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Politics-Driven Exchange Rate Cycles: East Asia vs. Latin America

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Abstract

I develop the implications for real exchange rate cycles of different policy preferences, focusing in particular on broadly stylized features of major Latin American and East Asian economies. Recent political science literature has emphasized the role of factors such as the influence of the manufacturing sector and the nature of labor markets. I formalize some of these insights in a developing country framework with policy makers who inter-temporally optimize and voters/audiences that are incompletely informed. Given the choice between assigning greater weight to immediate worker purchasing power versus generating manufacturing employment and income over time, I show that countries where policy makers choose the former are more likely to experience cycles with overvaluation, current account deficits, and abrupt (postponed) devaluations.

Keywords: Political business cycles, real exchange rate, capital accumulation, balance of payments.

JEL codes: O25, D72, F41, O14.

1 Introduction

Political and economic considerations intertwine in myriad ways to influence policy. A vast body of literature, beginning with Nordhaus [1975], has attempted to formalize salient features of these interactions. The overarching theme, both theoretically and empirically, has been to explore whether and how governments adjust macroeconomic policy-making around politically significant dates – for example, general elections – to boost their popularity, and, in doing so, generate political business cycles. This paper attempts to contribute to this literature by exploring the implications of differences in preferences that are generated by deeper differences in initial conditions and production structures. In the process, I incorporate stylized features of developing economies and formalize insights from strands of political science and political economy literature. In particular, studies have found differences between the nature of political business cycles in Latin America and East Asia. I attempt to provide an explanation for such differences by showing how they may depend critically on the relative weights that voters assign to immediate purchasing power versus gradual employment and wage growth. Specifically, countries where policy makers prioritize the former are more likely to experience cycles with overvaluation, current account deficits, and abrupt post-election devaluations.

The existing body of literature on political business cycles is too large to explore in this limited space. It largely comes in two flavors. Earlier opportunistic models, such as Nordhaus [1975] and Lindbeck [1976] assumed voter myopia and nominal rigidities that encourage short-term cyclical macroeconomic policies while a second generation of contributions, such as Rogoff and Sibert [1988] and Persson and Tabellini [1990], are built on the central assumption that voters have asymmetric information regarding incumbent competence, rendering salience to signalling between rational voters and incumbents. A related strand, narrows in on the role of partisan priorities in a multiparty system. Early exemplars of this literature include Hibbs [1977], Chappell and Keech [1986] and Alesina [1987]. Other literature expanded the focus to include open economy issues (see van der Ploeg [1989] and Ellis and Thoma [1996] for example).

Much of the related literature has focused on fiscal and monetary policy, output, the exchange rate and inflation in demand-constrained economies. This is true for both theoretical and empirical studies.[1] Given this context, it makes sense that most of the studies have related to advanced industrialized democracies. First, these tend to be representative democracies, and the idea of policy-induced cycles seems more appealing in a democratic context with regular electoral cycles. Second, political and economic data are more readily available for these countries. Several developing countries have been long-existing democracies, however, and data limitations have significantly eased for major developing countries in recent times. One can argue, moreover, that electoral democracies are not the only political configurations in which policy makers feel the heat of accountability in a consistent manner. The East Asian countries provide a relevant historical example where, even in their pre-democratic periods, an implicit social contract based on the promise of modernization and rapid economic growth appears to have given constituents the occasional ability to hold the authorities' feet to the proverbial fire. This case has been made, implicitly or explicitly, by a number of studies in subsequent years that have looked at developing economies. Schuknecht [1996], for example, find the existence of fiscal spending cycles in a group of 35 developing countries, although Schuknecht [1999] find that this applies only to countries with fixed exchange rates and

[1] See Alesina et al. [1993] and Drazen [2001] for examples of the latter. Also, see Drazen and Eslava [2010] for a somewhat dated survey.

adequate reserve levels. Shi and Svensson [2002] and Shi and Svensson [2006] find political business cycle effects in both democratic and undemocratic countries.[2]

Indeed, broader studies have found political business cycle effects to be stronger in developing countries than in developed countries (see Shi and Svensson [2002], Shi and Svensson [2006]), and in newer democracies rather than old ones (see Brender and Drazen [2005]). This is not surprising perhaps considering that developed countries tend to have better established and more independent institutions. Among developing countries, Latin American countries are probably the most widely investigated, with the conclusions generally supportive of the presence of political cycles (Stein and Streb [2004], Stein et al. [2005], Cermeno et al. [2010], Bonomo and Terra [2005] and Frieden et al. [2001]).

The literature cited above has gone a considerable way in helping us understand the nature of political business cycles in developing economies. However, several unique characteristics of developing economies appear to have been largely ignored. First, low-income developing economies are capital scarce, almost by definition, and have large pools of underemployed labor in the traditional/non-modern sectors of the economy. Thus, the policy premium on capital accumulation is likely to be much higher. Second, it is important to note that capital accumulation does not merely serve as a route to output expansion but also as a mechanism for modernization and higher productivity. The modern industrial sector in developing economies is generally the relatively capital-intensive one and deepening this sector generates better quality jobs. Moreover, by generating demand for non-tradables, and thus reducing underemployment in that sector, capital accumulation is likely to indirectly raise wages economy-wide.[3] Ryou [2008](p. 76), for example, notes the presence of a social consensus in Korea that the depreciation of the real exchange rate benefits the population regardless of whether they work for the tradable sector or not, "since they believe growth in the tradable sector spreads to the rest of their economy."

The difference between the modern industrial sector with formal jobs and wage bargaining through organized institutions on the one hand and the rural/traditional sector lacking organized labor institutions creates an insider-outsider distinction between these two groups of workers. One implication that we explore formally in the next section is that policy makers may be forced to face a trade-off between pursuing policies that directly raise industrial sector wages versus those that raise economy-wide employment through capital accumulation. While these insider/outsider distinctions exist in industrialized economies as well, the stakes are likely to be higher at the margin in capital scarce economies.

Another stylized feature of developing economies is the large overlap between the tradable sector and industrial activities (including modern agriculture). Much of traditional services and agriculture are typically non-tradable due to high transportation costs, sanitary requirements, and quality issues. This means that the real exchange rate, i.e., the relative price of tradables, assumes a significant role in a development policy geared towards industrialization. Governments have a variety of policy options including monetary and fiscal policy, capital controls, saving incentives, and foreign exchange reserve management, and the evidence suggests that at least some governments have successfully employed these instruments to manage real exchange rates.[4]

Finally, developing countries are much more prone to balance of payments-related problems,

[2]Other examples of developing country studies include Pasco-Fonte and Ghezzi [2001] for Peru, Bonomo and Terra [1999] and Klein and Sakurai [2015] for Brazil, Guo [2009] and Tao [2006] for China, and Soh [1988] for South Korea.

[3]See Razmi et al. [2012] for a formal model that illustrates the mechanisms involved.

[4]See Guzman et al. [2017] for a discussion of the various options available to policy makers to influence the real exchange rate.

including at the extremes, sudden stops and crisis.

The stylized features of developing countries mentioned above shed light on the importance of the modern industrial sector and the real exchange rate as a relative price. Policy makers may use the latter as an instrument of development policy rather than just a means to boost short-run spending on domestic goods. Such use may be more constrained under some circumstances compared to others, For example, political economy literature, such as Frieden and Broz [2006], and Steinberg [2015], suggests that countries tend to maintain undervalued exchange rates occur when (a) there is a relatively significant presence of industry, and (2) the government has some control over labor unions and the financial system. This paper formalizes some of these arguments.

2 Some stylized differences

This brings us to the crux of the present paper. Recent literature suggests that Asian countries tend to have real exchange rate cycles that differ markedly from those found in Latin American countries.[5] In particular, while the latter are found to exhibit immediate post-election depreciations followed by appreciations and current account deficits leading up to the next elections, the former experience the opposite. These cycles translate into differences in averages over time. Frieden [2015](p. 188), for instance, notes the contrast between the "habitually overvalued" Latin American currencies and the "habitually undervalued" East Asian ones. To the extent that exchange rate movements reflect policy stances, what explains this divergence?

Four key factors may contribute to explaining differences between Latin America and East/Southeast Asia in real exchange rate policy patterns at the cyclical level:

1. initial conditions: Asian countries tended to begin with greater informality/underemployment in the post World War II decades of decolonization,

2. employment generation: greater labor-intensity of export production in Asia,

3. historical memory: Asian populations may place greater emphasis on expanding the tradable sector given the patterns of export-led growth in the past, and

4. affiliation of the median voter: greater present employment in the tradable sector (as a proportion of total employment) in East Asia compared to Latin America.

Huang and Terra [2016] emphasize argument (4) while Ryou [2008] argues for (3). These arguments help explain recent trends in East Asia, after it had already industrialized (so that tradable employment was high). But we need to go back to initial conditions to explain why these patterns emerged and persisted in Asia. Surplus labor and underemployment – so that real wages deviated from the marginal product of labor – and an expectation that (initially) labor-intensive industrialization will significantly help lift demand and employment in the rest of the economy, that is arguments 1 and 2, play an important role here.[6]

A look at historical data may help illuminate the emergence of long-run average differences from short-run patterns. Figure 1 illustrates some key differences based on a sample of 10 Latin American and 7 East and Southeast Asian economies. These are the largest economies in the respective regions for which: (1) the average manufacturing to GDP ratio for the period 1960-2016

[5] See Huang and Terra [2016] and Ryou [2008].

[6] See Sachs [1985] for statistics regarding the relatively low initial level of urbanization and unionization in East Asia compared to Latin America.

is greater than 15 percent (to ensure that these have significant tradable sectors and to exclude offshore banking havens), and (2) the relevant data are available for most of that period.[7] The numbers reported are averages for the period 1960-2016, except for China. In this latter case, we average the data over the period 1980-2016, to limit coverage to the period following the initiation of market-oriented reforms.

The column titled *Underval* reports the degree of undervaluation.[8] Positive numbers indicate real undervaluation. Almost half the Asian countries under consideration experienced real undervaluation, on average, while the same is true for only two of the Latin American countries. Moreover, while the Latin American countries experienced, on average, a slight (1 percent) overvaluation over the period, the Asian economies experienced significant (about 13 percent) undervaluation. The expected implications of this difference are reflected in the behavior of the current account, measured as a proportion of the GDP (*CA-GDP*). Almost the entire sample of Latin American countries ran a current account deficit, on average, while, with the exception of the Philippines, the Asian countries ran surpluses. In terms of overall cross-sectional averages, the Latin American sample experienced a deficit of 1.78 percent of GDP while the Asian countries experienced a surplus of 2.69 percent.

Other interesting differences emerge from the numbers provided in the table. Real undervaluation in Asia co-existed with a higher average share of: (1) manufacturing in total value-added, *Manuf-GDP*, an average of 25.3 percent in Asia versus 19.7 percent in Latin America, (2) exports in GDP, *Exports-GDP*, (56.6 percent versus 19.7 percent), and (3) industrial employment in total employment, *Indus-Emp* (26.4 percent versus 21.4 percent). Although not perfect measures, these three proportions help give us some idea of the relative sizes of the tradable sector.

The last two columns titled *Inv_T* and *Inv_N* convey a similar picture. The two variables proxy for the shares of investment in the tradable and non-tradable sectors, respectively. The Penn World Tables (PWT 9.0) classifies investment into 4 types by assets: (1) structures (residential and non-residential), (2) machinery, (3) transportation equipment, and (4) other assets such as patents. I classify (1) as non-tradable investment, and the sum of (2) and (3) as tradable investment. Table 1 shows that investment in Asia, with an average of 42.2 percent for *Inv_T*, was more tilted towards machinery and transportation equipment than that in Latin America, where the corresponding average was 36.8 percent. Conversely, with an average of 60 percent, Latin American investment was more biased toward structures than Asia (average 52.1 percent). To the extent that the tradable manufacturing sector is more intensive in the use of machinery and equipment than the services sector in developing countries, this is consistent with the larger picture that emerges from the table.

In sum, a look at the data for the period 1960-2016 indicates that, unlike Latin American countries, Asian countries, on average, had undervalued real exchange rates, current account surpluses, and a greater bias in growth towards the tradable sector. This suggests that differences in real exchange rate and current account behavior between the two countries are structural, and partly reflect cyclical differences that translate into longer-term behavior. The interests of the median

[7] Indonesia, Cambodia, and Vietnam satisfied criteria (1) but not (2). Guyana and Honduras satisfied both criteria but were excluded to limit the number of Latin American countries to the largest 10 (based on GDP in 1990, i.e., the approximate middle of the period under consideration). Real undervaluation (*Underval*) and investment shares (*Inv_T* and *Inv_N*) for all the countries (including Taiwan) were calculated from *Penn World Tables 9.0* data while all the other variables were calculated based on data from the World Bank's *World Development Indicators.* For Taiwan, data other than that required for calculating real undervaluation came from the the Statistical Bureau's *National Statistics Republic of China (Taiwan)* and the Central Bank of the Republic of China (Taiwan).

[8] The degree of undervaluation (*Underval*) is an index calculated following Rodrik [2008]. It takes into account the Balassa-Samuelson effect and is comparable across countries and over time.

	Underval	CA-GDP	Manuf-GDP	Indus-Emp	Export-GDP	Inv_T	Inv_N
Argentina	-0.59	-0.92	26.45	24.72	11.12	38.23	59.04
Bolivia	-0.04	-2.21	15.17	20.26	25.52	51.15	48.73
Brazil	-0.04	-2.04	23.90	21.21	9.54	34.99	59.19
Chile	-0.03	-2.88	20.11	24.31	25.49	33.31	64.68
Colombia	0.10	-2.18	18.55	19.75	15.33	27.60	67.91
Dominican Rep.	0.00	-3.88	20.49	22.14	26.44	29.61	69.58
Ecuador	0.20	-1.77	17.33	18.50	19.93	33.88	56.18
Mexico	0.23	-1.93	20.47	24.43	18.01	31.64	66.79
Peru	0.13	-3.69	18.10	15.20	18.86	50.98	46.36
Venezuela	-0.08	3.65	16.23	23.11	26.94	36.62	62.19
Latam 10	**-0.01**	**-1.78**	**19.68**	**21.36**	**19.72**	**36.80**	**60.07**
China	0.46	2.28	32.99	28.73	14.24	31.57	67.37
Korea, Rep.	-0.10	0.66	24.69	28.05	27.78	36.39	56.09
Malaysia	0.18	2.89	21.10	30.07	71.40	48.65	48.78
Philippines	0.13	-1.25	23.97	15.86	29.03	35.04	52.25
Singapore	-0.14	-0.78	21.91	25.78	168.52	45.98	48.59
Taiwan	0.19	7.23	29.40	36.16	47.08	47.08	43.39
Thailand	0.21	7.79	23.33	20.17	38.28	50.54	48.39
Asia 7	**0.13**	**2.69**	**25.34**	**26.40**	**56.62**	**42.18**	**52.12**

*Underval = Undervaluation, CA-GDP = current account as a proportion of GDP,
Manuf-GDP = Manufacturing share of GDP, Indus_Emp = share of industrial employment,
Export-GDP = export share of GDP, Inv_T = share of investment in machinery and transportation equipment, Inv_N = share of investment in residential and non-residential structures

Figure 1: Various variables for Latin America and East and Southeast Asia averaged over the period (1960-2016)

voter may have been more closely aligned with the tradable sector in East Asia than in Latin America and this is likely to have influenced exchange rate policy.

This paper looks more closely at the consequences of electoral considerations varying between groups of countries. Due to differences in initial conditions, economic structures, and the labor-intensity of tradable employment, populations may differ in their preferences when it comes to economic policy. My analysis highlights the trade-offs involved between the level of the real wage on the one hand, and the change in real wages and industrial employment on the other. The main contributions here lie in: (1) shifting focus from the real exchange rate as an instrument to boost demand expansion to more development-related issues, (2) exploring how differences in policy objectives affect the cyclical and average evolution of the current account, employment, capital, and wages, (3) helping explain the difference between Asian and Latin American experiences based on policy preferences driven by initial conditions and structural differences.

The next section develops the basic stylized frameworks for the two regions and draws out the implications. Section 4 concludes.

3 Different Strokes for Different Folks

I hypothesize that underlying economic structures and history may have led Asian and Latin American policymakers to choose objectives differently, and that this may help explain some of the differences in observed real exchange rate, investment, real wage, and current account behavior. Here my main interest lies in differences in real exchange rate policy. Politicians in both regions prioritize rising real wages and attempt to minimize macroeconomic volatility through foreign exchange reserve accumulation, but Asian authorities are willing to let wages rise with a lag, and only through capital accumulation and the resulting shrinkage of rural un/underemployment. The key difference, i.e., the primary emphasis on capital accumulation versus immediate real wage growth, defines different trajectories for the main variables of interest. Most interestingly, from the perspective of this paper, whereas the optimal path of the real exchange rate involves monotonic appreciation of the real exchange rate over the cycle followed by a jump depreciation on election day for Latin America, the corresponding trajectory for Asia initially involves gradual depreciation that persists possibly all the way through the lead up to the election. The real exchange rate may or may not jump in either direction on election day. Both the nature of the cyclical behavior and the resulting long-run averages are consistent with the suggestive evidence discussed earlier in Section 1.

This section develops these ideas employing two stylized settings, one for East Asia and another for Latin America.

3.1 Asia

As discussed earlier, high initial underemployment, lack of labor unions that were independent of the state, the influence and size of the manufacturing sector, and an expectation that capital accumulation and industrialization will lead over time to rising employment and real wages appears to have weighed the scales in favor of capital accumulation. Policy focused on investment and stability is likely, in addition, to assign weights to dampening real wage volatility (which helps promote investment) and maximizing the accumulation of foreign exchange reserves. Given this context, let's consider an environment where policy makers maximize an objective functional V_A such that:

$$V_A \equiv \int_0^T \left[\sigma K - \frac{\psi}{2}(w-q)^2 + \phi B\right] e^{\rho t} dt \tag{1}$$

where K and B denote the level of the capital stock and foreign exchange reserves, respectively, w is the real wage in terms of non-tradables, q is the real exchange rate, that is the price of tradables relative to non-tradables, ρ is the rate of memory loss (the negative of the discount rate), and σ , ψ , and ϕ are the weights assigned to each objective. The variables are defined in terms of log-deviations.

The real wage w is a function of the level of the capital stock (the appendix sketches a simple model to illustrate the underlying mechanisms).[9] This reflects the generation of employment by the expansion of the tradable sector that then shrinks the pool of underemployed labor available to the non-tradable sector.

$$w = \gamma K \tag{2}$$

The evolution of the capital stock – recall that, in this set-up, it is only the tradable, industrial sector that uses capital – over time is a negative (linear) function of the real wage in terms of tradables. That of foreign exchange reserves depends positively and linearly on the real exchange rate. For simplicity, I ignore foreign investment income and the private financial account, which historically have been much smaller categories for East Asian countries compared to major Latin American ones, thanks to relatively closed capital accounts. Employing dots to represent time derivatives and employing equation (2), these behaviors can be captured as follows:

$$\dot{K} = \beta(q - \gamma K) \tag{3}$$

and,

$$\dot{B} = \delta(q - \overline{q}) \tag{4}$$

where $\overline{q}$ is the real exchange rate associated with a balanced current account, $K(0) = K_0$ and $B(0) = B_0$. From hereon, I employ $\overline{q}$ as the benchmark level of the real exchange rate so that undervaluation (overvaluation) corresponds to $q > (<)\overline{q}$. The initial level of capital stock K_0 is given as is the initial level of reserves. Policy makers face a finite horizon problem, the time horizon being defined by political/electoral considerations. Since there are no fixed target for the state variables, the shadow values must be zero at the terminal point where $t = T$.

Based on eqs. (1)-(4), the current value Hamiltonian can be defined as $H \equiv \sigma K - \frac{\psi}{2}(\gamma K - q)^2 + \phi B + \lambda\beta(q - \gamma K) + \mu\delta(q - \overline{q})$, where λ and μ are the shadow prices of capital and foreign exchange reserves, respectively, and the first order conditions are given by:

$$q - \gamma K = \frac{\beta\lambda + \delta\mu}{\psi} \tag{5}$$

$$\dot{\lambda} = -\sigma - \gamma\delta\mu - \rho\lambda \tag{6}$$

$$\dot{\mu} = -\phi - \rho\mu \tag{7}$$

[9] See also Razmi et al. [2012] for a more comprehensive framework that yields wage growth as a function of the capital stock in a capital-scarce economy with underemployment.

where equation (5) was substituted in to derive equation (6). I assume throughout that investment is sensitive enough to the relative price signal so that $\beta\gamma > \rho$. Solving equation (7) and using the terminal value condition $\mu(T) = 0$, yields the time path for μ .

$$\mu(t) = \frac{\phi}{\rho}\left[e^{\rho(T-t)} - 1\right] \tag{8}$$

Substituting this solution into equation (6) and solving forward given $\lambda(T) = 0$ then yields the trajectory for λ .

$$\lambda(t) = \left(\sigma - \frac{\gamma\delta\phi}{\rho}\right)\frac{e^{\rho(T-t)} - 1}{\rho} + \frac{\gamma\delta\phi}{\rho}(T-t)e^{\rho(T-t)} \tag{9}$$

The shadow values of both foreign exchange reserves and capital decline with time. The shadow value of capital is positive as long as sufficient emphasis is placed on capital accumulation, i.e., $\sigma > \frac{\gamma\delta\phi}{\rho}$. Notice that this is a sufficient but by no means necessary condition.

Thanks to eqs. (3) and (5), we can now derive the time path of the capital stock after substitution from the trajectories of the shadow values, as given by eqs. (8) and (9), and employing the initial value condition $K(0) = K_0$.

$$\begin{aligned} K(t) = K_0 + \frac{\beta}{\rho\psi}\left\{\frac{\beta\gamma\delta\phi}{\rho}e^{\rho(T-t)} - \left[\beta\sigma - \left(\frac{\beta\gamma}{\rho} - 1\right)\delta\phi\right]\right\}t \\ + \frac{\beta}{\rho^2\psi}\left\{\left[\beta\sigma - \left(\frac{\beta\gamma}{\rho} - 1\right)\delta\phi\right] + \beta\gamma\delta\phi\left(T - \frac{1}{\rho}\right)\right\}\left[e^{\rho T} - e^{\rho(T-t)}\right] \end{aligned} \tag{10}$$

The greater the weight assigned to capital accumulation, the higher is the capital stock at any given point in time along the optimal trajectory. A sufficient, although not necessary condition for the capital stock to be monotonically increasing with time is that $\beta\sigma > \left(\frac{\beta\gamma}{\rho} - 1\right)\delta\phi$.[10] Since we have already assumed that investment is sufficiently sensitive to the real exchange rate so that $\beta\gamma > \rho$, this condition requires that the policy function assigns a high weight to capital, and that the real wage response to capital accumulation be relatively low. These are plausible assumptions for Asia where, as discussed earlier, the initial conditions involved high underemployment and a premium on capital accumulation in the industrial sector. Given the satisfaction of this condition, investment starts off in positive territory and declines to zero at $t = T$, i.e., $\dot{K}(T) = 0$. The real exchange rate policy has, by the end of the cycle, run its course as far as investment is concerned.

We are now in a position to solve for the time path of the control variable, i.e., the real exchange rate. Employing eqs. (3) and (10) yields:

$$\begin{aligned} q(t) = \gamma K_0 + \frac{1}{\rho\psi}[\beta\sigma - \left(\frac{\beta\gamma}{\rho} - 1\right)\delta\phi\left\{\frac{\beta\gamma}{\rho}\left[e^{\rho T} - e^{\rho(T-t)} - \rho t\right] + \left[e^{\rho(T-t)} - 1\right]\right\} \\ + \frac{\beta\gamma\delta\phi}{\rho\psi}\left\{\frac{\beta\gamma}{\rho}\left[\left(T - \frac{1}{\rho}\right)(e^{\rho T} - e^{\rho(T-t)}) + te^{\rho(T-t)}\right] + (T-t)e^{\rho(T-t)}\right\} \end{aligned} \tag{11}$$

[10]The necessary condition is given by: $\left[\beta\sigma - \left(\frac{\beta\gamma}{\rho} - 1\right)\delta\phi\right]\frac{e^{\rho(T-t)}-1}{\rho} + \frac{\beta\gamma\delta\phi}{\rho}(T-t)e^{\rho(T-t)} > 0$.

If we impose, as a benchmark, initially balanced trade, i.e., $\dot{B} = 0$, so that $q(0) = \overline{q}$, we can derive a slightly modified expression for $q(t)$ in terms of $\overline{q}$ from equation (11).

$$q(t) = \overline{q} + \frac{1}{\rho\psi}.[\beta\sigma - \left(\frac{\beta\gamma}{\rho} - 1\right)\delta\phi]\left[\left(\frac{\beta\gamma}{\rho} - 1\right)(e^{\rho T} - e^{\rho(T-t)}) - \beta\gamma t\right] + \frac{\beta\gamma\delta\phi}{\rho\psi}\left\{\frac{\beta\gamma}{\rho}\left[\left(T - \frac{1}{\rho}\right)(e^{\rho T} - e^{\rho(T-t)}) + te^{\rho(T-t)}\right] + (T-t)e^{\rho(T-t)} - Te^{\rho T}\right\} \quad (12)$$

The path of the real exchange rate is likely to be non-monotonic over the cycle. It is unambiguously appreciating at the end.[11] The direction of earlier movement depends on priorities and on the length of the cycle. The higher T is, the greater the likelihood that the real exchange rate initially depreciates. Since a central theme of this paper is to emphasize how an electoral focus on capital accumulation may have determined real exchange rate policy in Asia, it is important to note that the higher the relative weight assigned to the stock of capital relative to accumulation of reserves, the greater the likelihood that the real exchange rate will initially depreciate. In the extreme, when $\phi = 0$, the real exchange rate unambiguously depreciates over the first part of the cycle,[12] and the appreciation at the end is smaller. In this case, one can calculate the time t_c at which the depreciation turns into an appreciation:[13]

$$t_c = T - \frac{1}{\rho}\ln\left(\frac{\beta\gamma}{\beta\gamma - \rho}\right) \quad (13)$$

The time at which the initial depreciation reverses varies positively with the time horizon T for the cycle and the sensitivity of investment to the real exchange rate, and negatively with the rate of memory loss. In the event that ρ approaches zero, $t_c \to T$, i.e., the initial depreciation changes direction only at the very last moment before the elections.[14]

One can, under these conditions, also derive the *average* level of the real exchange rate $\hat{q}$ over the cycle:

$$\widehat{q} = \overline{q} + \frac{\beta\sigma}{\rho\psi}\left\{\left(\frac{\beta\gamma}{\rho} - 1\right)\left[e^{\rho T} - \frac{e^{\rho T} - 1}{\rho T}\right] - \frac{\beta\gamma T}{2}\right\} \quad (14)$$

The longer the cycle, that is the longer the period available available to policy makers, the greater the likelihood that the real exchange rate will be undervalued, on average. Also, the greater the weight assigned to capital accumulation (i.e., σ), the greater the average degree of undervaluation.

One can also derive the level of q at the end of the cycle relative to its initial level. A look at equation (12) should convince the reader that the higher σ is, the higher the likelihood that $q(T) > q(0)$. Again, to keep things simple, let's consider the case where $\phi = 0$. Then, it can be shown that, $q(T) \lesseqgtr q(0)$ as $\frac{e^{\rho T}-1}{\rho} - T \lesseqgtr \frac{e^{\rho T}-1}{\beta\gamma}$. High wage sensitivity to the level of capital stock (as measured by γ) induces policy makers to maintain a higher level of undervaluation up until the end.

The intuition underlying these results is relatively straightforward. When σ is high, politicians have an incentive to have as high a capital stock as possible at $t = T$. This requires starting with

[11] $\dot{q}(T) = -\frac{\beta\sigma+\delta\phi}{\psi}$.

[12] In this case, $\dot{q}(0) = \frac{\beta\sigma}{\rho\psi}[(\beta\gamma - \rho)e^{\rho T} - \beta\gamma] > 0$.

[13] In order to derive this expression, start with equation (12), and set $\phi = 0$ and $\dot{q}(t) = 0$.

[14] The function is undefined at $\rho = 0$.

a high (undervalued) real exchange rate and, therefore, high investment. As time passes and the real wage rises with capital accumulation, the incentive to depreciate strengthens as we approach later stages of the cycle. Notice also, that the average value of the real exchange rate over the cycle varies inversely with the penalty associated with real exchange rate volatility. In the extreme case, where $\psi \to \infty$, i.e., voters are infinitely averse to volatility, policy makers would maintain a constant q at the level consistent with balanced trade.

Starting with a balanced current account, one can see by plugging equation (12) into equation (4) that the balance may be be positive or negative at $t = T$.

$$\dot{B}(t) = \frac{\delta}{\rho\psi}\left[\beta\sigma - \left(\frac{\beta\gamma}{\rho} - 1\right)\delta\phi\right]\left[\left(\frac{\beta\gamma}{\rho} - 1\right)(e^{\rho T} - e^{\rho(T-t)}) - \beta\gamma t\right] + \frac{\beta\gamma\delta^2\phi}{\rho\psi}\left\{\frac{\beta\gamma}{\rho}\left(T - \frac{1}{\rho}\right)\left[(e^{\rho T} - e^{\rho(T-t)}) + te^{\rho(T-t)}\right] + (T-t)e^{\rho(T-t)} - Te^{\rho T}\right\} \quad (15)$$

Not surprisingly (since $q(0) = \overline{q}$ corresponds with a balanced current account), the condition for $\dot{B}(T) \gtrless 0$ is precisely identical to that for $q(T) \gtrless q(0)$. Greater emphasis on raising wages through capital accumulation leads to higher average undervaluation and current account surpluses.

Perhaps the evolution of the real wage is the most interesting aspect to look at in the context of political cycles. We know from equation (2) that the real wage in terms of tradables evolves in response to the evolution of the capital stock and the real exchange rate. In terms of levels, the movement over time can be derived from eqs. (2), (10) and (12):

$$w - q = (\gamma K_0 - q) + \frac{1}{\rho\psi}\left[\beta\sigma - \left(\frac{\beta\gamma}{\rho} - 1\right)\delta\phi\right]\left[e^{\rho T} - e^{\rho(T-t)}\right] - \frac{\beta\gamma\delta\phi}{\rho\psi}\left[(T-t)e^{\rho(T-t)} - Te^{\rho T}\right] \quad (16)$$

The real wage in terms of tradables at time T exceeds the initial level by the amount $\frac{1}{\rho\psi}[\beta\sigma - \left(\frac{\beta\gamma}{\rho} - 1\right)\delta\phi](e^{\rho T} - 1) + \frac{\beta\gamma\delta\phi}{\rho\psi}Te^{\rho T}$. Policy focused on capital accumulation has raised labor incomes, although at a declining rate, so that the pace of increase decelerates over the cycle.

To sum things up, the political business cycle that emerges – given sufficient emphasis on capital accumulation – consists of: (1) a real exchange rate that initially depreciates before it possibly reverses course at some point before $t = T$, (2) a capital stock that rises although the rate of change drops to zero by the end, (3) a higher real wage although the rate of increase declines over time, (4) current account surpluses followed possibly by deficits, and (5) real undervaluation and current account surpluses, on average. Depending on (4), the beginning of a new cycle could be accompanied by a step real depreciation or appreciation (or no change). The higher the relative emphasis on accumulation, the higher the likelihood that the real exchange rate is, on average, undervalued and the current account is in surplus.

Figure 2 illustrates our discussion. The figure presents the case where the relative preference for wage gains through capital accumulation in the tradable sector is high.

As we show in the next sub-sections, these patterns change once policy focus shifts from capital accumulation to directly raising real wages, perhaps because of weaker policy leverage over the wage-setting process and/or a smaller tradable sector. We get instead a cyclical pattern that is more reminiscent of the electoral business cycle literature on Latin America.

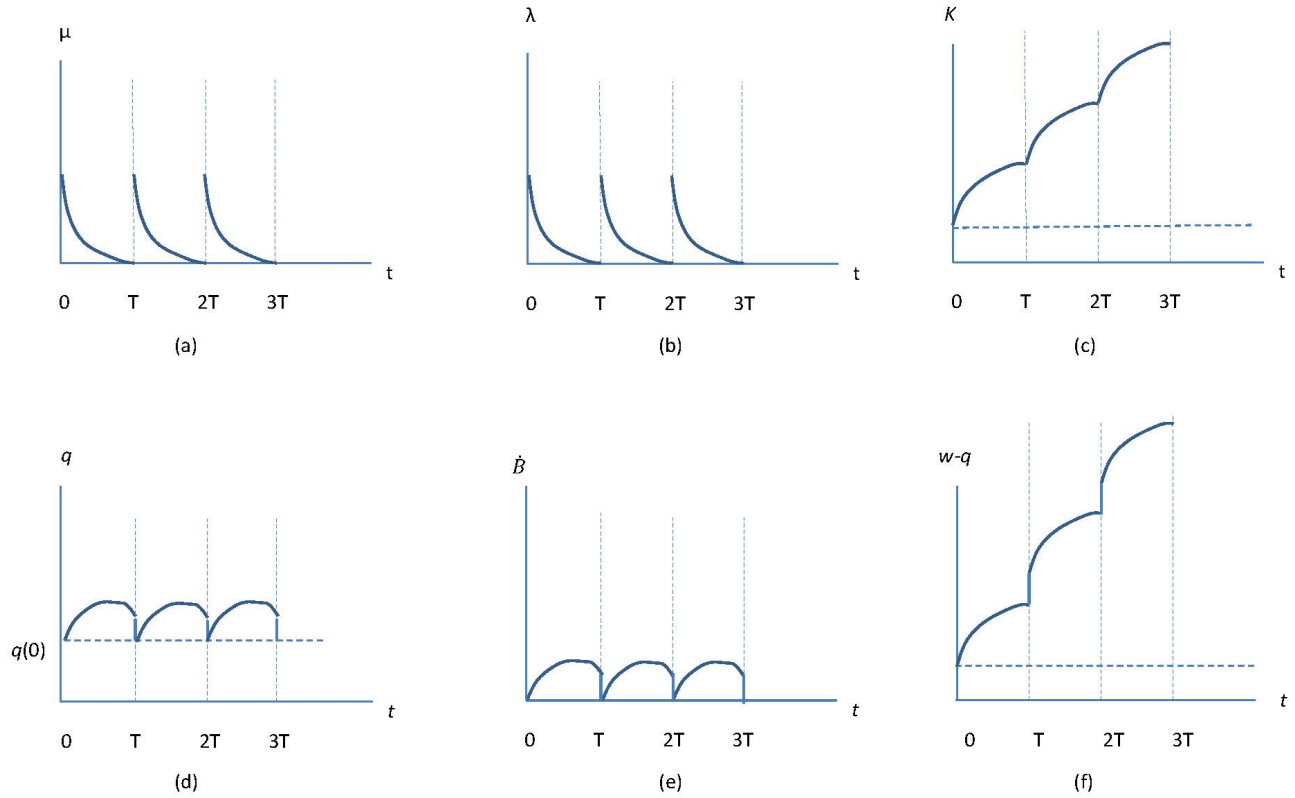

Figure 2: Time paths for various variables in the stylized "Asian" case. Panels (d), (e), and (f) are drawn for the case where ϕ is zero and $\beta\gamma$ is relatively high.

3.2 Latin America

Electoral considerations may have been different in major Latin American economies. In particular, lesser political control over the wage-setting process in the labor market, the weakness of the labor-intensive manufacturing sectors, and the strength of urban labor unions may have shifted the focus of real exchange rate policy to directly boosting real wages (in terms of tradables) instead of going through the indirect route involving capital accumulation. Given this context, let's consider a somewhat different objective functional:

$$V_L \equiv \int_0^T \left[\alpha(w-q) - \frac{\epsilon}{2}(q-\overline{q})^2 + \phi B\right] e^{\rho t} dt \tag{17}$$

The main difference from the Asian case (see equation (1)) is that: (1) the goal is to raise the real wage directly using the control variable, and (2) the concern is with real exchange rate volatility rather than labor cost volatility (that more directly affects investment). Again, the modified specification reflects the hypothesis that policy makers in Latin America have traditionally had less control over wage-setting in the industrial sector and that the pressure for rapid increases in urban wages has been stronger.

The wage specification according to equation (2) continues to apply and the constraints captured by eqs. (3) and (4) continue to hold, although in light of the historically greater salience of foreign asset trade in Latin America, I now incorporate debt service obligations and investment income in the current account. The modified equation of motion for foreign assets therefore becomes:

$$\dot{B} = iB + \delta(q - \overline{q}) \tag{18}$$

where i is the (internationally given) real exchange rate and implicitly uncovered interest parity is assumed to hold with static expectations. Following the same steps as earlier yields the following first order conditions:

$$q = \overline{q} + \frac{\beta\lambda + \delta\mu - \alpha}{\epsilon} \tag{19}$$

$$\dot{\lambda} = -\alpha\gamma + (\beta\gamma - \rho)\lambda \tag{20}$$

$$\dot{\mu} = -\phi - (i+\rho)\mu \tag{21}$$

Notice that, unlike the Asian case, the real exchange rate depends now only on the shadow price but not the stock of capital. This difference is a significant driver of the results that we derive later regarding the trajectories of the real exchange rate and the current account. Specifically, as we show later, the real exchange rate appreciates throughout the cycle, and the average real exchange rate is unambiguously overvalued, on average.

Backward integration, along with the use of the terminal value conditions for the shadow prices yields:

$$\mu(t) = \frac{\phi}{i+\rho}\left[e^{(i+\rho)(T-t)} - 1\right] \tag{22}$$

$$\lambda(t) = \frac{\alpha\gamma}{\beta\gamma - \rho}\left[1 - e^{-(\beta\gamma-\rho)(T-t)}\right] \tag{23}$$

Again, both shadow prices decline over time. A look at equation (19) reveals that q must also then decline (appreciate) over time. More formally, substituting the solutions for μ and λ into equation (19) yields:

$$q(t) = \left(\overline{q} - \frac{\alpha}{\epsilon}\right) + \frac{1}{\epsilon}\left\{\frac{\beta\alpha\gamma}{\beta\gamma-\rho}\left[1 - e^{-(\beta\gamma-\rho)(T-t)}\right] + \frac{\delta\phi}{i+\rho}\left[e^{(i+\rho)(T-t)} - 1\right]\right\} \tag{24}$$

The greater the weight given to the main target, i.e., the higher α, the lower (i.e., more appreciated) the level of q along its trajectory . Notice the sharp contrast with the counterpart weight σ in the Asian case. How one pursues wage increases matters.

If we assume, as we did in the Asian case, an initially balanced current account, so that $\dot{B}(0) = 0$, and the country is neither an international debtor or creditor to begin with, then $q(0) = \overline{q}$, and equation (24) can be re-scaled, for convenience, to:

$$q(t) = \overline{q} - \frac{1}{\epsilon}\left\{\frac{\beta\alpha\gamma}{\beta\gamma-\rho}\left[e^{-(\beta\gamma-\rho)(T-t)} - e^{-(\beta\gamma-\rho)T}\right] + \frac{\delta\phi}{i+\rho}\left[e^{(i+\rho)T} - e^{(i+\rho)(T-t)}\right]\right\} \tag{25}$$

It can be easily demonstrated from here that $q(T) < q(0)$, and that the real exchange rate appreciates monotonically over the cycle. The average level of q is given by:

$$\widehat{q} = \overline{q} - \frac{1}{\epsilon T}\left\{\frac{\beta\alpha\gamma}{\beta\gamma-\rho}e^{-(\beta\gamma-\rho)T}\left[\frac{e^{(\beta\gamma-\rho)T}-1}{\beta\gamma-\rho} - T\right] + \frac{\delta\phi}{i+\rho}e^{(i+\rho)T}\left[\frac{e^{-(i+\rho)T}-1}{i+\rho} + T\right]\right\} \tag{26}$$

The expression in the curly brackets is positive. Thus, in contrast to the Asian case, the real exchange rate is unambiguously overvalued, on average, over the cycle.

Given the assumptions about the initial conditions, the trajectory of the net foreign asset position can be derived from eqs. (18) and (25).

$$B(t) = -\frac{\delta}{\epsilon}\{\frac{\beta\alpha\gamma}{\beta\gamma-\rho}\frac{i\left[e^{(\beta\gamma-\rho)t}-1\right] + (\beta\gamma-\rho)(1-e^{it})}{i(\beta\gamma-\rho-i)}e^{-(\beta\gamma-\rho)T} \\ \frac{\delta\phi}{i+\rho}\frac{-(2i+\rho) + (i+\rho)e^{it} + ie^{-(i+\rho)t}}{i(2i+\rho)}e^{(i+\rho)T}\Bigg\} \tag{27}$$

The net foreign asset position monotonically deteriorates over time and is, therefore, lower at the end of the cycle. Differentiation of (27) with respect to time yields the evolution of the current account:

$$\dot{B}(t) = -\frac{\delta}{\epsilon}\left[\frac{e^{(\beta\gamma-\rho)t} - e^{it}}{\beta\gamma-\rho-i}\beta\alpha\gamma e^{-(\beta\gamma-\rho)T} + \frac{e^{it} - e^{-(i+\rho)t}}{2i+\rho}\delta\phi e^{(i+\rho)T}\right] \tag{28}$$

The economy runs increasing current account deficits over the cycle. The higher the weight given to raising real wages (i.e., the greater α is), the larger the deficits. Again, the contrast to the stylized Asian case, where an increase in σ coincides with larger current account *surpluses,* is clear.[15]

The evolution of the capital stock follows from eqs. (3) and (25).

[15] See the discussion following equation (15).

$$K(t) = K_0 - \left(K_0 - \frac{\overline{q}}{\gamma}\right)\left(1 - e^{-\beta\gamma t}\right) - \frac{1}{\epsilon}\left\{\frac{\beta\alpha\gamma}{(\beta\gamma-\rho)}e^{-(\beta\gamma-\rho)T}\left[\frac{\beta\gamma e^{(\beta\gamma-\rho)t} + (\beta\gamma-\rho)e^{-\beta\gamma t} - (2\beta\gamma-\rho)}{\gamma(2\beta\gamma-\rho)}\right]\right.$$
$$\left. + \frac{\delta\phi}{(i+\rho)}e^{(i+\rho)T}\left[\frac{\beta\gamma\left(1-e^{-(i+\rho)t}\right) - (i+\rho)(1-e^{-\beta\gamma t})}{\gamma(\beta\gamma-i-\rho)}\right]\right\} \quad (29)$$

The capital stock at the end of the cycle is below its initial level unless the level of q required to maintain a balanced current account is very high (i.e., unless $\overline{q} >> K_0$).[16] In this latter case the corresponding initial real wage is low enough to ensure positive investment. Also, the level of the capital stock is higher the lower the weight assigned to real wages and the higher the aversion to real exchange rate volatility around its benchmark level. The intuition is straightforward. Electoral considerations encourage appreciation over time in order to maintain a higher real wage. The stronger this consideration, the lower (appreciated) the path of q, and the more negatively capital accumulation is affected. The desire for appreciation, however, is tampered by the desire to avoid volatility. The stronger the latter desire, the less overvalued the exchange rate is, and hence the less the decline in capital accumulation over the cycle.

The evolution of the real wage in terms of tradables is influenced by the movements of both q and K over time. Formally, from eqs. (25) and (29):

$$w(t) - q(t) = (\gamma K_0 - \overline{q})\, e^{-\beta\gamma t} - \frac{1}{\epsilon}\left\{\beta\alpha\gamma e^{-(\beta\gamma-\rho)T}\left[\frac{e^{-\beta\gamma t} - e^{(\beta\gamma-\rho)t}}{2\beta\gamma-\rho}\right] + \delta\phi e^{(i+\rho)T}\left[\frac{e^{-\beta\gamma t} - e^{-(i+\rho)t}}{\beta\gamma-i-\rho}\right]\right\} \quad (30)$$

The real wage at the end of the cycle exceeds the initial one if the initial real wage, $\gamma K_0 - \overline{q}$, is sufficiently low. Alternatively, if the initial real wage, $\gamma K_0 - \overline{q}$, is sufficiently high, the resulting capital decumulation and unemployment will lead to a lower real wage at the end of the cycle. Not surprisingly, a high α , i.e., a greater policy emphasis on raising real wages, tilts the likelihood in favor of a higher real wage at any given time t.

To summarize, the political business cycle emerging from the stylized Latin American case involves: (1) a real exchange rate that appreciates throughout the cycle, (2) a capital stock that may or may not rise, depending on initial conditions, (3) possibly a higher real wage although the rate of increase declines over time, (4) current account deficits throughout the cycle. The latter result means that the beginning of a new cycle will have be accompanied by a step real depreciation to restore the current account balance. In striking contrast to the earlier stylized Asian case, the greater the emphasis on raising the real wage (now through appreciation rather than accumulation), the greater the likelihood that the real exchange rate is, on average, overvalued and the current account is in deficit.

Figure 3 illustrates the discussion in this section. The figure presents the case where the initial real wage is low enough so that investment is positive at $t = 0$.

[16] Note that the term in the curly parentheses in equation (29) is positive. Note also that, in the case where $\overline{q} >> K_0$, the jump devaluation required at the beginning of the cycle will be very high to restore current account balance.

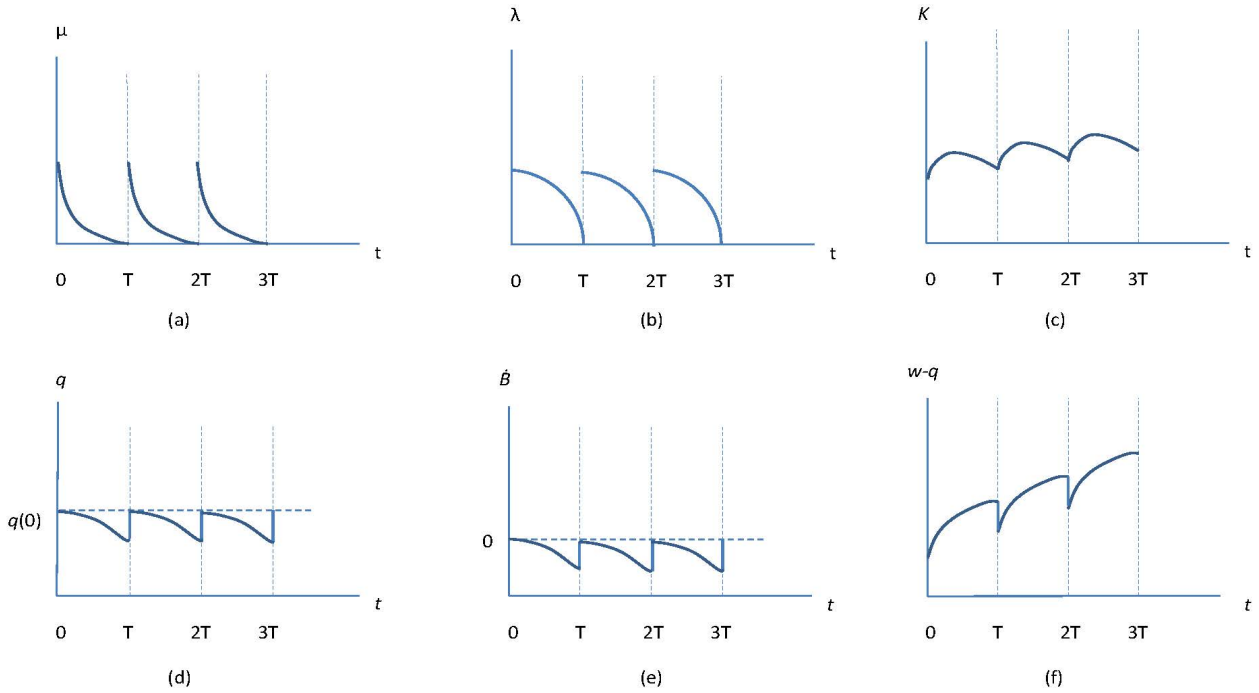

Figure 3: Time paths for various variables in the stylized "Latin American" case. Panels (c) and (f) are drawn for the case where the real wage is initially low enough to generate positive investment.

4 Concluding Remarks

Over two decades ago, Pick and Vollrath [1994] observed that, "[I]n developing countries, exchange rates are overvalued." Political business cycle literature has yielded insights into the underlying reasons. This begs the question: why has exchange rate policy in some countries appeared to have been much better at providing relative price signals conducive to industrialization? Why do the characteristics of political cycles appear to differ between major East Asian and Latin American economies? This paper attempts to provide some answers based on policy choices in response to voter preferences, as shaped by economic structure and historical experience. There is substantial empirical evidence from major Latin American countries that these experience real exchange rate cycles, often with a step depreciation after an election followed by consistent overvaluation and current account deficits in an attempt to keep real wages high in the lead up to the next elections. Some studies of the East and Southeast Asian countries that have rapidly industrialized in recent decades, on the other hand, find a markedly different pattern, involving undervaluation, high investment, and current account surpluses over the course of the political business cycle, followed by appreciations around elections.

I formally derive these patterns with the help of formal models that capture some stylized features of Latin American and Asian manufacturing economies. The results suggest that a major difference between the two regions may lie in the approach to achieving politically favorable labor market outcomes. Unlike Latin America, the focus in Asia may have been on indirectly raising wages through capital accumulation in the tradable/manufacturing sector, and this may have generated the differences observed in the behavior of real exchange rates, the current account balance, and investment over the course of their respective political cycles. The findings here are suggestive, needless to add, and much more careful empirical work will have to be done before one can draw strong conclusions about the relevance of the theoretical results derived.

5 Appendix: A Simple Model of Wage Determination

Consider a stylized economy with two sectors, a tradable one, or the T -sector, and a non-tradable one, the N -sector. The N -sector uses labor only and the output of the non-tradable good Y_N is given while the tradable sector employs labor and capital too produce using a fixed coefficients technology.

$$Y_N = \overline{Y}_N \tag{31}$$

$$Y_T = \min(K, L_T) \tag{32}$$

so that,

$$L_T = K \tag{33}$$

The consumption of the two goods is determined by preferences of the Cobb-Douglas form:

$$\frac{C_N}{C_T} = \frac{1-\kappa}{\kappa} q \tag{34}$$

Investment is a function of the profit rate:

$$I = f\left(\frac{eP_T Y_{T-WL_T}}{eP_T K_T}\right) = f\left(1 - \frac{w}{q}\right) \tag{35}$$

Thus, investment varies inversely with w and positively with q . The real wage in terms of non-tradables is determined by the average income in the N -sector, i.e., the fallback position for T -sector workers. Denoting the total (constant) labor force by L and employing equation (33):

$$w = \frac{\overline{Y}_N}{L - L_T} \tag{36}$$

Finally, the N -sector clearing condition is given by:

$$Y_N = C_N \tag{37}$$

There are 7 unknowns (Y_N , C_N , Y_T , C_T , L_T , I , w) and seven equations (the real exchange rate is determined by the optimal control path). Under these condition, w is a positive function of the state variable K and the constant $\overline{Y}_N$, and a negative function of L.

References

Alberto Alesina. Macroeconomic policy in a two-party system as a repeated game. *Quarterly Journal of Economics*, 102(3):651678, August 1987.

Alberto Alesina, Gerald D. Cohen, and Nouriel Roubini. Electoral business cycle in industrial democracies. *European Journal of Political Economy*, 9(1):1–23, 1993.

Marco Bonomo and Cristina Terra. The political economy of exchange rate policy in brazil: 1964-1997. Research Department Publications 3065, Inter-American Development Bank, Research Department, 1999.

Marco Bonomo and Cristina Terra. Elections and exchange rate policy cycles. *Economics and Politics*, 17:151–176, 2005.

Adi Brender and Allan Drazen. Political budget cycles in new versus established democracies. *Journal of Monetary Economics*, 52(7):1271–1295, October 2005.

Rodolfo Cermeno, Robin Grier, and Kevin Grier. Elections, exchange rates and reform in latin america. *Journal of Development Economics*, 92(2):166–174, 2010.

Henry Chappell and William R Keech. Party differences in macroeconomic policies and outcomes. *American Economic Review*, 76(2):71–74, 1986.

Allan Drazen. The political business cycle after 25 years. In Ben S. Bernanke Kenneth Rogoff, editor, *NBER Macroeconomics Annual 2000, Volume 15*, NBER Chapters, pages 75–138. National Bureau of Economic Research, Inc, Massachusetts, July 2001.

Allan Drazen and Marcela Eslava. Electoral manipulation via voter-friendly spending: Theory and evidence. *Journal of Development Economics*, 92(1):39–52, 2010.

Christopher J. Ellis and Mark Thoma. The implications for an open economy of partisan political business cycles: Theory and evidence. *European Journal of Political Economy*, 11(4):635–651, 1996.

Jeffry Frieden and Lawrence Broz. The political economy of exchange rates. In Barry Weingast and Donald Wittman, editors, *Oxford Handbook of Political Economy*. Oxford University Press, Oxford, 2006.

Jeffry Frieden, Piero Ghezzi, and Ernesto Stein. *Politics and Exchange Rates: A Cross-Country Approach to Latin America*. Johns Hopkins University Press, Baltimore, 2001. URL `http://EconPapers.repec.org/RePEc:idb:wpaper:3119`.

Jeffry A. Frieden. *Currency Politics: The Political Economy of Exchange Rate Policy*. Princeton University Press, Princeton, NJ, 2015. ISBN 9780691164151.

Gang Guo. China's local political budget cycles. *American Journal of Political Science*, 53(3): 621–632, 2009.

Martin Guzman, Jose A. Ocampo, and Joseph Stiglitz. Real exchange rate policies for economic development. Working Paper 23868, National Bureau of Economic Research, Cambridge, Massachusetts, 2017.

Douglas A. Hibbs. Political parties and macroeconomic policy. *American Political Science Review*, 71(04):1467–1487, 1977.

Sainan Huang and Cristina Terra. Exchange rate populism. *Economics and Politics*, 28(1):105–132, 2016.

Fabio Alvim Klein and Sergio Sakurai. Term limits and political budget cycles at the local level: evidence from a young democracy. *European Journal of Political Economy*, 37(C):21–36, 2015.

Assar Lindbeck. Stabilization policy in open economies with endogenous politicians. *American Economic Review*, 66(2):1–19, 1976.

William D. Nordhaus. The political business cycle. *Review of Economic Studies*, 42(2):169–190, 1975.

A. Pasco-Fonte and P. Ghezzi. Exchange rates and interest groups in Peru, 1950-1996. In *The Currency Game: Exchange Rate Politics in Latin America*, pages 249–. 2001.

T. Persson and G.E. Tabellini. *Macroeconomic Policy, Credibility and Politics*. Harwood Academic Publishers, Switzerland, 1990. ISBN 9783718650293.

Daniel H Pick and Thomas L Vollrath. Real exchange rate misalignment and agricultural export performance in developing countries. *Economic Development and Cultural Change*, 42(3):555–571, April 1994.

Arslan Razmi, Martin Rapetti, and Peter Skott. The real exchange rate and economic development. *Structural Change and Economic Dynamics*, 23(1):151–69, March 2012.

Dani Rodrik. The real exchange rate and economic growth. *Brookings Papers on Economic Activity*, 2:365–439, 2008.

Kenneth Rogoff and Anne Sibert. Elections and macroeconomic policy cycles. *Review of Economic Studies*, 55(1):1–16, 1988.

Hunjoo Ryou. Electoral cycle of exchange rate in Korea. mimeo, 2008.

Jeffrey D. Sachs. External debt and macroeconomic performance in latin america and east asia. *Brookings Papers on Economic Activity*, 16(2):523–573, 1985.

Ludger Schuknecht. Political business cycles and fiscal policies in developing countries. *Kyklos*, 49 (2):155–70, 1996.

Ludger Schuknecht. Fiscal policy cycles and the exchange rate regime in developing countries. *European Journal of Political Economy*, 15(3):569–580, 1999.

Min Shi and Jakob Svensson. Conditional political budget cycles. CEPR Discussion Papers 3352, C.E.P.R. Discussion Papers, 2002.

Min Shi and Jakob Svensson. Political budget cycles: Do they differ across countries and why? *Journal of Public Economics*, 90(8-9):1367–1389, September 2006.

Byung Soh. Political instability and economic fluctuations in the Republic of Korea. *Public Choice*, 57(3):259–274, 1988. URL `https://EconPapers.repec.org/RePEc:kap:pubcho:v:57:y:1988:i:3:p:259-274`.

Ernesto Stein and Jorge Streb. Elections and the timing of devaluations. *Journal of International Economics*, 63(1):119–145, 2004. URL `http://EconPapers.repec.org/RePEc:eee:inecon:v:63:y:2004:i:1:p:119-145`.

Ernesto Stein, Jorge Streb, and Piero Ghezzi. Real exchange rate cycles around elections. *Economics and Politics*, 17(3):297–330, 2005.

David A. Steinberg. *Demanding Devaluation: Exchange Rate Politics in the Developing World*. Cornell University Press, Ithaca, NY, 2015. ISBN 9780801453847.

Yi-Feng Tao. The evolution of "political business cycl" in post-mao china. *Issues Studies*, 42(1): 163–194, March 2006.

Frederick van der Ploeg. The political economy of overvaluation. *Economic Journal*, 99(397): 850–55, 1989.