sup>6</sup> Schamis, Hector E., and Christopher R. Way. "Political Cycles and Exchange Rate-Based Stabilization." *World Politics* 56.1 (2003): 43-78.

more favorable for the use of ERBS. While the authors did an excellent job of the examining the region and policy that they focused on, I would like to see a more comprehensive study that includes a global sample set of countries over a more focused time period in a study design that includes fiscal manipulation in addition to monetary measures.

In comparison to these narrow views on the impact of the political business cycle, Block's article<sup>7</sup> emphasizes how developing countries have shown much more evidence of the political business cycle, and that too much of the literature has focused on developed nations. He points out why the partisan model does not apply in developing countries due to underdeveloped partisan institutions and the opportunistic model makes sense due to a varying set of characteristics which are common in various combinations to developing nations.

The focus on Africa was a nice addition after previous articles had only looked at Latin America. Another key plus was the disaggregation of policy measures into fiscal and monetary policies which was not seen before in the broad outlooks taken by other articles. But similar to other articles, I would like to see a more global view with a focused time frame (such as post 1991) that makes sense with changing political norms and culture.

Ludger Schuknecht's paper<sup>8</sup> was very similar to Block's in its setup and premise. The main difference is that instead of focusing on one region however, 24 countries from around the world were used. Several auxiliary independent variables are also used to isolate non-electoral impacts on the dependent variables.

This was one of the most complete papers with its diverse sample of observations and its use of auxiliary independent variables. But even so, using only 24 countries when there is much

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<sup>7</sup> Block, Steven. "Political Business Cycles, Democratization, and Economic Reform: The Case of Africa." *Journal of Development Economics*, 67 (2002): 205-228.

<sup>8</sup> Schuknecht, Ludger. "Fiscal Policy Cycles and Public Expenditure in Developing Countries." *Public Choice*, 102.1/2 (2000): 115-130.

more data available is a significant shortcoming, and the monetary/fiscal split seen in Block's paper is a better design in my opinion.

### C. Cross-Sectional Studies

Finally, moving beyond simply looking at only developed or only developing nations, Torsten Persson and Guido Tabellini examined<sup>9</sup> a cross-section of countries with the primary purpose of determining if political business cycles differed between countries. The main characteristics used to separate countries were political institutions and electoral rules, dividing between parliamentary systems versus presidential systems and then majoritarian elections versus proportional representation. There were four fiscal dependent variables- government revenues, government expenditures, fiscal surplus and total social welfare spending. The election year variable was used as both a pre-electoral indicator and studied as a lagged variable for post-electoral effects. Unlike other articles, all independent variables were studies of interaction effects that combined electoral variables and political institutions except for the first part which looked solely at electoral years. The study advanced in tiers- with the first regression looking only at election year effects, the next looking at the impacts of political institutions and electoral rules separately, and the last combining the political variables.

Significant findings include that government revenues decline in the pre-electoral period regardless of political variables, but the expected post-electoral contractions only take place in presidential systems. Additionally, proportional representation is associated with increased welfare spending before and after elections. While the setup of the experiment was fantastic, some key elements were missing. The dependent variables did not look at monetary policy and the use of interaction effects could have expanded from just political institutions and rules to other political characteristics such as age of democracy and party systems. Even with its

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<sup>9</sup> Persson, Torsten and Guido Tabellini. "Do Electoral Cycles Differ Across Political Systems?" NBER Working Paper Series, (2002).



limitations, this article is an excellent basis from which to take elements in creating a cross-sectional study of political business cycles in developing countries.

Adi Brender and Allen Drazen address the issue of how age of democracy affects political business cycles in countries in their 2004 article<sup>10</sup> that included 68 countries, an increase on the 60 countries used by Persson and Tabellini. Their theory states that new democracies are more susceptible to political business cycles than established democracies, and that this affects both developed and developing nations, even though most developing nations are new democracies. In critiquing the findings of previous studies, they propose that the presence of new democracies was crucial in determining whether or not the study would find proof of political business cycles. The variables are similar to previous studies, with an independent election year variable and then dependent fiscal variables including government revenues, expenditures, and overall fiscal balance.

The findings support the theory that new democracies are more susceptible to political business cycles than established democracies, and also show that removing these new democracies from samples removes the presence of the political business cycle for that sample of countries. Once again, monetary policy analysis was missing due to only including fiscal policy variables. Age of a democracy is shown to be a critical variable with a measurable effect on the political business cycle, making a strong case to be studied as one of the factors in determining the differences in cycles between countries.

Shi and Svensson published a recent study<sup>11</sup> that looked at 85 countries from across the globe, one of the most comprehensive studies on the political business cycle. This article had a series of regressions but the main focus was on looking at how to explain the differences in

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<sup>10</sup>Brender, Adi and Allen Drazen. "Political Budget Cycles in New Versus Established Democracies." NBER Working Paper Series, (2004).

<sup>11</sup> Shi, Min, and Jakob Svensson. "Political Budget Cycles: Do They Differ across Countries and Why?" *Journal of Public Economics* 90.8-9 (2006): 1367-389.

political business cycles between countries. In the beginning it was established that the political business cycle existed and that developing countries experience a greater impact from electoral years on fiscal balances than developed countries do. Also, when considering predetermined elections versus non-predetermined elections, the gap between developing and non-developing countries still holds. The two factors they used to look at determining the level of the political business cycle were political rents and voter information.

The design was very thorough and robust, doing a good job of looking at developing countries and accounting for the differences in predetermined versus non-predetermined elections. Again, even with the great setup, there was an element missing. In this case the missing factor was looking at both fiscal and monetary policy as opposed to just one.

Additionally, I would build more upon the way they looked at interaction effects with political rents and voter information, using more characteristics and trying to shed more light on what impacts the political business cycle and causes it to potentially differ between countries.

### III. PRELIMINARY THEORIES

Much of the previous literature that has examined the political business cycle has looked for it in developed countries and has often come up with mixed or negative results. Recently, however, developing nations have yielded more positive results concerning political business cycles and have been the subject of increased focus. Regarding the presence of a political business cycle in developing countries, I believe that it will exist for similar reasons to what has been established in the large amount of literature that has already been written. Developing countries are more susceptible to opportunistic political business cycles for a variety of reasons including the lack of a defined partisan system to establish economic norms, an inexperienced electorate that has not yet formed rational expectations due to uneven growth, and successful manipulations due to weak institutional strength in still-developing political systems. In stage

one of this study I will look to establish the presence of the political business cycle in developing countries as a basis for studying it further.

Going beyond simply establishing the political business cycle in developing countries, there may also be differences in such cycles between countries. In stage two I will attempt to establish if political business cycles differ significantly between countries, and if they do, in what way. There are many ways the cycles between countries can be different, such as differing timing relating the economic impacts to elections, the use of fiscal versus monetary manipulations, or even simply the size of the deviations in policy associated with the cycle. Even though there is substantial evidence from previous studies that political business cycles exist in developing nations, there is no unanimously accepted singular form of it. The cycles of one country are not exactly comparable with the cycles of another country, and this can likely be attributed to different underlying characteristics of the compared countries. By determining if there are differences in political business cycles between countries, this will help in deciding what causes them. This stage of the study will look to find where countries differ in their political business cycles, establishing variations that stage three will look to explain.

In trying to explain any variations found in stage two, there are many possible characteristics that could explain differences in political business cycles over the years. If the political business cycle does differ by country and is not found to be random, the differing characteristics of country's institutions and history are the best places to look for explanations. For example, previous research has indicated that central bank independence plays a role in determining the monetary stability of a country. A country with a less independent central bank will likely be more susceptible to monetary manipulation than others due to increasing politicization of monetary policy. In similar fashion, countries that have shorter average term lengths of governments will likely display mitigated levels of political business cycles relating to

fiscal measures due to incumbents having less time to implement the relevant economic policies. Proportional representation often creates coalition governments that are less able to push policies through the legislature when compared to countries with majoritarian representation. This likely leads to less of an impact of political business cycles due to the conciliatory and consensus-building nature of the legislative process. The potential explanatory characteristics extend beyond political institutional characteristics, and could also include dependence on natural resources, economic growth rates, and even occurrence of natural disasters. Every potential explanatory variable is somehow linked to the political economy situation of a country. Countries that depend on revenues from natural resource exports will likely show lower electoral timing related effects due to their economic being increasingly linked with commodity prices. Beyond cross-section comparisons, I believe a significant number of countries will show different political business cycles over time due to the drastic change in the world economy and increased impact of financial connectivity such as contagion and greater currency speculation. Stage three will look to find differences in political business cycles not only across variations between countries, but also within the countries over time.

In going through these stages, many differing sets of independent variables are used. These include electoral dummies, financial controls, country/regional/continental effects, year dummies, competitive election controls, country characteristics and a wide range of interaction effects between many of these. Though the composition of the explanatory variables are changing from stage to stage, the dependent variable in the equation is always a financial indicator variable. The basic set-up of equations used to test the theory can be found in detail in Section VI.

#### IV. DESCRIPTION OF THE DATA

A. There was a great deal of data available from a variety of different economic and political sources that are listed below. In cleaning the data and collecting the relevant information much of the data was removed and normalized. In its current form the panel data spans from 1980 to 2005 and comprises just over 150 differing countries, of which about 125 are fit to be included in most of the regressions. The regressions used for the first stage will be fixed effects panel data regressions, looking at the variations within each country over time as opposed to the data set as a whole so that there can be a better understanding and analysis of cycles on each country. Considering the widespread variations in financial data of each country even when normalized, the data would not behave usefully if a fixed effects regression is not used when looking for political business cycles. In stages two and three the data will no longer use fixed country effects since there will be other effects examined including regional effects and interaction effects between regional effects and characteristic effects.

## B. DATA SOURCES

- a. Human Development Index<sup>12</sup>
- b. World Bank Database of Political Institutions<sup>13</sup>
- c. International Monetary Fund Financial Statistics<sup>14</sup>
- d. International Monetary Fund World Economic Outlook<sup>15</sup>
- e. University of Gothenburg Quality of Government Statistics<sup>16</sup>

## V. DEPENDENT / INDEPENDENT / CONTROL VARIABLES

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<sup>12</sup> "Human Development Index Report 2010." United Nations Development Program. Human Development Reports. 2010.

<sup>13</sup> Thorsten Beck, George Clarke, Alberto Groff, Philip Keefer, and Patrick Walsh, 2001. "New tools in comparative political economy: The Database of Political Institutions." 15:1, 165-176 (September), *World Bank Economic Review*.

<sup>14</sup> "International Finance Statistics October 2010." International Monetary Fund. Data and Statistics. 2010.

<sup>15</sup> "World Economic Outlook Database October 2010." International Monetary Fund. Data and Statistics. 2010.

<sup>16</sup> Teorell, Jan, Sören Holmberg & Bo Rothstein. 2008. The Quality of Government Dataset, version 15 May 2008. University of Gothenburg: The Quality of Government Institute.

The full list of variables can be found in Table A of the Appendix. Throughout the study, the dependent variables used are financial variables that serve to indicate government policy. In creating a comprehensive look at policy, both fiscal variables such as total government expenditures and monetary variables such as changes in money supply are used. Most of the fiscal variables are expressed as a percentage of GDP, while the monetary variables tend to reflect changes as stock variables have less useful meaning for comparisons in regressions.

There are three sets of independent explanatory variables, one relating to the electoral year indicator, another relating to country groupings, and the third containing various political, economic, social, and cultural variables. The electoral year variable is used very similar to how it has been used in previous studies, as a dummy variable used to measure the impact of elections on the aforementioned financial variables. This variable is the basis of much of the theory behind political business cycles and is present throughout the study. The second set has country dummies, continent dummies, and regional dummies which will all be used in stages two and three to determine if and how political business cycles differ between such groupings. Finally, the third set has a wide range of variables that aim to account for political, economic, social, and cultural differences between countries and/or sets of countries. These are used in stage three to determine their impact on how political business cycles differ. Examples include political institution descriptions such as the electoral system and voter turnout, economic indicators such as economic globalization, social factors such as population growth, and cultural characteristics such as ethnic fractionalization.

The controls used in the study stay relatively constant throughout. Year dummies control for shocks relating to special events such as the 1987 stock market crash. Many developing countries of the world have elections that are not entirely competitive, and such elections do not fit the theory of the political business cycle since the incumbent government needs to have an

electoral impetus to manipulate economic policy. The non-competitive election dummy aims to control for such occurrences so that those elections do not distort the results. Inflation is used as a control when working with monetary variables, and GDP per capita is used for fiscal variables. In running the models there are two versions of GDP per capita as a control, but both are used because they allow government policy to be interpreted in a proper economic context for a country. Non-lagged GDP per capita is used to try and capture the impact of government policy aimed at actually improving the country's standard of living instead of for economic manipulations, but suffers from potential endogeneity bias stemming from the impact of government policy on GDP per capita. Lagged GDP per capita is used to try to limit the effect of endogeneity bias, but is less effective at capturing the impact of non-electoral driven government policy.

## VI. EQUATION

### A. Stage One Example

*Financial Indicator* (Dependent Variable) = Coefficient x *Electoral Proximity Variable* (Electoral Independent Variable) + Constant (Error) + *Applicable Financial Control Variable* (Control Variable) + *Year Dummy Variables* (Control Variables)

### B. Stage Two Example

*Financial Indicator* (Dependent Variable) = Coefficient x *Electoral Proximity Variable* (Electoral Independent Variable) + Coefficient x *Electoral Proximity Variable*\**Country Dummy Variable* (Interaction Effect) + Coefficient x *Country Dummy Variable* (Explanatory Independent Variable) + Constant (Error) + *Applicable Financial Control Variable* (Control Variable) + *Year Dummy Variables* (Control Variables)

### C. Stage Three Example

*Financial Indicator* (Dependent Variable) = Coefficient x *Electoral Proximity Variable* (Electoral Independent Variable) + Coefficient x *Electoral Proximity Variable*\**Age of Democracy* (Interaction Effect) + Coefficient x *Age of Democracy* (Explanatory Independent Variable) + Coefficient x *Age of Democracy*\**Country Dummy Variable* (Interaction Effect) + Coefficient x *Country Dummy Variable* (Explanatory Independent Variable) + Constant (Error) + *Applicable Financial Control Variable* (Control Variable) + *Year Dummy Variables* (Control Variables)

## VII. TESTABLE HYPOTHESES

### A. Stage One

- i. Government expenditures are positively impacted in an election year.
- ii. Government revenues are negatively impacted in an election year.
- iii. Government borrowing increases in an election year.
- iv. Gross debt increases in an election year.
- v. Government social/welfare spending increases in an election year.
- vi. Exchange rates are held steady in an election year.
- vii. Interest rates are lowered in an election year.
- viii. Money supply is increased in an election year.

### B. Stage Two

- i. Different countries experience significantly differing magnitudes of the political business cycle. (Using dummy variables for countries interacted with electoral proximity variable)
- ii. Regional groupings of countries experience significantly differing magnitudes of the political business cycle.

### C. Stage Three



- i. Presidential systems cause political business cycles of greater magnitude.
- ii. Governments with finite term lengths have political business cycles of greater magnitude.
- iii. Governments with potential multiple terms have political business cycles of greater magnitude.
- iv. Majoritarian systems cause political business cycles of greater magnitude.
- v. Unitary systems have political business cycles of greater magnitude.
- vi. Higher levels of democracy lessen the impact of the political business cycle.
- vii. Higher election turnout causes political business cycles of greater magnitude.
- viii. Countries with higher political imprisonment have political business cycles of lesser magnitude.
- ix. More globalized economies cause political business cycles of lesser magnitude.
- x. Greater income inequality causes political business cycles of greater magnitude.
- xi. Greater ethnic fractionalization causes political business cycles of lesser magnitude.
- xii. More globalized societies cause political business cycles of lesser magnitude.
- xiii. Higher population growth causes political business cycles of lesser magnitude.

## VIII. EXPECTATIONS

Establishing the political business cycle has been done in many studies previously, but not for the global scope that I am conducting. I expect that, as has been found in previous studies focusing on developing countries, there will be a significant presence of the political business cycle for the sample set selected. It is difficult to predict exactly how the results will indicate the presence of a political business cycle, but overall I expect expansionary policy in

electoral years such as increased government expenditures, increased government borrowing, positive increase in money supply, and lowered interest rates.

Due to the wide range of countries selected with their varying political, economic, geographic, cultural, historical and social characteristics, there should be significant differences in political business cycles between countries in stage two. Countries will likely display differing levels of electoral impacts. Beyond country effects, regional effects should also be significant. There will likely be differences in types of policy manipulations. For example, Latin America has a very strong history of monetary manipulations, in particular regarding exchange rates. On the other hand African nations have a strong history of high fiscal manipulation such as increased government spending that is not accompanied by growth in government revenues.

It is difficult to accurately predict the impacts on political business cycles of the wide range of variables in stage three simply because there is very little past literature or theory on which to base expectations or even generate a proper context. Yet using knowledge of the basic theory of political business cycles and projecting ideas on how those variables will interact with these cycles, it is possible to make some educated guesses. Presidential systems should have larger political business cycles comparatively due to their tendency to be more adversarial than consensus-building. A similar argument can be made for majoritarian electoral systems. Because incumbent governments in such systems tend not to rely on coalitions, they should have a comparatively freer hand to manipulate policy for their own benefit. Governments with finite terms should also have higher political business cycles as they should be able to plan for policy changes at appropriate times as opposed to others who may not know exactly when they will face reelection. It is more than reasonable to see larger magnitude cycles in countries with multiple terms for governments, since governments in countries without such provisions have no impetus

to manipulate economic policy as they have nothing to gain. Unitary, centralized states should display bigger cycles compared to federal states since central governments generally hold more power regarding policy and finances. In countries with more developed democracy, higher voter turnout, and greater levels of political freedom, there should be higher levels of policy manipulations since the government will have less autocratic or extrajudicial ways of maintaining power and popularity. The more participation and belief that citizens put into a country's electoral system, the more pressure on the government to maintain power through electoral popularity, resulting in more manipulations.

In looking beyond the political variables, there are also certain expectations for the economic, cultural, and social variables. More developed economies with global outlook and connections should have smaller political business cycles. When the government plays a smaller role, as in more developed economies, citizens are not as reliant on government policy for well-being as they are when the government plays a larger role as in less developed economies. Building upon this idea, when income inequality is great, there should be larger political business cycles as reelection-seeking governments can use their power to implement populist policies and redistribute income. In countries that have large amounts of ethnic fractionalization, governments will likely use ethnic alliances more than financial policies to maintain control, and thus there will likely be smaller political business cycles. Finally, in societies that are growing both in terms of population and globalization, there are likely to be political business cycles of lesser magnitude since the government can neither satisfy such an ever-growing populace with measures like extra welfare spending nor are such societies restricted to the offerings in their own country with their growing global connectivity. This set of predictions will be reviewed with the results of the three-stage regression.

## IX. ENDOGENEITY / SELECTION BIAS ISSUES

As mentioned in some of the previously reviewed literature, countries that often have snap elections have an endogeneity bias. When examining for political business cycles, the simultaneity issue in determining if the election causes the economic expansion or vice versa is problematic due to the unfixed nature of elections. Instead of being able to say clearly that elections are causing changes in economic policy, it is possible that the effect is reversed and that favorable economic conditions for the electorate are causing elections to occur, creating a problem with uniformly interpreting results. Thus, countries with high occurrences of such opportunistic election timing have been omitted. The second issue of endogeneity was previously mentioned concerning the issue of government policy and GDP per capita affecting each other and not being able to control for these effects. This has been an issue with many previous studies as well but GDP per capita has still been used as a control regardless of any such issues.

#### X. STUDY'S EXTENT AND LIMITATIONS

In simple terms, the study is limited to the specified time period of 25 years between 1980 and 2005, as well as the number of countries examined. While the economic indicators used to measure the political business cycle provide a good overview of a country's economic situation relating to elections, they cannot catch everything and may miss aspects relating to individual countries' situations. The data available is mostly numerical and may miss certain qualitative aspects that countries are usually judged by. Although the study is aimed only at developing countries, some countries included may be considered developed by some while some countries that are excluded might warrant inclusion by other standards.

The model as constructed is a relatively simple model measuring direct correlations between electoral independent variables, country-specific independent variables, and economic

dependent variables. The control variables are difficult to implement due to the complexities inherent in each country and the inability to control for all of these when comparing countries.

Regardless of the competency of the model, the quality of the output is only as good as the data that is fed into the model and thus any errors on the part of the sources (which include major sources such as the World Bank and International Monetary Fund as well as smaller sources such as the University of Gothenburg) will cause the output to be viewed with greater suspicion. Additionally, not all of the variables are available for each country, due to political isolation, geographic ignorance or other factors.

## XI. RESULTS & INTERPRETATIONS

### A. Stage One (Tables 1-A, 1-B, 1-C)

The results of the stage one regressions can be found in tables 1-A, 1-B, and 1-C. The fiscal indicators (tables 1-A, 1-B) were run through twice using two different GDP per capita measures as a control variable, and there was a substantial difference in the results of the two sets of data. When using lagged GDP per capita, none of the dependent financial variables are significantly impacted by the electoral effect, whereas both government expenditures and government revenues are significantly impacted at a 5% level when using non-lagged GDP per capita. But the coefficients have unexpected values for electoral impacts, as both expenditures and revenues increase in election years. In this case, expenditures are shown to increase by .0214% of GDP in election years while revenues also increase, although at a lesser rate of 0.0192% of GDP. Although these coefficients are not very large, they so show evidence of government policy being affected by elections.

While expenditures have behaved as expected, increasing in an election year, the increase in revenues goes counter to the prevailing theory that revenues should decrease

in election years as the government looks to lower taxes. One possible explanation for this disparity is the fact that many of the countries in this study are still in the early stages of development and thus have not yet established taxes as the main source of their government revenue. Instead the main source of revenue may be other items like tariffs, export duties, and other forms of income, which do not relate directly to taxes on the general populace, and thus does not conform to the theory of lowering revenues in electoral years to gain reelection.

There are several other notes of interest in comparing the two sets of regressions for fiscal indicators. In both cases, whichever form of GDP per capita used was significant at a 1% level across all variables, indicating that there is a strong relation between GDP per capita and these financial variables, perhaps even some endogeneity bias affecting the results. An interesting result is that the year dummy variables, many of which are highly significant, have increasing coefficients over time in the regressions using non-lagged GDP per capita, but have decreasing coefficients over time in the regressions using lagged GDP per capita. This difference may be a topic for future research and a way to improve the general model and theory of political business cycles.

The monetary variables in table 1-B have in general less significance. The electoral impact is only significant in relation with the real interest rate with a positive increase of 0.07% in election years. Similar to government revenues, this runs counter to prevailing theory as interest rates are supposed to decline in election years as governments try to expand money supply and availability to create short-term financial expansions. Again, because the sample of countries in this dataset is exclusively developing countries compared to previous studies, the common theory may not apply and governments might have an alternative explanation for consistently raising interest

rates in election years. Unlike the fiscal variable regressions, the inflation control variable is not significant across the variables and the year dummies show no significant trends over time.

With the results of these regressions, only the three variables that had significant electoral impacts (government revenues, government expenditures, real interest rates) will be used in stage two. Also, since only the set of fiscal regressions run with regular GDP per capita had electoral impact significance, lagged GDP per capita will not be used in stages two and three as a control.

#### B. Stage Two (Tables 2-A, 2-B, 2-C)

In stage two three sets of regressions were run on the three policy variables carried over from stage one. The full results can be found in tables 2-A, 2-B, and 2-C in the Appendix. In trying to determine if political business cycles differed, dummy variables for countries, regions and continents were used as both standalone variables and interacted with the electoral dummy variable. When using country, regional, and continental dummies, the respective reference observations categories throughout the studies are Portugal, Western Europe, and Europe respectively. These categories were chosen for their generally higher level of development, serving as a pseudo control group that lesser developed categories can be compared to. The set up was similar to stage one, but the fixed country effects were removed so that there could be cross-country comparisons.

Rather than looking at the three sets of regressions individually, it is more useful to compare them to determine the best way of grouping countries for stage three. The electoral dummy variable is only significant when using continent effects, and the coefficients are relatively similar to those obtained in stage one, again not showing the

directions expected by theory. The financial controls also behaved very similarly to their stage one results, with GDP per capita being extremely significant but having an extremely small coefficient for the fiscal policy variables while inflation was not significant for real interest rates.

The direct effects of the country groupings varied significantly between the three regressions. Nearly all of the country dummies (not shown in table 2-A) were significant at the 1% level while only a few of the continent and region dummies are significant. Beyond that, almost none of the interaction effects between these dummies and the electoral variable are significant, indicating that interactions between groupings of countries and electoral timing does not significantly affect the political business cycle. However this does not mean country groupings are irrelevant, for their interactions with country characteristics as opposed to electoral timing will likely provide more insight. For example, being a Latin American country is more likely to affect the impact of being a unitary state as opposed to the impact of election timing. Therefore stage three will still use regional and continental groupings to look for differences in the affects of political, economic, social, and cultural characteristics of countries. It may be better to use single country effects instead of regional and continental effects, but for the purposes of this broad, globally-focused study, it is more useful to try and find regional and continental trends than trying to establish trends for over 150 different countries which have varying levels of data available.

#### C. Stage Three (Tables 3-A through 3-N)

In running regressions for stage three, real interest rates were not used due to the lack of context with which to interpret them in when looking for reasons for differences between country groupings. Both government expenses and revenues are expressed here



as a percentage of GDP and can also be compared to each other. In contrast, there are no remaining significant monetary variables and it is not useful to look at real interest rates without having a proper, significant monetary context.

The full list of fourteen variables used to find the political, economic, cultural, and social reasons for differences in political business cycles can be found in table A. After the previous two stages both yielded results indicating government revenues increase in election years, there will be no expectation in this stage that government revenues should conform to the prevailing theory and decrease in election years. All the variables were run using regional interaction effects and continental interaction effects to provide two different sets of country groupings to try and form conclusions for. On a broad level, GDP per capita, as it was in the previous stages, was highly significant, almost always at the 1% level throughout all the regressions. Once again, its coefficient was extremely small, indicating its high statistical significance may be mitigated by having a very small actual impact on fiscal policies.

With the addition of the characteristic variables and the associated interaction effects, the regressions were radically altered from the previous two stages. The main variable of interest, the electoral dummy variable, was only significant in one of the fourteen sets of regressions. The characteristic variable used in that regression was the finite term length variable (table 3-B). Similarly the electoral dummy interaction variable was also significant for the finite term length regressions while being insignificant for all other regressions. I had hypothesized that finite term lengths would increase the impact of political business cycles by allowing governments to properly plan policy manipulations, and the regression results indicate this may well be the case. When using regional groupings, the interaction of election years and finite term lengths cause

increases of 2.54% and 2.9% in government revenues and expenditures respectively (as a percentage of GDP). The increases when using continental groupings are similar, 2.8% and 3.3% for revenues and expenditures respectively. Regarding the country groupings and associate interaction effects, government expenditures in particular show high levels of significance across both continental and regional regressions. The trend has the country groupings with negative coefficients and the groupings-characteristic interaction effects having positive coefficients, again highlighting the positive effects of finite term lengths on government expenditures.

It is quite clear that the interaction of the electoral dummy variable with the selected country characteristics variables do not have statistically significant impacts on either government revenues or government expenditures (with the exception of finite term length). This does not mean that such interactions may not be significant for other characteristic variables, and there may be qualifying reasons to explain the non-compliance of the results to the theory. As the idea of looking to explain differences in political business cycles is still very new, there is a tremendous amount of room for further study and improvement of theory and research.

Although it does not relate directly to the political business cycle theory, it is still useful to take note of the country grouping effects, country characteristic effects and the effects of interactions of country groupings and country characteristics, if only to draw conclusions for future study. Thus, the remaining discussion will center on the variables that are significant, even if they do not directly relate to the electoral effect on government revenues and government expenditures.

The regressions involving government system (table 3-A) do not offer any substantial findings with only the system variable itself and several interactions being

significant. Although the system dummy indicates that parliamentary systems have overall higher revenues and expenditures than presidential systems, there are no significant findings relating the system dummy to the political business cycle. Tabellini and Persson's article had found strong, substantial relations between government systems and electoral effects, but the same results were not replicated here. The set of countries used in this study (table Z) is much larger than that used by Tabellini and Persson and the time period is also different, perhaps explaining the lack of similarity in results. The topic of how presidential vs. parliamentary systems affects political business cycles will likely be a continued subject of research as the theory evolves.

Somewhat surprisingly, the multiple office term regressions (table 3-C) also had very few significant variables. Considering that the entire purpose behind the theory of political business cycles is for incumbent governments to gain reelection, it logically follows that being able to have multiple terms should have a significant impact on political business cycles. Although the multiple term dummy is significant by itself and has a strong positive effect on both revenues and expenditures, it is not significant in its interaction with electoral effects.

Continuing the general trend of regression results with few significant variables, table 3-D depicts the lack of impact of electoral rules on political business cycles. Aside from the electoral dummy and the electoral dummy\*electoral rules interaction effect not being significant, the electoral rules dummy itself is not significant. The findings for unitary vs. non-unitary states (table 3-E) reveal a similar lack of significance, with none of the variables of interest being significant, save for the unitary state dummy in the government revenue regression when using continent effects. Majoritarian vs. proportional representation was another topic investigated by Tabellini and Persson, and

will likely be looked at more in the future. In contrast, the theory behind unitary states' impacts on political business cycles has not been examined in any of the papers mentioned and will need more refining in future studies. It is possible that as developing countries begin to create more structured governing systems, the data for unitary states vs. non-unitary states will become more refined, allowing for more meaningful regressions and conclusions.

The results for the level of democracy regressions (table 3-F) have many more significant variables, but the appearance is deceiving. In looking more closely at the coefficients, the negative coefficient of the level of democracy variable is cancelled out by the positive coefficient of the region/continent\*level of democracy interaction variable. As with the other regressions, none of the electoral effect variables are significant.

Similar to the multiple term regressions, the theory behind the voter turnout regressions (table 3-G) was very simple. The higher the percentage of election participation among the population, the more the government would work to gain their votes through policy manipulation. Yet the electoral effect variables are not significant, and only the turnout variable and its interaction with region/continent effects are significant. Although these variables' coefficients have opposite signs as with the level of democracy regressions, there is a greater amount of separation in the absolute values of the coefficients. Overall, as voter turnout increases, government revenues and government expenditures also increase. The regressions for political imprisonment (table 3-H) seem to back the theory that higher levels of political participation/freedom increase government revenues and expenditures. While the regional groupings only have a few significant variables, the continent groupings are generally significant, most at the

1% level. As political imprisonment increases, government revenues and expenditures decrease. Unfortunately none of these effects can be related to electoral timing.

In looking at the economic characteristic variables (tables 3-I, 3-J, 3-K), it is difficult to draw conclusions beyond the ones drawn previously for the political characteristic variables. The economic characteristic variables are all significant as are the region/country\*characteristic interactions, but the coefficients generally cancel out and provide no real insight as to the effect of economic globalization, government share of GDP, or income inequality on fiscal policies. As previously mentioned, none of the electoral effect variables are significant. The same can be said for the social characteristic regressions (tables 3-M, 3-N) although they are not as consistent as the economic characteristic regressions. The ethnic fractionalization regression (table 3-L) allows almost no conclusions to be drawn as the ethnic fractionalization variable is not even significant. Overall, the data from the economic, cultural, and social characteristic regressions offer little more than the political characteristic regressions. There is a great deal of room for further research and the theories behind these regression are very much in their infancy.

## XII. CONCLUSIONS & GOING FORWARD

Overall, many of the theories and hypotheses I presented in the beginning of the paper tended to have either little statistical significance or coefficients that did not conform to the expected outcomes. In stage one only two of the fiscal variables and one of the monetary variables had statistical significance. The actual impact of the fiscal variables was not that large, less than .05% of GDP for both revenues and expenditures, and revenues actually increased instead of decreasing. Real interest rates rose as well instead of falling, albeit by a small level. Instead of being able to replicate the results found by Block, Schuknecht, Tabellini/Persson and

others who first began to write about the political business cycle in developing countries, the results of the first stage were highly unexpected and affected stages two and three.

The expected significance of interaction effects between country groupings and electoral effects did not materialize in stage two. None of the mentioned articles attempted this type of regression, and as of yet there is no major theory concerning if political business cycles differ between countries, regions, or continents. The results from stage two did not provide any substantial evidence for any new theories either, but as the area is only beginning to be researched, there is room for many more studies to form theories.

Although none of the groupings showed significance in stage two, regional and continental effects were interacted with country characteristics in stage three to see if adding more explanatory variables was able to create significant models. While the, regional/continental grouping dummies, country characteristic variables, and regional/continental\*characteristic interaction effects showed varying levels of significance across the regressions, the electoral effects were only significant for the finite term length regressions. Again, there is a wide range of explanatory variables that can explain differences that may exist between political business cycles, and if further research does not provide information for the variables used here, then other country characteristics may prove to be significant. It cannot be repeated enough that this area of study is rapidly changing as the focus of the political business cycle theory shifts to developing countries, and that after more studies are conducted, more significant results may be found.

There are several issues that must be dealt with when further studies are conducted in trying to develop the theory farther. GDP per capita was significant at the 1% level in almost every regression, albeit with a very small coefficient, but the consistently strong significance and the issues of endogeneity bias relating to government fiscal policies means its continuing role as

a control variable needs to be addressed. Similarly, prevailing theories may need to be adjusted so that proper hypotheses can be made. Government revenues consistently increased in electoral years when electoral effects were significant, going against the theory of lowering taxes and thereby lowering revenues. It may be proven to conform by later studies, but an alternative explanation, as previously mentioned, could be that taxes do not form the majority of government in developing countries where government taxation institutions are underdeveloped. Similar alternative arguments may explain why real interest rates rose in election years.

One major solution going forward would be the normalization and refining of data on the developing world. The dataset presented here was compiled from several sources and may have suffered from faulty collection and/or incompatibility in being merged with other datasets. To be honest this study and its setup were quite ambitious, attempting to prove hypotheses that had never before been tested across a very large set of variables. It might have been more prudent to limit the study to fewer variables and try to dig deeper. Regardless of the possibilities, the final conclusion is that there needs to be much more work done in this field. This study was never meant to be a concluding, focused set of regressions, but rather a broad initial step in a rapidly changing theoretical environment. While it is known that political business cycles exist, and that even rational politicians may attempt policy manipulations, it is not yet known how it exists in developing countries.

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