

# The Trilemma and Trade Policy: Exchange Rates, Financial Openness, and WTO Disputes

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## **ABSTRACT**

Scholars have long been aware of the inextricable link between exchange rates, capital flows, and trade policy. Curiously, however, the literature on the politics of WTO disputes has overlooked the importance of exchange rates and international financial integration on outcomes. In this paper, we argue that countries' monetary and financial commitments are a key determinant of their involvement in WTO disputes. Governments that have sacrificed monetary policy autonomy by adopting fixed exchange rates have strong domestic political incentives to adopt protectionist trade policies. These policies, in turn, increase the likelihood that a country will be targeted within the WTO dispute settlement mechanism (DSM). Using a dataset of all WTO members from 1995 to 2007, we find that countries with more fixed exchange rate regimes are both more likely to initiate antidumping investigations and more likely to be targeted as defendants within the DSM. This effect, however, is conditional on a country's level of capital account openness, in line with the expectations of the Mundell-Fleming trilemma. These results strongly suggest that the link between exchange rates and trade policy extends to the politics of dispute settlement within the WTO. They also indicate the need for more research on the complex interactions between trade, monetary, and financial policies in the global economy.

## Introduction

Any firm or individual engaging in international trade understands the intimate relationship between trade and exchange rates. Indeed, the canonical literature on the economics of 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).<sup>1</sup> Likewise, numerous historical and contemporary examples highlight the vital connections between exchange rates, capital mobility, and international trade. For example, the question of whether or not to adhere to the gold standard mobilized tradables producers and dominated political debates about economic policy in the United States and elsewhere during both the pre-1914 and interwar periods (Eichengreen 1992, Frieden 1993, Simmons 1994). Similarly, large US current account deficits in the late 1960s and early 1970s, coupled with concerns of American exporters about the loss of competitiveness vis-à-vis Europe and Japan, heavily influenced the Nixon administration's decision to close the "gold window" and end the Bretton Woods era (Odell 1982, Gowa 1983). Most recently, the policy debate over "global imbalances" has focused primarily on the effects of the undervaluation of the Chinese renminbi (RMB) on trade flows between the US and China (Chinn 2011, Bergsten 2010/2006).

Recent empirical work has further advanced our understanding of the linkages between exchange rates, capital mobility, and trade. A number of studies suggest that real exchange rate appreciations have led to increases in anti-dumping filings in the United States and other industrialized countries (Broz 2010, Oatley 2010, Irwin 2005, Knetter and Prusa 2003, Grilli 1988, Bergsten and Williamson 1983). Other research indicates that protectionism has been

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<sup>1</sup> A rich empirical literature in economics has studied the effects of exchange rate regime choice on the level and volatility of trade flows (e.g., Rose 2000, Lopez-Cordova et. al. 2003, Klein 2005, Klein and Shambaugh 2006/9). Our focus here is in the connections between exchange rate regimes and trade policies.

greatest at the regional level during periods of sharp 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 19<sup>th</sup> century correlated closely with the strength of the dollar. Finally, Irwin (2012) and Eichengreen and Irwin (2010) have argued persuasively that adherence to the gold standard was the single most important determinant of whether or not a country adopted protectionist trade policies during the Great Depression.

Yet while studies in the existing literature have linked the application of trade remedies to the choice of exchange rate policies and movements in exchange rate levels, there has been no effort to assess the linkages between exchange rates, capital mobility, and the political economy of the World Trade Organization (WTO) – the central institutional pillar of the multilateral trading system. While a wave of recent studies has substantially enhanced our understanding of the political economy of the WTO dispute settlement process, this literature has overlooked the importance of countries’ monetary and financial commitments as determinants of international trade disputes. This oversight is also surprising in light of the “currency wars” debate among policymakers in the wake of the Great Recession, which has focused extensively on the effects of monetary and exchange rate policies on trade flows between key countries (e.g., Brazil, China, Japan, and the US) in the global economy.

In this paper, we address this gap in the literature and argue that countries’ exchange rate regime choices are a key determinant of WTO dispute initiation. Building on recent work by Irwin (2012) and Eichengreen and Irwin (2010) on protectionism during the interwar gold standard era, we argue that countries that have sacrificed monetary (and, to a lesser extent, fiscal)

policy autonomy by adopting fixed exchange rates have strong domestic political incentives to adopt protectionist trade policies, whether legal within the WTO (as in the case of antidumping) or illegal (as in the case of the 2002 Bush administration steel tariffs). Such trade policies may be politically optimal for a government facing domestic demands for protection, but they also increase the likelihood that it will be targeted within the dispute settlement mechanism (DSM) by other WTO member-states. Using a dataset of all WTO members from 1995 to 2007, we find strong support for this logic. Countries with more fixed exchange rate regimes are both more likely to initiate antidumping investigations and more likely to be targeted as defendants within the WTO's dispute settlement mechanism. This effect, however, is conditional on a country's level of capital account openness, in line with expectations of the Mundell-Fleming framework. These results strongly suggest that the link between exchange rates and trade policy extends to the politics of dispute settlement within the WTO. More broadly, our findings speak to the importance of more carefully exploring the complex relationship between trade, monetary, and financial policies in the contemporary global economy.

The remainder of the paper proceeds as follows. We begin with a review of the recent literature on the political economy of the WTO. We then explore more closely the relationship between exchange rates, financial openness, and trade policy and further develop our argument linking fixed exchange rates and capital account liberalization to WTO dispute initiation. We subject this hypothesis to empirical analysis using a dataset covering all WTO member-states from 1995 to 2007, which provides robust support for our argument. We conclude with some thoughts on the implications of our research for studies of policy substitution in international relations and for future research on the complex linkages between trade, monetary, and financial policies in the contemporary global economy.

## **The political economy of WTO dispute initiation**

Over the last decade, scholars of IPE and international organizations (IOs) have made substantial progress in understanding the politics of the World Trade Organization (WTO). Within this large literature, some scholars have sought to explain variation in the timing and terms of accession to the GATT/WTO (Copelovitch and Ohls 2012, Neumayer 2011, Pelc 2011), while others have focused their efforts on identifying the effects of GATT/WTO membership on trade flows and national trade policies (von Borzyskowski et. al. 2012, Rose 2010/2005/2004, Mansfield and Reinhardt 2008, Goldstein et. al. 2007, Subramanian and Wei 2007). Still others have studied the design of WTO dispute settlement procedures (Rosendorff 2005, Milner and Rosendorff 2001), the dynamics of trade round negotiations (Baldwin 2007, Jones 2009a/b, Odell 2009), and “forum shopping” in the settlement of trade disputes created by the overlapping jurisdictions of the GATT/WTO and preferential trade agreements (PTAs) (Davis 2009/6, Naoi 2009, Busch 2007).

Perhaps the most well-developed literature on the WTO focuses on the political economy of WTO dispute initiation. Broadly, the literature has focused on two key factors as the primary determinants of patterns of WTO disputes. On the one hand, some scholars emphasize “gravitation effects,” arguing that country size and trade ties increase the likelihood of being both a respondent and a complainant in the dispute settlement process (Sattler and Bernauer 2010; Allee 2008; Horn et. al. 2008). On the other, many scholars instead focus on “discrimination effects,” presenting evidence that developing countries are less likely to file WTO disputes due to a lack of resources, legal capacity, or fear of retaliation by rich countries (Busch et. al. 2009, Kim 2008, Bown 2005, Guzman and Simmons 2005, Shaffer 2003). Recent work has also identified several other key determinants of WTO dispute initiation, including

levels of democracy and relative power within dyads (Sattler and Bernauer 2008, Rosendorff 2005, Busch 2000, Reinhardt 1999), past participation in the dispute settlement system by individual member-states (Conti 2010, Davis and Bermeo 2009), and lobbying by domestic firms (Davis and Shirato 2007).

On the whole, these studies have significantly enhanced our understanding of the political economy of the WTO dispute settlement process. To our knowledge, however, it has overlooked the importance of exchange rates and financial openness as determinants of international trade disputes. Given the substantial evidence linking exchange rates and trade policy, we believe this is a critical limitation of the existing literature. In the following section, we further develop the logic linking exchange rate regime choice to WTO dispute initiation, after which we turn to empirical analysis of antidumping complaints and WTO disputes from 1995 to 2007.

### **Exchange rates and WTO dispute initiation: theory**

Our argument combines two central points. First, adopting a fixed exchange rate under full capital mobility requires a government to sacrifice monetary policy autonomy, thereby limiting the arsenal of policy tools it has available to facilitate macroeconomic adjustment. Lacking other instruments to stimulate domestic employment and growth, governments under fixed exchange rates are more likely to turn to trade protection to bolster domestic demand and address balance of payments deficits. Second, while WTO membership does not commit countries to full trade liberalization, the use of either legal protectionist policies (e.g., antidumping investigations and duties) or illegal measures (e.g., exceeding tariff bounds or imposing banned non-tariff barriers) exposes countries to the possibility of being named as a defendant in trade disputes by other WTO member-states. Taken together, these two points

suggest that we should observe a link between a country's exchange rate policies, its degree of financial liberalization, and its propensity to both undertake legal protectionist policies and be involved in trade disputes at the WTO.

### *Fixed exchange rates, capital mobility, and trade protection*

The workhorse framework for analyzing the political economy of exchange rate regime choice is the Mundell-Fleming “trilemma” or “impossible trinity” (Mundell 1960, Fleming 1962). According to this framework, countries can achieve only two of three policy goals simultaneously: a fixed exchange rate, full capital mobility, and domestic monetary policy autonomy – the ability to adjust interest rates in reaction to exogenous shocks or domestic economic downturns. The logic is straightforward: in a world of mobile capital, a discrepancy between domestic and world interest rates causes capital to flow toward higher returns. Under floating exchange rates, capital inflows will lead to an exchange rate appreciation, while outflows will result in depreciation. Under fixed exchange rates, however, interest rate differentials will be arbitrated away by these capital flows. Consequently, the combination of capital mobility and fixed exchange rates makes it impossible for a government to adopt an independent monetary policy.

Sacrificing monetary autonomy is costly for several reasons. First, it is difficult for governments to find good substitutes. While fixed rates increase the short-run efficacy of fiscal policy when capital is mobile (Clark and Hallerberg 2000, Hallerberg 2002), the effects of fiscal policy on the real economy are relatively slow (Obstfeld and Rogoff 1995). Persistent budget problems resulting from deficit spending or tax cuts also may undermine the long-term credibility of a currency peg. Likewise, trade policies, such as tariffs or other firm- or sector-



specific policies, are an imperfect substitute for macroeconomic policy. Moreover, as we discuss further below, countries' ability to employ protectionist trade policies is substantially constrained by participation in the WTO. Finally, sacrificing monetary policy autonomy is costly, given the findings in the economics literature of correlations between fixed exchange rates and reduced economic growth, larger business cycle swings, and more severe recessions (e.g., Klein and Shambaugh 2010, Di Giovanni and Shambaugh 2008, Bleaney and Francisco 2007, Husain et. al. 2005, Shambaugh 2004, Broda 2004, Levy-Yeyati and Sturzenegger 2003). While the precise scope of these findings are a topic of ongoing academic debate, the key point is that countries that have committed to a currency peg must adopt interest rates that match those of their "base" country (the country to which they are pegging) and cannot reduce them in the face of recessions or business cycle swings (Di Giovanni and Shambaugh 2008, Shambaugh 2004).<sup>2</sup> This combination leaves governments that have adopted fixed exchange rates with fewer tools of adjustment in their arsenal when faced with macroeconomic shocks.

Given the substantial degree of international capital mobility in the contemporary world economy, the trilemma for many countries becomes a dilemma or choice between stability and flexibility (Singer 2010, Bearce 2007, Bernhard, Broz, and Clark 2002, Frankel 1999): governments choosing a fixed exchange rate regime must sacrifice monetary policy autonomy.<sup>3</sup>

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<sup>2</sup> For example, Bleaney and Francisco (2007) find that hard pegs are associated with reduced growth but free floats are not associated with higher growth. Levy-Yeyati and Sturzenegger (2003) find that less flexible exchange rate regimes are associated with lower growth but only for developed countries, while Husain et. al. (2005) find that more flexible regimes are associated with higher growth in advanced economies. Klein and Shambaugh (2010) note that the correlation between exchange rate regimes and long-run growth trajectories is unclear (a finding consistent with the theory of long-run monetary neutrality), but emphasize that the literature is clearer on the short-run real consequences of sacrificing monetary autonomy in the face of macroeconomic shocks (200).

<sup>3</sup> In reality, there remains substantial variation in the degree of capital account openness around the world, even though most industrialized and emerging market economies have moved toward full capital account liberalization in the last two decades. Accordingly, in the empirical analysis below, we show that the effect of exchange rate regime choice on trade protection and WTO disputes is conditional on capital account openness.

Capital account liberalization varies widely across countries, however, and many governments still impose both inward and outward capital controls as a way to retain a degree of both monetary policy autonomy and exchange rate flexibility (Aizenmann et. al. 2010). For governments that have integrated heavily into the global financial system, however, fixed exchange rates substantially limit the policy tools available to adjust the macroeconomy. Unable to employ monetary policy or currency depreciation, a government's ability to deal with economic shocks or downturns is severely constrained by the dual commitment to a fixed exchange rate and capital account openness. With few alternative policy tools available, trade protection becomes more attractive to governments seeking to stabilize employment and output and maintain domestic political support.

W.M. Corden neatly summarized this link between fixed exchange rates and trade protection nearly three decades ago in his classic work, *Trade Policy and Economic Welfare*: “the inability to use the exchange rate as a policy instrument provides an incentive to impose or increase restrictive trade policies at times of crisis, and thus leads to protectionist measures which often fail to be reduced when the short-term crisis is at an end” (Corden 1974). More recently, Irwin (2012) and Eichengreen and Irwin (2010) provide substantial evidence of this connection between exchange rate and trade policies in their studies of the Great Depression: “Countries remaining on the gold standard, and thereby prevented from using monetary policy to stimulate their economies, were more inclined to restrict trade” (Eichengreen and Irwin 2010, 872). Adherence to the gold standard, they argue, removed most policy instruments of macroeconomic adjustment from a government's set of options. Unable to allow their currencies to depreciate or to engage in monetary or fiscal stimulus, governments turned to trade protection in an attempt to offset to shock of the Depression (Eichengreen and Irwin 2010). Thus, in

contrast to the conventional wisdom, Eichengreen and Irwin conclude that “trade protection in the 1930s was less an instance of special interest politics run amok than second-best macroeconomic policy management when monetary and fiscal policies were constrained” (872).

We believe a similar logic applies to the contemporary global economy. Although there is no longer a single international monetary system – as in the postwar Bretton Woods system or the interwar and classical gold standard eras – many countries still adopt fixed exchange rates. As emphasized on the canonical literature on optimal currency areas, one key reason for fixing the exchange rate is the desire to reduce currency risk and facilitate cross-border trade and exchange (Mundell 1961, McKinnon 1962, Kenen 1969). In contrast, currency volatility under floating exchange rates creates uncertainty about cross-border transactions, adding a risk premium to the price of traded goods and international assets (Frieden 2008). Alternatively, some countries also adopt fixed exchange rates as a solution to the well-known time inconsistency problem confronting monetary policymakers (Bernhard et. al. 2002, Hallerberg 2002, Keefer and Stasavage 2003, Guisinger and Singer 2010). Since pegging the currency requires a government to forego an independent monetary policy, fixing the exchange rate against a low-inflation currency (e.g., the German Deutsche Mark during the 1973-99 period) allows a government to “import” monetary credibility and low inflation, in much the same way as delegating monetary policymaking authority to an independent central bank domestically (Bernard et. al. 2000).

In either case, fixing the exchange rate while also liberalizing the capital account constrains a government’s monetary policy autonomy, making trade protection relatively more attractive as a tool of economic adjustment. In contrast to the Depression era, however, policymakers’ ability to employ the full arsenal of protectionist policies – including tariffs,

quotas, and export subsidies –is substantially constrained if the country is a member of the WTO. That said, membership in the multilateral trade regime does not entirely remove trade policy as an option for governments; trade liberalization under the WTO is incomplete and governments do retain some unilateral policy options. For example, even if policymakers can no longer employ industrial tariffs at previous 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. Adoption of these policies, however, risks retaliation: the imposition of AD and countervailing duties (CVDs) often brings claims of unfair protection at the WTO by the targets of these policies and may potentially set off rounds of retaliation. Governments can also choose to deliberately flout their WTO obligations by pursuing illegal trade policies, such as raising tariffs on select goods. Like the use of safeguards, however, countries choosing this option risk finding themselves accused of violations by their trading partners within the WTO’s dispute settlement mechanism.<sup>4</sup>

Although we expect this logic linking countries’ international monetary and financial commitments to increased involvement in WTO disputes 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, capital account openness, 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

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<sup>4</sup> We note that the line between these first two options is 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.

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 as a result of monetary and financial commitments than others. Our point is simply that, regardless of the precise degree of industry-specific sensitivity to exchange rates in a particular country, *aggregate* use of trade protection and involvement in WTO disputes should increase in all countries when the government has foregone its ability to employ monetary and fiscal policy as tools of domestic adjustment.

In sum, we believe that the relationship between fixed exchange rates and protectionism evident during the Great Depression remains today, albeit in a different form given the evolution of the multilateral trade regime. Thus, while the specter of a Depression-era style “Kindleberger spiral” of trade protection and competitive devaluations is unlikely in the current WTO era, there are good reasons to believe that governments that have tied their hands monetarily (and fiscally) through the adoption of fixed exchange rates will be more likely to pursue protectionist trade policies. These policies, in turn, should increase the probability that a country will be named as a defendant (respondent) within the WTO’s DSM. Indeed, according to Bown (2005), nearly fifty percent of WTO disputes after 1999 involved trade remedies such as anti-dumping measures.

This relationship between exchange rate regime choice and trade policy, however, should also be conditional on a country’s degree of capital account openness. In line with the expectations of the Mundell-Fleming framework, a country that has simultaneously committed to a fixed exchange rate and capital account openness must necessarily forego an independent monetary policy. Having also sacrificed its ability to employ currency depreciation or capital controls, a government that has made these dual monetary and financial commitments is severely constrained in its ability to deal with economic shocks, and thus will be more likely to embrace

trade protection as a second-best tool of macroeconomic adjustment. Unfortunately, this tool of adjustment leaves them vulnerable to retaliation within the WTO's DSM.

## **Empirical analysis**

### *Research design*

In order to test our argument, we employ time-series/cross-sectional analysis of an original dataset covering up to 112 WTO member-states from 1995 to 2007.<sup>5</sup> In designing our empirical analysis, we rely on a monadic specification. The monadic models test whether a country's monetary and financial commitments affect its overall propensity to impose trade protection and be named as a defendant in WTO disputes. Since our theory is primarily monadic – we do not predict which country (or countries) will respond to increased protectionism on the part of a WTO member-state that is constrained by its monetary and financial commitments by initiating WTO disputes – we focus primarily on these models.<sup>6</sup> As in past studies, we treat the European Union as a single actor in our models, because its members pursue a common trade policy within the WTO.<sup>7</sup> We also follow the existing literature in our coding of a WTO dispute: a dispute initiation is coded as such if a formal request for consultations under the WTO dispute

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<sup>5</sup> We restrict the analysis to this period, given missing data on some of our key explanatory variables from 2007 onward.

<sup>6</sup> We also estimate dyadic models, which more closely mirror the existing empirical literature on WTO dispute initiation by testing the determinants of disputes between specific pairs of member-states. The results of these dyadic models are consistent with the monadic models we present here. We present graphical results from these models below; full tables and additional charts are available on request from the authors. In these models, we follow the recent literature in adopting a directed dyad “gravity model” approach (e.g., Bernauer and Sattler 2010, Blodgett Bermeo and Davis, 2009, Busch 2000). Each dyad appears twice in the dataset, since the dependent variable, *Defendant*, measures not only the number of trade disputes within the dyad, but also which country was the respondent (defendant) and which was the complainant.

<sup>7</sup> 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. We discuss various codings of the EU's overall exchange rate regime below.

settlement mechanism was made, and multi-country disputes are split into their constituent member states.<sup>8</sup> Similarly, we treat AD cases as beginning if an investigation is initiated against any one country.

We estimate both negative binomial and zero-inflated negative binomial (ZINB) models of the number of AD disputes initiated and the number of WTO disputes initiated by a country in a given year. As Bernauer and Sattler (2010) demonstrate, the zero-inflated models help to alleviate the severe “excess zeros” problem – the large number of non-events – one confronts when analyzing WTO dispute data. The excess zeros problem arises for two reasons: 1) many WTO member-states don’t trade with each other (i.e., dyadic trade equals zero), and 2) most WTO member-states have never participated in a WTO dispute. In the monadic dataset, the excess zeros problem is readily apparent: only 23.3% (259 of 1113) country-years are nonzero observation of antidumping complaints, while only 11.7% (130 of 1113) of the country-years are nonzero observations of WTO disputes. The ZINB models address the excess zeros problem statistically by analyzing the data in two stages. The first stage of zero-inflated models (the inflation equation) uses a binary logit model to estimate whether a dispute is possible (i.e., whether there is a positive probability of a dispute) within a dyad. The second stage (the count equation) accounts for variation in the number of disputes initiated among those dyads that have a nonzero probability of a dispute.<sup>9</sup> As we discuss further below, our results are highly robust

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<sup>8</sup> See [www.wto.org/english/tratop\\_e/dispu\\_e/dispu\\_e.htm](http://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm).

<sup>9</sup> This approach has statistical and theoretical advantages over a standard event count model, such as the Poisson or negative binomial. Statistically, the zero-inflated model distinguishes between “zero dyads” in which the probability of a dispute is “always” zero – either because the countries do not trade with each other or because they are not active participants in the WTO dispute settlement system – and those in which a dispute is possible but not realized. Theoretically, zero-inflated models more closely fit with the literature’s current understanding of the politics of WTO dispute initiation, in which many WTO member-states simply do not participate in the dispute settlement system because they lack the resources/capacity or trade very little with other member-states. Empirically, the choice of model specification does not change our substantive findings, however.

across both the monadic and dyadic specifications and the choice of standard versus zero-inflated count models.

*The dependent variables: Antidumping complaints and WTO dispute initiation*

In order to test our argument, we focus on two dependent variables. The first, *Antidumping*, is a count of the total number of AD investigations initiated by country  $i$  in year  $t$ . In this data, 259 of 1113 observations are nonzero. The largest observed annual frequency of initiation of AD investigations is 78 (India in 2001). For this data, we rely on Chad Bown's temporary trade barriers data (Bown 2012). Although the specific AD investigation process is somewhat unique to each country, the general tenor of the process is the same: domestic producers pressure a government to investigate whether an import is being sold in the target market for less than that good is sold on the exporter's domestic market. If this determination is made, the government will adopt some type of trade protection for the domestic producer who is harmed by the dumping.

Table 1 shows the most frequent antidumping complainants among WTO member-states from 1995 to 2007.



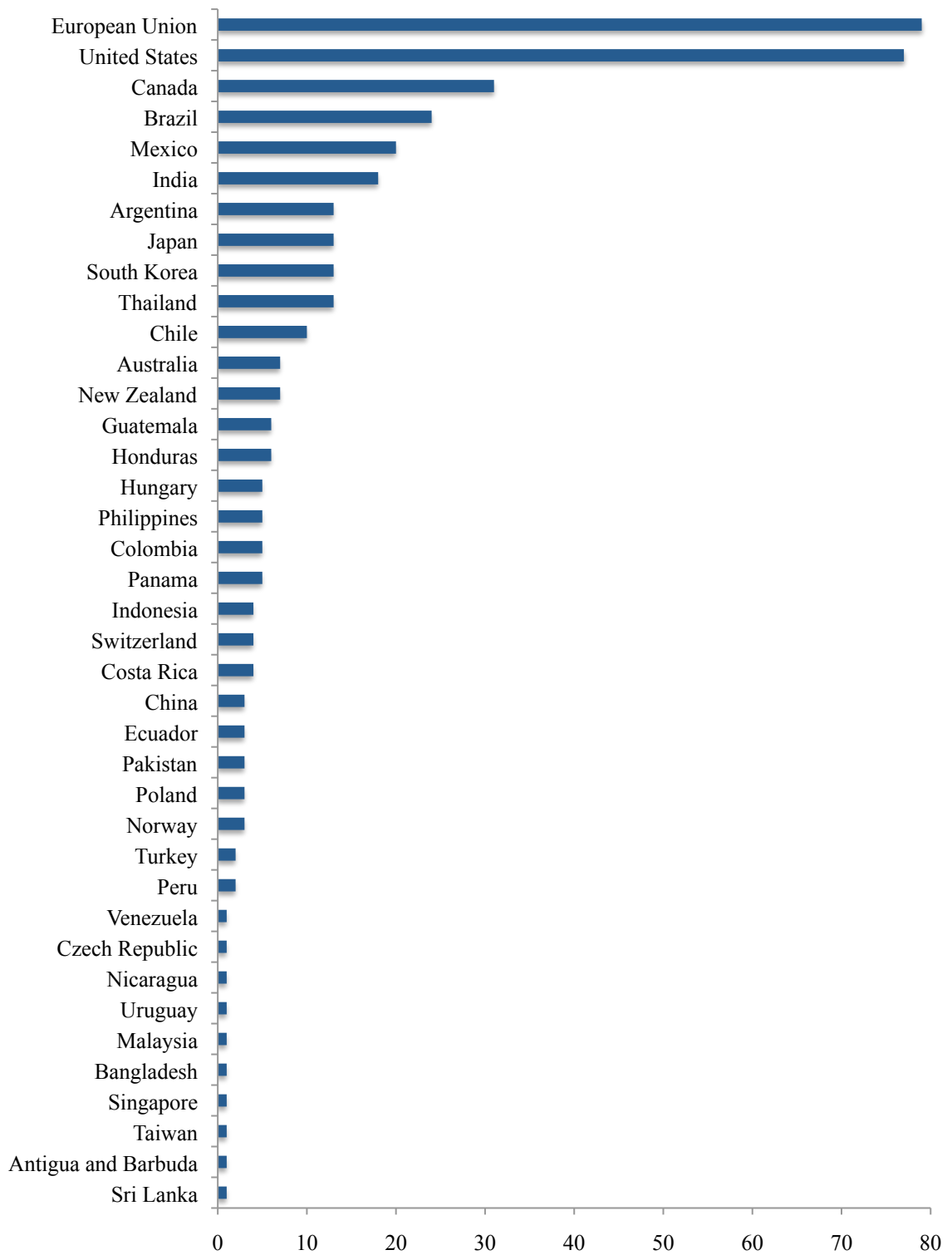
**TABLE 1 – MOST FREQUENT ANTIDUMPING COMPLAINANTS,  
WTO MEMBER-STATES, 1995-2007**

United States	1189
European Union	692
India	554
Australia	480
Canada	358
Argentina	289
South Africa	287
Mexico	242
Brazil	228
Turkey	204
China	164
South Korea	133
Taiwan	119
Peru	106
Indonesia	72
Colombia	72
New Zealand	49
Israel	46
Malaysia	43
Thailand	40
Venezuela	27
Pakistan	27
Philippines	19
Chile	18
Trinidad and Tobago	11
Japan	10
Costa Rica	8
Uruguay	6
Jamaica	4
Ecuador	3
Paraguay	2
Bulgaria	1

These data allow us to measure a government's response to protectionist pressures. While antidumping investigations and duties are certainly not the only type of trade policy response available to governments (others include raising applied tariffs to bound rates or simply violating one's WTO commitments to reduce or remove tariffs and NTBs), they are a clear measure of trade protection. Two notes about this measure are necessary, however. First, although other measures of domestic protection exist, data on AD investigations is more complete and easily comparable across multiple countries. Second, an investigation may determine that no dumping has taken place and remedies are not necessary for an import competing industry. Even in those cases, however, the government has clearly undertaken a costly signal to domestic and international observers that it takes the complaints of domestic groups seriously. Moreover, the initiation of AD investigation may still invite pre-emptive retaliation from target states.

Our second dependent variable, *Defendant*, is a count of the total number of disputes for either the country or directed dyad during the 1995-2007 period. In our sample, disputes occur in 130 of 1113 country-years in the monadic data. The maximum number of disputes is 19 (United States 2002). In our monadic sample, 66 of the 130 nonzero observations take the value of "1," indicating that the country initiated only one WTO dispute in the given year. As illustrated in Figure 1, advanced industrialized countries and large, emerging market states have overwhelmingly initiated WTO disputes since the institution's inception in 1995.

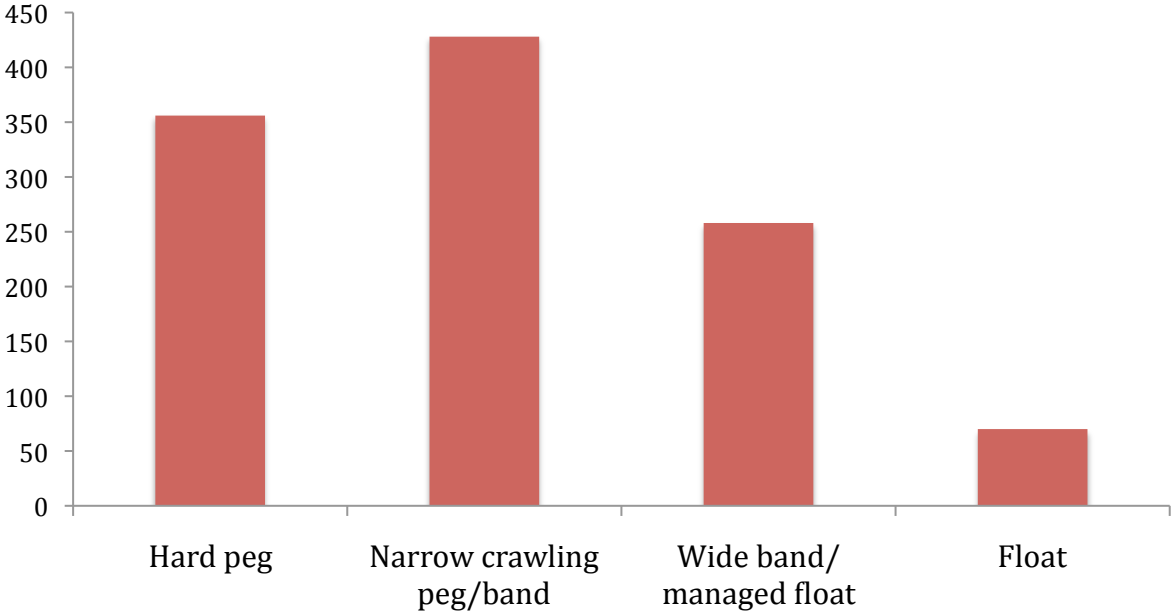
**FIGURE 1 – MOST FREQUENT WTO COMPLAINANTS, 1995-2008**



*The independent variables: exchange rate regime choice and capital account openness*

Our primary independent variable of interest is a country's choice of exchange rate regime. As is now commonplace in the literature, we focus on the *de facto* choice of exchange rate regime, since this more accurately captures governments' "deeds" rather than simply their "words." This focus on behavior rather than a government's declarations is appropriate for our analysis, given that we are concerned with the degree that a government has actually "tied" its hands on monetary and fiscal policy. In our analysis, we employ the classification developed by Reinhart and Rogoff (2004), who utilize deviations from official announcements, data on parallel (black market) and official dual exchange rates, reserve movements, and detailed country chronologies to code *de facto* exchange rate regimes from 1970-2007. Using this data, RR create a 15-point scale of exchange rate regimes, which they then aggregate into a coarse 5-point scale (1=fixed, 2=narrow crawling peg/band, 3=wide band/managed floating, 4=freely floating, 5=freely falling). We reverse the index, so that higher values correspond to a greater degree of exchange rate fixity. The classification is based on the conditional probability that the exchange rate stays within a given range over a rolling five-year window. Thus, RR's index allows for a degree of depreciation/devaluation and monthly volatility within the same classification of exchange rate regimes. Figure 2 illustrates the distribution of *de facto* exchange rate regime choices for WTO member-states during the 1995-2007 period.

**FIGURE 2 – *DE FACTO* EXCHANGE RATE REGIMES (COUNTRY-YEARS),  
WTO MEMBER-STATES, 1995-2007**



SOURCE: Reinhart and Rogoff (Data available at <http://www.reinhartandrogoff.com>)

In line with most recent studies (e.g., Guisinger and Singer 2010), 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.<sup>10</sup> As a robustness check in our analyses, we also test countries' choices of *de jure* exchange rate regimes, using the IMF's standard 4-point official classification as presented in the Fund's *Annual Report on Exchange Rate Arrangements*.<sup>11</sup>

One further issue arising in the coding of the independent variable is the treatment of the European Union's collective exchange rate regime. Prior to establishment of the euro in 1999, classifying the exchange rate regime choice for the EU as a whole is relatively straightforward: we calculate the simple mean of member-states' national exchange rate regime choices, in order to develop a single exchange rate classification for the EU.<sup>12</sup> Matters become more complex following the onset of EMU, however. On the one hand, monetary union is an extreme and permanent form of a fixed exchange rate, suggesting that we should code each EMU member-

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<sup>10</sup> Freely falling cases correspond to a "5" on the Reinhart-Rogoff (2004) coarse classification scale, while dual/parallel rate cases correspond to a "6". Our results are substantively identical if we include these observations; results available on request.

<sup>11</sup> We utilize the data file available on Carmen Reinhart's website: <http://terpconnect.umd.edu/~creinhar/Data/ERA-IMF%20class.xls>.

<sup>12</sup> We have also experimented with alternative codings for the EU based on GDP- and trade-weighted averages. Since these do not yield substantively different results, we only present the simple averages in this analysis.

states has having adopted a hard peg and calculate the EU aggregate exchange rate regime accordingly. On the other hand, since the euro itself floats in global markets against other currencies and the European Central Bank (ECB) accordingly exercises substantial monetary policy autonomy – and since only the EU (rather than individual member-states) can initiate disputes against other countries within the WTO – the alternative approach is to classify EMU member-states as having adopted a floating exchange rate regime vis-à-vis its WTO trading partners. In the analysis below, we employ the “EMU fix” classification as our preferred coding in both the *de facto* and *de jure* regime choice specifications. This approach is in line with others in the literature (e.g., Aizenmann et. al. 2010) who classify EMU member-states as having adopted hard pegs and sacrificed their monetary policy autonomy.<sup>13</sup>

In addition to measuring a country’s exchange rate regime choice, we are also interested in its degree of openness to international capital flows. Consequently, our second key explanatory variable is *Capital Openness*, the Chinn-Ito index measuring the extent to which a country has undergone financial liberalization by removing capital controls (Chinn and Ito 2008). The Chinn-Ito index, which is drawn from the IMF’s official data, measures four facets of capital account openness: the existence of multiple exchange rates; restrictions on current account transactions; restrictions on capital account transactions; and requirement of the surrender of export proceeds. *Capital Openness*, therefore, accounts for variation in government policies regulating the cross-border movement of capital. The normalized index ranges from 0 to 1, with 0 implying complete closure and 1 implying full capital mobility (Aizenmann et. al.

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<sup>13</sup> We note here that our results are not substantively changed if we exclude the EU or substitute the “EMU float” coding. For reasons of space, we show only the “EMU fix” results. Results available on request.

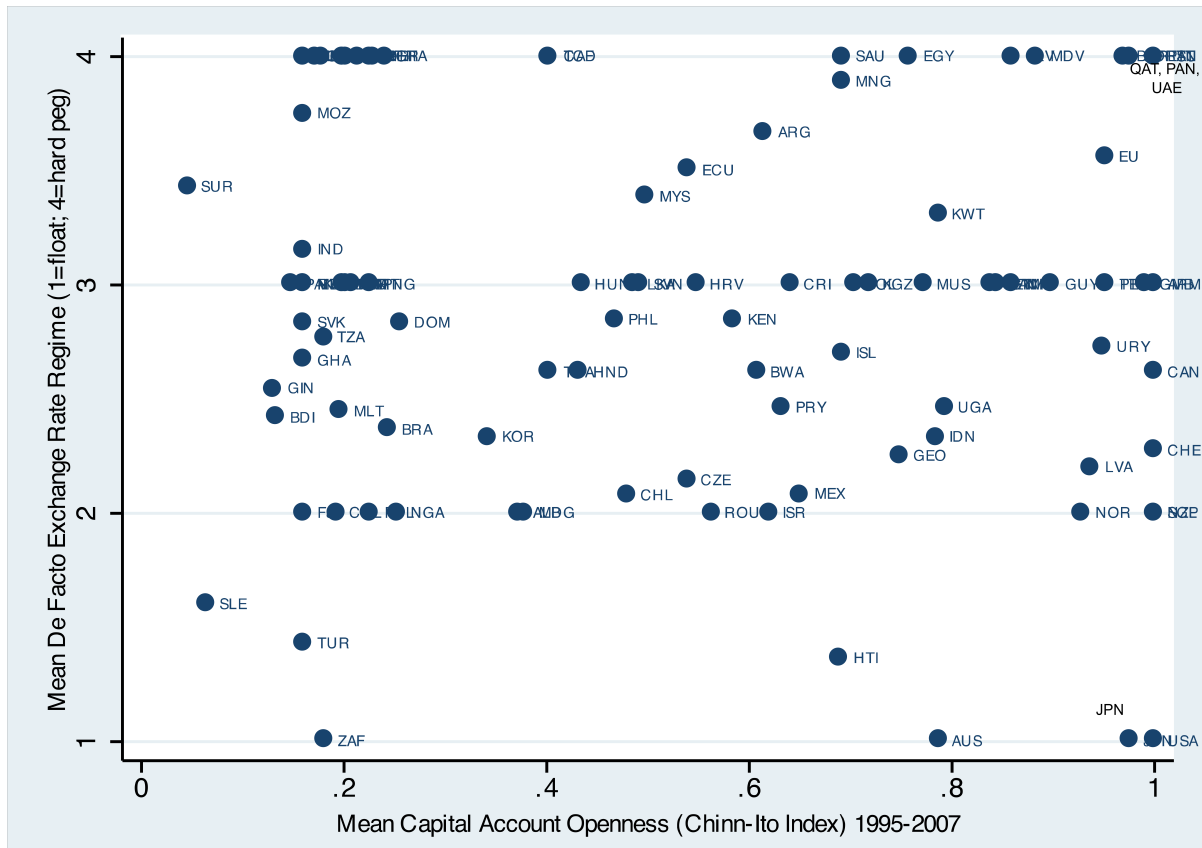
2010).<sup>14</sup> Our models also include the relevant multiplicative interaction terms testing the conditional relationship between *Exchange Rate Regime* and *Capital Openness*. Figure 3, which plots the mean values of the Reinhart-Rogoff exchange rate regime classification and the Chinn-Ito index for each WTO member-state over the 1995-2007 period, shows the relationship between these two variables in our dataset.

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<sup>14</sup> The Chinn-Ito index is a *de jure* measure of capital account openness. We find substantively similar results when we substitute a measure of *de facto* capital account openness (foreign assets + liabilities/GDP) drawn from the Lane and Milesi-Ferretti *External Wealth of Nations* dataset (Lane and Milesi-Ferretti 2007). For reasons of space, we omit these results here. They are available on request.



**FIGURE 3 – MEAN EXCHANGE RATE REGIME CHOICE (DE FACTO) AND CAPITAL ACCOUNT OPENNESS (CHINN-ITO INDEX), WTO MEMBER-STATES, 1995-2007**



### *Control variables*

In addition to the variables measuring exchange rate choices and capital account openness, we incorporate a range of control variables drawn from the broad existing literature on the political economy of WTO disputes. As discussed earlier, the main explanations in the existing literature on the political economy of WTO dispute initiation emphasize “gravitation” and “discrimination” effects (Sattler and Bernauer 2010, Busch et. al. 2009, Horn et. al. 2009, Allee 2008, Kim 2008, Bown 2005, Guzman and Simmons 2005, Shaffer 2003): countries that trade more with each other, along with those that are richer and more powerful, are more likely to initiate disputes within the WTO. In line with these findings, we incorporate several variables measuring the potential effects of both gravitation and discrimination. To control for gravitation effects, we introduce *Trade openness*, the ratio of each country’s trade/GDP ratio. We also include a variable measuring the log of economic size (*GDP*) for each country in the sample. Trade data is taken from the *Correlates of War* Trade Dataset (Barbieri et. al. 2008/9). In the literature, the standard expectation is that higher values of *Trade openness* and *GDP* will be associated with a larger number of WTO cases.

To control for discrimination effects, we include each country’s *GDP per capita* (log). The basic reason for discrimination effects, as identified in the literature, is legal capacity: poorer states frequently lack the resources and expertise to successfully initiate and litigate WTO disputes (Horn et. al. 1999, Bown 2005, Kim 2008, Busch et. al. 2008).<sup>15</sup> The precise sign on this variable in our monadic models is unclear, however. It might be the case that richer

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<sup>15</sup> In our dyadic models, we also include (following Sattler and Bernauer 2010) *Power asymmetry*, the absolute value of *GDP A* minus *GDP B*, the dyadic models. They find that *Power asymmetry* – independent of separate measures of country size based on GDP – is significantly and negatively associated with WTO dispute initiation, suggesting that larger and more powerful countries are able to “impose their will on smaller countries outside the WTO,” thereby reducing the likelihood of disputes (Conybeare 1985, Guzman and Simmons 2005).

countries are less likely to be targeted by poor countries, but more likely to be targeted by other rich countries. Data on both GDP and GDP per capita are taken from the World Bank's *World Development Indicators*.

We also add several further controls drawn from the existing literature. First, we control for *Regime Type*, given the robust finding in the literature that democratic institutions have a positive effect on WTO dispute initiation (Reinhardt 1999, Busch 2000, Allee 2004, Rosendorff 2005, Davis and Blodgett Bermeo 2009). As in these past studies, we control for this by introducing, the Polity scores of each country (Marshall et. al. 2002). Second, we include a variable, *Recent Complainant*, to control for the finding that countries are more likely to be targeted in WTO disputes against states if they have previously been filed against by other WTO member-states (e.g., Davis and Blodgett Bermeo 2009). This variable is a dummy variable that takes a value of "1" if the country has initiated one or more WTO disputes during the same or previous year. Finally, we control for the fact that the risk of becoming involved in a WTO dispute increases the longer a country is a member of the multilateral trade regime. Following Bernauer and Sattler (2010), we include the log of duration (years) of the complainant's WTO membership.

### *Results – antidumping filings*

We begin the empirical analysis by estimating the number of antidumping investigations initiated in a given year during the 1995-2007 period. Table 2 presents the results of this analysis. In Models 1 and 2, we present negative binomial models using the *de facto* and *de jure* measures of exchange rate regime choice. In Models 3 and 4, we present corresponding specifications using zero-inflated negative binomial (ZINB) specifications, to address the

aforementioned excess zeros problem in the data. Finally, in Models 5 and 6, we replicate the ZINB models but add the multiplicative interaction term testing the conditional relationship between *Exchange Rate Regime* and *Capital Openness*.

**TABLE 2 – REGRESSION RESULTS, MONADIC ANALYSIS, ANTIDUMPING INVESTIGATIONS, 1995-2007**

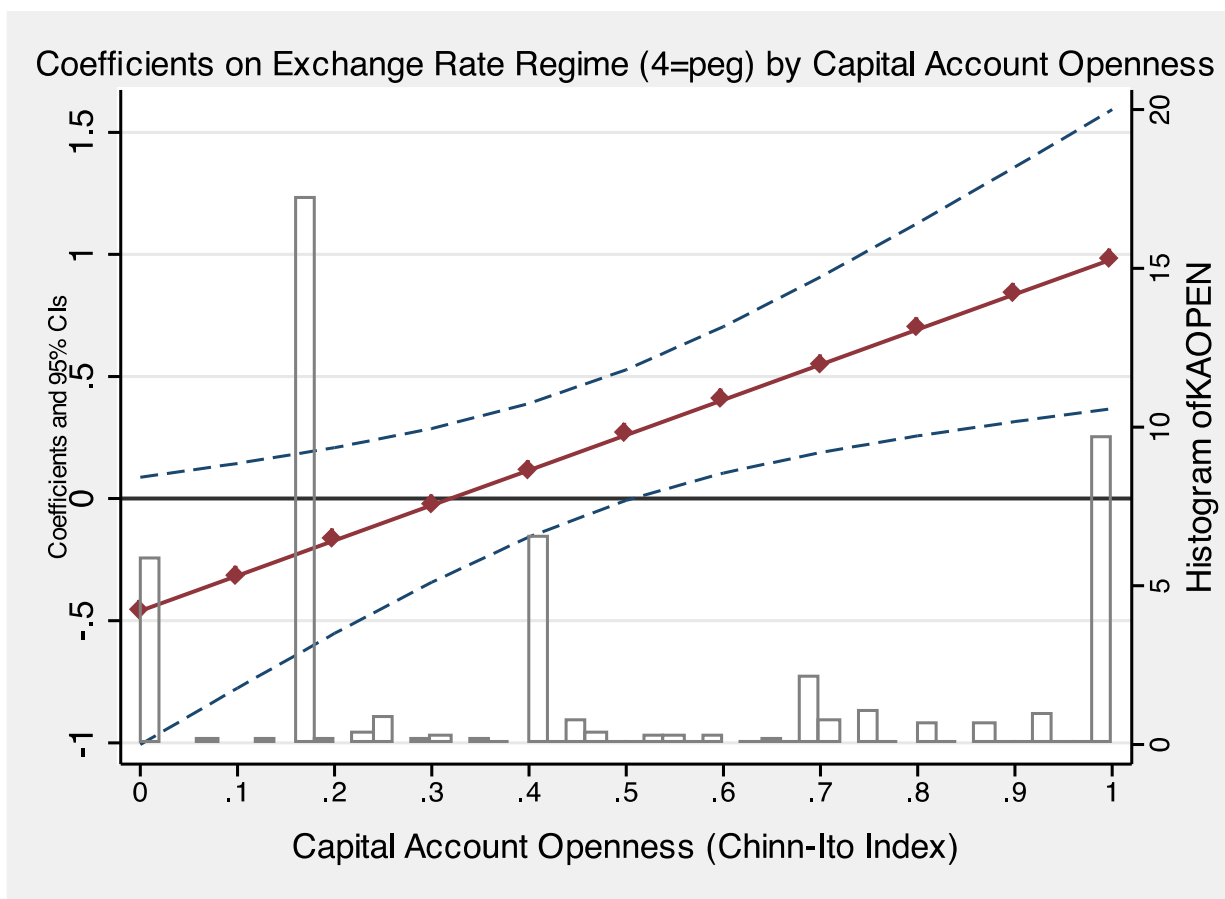
Model Specification	1		2		3		4		5		6	
	Negative binomial	De facto	Negative binomial	De jure	Inflation (logit)	Count (negative binomial)	Inflation (logit)	Count (negative binomial)	Inflation (logit)	Count (negative binomial)	Inflation (logit)	Count (negative binomial)
<b>Exchange rate regime coding</b>												
Exchange rate regime (1=peg; 4=float)	0.0588 [0.2006]	0.0436 [0.1467]	0.6383* [0.3293]	0.4101** [0.1823]	0.5108** [0.1972]	0.4484*** [0.1426]	0.0145 [0.7069]	-0.4597* [0.2792]	-0.1342 [0.4559]	-0.1584 [0.2722]		
Capital account openness (Chinn-Ito index, KAOPEN)	0.6462 [0.5945]	0.6080 [0.6425]	-3.4004** [1.3540]	-0.6811 [0.4944]	-2.5897* [1.3557]	-0.2501 [0.4976]	-8.4147 [7.6395]	-3.8454*** [1.2564]	-4.5197** [1.9153]	-1.6254** [0.7599]		
Exchange rate regime*KAOPEN												
Trade/GDP (% log)	-0.4465 [0.3197]	-0.4652 [0.3161]	1.2768** [0.6406]	0.3336 [0.3866]	1.3201** [0.6127]	0.3188 [0.3902]	1.2941** [0.6522]	0.0822 [0.3115]	1.2691** [0.6429]	0.2676 [0.3746]		
GDP (log)	1.2433*** [0.1418]	1.2570*** [0.1524]	-1.5434*** [0.3504]	0.6731*** [0.1048]	-1.6488*** [0.3842]	0.6434*** [0.1064]	-1.4264*** [0.3479]	0.8304*** [0.1227]	-1.5831*** [0.3663]	0.6927*** [0.1107]		
GDP per capita (log)	0.5354** [0.2095]	0.4788** [0.2072]	-1.5977*** [0.5056]	-0.0280 [0.2120]	-1.6910*** [0.4978]	-0.2450 [0.2112]	-1.7227** [0.7055]	0.0983 [0.1770]	-1.6213*** [0.5298]	-0.1615 [0.2116]		
Current account/GDP (%)	-0.0608** [0.0255]	-0.0552** [0.0275]	-0.1326** [0.0600]	-0.1486*** [0.0454]	-0.1268** [0.0638]	-0.1467*** [0.0438]	-0.1302* [0.0731]	-0.1295*** [0.0427]	-0.1190 [0.0724]	-0.1376*** [0.0421]		
Polity score	0.0873*** [0.0321]	0.0830** [0.0345]	-0.0480 [0.0867]	0.0918*** [0.0278]	-0.0484 [0.0965]	0.0949*** [0.0288]	-0.0831 [0.0691]	0.0503** [0.0227]	-0.1001 [0.1060]	0.0516* [0.0290]		
Recent complainant	0.1613 [0.2813]	0.2162 [0.2925]	-0.0051 [0.7399]	0.1795 [0.2249]	0.0978 [0.7781]	0.2808 [0.2423]	-0.1225 [0.6709]	0.1229 [0.2394]	-0.1579 [0.7943]	0.1672 [0.2515]		
Years of WTO membership (log)	-0.2163 [0.1591]	-0.2247 [0.1503]	0.5661* [0.3104]	-0.1539 [0.1557]	0.5751 [0.3891]	-0.1466 [0.1449]	0.4711 [0.3763]	-0.1741 [0.1380]	0.3850 [0.4346]	-0.1834 [0.1510]		
Constant	-27.2310*** [4.2478]	-26.8060*** [4.2272]	36.9518*** [8.6562]	-13.7947*** [3.2220]	39.8730*** [9.2344]	-11.2801*** [2.6333]	37.6331*** [11.6442]	-14.8664*** [2.6585]	40.1997*** [9.3816]	-11.4044*** [2.6463]		
Observations	1113	1034	1113	1113	1034	1113	1113	1113	1034	1034		
Number of countries	110	108	110	110	108	108	110	110	108	108		
Nonzero observations	259	254	259	259	254	254	259	259	254	254		
Log-(pseudo)likelihood	-1175.504	-1151.141	-1089.898	-1089.898	-1062.502	-1062.502	-1072.089	-1072.089	-1055.465	-1055.465		
Alpha	2.937	2.880	1.222	1.222	1.170	1.170	1.091	1.091	0.091	0.091		
Vuong test (ZINB vs NB), (Pr>z)	--	--	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Likelihood ratio test (alpha=0), ZIP vs ZINB (Pr>chibar2)	--	--	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		

Robust standard errors in brackets  
 \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%

The results provide clear support for our argument. In Models 1 and 2, *Exchange Rate Regime* is not significant. Once we control for the excess zeros problem in Models 3 and 4, however, *Exchange rate regime* is positive and significant, as expected. More importantly, as Models 5 and 6 illustrate, there is strong support for the conditional, interactive relationship between monetary and financial commitments, as outlined above in the theoretical discussion. This is clearly illustrated in Figures 4 and 5, which graph the marginal effect of *Exchange Rate Regime* (both classifications) at different values of *Capital Openness*. In each graph, the result is clear: monetary commitments to fixed exchange rates are associated with increased antidumping complaints, but only when a country has liberalized its financial markets above the median level of capital account openness.

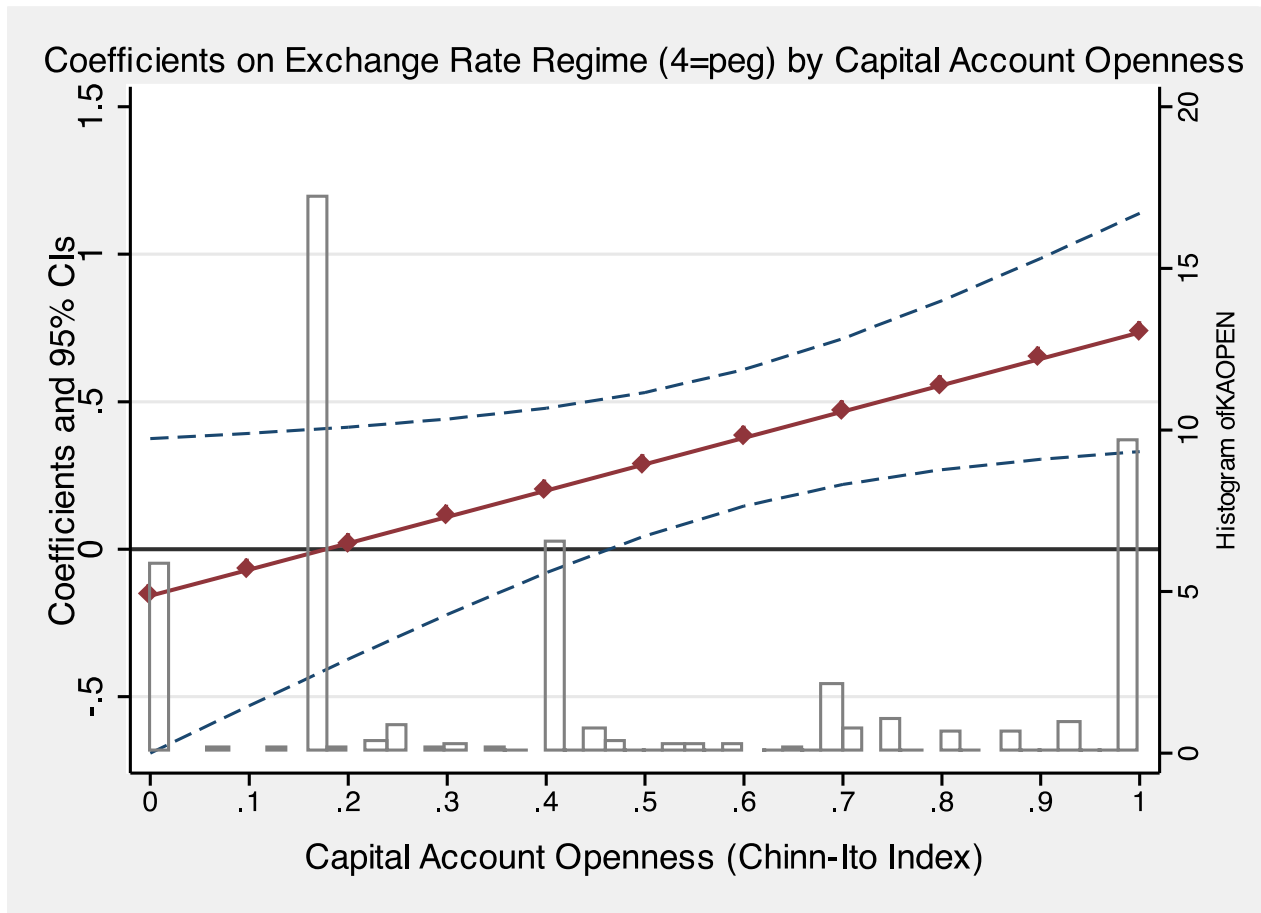
**FIGURE 4 – MARGINAL EFFECTS OF EXCHANGE RATE REGIME BY CAPITAL ACCOUNT OPENNESS, ANTIDUMPING COMPLAINTS (TABLE 2, MODEL 5)**

*De facto (Reinhart-Rogoff) exchange rate regime (1=float, 4=hard peg)*



**FIGURE 5 – MARGINAL EFFECTS OF EXCHANGE RATE REGIME BY CAPITAL ACCOUNT OPENNESS, ANTIDUMPING COMPLAINTS (TABLE 2, MODEL 6)**

*De jure exchange rate regime (1=float, 4=hard peg)*





In contrast, when a country continues to restrict capital mobility through the use of capital controls (i.e., below the median level of the Chinn-Ito index), adopting a more fixed exchange rate has no effect on the probability that it will pursue antidumping cases. In our view, this is clear evidence that the Mundell-Fleming trilemma is at work: adopting a fixed exchange rate requires sacrificing monetary policy autonomy (thereby creating incentives to adopt more extensive trade protection policies), but only under conditions of high capital mobility.

### *Results – WTO disputes*

The analysis above demonstrates a clear link between a country's monetary and financial commitments and its propensity to impose antidumping measures under the WTO's auspices. We take this as strong evidence that commitments to more fixed exchange rates and greater capital account openness are associated with increases in the use of protectionist trade policies. Indeed, the results above closely mirror the findings of Eichengreen and Irwin (2010) and Irwin (2012)'s results from the Great Depression era, in which commitments to the interwar gold standard correlated strongly with increased protectionism. In this next stage of the analysis, we focus on WTO disputes. Our expectation is that the increased use of protectionist trade policies as substitute for monetary policy autonomy and restrictions on capital account openness will increase the likelihood that a country will find itself targeted as a defendant in one or more WTO disputes in a given year.

Table 3 presents the results of this analysis. The six model specifications are identical to those in Table 2, aside from the change in dependent variable.

TABLE 3 – REGRESSION RESULTS, MONADIC ANALYSIS, WTO DEFENDANT CASES, 1995-2007

Model Specification	1		2		3		4		5		6	
	Negative binomial	De facto	Negative binomial	De jure	Inflation (logit)	Count (negative binomial)	Inflation (logit)	Count (negative binomial)	Inflation (logit)	Count (negative binomial)	Inflation (logit)	Count (negative binomial)
<b>Exchange rate regime coding</b>												
Exchange rate regime (1=peg; 4=float)	0.8464*** [0.2152]	0.4369** [0.1801]	-1.0628 [2.8720]	0.6081** [0.2397]	0.8255 [1.0324]	0.7046*** [0.2051]	18.1815*** [6.0158]	0.1162 [0.2263]	1.2678 [0.9687]	0.0537 [0.3298]		
Capital account openness (Chinn-Ito index, KAOPEN)	0.5344 [0.5396]	0.6725 [0.5624]	-0.8537 [9.1749]	0.7544 [1.1603]	-0.8379 [1.6378]	0.7792 [0.8084]	47.8773*** [18.6758]	-2.8126*** [0.9398]	2.6198 [3.8325]	-0.7939 [1.1206]		
Exchange rate regime*KAOPEN							-15.1244*** [5.6839]	1.2302*** [0.3786]	-1.0658 [1.1408]	0.8241** [0.4111]		
Trade/GDP (%), log	-0.1024 [0.2486]	0.1484 [0.3172]	2.4809 [8.1600]	-0.0758 [0.3480]	2.0032 [1.4308]	0.5617* [0.2986]			1.9035** [0.8258]	0.5631** [0.2833]		
GDP (log)	0.9478*** [0.1116]	0.9450*** [0.1408]	-3.0527*** [1.0654]	0.6384** [0.2511]	-0.8703** [0.4012]	0.8447*** [0.2080]	-2.2312** [0.9119]	1.0827*** [0.1278]	-0.8344 [0.5322]	0.8747*** [0.1853]		
GDP per capita (log)	0.6323*** [0.1797]	0.2484 [0.2095]	-4.2886 [3.3256]	0.3331 [0.2965]	-2.1918 [2.8998]	-0.1579 [0.4243]	3.9241** [1.5469]	0.6886** [0.1904]	-1.9973 [1.6749]	0.0090 [0.3568]		
Current account/GDP (%)	-0.0906*** [0.0236]	-0.0738** [0.0294]	1.0949 [1.4283]	0.0014 [0.0408]	0.1640 [0.1033]	-0.0891** [0.0357]	-0.5243*** [0.1957]	-0.1378*** [0.0238]	0.1712* [0.1014]	-0.0835* [0.0454]		
Polity score	0.0960*** [0.0351]	0.0926** [0.0430]	0.0645 [0.4069]	0.0865** [0.0414]	0.0137 [0.1098]	0.0994** [0.0476]	-0.5916*** [0.2201]	0.0679*** [0.0234]	0.0295 [0.1456]	0.0662 [0.0465]		
Recent complainant	0.1142 [0.3694]	0.3395 [0.3906]	3.8727 [2.8766]	0.4458 [0.4719]	0.6071 [2.9357]	0.3521 [0.7851]	0.0206 [1.5682]	-0.1009 [0.3168]	0.2101 [1.5853]	0.2099 [0.5633]		
Years of WTO membership (log)	-0.2615** [0.1218]	-0.3536*** [0.1349]	-0.5204 [7.7983]	-0.2951 [0.4380]	-0.9057 [0.8061]	-0.6420*** [0.2173]	-6.7121** [2.8343]	-0.6152*** [0.1342]	-1.1738* [0.6713]	-0.7148*** [0.1748]		
Constant	-28.2246*** [3.5212]	-24.2555*** [3.7211]	88.1290 [67.5800]	-18.4989*** [6.1468]	27.7663** [13.6000]	-19.7459*** [3.4028]	-45.8415** [19.8182]	-28.6208*** [2.8816]	24.8823*** [8.8933]	-20.1896*** [3.3637]		
Observations	1113	1034	1113	1113	1034	1034	1113	1113	1034	1034		
Number of countries	110	108	110	110	108	108	110	110	108	108		
Nonzero observations	130	128	130	130	128	128	130	130	128	128		
Log-(pseudo)likelihood	-424.375	-431.172	-398.682	-391.995	-391.995	-391.995	-390.403	-390.403	-385.970	-385.970		
Alpha	0.947	1.311	0.699	0.699	0.357	0.357	0.456	0.456	0.281	0.281		
Vuong test (ZINB vs. NB), (Pr>z)	--	--	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Likelihood ratio test (alpha=0), ZIP vs. ZINB (Pr>chibar2)	--	--	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		

Once again, the results strongly support our argument. In each of the first four non-interactive models *Exchange Rate Regime* is positive and significant, indicating a correlation between less flexible regime choices and an increase in the number of times a country is targeted by other WTO member-states in the DSM. This effect is substantively large: a shift from *Exchange Rate Regime*=1 (hard peg) to *Exchange Rate Regime*=4 (float) holding all other variables constant at their sample means increases the predicted number of *Defendant* cases from 0.038 to 0.122. These absolute numbers are quite low, of course, given the aforementioned skew of WTO cases toward a relatively small number of industrialized and emerging market countries (Figure 1).<sup>16</sup> If we instead fix *GDP* at the more empirically relevant level of 1.5 standard deviations above the mean (i.e., at the level of Canada or Mexico in 2001, or South Korea and Indonesia in 2003) and fix *GDP per capita* at a similar level (i.e., at the level of Australia in 2000, or Japan in 2007), we observe effects that are more meaningful: the same shift of *Exchange Rate Regime* from a hard peg to a float increases in the predicted number of *Defendant* cases from 0.34 to 4.28.

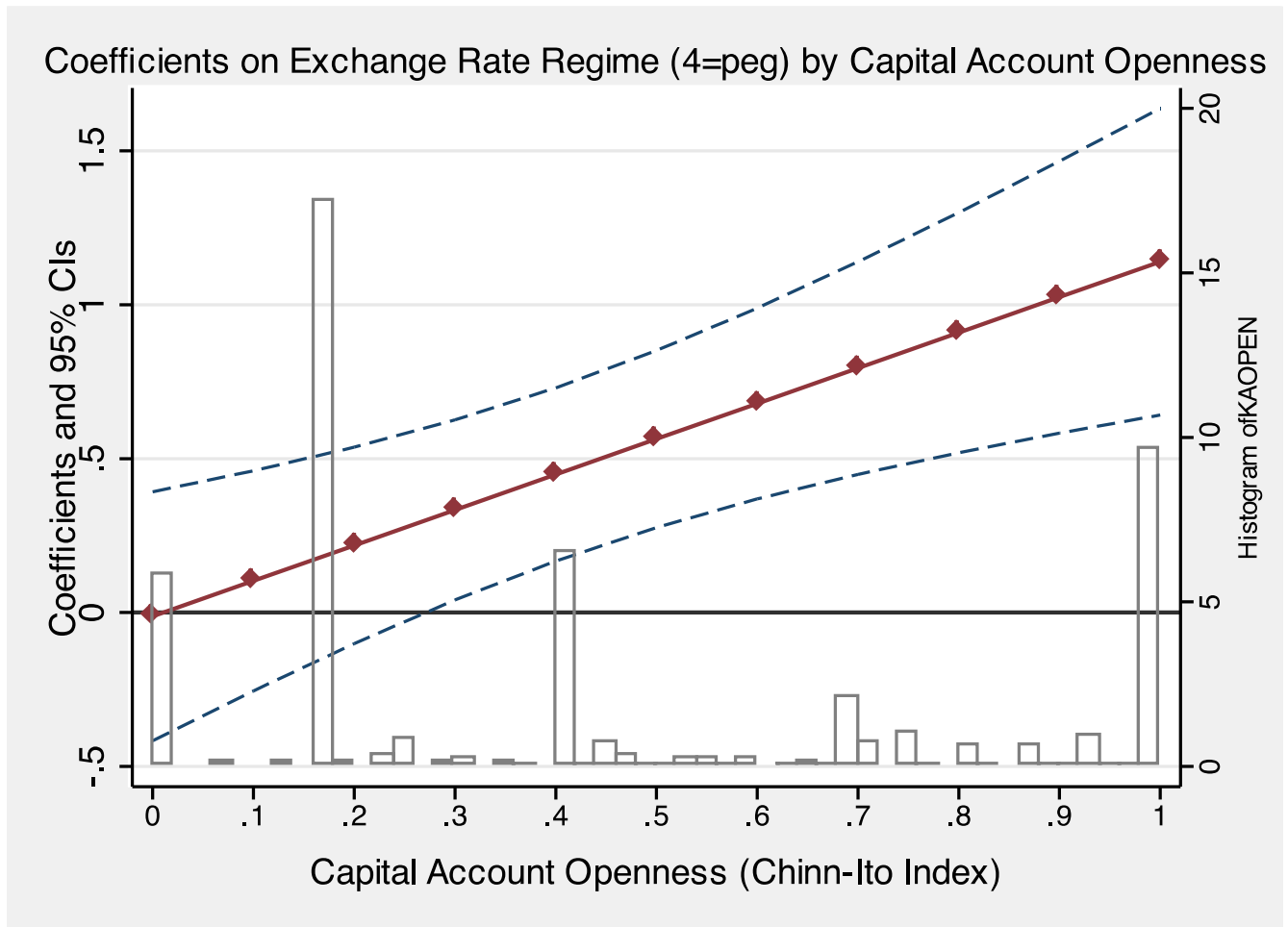
This result from the non-interactive models clearly illustrates the sizeable effect of countries' monetary commitments on their involvement in WTO disputes. Nonetheless, the more relevant results for our argument are the interactive specifications (Models 5 and 6), which model more accurately the Mundell-Fleming trilemma by testing the conditional relationship between a country's monetary and financial commitments. As earlier, these results show the significance of the multiplicative interaction between *Exchange Rate Regime* and *Capital Openness*. Figures 6 and 7 illustrate this graphically, as above with the antidumping models.

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<sup>16</sup> As a result, calculating first differences with other variables at sample means is not representative of the average WTO disputant.

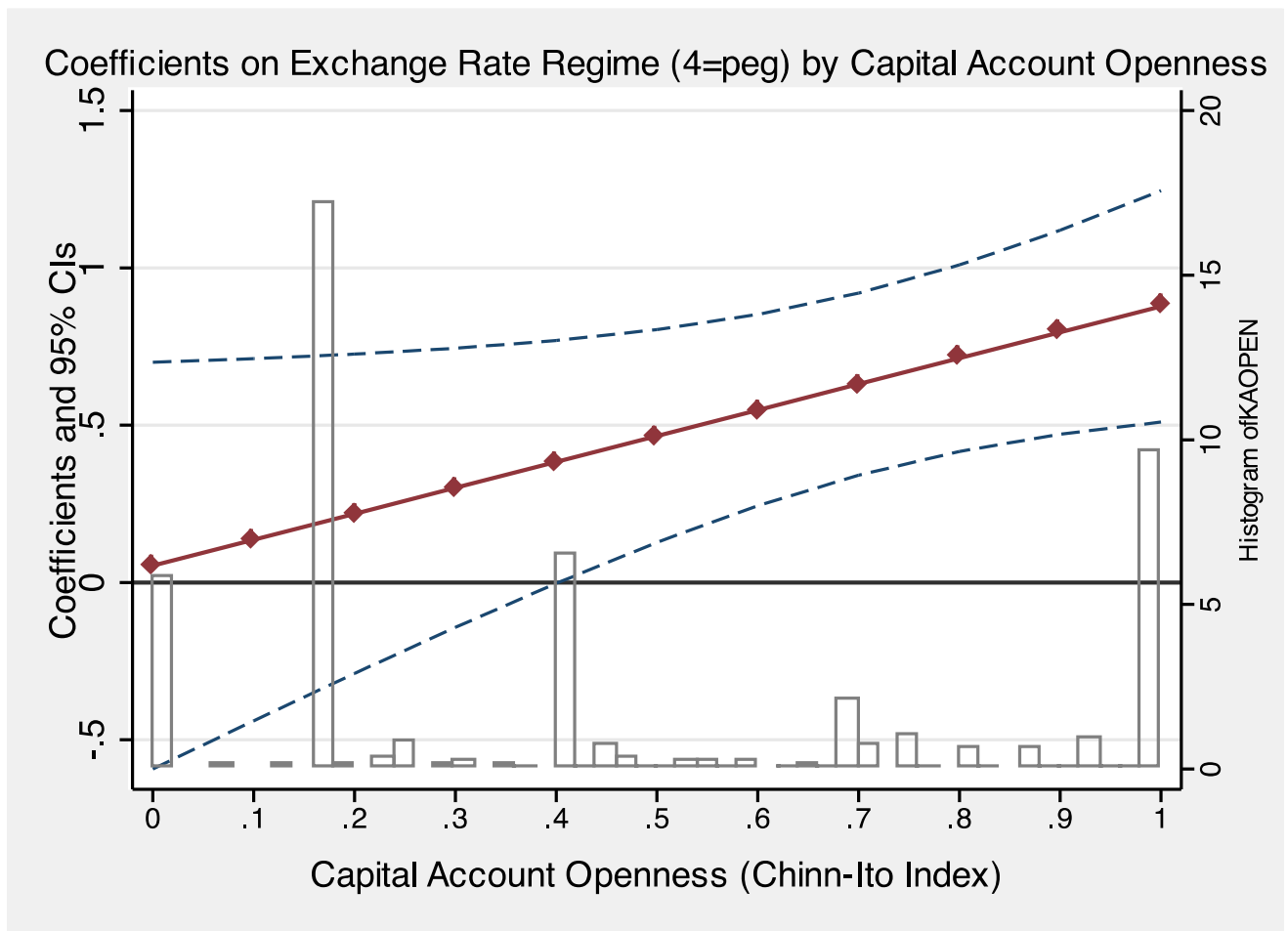
**FIGURE 6 – MARGINAL EFFECTS OF EXCHANGE RATE REGIME BY CAPITAL ACCOUNT OPENNESS, WTO DEFENDANT CASES (TABLE 3, MODEL 5)**

*De facto (Reinhart-Rogoff) exchange rate regime (1=float, 4=hard peg)*



**FIGURE 7 – MARGINAL EFFECTS OF EXCHANGE RATE REGIME BY CAPITAL ACCOUNT OPENNESS, WTO DEFENDANT CASES (TABLE 3, MODEL 6)**

*De jure exchange rate regime (1=float, 4=hard peg)*



Once again, more fixed exchange rates – both *de facto* and *de jure* – are associated with increased targeting within the DSM, but only at high levels of capital account openness.<sup>17</sup> These results provide further evidence that the constraints imposed by the trilemma have important ramifications for trade politics and policy within the WTO’s DSM.

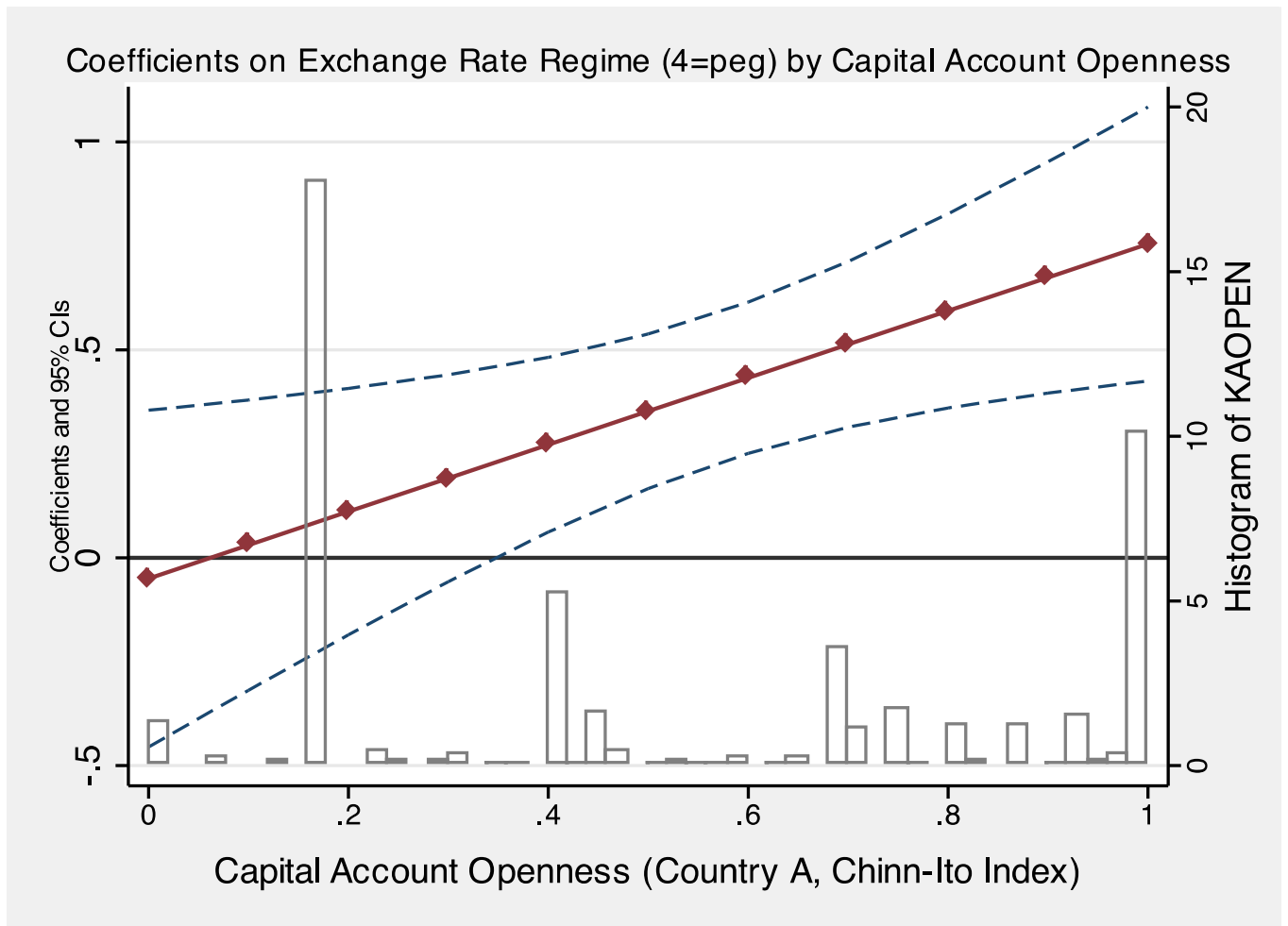
Finally, as noted earlier, we re-estimate the WTO dispute models using a directed-dyad dataset of all WTO member-states from 1995 to 2007. Although our core hypothesis is monadic (the argument makes no specific predictions about which countries will be targets of protectionist policies resulting from monetary and financial commitments, nor does it offer predictions about which trading partners will retaliate by initiating WTO disputes) we test it in this directed dyad setup since this empirical strategy is the dominant approach in the existing empirical literature on WTO dispute initiation (e.g., Bernauer and Sattler 2010). For reasons of space – and because the results mirror those in the monadic models in Table 3 above – we omit the full analysis and regression output here.<sup>18</sup> Figure 8, however, illustrates the core result for the interactive model using the Reinhart-Rogoff *de facto* exchange rate regime classification. As is evident from the chart, the same core finding holds in the directed dyad models: monetary commitments to fixed exchange rates under conditions of more extensive financial openness increase the probability that a country will be targeted within the WTO DSM by its trading partners.

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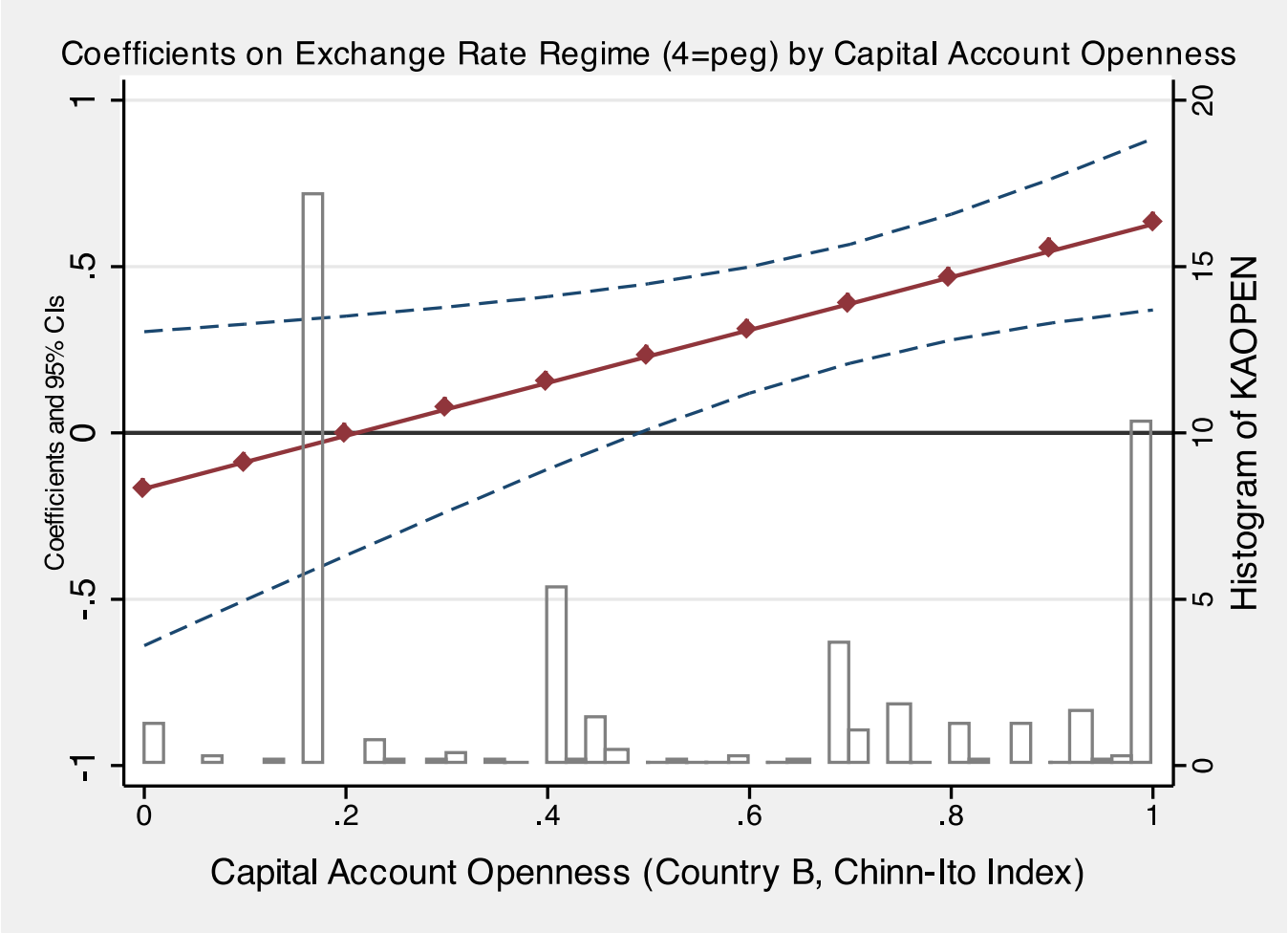
<sup>17</sup> We note that all of the above results are robust to the exclusion of the EU and the US in the estimation sample. Consequently, our results are not dependent on either our coding of the EU and its exchange rate regime or the predominance of these two countries in the WTO dispute process. Results available on request.

<sup>18</sup> Models available on request

**FIGURE 8 – MARGINAL EFFECT OF *DE FACTO* EXCHANGE RATE REGIME BY CAPITAL ACCOUNT OPENNESS (COUNTRY A), WTO DEFENDANT CASES (DIRECTED DYAD MODEL)**



**FIGURE 9 – MARGINAL EFFECT OF *DE FACTO* EXCHANGE RATE REGIME BY CAPITAL ACCOUNT OPENNESS (COUNTRY B), WTO DEFENDANT CASES (DIRECTED DYAD MODEL)**





In addition, the dyadic models yield a similar and interesting result on the initiator (“B”) side of each directed dyad (Figure 9): countries that have adopted more fixed exchange rates under conditions of more extensive financial openness are more likely to initiate WTO disputes against their trading partners. We interpret this result as evidence that countries that have tied their hands with respect to monetary policy and the use of capital controls are more likely to initiate WTO disputes in retaliation when similarly “bound” trading partners themselves employ protectionist trade policies as tools of macroeconomic adjustment. That said, more research is clearly needed to explore the potential interaction between countries’ monetary and financial commitments themselves as a source of trade disputes within the WTO. In any case, the robustness of our core findings in the directed dyad models further reinforce our confidence that exchange rate regime choices and capital account openness play a critical role in shaping trade policy and trade disputes in the contemporary global economy.

## **Conclusions**

In this paper, we have explored the relationship between countries’ exchange rate and capital account openness policies and their involvement in WTO trade disputes. Despite widespread awareness of the linkages between exchange rates and trade policy, research on the political economy of the WTO has overlooked the importance of countries’ international monetary and financial commitments as a determinant of disputes within the multilateral trade regime. In this paper, we address this gap in the literature and argue that countries’ exchange rate regime choices are a key determinant of WTO dispute initiation. Specifically, we argue that countries that have sacrificed monetary and fiscal policy autonomy by adopting fixed exchange rates are both more likely to initiate antidumping complaints at the WTO and more likely to be

targeted by their trading partners as defendants within the dispute settlement mechanism. This effect, however, is conditional on a country's level of capital account openness, in line with expectations of the Mundell-Fleming framework. Using a dataset covering all WTO member-states from 1995 to 2007, we find strong support for this argument. These results strongly suggest that the link between exchange rates and trade policy extends to the politics of dispute settlement within the WTO. They also suggest, in contrast to the existing literature, that WTO dispute initiation is driven less by structural factors – e.g., country size, regime type, and level of development – than previously thought. Rather, variation in states' macroeconomic policy choices – specifically, their decisions to adopt fixed exchange rate regimes and remove barriers to international capital flows – also heavily influence patterns of involvement in WTO disputes.

At the same time, our findings raise a number of important questions for future research. For example, while our results indicate that adopting a fixed exchange rate increases the probability that a state will initiate a WTO dispute, they do not tell us anything about the content of the case (i.e., sector, industry, or product) in question. 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 connections between trade, monetary, and financial policies 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) and use of capital controls, as well as 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, monetary, and financial rate policies by seeking to explain why some countries opt to maintain fixed exchange rates and pursue protectionist trade policies and/or WTO disputes, while others opt instead to engage in competitive devaluations or fight “currency wars” by imposing capital controls. In short, our results may only be the tip of the iceberg in terms of identifying linkages between trade, monetary, and financial policies and governments’ propensities to substitute one of these policies for another. Ultimately, more work on the complex relationship between the traditional “silos” of IPE is critical to a deeper understanding of numerous key puzzles and policy questions in the contemporary world economy.

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