Special Interests, Regime Choice, and Currency Collapse

Jamus Jerome Lim*

February 26, 2008

Abstract

With heterogeneous productivity and sticky prices in the short run, exchange rate changes can generate real effects on agents in the economy; the result is that the currency regime becomes a policy variable amenable to political competition. This paper discusses how special interests and government policymakers interact in the decisionmaking processes concerning the optimal level of the exchange rate, and how these interactions may lead to a disconnect between the exchange rate and economic fundamentals which—under appropriate conditions—may affect the timing, and possibility, of a currency crisis. Three extensions to the benchmark model consider the possibility of a semi-independent monetary authority, the existence of a legislature, and electoral pressures.

KEYWORDS: Currency crisis, exchange rate policy, special interest politics, new open-economy macroeconomics
JEL CLASSIFICATION: D72, F34, F41

*The World Bank. Email: jlim@worldbank.org. Deep gratitude naturally extends to my committee, Joshua Aizenman, Ken Kletzer, and Donald Wittman, for advice and direction. Mike Dooley, Thorsten Janus, Mike Peress, Kay Pommerenke, and Abhi Sen Gupta provided very useful comments and generated many insightful discussions, as did seminar participants at UC Santa Cruz. Any errors and omissions remain my sole responsibility. A significant portion of this work was completed while the author was a graduate fellow visiting the University of California's Washington Center, which provided an exceedingly hospitable environment for research. Financial support from both the Institute on Global Conflict and Cooperation and the Graduate Division—under its teaching assistant sabbatical fellowship program—helped pay for *los burritos y la cerveza*, and enabled more lonely nights in the (windowless) office.

What guile is this, that those her golden tresses
She doth attire under a net of gold;
And with sly skill so cunningly them dresses,
That which is gold or hair may scarce be told?
Fondness it were for any, being free,
To cover fetters, though they golden be.

"What Guile Is This?" 1–4, 13–14 (Edmund Spenser)

1 Introduction

The economic debate on the observed choice of an exchange rate regime has had a long intellectual history, and this history is not without its controversies.[1] The more recent literature has sought to clarify the economic consequences of regimes by drawing a distinction between *de facto* and *de jure* fixed exchange rates (Levy-Yeyati & Sturzenegger 2005; Reinhart & Rogoff 2004). However, the ultimate decision over the form of exchange rate regime adopted may have roots in not just purely economic motivations, but also political ones: As papers studying the "fear of floating" phenomenon have shown, there may exist an underlying political dimension to intervention in the foreign exchange market. For example, conflicting policymaker objectives induce a time inconsistency problem with regard to the response of the central bank to exchange risk premia shocks (Calvo & Reinhart 2002); a similar problem underpins a setup where the *ex post* credibility to conduct countercyclical monetary policy is undermined by liquidity shortages in the event of a crisis (Caballero & Krishnamurthy 2004). Alternatively, accounting for a fixed social cost of intervention (Lahiri & Végh 2001) may also raise political economy issues.

Concomitantly, while the onset of the Asian financial crisis has spawned a flurry of third-generation models that attempt to explain the prevalent economic phenomena that defined the crisis (such as concurrent banking and currency crises, international illiquidity, and the real costs of financial crashes), political factors (weak institutions, politically-driven moral hazard, and political contagion spillover) have had less accounting for.[2] This is despite empirical evidence to the contrary. For example, the probability of speculative attacks on the currency has been linked to election timing, constituent interests, and degree of partisanship (Bernhard & Leblang 2000; Leblang 2002, 2003). More generally, political instability may play a role in shifting expectations that lead to self-fulfilling exchange rate realignments (Eichengreen, Rose & Wypolsz 1995).

[1] For instance, the debate on fixed-versus-floating regimes is well known; the classic articles making the case for each are those of Friedman (1953) and Kindleberger (1969), respectively. Similarly, the closely-related literature on the optimal choice of an exchange rate regime has occupied researchers for well over two decades; see Frankel (2003) for a recent, nontechnical review.

[2] Similarly, both first- and second-generation models fail to provide a convincing political story that captures the sophisticated interaction between political actors in the process of policy formation.

Furthermore, special interests have been found to be a significant influence on both exchange rate depreciation as well as exchange rate volatility, after controlling for measures of credibility, economic structure, macroeconomic variables, and various institutional characteristics, such as currency union membership and capital controls (Frieden 2002).

Notwithstanding the pertinence of political factors as a supplement to economic concerns, the actual study of the political economy of exchange rates has had a fairly checkered history. Economists generally regard issues such as the choice of exchange rate regime and the appropriate level of foreign exchange as firmly in the domain of economic theory, while political scientists view exchange rate issues as too technical and removed from the interests of either the mass public or special interests to be of political relevance. With economic globalization, however, greater constraints have been placed on the ability of countries to impose tariffs and nontariff trade barriers within a multilateral framework. This suggests that, increasingly, political actors might choose to redirect their activity away from trade policy and toward exchange rate policy.[3] After all, the benefits of trade liberalization are often unambiguous and well-known; the case for capital account liberalization, however, is less clear.

This political-economic currency game, while not new, is gradually coming into prominence in policy circles. It has certainly been a defining factor in Latin American economic history. Frieden & Stein (2001, pp. 11–16) suggest that "[t]he impact of [special interest politics] on exchange rate policy has evolved over time.... In the 1990s...the availability of compensatory mechanisms declined and, in the midst of a substantial real appreciation...[special interests] became much more vocal about exchange rate policy." This has, on occasion, erupted in the form of a massive run on the currency, imposing real costs and economic hardship on the emerging economy involved.

Likewise, after the initial smoke cleared from the Asian financial crisis of 1997–98, commentators were quick to point out the cronyism, corruption, and nepotism that was pervasive in much of East Asia, and that these political dimensions were as much to blame for the financial collapse.

> Politics in Thailand exerted a powerful influence over both the onset and initial management of the crisis...[i]n both Malaysia and Indonesia, autocratic leaders exploited their discretion to...pursue policies that contributed to market uncertainty...[i]n South Korea, these difficulties [in financial adjustments] were primarily associated with the electoral cycle, but also with the apparent influence wielded by ailing *chaebol*. (Haggard 2000, p. 55, 71)

Taken together, there appears to be a clear need to provide a satisfactory micro-political framework that models the interaction of political actors via

[3]As McKinnon & Fung (1993) note, exchange rate policy and trade policy are likely to be close substitutes in terms of the compensation that they provide: For homogeneous goods, a 1% depreciation is equivalent to a 1% export subsidy used in conjunction with a 1% import tax. For heterogeneous industries, substitutability is not perfect, but the effects are qualitatively similar.

special interest politics—broadly defined—in the determination of a managed peg,[4] and how, under certain conditions, pandering to these interests may usher in a currency crisis. This paper seeks to plug that gap by explicitly introducing lobbying and legislative activity into the exchange rate policymaking decision.

We use, as our point of departure, a model of monopolistically competitive agents in the small open economy (Obstfeld & Rogoff 1995). We then introduce *ex ante* agent heterogeneity coupled with short-term price stickiness such that exchange rates generate a real effect on agent welfare. Consequently, with these real effects, the exchange rate is now amenable as a policy variable that becomes the subject of political competition.

The stage game models the interaction between politically-organized agents and policymakers, how this translates to pressures on the size of the exchange rate revaluation or devaluation when effected by a partially independent monetary authority. The observed exchange rate, which is the managed peg solution, may be inconsistent with economic fundamentals, and induce a run on the currency. To the extent that such activity might lead to a currency crisis, we then outline the conditions surrounding the timing and possibility of the currency crisis. The model is also extended in several directions, to account for the possibility of semi-independent monetary authorities, legislative activity, and electoral pressures.

This paper is primarily a theoretical contribution. The model that we introduce explicitly takes political interactions into account in modeling a managed peg which, ultimately, is a policy choice subject to political pressures. In doing so, it draws on both the new open economy macroeconomics (NOEM) and the new political economy (NPE) literatures. In so doing, it seeks to bridge advances made in NOEM in terms of welfare analysis with those made in NPE in game-theoretic modeling of political phenomena.

The paper is organized as follows. Section 2 introduces the baseline analytical model. Three extensions of this model are considered in Section 3. A concluding section provides reflections on policy.

2 The Analytical Framework

2.1 Households

The world economy is the set I populated by N distinct agents, with preferences such that for a particular agent i, her intertemporal utility function given by

$$U_t^i = \sum_{s=t}^{\infty} \beta^{s-t} \left\{ \log C_s^i + \chi \log \frac{M_s^i}{P_s} - \frac{\kappa^i}{2} \left[y_s(i) \right]^2 \right\}, \tag{1}$$

where C, $\frac{M}{P}$, and y are the real consumption index, real money balances, and production, respectively, and $0 < \beta < 1$ is the subjective discount factor. Each

[4] In practice, the distinction between a managed peg and a dirty float is not always clear, and often a matter of (arbitrary) degree. We use the term managed peg here, bearing in mind that this may also characterize an actively managed floating regime.

individual Home agent is therefore a monopolistic yeoman producer, and goods reside on the interval $z \in \left[0, \frac{1}{2}\right]$; foreign agents reside on $z \in (\frac{1}{2}, 1]$.[5] Note that we have assumed that κ^i can differ across individuals; this simply captures productivity differentials across agents.[6] The consumption index is an aggregation of all goods consumed in the economy:

$$C_s^i = \left[\int_0^1 c_s^i \left(z \right)^{\frac{\theta-1}{\theta}} \; dz \right]^{\frac{\theta}{\theta-1}}, \tag{2}$$

where $c^i \left(z \right)$ is the consumption of good z by individual i, and $\theta > 1$ is the elasticity of substitution. The nominal price index at Home that corresponds to (2) is given by[7]

$$P_s = \left[\int_0^1 p_s \left(z \right)^{1-\theta} \; dz \right]^{\frac{1}{1-\theta}}, \tag{3}$$

where the domestic currency price of good z is given by $p \left(z \right)$. Analogous aggregators C^* and P^* hold for Foreign.

Each agent faces a period budget constraint given by

$$B_{s+1}^i + \frac{M_s^i}{P_s} = \left(1 + r_s \right) B_s^i + \frac{M_{t-1}^i}{P_s} + \frac{p_s \left(i \right)}{P_s} y_s \left(i \right) - C_s^i - \tau_s, \tag{4}$$

where the real interest rate is denoted r, τ is a lump-sum tax in terms of the consumption good, and the stock of internationally-traded riskless bonds (denominated in terms of the consumption good) held by agent i is B^i.

2.2 Government

We assume that Ricardian equivalence holds, such that governments constrain themselves to run a balanced fiscal budget each period, and moreover rebate all seignorage revenues back to the public via transfers:

$$\tau_s = -\frac{M_{s+1} - M_s}{P_s}. \tag{5}$$

Government policymakers are benevolent and possess objective functions that seek to maximize the welfare of all agents in the economy:

$$E_s U_s^G = E_s \int_{i \in I} V_s^i \, di, \tag{6}$$

where V^i is the net welfare of a group i.

[5]This stylized approach loses none of the complexities inherent in a more sophisticated production structure. In the appendix, we sketch out the basics of a model with households and firms and show that similar *ex ante* heterogeneity may result.

[6]To see this, assume a linear production function given by $y \left(i \right) = A^i \left[l \left(i \right) \right]^{\alpha}$, where $\alpha < 1$, and A^i is a measure of productivity. If we let disutility of effort given by $-\phi \left(l + l^* \right)$, inverting the production function and setting $\alpha = 1/2$ and $\kappa^i = 2\phi / (A^i)^{1/\alpha}$ gives the output term as it appears in (1). The variable κ^i is therefore an inverse measure of productivity.

[7]Detailed derivations of selected equations are provided in a separate mathematical appendix that accompanies this paper, available at the author's website.

2.3 Special Interests

There exists a subset of the population $J \subseteq I$, that are able to overcome Olson-style collective action problems and organize themselves as organized special interests. Such agents offer their schedule of lobbying contributions, L^i, with the aim of influencing policy outcomes. The expected net welfare of an organized agent is

$$E_s V_s^i = E_s U_s^i - \frac{\left(L_s^i\right)^2}{2}. \tag{7}$$

The contribution schedule is assumed to be continuous, differentiable, and non-negative, and is the outcome of the program that maximizes (7).

2.4 Economic Equilibrium

The consumption aggregator (2) implies that the intratemporal Home and Foreign demands for a particular product z are given respectively by

$$c_s^i(z) = \left[\frac{p_s(z)}{P_s}\right]^{-\theta} C_s^i, \tag{8}$$

$$c_s^{*i}(z) = \left[\frac{p_s^*(z)}{P_s^*}\right]^{-\theta} C_s^{*i}, \tag{9}$$

which are standard demand functions for a monopolist producer. When taken together, we have world demand for product z given by

$$\begin{aligned} y_s(z) &= \left[\frac{p_s(z)}{P_s}\right]^{-\theta} \int_0^{\frac{1}{2}} C_s^i \, di + \left[\frac{p_s^*(z)}{P_s^*}\right]^{-\theta} \int_{\frac{1}{2}}^1 C_s^{*i} \, di \\ &\equiv \left[\frac{p_s(z)}{P_s}\right]^{-\theta} C_s + \left[\frac{p_s^*(z)}{P_s^*}\right]^{-\theta} C_s^*. \end{aligned} \tag{10}$$

Agents maximize lifetime utility (1) subject to their budget constraint (4), and this yields the standard intertemporal Euler, the intratemporal Euler between real money demand and consumption, and the labor-leisure tradeoff:

$$C_{s+1}^i = \beta\left(1 + r_{s+1}\right) C_s^i, \tag{11}$$

$$\frac{M_s^i}{P_s} = \chi\left[\frac{1 + i_{s+1}}{i_{s+1}}\right] C_s^i, \tag{12}$$

$$y_s(i)^{\frac{\theta+1}{\theta}} = \frac{\theta - 1}{\theta\kappa^i}\left(C_s + C_s^*\right)^{\frac{1}{\theta}} \frac{1}{C_s^i}, \tag{13}$$

where we have made use of Fischer parity $1 + i_{s+1} = \frac{P_{s+1}}{P_s}\left(1 + r_{s+1}\right)$ in (12) to obtain the relationship in terms of nominal interest rates i. In addition, equilibrium requires the transversality condition

$$\lim_{T \to \infty} R_{t,t+T}\left[B_{t+T+1} + \frac{M_{t+T}}{P_{t+T}}\right] = 0,$$

where $R_{t,t+T} \equiv \frac{1}{\prod_{v=t+1}^{s}(1+r_v)}$ is the market discount factor for date $t+T$ consumption.

To close the economic side of our model, we require the market clearing conditions that must exist in equilibrium at Home (with similar equations characterizing equilibrium abroad):

$$\int_0^{\frac{1}{2}} B_{s+1}^i \, di + \int_{\frac{1}{2}}^1 B_{s+1}^{*i} \, di = 0, \tag{14}$$

$$\int_0^{\frac{1}{2}} C_s^i \, di + \int_{\frac{1}{2}}^1 C_s^{*i} \, di = \int_0^{\frac{1}{2}} \frac{p_s(z)}{P_s} y_s(z) \, dz + \int_{\frac{1}{2}}^1 \frac{p_s^*(z^*)}{P_s^*} y_s^*(z^*) \, dz, \tag{15}$$

which are the asset and goods market clearing conditions, respectively.

In a world with no trade frictions and fully flexible prices, the law of one price will hold for each individual good:

$$p_s(z) = \varepsilon p_s^*(z), \tag{16}$$

where the exchange rate, ε, is defined in terms of the Home currency price of Foreign currency. Equation (16) then allows us to rewrite (3) such that

$$P_s = \left[\int_0^{\frac{1}{2}} p_s(z)^{1-\theta} \, dz + \int_{\frac{1}{2}}^1 \varepsilon p_s^*(z)^{1-\theta} \, dz \right]^{\frac{1}{1-\theta}},$$

with an analogous expression for P^*. Taken together, these two equations suggest that the purchasing power parity relation

$$P_s = \varepsilon P_s^* \tag{17}$$

holds when there are flexible prices in both countries. We assume that prices are inflexible for one period at Home, returning to the long-run flexible price after this period. Foreign prices are always flexible.

The gross welfare of an agent is obtained by substituting into (1) the optimal values of C and y that result from solving the system (11)–(13), after log-linearization around the long-run symmetric steady state. We can then establish the following lemma.

Lemma 1. *Assume for any $i, i' \in I$: (a) $\kappa^i \neq \kappa^{i'}$; (b) $p_t(i) \neq p_s(i) = \bar{p}(i)$ $\forall s \geq t+1$. Then agent welfare changes are given by*

$$dU_t^i = \Phi^i \hat{\varepsilon}_t + \frac{1}{\theta} \hat{M}_t^W,$$

where $\Phi^i \equiv \frac{(1+\gamma)(\theta^2-1)}{2[\gamma(1+\theta)+2\theta]} \cdot \frac{\kappa-\kappa^i}{\kappa}$, $\gamma \equiv \frac{1-\beta}{\beta}$, and $\hat{\varepsilon}$ and $\hat{M}^W$ are the deviations of the exchange rate and world money supply from their symmetric steady state values, respectively.

Proof. See appendix. □

The lemma shows that, if agents possess heterogeneous levels of productivity, one-period price stickiness implies that changes in the exchange rate affect welfare.[8] Note that our model leaves the decision to engage in local versus producer currency pricing unexplained; rather, we have simply assumed that, because of idiosyncratic agents, exchange rate deviations make a difference to their welfare.[9] From this we immediately arrive at the following corollary.

Corollary 1. *For any $i, i' \in I$, for a given $\tilde{\varepsilon}_t \neq 0$, $U_t^i(\tilde{\varepsilon}_t) \gtrless U_t^{i'}(\tilde{\varepsilon}_t)$, where $\tilde{\varepsilon}_t = \frac{d\hat{\varepsilon}}{\bar{\varepsilon}_0}$.*

Proof. See appendix. □

This corollary implies that there for any given deviation $\tilde{\varepsilon}$ of the exchange rate from the symmetric steady state, agents are differentially affected by this deviation. In particular, we can rank the welfare of agents along a continuum such that for any given $\tilde{\varepsilon}$, we have the following:

$$dU_t^1(\tilde{\varepsilon}_t) > \ldots > 0 > \ldots > dU_t^N(\tilde{\varepsilon}_t),$$

where we have chosen the index such that agent 1 (agent N) experiences the greatest *ex post* welfare increase (decrease) as a result of the exchange rate change.

2.5 Political Equilibrium

With the nonneutrality of the exchange rate established, we now turn our attention to how political dynamics can influence the decision regarding an exchange rate revaluation or devaluation.

The sequence of events is as follows: (a) Policymakers make their announcements of exchange rate revaluation (ε^R) or devaluation (ε^D) targets, being uncertain about the underlying fundamentals of the economy; (b) The uncertainty is resolved, and special interests offer their lobbying contributions to influence the regime choice; (c) The monetary authority chooses the exchange rate regime according to a preset exchange rate rule, and the economywide exchange rate regime is realized (with an *ex post* probability ψ). The timing assumptions are summarized as Figure 1.

Definition 1. The (pure strategy) subgame perfect Nash equilibrium in the currency game is a pair $\{\{\mathbf{L}^{i*}\}_{i\in J}, \boldsymbol{\varepsilon}^*\}$ such that: (a) $\mathbf{L}^{i*}$ is feasible $\forall i \in J$; (b) $\forall i \in J, k = D, R$: $\{\nexists L^{ik\prime} \neq L^{ik*}$ such that $EV^i(\mathbf{L}^{ik*}, \boldsymbol{\varepsilon}^{ik*}) \leq EV^i(\mathbf{L}^{ik\prime}, \boldsymbol{\varepsilon}^{ik\prime})\}$; (c) $\nexists \varepsilon^{k\prime} \neq \varepsilon^{k*}$ such that $EU^G(\varepsilon^{k*}) \leq EU^G(\varepsilon^{k\prime})$ $\forall k = D, R$.

[8] There are alternative mechanisms where deviations in the exchange can affect welfare. Obstfeld & Rogoff (1995) show that distortionary taxes on labor lead to an expenditure-switching effect, such that agent welfare is affected by a currency depreciation.

[9] Devereux, Engel & Storgaard (2004) endogenize the process of exchange rate pass-through and find that the degree of pass-through is dependent on, *inter alia*, the relative stability of monetary policy.

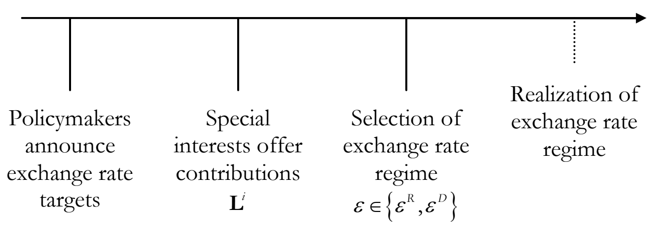

Figure 1: Sequence of events.

We solve the game by backward induction. We assume that, prior to the first stage at time t, the exchange rate is set at an initial level ε_0. Since the entire game takes place within a given time period s, we drop time subscripts in what follows, reintroducing them only in our discussion of the evolution of the exchange rate over time.

In the final stage, the monetary authority chooses whether to revalue or devalue the exchange rate. We assume, without loss of generality, that the preference of the monetary authority for an exchange rate devaluation is given by

$$\rho = \tilde{\rho} + \nu \left(L^D - L^R \right), \tag{18}$$

where $\tilde{\rho} \sim U\left[-\frac{1}{2\eta}, \frac{1}{2\eta}\right]$ is the (exogenous) distribution of the preferences of the monetary authority for the devaluation, and $L^k = \int_{i \in J} L^{ik}\, di$ is the aggregate contributions received from all lobbying groups in favor of regime k. $\nu > 0$ is a measure of the extent to which lobbying activity influences the monetary authority's decision. Note that this influence need not be invidious; contributions may reflect, for example, publicity campaigns directed at the authority that make a case for (or against) a devaluation. There is limited empirical evidence that central banks do in fact face such lobbying pressures (Kinderman 2008). We will see in a moment, moreover, that regardless of intent, such activity imposes a nontrivial influence on the final exchange rate outcome.

The random variable $\tilde{\rho}$ may be interpreted as an *ex ante* preference for a particular regime. For example, the monetary authority may prefer a devaluation if the prevailing exchange rate is currently overvalued, based on assessments of the underlying fundamentals of the economy.

The regime that is ultimately chosen is, in turn, determined by a fairly straightforward rule that equates:

$$U^{\iota}\left(\varepsilon^D\right) = U^{\iota}\left(\varepsilon^R\right) + \rho, \tag{19}$$

where $\iota \in I$ is the marginal agent that is indifferent between a revaluation or a devaluation. Note that this exchange rate rule is fairly reasonable: The rule seeks to equate the resultant welfare impact of the regime for this marginal agent, adjusted by the preferences of the monetary authority. (18) and (19), together with the distributional assumptions, then give the probability of a devaluation regime being chosen:

$$\psi^D = \frac{1}{2} + \eta \left[U^\iota \left(\varepsilon^D \right) - U^\iota \left(\varepsilon^R \right) - \nu \left(L^D - L^R \right) \right]. \tag{20}$$

Equation (20) implies that, because of the uncertainty embedded in the decision to revalue, we potentially observe movements in the exchange rate in each period. In the absence of this uncertainty, with the distribution of productivity (and hence agents' preferences for a revaluation or devaluation) fixed over time, the exchange rate will always follow a deterministic path, regardless of the preferences of the monetary authority. Allowing for probabilistic revaluation then affords the monetary authority some (limited) independence over exchange rate outcomes.

In the penultimate stage, special interests choose their contributions with respect to each regime by maximizing expected utility, net of contributions:

$$EV^i = \psi^D U^i \left(\varepsilon^D \right) + \psi^R U^i \left(\varepsilon^R \right) - \frac{1}{2} \left[\left(L^{iD} \right)^2 + \left(L^{iR} \right)^2 \right]. \tag{21}$$

Using the fact that $\psi^D = \left(1 - \psi^R\right)$, the optimal contributions for a group i is then given by

$$\begin{aligned} L^{iR} &= \max \left\{ 0, \eta\nu \left[U^i \left(\varepsilon^D \right) - U^i \left(\varepsilon^R \right) \right] \right\}, \\ L^{iD} &= -\min \left\{ 0, \eta\nu \left[U^i \left(\varepsilon^D \right) - U^i \left(\varepsilon^R \right) \right] \right\}. \end{aligned} \tag{22}$$

Equation (22) gives the intuitive result that any given group i will never contribute toward seeking *both* a revaluation and a devaluation, and moreover, may choose not to offer any contributions at all. The choice of either is determined, in turn, by which contribution would maximize the group's net welfare.

Another feature of the result above is that these contribution schedules are locally truthful, in the sense of Bernheim & Whinston (1986). This local truthfulness property implies that, in the neighborhood of the equilibrium, the marginal impact of the exchange rate change on lobbying contributions are equivalent to the impact of this change on a lobbying group's welfare.

In the first stage, policymakers optimize (6)

$$U^G = \psi^D \int\limits_{i \in I} U^i \left(\varepsilon^D \right) di + \psi^R \int\limits_{i \in I} U^i \left(\varepsilon^R \right) di, \tag{23}$$

The first order conditions for (23) are

$$\begin{aligned} \frac{\partial \psi^D}{\partial \varepsilon^D} \int\limits_{i \in I} \left[U^i \left(\varepsilon^D \right) - U^i \left(\varepsilon^R \right) \right] di + \psi^D \int\limits_{i \in I} \frac{\partial U^i \left(\varepsilon^D \right)}{\partial \varepsilon^D} di = 0, \\ \frac{\partial \psi^D}{\partial \varepsilon^R} \int\limits_{i \in I} \left[U^i \left(\varepsilon^D \right) - U^i \left(\varepsilon^R \right) \right] di + \psi^D \int\limits_{i \in I} \frac{\partial U^i \left(\varepsilon^R \right)}{\partial \varepsilon^R} di = 0, \end{aligned}$$

where $\frac{\partial \psi^D}{\partial \varepsilon^D} = \eta \frac{\partial U^\iota}{\partial \varepsilon^D} + (\eta\nu)^2 \int_{i\in J} \frac{\partial U^i}{\partial \varepsilon^D}\, di$ and $\frac{\partial \psi^D}{\partial \varepsilon^R} = -\eta \frac{\partial U^\iota}{\partial \varepsilon^R} - (\eta\nu)^2 \int_{i\in J} \frac{\partial U^i}{\partial \varepsilon^R}\, di$. Notice the essential symmetry between the two conditions, which implies that the optimal choices for a revaluation or devaluation target will involve a deviation of *exactly the same degree*. To develop intuition, assume that agent welfare is approximated by functional form equivalent to that given in Lemma 1.[10] We then obtain

$$\varepsilon^D = \left| -\frac{\left(\Phi^\iota + \eta\nu^2\Phi^J + \frac{4\Phi^I}{N}\right)\frac{\hat{M}^W}{2\theta} + \Phi^I\left(\frac{1}{4\eta} + \eta\nu^2 \int_{i\in J} \frac{\hat{M}^W}{\theta}\, di\right)}{2\Phi^I\left(\Phi^\iota + \eta\nu^2\Phi^J\right)} \right| = \varepsilon^R, \quad (24)$$

where $\Phi^J \equiv \int_{i\in J} \Phi^i\, di$ and $\Phi^I \equiv \int_{i\in I} \Phi^i\, di$, and we have used the fact the $U^i\left(\varepsilon^D\right) = -U^i\left(\varepsilon^R\right)$. Thus, optimal change in the exchange rate regime is determined by, *inter alia*, the distribution of preferences of the monetary authority with respect to a devaluation or revaluation (η); the distribution of household productivity, in particular with respect to the marginal agent (Φ^ι), special interests (Φ^J), and the general population (Φ^I); and the extent to which the monetary authority is influenced by lobbying contributions (ν). As a result of lobbying contributions, therefore, special interest pressure becomes entangled with general welfare considerations in the determination of an exchange rate regime.

We summarize the results of our baseline model as a proposition.

Proposition 1 (Politico-economic managed peg)**.** *The currency game of Definition 1 yields an exchange rate*

$$\breve{\varepsilon} = \begin{cases} \varepsilon_0 + \varepsilon^D(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu) & \textit{if devaluation occurs,} \\ \varepsilon_0 - \varepsilon^R(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu) & \textit{if revaluation occurs,} \end{cases}$$

where ε_0 *is the initial value of the exchange rate.*

The optimal target—and hence realized exchange rate due to a devaluation or revaluation—is determined by economic parameters for the household (θ, γ, κ) and policymaker (η) and political-economic parameters (ν), as well as deviations of the world money supply ($\hat{M}^W$) and the distribution of productivity among special interests (Φ^J). Thus, in our model exchange rate policy cycles are driven not so much by electoral competition (Alfaro 2002; Bonomo & Terra 2005; Stein & Streb 2004) but by lobbying activity, although we do not deny the potential importance of the election effect.

To gain some additional intuition on the political dynamics underlying the regime decision, we derive the following comparative static result.

Corollary 2. *Let* $\Phi^\iota = 0, \Phi^J > 0, \Phi^I < 0$. *Then* $\frac{\partial \varepsilon^D}{\partial \nu} > 0$.

Proof. See appendix. □

[10] This is a convenient shortcut, since strictly speaking agent welfare is best represented as an n-th order linear approximation of (1). We are in effect limiting the welfare criterion to first moments, which we justify by the necessity of keeping the model tractable.

This result implies that the devaluation will be larger, the greater the influence of lobbying activity. Moreover, this occurs as long as the net aggregate welfare of special interests is increased as a result (as captured by $\Phi^J > 0$), even if net aggregate welfare of the population as a whole will decrease ($\Phi^I < 0$).

Note that Corollary 2 also implies that, if ε_0 is given, by Proposition 1 we also have $\frac{\partial \breve{\varepsilon}}{\partial \nu} > 0$; the greater the influence of special interest lobbying, the higher (lower) will be the realized exchange rate for a given devaluation (revaluation). This finding expands on the result in Edwards (1999). In particular, political risk—a feature exogenous to Edwards' model—arises due to the way that more intensive lobbying activity increases the magnitude of a given regime change. Since this change leads to the exchange rate becoming more disconnected from the general welfare, the cost of abandoning the peg is amplified.

2.6 Currency Crisis

Jockeying over the exchange rate regime targets can create conditions that may influence the timing as well as the possibility a currency crisis. To examine this scenario, we adapt the framework of first-generation currency crisis models first introduced into the literature by Krugman (1979) and Flood & Garber (1984) into our microfounded model.

To integrate our analysis, we need to relax the assumptions concerning the government budget constraint (5). In particular, we no longer assume that the fiscal budget is balanced in each period, but is instead given by

$$\tau_s + \frac{M_{s+1} - (1+\mu) M_s}{P_s} = G_s, \tag{5'}$$

where G denotes real government spending, and $\mu > 0$ is the rate of expansion of the nominal money supply. The monetary authority's balance sheet is assumed to comprise foreign assets in foreign exchange reserves, F, and domestic credit, D:

$$M_s = F_s + D_s,$$

where these assets are defined in nominal terms. We assume that reserve growth is kept constant over time, such that $F_{s+1} = (1+\mu) F_s \; \forall s$. Making the necessary substitutions we obtain[11]

$$\Delta d_s \approx \mu + \xi_{s+1}, \tag{25}$$

where $\Delta d_s \equiv d_{s+1} - d_s$ is the change in domestic credit, $\xi \equiv \ln [P(G-\tau)]$ is the nominal value of the primary deficit, and lowercase letters represent logarithms.

We also relax our assumption of perfectly substitutable risk-free international bonds, such that the agent's period budget constraint is now

$$B^i_{s+1} + \varepsilon_s B^{i*}_{s+1} + \frac{M^i_s}{P_s} = (1+i_s) B^i_s + E_s \varepsilon_{s+1} (1+i^*_s) + \frac{M^i_{t-1}}{P_s} + \frac{p_s(i)}{P_s} y_s(i) - C^i_s - \tau_s, \tag{4'}$$

[11] A similar result was first demonstrated in Bullard (1991).

where, as before, asterisks denote foreign variables. Uncovered interest parity can then be easily derived as an additional first order condition in the household's optimization problem:

$$1 + i_s = (1 + i_s^*) \frac{E_s \varepsilon_{s+1}}{\varepsilon_s}. \tag{26}$$

Log-linearization of (12), (17), and (26), and substituting the latter two equations into the first, and using the balance sheet relation, we obtain the expression:

$$\Delta \varepsilon_s = \frac{1+\gamma}{\gamma} \varepsilon_s - \frac{1+\gamma}{\gamma} (f_s + d_s) + Z, \tag{27}$$

where $\Delta \varepsilon_s \equiv E_s \varepsilon_{s+1} - \varepsilon_s$ is the change in the expected exchange rate, $Z \equiv \frac{1+\gamma}{\gamma}(p^* + c_0) - i^*$, which we assume to be constant. The two-equation system (25) and (27) in domestic credit and exchange rates characterize the standard first-generation crisis models. In particular, the evolution of domestic credit at the rate μ is incompatible with the maintenance of a fixed exchange rate regime.

Lemma 2 (Krugman 1979)**.** *Let $\xi_s = 0\ \forall s$. Then $\mu > 0$ is incompatible with the indefinite maintenance of a fixed exchange rate. Moreover, this occurs at a time*

$$T = \frac{\ln\left(1 + \frac{F_0}{D_0}\right)}{\mu} - \frac{\gamma}{1+\gamma} < \tilde{T},$$

where $\tilde{T}$ is the time that corresponds to the full exhaustion of reserves in the absence of a speculative attack.

Proof. See appendix. □

This lemma embeds the Krugman (1979) result into our model of the open economy. It restates the important point that the successful maintenance of the fixed regime must occur within the context of consistent macroeconomic policies. Thus, even when the primary deficit is zero, the requirement that the monetary authority monetize domestic credit will eventually lead to a run on the currency. Furthermore, the lemma pins down the time of the abandonment as the point where the shadow exchange rate (Flood & Garber 1984) is equal to the fixed exchange rate.

In general, the realized exchange rate $\breve{\varepsilon}$ that results from the political-economic currency game differs from the exchange rate $\bar{\varepsilon}$ that would result with a fixed regime. This leads to differences in the optimal time of abandonment due to a speculative attack, as summarized in the proposition below.

Proposition 2 (Abandonment of managed peg)**.** *The optimal abandonment time for the political-economic managed peg is given by*

$$\breve{T} = \frac{\ln\left(1 + \frac{F_0}{D_0}\right) \pm \varepsilon^D(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu)}{\mu} - \frac{\gamma}{1+\gamma}.$$

The difference in the time of abandonment due to a politico-economic managed peg and a pure fixed exchange rate regime, $(\breve{T} - T)$, will generally be nonzero.

Proof. See appendix. □

This proposition implies that political-economic factors may influence the timing and possibility of a currency crisis. In particular, if the resulting path of the exchange rate follows one of revaluation due to the greater influence of special interest pressure, $(\breve{T}-T)<0$, which means that the crisis will occur earlier than in the absence of such political-economic interferences. Alternatively, if the distribution of special interests are such that, in aggregate, they prefer an exchange rate depreciation, then their lobbying contributions potentially induce a devaluations of the exchange rate, which postpones the speculative attack.

Figure 2(a) illustrates the scenario described above. In the deterministic case with no political-economic influences, the shadow exchange rate is given by the dashed line $\tilde{\varepsilon}$, while the fixed regime is given by $\varepsilon_0 = \bar{\varepsilon}$ the actual exchange rate follows the (probabilistic) path traced by the solid line ε. After each period, the government adjusts the currency peg, according to the extent to which it faces pressures for either a revaluation or a devaluation; this is represented by $\breve{\varepsilon}_s$. This actual time of abandonment to a flexible regime, $\breve{T}$, is now brought forward relative to the time T if the peg is abandoned in response to the underlying shadow exchange rate (given a speculative attack).

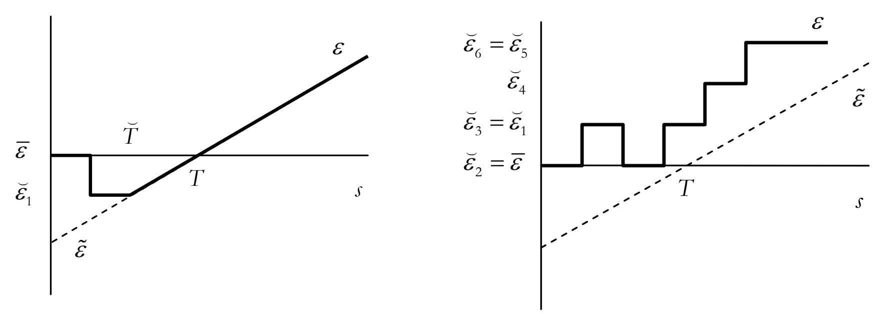

Figure 2: Differences in optimal time of abandonment.

Alternatively, Figure 2(b) captures the idea that such pressures may actually postpone, and perhaps rule out indefinitely, the possibility of a speculative attack. Here, we have drawn a hypothetical path over six periods $s = [1, 6]$. Note that, in accordance with (24), these devaluations/revaluations are all of equal magnitude. Because the actual path of the exchange rate never intersects with the shadow exchange rate, there is no incentive to perpetuate a run on the currency, and the speculative attack is postponed (in our example) indefinitely.

We should point out that our analysis—having relied on the standard first-generation framework—does not explicitly account for optimizing behavior on the part of government policymakers with respect to the choice of abandonment.[12] However, to the extent that such special interests do exist in reality,

[12]On this, see Rebelo & Végh (2002), who also place the first-generation crisis model in a microfounded framework. The decision to abandon the peg in this case depends on the poli-

our analysis suggests that it would be premature to claim that such lobbying activity necessarily leads to a crisis occurring at an earlier time.

3 Extensions

This section will briefly consider three elaborations of the basic model: First, we distinguish between the policymaker and the monetary authority; second, we consider a richer set of political dynamics involving a legislature; and third, we allow electoral pressures to enter into the decisionmaking processes of the policymaker.

3.1 Semi-Independent Monetary Authority

In our baseline model, we allowed the interests of the monetary authority to be entirely congruent with those of the government policymaker. In particular, while we afforded the monetary authority some independence over devaluation outcomes—measured as the distribution of $\tilde{\rho}$—we asserted an exchange rate rule (19) that did not account for other objectives of the central bank, such as price stability. In this subsection, we seek to endogenize the semi-independence of the monetary authority by posting a reduced-form loss function for the central bank that takes into account both exchange rate decisions as well as price stability.[13]

Lohmann (1992) was the first to model the important interaction between a partially independent central banker and a policymaker with the authority to override the central banker's policy decisions (at some finite cost). In some senses, our analysis thus far already carries some of the same flavor. In our model, the policymaker's announced exchange rate revaluations or devaluations take into account the rigid rule that will eventually be followed by the monetary authority; such considerations of feasibility and consistency are at the heart of the Lohmann (1992) approach.

Without loss of generality, let the monetary authority possess a quadratic loss function given by[14]

$$\mathfrak{L}_s = \tilde{\rho}\left(\hat{\varepsilon}_s - \varepsilon_s^D\right)^2 + \left(y_s - \tilde{y}\right)^2 + \omega\pi_s^2, \tag{28}$$

where $\tilde{y}$ is the output target, and π is the economywide inflation rate. The central bank places a weight $\tilde{\rho}$ on fulfilling its obligations to effect a targeted exchange rate devaluation, and $\omega > 1$ on its anti-inflationary stance (which we assume to dominate its concern for suboptimal output).

---

cymaker's response to fiscal shocks; any sufficiently large shock would lead to the immediate abandonment of the peg.

[13] We keep the exposition simple and adopt a modification of the standard Barro & Gordon (1983) framework. Woodford (2002) derives a loss function from a welfare-theoretic perspective, which is very similar to a standard loss function employed here.

[14] To understand the inclusion of the exchange rate target in the loss function, we appeal to the empirical reality that monetary authorities are often constrained, by mandate, to fulfill—to some limited extent—the open-market foreign exchange purchases of the country's finance ministry. See also Kirsanova, Leith & Wren-Lewis (2006).

With short-run price stickiness, output differs from its flexible price equilibrium level $\bar{y}$. The result is the aggregate supply function which is inversely proportional to real wages:

$$y_s = \bar{y} - (w_s - p_s) - \zeta_s, \tag{29}$$

where ζ is a conditional mean-zero supply shock. Following the literature, we assume that nominal wages are set according to lagged prices such that $w_s = E_{s-1}p_s$. Making the necessary substitutions and solving the program (28) gives us the following result.

Proposition 3. *For a monetary authority that is only concerned with price stability and the exchange rate regime, $\frac{\partial \omega}{\partial \tilde{\rho}} < 0 \ \forall s$. If the monetary authority is also concerned with suboptimality of output, then $\frac{\partial \omega}{\partial \tilde{\rho}} < 0$ if $\varepsilon_s^D > k_s + \zeta_s$ and $\tilde{\rho} > 1$.*

Proof. See appendix. □

Thus, when the monetary authority has fairly soft preferences concerning the suboptimality of output (vis-à-vis inflation and the exchange rate regime), we have a stark result: A central bank that values inflation will have weaker preferences for devaluation. In the context of our baseline model, this involves shifting the probability distribution for $\tilde{\rho}$ to the left. Intuitively, with PPP, a devaluation will increase imported inflation. Hence, a central bank that places a high weight on inflation will also generally abhor devaluation. Thus, in contrast to the work of Lohmann (1992), the semi-independent central bank does not face conflicting obligations in its fulfillment of exchange rate regime obligations for the policymaker. This affords the monetary authority in our model a great deal more flexibility in its actions, since it does not face the threat of the policymaker exercising her escape clause veto.

3.2 Legislative Activity

Even in autocracies, proposals for policy changes generally do not occur in the absence of debate. In this subsection, we provide greater structure to the first stage of the game by modeling bargaining activity in the context of a legislature, over a given policy proposal.

Let there be one lawmaker $l \in L$ who represents each agent in the exchange rate policy decision, and assume that the total number is odd. Lawmakers have expected utility given by $E_s U_s^{Ll} = E_s V_s^i$. As before, interest groups offer lobbying contributions to influence the monetary authority. In the first stage, however, the declared revaluation/devaluation will now involve a legislative bargaining process. In particular, nature first selects an agenda setter, a, who will make a particular proposal for the exchange rate revaluation or devaluation; this is then voted on, and the policy is adopted if it wins a majority, with the general welfare-maximizing policy otherwise. The revised equilibrium definition is presented below.

Definition 2. The (pure strategy) subgame perfect Nash equilibrium in the currency game with legislative activity is a pair $\{\{\mathbf{L}^{i*}\}_{i\in J}, \boldsymbol{\varepsilon}^*\}$ such that: (a) $\mathbf{L}^{i*}$ is feasible $\forall i \in J$; (b) $\forall i \in J, k = D, R$: $\{ \nexists\ L^{ik\prime} \neq L^{ik*}$ such that $EV^i\left(\mathbf{L}^{ik*}, \boldsymbol{\varepsilon}^{ik*}\right) \leq EV^i\left(\mathbf{L}^{ik\prime}, \boldsymbol{\varepsilon}^{ik\prime}\right)\}$; (c) $\forall l \in L, k = D, R$: $\{ \nexists\ \varepsilon^{k\prime} \neq \varepsilon^{k*}$ such that $EU^{Ll}\left(\varepsilon^{k*}\right) \leq EU^{Ll}\left(\varepsilon^{k\prime}\right)\}$.

This relatively straightforward extension dramatically changes the outcome of the currency game, as shown in the proposition below.

Proposition 4. *The currency game with legislative activity of Definition 2 yields an exchange rate proposal*

$$\breve{\varepsilon}^a = \breve{\varepsilon}^l = \begin{cases} \varepsilon_0 + \varepsilon^{Dl}(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu) & \textit{if devaluation occurs,} \\ \varepsilon_0 - \varepsilon^{Rl}(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu) & \textit{if revaluation occurs.} \end{cases}$$

Let $\Phi^\iota = 0$. *Then this policy is adopted if*

$$\sum_{l=1}^{N/2} \frac{\hat{M}^W \left(\Phi^i - \frac{4}{N}\Phi^I\right)}{\theta \Phi^i \Phi^I} > N.$$

Proof. See appendix. □

What is most striking about this result is that although the exchange rate *proposal* is influenced by special interests (encapsulated in Φ^J and ν), the *adoption* of the proposal depends only on the productivity distribution of the population at large and the agent represented by the legislator who was selected as the agenda setter. Our finding therefore echoes, in a limited sense, the work of others studying the interaction of lobbying and legislative bargaining—such as Helpman & Persson (2001)—that lobbying activity appears muted in equilibrium.

While both the context as well as the timing assumptions that we employ differ, our surprising result is that, in equilibrium, special interest politics do not influence the voting decision. The intuition here is due to the fact that legislators recognize how special interests will influence the policy that is adopted even if they vote against any given agenda setter's proposal: Thus, they take this into account in their voting decision, and only consider whether they—or more precisely, their ward—will ultimately benefit from the revaluation or devaluation proposed by legislator a.

3.3 Electoral Dynamics

Electoral pressures can complicate the manner by which policymakers make decisions on the exchange rate regime. While there are many ways to introduce this wrinkle into the model, the most straightforward approach is to allow for a direct democracy system with each agent i in possession of a single vote v^i.

There are two political parties, $q \in \{A, B\}$, that compete for the vote of the N agents in the economy, assuming that N is odd. Policymakers from each party possess objective functions given by $E_s U_s^{Gq} = \max E_s \sum_I v_s^i$. Agents making voting decisions on the basis of both their economic and noneconomic welfare, such that their (single-peaked) expected utility is

$$U_t^i = \sum_{s=t}^{\infty} \beta^{s-t} \left\{ \log C_s^i + \chi \log \frac{M_s^i}{P_s} - \frac{\kappa^i}{2} [y_s(i)]^2 + \log \Xi_s^i \right\}, \tag{1'}$$

where Ξ is an individual-specific measure of noneconomic determinants of utility. Agent welfare now reflects heterogeneity along two dimensions: The (inverse) measure of productivity, κ, and noneconomic concerns, Ξ. As the following lemma shows, this leads to differential agent welfare when there is a change in the exchange rate.

Lemma 3. *Assume for any $i, i' \in I$: (a) $\kappa^i \neq \kappa^{i'}$; (b) $p_s(i) \neq p_{s+1}(i) = \bar{p}(i)$; (c) $\Xi_s^i = 0\ \forall s \geq t+1$. Then agent welfare changes are given by*

$$dU_t^i = \Phi^i \hat{\varepsilon}_t + \frac{1}{\theta} \hat{M}_t^W + \hat{\Xi}_t^i,$$

where $\Phi^i \equiv \frac{(1+\gamma)(\theta^2-1)}{2[\gamma(1+\theta)+2\theta]} \cdot \frac{\kappa-\kappa^i}{\kappa}$, $\gamma \equiv \frac{1-\beta}{\beta}$, and $\hat{\varepsilon}$, $\hat{M}^W$, and $\hat{\Xi}$, are the deviations of the exchange rate, world money supply, and noneconomic utility from their symmetric steady state values, respectively.

Proof. See appendix. □

Note that we have assumed, for simplicity, that noneconomic determinants of utility are not persistent after the initial period. One interpretation of this is that these noneconomic factors only come into play for the purposes of an election, and in other periods their impact is negligible. As before, we can now rank the welfare of agents along a continuum such that for any given $\tilde{\varepsilon}$, we have the following:

$$dU_t^1(\tilde{\varepsilon}_t; \Xi^1) > \ldots > 0 > \ldots > dU_t^N(\tilde{\varepsilon}_t; \Xi^N).$$

We can then define the median voter m as the agent for whom the exchange rate rule is

$$U^m(\varepsilon^D; \Xi^m) = U^m(\varepsilon^R; \Xi^m) + \rho.$$

Importantly, this median voter need not be the same as the marginal agent defined in (19), as the following corollary establishes.

Corollary 3. *For $\iota, m \in I$, for a given $\tilde{\varepsilon}_t \neq 0$, $U_t^\iota(\tilde{\varepsilon}_t, \Xi^\iota) \gtrless U_t^m(\tilde{\varepsilon}_t, , \Xi^m)$, where $\tilde{\varepsilon}_t = \frac{d\hat{\varepsilon}}{\bar{\varepsilon}_0}$.*

Proof. See appendix. □

This implies that, except by coincidence, there will generally be a divergence between the marginal agent ι and the median voter m. We can therefore rewrite the exchange rate rule above in a slightly more useful form:

$$U^\iota(\lambda\varepsilon^D) = U^\iota(\lambda\varepsilon^R) + \rho, \tag{30}$$

where λ is the difference between the preferred exchange rate deviation of the marginal agent vis-à-vis the median voter. The timing of the game is as before, but now in the first stage, vote-maximizing parties offer their policy platforms to voters, who then vote for their preferred party. Policymakers from the elected party are then the ones that make exchange rate revaluation or devaluation decisions. The revised equilibrium definition for this case is as follows.

Definition 3. The (pure strategy) subgame perfect Nash equilibrium in the currency game with electoral dynamics is a pair $\{\{\mathbf{L}^{i*}\}_{i\in J}, \boldsymbol{\varepsilon}^*\}$ such that: (a) $\mathbf{L}^{i*}$ is feasible $\forall i \in J$; (b) $\forall i \in J, k = D, R$: $\{\ \nexists\ L^{ik\prime} \neq L^{ik*}$ such that $EV^i\left(\mathbf{L}^{ik*}, \boldsymbol{\varepsilon}^{ik*}\right) \leq EV^i\left(\mathbf{L}^{ik\prime}, \boldsymbol{\varepsilon}^{ik\prime}\right)\}$; (c) $\forall q \in \{A, B\}, k = D, R$: $\{\ \nexists\ \varepsilon^{k\prime} \neq \varepsilon^{k*}$ such that $EU^{Gq}\left(\varepsilon^{k*}\right) \leq EU^{Gq}\left(\varepsilon^{k\prime}\right)\ \}$.

The exchange rate regime chosen (19) is now influenced both by the preferences of the monetary authority (18) as well as those of the median voter:

Proposition 5. *The currency game with electoral dynamics of Definition 3 yields an exchange rate*

$$\breve{\varepsilon}' = \begin{cases} \varepsilon_0 + \varepsilon^D(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu, \lambda) & \textit{if devaluation occurs,} \\ \varepsilon_0 - \varepsilon^R(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu, \lambda) & \textit{if revaluation occurs.} \end{cases}$$

Proof. See appendix. □

The median voter comes into play here by moving the exchange rate regime outcome toward that of that voter. The magnitude of this move depends, in part, on the distance paramter λ. In the special case where $\Xi^i \rightarrow 0\ \forall\ i \in I$, $\lambda = 1$, and Proposition 5 collapses into Proposition 1. In cases where $\lambda \neq 1$, electoral competition does lead to some convergence toward the preferences of the median voter. However, we find that—akin to models that examine the interactions of elections and lobbying Grossman & Helpman (1996)—this convergence to the median voter is not complete, and that lobbying activity continues to exert a non-negligible impact on the equilibrium outcome.

4 Conclusion

This paper has introduced a model of political competition over a devaluation or revaluation of the exchange rate regime. Such deviations in the exchange rate matter, because they affect the welfare of monopolistically-competitive agents that possess *ex ante* productivity differentials, and facing short-run sticky prices. The managed peg that results from the political-economic process, however, is not neutral; in particular, we have demonstrated that lobbying contributions from politically-organized groups lead to conditions that may affect the timing as well as possibility of a currency crisis. Uncovering these special interest influences reveals, ultimately, a golden fetter.

To the extent that the model is an accurate description of underlying political economic processes in exchange rate regime choice, the question is how to insulate this process from asymmetric political pressures. Our elaborations of the baseline model suggest a way forward: The impact of lobbying contributions may be mitigated by allowing greater independence to the central bank in effecting foreign exchange interventions as required by the ministry of finance, or by allowing a more democratic process in the formulation of proposals for such exchange rate regime changes.

The shortcomings of our work suggests several avenues for future research. The model does not satisfactorily include the actions of traders in the foreign exchange market. This would be necessary if we were to extend the analysis to a more liberal interpretation of a managed float. In addition, we have limited our study of currency crises to first-generation models; a fuller articulation of a political-economic currency crisis will need to address issues of multiple equilibria common in latter-generation models.

References

Alfaro, Laura (2002). "On the Political Economy of Temporary Stabilization Programs". *Economics & Politics* 14(2) (July): 133–161

Barro, Robert J. & David B. Gordon (1983). "Rules, Discretion and Reputation in a Model of Monetary Policy". *Journal of Monetary Economics* 12(1) (January): 101–121

Bernhard, William T. & David A. Leblang (2000). "The Politics of Speculative Attacks in Industrial Democracies". *International Organization* 54(2) (Spring): 291–324

Bernheim, B. Douglas & Michael D. Whinston (1986). "Menu Auctions, Resource Allocation, and Economic Influence". *Quarterly Journal of Economics* 101(1) (February): 1–31

Black, Duncan (1948). "On the Rationale of Group Decision-Making". *Journal of Political Economy* 56(1) (February): 23–34

Bonomo, Marco Antonio & Maria Cristina Terra (2005). "Elections and Exchange Rate Policy Cycles". *Economics & Politics* 17(2) (July): 151–176

Bullard, James B. (1991). "Collapsing Exchange Rate Regimes: A Reinterpretation". *Working Paper 1991-003A*, Federal Reserve Bank of St Louis

Caballero, Ricardo J. & Arvind Krishnamurthy (2004). "Exchange Rate Volatility and the Credit Channel in Emerging Markets: A Vertical Perspective". Massachusetts Institute of Technology

Calvo, Guillermo A. & Carmen M. Reinhart (2002). "Fear of Floating". *Quarterly Journal of Economics* 117(2) (May): 379–408

Devereux, Michael B., Charles Engel & Peter E. Storgaard (2004). "Endogenous Exchange Rate Pass-Through When Nominal Prices are Set in Advance". *Journal of International Economics* 63(2) (July): 263–291

Edwards, Sebastian (1999). "The Choice of Exchange Rate Regime in Developing and Middle Income Countries". In Takatoshi Ito & Anne O. Krueger (editors), *Changes in Exchange Rates in Rapidly Developing Countries: Theory, Practice, and Policy Issues*, volume 7 of *NBER East Asia Seminar on Economics*, pp. 9–23. Chicago, IL: University of Chicago Press

Eichengreen, Barry, Andrew K. Rose & Charles Wypolsz (1995). "Exchange Market Mayhem: The Antecedents and Aftermath of Speculative Attacks". *Economic Policy* 10(21) (October): 249–312

Flood, Robert P. & Peter M. Garber (1984). "Collapsing Exchange Rate Regimes: Some Linear Examples". *Journal of International Economics* 17(1) (August): 1–13

Frankel, Jeffrey A. (2003). "Experience of and Lessons from Exchange Rate Regimes in Developing Economies". In Takatoshi Ito & Yung Chul Park (editors), *Monetary and Financial Cooperation in East Asia*, volume 2: Exchange Rate Coordination. Houndmills, England: Palgrave Macmillan

Frieden, Jeffry A. (2002). "Real Sources of European Currency Policy: Sectoral Interests and European Monetary Integration". *International Organization* 56(4) (Fall): 831–860

Frieden, Jeffry A. & Ernesto H. Stein (2001). "The Political Economy of Exchange Rate Policy in Latin America: An Analytical Overview". In Jeffry A. Frieden & Ernesto H. Stein (editors), *The Currency Game: Exchange Rate Politics in Latin America*, pp. 1–19. Washington, DC: Inter-American Development Bank

Friedman, Milton (1953). "The Case for Flexible Exchange Rates". In *Essays in Positive Economics*, pp. 157–203. Chicago, IL: University of Chicago Press

Grossman, Gene M. & Elhanan Helpman (1996). "Electoral Competition and Special Interest Politics". *Review of Economic Studies* 63(2) (April): 265–286

Haggard, Stephan (2000). *The Political Economy of the Asian Financial Crisis*. Washington, DC: Institute for International Economics

Helpman, Elhanan & Torsten Persson (2001). "Lobbying and Legislative Bargaining". *Advances in Economic Analysis and Policy* 1(1): Article 3. URL `http://www.bepress.com/bejeap/advances/vol1/iss1/art3`

Kinderman, Daniel (2008). "The Political Economy of Sectoral Exchange Rate Preferences and Lobbying: Germany from 1960–2005, and Beyond". *Review of International Political Economy* 15(3) (August)

Kindleberger, Charles P. (1969). "The Case for Fixed Exchange Rates, 1969". *Federal Research Bank of Boston Monetary Conference Series* 2: 93–108

Kirsanova, Tatiana, Campbell Leith & Simon Wren-Lewis (2006). "Should Central Banks Target Consumer Prices or the Exchange Rate?" *Economic Journal* 116(512) (June): F208–F231

Krugman, Paul R. (1979). "A Model of Balance-of-Payments Crises". *Journal of Money, Credit & Banking* 11(4) (November): 311–25

Lahiri, Amartya & Carlos A. Végh (2001). "Living with the Fear of Floating: An Optimal Policy Perspective". In Sebastian Edwards & Jeffrey A. Frankel (editors), *Preventing Currency Crises in Emerging Markets*, NBER Conference Series. Chicago, IL: University of Chicago Press

Leblang, David A. (2002). "The Political Economy of Speculative Attacks in the Developing World". *International Studies Quarterly* 46(1) (March): 69–91

Leblang, David A. (2003). "To Devalue or Defend? The Political Economy of Exchange Rate Policy". *International Studies Quarterly* 47(4) (December): 533–560

Levy-Yeyati, Eduardo & Federico Sturzenegger (2005). "Classifying Exchange Rate Regimes: Deeds versus Words". *European Economic Review* 49(6) (August): 1603–1635

Lohmann, Susanne (1992). "Optimal Commitment in Monetary Policy: Credibility versus Flexibility". *American Economic Review* 82(1) (March): 273–286

McKinnon, Ronald I. & Kwok-Chiu Fung (1993). "Floating Exchange Rates and the New Interbloc Protectionism: Tariffs versus Quotas". In Dominick Salvatore (editor), *Protectionism and World Welfare*, pp. 221–243. New York, NY: Cambridge University Press

Obstfeld, Maurice & Kenneth S. Rogoff (1995). "Exchange Rate Dynamics Redux". *Journal of Political Economy* 103(3) (June): 624–60

Rebelo, Sergio T. & Carlos A. Végh (2002). "When Is It Optimal to Abandon a Fixed Exchange Rate?"

Reinhart, Carmen M. & Kenneth S. Rogoff (2004). "The Modern History of Exchange Rate Arrangements: A Reinterpretation". *Quarterly Journal of Economics* 119(1) (February): 1–48

Ríos-Rull, José-Víctor (2001). "Computation of Equilibria in Heterogeneous-Agent Models". In Ramon Marimon & Andrew Scott (editors), *Computational Methods for the Study of Dynamic Economies*, pp. 238–280. Oxford, England: Oxford University Press

Stein, Ernesto H. & Jorge M. Streb (2004). "Elections and the Timing of Devaluations". *Journal of International Economics* 63(1) (May): 119–145

Woodford, Michael (2002). "Inflation Stabilization and Welfare". *Contributions to Macroeconomics* 2(1): Article 1

Appendix

A.1 Proofs

Proof of Lemma 1. The proof proceeds by, first, log-linearizing around the symmetric steady state;[15] second, solving for short and long-run levels of key variables; and third, deriving the log-linearized expression for agent welfare. Much of the proof draws on results from Obstfeld & Rogoff (1995), and we refer the reader to that source for specific details of any particular equation.

The PPP relationship (17) holds in the steady state. This allows us to establish the conditions that correspond to (11)–(13):

$$\bar{r} = \frac{1-\beta}{\beta} \equiv \gamma, \qquad \frac{\bar{M}}{\bar{P}} = \chi \left[\frac{1+\gamma}{\gamma}\right] \bar{C}_0 = \frac{\bar{M}^*}{\bar{P}^*}, \qquad \bar{y}_0 = \left(\frac{\theta-1}{\theta\kappa}\right)^{\frac{1}{2}} = \bar{y}_0^*,$$

where overbars indicate a steady state, and a null subscript on barred variables denote the initial preshock symmetric steady state values, and we have used

[15] We do so since there is no closed-form solution to the asymmetric steady state. This assumption, while admittedly strong, allows us to keep the model focused on the political-economic dynamics, without being bogged down with solving the economic model explicitly for he heterogeneous agent case; see Ríos-Rull (2001) for a discussion for techniques in this regard. It is important to note, however, that we need interpret our results on welfare changes as those that exist for agent i relative to that of a representative agent facing perturbations from the symmetric steady state. A more involved solution of the economic model would likely yield similar results, save for a more complicated agent welfare function.

Fisher parity for the middle expression. There are also steady-state market clearing conditions derived from (4):

$$\bar{C} = \gamma \bar{B} + \frac{\bar{p}(h)\,\bar{y}}{\bar{P}}, \qquad \bar{C}^* = -\gamma \bar{B} + \frac{\bar{p}^*(f)\,\bar{y}^*}{\bar{P}^*},$$

where symmetry allows us to rewrite Home and Foreign prices with that of a representative household, holding the argument h and f, respectively. Assuming zero initial foreign assets, $\bar{B}_0 = 0$—which is required for a simple closed-form solution—the equilibrium is completely symmetric across both countries such that $\frac{\bar{p}_0(h)}{\bar{P}_0} = \frac{\bar{p}_0^*(h)}{\bar{P}_0^*} = 1$, and so the above equations simplify to

$$\bar{C}_0 = \bar{C}_0^* = \bar{y}_0 = \bar{y}_0^*.$$

The linearized equations corresponding to (3), (8)–(9), (11)–(13), and (A.1) in the symmetric steady state are as follows:

$$\hat{p}_s = \frac{1}{2}\hat{p}_s(h) + \frac{1}{2}\left[\hat{\varepsilon}_s \hat{p}_s^*(f)\right], \qquad \hat{p}_s^* = \frac{1}{2}\left[\hat{p}_s(h) - \hat{\varepsilon}_s\right] + \frac{1}{2}\hat{p}_s^*(f),$$

$$\hat{y}_s = \theta\left[\hat{P}_s - \hat{p}_s(h)\right] + \hat{C}_s, \qquad \hat{y}_s^* = \theta\left[\hat{P}_s^* - \hat{p}_s^*(f)\right] + \hat{C}_s^*,$$

$$\hat{C}_{s+1} = \hat{C}_s + \frac{\gamma}{1+\gamma}\hat{r}_{s+1}, \qquad \hat{C}_{s+1}^* = \hat{C}_s^* + \frac{\gamma}{1+\gamma}\hat{r}_{s+1}^*,$$

$$\hat{M}_s - \hat{P}_s = \hat{C}_s - \frac{r_{s+1}}{1+\gamma} - \frac{\hat{P}_{s+1} - \hat{P}_s}{\gamma}, \qquad \hat{M}_s^* - \hat{P}_s^* = \hat{C}_s^* - \frac{r_{s+1}}{1+\gamma} - \frac{\hat{P}_{s+1}^* - \hat{P}_s^*}{\gamma},$$

$$(\theta+1)\,\hat{y}_s = -\theta \hat{C}_s + \hat{C}_s^W, \qquad (\theta+1)\,\hat{y}_s^* = -\theta \hat{C}_s^* + \hat{C}_s^W,$$

$$\hat{\bar{C}} = \gamma \hat{\bar{B}} + \hat{\bar{p}}(h) + \hat{\bar{y}} - \hat{\bar{P}}, \qquad \hat{\bar{C}}^* = \gamma \hat{\bar{B}} + \hat{\bar{p}}^*(f) + \hat{\bar{y}}^* - \hat{\bar{P}}^*,$$

where, for any variable X, $\hat{x}_s \equiv \frac{dX_s}{X_0}$, and $\hat{X}_s^W \equiv \frac{1}{2}\hat{X}_s + \frac{1}{2}\hat{X}_s^*$. Finally, log-linearization of (17) gives

$$\hat{\varepsilon}_s = \hat{P}_s - \hat{P}_s^*.$$

Let the first period begin at time t. With one-period sticky prices, the labor-leisure tradeoffs do not bind at $s = t$. A series of algebraic manipulations will yield the following key variables:

$$\hat{C}_t = \frac{\frac{\gamma}{2}\left(\theta^2 - 1\right)}{\gamma(1+\theta) + 2\theta}\hat{\varepsilon}_t + \hat{M}_t^W, \qquad \hat{\bar{C}}_t = \frac{\frac{\gamma}{2}\left(\theta^2 - 1\right)}{\gamma(1+\theta) + 2\theta}\hat{\varepsilon}_t,$$

$$\hat{Y}_t = \hat{M}_t^W + \frac{1}{2}\theta\hat{\varepsilon}_t, \qquad \hat{\bar{y}}_t = \frac{\frac{\gamma}{2}\theta(\theta - 1)}{\gamma(1+\theta) + 2\theta}\hat{\varepsilon}_t,$$

where $Y = y + y^*$ is the aggregate output for a household. Now, we use the convenient shortcut introduced by Obstfeld & Rogoff (1995) and focus on changes in the real component of (1):

$$U_t^{\prime i} \equiv \sum_{s=t}^{\infty} \beta^{s-t}\left\{\log C_s^i - \frac{\kappa^i}{2}\left[y_s(i)\right]^2\right\}.$$

Total differentiation of this expression, and substituting for the initial steady-state value of $\bar{y}_0$, yields

$$dU_t'^i = \hat{C}_t - \frac{2\kappa^i(\theta-1)}{\kappa\theta}(\hat{y}_t) + \frac{1}{\gamma}\left[\hat{\bar{C}} - \frac{\kappa^i(\theta-1)}{\kappa\theta}(\hat{\bar{y}})\right],$$

where we have suppressed the notation for agent i for the choice variables, since we are considering only deviations from the symmetric steady state. Making the necessary substitutions from above, obtain

$$dU_t'^i = \frac{(1+\gamma)\left(\theta^2-1\right)}{2\left[\gamma(1+\theta)+2\theta\right]}\left(1-\frac{\kappa^i}{\kappa}\right)\hat{\varepsilon}_t + \frac{1}{\theta}\hat{M}^W. \tag{A.1}$$

Hence, changes in the exchange rate affect the real component of utility. Allowing for $\chi \to 0$, which implies that derived utility from real goods dominate total utility changes vis-à-vis derived utility from real balances, allows us to rewrite the above expression as $dU_t'^i \approx dU_t^i$. □

Proof of Corollary 1. Since, by Lemma 1, the exchange rate affects each agent asymmetrically, it follows for any given deviation of the exchange rate there must exist agents that benefit more or less from this change. Moreover, their resultant change in welfare may be greater or less than zero, since (A.1) implies that sgn $\left(dU_s^i\right)$ depends on sgn $\left(1-\kappa^i/\kappa\right) \gtreqless 0$ (as well as sgn $\left(\theta^2-1\right)$, although this effect is symmetric for all agents). □

Proof of Corollary 2. Taking the derivative of (24) with respect to ν gives the following expression:

$$\begin{aligned}\frac{\partial\varepsilon^D}{\partial\nu} =& \frac{2\Phi^I\left(\Phi^\iota+\eta\nu^2\Phi^J\right)}{\Delta}\left[-2\eta\nu\Phi^I\int_I\frac{\hat{M}^W}{\theta} - 2\eta\nu\Phi^J\frac{\hat{M}^W}{\theta}\right] + \frac{4\eta\nu\Phi^J\Phi^I}{\Delta}\cdot \\ &\left[\left(-\Phi^\iota+\eta\nu^2\Phi^J+\frac{4\Phi^I}{N}\right)\frac{\hat{M}^W}{2\theta} + \Phi^I\left(\frac{1}{4\eta}+\eta\nu^2\int_J\frac{\hat{M}^W}{\theta}\right)\right],\end{aligned}$$

where $\Delta = \left[2\Phi^I\left(\eta\nu^2\Phi^J+\Phi^\iota\right)\right]^2 > 0$. Substituting $\Phi^\iota = 0$ into the above and simplifying leaves

$$\text{num}\left[\frac{\partial\varepsilon^D}{\partial\nu}\right] = \eta\Phi^J\left(\Phi^I\right)^2 + \frac{2\eta\nu\hat{M}^W}{\theta}\left[\frac{4\Phi^J\left(\Phi^I\right)^2}{N} - 2\eta\nu^2\left(\Phi^J\right)^2\Phi^I\right].$$

With $\Phi^J > 0, \Phi^I < 0$, all the terms above are unambiguously positive. □

Proof of Lemma 2. Let F_0, D_0 denote initial levels of reserves and debt, respectively, and so $f_s \approx s\mu + f_0$ and $d_s \approx s\mu + d_0$ (after imposing $\xi_s = 0$). Furthermore, a fixed rate implies $\varepsilon_s = \bar{\varepsilon}\ \forall\ s$. Substituting these results into (25) and (27) and simplifying yields

$$\bar{\varepsilon} = s\mu + (f_0+d_0) - \frac{\gamma Z}{1+\gamma}, \tag{A.2}$$

which holds for all $s \Leftrightarrow \mu = 0$. This proves the first part of the lemma.

To prove the second part, we follow Flood & Garber (1984) and define a *shadow exchange rate* as the exchange rate that would prevail conditional on exhaustion of reserves. By applying the method of undetermined coefficients this can be shown to be

$$\tilde{\varepsilon}_s = \frac{\gamma}{1+\gamma}(\mu - \Phi) + s\mu + d_0,$$

since $f_s = 0$ by definition. Denote T as the time of attack. By the no-arbitrage condition, we require $\tilde{\varepsilon}_s = \bar{\varepsilon}$, which after simplification gives

$$T = \frac{\bar{\varepsilon} + \frac{\gamma Z}{1+\gamma} - d_0}{\mu} - \frac{\gamma}{1+\gamma} \neq \tilde{T}.$$

Substitution of (A.2) supplies the required value of T, which completes the proof. □

Proof of Proposition 2. Substitute the exchange rate from Proposition 1 into the optimal abandonment time in Lemma 2 to obtain

$$\breve{T} = \frac{\breve{\varepsilon} + \frac{\gamma Z}{1+\gamma} - d_0}{\mu} - \frac{\gamma}{1+\gamma} \neq \tilde{T},$$

which proves the second part of the proposition. The first part of the proposition is proven by using $\breve{\varepsilon} = \bar{\varepsilon} \pm \varepsilon^D$ from Proposition 1. □

Proof of Proposition 3. The loss function to be minimized is given by

$$\mathfrak{L}_s = \tilde{\rho}\left(\pi_s - \varepsilon_s^D\right)^2 + \left(\pi_s - \pi_s^e - \zeta_s - k\right)^2 + \omega\pi_s^2,$$

where $\pi_s^e \equiv E_{s-1}\pi_s$, and we have used the PPP relation, the definition of inflation, and assumption of constant foreign prices to substitute for the first term on the RHS, and the standard approach of allowing an output wedge $\tilde{y}_s - \bar{y} = k_s > 0$, (29), and the assumption about wage setting behavior for the second term. The first order necessary condition is

$$\pi_s = \frac{k_s + \varepsilon_s^D\tilde{\rho}}{\omega + \tilde{\rho}} + \frac{\zeta_s}{1+\omega+\tilde{\rho}}.$$

By the implicit function theorem, obtain

$$\frac{\partial\omega}{\partial\tilde{\rho}} = -\frac{(1+2\omega+2\tilde{\rho})\left(\omega\varepsilon_s^D - k_s\right) + (\omega+\tilde{\rho})^2\left(\omega\varepsilon_s^D - k_s - \zeta_s\right)}{(1+2\omega+2\tilde{\rho})\left(\tilde{\rho}\varepsilon_s^D - k_s\right) + (\omega+\tilde{\rho})^2\left(\omega\varepsilon_s^D - k_s - \zeta_s\right)} \tag{A.3}$$

With no preferences concerning output, $k_s = \zeta_s = 0$, then (A.3) above is unambiguously negative. With such preferences, $\tilde{\rho} > 1$ and $\varepsilon_s^D > k_s + \zeta_s$ is sufficient to render (A.3) negative (recall $\omega > 1$). □

Proof of Proposition 4. As the final two stages of the game remain unchanged, both the monetary authority and lobbying groups have no incentive to change their strategies, and the results are the same as before. In the first stage, the randomly-selected agenda setter a will maximize the expected welfare of her constituent:

$$U^l = \psi^D U^i \left(\varepsilon^{Dl}\right) + \psi^R U^i \left(\varepsilon^{Rl}\right).$$

The first order condition simplifies to

$$\varepsilon^{Dl} = \left| -\frac{\left(\Phi^\iota + \eta\nu^2\Phi^J + \Phi^i\right)\frac{\frac{4}{N}\hat{M}^W}{2\theta} + \Phi^i\left(\frac{1}{4\eta} + \eta\nu^2\int_{i\in J}\frac{\hat{M}^W}{\theta}\,di\right)}{2\Phi^i\left(\Phi^\iota + \eta\nu^2\Phi^J\right)} \right| = \varepsilon^{Rl}, \quad \text{(A.4)}$$

which establishes the first part of the proposition. Now, any given legislator $l' \neq l$ will vote for the proposal in (A.4) if and only if $EU^l\left(\varepsilon^{kl}\right) \geq EU^l\left(\varepsilon^k\right) \quad \forall k = D, R$, or if $\varepsilon^{kl} - \varepsilon^k \geq 0 \quad \forall k = D, R$. Imposing $\Phi^\iota = 0$ from the proposition and simplifying yields

$$\varepsilon^{kl} - \varepsilon^k = -\frac{\hat{M}^W\left(\frac{4}{N}\Phi^I - \Phi^i\right)}{\theta\Phi^i\Phi^I},$$

which summing over all legislators in Home must exceed $\frac{N}{4}$ for majority, thus establishing the second part of the proposition. □

Proof of Lemma 3. The proof follows that of Lemma 1, except now we focus on changes in the real *and* noneconomic components of (1):

$$U_t''^i \equiv \sum_{s=t}^{\infty}\beta^{s-t}\left\{\log C_s^i - \frac{\kappa^i}{2}\left[y_s(i)\right]^2 + \log \Xi_s^i\right\}.$$

Total differentiation, and simplifying, yields

$$dU_s''^i = \frac{(1+\gamma)\left(\theta^2-1\right)}{2\left[\gamma(1+\theta)+2\theta\right]}\left(1-\frac{\kappa^i}{\kappa}\right)\hat{\varepsilon}_t + \frac{1}{\theta}\hat{M}^W + \hat{\Xi}^i, \quad \text{(A.5)}$$

where we used the assumption that $\Xi_s^i = 0 \ \forall\ s \geq t+1$. As before, allowing $\chi \to 0$, the above expression can be rewritten $dU_s''^i \approx dU_s^i$. □

Proof of Corollary 3. Using the marginal agent in Lemma 1 and the median voter in Lemma 3, and taking the difference, yields:

$$dU_t^\iota - dU_t^m = -\hat{\Xi}_t^m = 0 \Leftrightarrow \hat{\Xi}_t^m = 0.$$

By Corollary 1, $U_t^\iota\left(\tilde{\varepsilon}_t\right) \gtrless U_t^m\left(\tilde{\varepsilon}_t\right)$. □

Proof of Proposition 5. Let (30) be the vote-maximizing exchange rate rule. Substituting (30) for (19) and repeating the steps used to prove Proposition 1, obtain—for agent welfare approximated by the functional form in Lemma 1—the optimal exchange rate

$$\varepsilon^D = \left| -\frac{\left(\lambda\Phi^\iota + \eta\nu^2\Phi^J + \frac{4\Phi^I}{N}\right)\frac{\hat{M}^W}{2\theta} + \Phi^I\left(\frac{1}{4\eta} + \eta\nu^2\int_{i\in J}\frac{\hat{M}^W}{\theta}\,di\right)}{2\Phi^I\left(\lambda\Phi^\iota + \eta\nu^2\Phi^J\right)} \right| = \varepsilon^R,$$

which establishes the statement for $\breve{\varepsilon}'$ in the proposition. To see that (30) maximizes $EU^{Gq}(\breve{\varepsilon}'), q = A, B$, suppose instead that an exchange rate rule that yields $\breve{\varepsilon}'' < \breve{\varepsilon}'$ was chosen by party A. Since this does not correspond to the median voter, party B can increase its vote share by choosing $\breve{\varepsilon}'' + \epsilon < \breve{\varepsilon}'$, where $\epsilon > 0$ is small. This process repeats until $\breve{\varepsilon}'' = \breve{\varepsilon}'$. This is simply an application of the median voter theorem (Black 1948). □

A.2 Extensions

This addendum outlines a model with a more explicit production side of the economy. We retain most of the notation in the main text, and only define new variables. Preferences are now given by

$$U_t^i = \sum_{s=t}^{\infty}\beta^{s-t}\left[\log C_s^i + \chi\log\frac{M_s^i}{P_s} - \frac{\kappa^i}{2}l_s(i)^2\right], \tag{A.6}$$

where l is labor input. Each individual Home agent is therefore a monopolistic supplier of labor on the interval $i \in \left[0, \frac{1}{2}\right]$, with Foreign agents on $i \in (\frac{1}{2}, 1]$. The consumption and price indices are, respectively:

$$C_s^i = \left[\int_0^1 c_s^i(z)^{\frac{\theta-1}{\theta}}\,dz\right]^{\frac{\theta}{\theta-1}}, \tag{A.7}$$

$$P_s = \left[\int_0^1 p_s(z)^{1-\theta}\,dz\right]^{\frac{1}{1-\theta}}, \tag{A.8}$$

where goods are produced by monopoly firms indexed on a unit interval $z \in \left[0, \frac{1}{2}\right]$ at Home and $z \in (\frac{1}{2}, 1]$ in Foreign. As usual, analogous aggregators C^* and P^* hold for Foreign.

The nominal period budget constraint now includes labor $w(i)$ and equity $\Pi(i)$ income, instead of revenue:

$$P_s B_{s+1}^i + M_s^i = P_s(1+r_s)B_s^i + M_{t-1}^i + w_s(i)\,l_s(i) + \Pi_s(i) - P_s C_s^i - P_s\tau_s. \tag{A.9}$$

Wages are set one period in advance of production and consumption, at time $(t-1)$. The production of a representative home good i utilizes all (differentiated) domestic labor inputs, and is

$$y_s(z) = \frac{1}{2}\left[2\int_0^{\frac{1}{2}} l_s^z(i)^{\frac{\phi-1}{\phi}}\,di\right]^{\frac{\phi}{\phi-1}}, \tag{A.10}$$

where $\phi > 1$ is the substitution elasticity between different labor inputs. Given a distribution of wages, the price index for labor inputs is

$$W_s = \left[\int_0^{\frac{1}{2}} w_s(i)^{1-\phi} \, di \right]^{\frac{1}{1-\phi}}. \tag{A.11}$$

The demand for Home and Foreign goods are the same as in the text ((8) and (9) respectively), and world demand for good z is

$$y_s(z) = \left[\frac{p_s(z)}{P_s} \right]^{-\theta} \int_0^{\frac{1}{2}} C_s^i \, di + \left[\frac{p_s^*(z)}{P_s^*} \right]^{-\theta} \int_{\frac{1}{2}}^1 C_s^{*i} \, di \tag{A.12}$$

In a similar fashion, we can obtain from the wage index (A.11) an implied demand by firm z for labor offered by i:

$$l_s^z(i) = \left[\frac{w_s(i)}{W_s} \right]^{-\phi} y_s(z), \tag{A.13}$$

which, on aggregate, gives

$$l_s(i) = \int_0^{\frac{1}{2}} \left[\frac{w_s(i)}{W_s} \right]^{-\phi} y_s(z) \, dz. \tag{A.14}$$

Pricing of both factors and products reflect the monopolistically competitive structure of the economy. Returns to labor i is then given by

$$\frac{w_s(i)}{P_s} \cdot \frac{1}{C_s^i} = \frac{\phi}{\phi - 1} \kappa^i l_s(i), \tag{A.15}$$

which means that real factor prices $\frac{w}{P}$ are sold at a constant markup $\frac{\phi}{\phi-1}$ over the marginal disutility of labor $\kappa^i l_s(i)$. A product z is likewise priced as a markup over unit marginal costs:

$$p_s(z) = \frac{\theta}{\theta - 1} \frac{w_s(i) \, l_s(i)}{y_s(z)}, \qquad \varepsilon_s p_s^*(z) = \frac{\theta}{\theta - 1} \frac{w_s(i) \, l_s(i)}{y_s^*(z)}. \tag{A.16}$$

Now, by assuming differentiated ownership of assets and sticky prices and wages abroad, we will be able to show a dependence of agent welfare on the exchange rate, similar to Lemma 1. To derive the aggregate supply function described in Section 3, log-linearize (A.16) around the symmetric steady state to obtain

$$\hat{y}_s = \hat{w}_s - \hat{p}_s + \hat{l}_s. \tag{A.17}$$

Assuming equal use of all inputs—which would be the case in the flexible price symmetric equilibrium—and a supply shock given by ζ allows us to rewrite (A.10) such that

$$\bar{y} = \hat{l}_s + \zeta.$$

Substituting the above into (A.17), and aggregating over all agents, and imposing the (intuitive) coefficient of -1 for real wages then gives us the expression in the text.

A.3 Notation

β	Subjective discount rate	B	Stock of riskless bonds
χ	Weight of real balances	$c(z)$ (C)	Consumption of good z (index)
ε $(\breve{\varepsilon})$	Exchange rate (with peg)	D	Domestic credit
Φ	Exchange rate impact	E	Expectations operator
γ	Rate of time preference	F	Foreign reserves
η	Devaluation preference parameter	G	Government expenditure
ι	Marginal agent	i	Nominal interest rate
κ	Inverse productivity measure	I	Set of agent population
μ	Growth rate of money supply	J	Set of lobbying groups
ν	Influence of lobbying activity	L	Lobbying contributions
π	Inflation	(M^W) M	(World) stock of money
θ	Elasticity of substitution	$p(z)$ (P)	Price of good z (index)
$(\tilde{\rho})$ ρ	(Ex ante) devaluation preference	r	Real interest rate
τ	Lump sum tax	T $(\breve{T})$	Time of crisis (with peg)
ξ	Nominal primary deficit	U	Lifetime utility
ω	Weight on inflation	V	Net group welfare
ψ	Probability of regime change	$y(i)$ $(\tilde{y})$	Production by agent i (target)
ζ	Supply shock	Z	Foreign parameters