

# The Political Origins of Exchange Rate Valuations\*

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## ABSTRACT

The relative strength of a country's currency is central to its economic performance. Real exchange rate *overvaluation* and volatility are linked to macroeconomic instability and slower growth, whereas *undervaluation* appears to promote growth. In this light, why do countries not consistently maintain undervalued currencies? We propose that the offsetting inflationary and growth effects of undervaluation lead countries with high levels of political competition to avoid sustained undervaluation. Currency volatility, undervaluation, and overvaluation each harm constituencies that can mobilize in competitive political contexts. We find that the *degree of competitiveness* of political institutions, rather than other attributes of democratic institutions, explains why countries do (or do not) undervalue their currencies, and why some countries maintain stable currency values. Democratic societies with politics that favor consumers have systematically, if modestly, overvalued exchange rates. Sustained bouts of competitive devaluation ("currency wars") are highly unlikely among democratic countries. We find electoral evidence that voters punish incumbent governments for bouts of sustained currency undervaluations, providing an electoral motivation for democratic governments avoiding currency wars.

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The value of a country's domestic currency relative to other countries' currencies – its real exchange rate – is central to the politics of globalization. The real exchange rate is politically important because the distributional consequences of a depreciated (or appreciated) real exchange rate are unequal: some economic actors win, while others lose. When the currency is *undervalued* relative to others, exports are more competitive on global markets and thus tend to increase, along with wages and employment among exporting firms and industries. And, when the currency is *overvalued*, imports can surge, benefiting consumers but imperiling import-competing firms and industries (Broz and Werfel 2014; Jensen, Quinn, and Weymouth 2015).

Governments have strong incentives to pursue undervaluation and avoid extensive overvaluation, distributional concerns notwithstanding. Dani Rodrik and others examine the impact of *undervaluation* on growth. In an influential paper, Rodrik (2008: 366) finds “an increase in undervaluation boosts economic growth just as powerfully as a decrease in overvaluation” (see also Berg and Miao 2010). Rapetti, Skott, and Razmi's (2012) review of the literature reports that the estimated positive growth effects of undervaluation are robust to estimation techniques, samples, and data choices. Currency *overvaluation*, while attractive to consumers, is linked to macroeconomic instability (Fischer 1993) and slower economic growth (Easterly 2005; Rodrik 2008). Overvaluation is also associated with current account deficits and balance-of-payments crises – all of which harm growth.<sup>1</sup> Vieira et al. (2013) also find that volatility in exchange rate valuations harms growth.

The global politics of exchange rate policy are highly contentious, as countries have an incentive to promote exports and growth through manipulating their currencies. The distributional consequences of such manipulation engender intense domestic and international

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<sup>1</sup> For a dissenting view, see Schroeder 2013.

political division (Broz and Frieden 2006; Copelovitch and Pevehouse 2011). Autor, Dorn, and Hanson (2013) link the rapid rise in U.S. imports from China – fueled in part by an undervalued yuan – to the loss of millions of manufacturing jobs in the United States.<sup>2</sup> Firms exporting from an undervalued country become more internationally competitive, often prompting foreign competitors to initiate demands for protection.<sup>3</sup> The effect of monetary policy interventions on the value of real exchange rates became particularly contentious after the global financial crisis of 2008–09, when the U.S. Federal Reserve’s expansionary “quantitative easing” program, undertaken to support U.S. economic recovery, precipitated a decline in the dollar. The resulting decline in their own export competitiveness caused policymakers abroad to claim that the Fed was engaged in “currency wars,” deliberately weakening the dollar to gain trade advantages.

In light of the evidence about the growth effects of undervaluation, and the seemingly limited ability of trade partners to respond to sustained undervaluation by other countries, the question arises: *Why do some countries consistently maintain relatively neutral, and sometimes even overvalued, currencies over time when sustained undervaluation appears to promote economic growth?*

We argue that the degree of competitiveness of political institutions – rather than other attributes of democratic institutions – is the key to understanding why countries do (or do not)

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<sup>2</sup> Subramanian (2010) argues that China’s currency undervaluation policies, which cost U.S. manufacturing jobs, harm growth prospects in other developing economies with similar factor endowments due to displacement of their exported goods.

<sup>3</sup> Steinberg and Shih (2012) argue that the demands of tradable industries in China for undervaluation are strongest in the absence of other compensatory policies, such as export subsidies.

undervalue their currencies for sustained periods. Currency volatility, undervaluation, and overvaluation each harm constituencies that can mobilize in highly competitive political contexts, a point we develop below. These competing interests tend to neutralize over time through robust political competition. In contrast, authoritarian regimes, which by definition have less political competition, are more likely to be better able to sustain currency undervaluation.

Examining data on real exchange rate valuations between 1975 and 2014, we demonstrate two novel findings. First, we find that countries with competitive political institutions are particularly unlikely to have sustained currency undervaluation. The results hold in both ordinary least squares (OLS) and instrumental variable (IV) models using global waves of institutional change as an instrument for competitive institutions. We find that lower volatility and more neutral currency valuations correlate with other features of democratic governance (e.g., checks and civil liberties), but the statistical significance of the estimated effects of other features of democratic governance vanish once we account for the competitiveness of democratic institutions. The second is that we find evidence that incumbents are harmed electorally by currency undervaluation.

Democratic countries are not homogenous in how they balance exporter and consumer interests. An important implication of our argument is that – within highly competitive political systems – the relative balance between producers and consumers will influence the degree of undervaluation and overvaluation, respectively. Variation within democracies can be explained by the political influence of consumers relative to producers: sustained undervaluation is particularly unlikely where consumers and the elderly (savers) represent a large constituency. We find within-democracy heterogeneity in real exchange rates based on the relative political weight of consumer interests, as captured by increases in the ratio of retired persons to the

working population, or the dependency ratio. Among democracies, the greater the strength of a country's consumer interests, the more overvalued the currency.

Our paper contributes to the literature that examines how political institutions affect exchange rate policy. Steinberg (2015) demonstrates that state control over labor and financial markets, a hallmark of authoritarian governance, enable the pursuit of undervaluation as a growth strategy.<sup>4</sup> Other work finds that weak democratic institutions contribute to instability and greater currency volatility (Hays, Freeman, and Nesseth 2003, Freeman, Hays, and Stix 2000, Weymouth 2011), and that autocracies rely on pegged exchange rates, a relatively transparent commitment mechanism, as a substitute for political system transparency (Broz 2002).<sup>5</sup> Our contribution shows, for the first time, that competitive electoral institutions are negatively associated with sustained undervaluation and contribute to more stable real exchange rates.

### **THE POLITICAL ECONOMY OF EXCHANGE RATE MANAGEMENT**

Because the real exchange rate is a relative price, governments do not have complete control over its movement. There is, however, widespread agreement that the real exchange rate can be considered a policy variable because governments can – and do – influence it through a number of direct and indirect policy instruments. Policymakers in some countries have been quite successful at maintaining undervalued and overvalued exchange rates over long periods of time (Rodrik 2008).

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<sup>4</sup> See also Steinberg and Malhotra 2014.

<sup>5</sup> Guisinger and Singer (2010) show that democratic government commitments to an exchange rate peg, when made, are indeed more credible. See also Leblang 1999; Frieden, Leblang, and Valey 2010; Plümper and Neumayer 2011; Bearce and Hallerberg 2011.

Intervention in the foreign currency market is the most direct action that governments can take to influence the value of their own currency. Monetary authorities can buy or sell foreign currency to affect the nominal value of the domestic currency. For instance, the central bank may exchange domestic currency that it holds in reserves for foreign currency, potentially decreasing the value of the domestic currency.

Less direct policy channels are often employed in combination. For example, restrictions on capital flows (“capital controls”) may be used, such as when Chinese authorities employed capital controls (particularly restrictions on capital outflows) to maintain a relatively undervalued yuan. Capital control inflow restrictions have been used extensively to decrease inflows and prevent currency appreciation (e.g., ‘sterilization’ accounts<sup>6</sup> in Chile). Governments may also rely in part on monetary policy. For instance, a sustained overvaluation will likely require relatively high domestic interest rates, which attract investment and raise the relative value of the domestic currency. Steinberg (2015) and Steinberg and Shih (2012) argue that China’s pursuit of sustained undervaluation was possible in part due to state control of financial markets.

Governments also use fiscal policy to influence the real exchange rate. Increased public spending or fiscal transfers (fiscal expansion) can cause prices to rise in nontradables, shifting resources to the production of nontradable goods, and thus putting upward pressure on the real exchange rate (Iverson and Soskice 2010). Relatively restrictive fiscal policy, however, tends to coincide with the maintenance of a competitive real exchange rate that encourages exports.<sup>7</sup>

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<sup>6</sup> An example is when a firm is required to deposit inward funds in a non-interest bearing account for six months prior to being able to import the funds.

<sup>7</sup> As Eichengreen (2007) notes, the impact of fiscal policy on the real exchange rate depends on a number of market conditions, including the level of private spending and investment.

### *Competitive Democratic Institutions Make Sustained Undervaluation Difficult*

Given the strong association between sustained undervaluation and economic growth, it is natural to ask why governments do not universally pursue a weak currency. The reason, we contend, relates to competing interests as reflected through competitive political institutions. The literature on the political economy of exchange rates demonstrates how exchange rate valuations affect various social groups differently. The offsetting economic consequences of currency undervaluation and overvaluation create formidable constituencies that seek to influence exchange rate valuations in such a way as to achieve their own (often competing) goals.

For one, an “artificially” depreciated currency risks higher inflation as the prices of imported consumer and input goods rise. Undervaluation makes tradables producers that compete with foreign imports more competitive: their goods become relatively less expensive compared to those from foreign competitors. This drop in competition may eliminate the incentive for domestic producers to keep prices low, contributing to higher inflation if domestic firms in undervalued countries increase their prices when competition from foreign firms is reduced.<sup>8</sup> Conversely, an appreciated domestic currency increases import competition and encourages firms to keep prices low. All else equal, a strong domestic currency will contribute to lower inflation.

Second, a weak domestic currency diminishes the purchasing power of domestic consumers. Thus, while some firms in tradable sectors might prefer an undervalued exchange rate, the effects of undervaluation on prices may harm a large subset of consumers not employed

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<sup>8</sup> Plümpner and Neumayer (2011) show that exchange rate depreciations lead to a rise in inflation due to increases in the prices of goods. Thus avoiding inflation is an important motivation for countries with extensive import sectors.

in the tradable sector.<sup>9</sup> As described by Bates (1981), many post-colonial African countries maintained overvalued exchange rates and restricted trade to increase the purchasing power of urban consumers – much to the detriment of rural agricultural producers. We expect that citizens’ consumption interests, particularly in democratic settings, strongly constrain governments’ ability to maintain undervalued currencies.

While consumer and sectoral interests are salient in exchange rate policymaking, so too are the likely divisions over the effects of undervaluation on individual firms. For instance, a weak (depreciated) real exchange rate implies an increase in the price of tradable goods and services relative to nontradables. For firms with large shares of outputs that are tradable relative to their inputs, a cheaper currency implies an increase in profits (all else equal). Conversely, firms that rely largely on tradable inputs for the production of nontradable goods and services will see a reduction in profits following the depreciation of the local currency (Frieden 2015; Egan 2016). Empirical research supports this argument. For example, Broz, Frieden, and Weymouth (2008) show that firms in tradable goods sectors are more likely to express concerns about exchange rate *appreciations* owing to their deleterious effects on exports and the resulting increase in imports. Egan (2016) demonstrates that firms with a high dependence on imported inputs are dissatisfied with real depreciations.

Firm preferences regarding currency valuations are also influenced by the microeconomic/balance sheet consequences of such valuations, which depend on the currency composition of private debt. Walter (2008), for example, proposes that currency valuation

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<sup>9</sup> Naio and Kume (2015) demonstrate that even individual who that are vulnerable to job losses through imports can, through “consumption priming,” become more favorable to increased imports.

preferences do not derive solely from competitiveness concerns or price-based preferences, but also from the vulnerability of firms' balance sheets to depreciation and increased interest rates. Firms with substantial debt denominated in foreign currency will oppose domestic currency depreciation, all else equal.<sup>10</sup>

The fragmentation of production and trade across borders adds an additional layer of complexity, since it may contribute to considerable heterogeneity in firm exchange rate preferences, even among firms within the same industry (see Bearce and Tuxhorn forthcoming). Firms increasingly produce abroad to take advantage of cheaper inputs (Helpman 1984). A strong domestic currency makes the value of foreign assets relatively cheaper, thus lowering the costs of investment by foreign firms (Blonigen 1997) and increasing the financial worth of foreign bidders relative to domestic investors (Froot and Stein 1991). An important indirect benefit of undervaluation may thus be that it induces resource-seeking forms of foreign direct investment (FDI). For firms that use FDI as a platform for export, an undervalued host market currency increases the competitiveness of their exports (Blonigen 1997). Thus, it is not clear that the largest trading firms, which have value chains that extend around the world, will always support a weak domestic currency (Jensen, Quinn, and Weymouth 2015).

In turn, the economic policy interests of highly globalized firms reflect the location and scope of their global production activities. Jensen, Quinn, and Weymouth (2015) show that firms establish production affiliates in countries with undervalued exchange rates: these firms are less likely to pursue trade remedies when the domestic currency appreciates. This strategic adaptation by international firms suggests that domestic currency fluctuations can be hedged by establishing

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<sup>10</sup> Moreover, highly leveraged firms and individuals will oppose the high interest rates that may be required to maintain an overvalued currency.

foreign affiliates for production and trade. As global value chains fragment, the exchange-rate-level objectives of firms in the export sector become increasingly complex. In sum, the effect of the real exchange rate on firm profitability depends on a number of factors that complicate *ex ante* predictions of firms' preferences regarding this rate.<sup>11</sup>

Since the economic consequences of real exchange rate valuations are potentially countervailing, especially in the longer term, political economy considerations will influence governments' exchange rate valuation decisions. Both currency appreciation (which has adverse growth consequences) and currency depreciation (which has inflationary, competitive, and balance sheet pressures) are likely to generate unfavorable electoral consequences for political elites in democracies, as voters tend to punish both lower growth and higher inflation in elections. The profits of firms engaged in trade and FDI will be strongly affected by the value of the real exchange rate, but the location and scope of firms' value chains imply strong divisions among them, even potentially among those within the same sector.

Moreover, the complex and countervailing effects of exchange rate policies do not allow for a simple division of preferences along traditional partisan policy prescriptions. For example, leftist parties in small, open, export-dependent economies are unlikely to share exchange rate policy preferences with leftist partisans in large relatively closed economies. Given the fragmentation of global value chains, conservative parties with strong ties to global businesses will also have heterogeneous preferences. We expect no systematic partisan policy differences among democracies.

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<sup>11</sup> Consumers in sectors that are relatively shielded from globalization (e.g., nontradable services) are most likely to prefer a strong domestic currency that increases purchasing power.

As a result of the offsetting distributional effects outlined above, we expect countries that are more democratic (and thus have higher levels of political competition) to have more neutral real exchange rate valuations, and are especially less likely to have undervalued currencies. The democratic institutional environment defines the degree to which governments respond to the preferences of diverse interests. In democracies, elections entail competition from credible parties that represent constituents with opposing interests. To maximize political support, governments in democracies are more likely to pursue exchange rate policies with broad appeal (Bearce 2014).

On average, highly contested political markets are likely to produce a stalemate between forces that favor undervaluation and those that seek to avoid inflation. Strong constituencies opposing undervaluation will make the pursuit of sustained undervaluation policy untenable. In contrast, authoritarian regimes seeking an export advantage through currency undervaluation can more easily suppress consumer and worker demands for cheaper goods or higher wages.

While our emphasis is on the differences between competitive and non-competitive electoral systems, we also account for the observed variation within competitive democracies. We expect democratic societies with larger numbers of consumers relative to producers' groups to have an incentive for a modestly overvalued currency as consumer prices will be lower. In turn, in democratic societies with larger numbers of economically active adults relative to retirees, we expect greater demand for export competitiveness. In the latter societies, political demands for a 'strong' currency (i.e., overvaluation) will be limited.

#### *Other Attributes of Democratic Governance that Could Influence Exchange Rates*

Along with competitive elections, democracy is associated with a broader set of institutions that make sustained undervaluation difficult. We consider a number of alternative channels through

which democracies, and the constellation of institutions normally associated with them, may influence the value of the real exchange rate over time.

First, almost by definition, democracies are more likely to allow labor to organize. As Steinberg (2015) shows, undervaluation is more difficult when the state grants labor this right. Labor's ability to organize will lead to demands for higher wages, negating the benefits of undervaluation for exporting firms.

Second, democracies promote the development and liberalization of financial markets (Quinn 2000; Girma and Shortland 2008). As Steinberg (2015) demonstrates, state control over the financial sector is central to its ability to pursue undervaluation as a growth strategy. One reason is that countries that pursue undervaluation will often sterilize their foreign currency interventions to offset the potential inflationary effects. These sterilizations are more difficult when the state cannot force financial institutions to purchase its debt. Moreover, state control over the financial system allows governments to channel cheap credit to the manufacturing sector, thereby enhancing industry support for undervaluation (Steinberg 2015). To the extent that democratic governments have less control over the financial sector than their autocratic counterparts, policymakers in democracies have fewer policy instruments with which to achieve for sustained undervaluation.

Third, democracies are less likely to maintain capital controls (Milner and Murkherjee 2009; Quinn and Inclán 1997), and capital account restrictions are a useful tool for sustaining a particular level of exchange rate. Undervaluation, in particular, requires financial repression (e.g., capital controls) to prevent rising domestic inflation.

A fourth channel through which democracies may influence the real exchange rate is institutional checks and balances and other facets of decentralization or coalition formation,

which may make quick and radical reversals of policies harder (Henisz 2000; Nooruddin 2011). Insofar as democratic governance is associated with independent central banks, clear monetary rules, and other structures limiting executive power, governments with constrained executives or many veto points might therefore be less likely to exhibit overvaluation or undervaluation. We consider these as alternatives to the explanation that we have developed here.

Iversen and Soskice (2010) put forward a related “within” democracy argument. Of relevance to our study, they argue that decreasing income inequality – measured as the ratio of the incomes of the fifth decile wage earners to the bottom decile income earners – leads to increasing currency valuations, as the basket of goods consumed by lower-income earners includes a greater proportion of goods in the “sheltered” (i.e., nontraded) sector.<sup>12</sup> We enter their preferred inequality variable to control for this alternative explanation.

### *Summary and Empirical Implications*

The empirical implications of our argument are as follows. We expect that democracies, compared to autocracies, will tend toward more neutral real exchange rate valuations and will especially avoid sustained undervaluation. We expect this result to be driven primarily by the preferences of voters in societies permitting political competition. The relative balance of

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<sup>12</sup> The causal chain includes wage centralization in a coordinated bargain system, which results in decreased wage dispersion: “the entire direct effect of centralization disappears, and wage compression now explains much of the variance in real exchange rates...centralization raises the real exchange rate and that much, if not all, of this effect runs through wage compression” (Iversen and Soskice 2010: 617). We update the wage compression data for their 2.5 model from 16 to 34 countries and extend the sample to 2011 from 2000. See the OECD Electronic Data Base on Wage Dispersion for the relevant data.

interests between consumers and producers will produce a limit to both sustained under and overvaluation, with most democratic societies avoiding undervaluation. Among countries with highly competitive electoral institutions, those with more consumers than producers will tend toward greater overvaluation.

## METHODS AND DATA

### *Computing Exchange Rate Valuations*

Using methodologies outlined in Rodrik (2008) and adapted from the International Monetary Fund (2012), we compute country-specific indices of real exchange rate valuations using Penn World Tables (PWT 9.0; see Feenstra, Inklaar, and Timmer 2015).<sup>13</sup> The real exchange rate can be thought of as the price of tradables relative to nontradables. The valuation index captures the unique yearly value of a country's goods, relative to those in the United States at the prevailing nominal exchange rate. To generate our valuation index, we first compute:

$$RERunadj_{it} = \ln(XRAT_{it} / PPP_{it}). \quad (1)$$

$XRAT_{it}$  is the nominal exchange rate, and  $PPP_{it}$  is the price index. Following Rodrik (2008), we control for the Balassa-Samuelson effect (that the relative prices of nontradables tend to increase with country wealth) using GDP per capita in a regression framework. The undervaluation index is the residual ( $\hat{\varepsilon} XR_{it}$ ) of the following regression:

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<sup>13</sup> The “output” version of income (RGDP<sup>o</sup>) is used as the U.S. price level is necessary to compute the ratio of the home country price levels to the U.S. price levels. At every year, a country's price level is divided by the U.S. price level, which is the PWT reference country. The U.S. has therefore a real price level equal to 1.

$$RER_{it} = \alpha + \beta \ln GDP_{it} + \gamma_t + \varepsilon_{it} \quad (2)$$

where  $\gamma_t$  is a year fixed-effect term. A virtue of this approach is that the currency valuations of all countries each year are estimated simultaneously in an equilibrium framework, allowing for a comparison of the estimated values across countries and over time (cf. Cline and Williamson 2010). By convention, positive values of  $\hat{\varepsilon}_{XR_{it}}$  denote undervaluation and negative values denote overvaluation. The period examined is 1975–2014, which is post-Bretton Woods and post-OPEC 1. Countries in this sample were freer to make exchange rate choices.

We constructed a panel for up to 105 countries, from 1975 (or independence) to 2014, to investigate the political institutional correlates of undervaluation and overvaluation. We use democracy indicators from Polity IV (Marshall et al. 2013).<sup>14</sup> In addition to Polity itself, we employ two “concept” Polity variables: constraints on the executive (*Exconst*) and openness of political competition (*Polcomp*). We also use the measures of political rights and civil liberties taken from Freedom House and veto points (POLCON) from Henisz (2000).

OLS and IV models are estimated.<sup>15</sup> We test for possible panel unit roots and cointegration among variables. Because of persistence in the data, lags of the endogenous variables necessary to produce serially uncorrelated residuals are employed (tested for using panel Durbin’s  $m$  for AR1).

We estimate dynamic panel models of the undervaluation index. All of our models include year dummies  $\tau_t$  to account for global shocks and trends. The base five-year panel model, with  $i = 1, 2, \dots, 105$  and the index  $t$  representing a five-year period, from 1975 to 2014, is:

$$\hat{\varepsilon}_{XR_{i,t}} = \beta_0 + \beta_1 Y_{i,t-1} + \beta_2 (GDP\ Growth_{i,t-1}) + \beta_3 (LogGDP/capita_{i,t-1}) + \beta_4 (Trade$$

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<sup>14</sup> The data are currently available for 167 countries up to 2012.

<sup>15</sup> IVREG2 from Baum, Schaffer, and Stillman (2010) is used for the IV models.

$$\begin{aligned}
& \text{Balance}_{i,t-1}) + \beta_5(\text{LogTrade Openness}_{i,t-1}) + \beta_6(\text{Population Growth}_{i,t-1}) + \\
& \beta_7(\text{Eurozone Membership}_{i,t-1}) + \beta_8(\text{Capital Account Openness}_{i,t-1}) + \beta_9(\text{Political} \\
& \text{Competition}_{i,t-1}) + \tau_t + \varepsilon_{i,t} \qquad \qquad \qquad i=1,2,\dots,105. \quad (3)
\end{aligned}$$

The economic control variables come from the Penn World Tables 9.0. *Capital Account Openness (CAPITAL)* is a *de jure* measure of financial integration (see Quinn 1997 and Quinn, Schindler and Toyoda 2011 for more complete description and construction details). *Eurozone Membership* is a dummy variable that takes a value of 1 for Eurozone countries.<sup>16</sup> *Political Competition* captures the measures of democratic institutions outlined above. The remaining variables are economic controls taken from the Penn World Tables.

Along with the panel average value of the undervaluation index,  $(\bar{x}) \hat{\varepsilon}XR$ , we also model volatility in the real exchange rates, which we measure as the standard deviation of the undervaluation index over each five-year period,  $(\sigma) \hat{\varepsilon}XR$ .

Since it is difficult to control for the full set of factors that may correlate with political institutions and the exchange rate, we estimate and report IV models for three reasons. First, this approach alleviates concerns about endogeneity of democracy: a successful IV strategy can account for the numerous potentially omitted variables that may affect both democracy and subsequent undervaluation. Second, it can also help alleviate concerns about measurement error in the democracy indicators. Third, the IV approach further addresses the issue of endogenous changes in democracy scores.

Our IV strategy is to exploit global waves of democratization (and reversals) as a source of exogenous variation in democracy. Our instrument for democracy is the lagged jackknifed

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<sup>16</sup> Since countries must meet accession requirements, this variable is also lagged such that the period prior to membership is coded as 1.

average of global democracy, which is the global average Polity (or *Polcomp*) score net of country *i*. Our approach assumes that democratic governance spreads in global waves, but that these waves do not affect the real exchange rate in country *i* except through their effects on democracy in country *i*. Based on this logic, we use lagged values of global democracy net of country *i* as instruments for democracy in country *i* while also conditioning on lagged values of our dependent variables and other covariates.<sup>17</sup>

## RESULTS AND DISCUSSION

Figure 1 presents preliminary evidence for our propositions. It shows the average cross-section values of exchange rates for 124 nations (Y axis) against the period volatility of the exchange rates from 1975–2011. Countries are categorized by level of democracy into four groups: democracies (Polity average scores 6 or greater), autocracies (Polity average scores -6 or less), weak democracies (1-5), and weak autocracies (0 to -5). In keeping with convention, positive values of currency valuation denote undervaluation and negative numbers denote overvaluation. Zero on the Y axis denotes a neutral currency valuation. Despite extraordinary changes in the world order during this 37-year period, countries with sustained autocratic institutions show far greater volatility in exchange rates, and a greater propensity for undervaluation compared to democratic countries.

Table 1 examines the underlying data for the full sample and for a ten-year average (1998–2007) in terms of the sample means and variances for the average exchange rate valuation (denoted by Average ( $\bar{x}$ )  $\hat{\epsilon}XR$ ) and the volatility of the exchange rate (denoted by Volatility ( $\sigma$ ))

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<sup>17</sup> The strategy of using lagged global averages as an instrument for home country institutions and practices is found in Acemoglu et al. (2015), Alquist and Wibbels (2012), and Quinn and Toyoda (2007).

$\hat{\epsilon}XR$ ) for the four groupings. We confirm the inter-ocular analysis in Table 1, which reports the t-test of means for the two variables of interest; the “base” category is highly democratic countries, or those with period Polity average scores of 6 or higher. In Table 1, the sample average is approximately zero, which corresponds to a neutral valuation. For highly democratic countries, the average exchange rate volatility is low. Weak democracies also have average valuations near zero, but volatility is much higher for the 1998–2007 period. For highly autocratic regimes, the average undervaluation for the full period is 25%,<sup>18</sup> but with much higher average volatility and much higher sample variance for both volatility and exchange valuation. We find a similar pattern for weak autocracies.

**Table 1.**  
**Exchange Rate Volatility and Valuation Averages: 1975–2011, 125 Countries**

<b>Sample Mean</b>	<i>Sample</i>	<i>Strong Autocracy</i>	<i>Weak Autocracy</i>	<i>Weak Democracy</i>	<i>Strong Democracy</i>
Volatility ( $\sigma$ ) $\hat{\epsilon}XR$	0.21	0.3***	0.23***	0.19	0.19
Average ( $\bar{x}$ ) $\hat{\epsilon}XR$	0.03	0.22***	0.01	0.08***	-0.08

**Exchange Rate Volatility and Valuation Averages: 1998–2007, 145 Countries**

<b>Sample Mean</b>	<i>Sample</i>	<i>Strong Autocracy</i>	<i>Weak Autocracy</i>	<i>Weak Democracy</i>	<i>Strong Democracy</i>
Volatility ( $\sigma$ ) $\hat{\epsilon}XR$	0.15	0.23***	0.16***	0.15**	0.11
Average ( $\bar{x}$ ) $\hat{\epsilon}XR$	0.01	0.38***	0.13***	-0.02	-0.1

Notes: The table results are for t-tests of sample means, assuming unequal sample variances with strong democracy (Polity period average score greater than six) as the benchmark case. The range of the volatility and mean exchange rate variables are below 1. The sample average for 1975–2011 for Polity is 1.7, and the sample median is 1.4. Zero indicates a neutral valuation for the average exchange rate measure. Positive numbers for the average exchange rate denote undervaluation, and negative numbers denote overvaluation. \* p-value < 0.10; \*\* p-value < 0.05; \*\*\* p-value < 0.01.

<sup>18</sup> This is computed by exponentiating the average underlying valuation and subtracting 1.

To examine more rigorously the evidence, we next estimate OLS and two-stage least squares (2SLS) models of the political and economic correlates of real exchange rate undervaluation and volatility for up to 105 countries from 1975 to 2011, based on data availability. Several panel unit root tests strongly reject the null hypothesis that all panels have unit roots.<sup>19</sup> All specifications include year fixed effects and a lagged dependent variable, which helped achieve serially uncorrelated residuals in all models reported.

### *Regression Results*

Table 2 presents our baseline OLS and IV models. The results reported in Column 1 indicate a strong negative relationship between the Polity measure of democracy and undervaluation, controlling for the number of economic correlates of real exchange rates.<sup>20</sup> In Column 2, we instrument for Polity using our measure of global Polity, and the coefficient estimates are very similar to those reported in Column 1.<sup>21</sup> In Columns 3 and 4, we replace Polity with one of its concept variables, Political Competition (*Polcomp*). The strong association between *Polcomp* the undervaluation measure is robust to the use of global *Polcomp* as an instrument (Column 4). In identical samples, we find a modest increase in the explanatory power of the models using *Polcomp*.

Along with a lower propensity to undervalue, as demonstrated thus far, we are interested in whether democratic political competition leads to sustained *overvaluation* or *undervaluation*. In Column 5 we model sustained overvaluation, measured for each five-year panel as the average

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<sup>19</sup> We use IPS and Fisher ADF tests with trends, which are appropriate for unbalanced panels.

<sup>20</sup> Summary statistics and a correlation matrix appear as Appendix Tables A1 and A2.

<sup>21</sup> The first stage results appear in Appendix Table A3.

level of overvaluation for countries that maintain relatively overvalued currencies<sup>22</sup> for all five years of the panel. We also find no statistically significant relationship between *Polcomp* and sustained overvaluation in TSLS estimates, reported in Column 6. Examining sustained undervaluation countries, we find evidence consistent with a negative effect of political competition in OLS and TSLS models, with we report in columns 7 and 8, respectively. In sum, the relationship between competitive political institutions and currency valuation is asymmetric: higher levels of political competition constrain governments' ability to pursue an undervalued currency, but do not necessarily lead to overvaluation compared to autocratic regimes.<sup>23</sup> Consistent with the patterns displayed in Figure 1, democracies rarely undervalue their currencies and tend toward less volatility.

The models reported in Table 3 contrast the estimated effects of *Polcomp* with other potential mechanisms through which democracies may influence exchange rate valuations. In Column 1, we introduce the component index of Political Constraints (*Exconst*) from Polity. Model 2 drops the Eurozone countries. In Model 3, we include Henisz's POLCON 3 variable. Models 4 and 5 include the Freedom House indicators of *Civil Liberties* and *Political Rights*, respectively. Column 6 includes an index of *Worker Rights*. We examine partisan effects in Column 7, constraining the sample to countries with the highest levels of political competition. In Column 8 we include a measure of *Central Bank Independence* from Eichengreen (2014).

In general, we find the sign and level of statistical significance of the estimated coefficient of *Polcomp* is unchanged, and the magnitude of the estimate is either similar or larger to the base

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<sup>22</sup> Negative values of our index signify overvaluation.

<sup>23</sup> This finding perhaps helps identify a policy mechanism for the Chandra and Rudra 2015 finding that some autocratic countries maintain stable and higher growth rates.

models, with the exception of model 7. The evidence strongly suggests that political competition – rather than other aspects of democratic institutions – influences exchange rate valuations. Indeed, in results reported in Appendix Tables A4 and A5, with *Polcomp* omitted, all of the other democracy or democracy-related concept variables are separately statistically significantly correlated with neutral currency valuations (except *Central Bank Independence*). When we include *Polcomp* in Table 3, however, none of the variables is statistically significant except *Exconst*, which flips signs perversely. The identifying variance appears to reside in the *Political Competition* variable.

The models reported in Table 4 examine how the relative balance of consumer versus producer interests influences exchange rate valuations, especially within democracies. In Column 1, including the age dependency ratio does not alter the level of statistical significance, sign, or magnitude of the *Polcomp* coefficient. In column 2, we examine non-linear effects by including the squared Dependency Ratio, which enters with a positive and statistically significant coefficient. Examining the valuation index among politically competitive societies (*Polcomp* > 8), we find, as expected, that increases in our proxy for consumer interests – the dependency ratio – are associated with appreciations in the real exchange rate. Adding the wage inequality measure from Iverson and Soskice (2010) in Column 3 produces a smaller sample. We confirm their finding that wage compression is associated with currency overvaluation.<sup>24</sup> Given that we expect democracies to exhibit an overall tendency away from undervaluation especially, but unconditionally away from overvaluation, we predict that the estimated effects of the relative balance between producers and consumers will have a quadratic functional form (as the

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<sup>24</sup> Cf. Column 3 with their Model 2.5 (Iverson and Soskice 2010: 615).

incentives for lower prices will not be unlimited). The results indeed show a quadratic form in a U shape.

Columns 4, 5, and 6 split the samples into three groups: highly competitive ( $Polcomp = 10$ ), highly uncompetitive ( $Polcomp < -5$ ), and all others. Figure 2 shows the predicted values of the valuation index in highly competitive societies based on Model 4. It shows that when producer interests are relatively strong (i.e., when the age dependency ratio is low), democratic countries have neutral currency valuations. However, as the number of consumers relative to producers increases, the currency tends toward overvaluation (see Figure 2--The histogram of the density of observations is also plotted on the figure.)

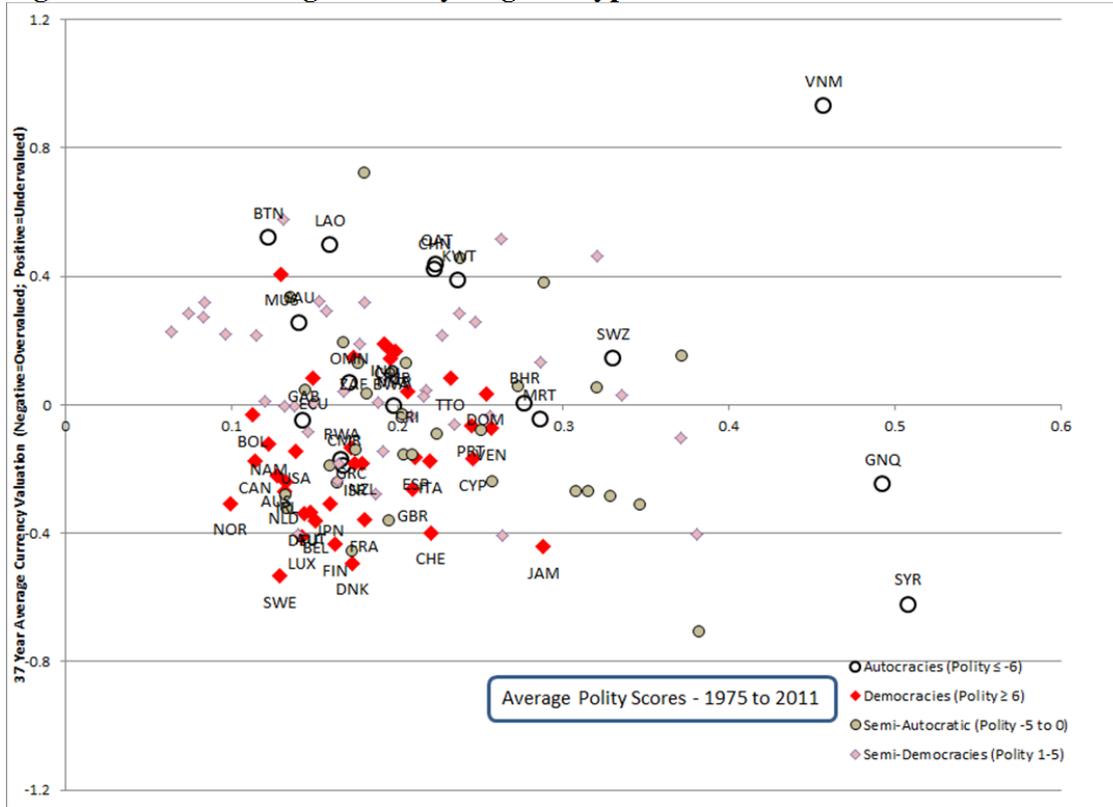
## CONCLUSION

In light of the overwhelming evidence linking real exchange rate undervaluation to faster growth, it is natural to ask what constrains leaders from uniformly pursuing an undervalued currency. We have found that that robust political competition moderates exchange rate outcomes over the medium to long term. Sustained undervaluation and overvaluations both harm constituencies that are central to winning elections in highly competitive political environments. Political competition, rather than other institutional features or attributes, explains the democratic tendency toward more neutral and stable currencies. Variation within democracies reflects the relative balance of consumer versus producer interests. Politically competitive societies dominated by consumers exhibit moderate levels of overvaluation, while those with relatively more producers do not.

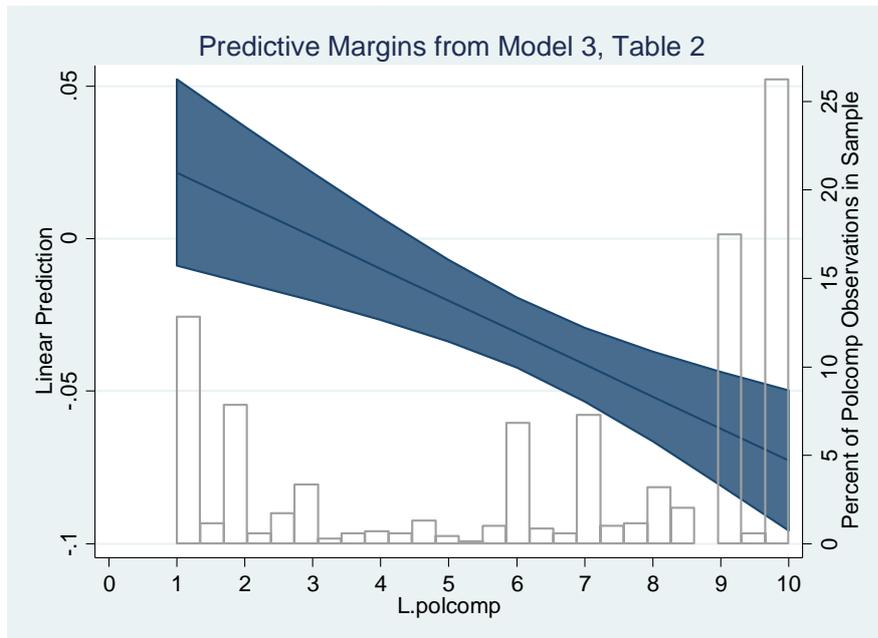
Our study suggests sustained bouts of competitive devaluations (i.e., currency wars) are

highly unlikely among democracies. In contrast, leaders in uncompetitive political systems are less constrained by labor and consumer price demands, and less accountable for exchange rate mismanagement leading to volatility. Thus, some autocratic countries are able to maintain sustained currency undervaluation despite the costs to consumers and to worker wages, and tend to exhibit more currency volatility. Sustained undervaluation appears to require repression of political competition.

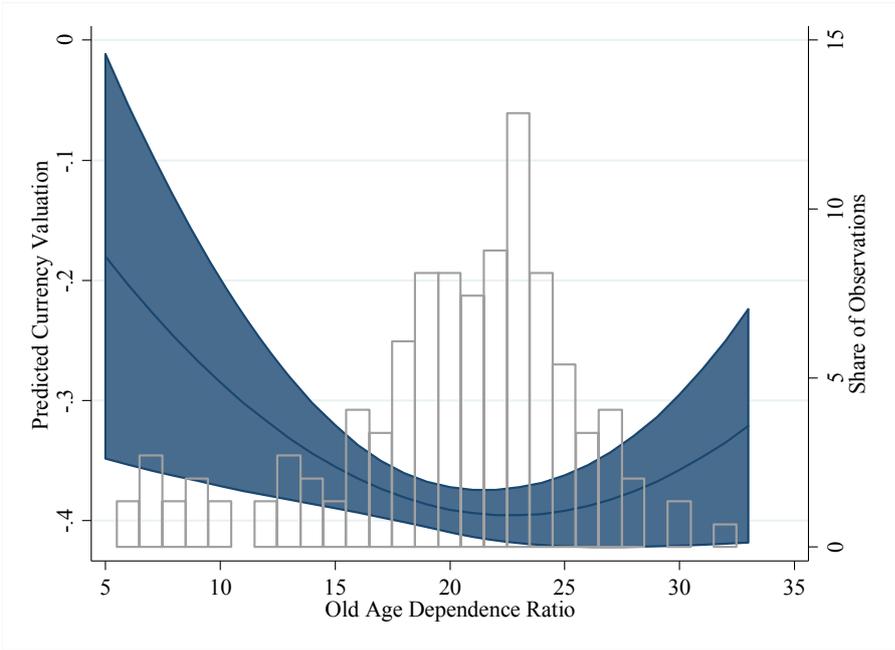
**Figure 1. Real Exchange Rates by Regime Type**



**Figure 2. Predicted Currency Valuations Give Level of Political Competition (T 2.3)**



**Figure 3. Consumer Interests and Predicted Currency Valuations in Democracies (based on Model 4 of Table 5)**



**Table 2. Competition Political Institutions, Real Exchange Rate Valuations and Volatility – Five-Year Country Averages, 1975–2011**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Model:</i>	OLS	TSLS - Second Stage	OLS	TSLS - Second Stage	OLS	TSLS - Second Stage	OLS	TSLS - Second Stage
<i>Sample:</i>	Full	Full	Full	Full	Sustained Overvaluation	Sustained Overvaluation	Sustained Undervaluation	Sustained Undervaluation
Lagged Valuation	0.754*** (0.022)	0.752*** (0.022)	0.751*** (0.022)	0.749*** (0.023)	0.595*** (0.042)	0.600*** (0.042)	0.550*** (0.070)	0.535*** (0.066)
GDP Growth	0.413** (0.187)	0.413** (0.187)	0.413** (0.183)	0.389** (0.187)	0.261 (0.232)	0.250 (0.228)	0.366 (0.248)	0.374 (0.237)
GDP per capita	-0.016* (0.008)	-0.014 (0.009)	-0.013 (0.009)	-0.012 (0.009)	-0.019* (0.011)	-0.020* (0.011)	-0.002 (0.016)	-0.000 (0.015)
Trade Balance	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.001 (0.001)	-0.001 (0.001)	-0.003** (0.001)	-0.003** (0.001)
Trade Openness	-0.034*** (0.010)	-0.036*** (0.009)	-0.031*** (0.009)	-0.033*** (0.009)	-0.010 (0.011)	-0.010 (0.011)	-0.026 (0.016)	-0.035** (0.015)
Population Growth	0.004 (0.005)	0.002 (0.006)	0.004 (0.005)	0.002 (0.006)	0.001 (0.008)	0.000 (0.007)	-0.001 (0.007)	-0.007 (0.007)
Eurozone Member	-0.036** (0.014)	-0.035** (0.014)	-0.036** (0.014)	-0.033** (0.014)	-0.009 (0.020)	-0.010 (0.019)	-0.047 (0.038)	-0.049 (0.033)
Capital Account Openness	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
<b>Polity</b>	-0.004*** (0.001)	-0.005*** (0.002)						
<b>Political Competition</b>			-0.010*** (0.003)	-0.013*** (0.003)	-0.003 (0.003)	-0.003 (0.004)	-0.009** (0.004)	-0.012*** (0.004)
Constant	0.216*** (0.073)	0.292*** (0.079)	0.231*** (0.074)	0.331*** (0.084)	0.067 (0.084)	0.139 (0.091)	0.283*** (0.108)	0.315*** (0.091)
R-squared	0.822	0.821	0.823	0.821	0.699	0.698	0.663	0.670
Observations	691	691	689	689	297	298	250	250
Countries	96	96	96	96	68	68	64	64
Kleibergen-Paap rk Wald F statistic		202.4		134.5		46.73		146.5

**Note:** Five-year country average values. The regressors are lagged by one period. The results of the first-stage estimates appear in the Appendix. All models include period fixed effects. Durbin's *m* assesses serial correlation in the panel; the null hypothesis is no serial correlation. Robust standard errors adjusted for country-level clustering. \* p-value < 0.10; \*\* p-value < 0.05; \*\*\* p-value < 0.01.

**Table 3. Democratic Institutions and Real Exchange Rate Valuations – Five-Year Country Averages, 1975–2011**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lagged Valuation	0.7507*** (0.0220)	0.7577*** (0.0230)	0.7438*** (0.0233)	0.7462*** (0.0242)	0.7464*** (0.0236)	0.7349*** (0.0282)	0.7868*** (0.0360)
GDP Growth	0.4036** (0.1812)	0.5576*** (0.1902)	0.4105** (0.1850)	0.4059** (0.1867)	0.4004** (0.1853)	0.3162 (0.2253)	-0.3730 (0.4084)
GDP per capita	-0.0145* (0.0084)	-0.0137 (0.0085)	-0.0141 (0.0088)	-0.0152* (0.0090)	-0.0162* (0.0091)	-0.0171 (0.0107)	-0.0079 (0.0175)
Trade Balance	-0.0017*** (0.0005)	-0.0019*** (0.0005)	-0.0019*** (0.0005)	-0.0019*** (0.0005)	-0.0019*** (0.0005)	-0.0018** (0.0007)	-0.0008 (0.0011)
Trade Openness	-0.0295*** (0.0094)	-0.0310*** (0.0099)	-0.0334*** (0.0094)	-0.0335*** (0.0094)	-0.0327*** (0.0095)	-0.0150 (0.0138)	0.0016 (0.0253)
Population Growth	0.0047 (0.0053)	0.0027 (0.0052)	0.0030 (0.0052)	0.0034 (0.0053)	0.0031 (0.0052)	0.0063 (0.0067)	0.0024 (0.0074)
Eurozone Member	-0.0357** (0.0142)		-0.0333** (0.0145)	-0.0338** (0.0145)	-0.0352** (0.0145)	-0.0536*** (0.0179)	-0.0940*** (0.0272)
Capital Account Openness	-0.0003 (0.0003)	-0.0002 (0.0003)	-0.0002 (0.0003)	-0.0002 (0.0003)	-0.0002 (0.0003)	0.0000 (0.0003)	0.0005 (0.0004)
<b>Political Competition</b>	-0.0139*** (0.0036)	-0.0103*** (0.0028)	-0.0102*** (0.0035)	-0.0120*** (0.0039)	-0.0137*** (0.0040)	-0.0174*** (0.0040)	-0.0075 (0.0051)
Executive Constraints	0.0066 (0.0050)						
Polcon			-0.0106 (0.0553)				
Civil Liberties				0.0040 (0.0088)			
Political Rights					0.0066 (0.0078)		
Worker Rights						0.0060 (0.0171)	
Central Bank Independence							-0.0124** (0.0050)
Constant	0.2268*** (0.0728)	0.2325*** (0.0706)	0.2391*** (0.0763)	0.2394*** (0.0763)	0.2452*** (0.0753)	0.2418** (0.0986)	0.1334 (0.1304)
Observations	689	597	652	652	652	530	198
Countries	96	82	92	92	92	95	66
R-squared	0.824	0.801	0.818	0.818	0.819	0.829	0.856

**Note:** Five-year country average values. The dependent variable is the average value of the undervaluation index. The regressors are lagged by one period, with the exception of *Central Bank Independence*, which is entered contemporaneously due to data limitations. All models include the full sample except for Column 2 (which excludes Eurozone countries) and Column 7 (which includes only democracies). Durbin's *m* assesses serial correlation in the panel; the null hypothesis is no serial correlation. Robust standard errors adjusted for country-level clustering. \* p-value < 0.10; \*\* p-value < 0.05; \*\*\* p-value < 0.01.

**Table 4. Consumer Interests and Real Exchange Rate Valuations in Democracies versus Non-Democracies – Five-Year Country Averages, 1975–2011**

	(1)	(2)	(3)	(4)	(5)	(6)
	Full Sample	Polcomp > 8	Polcomp > 8	Polcomp = 10	Autocracies	Intermediate
Valuation	0.7449*** (0.0231)	0.7036*** (0.0388)	0.6984*** (0.0451)	0.7369*** (0.0481)	0.6842*** (0.0350)	0.7010*** (0.0524)
GDP Growth	0.4190** (0.1846)	-0.6029** (0.2669)	-2.5124*** (0.9690)	-0.9553* (0.5526)	0.1305 (0.2986)	0.5742* (0.2992)
GDP per capita	-0.0083 (0.0091)	-0.0000 (0.0222)	-0.0020 (0.0440)	0.0136 (0.0312)	0.0057 (0.0198)	-0.0295 (0.0201)
Trade Balance	-0.0017*** (0.0005)	-0.0025** (0.0012)	-0.0029** (0.0012)	-0.0038** (0.0015)	-0.0021* (0.0013)	-0.0009 (0.0009)
Trade Openness	-0.0328*** (0.0094)	-0.0339* (0.0195)	0.0108 (0.0195)	-0.0183 (0.0186)	-0.0772*** (0.0150)	-0.0189 (0.0170)
Population Growth	-0.0018 (0.0070)	-0.0277** (0.0134)	-0.0664** (0.0262)	-0.0161 (0.0202)	0.0205*** (0.0075)	0.0183 (0.0115)
Eurozone Member	-0.0258* (0.0142)	-0.0218 (0.0177)	-0.0087 (0.0195)	0.0048 (0.0168)		
Capital Account Openness	-0.0002 (0.0003)	-0.0002 (0.0005)	0.0009 (0.0007)	-0.0004 (0.0006)	-0.0003 (0.0007)	0.0005 (0.0004)
<b>Political Competition</b>	-0.0103*** (0.0027)					
<b>Old Age Dependency Ratio</b>	-0.0024 (0.0017)	-0.0269*** (0.0088)	-0.0398** (0.0176)	-0.0314** (0.0126)	0.0399** (0.0184)	0.0416** (0.0207)
<b>Old Age Dependency Ratio (squared)</b>		0.0006*** (0.0002)	0.0007* (0.0004)	0.0007** (0.0003)	-0.0013* (0.0007)	-0.0014* (0.0008)
Inequality			0.0578 (0.0434)			
Constant	0.2242*** (0.0762)	0.3596** (0.1728)	0.3649 (0.3339)	0.2044 (0.2710)	-0.0923 (0.1835)	0.0156 (0.1512)
Observations	689	301	104	172	179	206
Countries	96	65	28	28	52	60
R-squared	0.824	0.854	0.875	0.870	0.796	0.729

**Note:** Five-year country average values. The regressors are lagged by one period, with the exception of *Inequality*, which is entered contemporaneously due to data limitations. Autocracies are defined as countries with *Polity* scores less than -5; intermediate regimes are those with *Polcomp* greater than -6 and less than 6. Durbin's *m* assesses serial correlation in the panel; the null hypothesis is no serial correlation. Model 5.5 has a second lagged of the dependent variable entered (not reported) to achieve uncorrelated residuals. Robust standard errors adjusted for country-level clustering. \* p-value < 0.10; \*\* p-value < 0.05; \*\*\* p-value < 0.01.

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