The Political Economy of Pragmatic Paranoia: The Strange Case of Pakistan

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Abstract

Pakistan's political economy has been characterized by some interesting and arguably unique features in recent decades. The combination of two stands out, in particular: (1) lifetime uncertainty for elected governments, and (2) a high degree of certainty that, due to reasons that are largely extraneous to popularity and policy performance, the incumbent party will not form the government in the next term. This paper argues, employing modified formal frameworks developed for other contexts, that these features go a significant way in explaining why the economy has experienced dramatic cyclical fluctuations in internal and external macroeconomic indicators, especially official foreign exchange reserve stocks. In addition, the analysis helps explain the consistent underinvestment in tax revenue-generation capacity. The existing "partisan" and "opportunistic" varieties of political business cycle models do not satisfactorily capture these features. The analysis, thus, extends this literature in new directions.

JEL classifications: P52, F31, F41, D72, H50

Keywords: Bequest motive, lifetime uncertainty, political business cycles, foreign exchange, current account, country studies.

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"All political history shows that the standing of a Government and its ability to hold the confidence of the electorate at a General Election depend on the success of its economic policy."

- (former) British Prime Minister Harold Wilson, 1968.

"Uncertainty of human life increases the rate of preference for present over future income for many people, although for those with loved dependents it may decrease impatience."

-Fisher (1930).

"Prussia, is not a state with an army, but an army with a state."

-Mirabeau.

1 Introduction

Economies are often jolted, or at least gently buffeted, by political and economic developments that interact. As a result, economic performance varies over time even among countries that have similar economic fundamentals. Recent decades have seen some important developments in the analysis of these interactions. In particular, the political business cycle theory, broadly defined, has brought much-needed focus on the aims and incentives that motivate policy makers. There is much, however, that remains to be carefully explored; one item on this "to-do" list that deserves a slot close to the top is further careful analysis of the systematic ways in which *context* matters.

The focus of political business cycle literature traditionally has been on working out the optimal policy that a social planner will adopt to maximize votes within the limits imposed by economic and informational constraints. A useful benchmark as this approach is, it has serious limitations, especially in the case of developing economies where political and social upheavals are frequently the norm. It is reasonable to work from the premise that policy makers, like other economic agents, act strategically, with diversity of purposes, that their behavior is molded by incentives, circumstances, and expectations, and that a positive theory of economic policy will take into account such factors. However, such incentives for politicians are not always molded by a focus purely on vote-maximization over the near term. Other objectives may override the pursuit of vote maximization for the next elections in the developing economies that have historically experienced political conflict and instability.

Consider, as part of a thought exercise, an economy that exists in a parliamentary democracy with maximum electoral terms of five years. In the kind of framework proposed first by Nordhaus (1975), the government times it policies such that the objective function(al) attains its maximum value at the end of the term (from now on the terminal time T). This, however, assumes that the incumbent has perfect certainty about T. One could imagine scenarios where this is not the case and later contributions such as Chappell and Peel (1979) and Baleiras and Santos (2000) extended the Nordhaus model to analyze the effects of endogenous election times. One would naturally expect the incumbent party in

a parliamentary system to call elections at a time of its choosing which will often coincide with an economic boom or a surge of popularity.

Next, consider the same economy with the difference that the electorate is evenly split between two major parties so that elections are decided by the thinnest of margins by factors such as voter turnout. Also, the level of polarization is high enough so as to make it highly improbable that the voters at the margin will shift their voting allegiances. Such a situation is likely to increase the incentive for the incumbent to wait until the last possible day before holding the next elections. Moreover, if this last day is unknown, i.e., there is lifetime uncertainty, this will also possibly shorten their planning horizon and lower their willingness to invest in the types of infrastructure that costs votes in the short run but yields benefits in the long run. The specific example I have in mind here is that of investing in revenue collection infrastructure that could cost votes in the short run but yield benefits in the form of increased spending capacity if the party is re-elected after the next elections.

Continuing on our imaginative peregrinations, one could think of a case where the governing incumbents take the form of a coalition and where power is diffuse enough so that no single party can choose the election time at its discretion. Indeed one or more parties abandoning the coalition could trigger fresh elections. The election time in such a set-up may be uncertain and subject to the whims of individual parties but, for the same reason that generates this uncertainty, namely the diffuse nature of the coalition, the ability to make important economic policy plans is also likely to be distributed widely enough so that no party will be able to coherently maximize it's own spending and taxation priorities.

Finally, arriving at the conceptual destination for the purposes of this paper, one could conjure up a system where one incumbent party is in charge of economic policy making. The timing of elections, and hence the duration of its term in office, however, are uncertain, not because of the reasons discussed above, but rather owing to the fact that another institution, outside of its influence, decides the timing in line with its own perceived logic and interests.[1] Imagine also, that the same exogenous body also consistently puts its thumb on the scale so as to ensure that the incumbent does not win re-election. What kind of macroeconomic patterns could this generate in terms of spending, foreign exchange reserves, and external balances?

As this paper argues, the political economy of Pakistan in recent decades is an exemplar of this latter type of uncertainty where lifetime uncertainty for reasons beyond the incumbent's control combine with the widely-held belief on the eve of each election that exogenous factors tilt the scale against the incumbent sufficiently so as to ensure a change of governing parties. Since its independence in 1947, the country has been swinging back and forth between military rule and some form of presidential or parliamentary democracy under more or less implicit military dominance. The present Constitution, followed in fits and starts since 1973, mandates a parliamentary form of government with a maximum term of five years for the National Assembly. For our purposes, the most interesting period is the one starting in late 2002, with parliamentary elections directly managed by the military

[1] Notice the difference between this case and the previous one where a coalition partner could defect and cause elections. In the present case, the authority that decides the end of the term is entirely exogenous and continues to hold power, including the ability to significantly influence the next elections.

which had taken over power again in October, 1999. The transition to full *de jure* (but not *de facto*) civilian rule lasted until 2008 when parliamentary elections brought a leading opposition party (the Pakistan Peoples Party) – which had by then gained tacit acceptance from the military – into power at the federal level. Subsequently elections took place in 2013, 2018, and early 2024, with the incumbent getting voted out each time and a new party taking over.

At a superficial level, the regular holding of elections at 5-ish year intervals since the transition to full civilian rule in 2008 creates the misleading impression of stability and the absence of terminal time uncertainty. The fall of the individuals at the top, however, has been much more frequent, with nine Prime Ministers being sworn in between 2008-2023, including three caretaker ones appointed to oversee the elections. Two of these changes involved a new Prime Minister from the same party taking over mid-tenure.

Why was the fall of the heads of government much more frequent than the end of parliamentary terms? Herein lies a big clue as to the unique features of Pakistan's political economy. Three of the Prime Ministers served only for the final year before the new elections and were brought in after the previous Prime Minister had fallen out with the powerful "establishment" – mainly the military – and stepped down under politically deteriorating circumstances. In two instances, an individual from the incumbent party was chosen to finish the term while in the third case, the leader of the main opposition party took over after the government lost a vote of no confidence. In each case, tensions started emerging midway during the tenure between the elected government and the so-called establishment, and the decisive role of the latter in bringing down the Prime Ministers (who then had to face legal travails including disqualification from the ability to hold political office) is a commonly-shared perception, if not reality. Crucially, it was widely believed that the incumbent leadership will not be allowed to return to power after the elections.[2]

This brief discussion highlights several aspects of recent Pakistani political and economic history. While, on the other hand, political conflict has been less disruptive in the sense that there has never been a serious popular armed rebellion against the military in recent decades, most political analysts (and lay people) strongly perceive the unelected establishment to be in charge on important issues, especially those related to foreign affairs and domestic order, but also to some extent economic policy.[3] Since the restoration of civilian rule in 2008

[2] This belief was based on strong and explicit signals. Most visibly, in the period leading up to the last three elections, leaders of the incumbent parties were disqualified from legally holding elected office for a number of years after the elections. Other instances have included disallowing the recently in power party to run on its election symbol, thus forcing party candidates to run as independents, and other forms of legal hurdles created for leaders and party workers to keep popular politicians out (https://www.vox.com/world-politics/2024/2/12/24071288/pakistan-elections-results-imran-khan-pti-surprise-explained). As a result, a vast majority of the population lacks trust in elections, according to polls (https://news.gallup.com/poll/609752/pakistanis-discontent-reaches-record-high-election.aspx). Gallup Pakistan (https://www.gallup.com.pk/search/elections) has published various reports about the gaps between party popularity and actual performance in successive elections.

[3] The influence on economic policy makes itself felt at the level of spending priorities but also less directly. At 17.9 percent of general government expenditure in 2022, the Pakistani defense budget is the largest component of federal expenditures after debt repayment, and is significantly higher than the corresponding 5.2 percent average for low- and middle income countries that year (World Bank's *World Development Indicators*). The military also runs some of the largest business enterprises in the country.

without a military general explicitly in charge of the state, the establishment is widely believed to be active behind the scenes – but also often openly – supporting one party, then another, and allegedly interfering in elections on a significant scale to ensure the victory of the favored party, and perhaps more importantly, the defeat of the currently disfavored party. Indeed, in what has become a pattern, tensions gradually begin developing between the incumbent and the establishment, with things coming to the boil after the halfway mark of the term, setting in motion a chain of events that culminates in the Prime Minister being replaced by a more acceptable figure, followed by elections widely perceived to be managed in a manner that ensures the defeat of the incumbent party. The uncertainty thereby created about term duration and electoral succession has contributed to some interesting economic patterns.

Figure 1, which plots the time trends of three macroeconomic series for Pakistan, illustrates some leading patterns over the period 2000-2022.[4] The election years are marked by vertical lines. Recall that, following the military coup in 1999, parliamentary elections were held in 2002, 2008, 2013, and 2018, although the earliest ones were held directly under military aegis. Each variable is expressed as a proportion of the GDP except for foreign exchange reserves, which are presented in terms of months of imports. Notice first that, there is no noticeable cyclical downturn in the series during the years preceding the military-held elections in late 2002. This changes around subsequent election years. The cycles are most obvious for the stock of foreign exchange reserves ($FXRES$). The level of these reserves has consistently moved in a cyclical manner, with the troughs coinciding with the election years. The current account (CA), a significant flow determinant of foreign exchange reserves, shows similar, if somewhat less striking, patterns with the series attaining its (local) minima in 2008, 2013, and 2018 (the data for 2024 are not yet available but the cycle is visible). Finally, the government deficit ($GOVT$) too follows an interesting pattern although the cyclical pattern is much less clear and the troughs do not coincide as neatly with the election years.

The light blue line plot in Figure 2 illustrates similar cyclical movements in an alternative measure of foreign exchange reserves, this time measured as a proportion of external debt ($FXRES1$). This reassures us that the pattern of foreign exchange reserve behavior seen in the earlier figure is not a construct of that particular measure. In addition, the figure yields another important observation. Unlike the predictions of opportunistic or competence-signaling models (see below for more details), one does not see cyclical patterns, at least at electoral frequency, in annual GDP per capita growth (GDP) or in CPI inflation (INF). Inflation steadily declined between 2008-15 before gradually (and then rapidly) picking up. This in spite of the fact that several parties and heads of governments took turns governing. The overall pattern indicates that one has to go beyond the opportunistic, partisan, and competence-signaling varieties of models.

How do the political authorities continue running the economy once foreign exchange

[4] The data for foreign exchange reserves and the current account are from the World Bank's *World Development Indicators*, while that for central government budget deficits are from the International Monetary Fund's *Government Finance Statistics Yearbook*. This latter variable, named "General government net lending/borrowing (Percent of GDP)" in the Yearbook equals government revenue minus expense, minus net investment in nonfinancial assets

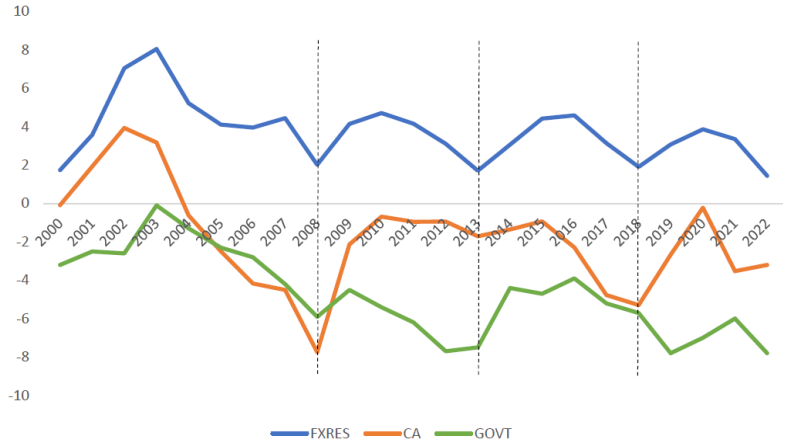

Figure 1: Pakistan: Foreign exchange reserves, *FXRES* (in weeks of imports), current account balance, *CA* (as a proportion of GDP), and central government budget balance, *GOVT* (as a proportion of GDP). The vertical dash lines indicate election years under civilian rule. Source: The World Bank's *World Development Indicators.*

reserves decline below the minimum 3-month worth of imports coverage recommended by the IMF? The answer lies mainly in the IMF programs negotiated by newly-elected governments. This feature is illustrated by Figure 3 below. In brief, IMF transactions tend to rise early in the terms of newly elected governments, which have to deal with the low level of foreign exchange reserves as they assume power. Notice, in particular the surges in 2008, 2013, and 2019. These represent two Extended Fund Facility arrangements in 2013 and 2019 (worth 4.2 billion and 4.4 billion SDRs, respectively), and a Standby Arrangement in 2008 (worth 7.2 billion SDRs). Other sources of temporary foreign exchange funding include grants or loan from foreign governments on friendly terms which, in turn, are facilitated by the existence of an IMF program.

The figures and related discussion above brings our attention to another important point. Consistent with a large body of literature in development economics, the external account presents a hard constraint in many developing countries. Once the Pakistani government draws close to depleting foreign exchange reserves, behavior has to adjust. This makes foreign exchange reserve wealth the key outcome variable in our analysis in the next two sections.

To confirm that these macroeconomic trends do not merely reflect global shocks, Figure 4 presents Pakistan's foreign exchange reserves (again, in months of imports), alongside those for a neighboring parliamentary democracy, India, which resembles Pakistan along several important dimensions including level of development, GDP per capita, geographical location, bicameral first past the post parliamentary systems, and general culture. In India, elections took place in 2004, 2009, 2014, and 2019, so that there is a one year lag relative to the corresponding dates for Pakistani elections. I have synchronized the two series so that

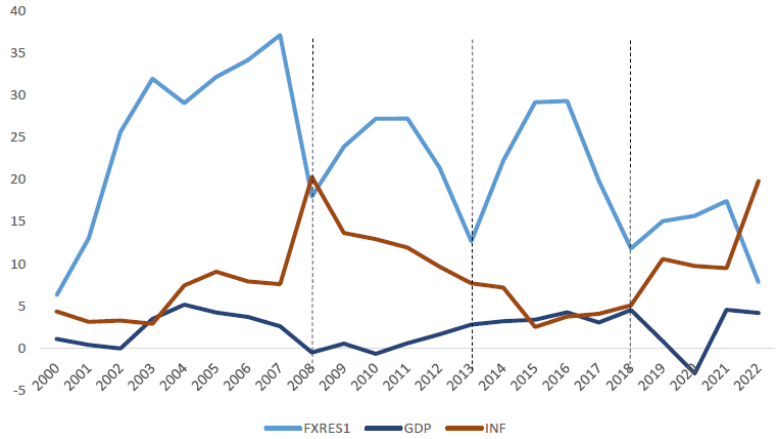

Figure 2: Pakistan: Foreign exchange reserves, *FXRES1* (as a proportion of external debt), *GDP* (annual GDP per capita growth), and *INF* (annual consumer price inflation). The vertical dash lines indicate election years under civilian rule. Source: The World Bank's *World Development Indicators.*

the election years coincide (i.e., the data for India has been adjusted so that, for example the year 2009 for Indian *FXRES* coincides with that for 2008 in the Pakistani case). It is clear from the figure that it is much harder to detect cyclical signals in the Indian case.

Another salient feature of the economy has been the government's inability to generate tax revenues. Revenue collection capacity is limited in developing countries. However, Pakistan's general government tax to GDP ratio at 10.21 percent in 2019 is noticeably lower than the corresponding figure for lower middle income countries (19 percent) and even more so than that the average for upper middle income countries (23 percent).[5] The failure to build revenue generation capacity is at least partly related to the political economy concerns that form the focus of this paper.

This paper argues that, due to special political and economics factors such as lifetime uncertainty and expected term discontinuity following elections, Pakistan suffers from a failure to accompany attempted macroeconomic stabilizations with political stabilization. This has created incentives that generate cyclical behavior of budget and current account deficits, underinvestment in revenue generation capacity, and a failure to adopt policy measures that would build macroeconomic stability. But why might these features lead to a different explanation for cycles relative to other cases analyzed by the political business cycle literature? There are at least three reasons:

1. Terminal time uncertainty and the near-certainty that incumbents will not be allowed a second term means that high spending will be initiated and reserves will be depleted

[5] These numbers come from the author's calculations based on data from UNU WIDER's *Government Revenue Dataset (*https://www.wider.unu.edu/project/grd-government-revenue-dataset).

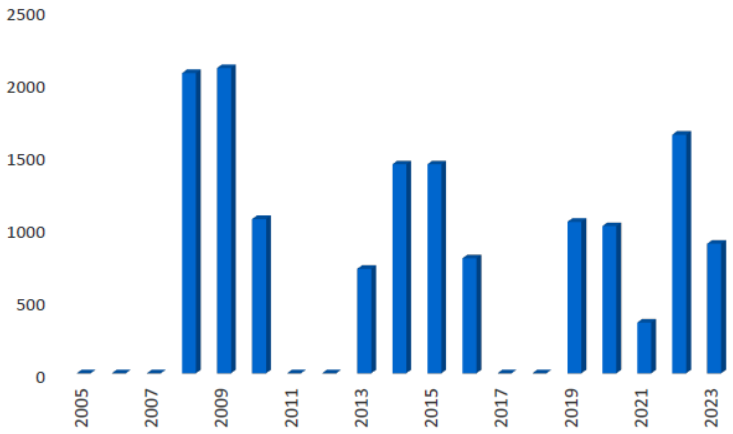

Figure 3: IMF disbursements to Pakistan in millions of SDRS. Source: https://www.imf.org/external/np/fin/tad/extrans1.aspx?memberKey1=760&endDate=2099-12-31&finposition_flag=YES

sooner than they otherwise would.

2. There is no bequest motive, which means that reserves will be depleted to a greater extent.

3. The lack of a bequest motive also means that there is underinvestment in long-run state capacities such as the ability to generate tax revenues, which means that budget deficits are built-in. There is a focus instead on building long-run patronage networks through projects that help the political survival of the incumbent beyond the next elections which, as argued earlier, is largely seen as a lost cause in the buildup to the elections.

How do these features relate to existing literature? The body of work on the political economy of business cycles is by now quite large, with Nordhaus (1975) widely recognized as one of the pioneering contributions. A broad approach would classify this literature into two strands: (1) the "opportunistic" variety analyzes cyclical variations in macroeconomic variables induced by opportunistic incumbents to maximize their chances of re-election, and (2) the "partisan" variety that studies variations in macroeconomic variables driven by partisan differences between policy makers who have different policy objective functions.

In the original Nordhaus model (Nordhaus (1975)), which belongs to the *opportunistic* variety, the government picks the trade off between unemployment (or national income) and inflation along an expectations-augmented Phillips curve. Voters dislike both unemployment and inflation which influences the incumbent who cares only about re-election. The logic of the trade off means that the incumbent spends more and more as we get closer to the

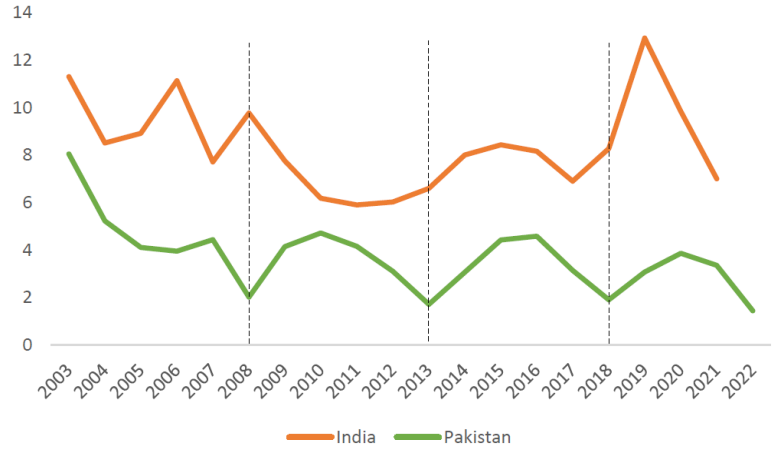

Figure 4: Foreign exchange reserves for Pakistan and India in terms of months of imports. The Indian series is lagged by one year to synchronise election years. The vertical lines indicate (synchronized) election years. Source: The World Bank's *World Development Indicators.*

elections, which then leads to cyclical patterns in variables such as inflation, unemployment, and budget deficits.

An early presentation of the *partisan* variety is provided by Hibbs (1977). The main prediction that comes out of this family of models is that the behavior of macroeconomic variables will vary systematically with the ideological identity of the party in power. For instance, a typical conclusion is that left-wing governments are expected to generate lower unemployment at the cost of higher inflation compared to right-wing governments. Lächler (1982), Chappell and Peel (1979) represent other early examples of this strand of literature.

Early versions of both families of political business cycle models discussed above generally assume backward-looking/adaptive expectations. Another strand of literature that originated from contributions such as Rogoff and Sibert (1988), Rogoff (1990), and Persson and Tabellini (1990), shifted to models with forward-looking rational expectations where there are no inflation-unemployment trade offs available. Political cycles are then induced not by lagging expectation evolution on the part of the voters but rather by imperfect information regarding the competence of the incumbent, which is an unobserved characteristic.[6] Voters form their judgement regarding competence based on macroeconomic outcomes preceding the elections. Since competence has a element of persistence, voters expect the good outcomes to persist in the next electoral term.

How do the varieties of models broadly discussed above relate to Pakistan? While broadly useful in understanding cyclical behavior, neither the partisan nor the opportunistic or competence-signaling frameworks seem to closely apply in the Pakistani case. The

[6] Competence here refers typically to the ability to provide public goods with minimal waste.

main parties are similar in their economic policies and have similarly limited autonomy when it comes to governance. Moreover these parties tend to have similar outlooks on important domestic issues and indeed there is frequent crossover of party members in important positions. Ideology-based partisan motives, in other words, are weak. What makes the opportunistic angle suspect is the fact that there is lifetime uncertainty combined with the near assurance for the incumbent that it is not going to regain power after the next elections. Finally, to the extent that voters largely expect, as in the Pakistani case, that the incumbents will likely not run things in the next term, the competence motive becomes less salient, at least in the short run. This is also apparent in the macroeconomic behavior illustrated in Figures 1 and 2 since the current account deficit, inflation, and budget deficits should peak and reserves should trough early in the term to be consistent with the typical predictions from this family of models. These limitations turn our attention to the issue of term uncertainty.

Cukierman et al. (1992) discuss the role of political uncertainty. With the help of a formal model of tax reform, they argue that governments hesitate to reform inefficient systems since they do not desire to remove the constraint this imposes on the spending capacity of future governments with which they may disagree. They argue that this is more likely to happen in unstable and polarized political systems. A government does not want to increase revenues since it is not sure it will get re-elected and the successors may spend on a different set of priorities. This is modeled by distinguishing between two different kinds of public goods, each preferred by one party. Thus, their analysis predicts that countries with more unstable political structures will have weaker tax bases and hence more reliance on seigniorage

Although the present paper agrees with Cukierman et al. (1992) in that the evolution of the tax system depends on the properties of its political system, and not just its economic system, I offer a different explanation for their main empirical finding. There is some similarity with the framework in Section 4 of the present paper insofar as the incumbents choose between different compositions of spending. In the present case, however, in addition to the dynamic set-up of the problem, there are at least three additional key differences: (1) the incumbent experiences uncertainty; however, the concern is not that the successors will spend differently but that they will spend at all, so that it is better to utilize all available foreign exchange reserves, (2) in my case there is term uncertainty which further expedites the spending of foreign exchange reserves and the lack of investment in tax capacity, and finally, (3) in the present case, we don't have two different kinds of public goods in Section 4, but rather two different types of infrastructure that can be invested in and, crucially, the parties have *identical* preference functions.

A related strand of political economy literature grapples with the distributional impact of increasing taxes and the challenges this poses for stabilization. In Laban and Sturzenegger (1994), for example, the presence of uncertainty makes it harder for the two groups (rich and poor) to agree *ex ante* on the post-stabilization tax rate. As discussed above, the present paper offers a different reason underlying slow taxation capacity growth: distributional conflict or credibility do not play a role.

Other literature that takes into account term uncertainty includes Heckelman (2001)

as an exemplar. Rational agents face certainty about the timing of the election (in a parliamentary system) and about which party that will be victorious. Two parties, left and right, with different agendas regarding the Phillips curve. Smith (1996) has a set-up where the election date is an endogenous choice in a parliamentary systems and explores how the timing of an election influences the electoral result. Governments have an incentive to opportunistically call elections at a time when they are performing well. On the other hand calling an election may signal less confidence in their future. These two papers fall in the partisan and opportunistic categories and, for the reasons discussed earlier, do not address the type of uncertainty that incumbents in a Pakistan-like situation face.

The presence and strength of political business cycles may depend in part on the context. For example, a highly competitive election likely strengthens the incentive to induce a cycle. Vergne (2009) detects the presence of such an effect in developing countries. Franzese and Jusko (2006) provide a survey of empirical studies with a relevant emphasis on importance of institutional and other contexts.[7] They posit that "closely contested elections, strong, unified executives, and domestic policy autonomy induce the strongest cycles" (p. 549). Interestingly enough, this does not seem to be true in the Pakistani context where there have been cyclical movements in macroeconomic variables but the preconditions mentioned here are not in place. For example, it is hard to describe the incumbents holding executive power as strong or unified since in reality their policy autonomy is circumscribed, and to the extent that the scales are tilted against them by the use of the judicial system and other *de facto* mechanisms, the election outcomes are less competitive than should be reflected by the situation on the ground.

The upshot is that Pakistani political electoral cycles tend to differ in interesting ways from the typical cases modeled by the literature. With rather weak executives and elections whose results, at least in the sense of which party will assume power at the federal level, are largely foregone conclusions, the Pakistani political economy has still managed to generate noticeable cycles in the two recent decades, making a strong case for taking a closer look. Moreover, in spite of widespread recognition of the urgent need to do so, successive governments have failed to stabilize the macroeconomic picture by investing, for instance, in the revenue generation capacity of the state. I argue that the answers to these puzzles are linked and that term uncertainty combined with a weak bequest motive have played an important role. This highlights the lesson underlined byFranzese and Jusko (2006), that the evidence "clearly supports models of political-economic cycles that are *context conditional*."

While there is a reasonably substantial body of literature that deals with the uncertainty generated by endogenous election time selection and coalition policy making,[8] this is the first attempt, to the best of my knowledge, to address the peculiar cyclical dynamics that arise from a strict separation between the parties that face elections, on the one hand, and the institutions that effectively decide the end of their time in office, while also effectively ensuring that the incumbents do not emerge victorious from the elections, on the other.

[7] See de Haan and Klomp (2013) for another related survey.

[8] See Dubois (2016), Drazen (2000), and Drazen (2017), and for surveys of the related literature. Klomp and Haan (2013) is an example of an empirical treatment with a cross-section consisting of 70 countries.

2 The Fear of the Known

In brief, the recent political economy of Pakistan exemplifies a largely unique set of issues, namely: (1) the terminal time for elected governments is uncertain, (2) the uncertainty about whether the incumbent is going to be allowed to continue regardless of their popularity at the time of the next elections renders bequest motives salient, and (3) the likelihood that the incumbent will not be able to enjoy the fruits of higher taxation capacity weakens the incentive to invest in projects that build long-term state capacity but have potentially large short-term political costs and whose near-term benefits accrue to the succeeding governing party. These latter implications follow even if the competing parties have identical preferences over policy.

The analytical core of this paper appears in the next two sections. In Section 3, the rational, forward-looking incumbent desires to spend as much as possible before its time is up (and the terminal time is stochastic). The stock of foreign exchange reserves constitutes one constraint on spending. The incumbent also experiences rising (at an exogenous rate) tax revenues and remittances which stabilize once the government has run out of FX reserves and the government is a lame duck that is forced to live within its means. In this context, I show that:

- lifetime uncertainty means that the government will run out of foreign exchange reserves before the constitutional end of its tenure
- an increase in the initial net foreign asset position or tax generation capacity pushes back the terminal time at which foreign exchange reserves are exhausted
- including a bequest motive highlights the crucial role played by the fact that the incumbents are not expected to be in government during the next electoral term.

In Section 4, I endogenize tax revenues through investment in taxation capacity. Unlike the previous section, the government can choose how much to invest in building taxation capacity (which is non-inheritable in the sense that the benefits are derived by the successor government which belongs to a rival party) versus political patronage networks (which are inheritable insofar as they help build incumbent reputation beyond the next elections). I show that there will be underinvestment in taxation capacity due to lack of a bequest motive in this case. Section 5 concludes by discussing some implications.

3 Term Uncertainty and Bleak Electoral Prospects in the Near Future

This section starts with some basic accounting and then develops a continuous time framework to explore possible political economy reasons underlying some of the macroeconomic trends in Pakistan discussed in the previous section. The objective is not to develop new models but rather to modify existing ones to make sense of some unique features of the Pakistani political economy and how these relate to the overall macroeconomic environment.

3.1 Basic Accounting

Consider a small open developing economy that produces and consumes one internationally tradable good. For simplicity, suppose that the law of one price holds for this good while uncovered interest parity (UIP) holds in the financial market. There are two financial assets: (1) an internationally traded, foreign currency-denominated short-term bond that yields a return i, and domestic (non-traded and liquid) money. The consolidated fiscal and monetary authority, which we will call the government, holds foreign exchange reserves in the form of internationally traded bonds.

Let F_t^* denote the nominal stock of foreign currency-denominated net foreign assets (NFA) held by the government at time t. Then, denoting time derivatives with a dot above the variable notation, and employing F to represent the equivalent value of F^* in domestic currency, one can write the government's flow constraint as follows:

$$\dot{F}_t = \dot{M}_t + i_t^* E_t F_t^* + \dot{E}_t F_t^* + P_t(\Gamma_t - G_t) \tag{1}$$

or, converting into real terms:

$$\dot{f}_t + \pi_t f_t = \dot{m}_t + \pi_t m_t + (i_t^* + \varepsilon_t) f_t + (\Gamma_t - G_t)$$

so that,

$$\begin{aligned} \dot{f}_t &= (i_t^* + \varepsilon_t - \pi_t) f_t + \dot{m}_t + \pi_t m_t + (\Gamma_t - G_t) \\ &= r f_t + \dot{m}_t + (\varepsilon_t + \pi_t^*) m_t + (\Gamma_t - G_t) \end{aligned} \tag{2}$$

where π and π^* represent domestic and foreign inflation, M_t and m_t are the nominal and real stocks of high powered money, P_t^* and P_t are the price of the internationally tradable good denoted in the foreign and domestic currencies, respectively, E_t is the nominal exchange rate, ε is the rate of devaluation, Γ_t and G_t are real government tax revenues and spending, respectively, i^* is the international nominal interest rate, π^* represents international inflation, and r denotes the exogenous international (and domestic) real interest rate. The law of one price implies that $P_t = E_t P_t^*$ and $\pi_t = \varepsilon_t + \pi^*$, respectively, while UIP implies that $i_t = i_t^* + \varepsilon_t$.[9] Finally, the terms $i_t^* E_t F_t^*$ and $\dot{E}_t F_t^*$ in equation (1) capture interest income and capital gains (due to exchange rate changes) from holding net positive stocks of foreign currency interest bearing assets.

3.2 Building tax capacity with low immediate rewards

The approach in this section is a version of that developed by Leung (2000) in a different context that lacks revenue growth. The incumbent derives utility from holding office and officiating government spending. This can be motivated by the "ego-rent" concept (Rogoff (1990), p. 23), although one could easily think of other justifications. The incumbent, therefore, seeks to maximize its spending before it loses power. One way to do this is by increasing tax generation, which relaxes the budget constraint. However, if the incumbent

[9] Note that $f_t = \frac{F_t}{P_t}$ so that $\dot{f}_t = \frac{\dot{F}_t}{P_t} - \pi_t f_t$. Similarly, $\dot{m}_t = \frac{\dot{M}_t}{P_t} - \pi_t m_t$.

fails to win re-election, the rewards will be derived by a different party once the incumbent's term comes to an end. Further, increasing taxation also carries immediate political costs in terms of popularity.

Specifically, consider an incumbent party that faces a certain maximum and finite ceiling $\bar{T}$ on the duration of its term (elections have to be held before the end of the fifth year, for example). There is uncertainty about the length of the term in office and the governing leadership can lose power at any point before the end of its maximum term. It knows with certainty that it will not be allowed to win re-election and continue governing in the term that immediately follows. There is, therefore, no bequest motive in the baseline set-up.

Up until the point that the government runs out of reserves, the tax generation capacity of the government grows at a rate α that is taken as exogenous for now (we will endogenize this in the next section). Once reserves are exhausted, the government runs out of room to grow taxation capacity and shifts into day-to-day management mode, which means that revenues are stagnant after this point. This latter assumption is made for simplicity and has no qualitative consequences for the overall analysis.

Lifetime uncertainty is captured with the help of a survival function. Specifically, the lifetime of an elected government, T, is a random variable with a probability density function represented by $\omega(t)$ on the interval $[0, \bar{T}]$, $\int_0^{\bar{T}} \omega(t)dt = 1$, and $\omega(t) > 0 \; \forall \; 0 < t < \bar{T}$. Thus, the probability that the government survives past time t is given by:

$$\Omega(t) = \int_t^{\bar{T}} \omega(t)dt, \quad t \in \left[0, \bar{T}\right] \tag{3}$$

Since my focus is on the interaction between budget deficits and net official holdings of foreign assets, it will be convenient to consolidate real government revenues from seigniorage/inflation and taxes into one term, R, such that $R(t) \equiv \dot{m}_t + (\varepsilon + \pi^*)m_t + \Gamma_t$. Furthermore, in order to avoid tangential trajectories relating to seigniorage and inflation, let's suppose that the nominal money supply keeps pace with the price level, so that m is constant. The growth of revenues, in other words, is driven by the growth of taxes rather than by seigniorage or inflation.

The government maximizes expected utility given term uncertainty and subject to the budget constraint defined by equation (2), the evolution of revenues over time, and the non-negativity constraints listed below.

$$\max_{\{G\}} W \equiv \int_0^{\bar{T}} \Omega(t)[u(G(t) - v(R(t))]e^{-\delta t}dt \tag{4}$$

$$\text{s. t. } \dot{f}(t) = rf(t) + R(t) - G(t) \tag{5}$$

$$\dot{R}(t) = \alpha R(t) \tag{6}$$

$$f(t),\, G(t),\, R(t) \geqslant 0,\, f(0) = f_0,\, f(\bar{T}) = 0,\, R(\bar{T}) > 0 \tag{7}$$

where $u(\cdot)$ and $v(\cdot)$ are twice continuously differentiable functions, u', $v' > 0$, u'', $v'' < 0$, and $u'(0) = \infty$. In our baseline set-up, there is no bequest motive. The terminal conditions

on net foreign assets and revenues ensure that, at the (uncertain) terminal time $\bar{T}$, the government has run out of asset holdings to finance spending and is entirely dependent on tax and seigniorage revenues, which, again, are assumed to grow at a constant rate α up until the instant when reserves are exhausted. The inequality $f(t) \geqslant 0$ represents a wealth or liquidity constraint; the net foreign asset position is constrained to be non-negative.

This problem can be solved employing the standard tools of optimal control. In the discussion below, I suppress the time argument (i.e., t) unless it is required for clarity. Also, a dot over a variable represents its time derivative. The following (current value) Lagrangian specification and necessary conditions follow.

$$\mathcal{L} = \Omega(t)[u(G) - v(R)] + \lambda_F(rf + R - G) + \lambda_R \alpha R + \mu_F f + \mu_G G + \mu_R R$$

$$\Omega u' = \lambda_F - \mu_G \tag{8}$$

$$\dot{\lambda}_F = (\delta - r)\lambda_F - \mu_F \tag{9}$$

$$\dot{\lambda}_R = (\delta - \alpha)\lambda_R + \Omega v' - \mu_R - \lambda_F \tag{10}$$

$$\mu_F \geqslant 0,\ \mu_F f = 0 \tag{11}$$

$$\mu_G \geqslant 0,\ \mu_G G = 0 \tag{12}$$

$$\mu_R \geqslant 0,\ \mu_R R = 0 \tag{13}$$

where λ_i, $i = F, R$ and μ_j, $j = F, R, G$ are the relevant shadow prices. The first condition (8) simply states that, along the optimal path of government spending, the marginal benefit derived from increased spending must equal the cost in terms of lower foreign exchange reserves to finance future spending.

Solving equation (9) for λ_F by backward integration, and plugging the solution into equation (8) delivers:

$$\Omega u' = \lambda_F(q)e^{(\delta - r)(t-q)} - \int_q^t \mu_F(s)e^{(\delta - r)(t-s)}ds - \mu_G \tag{14}$$

Now, let's use t^* to denote the time when the government runs out of foreign exchange reserves. Then, for $t \in [0, t^*)$, f, $G > 0$, so that $\mu_F = \mu_G = 0$. One can then differentiate (8) with respect to time and simplify to find an expression for the evolution of the optimal path of government spending, G^*:

$$\dot{G}^* = [\omega_t + \delta - r]\,\frac{u'}{u''} \tag{15}$$

where $\omega_t(t) = \omega(t)/\Omega(t)$ is the hazard rate corresponding to the survival function at time t, so that, by definition, $\Omega(t) = P(T > t) = e^{-\int_0^t \omega_s(s)ds}$, $\omega(t) > 0$ for $t \in (0, \bar{T})$, and $\lim_{t \to \bar{T}} \omega_t(t) = \infty$.

The path for revenues is straightforward and was informally defined earlier:

$$R(t) = \begin{cases} R_0 e^{\alpha t} & \text{for } t \in [0, t^*) \\ R_0 e^{\alpha t^*} & \text{for } t \in (t^*, \bar{T}] \end{cases} \tag{16}$$

Proposition 1 relates to the time t^* when the government runs out of reserves and the proof establishes that, given certain conditions, this occurs before the latest possible terminal instant $\bar{T}$.

Proposition 1 *1: Given $R^*(\bar{T}) > 0$, then there exists a $t^* \in [0, \bar{T})$ such that $f^*(t^*) = 0$, and $G^*(t) = R^*(t)$ for all $t \in (t^*, \bar{T}]$.*

Proof. Given u', Ω, $G > 0$ on $[0, \bar{T})$, (8) implies that $\lambda_F(t) > 0$ on this interval.

Since $f^*(\bar{T}) = 0$ and $f^*(t) \geqslant 0$, therefore equation (5) along with $R(\bar{T}) > 0$, imply that $G^*(\bar{T}) > 0$. Hence $u'(G^*(t)) < \infty$ for all $t \in [0, \bar{T}]$.

Since $\lim_{t \to \bar{T}} \omega_t(t) = \infty$, which means from (15) that $\dot{G}^* = -\infty$ as $t \to \bar{T}$, one can choose $\tau \in [0, \bar{T}]$ such that $\dot{G}^*(t) < \dot{R}(t)$ for all $t > \tau$. As $\ddot{f}^*(t) = r\dot{f} + \dot{R} - \dot{G}^*$, this implies that $\dot{f}^*(t) \leqslant 0$ for all $t \in (\tau, \bar{T}]$, since if $\dot{f}^*(t) > 0$ for some $t \in (\tau, \bar{T}]$, then $\ddot{f}^* > 0$, which means that $f^*(t)$ can never reach zero, contradicting $f^*(\bar{T}) = 0$ from (7). Thus, f^* has to be non-increasing during the time approaching $\bar{T}$. As we see next, this helps establish the proof by contradiction.

Suppose Proposition 1 is not true. Then $\dot{f}^*(t) \leqslant 0$ (as established above) on $(\tau, \bar{T})$ and $f^*(\bar{T}) = 0$ imply that there must exist a υ such that $\tau \leq \upsilon \leq \bar{T}$, and $f^*(t) > 0$ for all $t \in (\upsilon, \bar{T}]$, and in (14), $\mu_F = 0$. Using these results, as well as $\mu_G(\bar{T}) = 0$ and $\Omega(\bar{T}) = 0$, to evaluate (14) at $\upsilon = q$ and $t = \bar{T}$ yields $\lambda_F(\upsilon) = 0$, which contradicts the result derived above that $\lambda_F > 0$ on $[0, \bar{T})$. Thus, there must exist a $t^* \in [0, \bar{T})$ such that $f^*(t) = 0$ for all $t \in (t^*, \bar{T}]$, and hence $G^*(t) = R(t)$ on $(t^*, \bar{T}]$. ■

The foreign exchange reserves are depleted before the end of the electoral term. Moreover, the reserves remain at zero through the remainder of the term and seigniorage and tax revenues finance spending. The cyclical exhaustion of reserves before the formal end of the incumbent's electoral term is consistent with the Pakistani experience in the last two decades, as illustrated earlier by Figure 1.[10]

Another way to understand the rationale underlying the proof of Proposition 1 is as follows. Suppose $f(t)$, $G(t) \geqslant 0$ are non-binding, i.e., $f(t)$, $G(t) > 0$. Then (8) and (9) become $\Omega u' = \lambda_F$ and $\dot{\lambda}_F = (\delta - r)\lambda_F$, so that $\lambda_F(t) = \Omega u' = \lambda_F(0)e^{(\delta - r)t}$, i.e., the expected (discounted) marginal utility of consumption equals the (discounted) marginal utility of foreign asset wealth. Now recall that, since $R^*(\bar{T}) > 0$, therefore, $u'(G^*) < \infty$ on $[0, \bar{T}]$. Since $\Omega(\bar{T}) = 0$, this implies that $\Omega u'$ will decline to 0 as $t \to \bar{T}$ while the minimum that λ_F can declines to is $\lambda_F(0)e^{(\delta - r)\bar{T}} > 0$. Thus, there exists a time υ such that $\Omega u' < \lambda_F(0)e^{(\delta - r)t}$ for all $t \in (\upsilon, \bar{T}]$. In other words, $\Omega u' = \lambda_F$ does not hold at every instant, which means that either $f(t) = 0$ or $G(t) = 0$ or both must be true on $[t^*, \bar{T}]$ for some $t^* \in [0, \bar{T})$. Since $R(\bar{T}) > 0$, $G^*(t) = 0$ cannot be true in the neighborhood of $\bar{T}$ as this will violate $f(\bar{T}) = 0$. Thus, $f(t) = 0$ must bind in the neighborhood of $\bar{T}$. In this latter case, $\int_{t^*}^{t} \mu_F(s)e^{(\delta - r)(t-s)}ds > 0$, so that, the right hand side of (14) can approach 0 as t approaches $\bar{T}$.

[10] In this context, depletion should be reasonably interpreted in terms of the minimum of three months worth of import purchases, as recommended by the IMF, both generally and for Pakistan.

Intuitively, since revenues never decline to zero, as a result, neither does optimal government spending as the instant $\bar{T}$ approaches. This implies that the shadow price of government spending is always zero as $\bar{T}$ approaches. This, along with the fact that the *a priori* probability of having survived in power goes from a positive number before $\bar{T}$ to zero at $\bar{T}$, requires from the first order condition (8) that the marginal value of foreign exchange reserve wealth too decline from a positive number to zero. The latter level is never reached. In other words, the certainty of termination at or before $t = \bar{T}$ drives the effective discount rate to infinity, causing foreign exchange reserves to be exhausted before the maximum possible terminal time.

Thus, lifetime uncertainty plays the key role here as foreign exchange reserves are extinguished before the end of the incumbent's term, leaving the incoming election winners to pick up the pieces.

Having shown that the reserves are exhausted before the end of the electoral term, one can derive the optimal time path of government spending. Proposition 1 tells us that, at $t = t^*$, $G^*(t^*) = R(t^*)$. Using this information and solving (14) with $q = 0$ yields, after determining the value of $\lambda_F(0)$, plugging back in, and simplifying:

$$\Omega(t)u'(G^*(t)) = \Omega(t^*)u'[R(t^*)]e^{(\delta-r)(t-t^*)} - \int_{t^*}^{t} \mu_F(s)e^{(\delta-r)(t-s)}ds - \mu_G(t)$$

We can now write down the solution for the entire time path of spending after making use of (16) to replace $R(t^*)$.

$$G^*(t) = \begin{cases} (u')^{-1}\left[\frac{\Omega(t^*)u'\left(R_0e^{\alpha t^*}\right)e^{-(\delta-r)(t^*-t)} + \int_t^{t^*}\mu_F(s)e^{(\delta-r)(t-s)}ds - \mu_G}{\Omega(t)}\right] & \text{for } t \in [0, t^*) \\ R_0e^{\alpha t^*} & \text{for } t \in (t^*, \bar{T}] \end{cases} \tag{17}$$

Prior to the instant of depletion, tax capacity is increasing over time. This expected increase in revenues has the effect of raising the path of government spending. In the Pakistani case one could argue that the value of α has been low, thanks to low investment in revenue-building capacity which, as discussed earlier, has led to low and stagnant tax revenues**.** If interest earnings from foreign exchange reserves are large, i.e., r is high, then government spending will be rising as the exhaustion of reserves approaches. Intuitively, a higher interest rate encourages moving spending into the future. The opposite, of course, is true for the subjective discount rate. The government runs primary budget deficits throughout as non-seigniorage taxes are never sufficient to cover spending.

Finally, one can solve for the time path of reserves. Employing (5) to find the path of reserves yields:

$$f(t) = f(0)e^{rt} + \int_0^t \left[R(s) - G^*(s)\right]e^{r(t-s)}ds \tag{18}$$

Next, using the boundary conditions, $f(0) = f_0$, $R(0) = R_0$, and $f(t^*) = 0$, and making

use of (16) delivers:

$$f_0 = \frac{R_0}{\alpha - r}\left[1 - e^{(\alpha - r)t^*}\right] + \int_0^{t^*} G^*(t)e^{-rt}dt \tag{19}$$

Thus,

$$f^*(t) = \begin{cases} \frac{R_0 e^{rt}}{\alpha - r}\left[e^{(\alpha - r)t} - e^{(\alpha - r)t^*}\right] + \int_t^{t^*} G^*(s)e^{r(t-s)}ds & \text{for } t \in [0, t^*) \\ 0 & \text{for } t \in (t^*, \bar{T}] \end{cases} \tag{20}$$

Substituting in the right hand side from (17) delivers a more detailed expression.[11] One should note here again that the anemic rate of improvement in revenue generation capacity indicates that the value of α for Pakistan is quite low.

Although we cannot solve explicitly for t^*, we can derive some interesting comparative static results to identify the qualitative effect of various changes on the time of depletion of reserves. For these thought exercises, it would be useful to assume for the sake of simplicity that $\mu_F = \mu_G = 0$ for $t \in [0, t^*)$. Note that, based on our earlier analysis, these restrictions follow from the observation that government spending and foreign exchange reserves do not decline to zero at any point within that interval.

The effect of an increase in initial reserves

The effect of an increase in f_0 on the time when reserves run out can be derived from (16), (17), and (19). To simplify notation, let's define a new symbol Λ such that, $\Lambda(z,t) \equiv \frac{\Omega(z)u'(R(z))e^{-(\delta - r)(z-t)}}{\Omega(t)} = u'(G^*(t))$. Also, recall from the definitions of survival and hazard functions that $d\Omega/dt = -\omega_t \Omega(t)$. Then, differentiating both sides of (19) yields:

$$\begin{aligned} 1 = &-R_0 e^{(\alpha - r)t^*}\frac{\partial t^*}{\partial f_0} + G^*(t^*)e^{-rt^*}\frac{\partial t^*}{\partial f_0} \\ &+ \int_0^{t^*} \frac{\left[r - \delta - \omega_t(t^*) + \frac{u''(R(t^*))R'(t^*)}{u'(R(t^*))}\right]\Lambda(t^*, t)e^{-rt}}{u''\left((u')^{-1}(\Lambda(t^*, t))\right)}\frac{\partial t^*}{\partial f_0}dt \end{aligned} \tag{21}$$

To further simplify notation let's define two new variables as follows:

$$\Gamma(t) \equiv r - \delta - \omega_t(t) + \frac{u''(R(t))R'(t)}{u'(R(t^*))} \gtrless 0$$

[11] It can be easily verified that, for $t \in [0, t^*)$,

$$\dot{f}^*(t) = rf^*(t) + R_0 e^{\alpha t} - G^*(t)$$

Also, it can be shown that, if $G^*(t) = R(t)$ for all $t \in [0, t^*)$, i.e., government spending equals tax (including seigniorage) revenues right from the start, the corresponding optimal path for reserves is $f^*(t) = 0$. This verifies that $f^*(t)$ is indeed positive for a path of government spending that exceeds revenues prior to reserve depletion.

$$\Theta(t^*) \equiv \int_0^{t^*} \frac{u'\left(G^*(t)\right)}{u''\left(G^*(t)\right)} e^{-rt} dt < 0$$

Note that $\Gamma(t) \gtrless 0$ as $r - \delta - \omega_t(t) + \frac{u''(R(t))R'(t)}{u'(R(t^*))}$. Given the preponderance of negative terms, and the likelihood that in a case like Pakistan's, uncertainty is likely to cause the future to be discounted at a high rate, I will assume that $\Gamma(t) < 0$. Next, it can be shown that equation (21) above simplifies to:

$$1 = \Gamma(t^*)\Theta(t^*)\frac{\partial t^*}{\partial f_0} > 0$$

Or,

$$\frac{\partial t^*}{\partial f_0} = \frac{1}{\Gamma(t^*)\Theta(t^*)} > 0$$

Given our assumption about the sign of $\Gamma(t)$, an increase in initial foreign reserve wealth increases the time into the electoral term at which reserves are depleted. Employing similar steps, one can show that:

$$\frac{\partial G^*(t)}{\partial f_0} = \frac{u'\left(G^*(t)\right)}{u''\left(G^*(t)\right)} \frac{1}{\Theta(t^*)} > 0$$

Increased initial wealth unambiguously raises the level of government spending along the optimal trajectory. Intuitively, higher initial reserves allow for greater room for government spending and more space for building tax capacity before reserves run out. If the incumbent party were reasonably confident of regaining power after winning the next elections, it may consider this increase in tax capacity as a useful bequest when designing policy. That, however, is not the case in this section where paranoia prevails and for good reason.

A jump in initial revenue-generation capacity

Suppose the incumbent is blessed with a greater initial tax collection infrastructure in terms of revenues collected. Again, differentiating (19) and employing (16) and (17) yields:

$$\frac{\partial t^*}{\partial R_0} = \frac{1}{\Gamma(t^*)\Theta(t^*)} \left[\frac{e^{(\alpha - r)t^*} - 1}{\alpha - r} - \Psi(t^*, t) \right] \gtrless 0 \tag{22}$$

where a new variable has been introduced for compactness, namely,

$$\Psi(z,t) \equiv \int_0^{t^*} e^{-rt} e^{\alpha t^*} \frac{u''\left(G^*(t^*)\right)}{u''\left(G^*(t)\right)} \frac{\Omega(t^*)}{\Omega(t)} e^{(r-\delta)(t^* - t)} dt > 0$$

The term outside the square parentheses on the right hand side of (22) is positive, as is the first term inside the parentheses. This makes the right hand side, perhaps surprisingly, ambiguously signed. Intuitively, a higher initial capacity to generate revenues raises permanent

income and hence government spending along the optimal path, which shortens the time to depletion of wealth. On the other hand, the higher revenues weaken the need to spend out of reserves for a given level of spending, postponing the instant of wealth depletion. The overall effect depends on the strength of these opposing forces.

To see the effect on the optimal path of government spending directly, we can employ equation (17) and differentiate both sides to derive the following expression:

$$\frac{\partial G^*(t)}{\partial R_0} = \frac{1}{u^{''}\left(G^*(t)\right)}\left[\Gamma(t^*)\Lambda(t^*,t)\frac{\partial t^*}{\partial R_0} + \frac{\Omega(t^*)}{\Omega(t)}u^{''}\left(R(t^*)\right)e^{\alpha t^*}e^{(r-\delta)(t^*-t)}dt\right] \gtrless 0$$

If $\frac{\partial t^*}{\partial R_0} > 0$, increased taxation capacity inherited by the incumbent party unambiguously raises the trajectory of optimal government spending. In the opposite case, the sign of the expression on the right hand side becomes ambiguous.

Not surprisingly, in the case where increased initial taxation capacity extends the time over which reserves are exhausted, an incoming governing party would enjoy the fruit of capacity development by its predecessors and take advantage of the room created for more spending. If the previous incumbent has won re-election, however, the incentives would change, since they are now able to reap the tax capacity that they sow.

We have already discussed how lifetime uncertainty and paranoia regarding the incumbents' chances in the next election play a role in influencing spending patterns and dampening the bequest motive. We now highlight the key role of the bequest motive.

3.3 A bequest motive

I have argued that one crucial feature that characterizes Pakistan's political economy is the lack of continuity. Even though the parties do not differ that much in their economic policies, the fact that the incumbent is almost certain not to retain office immediately beyond the current term eliminates any bequest motive. What if this weren't true and there is indeed an incentive to leave significant foreign exchange reserves for the next government?

The decision-making environment is now different. Formally, employing $\phi(f)$ to denote the utility derived from a bequest of foreign exchange reserves (with $\phi^{'} > 0$ and $\phi^{''} < 0$), and weighting by a subjective factor β, the incumbent's problem becomes:[12]

$$\max_{\{g\}} W \equiv \int_0^{\bar{T}} \left\{\Omega(t)[u(G(t) - v(R(t))]e^{-\delta t} + \omega(t)\beta(t)\phi(f(t))\right\} dt \tag{23}$$

The constraints remain unchanged from (5)-(7) except for that $f(\bar{T}) = 0$ does not apply any longer. The new (current value) Lagrangian is given by:

$$\mathcal{L} = \Omega(t)[u(G) - v(R)] + \omega(t)\beta(t)\phi(f(t) + \lambda_F(rf + R - G) + \lambda_R\alpha R + \mu_G G + \mu_R R$$

and the necessary optimality conditions now are:

[12] See Yaari (1965). We need not define a specific functional form for β here to derive the main conclusion.

$$\mathcal{L} = \Omega(t)[u(G) - v(R)] + \lambda_F(rf + R - G) + \lambda_R \alpha R + \mu_F f + \mu_G G + \mu_R R$$

$$\Omega u' = \lambda_F - \mu_G \tag{24}$$

$$\dot{\lambda}_F = (\delta - r)\lambda_F - \omega(t)\beta(t)\phi'(f(t)) \tag{25}$$

$$\dot{\lambda}_R = (\delta - \alpha)\lambda_R + \Omega v' - \mu_R - \lambda_F \tag{26}$$

$$\mu_G \geqslant 0,\ \mu_G G = 0 \tag{27}$$

$$\mu_R \geqslant 0,\ \mu_R R = 0 \tag{28}$$

Once again, we can derive the time path for λ_F from (25) and plug it into (24) to derive:

$$\Omega u' = \lambda_F(q)e^{(\delta - r)(t-q)} - \int_q^t \omega(t)\beta(t)\phi'(f^*(t))e^{(\delta - r)(t-s)}ds - \mu_G \tag{29}$$

Unlike the case without bequest, evaluating at $t = \bar{T}$ and considering that $\Omega(\bar{T}) = 0$ now does *not* imply that $\lambda_F(\bar{T}) = 0$.[13] Thus there is no contradiction of the kind we saw in the proof of Proposition 1! The key difference here is the allowance for a positive bequest.

The intuition is fairly straightforward. Since the incumbent derives positive utility from leaving a bequest, the foreign exchange reserves need not be exhausted during the electoral term. This would be the case under normal circumstances when a typical elected government believes that it has a decent chance of continuing in power after the next elections. Such an incumbent government may spend more when approaching the elections, generating cycles, but the expected motivation would be to spend enough to ensure re-election without exhausting the reserves. The bequest motive, in other words, dampens the motivation to go all out and minimize any potential transfer of resources to the next government.

4 Investing in stuff that matters when life is uncertain

Again, consider an elected incumbent whose term in office is uncertain. In the previous section, I assumed that taxation capacity either grows at an exogenous rate, or, once reserves run out, is stagnant. This is not completely satisfactory since building taxation infrastructure requires investment and a government has to make choices when it comes to investing in different types of priorities. This section makes this trade-off subject to choice. The incumbent party can either bequest an improved tax collection infrastructure and/or expanded patronage networks. The difference is that only the latter are inheritable beyond the next elections in the specific sense defined below.

In order to convey the main message while keeping things as simple as possible, it would suffice to use a discrete time two-period framework motivated broadly by Razin (1976). There is a probability p that the government lasts two periods and, therefore, the complementary probability $1 - p$ that it lasts only one period and does not win re-election.

[13] Compare eqs. (14) and (29).

The government is endowed with a taxation capacity corresponding to tax revenues R^1 at the beginning. Tax capacity is thus, as in the previous section, a state variable that can only change gradually. In addition to normal spending, the government can invest in two kinds of infrastructure in the first period: (1) improving taxation capacity (by, for example, training employees, creating better records, designing software, etc.), and (2) expanding patronage networks (through building new roads, schools, etc.). The former is non-inheritable while the networks are heritable. Why?

Investment in expanding the revenue collection infrastructure yields benefits in the future but is risky in the sense that these benefits are not inherited by the incumbents if they do not get re-elected and survive into Period 2. Developing longer-run infrastructure that is used repeatedly over time, on the other hand, pays political dividends beyond the next elections through reputational effects that grow through use over time. Put differently, taxation capacity in the present set-up is a purely extractive feature that the government can then utilize for various priorities including macroeconomic stabilization and reduction of inflation-inducing deficit financing. It allows the government to spend more without resorting to seigniorage or debt. Network building too generates user fees but, since these fees are directly in lieu of publicly visible services these, in addition, build the incumbents' political reputation and helps extend their support base for long-term political purposes beyond the next elections. It has reputational consequences that can be passed on to future political activities beyond government formation after the next elections. For example, a public park built by the incumbent will facilitate growth of its reputation over time as more people use it, even if the incumbent does not win re-election. The reputational benefits, in other words, accrue to the incumbent rather than to the party that wins power after the next elections.

As we see below, the difference in inheritability combined with the presence of term uncertainty create a divergence between the marginal rates of return to investing in the two kinds of infrastructures. Notice that this is conceptually different from Cukierman et al. (1992) and related literature cited in Section 1 in that the incumbents have reservations about building revenue-generating capacity because it comes at the cost of building patronage networks beyond the immediate future, and not because they are concerned about the possibility of losing elections and having the next government spend the increased revenue on their own priority projects. Indeed, in the present case, there need not be any differences in the spending priorities between the rival parties. It may also be useful at this point to draw a contrast between the concept of "visibility" put forth by Rogoff (1990) and that of inheritability considered here. Rogoff hypothesizes that current expenditures are more *immediately* visible to the public and this encourages a pre-election shift in government spending allocation from capital investment to current expenditures.[14] Since the incumbents are reasonably certain that they will be out of power after the next elections, the

[14] See Vergne (2009) for empirical exploration of this hypothesis for a panel data set of 42 developing countries over the period 1975-2001. On a related note, Drazen and Eslava (2010) present a model where the incumbents opportunistically change the composition rather than volume of government spending in the period leading up to elections. The argument is of the opportunistic variety and is, therefore, different in nature to the present analysis for the reasons discussed earlier. Moreover, their argument does not involve heritability.

medium term concept of inheritability holds more relevance in our present context than the immediate one of visibility.

Table 1 below summarizes the key distinguishing properties of the two types of investment. Let's next lay out the formal details.

Table 1: Featured differences between the two types of investment

	Post-election heritability in case of loss	Immediate macroeconomic stabilization gains
Tax capacity	No	Yes
Patronage networks	Yes	No

As mentioned earlier, there are two time periods. The spending is decided and carried out at the beginning of each period. Unlike the previous sub-section, assume a balanced budget within each period for simplicity. Using the revenues collected in the first period, i.e. R^1, the incumbent governing party spends on the baseline consumption expenses involved in the day to day business of the government, G^t, $t = 1, 2$. In addition, it can either spend N^1 on creating infrastructure that extends the patronage network or it can forego consumption and network-building, and instead invest an amount I in building taxation capacity which enables it to collect higher tax revenues R^2 in the next period.

If the government survives into the next period, i.e., if it is re-elected in Period 2, it is able to benefit from greater revenue availability and from the user fees charged for the infrastructure built in the first period. These user fees are captured by the factor of proportionality γ: one can think of this factor as a measure of the expansion of the patronage network as public use of infrastructure means that reputation grows by word of mouth and through the media. More specifically, I employ γ here as a measure of the rate of return on investing in patronage networks as more and more voters become familiar with the benefits of the public goods provided.[15]

If, on the other hand, the incumbent is not re-elected, it leaves behind an expanded network (and an increased positive reputation), but the gains from higher tax revenues and spending capacity go to the next party in power, while the incumbent party bequests the network N^2 to its future self, as represented by $\bar{B}$.

This discussion can be captured by the following set of equations.

$$R^1 = G^1 + N^1 + I \tag{30}$$

$$R^2 = R^1 + g(I) \tag{31}$$

$$N^2 = \gamma N^1 \tag{32}$$

[15] In more concrete terms, suppose the government spends \$1 billion on a road in a friendly constituency. Over the next period, (say) x number of people have visited and paid user charges worth $(x)(1)(\delta) = \$x\delta$ billion, so that the expansion in reputation is proportional to the number of users, and to the amount of user fees spent.

$$\bar{B} = N^2 \tag{33}$$

$$R^2 + N^2 = B + G^2 \tag{34}$$

where $g'(I) > 0$ and $g''(I) < 0$.

The optimization problem for a forward-looking incumbent that maximizes its utility from spending and leaving an inheritance of networks is:

$$\max_{\{G^1, G^2, I\}} pU\left(G^1, G^2, B\right) + (1-p)U\left(G^1, 0, \bar{B}\right)$$

where the utility function is concave in either period consumption and bequest. This is a discrete time optimization problem. Denoting partial derivatives by the relevant subscripts, the following first order conditions follow:

$$pU_1\left(G^1, G^2, B\right) + (1-p)U_1\left(G^1, 0, \bar{B}\right) = \gamma\left[pU_B\left(G^1, G^2, B\right) + (1-p)U_B\left(G^1, 0, \bar{B}\right)\right] \tag{35}$$

$$U_2\left(G^1, G^2, B\right) = U_B\left(G^1, 0, \bar{B}\right) \tag{36}$$

$$pU_B\left(G^1, G^2, B\right) g'(I) = \gamma\left[pU_B\left(G^1, G^2, B\right) + (1-p)U_B\left(G^1, 0, \bar{B}\right)\right] \tag{37}$$

The three first order conditions imply the standard optimality conditions.[16] Most relevant from our perspective, (37) can be re-written in a manner that highlights the key lesson.

$$g'(I) - \gamma = \frac{\gamma(1-p)U_B\left(G^1, 0, \bar{B}\right)}{pU_B\left(G^1, G^2, B\right)} > 0$$

Thus, as long as $p \neq 1$, we have $g'(I) > \gamma$, which implies from the concavity of the $g(.)$ function that there is underinvestment in developing taxation capacity. In equilibrium, the rate of investment in expanding taxation capacity has to exceed the return to building networks by an amount dictated by the inheritability of the latter. This inheritability, of course, confers an advantage to investing in building networks. The greater the lifetime uncertainty, the larger the wedge between the two returns, and hence the lower the investment in taxation capacity.[17]

[16] The first condition (35) states simply that, at the margin, the expected benefit of the extra dollar spent by the government on consumption spending should equal the expected cost of not spending that dollar on expanding the patronage network. The second condition, (36) equates the expected marginal benefit of higher government consumption spending in the second period to that of leaving this amount as a bequest instead. Recall that if the incumbents do not get re-elected, the benefits from investment in taxation capacity do not accrue to them. Finally, (37) stipulates that the marginal benefit of investing an extra dollar in expanding revenues through building taxation capacity should be exactly offset by its marginal cost in the form of a lower expected network bequest.

[17] Note also that, if we specify a survivor function as in the previous section, so that the conditional probability of the government's tenure getting terminated increases with the number of years in office, then the more years into its tenure an incumbent has survived, the lower the investment in revenue-collection capacity. Demonstrating this, however, will require a multiple (i.e., more than two) period framework.

In sum, an incumbent who is highly skeptical about chances of immediate re-election, regardless of their popularity or competence, will underinvest in building revenue generation capacity that will bear fruit in the next term. This seems to be a major theme at play in Pakistan's political economy as the significant uncertainty about surviving beyond the next term skews spending and investment decisions away from investments that will enhance tax collection.

5 Implications and Concluding Remarks

This paper has argued, using Pakistan as an example, that an economy can experience delays in macroeconomic stabilization and recurring cycles for reasons other than those addressed by the existing literature that formally models political business cycles. Pakistan's leading political parties face a unique case of pragmatic paranoia about the duration of electoral terms. This combined with the near certainty that the incumbents will not return to power after the next elections regardless of their popularity (or lack thereof) has had interesting implications for the nature of governance. This paper has focused on two: (1) the strong incentive to spend rapidly enough to exhaust resources before the term in office is over, and (2) the weak incentive to invest in infrastructure such as taxation capacity that can only be profitably received as bequest by the party that wins the next elections. These features: (1) are consistent with the observed cycles in foreign exchange reserves and other relevant macroeconomic variables, (2) occur in spite of relatively small differences in economic policy priorities among the leading parties, (3) do not sit comfortably in the partisan or opportunistic frameworks of the existing business cycle literature. Our analysis suggests that a bequest motive facilitates macroeconomic stabilization in terms of foreign exchange-consuming government spending. Furthermore, such a bequest, in turn, increases the breathing space for newly elected incumbents by not only directly raising the path of optimal government spending but also indirectly by expanding the time available to carry out more tax reforms. Finally, the analysis shows that term uncertainty leads to underinvestment in tax capacity since it only benefits the party that wins the next elections.

In principle, pre-commitment could be used as a device to address some of the issues raised by the lack of a bequest motive.[18] An incoming governing party could, for example, be mandated by law to maintain a significant level of foreign exchange reserves as a bequest for the party comes into power after the next elections. This will, of course, require all relevant parties to pre-commit, which creates time consistency challenges of its own if the incumbent is certain to be kept out of power after the next round. Also, in principle, an economic agent could purchase annuities to insure against lifetime risk. For an incumbent party, the benefits of the insurance in case of losing the next election will then offset the loss of bequest, and in the case of Section 4, essentially render both kinds of investment heritable. It is hard to imagine what such an insurance scheme would look like in the real world, however. There may be no substitutes for sustained predictability and near-term reputational incentives in a case where paranoia governs the political economy considerations

[18] See, for example, Persson and Tabellini (1990) for a discussion of commitment and reputation issues.

of the main actors.

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