"CURRENCY WARS" BY OTHER MEANS?
EXCHANGE RATES AND GATT/WTO DISPUTE INITIATION

Mark S. Copelovitch
Assistant Professor
Department of Political Science
and Robert M. La Follette School of Public Affairs
University of Wisconsin-Madison
306 North Hall, 1050 Bascom Mall
Madison, WI 53706
copelovitch@wisc.edu

Jon C. Pevehouse
Professor
Department of Political Science
University of Wisconsin-Madison
416 North Hall, 1050 Bascom Mall
Madison, WI 53706
jcpevehouse@wisc.edu

ABSTRACT

Recent controversies over potential "currency wars" in the global economy have highlighted the linkages between exchange rates and international trade. Despite the clear importance of exchange rate levels on the terms of trade, models of trade policy choices rarely take exchange rate dynamics into account when predicting state behavior. We argue that changes in real exchange rate levels lead to pressures on politicians to provide relief from the resulting economic pressures on firms in tradable sectors. More importantly, we note that international institutions such as the World Trade Organization constrain politicians' menu of choices concerning those relief policies, by restricting the use of traditional protectionist measures such as tariffs and quotas. The result is that countries facing exchange rate pressures will be more likely to placate domestic demands for protection by filing WTO dispute claims. We test this conjecture on a dataset of WTO disputes from 1995-2008. We find, using multiple measures of the exchange rate level, that countries are substantially more likely to file WTO complaints in times of exchange rate appreciation.

Introduction

The financial press is awash in reports of the world's emerging "currency war."[1] In the wake of the Great Recession, a growing number of countries appear to be engaging in "exchange rate protection" – the pursuit of depreciation, devaluation, or undervaluation in order to alter the terms of trade and enhance domestic producers' competitiveness in global markets (Corden 1982). In Japan, the government intervened in foreign exchange markets for the first time since 2004, spending approximately $20 billion in an effort to drive down the yen's value from its 15-year highs against the dollar in order to bolster the country's export competitiveness.[2] Other countries, including South Korea and Taiwan, followed suit in their own efforts to enhance export competitiveness. European and American policymakers have decried these unilateral attempts at currency depreciation, and some observers now speak of the need for a new Plaza Accord to prevent competitive devaluations and address exchange rate imbalances through international coordination.[3] Even Brazil – whose Finance Minister, Guido Mantega, was the first to warn of the impending "currency war" – has imposed capital controls and threatened direct intervention in order to suppress further appreciation of the real.[4]

This link between exchanges rates and international trade is most clearly evident in the strident debate over China's currency peg against the dollar. In the United States, an increasingly vocal chorus argues that the massive American trade deficit with China is due primarily to the Chinese government's active intervention to prevent all but the slightest

---

[1] Arvind Subramanian, "American Cannot Win the Currency Wars Alone," *Financial Times*, October 20, 2010.

[2] Lindsay Whipp and Peter Garnham, "Tokyo Currency Move Surprises Markets," *Financial Times*, 15 September 2010.

[3] Alan Beattie, "Steep Path to a Modern-day Plaza Accord," *Financial Times*, 16 September 2010.

[4] Jonathan Weasley, "Brazil Raises Taxes on Foreign Inflows to 4%," *Financial Times*, 4 October 2010.

appreciation of the renminbi (RMB) against the US dollar (Bergsten 2006).[5] Although

economists differ on the precise degree to which the RMB is undervalued, most analysts estimate

that it would appreciate by 20-25% if China were to allow it to float freely.[6] As Fred Bergsten of

the Peterson Institute recently noted, China's exchange rate policy is tantamount to both a 20-

25% export subsidy and a corresponding tariff on imports – a policy that "represents the largest

protectionist measure maintained by any major economy since the Second World War."[7]

At this point, few serious observers question whether China is manipulating its exchange

rate. As Martin Wolf recently noted in the *Financial Times*, "If a decision to invest half a

country's gross domestic product in currency reserves is not exchange rate manipulation, what

is?"[8] Rather, the focus has shifted toward the question of what the US government (and the

international community) should do in response to China's exchange rate policies. The Obama

administration has found itself under increasing pressure from Congressional leaders to label

China a "currency manipulator" and to impose retaliatory trade or monetary measures in order to

offset China's "predatory exchange rate policies."[9] Others have argued that the US should

pursue a case against China within the World Trade Organization (WTO), on the grounds that

China's exchange rate policies constitute an export subsidy and/or violates Article XV of the

---

[5] Estimates suggest that Chinese purchases of dollars now total ~$1 billion per day in order to artificially increase demand for dollars (and decrease demand for RMB). See C. Fred Bergsten, "A Proposed Strategy to Correct the Chinese Exchange Rate," Testimony before the Hearing on the Treasury Department's Report on International Economic and Exchange Rate Policies, United States Senate Committee on Banking, Housing, and Urban Affairs," September 24, 2010 (http://www.iie.com/publications/testimony/bergsten20100916.pdf).
[6] Ibid.
[7] http://economix.blogs.nytimes.com/2010/10/08/biggest-protectionism-since-world-war-ii/. While a 20-25% appreciation of the RMB would not eliminate the US trade deficit entirely, estimates do suggest that this would reduce China's global surplus by $350-500 billion and reduce the US current account deficit by $50-120 billion.
[8] Martin Wolf, "How to Fight Currency Wars with Stubborn China," *Financial Times*, October 5, 2010.
[9] Sewell Chan, "Geithner to Signal Tougher Stance on China Currency," *New York Times*, 15 September 2010.

WTO Charter, which forbids countries from "frustrating the intent of the provisions of this Agreement by exchange rate action."

Thus far, the Obama administration has declined to pursue aggressive unilateral trade policies or direct exchange rate measures, and their legality and effectiveness remain open to debate.[10] In September 2010, however, the US Trade Representative (USTR) did file two new WTO cases against China: one concerning Chinese restrictions on foreign suppliers processing credit/debit card payments, and a second against China's imposition of tariffs on US steel exports.[11] Although USTR officials denied that these cases were filed in response to pressure from lawmakers or domestic firms concerned about the level of the RMB, the timing was particularly curious.[12] Indeed, these filings coincided closely with both Congressional hearings on China's exchange rate policies and the passing of a bill in the House Ways and Means committee permitting the US to impose countervailing duties on countries that engage in currency manipulation.[13] Furthermore, each of the disputed Chinese policies had been in place for some time. In the case of the credit card dispute, China had been in violation of its commitment to liberalize its market since 2006.

To what extent were these decisions influenced by the dollar/RMB exchange rate? More generally, how and to what extent do exchange rates influence governments' decisions to pursue trade disputes within the WTO? In this paper, we explore this question by studying the

---

[10] See, for example, Marc L. Busch and Philip I. Levy, "The Case Against a China Currency Case," *The American*, October 7, 2010 (http://www.american.com/archive/2010/october/the-case-against-a-china-currency-case); Joel P. Trachtman, "Yuan to Fight About It? The WTO Legality of China's Exchange Rate Regime," April 30, 2010 (http://www.voxeu.org/index.php?q=node/4880).

[11] Alan Beattie and Geoff Dyer, "US Raises Pressure for Renminbi Rise," *Financial Times*, September 15,2010.

[12] Mark Drajem and Peter Eichenbaum, "US Goes After China at WTO as Pressure Mounts from Congress," *Bloomberg*, September 16, 2010.

[13] Alan Beattie and Geoff Dyer, "US Congress to Attack Renminbi Valuation," *Financial Times*, September 23, 2010.

relationship between real exchange rates and WTO filings. Using data from up to 33 WTO members from 1995 to 2007, we find that countries with more appreciated currencies – measured using six different metrics – are significantly more likely to file plaintiff cases within the WTO dispute settlement mechanism. We argue that these findings suggest the importance of more closely considering exchange rates when seeking to explain countries' trade policy choices at both the domestic and international levels.

The paper begins with a discussion of the relationship between trade policy and exchange rates – a relationship that has received relatively little attention in the traditional international political economy (IPE) literature. We then explore why leaders may have stronger incentives to file WTO disputes in times of currency appreciation. We subject our hypothesis to a large-N statistical test, which provides robust support for our argument linking exchange rate levels to WTO filings. We conclude with some thoughts on future research avenues within IPE that could more clearly illuminate the broader trade-exchange rate relationship.

Trade politics, exchange rates, and the WTO

The trade implications of exchange rates have long been an important topic of interest for both economists and IPE scholars (Frankel 1999, Rose 2000, Frieden and Broz 2001 and 2006, Ghosh, et. al. 2002, Levy-Yeyati and Sturzenegger 2003). Indeed, the canonical literature in economics on exchange rates emphasizes the reduction of currency risk as one of the keys reason why countries choose fixed exchange rates over more flexible regimes (Mundell 1961, McKinnon 1962, Kenen 1969). Pegging the exchange rate reduces or eliminates exchange rate risk and facilitates cross-border trade and exchange. In contrast, currency volatility creates uncertainty about cross-border transactions, adding a risk premium to the price of traded goods

and international assets (Frieden 2008). Thus, fixed exchange rates enable a government to enhance the credibility of its commitment to international integration, thereby encouraging greater trade and investment. The level of the exchange rate also has important trade-related implications, as it affects the relative price of traded goods in both domestic and foreign markets. Fluctuations in exchange rates can have substantial effects on domestic producers' competitiveness in world markets: "In the case of a real appreciation, domestic goods become more expensive relative to foreign goods; exports fall and imports rise as a result of the change in competitiveness. Real depreciation has the opposite effects, improving competitiveness" (Frieden and Broz 2001, 331). Consequently, exchange rate movements have significant domestic distributional consequences. All else equal, exporters and import-competing industries lose from currency appreciation, while the nontradables sector and domestic consumers gain (Frieden 1991). Conversely, currency depreciations have the opposite effect, helping exporters and import-competing firms at the expense of consumers and the nontradables sector (Frieden and Broz 2001)

Yet while the trade implications of exchange rates are widely acknowledged, the relationship between exchange rate and trade *policies* remains relatively underexplored in the empirical literature. Economists have focused the vast majority of their research, instead, on measuring the effect of exchange rates on the level and volatility of trade *flows* (Rose 2000, Levy-Yeyati 2003, Lopez-Cordova et. al. 2003, Klein 2005, Klein and Shambaugh 2006 and 2009). Within IPE, scholars have treated exchange rates primarily as dependent variables, rather than as determinants of trade and other macroeconomic policies.[14] This literature is dominated by two strands of research: the first emphasizes the effects of domestic interests and political institutions on exchange rate regime choice (Frieden 1991 and 2002, Bernhard and Leblang

---

[14] See Guisinger and Singer (2010) for a recent notable exception.

1999, Bearce 2003, Walter 2008), while the second focuses on the use of fixed exchange rates as a solution to the time inconsistency problem confronting monetary policymakers (Hallerberg 2002, Keefer and Stasavage 2003, Guisinger and Singer 2010).[15]

Nonetheless, a number of existing studies do focus on the impact of exchange rates on trade policy. Several scholars have found that real exchange rate appreciations have led to increases in anti-dumping filings in the United States and other industrialized countries since the 1970s (Broz 2010, Oatley 2010, Irwin 2005, Knetter and Prusa 2003, Grilli 1988, Bergsten and Williamson 1983). Niels and Francois (2006) find similar evidence in Mexico, which suggests that this relationship between exchange rates and trade protection is not simply an advanced country phenomenon. Other scholars have found that protectionism has been greatest at the regional level during periods of sharp intra-regional exchange rate fluctuations, such as the 1992-93 European Monetary System (EMS) crisis and the 1999 Brazilian real devaluation within Mercosur (Fernandez-Arias et. al. 2002, Eichengreen 1993, Pearce and Sutton 1985). Similarly, Frieden (1997) shows that protectionist demands in the US during the 19th century correlated closely with the strength of the dollar. Finally, Eichengreen and Irwin (2009) have shown that protectionism during the Great Depression was most extensive in countries that remained on the Gold Standard while their trading partners went off gold and devalued their currencies.

These studies clearly illustrate that exchange rates have been a key determinant of *national* trade policies, both in the contemporary world economy and more historically. At the same time, however, this existing work largely overlooks the impact of international trade institutions on governments' choice of protectionist measures. In particular, these studies do not take into account the fact that policymakers' ability to employ the full arsenal of protectionist

---

[15] See Frieden and Broz 2006 for an overview of the extensive literature on the political economy of exchange rates.

policies (tariffs, quotas, export subsidies, etc.) is substantially constrained if the country is a

member of the WTO.[16] In the absence of these unilateral trade policies, we argue, governments

may pursue WTO cases as an alternative way to address domestic protectionist pressures in times

of currency appreciation.

Analytic framework and hypotheses

Political economy scholars have long recognized that politicians face a tension between

pursuing free trade – in order to maximize aggregate social welfare – and responding to pressure

by organized firms/sectors to provide protection against competition from foreign producers.

Consider the classic "political-support" function by Grossman and Helpman (1994):

$$G = \sum_{i \in \mathbf{L}} C_i(\mathbf{p}) + aW(\mathbf{p}) \qquad a \geq 0 \qquad (1)$$

where W represents aggregate welfare, comprised of aggregate income plus trade tax revenue

plus total consumer surplus; C represents the sum total of campaign contributions from the set of

organized economic sectors (L) lobbying for protection; and a is the relative weight that the

policymaker places on aggregate welfare/free trade. In this "endogenous protection" model, an

office-seeking government trades off "votes" (gained by implementing free trade policies aimed

at maximizing W) against "campaign contributions" (gained by providing protection to organized

sectors lobbying for protection), in order to maximize its prospects of re-election.[17]

---

[16] The same is true of membership in preferential trading agreements (PTAs). This relationship is explored in
Copelovitch and Pevehouse 2011. In this paper, however, we only explore the WTO side of this constraint.
[17] The endogenous protection literature embodying this type of approach is vast. See, e.g., Stigler 1971,
Hillman 1982, Baldwin 1985, Brock et. al. 1989, Trefler 1993, and Gawande and Krishna 2003.

Kono (2006) presents a revised version of the model that introduces the idea of multiple avenues of protection: tariffs, quality non-tariff barriers (NTBs) or core NTBs (such as quotas). Our own theory proceeds in this spirit, but adds the possibility of WTO filings as a way to provide support to import-competing industries. While importers may have specific preferences on the form of relief given, we note that the WTO places limits on the ability to enact some of these methods of protection and raise the risks of others.

Thus, our central argument is that both exchange rates and international trade commitments – specifically, in this paper, WTO membership – alter the decision-making calculus of a government in this framework. First, exchange rate appreciation undermines domestic producers' competiveness in world markets and increases sectoral lobbying for protectionist trade policies. This means that the government has stronger incentives to cater to organized sectors lobbying for protection. Returning to equation (1), this logic can be stated more formally: $a_{apprec} < a_{deprec}$, where the subscripts refer to the relative level of the exchange rate. In other words, governments should, all else equal, place less weight on aggregate social welfare and more on sectoral demands for protectionism when the exchange rate is more appreciated and a larger number of sectors face competition from foreign producers. Second, since appreciation also increases consumers' purchasing power (by lowering the price of imported goods in local currency terms), it becomes possible for the government to increase the weight assigned to campaign contributions/trade protection (*C*) without reducing aggregate welfare (*W*) by an equal amount. In other words, increased trade protection reduces the consumer surplus portion of *W*, but this decline is – at least partially – offset by the positive wealth effect on aggregate income resulting from exchange rate appreciation. Consequently, the government can reduce the value it places on *a* (the weight assigned to free trade policies) without reducing

aggregate social welfare by an equal amount. In less formal terms, a government will find it easier to increase sector-specific trade protection when the exchange rate is more appreciated, since consumers are less likely to notice the resulting price increases on specific goods when these increases are offset by the general wealth effect of a more appreciated currency.

Exchange rate appreciation thus increases the *willingness* of the government to provide sector-specific trade protection at the expense of aggregate welfare-enhancing free trade policies. Of course, such appreciation will obviously increase the demand for protection from import competing industries, which find themselves less competitive due to exchange rate issues. In the terms of the model, C should be increasing in the relative appreciation of the exchange rate. This increase in the demand for protection, however, becomes problematic if the government's ability to supply protection to organized domestic interests is constrained by its commitments to trade liberalization through membership in international institutions. In Grossman and Helpman terms, the "menu of protection" offered to contributors by politicians is limited. In particular, if the country is a member of the WTO, a wide variety of national trade policies – including tariffs, non-tariff barriers, and export subsidies – become potentially far more costly to the government. Consequently, even if policymakers are willing to provide protection at the expense of voters' aggregate welfare, their ability to do so – either in the form or amount desired – may be highly constrained.[18]

Faced with this constraint on its ability to meet domestic demands for protection, an office-seeking government has several options. First, it can seek alternative unilateral policies as substitutes. For example, if policymakers can no longer employ industrial tariffs at previous

---

[18] Grossman and Helpman (1994) anticipated this tension between endogenous protection and international commitments to free trade, though its implications have not, to our knowledge, been explored in the literature: "One can easily imagine changes in the international rules of the game that would affect government's willingness and ability to protect particular sectoral interests but would not affect politicians' weighting of campaign contributions relative to general voter dissatisfaction" (834).

levels, they may impose anti-dumping measures (AD), regulatory barriers, or other domestic

policies that are either authorized under WTO rules or outside the scope of the multilateral trade

regime. Of course, adoption of these policies risks retaliation within the WTO framework. AD

and countervailing duties (CVDs) often bring claims at the WTO by the targets of these policies,

in addition to setting off rounds of potential retaliation. Second, the government could

deliberately flout its WTO obligations by pursuing illegal trade policies, such as raising tariffs on

select goods. But, similar to the use of safeguards or standards to create protection, the country

faces a risk of finding itself accused of violations by its trading partners within the WTO's

dispute settlement mechanism.[19]

Finally, the government can pursue trade policy at the international level by filing cases

within the WTO's dispute settlement mechanism in an attempt to offset the negative effects of

currency appreciation on the international competitiveness of domestic producers. Of course,

WTO filings take time to prepare and can much longer to work their way through the WTO

dispute system. In that time, exchange rates may adjust or global macroeconomic conditions

might change. For these reasons, filing a WTO case is not necessarily a perfect *economic*

substitute for immediate and direct unilateral protectionism. WTO filings, however, may yield

similar *political* benefits for the government, which can credibly claim to be pursuing the

interests of organized domestic sectors to the best of its ability under the constraints imposed by

the country's international trade commitments. Indeed, by having this on the menu of options

for contributors, politicians can accomplish two goals.

---

[19] We note that the line between these first two options in often unclear. For example, the March 2002 steel tariffs imposed by the Bush administration were justified under Section 201 of Trade Act of 1974, which allows the government to temporarily protect a domestic industry that is suffering from a surge in imports. While Section 201 is a legal opt-out under the GATT/WTO system, the tariffs were deemed illegal by the WTO in 2003 on the grounds that they were not imposed during an import surge. The Bush administration subsequently lifted the tariffs in December 2003.

First, consistent with Grossman-Helpman, WTO filings allow politicians to "do something" about the exchange rate issue. Again, even a victory in the WTO filing would not diminish the overall economic effects of an appreciate exchange rate and would only directly help the specific industries targeted in the WTO filing, it is a broader political act, signaling to firms that the government is aware of the problem and is taking action. Second, such an action can represent something of a "steam valve" for a state. That is, rather than undertake significant unilateral policy initiatives that will lead to retaliation by other states, WTO filings, while still costly, legalize the dispute process over exchange rate policy. This legalization avoids run-away retaliation on tariffs, safeguards, or competitive devaluations. By shifting the dispute to the WTO dispute settlement procedure, states signal their displeasure with policy, yet do so in a way does not threaten the underlying fabric of economic cooperation. In this vein, our argument is consistent with those who have championed the idea of legalism in international institutions (Goldstein, Kahler, Keohane, and Slaughter 2000). By legalizing a dispute through a formal institution, one can simultaneously signal to domestic and international audiences one's displeasure towards policy, yet also avoid a spiral of conflict that can undermine cooperation. In the WTO-currency case, that is an especially important dynamic since there is no international institution regulating currency policy.

In sum, exchange rate appreciation, because it puts firms in the tradables sector at a competitive disadvantage internationally, leads to domestic pressure on politicians to respond with some form of protection. For WTO members, options to respond with unilateral protection are limited and bring some international risk. Thus, to simultaneously placate domestic demands and maintain their multilateral trade commitments, governments in such situations will be more likely to file a WTO dispute.

In the remainder of this paper, we explore whether governments do pursue such substitution of WTO trade disputes for unilateral protection in the face of exchange rate appreciation. Specifically, we test the following hypothesis linking exchange rates to the initiation of WTO disputes.

H1: Countries with more appreciated exchange rates are more likely to file WTO disputes

Although we expect this logic linking exchange rate appreciation to WTO filings to hold generally, two important caveats are in order. First, we acknowledge that the degree to which we should observe a link between exchange rates and trade protection will certainly vary cross-nationally and over time, based on a variety of factors including: overall trade dependence, the political importance of different sectors, and industry-specific sensitivities to exchange rate movements. For example, as Broz (2010) illustrates, firms are more likely to increase demands for protection when they produce standardized products for which exchange rate pass-through is high. We find this initial evidence compelling and believe that it suggests some governments will face greater protectionist pressures during episodes of exchange rate appreciation than others. Our point is simply that, regardless of the precise degree of industry-specific sensitivity to exchange rates in a particular country, *aggregate* protectionism should increase in all countries when the currency appreciates.

Second, as indicated above, we note that our argument is *not* a claim that filing a WTO case is a perfect substitute for unilateral trade policy. Indeed, WTO filings do not provide timely relief to domestic producers hurt by exchange rate appreciation, given the long duration of many cases and the questionable material effects of any relief measures authorized in the wake of a victory in the WTO adjudication process. This concern about the degree to which WTO cases

14

and unilateral protectionism are substitutes is valid, since governments may not reap the political

benefits of trade protection if the firms or sectors favoring it do not themselves reap the material

economic benefits, or if they have to wait a substantial period of time to realize these gains.

Nevertheless, we believe that this is not a problem that is unique to WTO filings: even domestic

trade policies such as anti-dumping measures or tariffs may not provide interested domestic

producers with the expected benefits, either because of retaliatory policies of a country's trading

partners or because protectionist policies may have indirect effects (e.g., inducing changes in the

inward direct investment decisions of international producers) that offset the material gains of

trade protection (Broz 2010, Grilli 1988). Moreover, given the fact that the alternative unilateral

policy options available (e.g., anti-dumping provisions, deliberate violations of WTO rules) may

be equally or more unattractive or ineffective, governments may view filing a WTO case as a

"least worst" option given the circumstances. Finally, we note that these shortcomings of WTO

filings actually work against our argument, which strengthens rather than weakens our empirical

findings in the remainder of the paper. We will return to this last point below in our discussion

of the statistical analysis and results.

Empirical analysis

In order to test our argument, we employ time-series/cross-sectional analysis of an

original dataset covering up to 33 WTO member-states from 1995 to 2007 (N=385).[20] Our unit

---

[20] Although the full dataset includes 109 countries, our sample is substantially smaller given the large number of
WTO member-states that have never filed a dispute settlement case. Given our fixed effects analysis, all countries
with no variation on the dependent variable drop from the samples. In particular, this leaves the United States out of
the sample, given that the US has filed at least one WTO complaint every year since the institution's inception.

of analysis, therefore, is the country-year.[21] Table 1 illustrates the countries and years included

in our sample.

[Table 1 about here]

We employ the following general model in our analysis of the determinants of WTO dispute

intiation:

$WTO\ complaint_{it}$ = β_0 + β_1 *Exchange rate level* + β_2 *Exchange rate regime* + β_3
Trade openness + β_4 *GDP* + β_5 *GDP per capita* + β_6 *Current account* +
β_7 *Regime type* + β_8 *Last complaint* + β_9 *(Last complaint)^2* + β_{10} *(Last complaint)^3* +
β_{11} *Last defendant* + β_{12} *(Last defendant)^2* + β_{13} *(Last defendant)^3* + *Year effects* + ε

Our dependent variable, *WTO complaint*, is a binary variable, which takes the value of "1"

if a country files one or more WTO complaints in a given year. We have chosen to employ a

binary classification, rather than a raw count of WTO cases filed per year, for two key reasons.

First, many WTO member-states do not actively participate in the dispute settlement process: of

the institution's 153 member-states, only 34 (including the European Union) have filed at least

one case since 1995. Even within this sample, as Figure 1 illustrates, WTO dispute initiation is

dominated by a handful of advanced industrialized and emerging market countries.

[Figure 1 about here]

Of the 385 country-years in our sample, *WTO complaint* = 1 in only 149 cases, and only 53 of

those observations (18 countries) involved multiple filings in a given year. Moreover, of those

---

[21] In our sample, the European Union member-states are not included individually, since their governments cannot
unilaterally pursue WTO cases. Instead, we create "country"-year observations for the EU based on average values
for each explanatory variable calculated as the simple mean of member-states' individual values. Our results are
substantively identical if we exclude the EU observations (results available on request).

53 country-years, only 16 were cases of three or more filings in a given year (11 countries), and

seven of those were EU "country"-years. Thus, the key source of variation in the data is between

countries that do not file a WTO complaint in a given year and those that file one or more –

rather than between "filers" of different degrees. Second, as we have noted earlier, we are

primarily concerned with explaining whether or not a country files in the WTO, rather than

predicting the specific number of cases initiated or identifying the specific targets of those cases.

In fact, while we expect that more severe exchange rate pressure would increase the probability

of multiple WTO filings in a given year, we have no *ex ante* theoretical expectation about

functional form of this relationship. Consequently, the binary classification captures our key

quantity of interest: whether or not a government choose to file *any* cases at the WTO in

response to changes in the level of the exchange rate. Given this classification of the dependent

variable, we employ conditional (fixed effects) logit analysis in our models.

Our key independent variable of interest is *Exchange rate level*, the level of the real

exchange rate. We measure the level of the exchange rate in two ways. First, we calculate

Undervaluation, which measures whether or not a country's currency is over- or undervalued,

based on deviations from long-run purchasing power parity (PPP). Following Rodrik (2008), we

use data on nominal exchange rates (XR) and PPP conversion factors to calculate a country's

"real" exchange rate:

$$\ln(\mathrm{RER}_{it}) = \ln(\mathrm{XR}_{it} \, / \, \mathrm{PPP}_{it})$$

where i is an index for countries and t is an index for 5-year time periods. Both the nominal

exchange rate and PPP are expressed as currency units per US dollar, with data taken from the

Penn World Table 6.3 (Henson et. al. 2009). In this formulation, a currency is undervalued

relative to PPP when RER exceeds one. We then correct this real exchange rate variable for the

Balassa-Samuelson effect – the fact that price levels vary with a country's level of development, since non-tradable goods tend to be cheaper in poorer countries – by regressing it on real GDP per capita (Balassa 1964, Samuelson 1964):

$$\ln(\text{RER\_BS}_{it}) = \alpha + \beta(\ln \text{RGDPPC}_{it}) + f_{it} + u_{it}$$

where f is a time period fixed effect and u is the error term. Finally, to calculate *Undervaluation*, we take the difference between the actual real exchange rate and the Balassa-Samuelson-adjusted rate:

$$\ln(Undervaluation_{it}) = \ln(\text{RER}_{it}) - \ln(\text{RER\_BS}_{it})$$

These calculations enable us to compare values of *Undervaluation* across time and space. When the variable exceeds unity, the currency is undervalued, indicating that goods produced domestically are cheap in dollar terms. Conversely, when the variable is below unity, the currency is overvalued. We test three different codings of *Undervaluation*: its lagged value, the three-year, lagged moving average, and the five-year, lagged moving average. Each of these values enters the regression as a natural log.

While *Undervaluation* is our preferred variable, we also a test a second measure of the exchange rate level, *REER*, which is the real effective exchange rate index, drawn from the Bank for International Settlements' data (BIS 2006). This variable measures the REER based on percentage changes from 2005, which is set as the base year at a level of 100. The advantage of *REER* is that it is readily available and easily calculated based on nominal exchange rates and price levels. The disadvantage is that a particular value of *REER*, on its own, does not tell one whether a currency is over- or undervalued. For example, while China's *REER* in 2007 was 105.1, this actually represented a depreciation from the 2005 level of 110.2. At the same time,

China's *Undervaluation* score in 2007 was 1.28, a slight increase in its undervaluation from 2005 (1.27). Thus, a country may score highly on *REER* even if its currency remains significantly undervalued below PPP. Nevertheless, there is a strong, negative and statistically significant correlation (-0.18) between *Undervaluation* and *REER*, suggesting that higher levels of the real effective exchange rate are associated with more overvalued currencies. Therefore, as a robustness check on our *Undervaluation* results, we replicate each of our models below substituting *REER* as our key explanatory variable. As with *Undervaluation*, we test three different codings of *REER*: its logged, lagged value; the logged three-year moving average, and the logged five-year moving average.

   In order to ensure that our models capture the effect of "normal" movements exchange rate levels – rather than severe shifts in levels caused by financial/currency crises or hyperinflation – we exclude observations in which a country's exchange rate is "freely falling" according to the Reinhart-Rogoff *de facto* classification of exchange rate regimes (Reinhart and Rogoff 2004). In this framework, a currency is classified as freely falling if a country is experiencing hyperinflation (a twelve-month annualized inflation rate in excess of 40%), or if the currency has "crashed" (a 12.5 percent monthly depreciation that is at least 10 percent above the previous month's depreciation) during any month in the past year (Reinhart and Rogoff 2004; Frankel and Rose 1996). We also exclude cases in which a country employs multiple exchange rates or has substantial parallel ("black") market exchange rate activity.[22] Thus, our goal is to isolate the effects of changes in the terms of trade resulting from exchange rate fluctuations from more severe pressures stemming from financial crises and inconvertible currencies.

---

[22] Freely falling cases correspond to a "5" on the Reinhart-Rogoff (2004) coarse classification scale, while dual/parallel rate cases correspond to a "6".

Control variables

Along with the two measures of our key explanatory variable, *Exchange rate level*, we include a variety of controls to account for other economic and political factors identified in the existing literature as determinants of states' participation in the WTO dispute settlement process. First, we control for the exchange rate regime, in order to ensure that our measures of the exchange rate level are not simply capturing differences in regime choice. As our measure of *Exchange rate regime*, we employ the International Monetary Fund's *de jure* classification, drawn from the Fund's *Annual Report on Exchange Rate Arrangements* and aggregated by Reinhart and Rogoff (2009). We use *de jure* regime choice, rather than one of the several *de facto* measures now widely used in the literature (Levy-Yeyati and Sturzenegger 2004, Reinhart and Rogoff 2004, Shambaugh 2004), since the *de facto* measures generally incorporate some measure of nominal exchange rate and reserve movements. As a result, they are potentially capturing aspects of the exchange rate level – as well as deliberate government attempts to influence this level – already measured by *Exchange rate level*.[23] We do not have strong *ex ante* expectations on the direction of influence of the exchange rate regime on states' WTO filing behavior. On the one hand countries with more fixed regimes may be less likely to initiate WTO disputes, given that trade disputes and protectionism directly undermine one of the key benefits of pegging the currency – ensuring stability in international trade and exchange. Moreover, fixed exchange rates, by definition, are associated with less exchange rate volatility, which can affect the terms of trade and trigger protectionist pressures. On the other hand, since adopting a currency peg entails relinquishing monetary and fiscal policy autonomy, governments that have adopted pegs may be more likely to resort to protectionist trade policies – including WTO

---

[23] Our main results on *Exchange rate level* are robust to the substitution of the *de facto* regime measures, although the significance of these variables themselves is less consistent. Results available on request.

dispute initiation – in an effort to address balance of payments deficits and economic stagnation. We remain agnostic on which of these potential effects will be stronger and more significant, leaving this as an empirical question to be tested below.

We also control for a variety of country-specific macroeconomic factors that potentially influence states' behavior within the WTO dispute settlement process. First, we introduce *Trade openness*, state *i*'s trade (imports + exports) as a percentage of GDP in year *t-1*. All else equal, we expect that more trade dependent states will be more likely to file a WTO complaint in a given year. In a similar vein, we also introduce *Current account*, the current account balance as a percentage of GDP, in order to control for a country's balance of payments surplus/deficit. All else equal, we expect countries facing larger current account deficits to be more likely to file WTO complaints. We also include controls for the size and level of development of the economy of each state in our sample. *GDP* is the natural log of gross domestic product of state *i* in year *t-1*, while *GDP per capita* is the natural log of per capita GDP. The existing literature offers robust evidence that larger, more developed countries are more likely to file WTO complaints due to a combination of "gravitation" and "discrimination" effects (Busch et. al. 2009, Horn et. al. 2009, Sattler and Bernauer 2008, Allee 2008, Kim 2008, Bown 2005, Guzman and Simmons 2005, Shaffer 2003). This pattern is clearly evident from Figure 1, which graphs the most frequent WTO complainants from 1995 to 2008.

[Figure 1 about here]

As is evident, advanced industrialized countries and large, emerging market states have overwhelmingly initiated WTO disputes since the institution's inception in 1995. All else equal, we therefore expect both *GDP* and *GDP per capita* to be positively associated with WTO complaint filings. Data for each of these variables are taken from the World Bank's *World*

Development Indicators.

In addition to these economic variables, we also include *Regime type*, which is the Polity score of state i in year $t-1$.[24] Several studies in the literature have shown that domestic political institutions – specifically, levels of democracy – have strongly influenced the design of the GATT/WTO dispute settlement system (Rosendorff 2005) and help to explain variation in both filing behavior and dispute outcomes (Busch 2000, Reinhardt (1999). All else equal, we therefore expect more democratic countries to be more likely to file a WTO complaint in a given year.

Finally, we include several control variables to account for time in our sample. First we include two sets of controls for temporal dependence in our data, in order to account for the possibility that past participation in WTO disputes influences states' current behavior. Following recent innovations in the modeling of temporal dependence in binary data (Carter and Signorino 2010), we include *Last complaint*, which measures the number of years since a country's last WTO filing, along with its square and cube. In addition, we include similar terms (*Last defendant*) to account for the number of years since a country was last named as a defendant in a WTO case. Our expectation is that both types of past participation may shape a government's decisions whether or not to file a new WTO case. As a final set of controls, we also include year effects in our models to account for time-specific systemic factors (e.g., global macroeconomic conditions, overall frequency of WTO disputes) that may influence countries' individual filing decisions. As noted previously, we also employ conditional (fixed effects) logit, in order to account for unobserved heterogeneity not modeled by our explanatory variables.

Results

---

[24] We use the traditional -10 to +10 polity scale. Data are taken from Gleditsch's (2008) recoded Polity data.

Table 3 presents the results of the regression analysis. Models 1-3 present results using the three different codings of *Undervaluation*, while Models 4-6 substitute the three measures of *REER*. Across all six models, the results provide strong support for our argument linking exchange rate levels to WTO dispute initiation. *Undervaluation* is negative and significant at the 95% confidence level or higher in each of the first three models. Thus, the more undervalued a country's exchange rate is relative to PPP, the less likely the government will file one or more WTO complaints in a given year. This finding is more pronounced in cases of persistent undervaluation: the coefficients on *Undervaluation* are larger in Models 2 and 3, the specifications using the three- and five-year moving averages, than in Model 1, which uses the one-year lagged value. In Model 3, for example, a one standard deviation increase in *Undervaluation* (in non-logged terms, an increase from 0.96 to 1.46) decreases the probability of a WTO complaint by 20.6%, holding all other variables constant at their means. Given the baseline filing probability of 26.5% (holding all variables at means), this is an extremely large substantive effect.

Similarly, *REER* is positive and significant at the 95% confidence level or greater in the latter three models, indicating that governments are more likely to initiate WTO disputes when the real exchange rate is more appreciated. *REER* has its largest and most significant effect in the five-year moving average model (Model 6), where the coefficient is nearly twice the magnitude of that in Model 4. Once again, the substantive effect is also striking: a one standard deviation increase in *REER* in Model 6 (in non-logged terms, an increase from 102.17 to 125.01) increases the probability that a country will initiate a WTO dispute by 26.6%. In short, the level of the exchange rate has clear and meaningful effects on state's behavior within the WTO dispute settlement process.

23

In addition to our variables of primary interest, several of the controls are also significant in our models. Most clearly, the exchange rate regime and past involvement in the WTO dispute settlement process are consistently significant across the six models in Table 3. Countries with more flexible exchange rate regimes are more likely to file WTO disputes. In Model 3, for example, a shift in *Exchange rate regime* from fully fixed to freely floating (i.e., changing *Exchange rate regime* from "1" to "4") increases the probability of initiating a WTO dispute by 35%. While we exercise caution in interpreting this finding, it may indicate that greater exchange rate volatility resulting from floating the currency increases protectionist pressures and provides governments with incentives to pursue WTO cases. In the models, each of the three variables controlling for past WTO dispute initiation (*Last complaint*, its square, and its cube) are also significant at the 95% confidence level or greater. These results clearly indicate the presence of temporal dependence in WTO dispute filings, with past involvement in the process clearly shaping states' current behavior. On the other hand, the lack of significance for the temporal controls on the respondent side suggest that states are not engaging in retaliatory WTO filings: neither *Last respondent* nor its square/cube are significant in any of our models.

In contrast, the remaining control variables are either insignificant or only intermittently significant in our analysis. Models 4-6 suggest – in line with both the literature and empirical observation – that richer and more democratic countries countries are more likely to file WTO disputes: both *GDP per capita* and *Democracy* are positive and significant in these models; *GDP per capita* is also weakly significant and positive in Models 2 and 3, although *GDP* is not significant in any of the three *Undervaluation* models. However, neither of these variables is significant in Models 1-3. Likewise, neither *Trade openness* nor *Current account* are significant

in any of our models, suggesting that trade dependence and balance of payments surpluses/deficits are not key determinants of WTO dispute initiation.

Conclusions

Recent controversies over potential "currency wars" in the global economy have highlighted the linkages between exchange rates and international trade. Despite the clear importance of exchange rate levels on the terms of trade, models of trade policy choices rarely take exchange rate dynamics into account when predicting state behavior. In this paper, we have sought to address this gap in the IPE literature by exploring the relationship between exchange rate appreciation and the initiation of WTO trade disputes. We argue that changes in real exchange rate levels lead to pressures on politicians to provide relief from the resulting economic pressures on firms in tradable sectors. More importantly, we note that international institutions such as the World Trade Organization constrain politicians' menu of choices concerning those relief policies, by restricting the use of traditional protectionist measures such as tariffs and quotas. The result is that countries facing exchange rate pressures will be more likely to placate domestic demands for protection by filing WTO dispute claims. We test this conjecture on a dataset of WTO disputes from 1995-2008, and we find strong support for our argument. Using multiple measures of the exchange rate level, we find that countries are substantially more likely to file WTO complains in times of exchange rate appreciation.

This result strongly suggests that scholars need to pay closer attention to exchange rate dynamics when seeking to explain governments' trade policy choices – and, in particular, patterns of state behavior in WTO dispute settlement process. At the same time, our findings raise a number of important questions for future research. For example, while our findings

indicate that currency appreciation increases the probability that a state will initiate a WTO dispute at a particular point in time, they do not tell us anything about either the content of the case (i.e., sector, industry, or product) or the identity of the respondent country. Future research that focuses on such issues as exchange rate pass through and the depth/composition of trade between partners is necessary to fully understand and explain exchange rate-driven dispute patterns within the WTO. Beyond the WTO, a closer analysis of the trade-exchange rate connection could also shed light on issues related to foreign direct investment and multinational corporations. For example, persistent currency undervaluation (as in the case of China) or frequent large fluctuations in real exchange rates might strongly influence firms' production and global sourcing decisions as much – if not more – than trade barriers, differential labor costs, and variation in regulatory policies.

Finally, future work might fruitfully explore the substitutability of trade and exchange rate policies by seeking to explain why some countries have chosen to pursue retaliatory trade policies in response to currency appreciation, while others have opted instead to engage in competitive devaluations or direct "currency wars." In other words, when can effective substitution across issue areas occur? The same broad question could be raised for institutions: when can disputes in one substantive issue area be taken to an institution (explicitly or implicitly) in another issue area, especially if no formal institutions exist in one of the issue areas? In short, more work on the complex relationship between trade and exchange rates is critical to a deeper understanding of numerous key puzzles and policy questions in the contemporary world economy.

TABLE 1 – COUNTRIES/YEARS IN SAMPLE

State	Years
Argentina	1995-2002, 2004-7
Australia	1995-2007
Bangladesh	2003-7
Brazil	1996-2007
Canada	1995-2007
Chile	1995-2007
Colombia	1995-2007
Costa Rica	1995-2007
Czech Republic	1995-2003
Ecuador	1995-8, 2001-7
European Union	1995-2007
Guatemala	1995-2007
Honduras	1995-2007
Hungary	1995-2003
India	1995-2007
Indonesia	1995-8, 2000-7
Japan	1995-2007
Malaysia	1995-2007
Mexico	1995, 1997-2007
New Zealand	1995-2007
Nicaragua	1995-2007
Norway	1995-2007
Pakistan	1995-2007
Panama	1997-2007
Peru	1995-2007
Philippines	1995-2007
Poland	1996-2003
South Korea	1995-8, 2000-7
Sri Lanka	1995-2007
Switzerland	1995-2007
Thailand	1995-2007
Turkey	1999-2007

TABLE 2 – SUMMARY STATISTICS

Variable	Mean	Standard deviation	Minimum	Maximum
WTO complaint	0.39	0.49	0	1
Undervaluation	1.03	.42	0.36	2.13
Real effective exchange rate	101.67	23.27	64.09	226.24
Exchange rate regime	3.09	1.03	1	4
Trade openness (% GDP)	71.27	40.04	14.93	220.41
Current account (% GDP)	-1.44	6.33	-30.59	17.32
GDP (log)	19.40	1.47	15.91	23.14
GDP per capita (log)	9.15	0.85	7.53	10.79
Regime type (Polity)	7.39	3.76	-7	10
Last complaint	2.56	4.38	0	24
Last defendant	5.34	6.53	0	27
N=385				

TABLE 3 – REGRESSION RESULTS

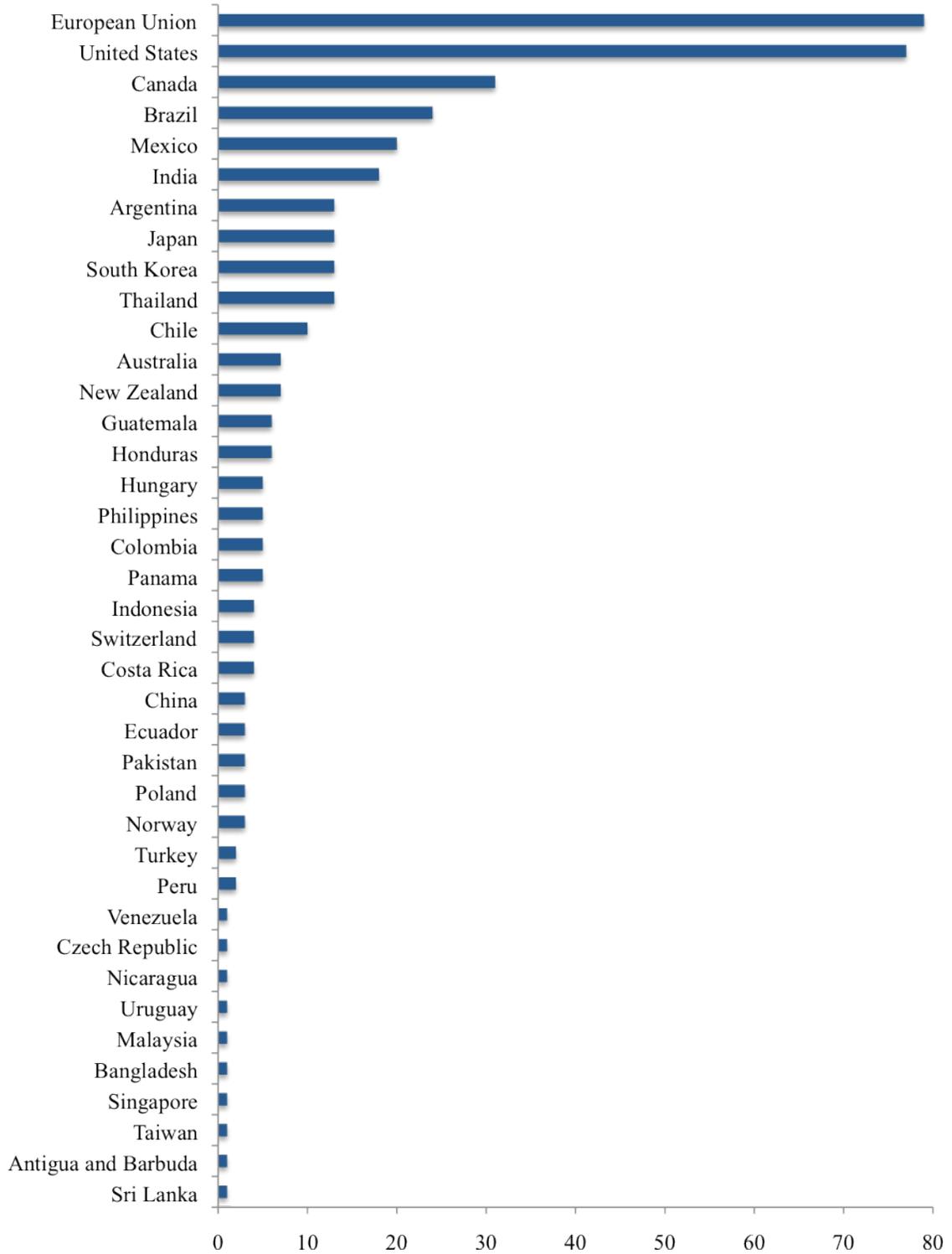| Model	1	2	3	4	5	6
Undervaluation (lagged, log)	-2.698***					
	[0.991]					
Undervaluation (3-year moving average, log)		-3.626***				
		[1.376]				
Undervaluation (5-year moving average, log)			-3.618***			
			[1.372]			
Real effective exchange rate (log)				2.484**		
				[1.099]		
Real effective exchange rate (3-year moving average, log)					2.907**	
					[1.246]	
Real effective exchange rate (5-year moving average, log)						4.772***
						[1.749]
Exchange rate regime (d*e jure*, 1=fix, 4=float)	0.790***	0.817***	0.791***	1.243***	1.209**	1.224**
	[0.258]	[0.269]	[0.256]	[0.436]	[0.491]	[0.507]
Trade/GDP (%)	-0.005	-0.008	-0.011	-0.042	-0.041	-0.038
	[0.020]	[0.023]	[0.023]	[0.035]	[0.034]	[0.036]
Real GDP (log)	-2.231	-2.845	-2.973	-7.784**	-7.792**	-7.409**
	[3.147]	[3.175]	[3.157]	[3.164]	[3.182]	[3.079]
Real GDP per capita (log)	7.720	9.056*	9.298*	18.370***	18.639***	17.995***
	[4.725]	[5.067]	[5.085]	[5.085]	[5.172]	[4.937]
Current account/GDP (%)	0.049	0.056	0.052	0.035	0.038	0.043
	[0.054]	[0.054]	[0.053]	[0.058]	[0.058]	[0.061]
Polity	0.028	0.035	0.036	0.251***	0.273***	0.287***
	[0.054]	[0.063]	[0.065]	[0.072]	[0.076]	[0.081]
Years since last WTO complaint	0.918***	0.915***	0.910***	1.217***	1.220***	1.307***
	[0.239]	[0.249]	[0.251]	[0.283]	[0.293]	[0.317]
(Years since last WTO complaint)^2	-0.132***	-0.130***	-0.129***	-0.208***	-0.205***	-0.216***
	[0.043]	[0.043]	[0.044]	[0.059]	[0.059]	[0.061]
(Years since last WTO complaint)^3	0.005***	0.005***	0.005***	0.009***	0.008***	0.009***
	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]	[0.003]
Years since last WTO respondent	-0.291	-0.254	-0.257	-0.200	-0.208	-0.192
	[0.221]	[0.228]	[0.230]	[0.290]	[0.296]	[0.310]
(Years since last WTO respondent)^2	0.038	0.033	0.034	0.034	0.035	0.034
	[0.028]	[0.029]	[0.030]	[0.037]	[0.037]	[0.038]
(Years since last WTO respondent)^3	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Observations	*385*	*385*	*385*	*268*	*268*	*268*
log-pseudolikelihood	*-140.14*	*-139.35*	*-139.87*	*-91.05*	*-91.01*	*-89.80*
AIC	*11.04*	*10.99*	*11.02*	*11.57*	*11.57*	*11.46*
Number of countries	*33*	*33*	*33*	*23*	*23*	*23*

Conditional (fixed effects) logit
Year fixed effects not shown
Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

FIGURE 1 – MOST FREQUENT WTO COMPLAINANTS, 1995-2008

References

Barbieri, Katherine, Omar Keshk, and Brian Pollins. 2009. "Trading Data: Evaluating Our Assumptions and Coding Rules. *Conflict Management and Peace Science* 26 (5): 471-91.

Bearce, David. 2003. "Societal Preferences, Partisan Agents, and Montary Policy Outcomes." *International Organization* 57 (2): 373-410.

Bergsten, C. Fred. 2006. "The US Trade Deficit and China." Testimony Before the Hearing on US-China Economic Relations Revisited, Committee on Finance, United States Senate, March 29 (http://www.iie.com/publications/papers/paper.cfm?ResearchID=611).

Bernhard, William, and David Leblang. 1999. "Democratic Institutions and Exchange-Rate Commitments." *International Organization* 53(1): 71-97.

Bhagwati, Jadish. 1988. *Protectionism*. Cambridge, MA: MIT Press.

Blomberg, S. Brock, Jeffry Frieden, and Ernesto Stein. 2005. "Sustaining Fixed Rates: The Political Economy of Currency Pegs in Latin America." *Journal of Applied Economics* 8(2): 203-225.

Bown, Chad P. 2008. "The WTO and Antidumping in Developing Countries," *Economics & Politics* 20(2): 255-288.

Broz, Lawrence. 2002. "Political System Transparency and Monetary Commitment Regimes." *International Organization* 56 (4): 861-87.

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

Campa, Jose Manuel, and Linda Goldberg. 2002. "Exchange Rate Pass-Through Into Import Prices: A Macro or Micro Phenomenon?" NBER Working Paper 8934. Cambridge: NBER.

Caprio, Gerard, and Daniela Klingebiel. 2003. "Episodes of Systemic and Borderline Financial Crises." World Bank Research dataset (http://www1.worldbank.org/finance/html/database_sfd.html).

Chinn, Menzie, and Hiro Ito. 2006. "What Matters for Financial Development? Capital Controls, Institutions, and Interactions," *Journal of Development Economics,* 81(1): 163-192.

Clark, William and Mark Hallerberg. 2000. "Strategic Interaction Between Monetary and Fiscal Actors Under Full Capital Mobility." *American Political Science Review* 94(2): 323-346.

Corden, W.M. 1982. "Exchange Rate Protection," in The International Monetary System Under Flexible Exchange Rates -- Global, Regional, and National: Essays in Honor of *Robert Triffin*, ed. Richard Cooper, Peter Kenen, Jorge Braga de Macedo, and Jacques Van Ypersele. Cambridge: Ballinger, 17-34.

Destler, I.M. and C. Randall Henning. 1989. *Dollar Politics: Exchange Rate Policymaking in the United States.* Washington, DC: Institute for International Economics.

Eichengreen, Barry. 1992. *Golden Fetters: The Gold Standard and the Great Depression, 1919-1939.* New York: Oxford University Press.

Eichengreen, Barry, and Ricardo Hausmann. 1999. "Exchange Rates and Financial Fragility." NBER Working Paper 7418. Cambridge: NBER.

Frankel, Jeffrey. 1994. "The Making of Exchange Rate Policy in the 1980s." In *American Economic Policy in the 1980s*, ed. Martin Feldstein, 293-341. Chicago: University of Chicago Press.

Frankel, Jeffrey. 1999. "No Single Currency Regime is Right for All Countries or at All Times." Department of Economics, International Finance Section, Essays in International Finance No. 215 (August). Princeton: Princeton University.

Frieden, Jeffry. 2008. "Globalization and Exchange Rate Policy." In *The Future of Globalization*, ed. Ernesto Zedillo. New York: Routledge, 344-357.

_____. 1991. "Invested Interests: The Politics of National Economic Policies in a World of Global Finance." *International Organization* 45(4): 425-451.

_____. 1993. "The Dynamics of International Monetary Systems: International and Domestic Factors in the Rise, Reign, and Demise of the Classical Gold Standard." In *Coping with Complexity in the International System*, edited by Jack Snyder and Robert Jervis. Westview: Westview Press.

_____. 2002. "Real Sources of European Currency Policy: Sectoral Interests and European Monetary Integration." *International Organization* 56(4): 831-860.

Frieden, Jeffry A., and J. Lawrence Broz. 2006. "The Political Economy of Exchange Rates." *Oxford Handbook of Political Economy*, ed. Barry Weingast and Donald Wittman. New York: Oxford University Press.

_____. 2001. "The Political Economy of International Monetary Relations." *Annual Review of Political Science* 4: 317-343.

Frieden, Jeffry A., Piero Ghezzi, and Ernesto Stein. 2001. "Politics and Exchange Rates: A Cross-Country Approach to Latin America," in *The Currency Game: Exchange Rate Politics in Latin America,* edited by Jeffry Frieden and Ernesto Stein. Baltimore: Johns Hopkins University Press.

Ghosh, Atish R., Anne-Marie Gulde, and Holger C. Wolf. 2002. *Exchange Rate Regimes: Choices and Consequences*. Cambridge, MA: MIT Press.

Gleditsch, Kristian Skrede. 2008. Modified Polity P4 and P4D Data, Version 2.0. (http://privatewww.essex.ac.uk/~ksg/Polity.html).

Goldberg, Pinelopi, and Michael Knetter. 1997. "Goods Prices and Exchange Rates: What Have We Learned?" *Journal of Economic Literature* 35: 1243–1292.

Gowa, Joanne. 1983. *Closing the Gold Window: Domestic Politics and the End of Bretton Woods*. Cornell Studies in Political Economy. Ithaca: Cornell University Press.

Guisinger, Alexandra, and David Andrew Singer. 2010. "Exchange Rate Proclamations and Inflation-Fighting Credibility." *International Organization* 64(1): 313-337.

Hallerberg, Mark. 2002. "Veto Players and Monetary Commitment Technologies." *International Organization* 56(4): 775-802.

Hiscox, Michael and Scott Kastner. 2008. "A General Measure of Trade Policy Orientations: Gravity-Model Based Estimates for 76 Nations, 1960-2000. Unpublished manuscript. Harvard University (http://www.people.fas.harvard.edu/%7Ehiscox/barriers.html).

Husain, Aasim M., Ashoka Mody, and Kenneth S. Rogoff. 2005. "Exchange Rate Regime Durability and Performance in Developing versus Advanced Economies." *Journal of Monetary Economics* 52: 35-64.

International Monetary Fund. 1997. *World Economic Outlook*. Washington, DC: International Monetary Fund.

Keefer, Philip and David Stasavage. 2003. "Checks and Balances, Private Information, and the Credibility of Monetary Commitments." *International Organization* 56 (4): 751-774.

Kenen, Peter. 1969. "The Theory of Optimum Currency Areas, in *Monetary Problems in the International Economy*, ed. Robert Mundell and Alexander Swoboda. Chicago: University of Chicago Press.

Klein, Michael W. 2005. "Dollarization and Trade." *Journal of International Money and Finance*. 24 (6): 935-43.

Klein, Michael W. and Jay Shambaugh. 2006. "Fixed Exchange Rates and Trade." *Journal of International Economics*. 70 (2): 359-383.

Klein, Michael W. and Jay Shambaugh. 2009. *Exchange Rates in the Modern Era*. Cambridge, MA: MIT Press.

Krueger, Anne. 1999. "Are Preferential Trade Arrangements Trade-Liberalizing or Protectionist?" *Journal of Economic Perspectives* 13(4): 105-124.

Philip R. Lane and Gian Maria Milesi-Ferretti (2007), "The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970–2004," *Journal of International Economics* 73 (November): 223-250.

Levy-Yeyati, Eduardo. and Federico Sturzenegger. 2004. "Classifying Exchange Rate Regimes: Deeds vs. Words." *European Economic Review*.

López-Córdova, Jose Ernesto, and Christopher M. Meissner 2003. "Exchange-Rate Regimes and International Trade: Evidence from the Classical Gold Standard Era." *American Economic Review* 93(1): 344–353.

Mansfield, Edward, and Helen V. Milner. 1999. "The New Regionalism." *International Organization* 53(3): 589-627.

Mansfield, Edward D., Helen V. Milner, and B. Peter Rosendorff. 2002. Why Democracies Cooperate More: Electoral Control and International Trade Agreements. *International Organization* 56 (3): 477-514.

Mansfield, Edward, Helen V. Milner, and Jon C. Pevehouse. 2007. "Vetoing Co-operation: The Impact of Veto Players on Preferential Trade Agreements." *British Journal of Political Science* 37(3): 403-432.

Marvel, Howard P., and Edward Ray. 1983. "The Kennedy Round: Evidence on the Regulation of International Trade in the United States." *American Economic Review* 73(1): 190-197.

McKinnon, Ronald I. 1962. "Optimum Currency Areas." *American Economic Review* 53: 717-725.

McKinnon, Ronald I., and K.C. Fung. 1993. "Floating Exchange Rates and the New Interbloc Protectionism," in *Protectionism and World Welfare*, ed. Dominick Salvatore. Cambridge: Cambridge University Press, 221-244.

Milner, Helen V. and Timothy Buthe. 2008. "The Politics of Foreign Direct Investment into Developing Countries: Increasing FDI through International Trade Agreements?" *American Journal of Political Science* 52 (4): 741-62.

Mundell, Robert. 1961. "A Theory of Optimum Currency Areas." *American Economic Review*. 51: 657-664.

Odell, John. 1982. *US International Monetary Power: Markets, Power, and Ideas as Sources of Change*. Princeton: Princeton University Press.

Olivei, Giovanni, P.. 2002. "Exchange Rates and the Prices of Manufacturing Products Imported Into the United States." *New England Economic Review* (First Quarter), 3-18 (http://www.bos.frb.org/economic/neer/neer2002/neer102a.pdf).

Reinhart, Carmen, and Kenneth Rogoff. 2004. "The Modern History of Exchange Rate Arrangements: A Reinterpretation." *Quarterly Journal of Economics* 119 (February).

Rose, Andrew. 2000. "One Money, One Market: The Effect of Common Currencies on Trade." *Economic Policy: A European Forum* 30: 7-33.

Anderson, S. and N. Schmitt. 2003. "Non-Tariff Barriers and Trade Liberalization," *Economic Inquiry* 41(1): 80-97.

Shambaugh, Jay C. 2004. The Effect of Fixed Exchange Rates on Monetary Policy. *Quarterly Journal of Economics* 119 (February): 301-52.

Simmons, Beth. 1994. *Who Adjusts? Domestic Sources of Foreign Economic Policy During the interwar Years*. Princeton: Princeton University Press.

Valderrama, Diego. 2004. "Does a Fall in the Dollar Mean Higher U.S. Consumer Prices?" *Federal Reserve Bank of San Francisco Economic Letter*, Number 2004-21 (August 13).

Walter, Stefanie. 2008. "A New Approach for Determining Exchange-Rate Level Preferences." *International Organization* 62(3): 405-38.

References

Barbieri, Katherine, Omar Keshk, and Brian Pollins. 2009. "Trading Data: Evaluating Our Assumptions and Coding Rules. *Conflict Management and Peace Science* 26 (5): 471-91.

Bearce, David. 2003. "Societal Preferences, Partisan Agents, and Montary Policy Outcomes." *International Organization* 57 (2): 373-410.

Bergsten, C. Fred. 2006. "The US Trade Deficit and China." Testimony Before the Hearing on US-China Economic Relations Revisited, Committee on Finance, United States Senate, March 29 (http://www.iie.com/publications/papers/paper.cfm?ResearchID=611).

Bernhard, William, and David Leblang. 1999. "Democratic Institutions and Exchange-Rate Commitments." *International Organization* 53(1): 71-97.

Bhagwati, Jadish. 1988. *Protectionism*. Cambridge, MA: MIT Press.

Blomberg, S. Brock, Jeffry Frieden, and Ernesto Stein. 2005. "Sustaining Fixed Rates: The Political Economy of Currency Pegs in Latin America." *Journal of Applied Economics* 8(2): 203-225.

Bown, Chad P. 2008. "The WTO and Antidumping in Developing Countries," *Economics & Politics* 20(2): 255-288.

Broz, Lawrence. 2002. "Political System Transparency and Monetary Commitment Regimes." *International Organization* 56 (4): 861-87.

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

Campa, Jose Manuel, and Linda Goldberg. 2002. "Exchange Rate Pass-Through Into Import Prices: A Macro or Micro Phenomenon?" NBER Working Paper 8934. Cambridge: NBER.

Caprio, Gerard, and Daniela Klingebiel. 2003. "Episodes of Systemic and Borderline Financial Crises." World Bank Research dataset (http://www1.worldbank.org/finance/html/database_sfd.html).

Chinn, Menzie, and Hiro Ito. 2006. "What Matters for Financial Development? Capital Controls, Institutions, and Interactions," *Journal of Development Economics,* 81(1): 163-192.

Clark, William and Mark Hallerberg. 2000. "Strategic Interaction Between Monetary and Fiscal Actors Under Full Capital Mobility." *American Political Science Review* 94(2): 323-346.

Corden, W.M. 1982. "Exchange Rate Protection," in The International Monetary System Under Flexible Exchange Rates -- Global, Regional, and National: Essays in Honor of *Robert Triffin*, ed. Richard Cooper, Peter Kenen, Jorge Braga de Macedo, and Jacques Van Ypersele. Cambridge: Ballinger, 17-34.

Destler, I.M. and C. Randall Henning. 1989. *Dollar Politics: Exchange Rate Policymaking in the United States*. Washington, DC: Institute for International Economics.

Eichengreen, Barry. 1992. *Golden Fetters: The Gold Standard and the Great Depression, 1919-1939*. New York: Oxford University Press.

Eichengreen, Barry, and Ricardo Hausmann. 1999. "Exchange Rates and Financial Fragility." NBER Working Paper 7418. Cambridge: NBER.

Frankel, Jeffrey. 1994. "The Making of Exchange Rate Policy in the 1980s." In *American Economic Policy in the 1980s*, ed. Martin Feldstein, 293-341. Chicago: University of Chicago Press.

Frankel, Jeffrey. 1999. "No Single Currency Regime is Right for All Countries or at All Times." Department of Economics, International Finance Section, Essays in International Finance No. 215 (August). Princeton: Princeton University.

Frieden, Jeffry. 2008. "Globalization and Exchange Rate Policy." In *The Future of Globalization*, ed. Ernesto Zedillo. New York: Routledge, 344-357.

_____. 1991. "Invested Interests: The Politics of National Economic Policies in a World of Global Finance." *International Organization* 45(4): 425-451.

_____. 1993. "The Dynamics of International Monetary Systems: International and Domestic Factors in the Rise, Reign, and Demise of the Classical Gold Standard." In *Coping with Complexity in the International System*, edited by Jack Snyder and Robert Jervis. Westview: Westview Press.

_____. 2002. "Real Sources of European Currency Policy: Sectoral Interests and European Monetary Integration." *International Organization* 56(4): 831-860.

Frieden, Jeffry A., and J. Lawrence Broz. 2006. "The Political Economy of Exchange Rates." *Oxford Handbook of Political Economy*, ed. Barry Weingast and Donald Wittman. New York: Oxford University Press.

_____. 2001. "The Political Economy of International Monetary Relations." *Annual Review of Political Science* 4: 317-343.

Frieden, Jeffry A., Piero Ghezzi, and Ernesto Stein. 2001. "Politics and Exchange Rates: A Cross-Country Approach to Latin America," in *The Currency Game: Exchange Rate Politics in Latin America,* edited by Jeffry Frieden and Ernesto Stein. Baltimore: Johns Hopkins University Press.

Ghosh, Atish R., Anne-Marie Gulde, and Holger C. Wolf. 2002. *Exchange Rate Regimes: Choices and Consequences*. Cambridge, MA: MIT Press.

Gleditsch, Kristian Skrede. 2008. Modified Polity P4 and P4D Data, Version 2.0. (http://privatewww.essex.ac.uk/~ksg/Polity.html).

Goldberg, Pinelopi, and Michael Knetter. 1997. "Goods Prices and Exchange Rates: What Have We Learned?" *Journal of Economic Literature* 35: 1243–1292.

Gowa, Joanne. 1983. *Closing the Gold Window: Domestic Politics and the End of Bretton Woods*. Cornell Studies in Political Economy. Ithaca: Cornell University Press.

Guisinger, Alexandra, and David Andrew Singer. 2010. "Exchange Rate Proclamations and Inflation-Fighting Credibility." *International Organization* 64(1): 313-337.

Hallerberg, Mark. 2002. "Veto Players and Monetary Commitment Technologies." *International Organization* 56(4): 775-802.

Hiscox, Michael and Scott Kastner. 2008. "A General Measure of Trade Policy Orientations: Gravity-Model Based Estimates for 76 Nations, 1960-2000. Unpublished manuscript. Harvard University (http://www.people.fas.harvard.edu/%7Ehiscox/barriers.html).

Husain, Aasim M., Ashoka Mody, and Kenneth S. Rogoff. 2005. "Exchange Rate Regime Durability and Performance in Developing versus Advanced Economies." *Journal of Monetary Economics* 52: 35-64.

International Monetary Fund. 1997. *World Economic Outlook*. Washington, DC: International Monetary Fund.

Keefer, Philip and David Stasavage. 2003. "Checks and Balances, Private Information, and the Credibility of Monetary Commitments." *International Organization* 56 (4): 751-774.

Kenen, Peter. 1969. "The Theory of Optimum Currency Areas, in *Monetary Problems in the International Economy*, ed. Robert Mundell and Alexander Swoboda. Chicago: University of Chicago Press.

Klein, Michael W. 2005. "Dollarization and Trade." *Journal of International Money and Finance*. 24 (6): 935-43.

Klein, Michael W. and Jay Shambaugh. 2006. "Fixed Exchange Rates and Trade." *Journal of International Economics*. 70 (2): 359-383.

Klein, Michael W. and Jay Shambaugh. 2009. *Exchange Rates in the Modern Era*. Cambridge, MA: MIT Press.

Krueger, Anne. 1999. "Are Preferential Trade Arrangements Trade-Liberalizing or Protectionist?" *Journal of Economic Perspectives* 13(4): 105-124.

Philip R. Lane and Gian Maria Milesi-Ferretti (2007), "The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970–2004," *Journal of International Economics* 73 (November): 223-250.

Levy-Yeyati, Eduardo. and Federico Sturzenegger. 2004. "Classifying Exchange Rate Regimes: Deeds vs. Words." *European Economic Review*.

López-Córdova, Jose Ernesto, and Christopher M. Meissner 2003. "Exchange-Rate Regimes and International Trade: Evidence from the Classical Gold Standard Era." *American Economic Review* 93(1): 344–353.

Mansfield, Edward, and Helen V. Milner. 1999. "The New Regionalism." *International Organization* 53(3): 589-627.

Mansfield, Edward D., Helen V. Milner, and B. Peter Rosendorff. 2002. Why Democracies Cooperate More: Electoral Control and International Trade Agreements. *International Organization* 56 (3): 477-514.

Mansfield, Edward, Helen V. Milner, and Jon C. Pevehouse. 2007. "Vetoing Co-operation: The Impact of Veto Players on Preferential Trade Agreements." *British Journal of Political Science* 37(3): 403-432.

Marvel, Howard P., and Edward Ray. 1983. "The Kennedy Round: Evidence on the Regulation of International Trade in the United States." *American Economic Review* 73(1): 190-197.

McKinnon, Ronald I. 1962. "Optimum Currency Areas." *American Economic Review* 53: 717-725.

McKinnon, Ronald I., and K.C. Fung. 1993. "Floating Exchange Rates and the New Interbloc Protectionism," in *Protectionism and World Welfare*, ed. Dominick Salvatore. Cambridge: Cambridge University Press, 221-244.

Milner, Helen V. and Timothy Buthe. 2008. "The Politics of Foreign Direct Investment into Developing Countries: Increasing FDI through International Trade Agreements?" *American Journal of Political Science* 52 (4): 741-62.

Mundell, Robert. 1961. "A Theory of Optimum Currency Areas." *American Economic Review*. 51: 657-664.

Odell, John. 1982. *US International Monetary Power: Markets, Power, and Ideas as Sources of Change*. Princeton: Princeton University Press.

Olivei, Giovanni, P.. 2002. "Exchange Rates and the Prices of Manufacturing Products Imported Into the United States." *New England Economic Review* (First Quarter), 3-18 (http://www.bos.frb.org/economic/neer/neer2002/neer102a.pdf).

Reinhart, Carmen, and Kenneth Rogoff. 2004. "The Modern History of Exchange Rate Arrangements: A Reinterpretation." *Quarterly Journal of Economics* 119 (February).

Rose, Andrew. 2000. "One Money, One Market: The Effect of Common Currencies on Trade." *Economic Policy: A European Forum* 30: 7-33.

Anderson, S. and N. Schmitt. 2003. "Non-Tariff Barriers and Trade Liberalization," *Economic Inquiry* 41(1): 80-97.

Shambaugh, Jay C. 2004. The Effect of Fixed Exchange Rates on Monetary Policy. *Quarterly Journal of Economics* 119 (February): 301-52.

Simmons, Beth. 1994. *Who Adjusts? Domestic Sources of Foreign Economic Policy During the interwar Years*. Princeton: Princeton University Press.

Valderrama, Diego. 2004. "Does a Fall in the Dollar Mean Higher U.S. Consumer Prices?" *Federal Reserve Bank of San Francisco Economic Letter*, Number 2004-21 (August 13).

Walter, Stefanie. 2008. "A New Approach for Determining Exchange-Rate Level Preferences." *International Organization* 62(3): 405-38.