

The impact of leader turnover on the onset and the resolution of WTO disputes

Talya Bobick · Alastair Smith

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Abstract When national leaders are replaced, the incoming leader often represents different interests to those of his predecessor. Such shifts in national priorities affect both the onset of WTO disputes and the resolution of ongoing disputes. In particular, leader turnover increases the likelihood that a nation will be involved in a WTO dispute as either plaintiff or defendant, and, if a dispute is ongoing, then leader change in a defendant state increases the likelihood of significant concessions by the defendant. The impact of leader change on both the initiation and settlement of disputes is greater in non-democratic states than democratic states.

Keywords WTO · Dispute onset · Dispute resolution · Leader change

JEL Codes F13 · F53

1 Introduction

To retain power, political leaders need to reward their supporters with favorable policies; trade policy is one tool at a leader's disposal. When leader change occurs, the new leader is often backed by a different set of supporters than those who had supported his predecessor. As a consequence, different interests come to be represented in trade policy when leader turnover occurs. Such shifts in national priorities can create new conflicts and make existing conflicts easier to resolve. We explore these dynamics through analyses of the impact of leader change on the onset and resolution of World Trade Organization disputes.

WTO Dispute 90 illustrates how leader change can affect the resolution of disputes. In October 1997, the US requested that the WTO's Dispute Settlement Body (DSB) establish a panel to investigate its claims that India illegally retained

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T. Bobick · A. Smith (✉)
Department of Politics, New York University, 19 W 4th Street, New York, NY 10012, USA
e-mail: Alastair.Smith@nyu.edu

quantitative restrictions on importation of a large number of agricultural, textile, and industrial products. By April 1999, the panel had finished its investigation. In the absence of agreement between the US and India, it ruled India's policies violated WTO rules. India appealed, but the panel's ruling was upheld. However, it was only after the September–October 1999 elections, in which the conservative Bharatiya Janata Party (BJP) won a decisive victory, that India announced it would comply with the WTO ruling. By April 2001, India had removed its tariffs.¹

Indian politics was tumultuous during this time. When the US first raised the issue of Indian tariffs, India was ruled by a coalition known as the United Front that was led by H.D. Deve Gowda of the Janata Dal Party. Gowda was often nicknamed “Mannina maga,” or “Son of Soil” for his support of Indian farmers. His coalition, combined with support from the Congress Party, promoted the interests of agriculture and the traditionally favored industrial sectors, all of which benefitted from the trade restrictions in dispute. In 1998, the United Front coalition collapsed and was succeeded by a right-wing coalition led by Prime Minister Vajpayee of the BJP. This coalition lacked a cohesive majority in Parliament and lost a no-confidence vote in 1999 that precipitated the September–October elections in which the BJP won decisively. With sufficient votes in Parliament, Vajpayee implemented his right-wing agenda with one of his early acts being to abandon the disputed protectionist measures thereby bringing India into compliance with the WTO's ruling.

India resisted the US's calls to remove protectionist measures while the former's government was composed of parties whose supporters benefited from such measures. However, following the BJP's decisive ascendancy, India's government represented different interests, trade policy shifted, and the WTO dispute was resolved.

Leader change can also trigger the onset of disputes. On March 12th 2000, Ricardo Lagos became Chile's third President since the restoration of democracy after Pinochet. Although from the same center-left Coalition of Parties for Democracy as his predecessors, his election represented a shift to the left and led Chile to initiate seven WTO disputes before the end of 2003. In addition to complaints against the US's Offset Acts, often referred to as the Byrd amendment—about which many other nations also complained (DS217)—Chile initiated disputes against many of its South American neighbors: Peru's taxation on cigarettes (DS227) and other imports (DS255), the rules concerning matches by Mexico (DS232), Argentina's restrictions on peaches (DS238), Uruguay's Internal Specific Tax (DS261) and Ecuador's safety standards for particle board (DS303). Chile was also named as a defendant in a number of cases during this time (DS193, DS207, DS220, DS226, DS228, DS230 and DS278).

These two cases are illustrative of general patterns: leader change increases the likelihood of concessions by defendants and leader turnover also increases the likelihood of dispute onset. Trade policy provides a means through which a leader can enrich one segment of society at the expense of the rest and also at the expense of others overseas associated with the protected industry. Leaders want to assist the industries associated with their supporters and forsake other sectors of the economy. When leader turnover occurs, there is a shift in the interests that leaders want to

¹ The WTO provides details of procedures and the chronology and basis for each dispute (<http://www.wto.org/index.htm>).

represent. Political institutions affect the breadth of interests a leader wishes to assist and so institutions moderate the impact of leader change.

We present two analyses. First, we assess the onset of WTO disputes within a directed-dyad database of WTO members between 1995 and 2009. For ease of language, throughout nation A is referred to as the plaintiff or potential plaintiff; nation B, the defendant. Rare event logit analyses show WTO disputes are most likely to occur between economic heavy weights. Large coalition institutions, such as democracies, increase the likelihood of dispute involvement for both plaintiffs and defendants. The focus of this project is the impact of leader change. The analyses show leader change in either A or B increases the chance of dispute onset and the impact of leader change on the likelihood of dispute onset is stronger in small coalition systems than in democracies.

The second set of analyses examines the effect of leader change on concessions in ongoing WTO disputes. Within 325 cases of WTO disputes between 1995 and 2009, leader change in a non-democratic defendant increases the chances of significant concessions by the defendant. Institutions play an important moderating role. In democratic defendant states, leader change increases concessions by the defendant but not to the same extent that is seen in non-democracies.

This paper proceeds as follows: we describe the WTO dispute resolution mechanism. Next, a simple analysis shows how institutions shape the induced preferences of leaders with respect to different trade policies. This simple model predicts how leader changes affect the onset and resolution of WTO disputes under different institutional settings. We then introduce our data sources and methods. The results section examines two questions: how leader change affects the onset of WTO disputes and how leader change affects the resolution of disputes? We conclude by discussing how these results contribute to the growing literature on the impact of leaders on international relations.

2 WTO dispute resolution mechanism

The World Trade Organization (WTO) was established in 1995 as a successor to the General Agreement on Tariffs and Trade (GATT) as an international organization designed to moderate and to regulate international trade agreements between member countries. Aside from serving as a forum for international trade negotiations, the WTO is charged with administering WTO agreements, monitoring national trade policies, and handling trade disputes between member nations.

The WTO handles trade disputes through the dispute settlement process of the organization. As of 1 June 2012, member countries have brought 438 cases through the dispute settlement process of the WTO. When a member country of the WTO feels as though another member state has taken some action or adopted a trade measure that is a violation of WTO trade agreements, that country can formally complain against the defendant country using the dispute settlement understanding of the WTO. The dispute settlement mechanism of the WTO is the only way by which the WTO formally monitors compliance of WTO trade agreements (Fukunaga 2006). The dispute settlement procedure is the responsibility of the Dispute Settlement Body (DSB), which consists of all WTO members.

Once a complaint has been formally issued, the consultation stage takes place. During this phase, the countries talk with each other to see if they can settle their differences and resolve the issue on their own. If consultations fail, then the dispute settlement process moves to the second stage. The complaining country can then ask for the establishment of a panel, appointed by the Dispute Settlement Body, to help evaluate the case and recommend rulings or courses of action. Both countries have a chance to present their case in writing to the panel, and the panel may hear rebuttal arguments or even call on experts, should the case warrant it. The panel issues a report that is submitted to the two sides, and later to all WTO members. This report becomes a ruling, and then there is the option for an appeal from either side, if they see fit. Appellate body reports are circulated within 90 days of the appeal filing to ensure cohesiveness of the reports; over 40 % of WTO members have been involved in WTO appeals (Lockhart and Voon 2005). An issue with the appellate system arises because the losing defendant has a strong incentive to delay negative findings (Butler and Hauser 2000). This appellate system was created with the WTO, and did not exist under former GATT rules (Leitner and Lester 2008).

Once the final ruling has been issued, the defendant is required to follow the recommendations of the report and correct the trade issues that were the targets of the complaint. Compliance by the losing defendant is measured by a compliance panel, which observes which segments of the ruling were applied during the allotted measure of time (Kunoy 2007). Only if the defendant refuses or fails to comply with the ruling of the DSB does the WTO grant the complainant the right to issue sanctions. If the panel or appeal ruling favors the side of the defendant, then the case is closed. When a case is closed in this manner, there are very few, if any, concessions made by the defendant in the dispute.

At any stage during the dispute settlement process, the plaintiff may choose to withdraw his claims, or the defendant may choose to make concessions. Bilateral settlements are more likely to occur early on in the process, and be suggestive of the anticipated ruling and outcome of the formal dispute settlement procedure (Butler and Hauser 2000).

3 Leader change, institutions and shifts in trade policy

Scholars increasingly examine the role of leaders in shaping relations between states. McGillivray and Smith (2008) argue leader turnover affects relations between nations, and that the effects of leader change are most substantial when leaders depend upon a relatively small coalition of supporters. They test their arguments in the context of trade flows (2004, 2008 ch 5), sovereign debt bond returns (2008 ch 6), and the duration of economic sanctions (McGillivray and Stam 2004).

A number of studies examine how leader turnover and other political changes affect relations between states using United Nations General Assembly voting as a measure of alignment between nations (Carroll et al. 2012; Dreher and Jensen 2013; Hagan 1989). The Carroll et al. (2012) study is particularly pertinent to the current investigation as it focuses on the underlying coalition of societal support for a leader and whether it changes during a transition. They would argue, for instance, that succession within the Somoza dynasty, which ruled Nicaragua from 1936 until 1979,

did not represent any fundamental change in the underlying societal winners and losers. Yet, the deposition of the Somozas by the Sandinista revolution led to a reorganization of the coalition who supported the ruling elite. In earlier work, Leeds et al. (2009) show turnover in the support coalition is an important determinant of alliance abrogation.

Leader change can affect the economic trajectory of a nation and its international security. Jones and Olken (2005) use the death of leaders by accident or natural causes as a quasi-experiment to investigate whether individual leaders account for differences in economic growth rates. Other scholars examine how leader change affects international credibility (Clare 2007; Guisinger and Smith 2002; McGillivray and Smith 2006; Wolford 2007). Flores (2012) shows how leader change can hasten the cessation of international conflict. In the context of civil wars, Tiernay (2012) similarly investigates the contexts in which the replacement of an insurgency leader ends civil conflict.

Leader change affects relations between states, and this paper falls squarely within this genre by arguing that leader change affects the onset and resolution of WTO disputes. Although the literature has extensively addressed the escalation and resolution of disputes (Busch 2000; Busch and Reinhardt 2001, 2003, 2006; Guzman and Simmons 2002; Reinhardt 2001), which nations become involved in disputes (Davis and Bermeo 2009; Guzman and Simmons 2005; Horn et al. 1999; Reinhardt 1999; Rickard 2010), and the forum in which nations resolve their trade disagreements (Davis 2006; Busch 2007), to our knowledge, no one has addressed how individual leaders and their coalition of supporters affect these decisions.

Political survival is about enriching supporters rather than doing what is best for the nation as a whole. Social welfare optimization might be desirable from a normative perspective, and economic theory tells us that free trade is social welfare improving for a small open economy. Benevolent leaders would make protectionism a moot point. Leaders with survival instincts enact policies that optimize the welfare of their supporters (Grossman and Helpman 2005). Much of the literature focuses on how institutions affect the average level of protection. There is a broad literature on how electoral rule and other institutional features of democracy affect policy formation (for instance, Grossman and Helpman 2005; McGillivray 2004, 1997; Persson et al. 2003; Mansfield and Busch 1995). While these issues are relevant to our arguments, our primary focus is on the dynamics of trade policy (McGillivray 2003). Does leader change cause a different set of interests to be represented through trade policies and do such shifts in priorities lead to the onset and resolution of WTO disputes?

To construct a simple model, suppose a nation's economy is divided into K sectors or industries; the terms sectors and industries are interchangeable. What is important is that individuals have factor-specific endowment such that, at least in the short term, their welfare is tied to the profitability of a certain section of the economy. Trade policy affects this profitability.

Leaders set the level of protection and/or assistance for each industry. Let $t=(t_1, t_2, \dots, t_K)$ represent assistance to each sector. Since political incentives are the focus of the model, we don't differentiate between different forms of protection or worry about whether subsidies or regulation are the more efficient form of assistance. The principal assumption is that protection is beneficial to those associated with a

particular industry, but harmful to everyone else in society and to those associated with that industry overseas.

The net benefits of trade policy for an individual associated with industry i is increasing in the assistance to industry i and decreasing in the level of assistance to other industries. We use a simple formalization to reflect these realities; specifically,

let $u_i(t) = t_i - \delta \sum_{j=1}^K t_j^2$ be the net benefit to those in industry i for the trade policy t . As

assistance to industry i increases, individuals associated with i are better off: that is the t_i term. However, those in industry i are made worse off by assistance to other industries at the rate δ because they must pay higher prices for goods or pay more taxes for subsidies. Protection harms society at an increasing marginal rate, which is reflected by the squared term.² Economic differences between industries could be modeled through a different δ for each industry. However, the introduction of such heterogeneity clouds the underlying political incentives without adding significant intuition, so we work with a fully symmetric model.

Political competition is based on Bueno de Mesquita et al.'s (2003) concept of selectorate politics that assumes the primary objective of leaders is to survive in office; to do so, leaders need to maintain the loyalty of their supporters. The ease with which leaders retain office and how best they do so depends upon the number of supporters a leader needs. Bueno de Mesquita et al. refer to this minimum number of supporters as the winning coalition size, W . Some leaders, such as autocrats, need the support of small numbers of backers. These leaders best reward such a small group by lavishing benefits on them. As a result, policy in small coalition systems has an intense private goods focus with each autocrat using policy to buy support from her or his own particular group of cronies. The policies of the initial leader reward her supporters. When leader change occurs, then so too does policy since the new leader wants to intensely reward his supporters. He has little interest in retaining policies that reward people who supported his predecessor and who are not essential to his political survival. Leader change in a small coalition system can result in a radical shift in policy, and when the policies in question are related to trade, this policy shift can lead to the onset of new trade disputes and affect the resolution of ongoing disputes.

Democratic leaders need a large coalition of supporters in order to retain power. The policies of highly targeted rewards upon which autocrats rely work poorly for democrats because they don't have enough resources to lavish rewards on so many supporters. Instead, their policies have a public goods focus that aims to enrich society in general rather than just one small group. Of course, democrats use trade policy to privilege certain groups at the expense of the rest of society and trading partners, and the nature of political competition shapes the relationship between political change and redistributive policies (McGillivray 2004). However, the public goods focus induced by dependence on a large coalition means that redistribution is less intense in democracies than autocracies. Further, since democrats need larger coalitions, substantial overlap between the interests represented between one leader and the next often occurs. These overlapping interests and less intense redistribution

² Alternatively, we might have modeled this as a diminishing marginal return to protection.

mean that the shifts in trade policy that accompany leader change are less intense in a democracy than an autocracy.

To adapt the ideas of selectorate politics to the underlying protection/assistance framework, let w be the number of industry groups upon whom a leader relies for support. In a democracy, leaders need to satisfy members of many industrial groups, while an autocrat needs to enrich those associated with a smaller number of industries.

If unconstrained by treaties or the threat of retaliation, then a leader picks the trade policy that maximizes the welfare of her supporters. The initial step in the analysis is to derive the politically optimal policies under different institutional settings. Formally, a leader wants to maximize the welfare of her supporters. If ω is the set of industrial groups from which she draws support, then the politically optimal trade policy is $t_i = \frac{1}{2w\delta}$ if industry i is a member of ω and $t_i=0$ for industries outside of the leader’s support base.

Increasing the assistance to industry i helps supporters in industry i but it also harms supporters associated with other industries. If the leader needed only narrow support, say from a single industry, then she would increase t_i until the marginal value of more protection (that is 1) equals the marginal cost of increased protection (which from the derivative of the $-\delta \sum t_i^2$ is $-2\delta t_i$). Such an autocrat would set $t_i = \frac{1}{s\delta}$. Democrats require support from a larger number of industrial groups. As the number of supportive industries (w) rises, more industries are assisted but each to a lesser extent than in autocracy. Specifically, $t_i = \frac{1}{2w\delta}$ for industries in a leader’s coalition and $t_i=0$ for non-supportive industries.

To illustrate, suppose there are nine sectors in society, $\delta=1/2$ and contrast the trade policies of democrats who need support from 5 of 9 sectors with those of autocrats who need support from only 1 of 9 sectors. Below we illustrate the preferred policies of representative democrats and autocrats.

	t_1	t_2	t_3	t_4	t_5	t_6	t_7	t_8	t_9
Democrat 1:	1/5	1/5	1/5	1/5	1/5	0	0	0	0
Democrat 2:	0	0	0	1/5	1/5	1/5	1/5	0	1/5
Autocrat 1:	1	0	0	0	0	0	0	0	0
Autocrat 2:	0	0	0	0	0	1	0	0	0
Autocrat 3:	0	0	0	1	0	0	0	0	0

Although only an example, the illustration above reveals how institutions affect the breadth versus the depth of trade policy. As the coalition size increases, political leaders want to assist a great number of industries, but the extent of that assistance diminishes. Of course, leaders don’t set trade policy in a vacuum and they are constrained by treaties and policies of other nations. Further, it is time-consuming and administratively costly to design and implement or to scrap assistance programs. So in reality few leaders immediately implement their ideal politically induced preferences for trade policy. But as a starting point, it is useful to know the types of policies for which leaders aim, even if they don’t always get there.

The trade policies of autocrats and democrats differ. Leaders of large coalition systems have incentives to commit many small violations. In contrast, small coalition leaders have incentives to commit larger violations, but fewer of them. Whether breadth or depth is the dominant factor is an empirical question.

The examples above illustrate how the turnover of leaders changes the objectives of trade policy. As a simplifying assumption, suppose leaders' affinities with different industrial groups are uniformly distributed such that each sector is equally likely to be in a new leader's coalition. Hence, if a leader needs the support of w of the K sectors, then each industry has a w/K chance of being favored following any leader change.

The policy goals of democrat successors are more likely to be similar to those of his predecessors than is the case when coalitions are small. Specifically, if the predecessor wanted to protect industry i , then there is a w/K chance that her successor does too. The overlap between the policy goals of successive democrats is on average larger than the overlap between successive autocrats. The examples above illustrated this point. There is no overlap between the policy goals of the three autocrats. But the two sample democratic leaders shared a desire to assist industries 4 and 5. We turn to an examination of how the consistency of trade policy goals across successive political leaders impacts the onset and resolution of disputes from the perspective of both plaintiffs and defendant.

3.1 WTO disputes

Although the WTO adjudicates trade disputes, it lacks the power and authority to enforce its ruling. Instead WTO rulings clarify the situation, stipulate whether policies violate agreements, assess the size of the damage caused and identify the appropriate remedies including the appropriate size of retaliatory sanctions. Such rulings can be comprehensive and clarify which actions are appropriate and which are not. These rulings serve as the basis for bargaining between nations.

If the defendant is deemed to have broken WTO agreements and fails to comply with panel rulings, then the WTO can authorize retaliatory tariffs. The scale of these authorized retaliations shape the outcomes, but they do so through bargaining rather than by enforcement (Bello 1996; Goldstein and Martin 2000). The plaintiff is responsible for imposing tariffs. For instance, shortly after his election as Brazilian President, Luiz Inácio Lula da Silva requested that the WTO form a panel to investigate US cotton subsidies (DS267). The panel found the US assistance to the cotton industry violated trade agreements and suggested remedial measures. The US failed to comply with these recommendations and it was only after the WTO authorized retaliatory tariffs and Brazil intended to implement them in 2010 that the US re-entered negotiations. Defendant leaders with a strong desire to support a particular sector may well continue to bargain and delay the removal of the violation even in the face of retaliatory sanctions. Rosendorff (2005) argues the ability of leaders to delay provides flexibility that is important in sustaining long-term compliance with WTO agreements. The WTO's influence lies in shaping the bargaining, but it is still inherently a bargaining process without enforcement. If leader change causes a shift in preferences over trade policy, then bargaining incentives change and this alteration affects the resolution and onset of disputes, as we now explore.

3.2 Resolution of ongoing WTO disputes

Suppose there is an ongoing dispute between plaintiff A and defendant B. To avoid cumbersome language we label the initial leaders in the dispute as A1 and B1 and

consider what happens if leader change occurs, with the successors being labeled A2 and B2. If the defendant leader changes from B1 to B2, then nation B becomes more likely to make concessions. Suppose the dispute relates to industry i , which defendant leader B1 wanted to help. The time and effort leader B2 puts into bargaining depends upon his desire to assist industry i . If B2 also wants to privilege i , then he will bargain hard. If not, then he is likely to concede.

Institutions affect the likelihood that following leader turnover B2 continues to bargain hard rather than acquiesce. As derived above, the chance that successor B2 shares the same desire to privilege industry i as his predecessor, B1, increases with winning coalition size (specifically, w/K). Leader change in a defendant nation increases the likelihood of concessions by the defendant. But such leader change induced concessions become less likely as coalition size increases. Hence, we predict that leader change in the defendant state during an ongoing dispute increases concessions by the defendant, and the impact of defendant leader change is greater in small coalition systems than in large coalition systems.

With respect to the plaintiff, leader change has a similar effect on bargaining incentives. Leaders choose to bear the administrative costs of taking a case to the WTO only if their supporters would benefit from a change in the defendant's policy. The extent to which successor leader A2 continues to bargain hard depends upon whether his interests match those of A1. If his supporters no longer include the industry in question, then he reduces bargaining efforts and so, on average, extracts fewer concessions. Again, large coalition systems moderate the effect of leader change.

3.3 Onset of WTO disputes

Leader turnover shifts the interests that leaders represent and creates the possibility of conflictual trade relations. The relationship between leader change and the onset of disputes is present in both plaintiffs and defendants. Suppose leader A1 is replaced by leader A2. The new leader cares about a potentially different set of industries to his predecessor. Consider a specific industry i and suppose that nation B has discriminatory policies that harmed those associated with industry i in other nations. If leader A1 cared about assisting industry i , then she would want B's discriminatory measures changed. That she did not launch a complaint indicated that either B's policies were not sufficiently discriminatory to make initiation of a WTO dispute worthwhile, or that her politically induced preferences over trade did not include wanting to favor industry i .

Leader change in a potential plaintiff increases the chance of dispute escalation. A similar logic pertains to the case of defendants. If leader B2 takes over from B1, then he has incentives to shift trade policy to reflect the interests of his coalition. If industry i is part of his coalition, but was not part of B1's coalition, then moves to increase assistance to industry i might precipitate another nation to launch a WTO complaint.

Institutions moderate the induced trade preferences of leaders. Democrats want modest assistance for a wide range of industries. Further, successors are likely to favor supporting many of the same industries that their predecessors did. Majoritarian democratic institutions extenuate this overlap of interests yet further as both parties

appeal to marginal or swing districts (Conybeare 1984, 1991; McGillivray and Smith 1997; Rickard 2010). Democratic leader change induces a modest change with respect to the industries a leader seeks to protect and the extent to which the leader wants to protect them is modest. Autocrats, in contrast, want to assist a small set of industries, but to a greater degree. When leader change occurs, there is often a complete switch in the set of favored industries and the new leader wants to assist his favored industrial sectors extensively. The more extreme shift in industrial preferences for autocratic leaders compared to democratic leaders implies that leader change is more likely to trigger WTO disputes in small rather than large winning coalition systems.

We predict leader change increases the likelihood of defendant concessions in ongoing disputes and increases the likelihood of WTO dispute onset. Institutions moderate these effects, with the impact of leader turnover being greater in small coalition systems than in democracies. Next we describe our data and methods.

4 Data and methods

The empirical tests require data on WTO disputes, leadership data and political and economic data. Building on Busch and Reinhardt (2003), we code 325 WTO disputes initiated between 1995 and 2009. Reinhardt and Busch examine GATT and WTO disputes between 1980 and 2000. We extend their data to look at WTO disputes initiated through the end of 2009. Following Hudec (1993), Busch and Reinhardt recorded complaints in which formal WTO proceedings were explicitly invoked, typically through a formal request for consultations. In addition, they eliminated redundancy in the list of cases to avoid double counting, as did Horn et al. (1999). This elimination of certain cases means that if the first and second complaint of the same outstanding issue were filed as separate disputes, such as DS 16 and DS 27 as noted by Busch and Reinhardt, they are counted as a singular dispute in the data. In addition, if there are separate formal dispute numbers for provisional and final antidumping determinations, the complaints are merged into a single dispute and recorded as such. Following these extant practices produces 325 dyadic events, although recently some scholars (for instance, Poast 2010) suggest the data can be handled more efficiently at the multilateral level.

In their data set, Busch and Reinhardt capture a variety of information, including the WTO Dispute number, the names of each the plaintiff, defendant, and respective country codes, and the official title of the dispute. In addition, they code the level of concessions made by the defendant (no concessions, partial concessions or substantial concessions), the ruling issuance and direction by the panel, and a multitude of dummy variables related to the case. These dummy variables include whether or not a ruling body was established, if the case was agriculturally based, if the dispute was multilateral, if discriminatory measures were the target of the complaint, whether a ruling was issued and whether the case was deemed politically “sensitive” by definition of “biosafety, environmental protection, cultural preservation, or national security.”

Following their guidelines with respect to duplicate cases and the recording of cases that were formally brought to the DSB through the rules of the WTO, we

updated Busch and Reinhardt's data to include an additional 172 disputes through 2009. These extended data provide the primary data in our study. We report summary statistics for the disputes in Table 5 in the Appendix.

Our analyses examine both the onset and resolution of WTO disputes. To examine the onset of disputes we compile a dataset of directed dyads of WTO member states for each year using Bennett and Stam's (2000) EUGENE software program. In particular, for each year that nation A was a member of the WTO, we matched it against every other member of the WTO (coded nation B). The dependent variable, Dispute Onset, is a dummy variable coded 1 if nation A initiates a WTO dispute against nation B in the particular calendar year.

Our basic data contain 222,462 directed-dyad-year observations. This is less than all the possible dyadic matching of the 157 WTO members for each year between 1995 and 2009, for a number of reasons. Beyond the standard data availability limits, not all WTO members entered at the same time. For instance, China joined the WTO in 2001. Therefore, we exclude all dyads involving China prior to 2001.³

The European Union (EU) has become an important participant in WTO disputes (Rogoveanu 2010). Although individual EU member states join the WTO, the EU acts on behalf of all its members. In our dispute data, the EU is coded as the plaintiff in 55 WTO disputes and as the defendant in 55 WTO disputes. There are no instances of an individual EU member state acting as the plaintiff in a dispute. However, cases occur when an individual EU member state is the defendant. For instance in Dispute 173, the US accused France of 140 million French Francs of assistance to a French firm to develop a new flight management system. In the dispute onset data, we treat the EU as a WTO member state. The EU is treated as a potential plaintiff with every other (non-EU) WTO member and the individual EU states are removed for the data as potential plaintiffs. However, since individual EU states are sometimes defendants, we include both the EU and its constituent members as potential defendants in dyads with every other WTO member. When the EU is included in analyses, it is treated as if it were a single nation with its GDP, population and trade taken as the sum of its constituent members. Politically we assume it is a large coalition democracy, as defined below. Further, we assume there is no leader change within the EU. Fortunately, the analyses are not sensitive to the inclusion/exclusion of the EU. To demonstrate this robustness some analyses exclude all cases involving the EU (and individual EU member states) as either plaintiff or defendant.

WTO disputes are rare within the set of all possible directed dyads and occur in only about 0.1 % of observations. Therefore, we use Tomz et al.'s (2003) rare event logit.⁴ Our second set of analyses examines the resolution of WTO disputes with individual disputes being the unit of analysis. The dependent variable is the size of concessions granted (none, partial or substantial) and the method is ordered probit. The theory highlights the importance of leader change, political institutions and economic conditions, and it is to these variables that we now turn.

³ We coded WTO membership by year of entry independent of when during the year a nation joined. China joined the WTO in 11th December 2001.

⁴ Rare event logit corrects for biases introduced by the small samples of ones compared to the large number of zeros. We used Stata's implementation of rare event logit, which is available at (<http://www.stanford.edu/~tomz/software/software.shtml> accessed 2/20/2012).

Leader change is taken from the Archigos data (Goemans et al. 2009). We updated these data through 2011. These data record the date of entry and exit of individual national leaders. To assess the impact of leader change on WTO dispute onset we create a leader change variable for both the potential plaintiff (A) and the potential defendant (B). This variable is coded as one if any leader change occurs in either the year of the observation or in the previous year. We hypothesize leader change affects the resolution of a dispute. To test this prediction, we code whether leader change occurs during the course of a dispute. Unfortunately, the duration of disputes differs and lengthy disputes offer greater opportunity for leader change. If the outcome of a dispute is related to its duration, then our design risks erroneously attributing the outcome consequences of a long dispute to leader change. To rule this out, in an [online appendix](#) at the journal's website, we present a parallel set of analyses looking at whether leader change occurred within two years of dispute onset. Both approaches yield similar results.

Our principle measure of political institutions is winning coalition sizes, WA and WB. This measure by Bueno de Mesquita et al. (2003) is a five-point scale using data from Polity IV (Marshall et al. 2002) and Arthur Banks' (2001) data. The index of coalition size contains four components that reflect the inclusiveness or non-inclusiveness of the system: *REGTYPE*, *XRCOMP*, *XROPEN*, and *PARCOMP*. The variable *REGTYPE* refers to regime type and is coded as 2 for military regimes and coded as 3 for military/civilian regimes. Since coalitions in military regimes are formed around a small group of military elites, a military regime is indicative of a small coalition. W receives one point if *REGTYPE* is not coded as 2 or 3.

The variable *XRCOMP* measures the competitiveness of executive recruitment. This variable is coded as one when the chief executive is selected by heredity or in rigged, unopposed elections. Such rules are indicative of leaders being dependent upon only a small number of supporters. In contrast, higher values (2 or 3) of *XRCOMP* indicate a dependence on a greater number of supporters. When *XRCOMP* equals 2 or 3, W receives an additional point.

The openness of executive recruitment, *XROPEN*, contributes an additional point to W if the executive is recruited in a more open setting than heredity (that is, the variable's value is greater than 2). Executives who are recruited in an open political process are more likely to depend on a larger coalition than are those recruited through heredity or through the military.

Finally, one more point can be contributed to the index of W if *PARCOMP*, competitiveness of participation, is coded as a 5, meaning that "there are relatively stable and enduring political groups which regularly compete for political influence at the national level" (Polity II, p. 18). This variable is used to indicate a larger coalition on the supposition that stable and enduring political groups would not persist unless they believed they had an opportunity to influence incumbent leaders; that is, they have a possibility of being part of a winning coalition. The indicator of W is then divided by 4 to create a five-point scale for W taking the possible values 0, .25, .5, .75, and 1.

As robustness checks, institutions are coded in several other ways. Rather than consider winning coalition size on its five-point scale, we create dummy variables for the largest coalition size (WA=1 for plaintiffs and WB=1 for defendants). Additionally we consider Polity's Democracy—Autocracy scale. This latter measure is normalized to also take values between 0 and 1 by adding 10 points to the difference

between Polity's Democracy-Autocracy score and dividing the resultant 21-point scale total by 20. As a final robustness check we examine a dummy variable coded as 1 if the normalized Democracy-Autocracy scale is greater than 0.8.

Economic data on population size, GDP and trade are obtained from the World Bank's World Development Indicators (World Bank 2012). Additional variables including bilateral import data, distance and colonial connections, and alliance portfolio measures (Tau-B, see Bueno de Mesquita 1981) were obtained from EUGENE. The analyses include the year of dispute initiation to control for temporal trends, and, in the case of dispute resolution analyses, the logarithm of dispute length.

5 Results

The analyses examine the onset and resolution of WTO disputes. Leadership turnover affects both.

5.1 Onset of WTO disputes

WTO trade disputes typically involve nations with large economies. Democracies are disproportionately likely to become involved in disputes, although this effect is slightly offset when both nations are democratic. Leader turnover in both potential plaintiff and potential defendant increases the risk of dispute onset, although this effect is much diminished in democracies.

Table 1 shows four rare event logit models that assess the onset of WTO disputes within directed dyads. The number of directed dyads varies between 218,821 in model 1 to 69,651 in model 4 depending on whether cases involving the EU are included or excluded, and the number of independent variables included. Given the scarcity of disputes within these enormous datasets, we use the rare event correction to the standard logit model recommended by Tomz et al. (2003). We report robust standard errors based on clustering by dyad. To interpret results we utilize Clarify (King et al. 2000), a simulation program.⁵

Model 1 examines directed dyads including the EU. Model 2 excludes dyads involving the EU. Models 3 and 4 add additional control variables for trade as a percentage of GDP, economic growth rates, bilateral import levels, contiguity, colonial relationships, and security alignment based on alliance portfolio allocations (Horn et al. 1999). Since, of these additional controls, only the level of bilateral imports by the plaintiff exhibits any significant relation with the onset of disputes and the inclusion of these additional controls leaves the effect of our core variables unchanged, we do not discuss them in detail.

Trade disputes occur between economically powerful nations. Across all the models in Table 1, a large economy is the most important determinant of dispute involvement. This is true for both the potential plaintiff (A) and the potential defendant (B). Within all models, the coefficient estimates on the log(GDP) variables

⁵ Clarify provides estimates of substantive effects by drawing random samples of parameter values based on the estimated distribution and then simulating the dependent variable at given value for the independent variables.

Table 1 The onset of WTO disputes, 1995–2009

Rare event logit Model	WTO disputes all dyads 1	WTO disputes exclude EU 2	WTO disputes all dyads 3	WTO disputes all dyads 4
Plaintiff winning coalition (WA)	2.828 (0.726)**	3.215 (0.680)**	3.241 (0.759)**	3.225 (0.913)**
Defendant winning coalition (WB)	0.674 (0.621)	0.697 (0.625)	0.767 (0.683)	1.686 (1.400)
Log(GDP)A	0.539 (0.070)**	0.512 (0.067)**	0.493 (0.072)**	-0.122 (0.207)
Log(GDP)B	0.634 (0.084)**	0.616 (0.083)**	0.562 (0.085)**	0.430 (0.218)*
Log(Population)A	0.167 (0.070)*	0.147 (0.076)	0.271 (0.089)**	0.402 (0.124)**
Log(Population)B	0.373 (0.075)**	0.335 (0.090)**	0.282 (0.086)**	0.425 (0.137)**
Year	-0.132 (0.017)**	-0.115 (0.019)**	-0.130 (0.023)**	-0.160 (0.060)**
Leader change A	1.986 (0.667)**	2.146 (0.594)**	2.249 (0.649)**	1.980 (1.154)
WA* leader change A	-2.625 (0.782)**	-2.823 (0.709)**	-3.076 (0.765)**	-2.955 (1.372)*
Leader change B	1.209 (0.517)*	1.251 (0.517)*	1.515 (0.546)**	2.424 (0.959)*
WB* leader change B	-1.336 (0.571)*	-1.379 (0.581)*	-1.628 (0.612)**	-2.938 (1.094)**
Mutual democracy (WA=1 and WB=1)	-0.248 (0.258)	-0.246 (0.258)	-0.079 (0.279)	0.218 (0.329)
Trade/GDP A		-0.003 (0.003)	0.001 (0.002)	-0.007 (0.004)
Trade/GDP B		-0.004 (0.003)	-0.006 (0.005)	-0.006 (0.006)
Economic growth A		0.014 (0.025)	-0.001 (0.029)	0.055 (0.055)
Economic growth B		-0.011 (0.027)	-0.011 (0.033)	0.043 (0.050)
Log(imports into A from B)				0.661 (0.204)**
Log(imports into B from A)				0.028 (0.220)
Contiguity				-0.034 (0.105)
Colonial connection				0.101 (0.134)
Security alignment (Tau-B)				0.403 (0.329)
Constant	215.509 (34.140)**	183.235 (37.593)**	213.732 (46.124)**	279.878 (118.531)*
N	218,821	199,687	196,279	69,651

* $p < 0.05$; ** $p < 0.01$ robust standard errors in parentheses

are highly significant. The models also include population measures. The positive coefficient estimates indicate that large nations are more likely to become embroiled in WTO disputes. The significant negative coefficient estimate on the year variable indicates that disputes become less likely in later years. This is perhaps unsurprising. As seen in the case of India in Dispute 90, nations can have policies that violate WTO

rules that were conceived prior to agreeing to WTO rules. Over time other nations find political incentives to protest these violations. As they do so, the initial stock of violations diminishes.

Trade disputes, at least those under the auspices of the WTO, involve economic heavy weights (Guzman and Simmons 2005; Davis and Bermeo 2009). However, WTO disputes remain relatively rare. For instance, even evaluated at the 95th percentile for all economic variables, model 1 predicts a baseline probability of dispute onset of only 0.0017.

Democracy increases the likelihood of WTO dispute involvement. The positive coefficient estimates on the winning coalition size for both nations A and B mean democracies are more likely to be both plaintiffs and defendants in WTO disputes. In model 1, in moving from least democratic ($WA=0$) to most democratic ($WA=1$) plaintiff, the probability of dispute onset increases from .0017 to .030. In absolute terms, dispute onset is unlikely under all configurations. As is common practice when, for example, describing risk factors for a rare disease, it is more useful to discuss the impact of political variables in terms of their relative impact rather than in terms of absolute probabilities. In model 1, moving from an autocratic to a fully democratic plaintiff makes dispute onset nearly 16 times more likely. Increasing the democratic nature of the defendant approximately doubles the likelihood of dispute onset. Rickard (2010) suggests that within democratic nations, majoritarian institutions further increase the risk of dispute onset.

The democratic peace literature suggests democracies don't fight each other, although they do fight other states (Russett 1993). A parallel result does not hold for WTO disputes. The negative coefficient on the mutual democracy variable ($WA=1$ and $WB=1$) suggests that two democracies reduce the onset of WTO disputes. However, this effect is smaller than the monadic effects of democracy in A (16 fold increase) and B (2 fold increase). Overall a pair of democracies is about 25 times more likely to become involved in a trade dispute than would a pair of economically comparable autocracies.

Economic size and democratic political institutions increase the likelihood of dispute onset. Against this background, we now turn to our central question of how leader change affects dispute onset. Leader change in non-democracies increases the chance of WTO dispute onset. The leader change variables are coded 1 if any leader change occurs in the observation year or the year prior to the observation. For both the plaintiff (A) and the defendant (B), the coefficient estimates on the leader change variables are positive and significant. The estimates in model 1 indicate that leader change in a non-democratic plaintiff state generates an approximately 7-fold increase in the risk of dispute onset. The 95 % confidence interval for the impact of autocratic leader change is between 1.9 and 26.4 fold increases in relative risk of dispute initiation. Leader change in a non-democratic defendant state (B) increases the risk of dispute onset about 3-fold, with a 95 % confidence interval between 1.2 and 8.7 fold increase.⁶

While leader change affects dispute initiation in non-democracies, the effect is attenuated in democracies. Given that the models contain interaction terms within a non-linear model, a direct interpretation of the substantive effects of democratic leader change from the parameter estimates is difficult (Ai and Norton 2003). However, simulation of the impact of leader change within democracies suggests

⁶ These comparisons are again made assuming the economic variables are evaluated at the 95th percentile and year at 2000.

that when a potential plaintiff experiences leader change the net effect is a slight lowering of the risk of dispute onset by about 47 %. The 95 % confidence interval for the relative impact of democratic plaintiff change is .36 to .78. In large winning coalition systems, leader turnover for the defendant states does not increase the risk of dispute onset.

These patterns persist across all the models in Table 1. The results are robust to the inclusion or exclusion of the EU and to the inclusion of additional control variables. Within non-democratic states, leader change in the plaintiff or the defendant increases the risk of WTO dispute onset. Yet within democratic states, leader change has either no effect or a weak negative impact. As anticipated by the theory, leader change increases the risk of WTO dispute onset. Further, the impact of leader change is ameliorated in large coalition systems.

The robustness of the results is illustrated in the [online appendix](#) by examining alternative institutional coding rules. Leader change increases the likelihood of WTO dispute onset and the effect is largest in non-democratic nations. Leader turnover not only affects dispute onset, it also affects the resolution of ongoing disputes and it is to this question that we now turn.

5.2 Resolution of WTO disputes

Leader change, especially in non-democratic defendant states, affects the resolution of WTO disputes. We start by showing the effect of leader change on dispute resolution with simple contingency tables. Following this we present ordered probit analyses. Although our initial focus is on the role of leader change, we subsequently examine the influence of a number of other variables since their impact differs from those reported in Busch and Reinhardt's (2003) earlier study.

Table 2 shows that on average defendants make larger concessions if they are democratic or if they experience leader change. The effect of leader change is particularly strong in non-democratic systems. Table 2 divides WTO disputes according to whether the defendant has the largest coalition size ($WB=1$) or not, and by whether or not the defendant nation experienced leader change between the initiation and resolution of the dispute. On average, democratic defendant states are more likely to make greater concessions than non-democratic ones. For instance, 40 % of non-democracies make no concessions. In contrast, only 28 % of democracies make no concessions. Democracies are more likely to make substantial concessions than non-democracies (55 % vs. 45 %).

Table 2 Concessions, institutions and leader change in the defendant nation (Leader change at any time during the crisis)

Concession size and leader change in defendant	Non-democratic defendant ($WB < 1$)		Democratic defendant ($WB = 1$)	
	No leader change	Leader change	No leader change	Leader change
No concessions	40 (53 %)	9 (20 %)	53 (33 %)	5 (10 %)
Partial concessions	13 (17 %)	4 (9 %)	25 (16 %)	9 (19 %)
Substantial concessions	23 (30 %)	32 (71 %)	80 (51 %)	34 (71 %)
	76	45	158	48

Table 3 Concessions, institutions and leader change in the plaintiff nation (Leader change at any time during the dispute)

Concession size and leader change in plaintiff	Non-democratic plaintiff WA<1		Democratic plaintiff (WA=1)	
	No leader change	Leader change	No leader change	Leader change
No concessions	50 (58 %)	5 (9 %)	45 (31 %)	7 (17 %)
Partial concessions	13 (15 %)	16 (30 %)	16 (11 %)	6 (15 %)
Substantial concessions	23 (27 %)	33 (61 %)	86 (58 %)	27 (68 %)
	86	55	147	40

If leaders change, then so too do the interests represented at trade disputes. A new leader is less likely to be concerned with maintaining the policies that privileged the previous leader's supporters. As such, the new leader is more likely to make significant concessions. The data provide support for this argument. If leader change occurs in the defendant state, then substantial concessions become more likely. The effect of leader change is present in both democratic and non-democratic defendants, but the effect is stronger in the non-democracies. In non-democratic defendants, the absence of leader change results in only 30 % of disputes ending in substantial concessions. Yet should the defendant leader change during an ongoing dispute, then this figure jumps to 71 %.

Within large coalition systems (WB=1), defendant leader change also increases the likelihood of concessions, although to a smaller extent than in non-democracies. Democratic leader change results in substantial concessions in 71 % of cases. In the absence of leader change, democratic defendants make substantial concessions in 51 % of cases. Institutions and leader change in the defendant state affect WTO dispute outcomes.

Institutions and leader change in plaintiff states also affect dispute outcomes; however, the impact of leader change is weaker than that seen in defendant states. Table 3 focuses on characteristics of the plaintiff state, but is otherwise parallel in structure to Table 2. Democratic plaintiffs tend to extract more concessions than non-democracies. They achieve substantial concessions in 60 % of cases, while non-democratic plaintiffs achieve this goal in only 40 % of cases.

When the plaintiff nation is democratic, leader change in the plaintiff nation has little impact on concessions. Substantial concessions are obtained by 58 % of democratic plaintiffs in the absence of leader change and by 68 % of democratic plaintiffs following leader change. These differences are not statistically significant. In contrast, leader change in non-democratic plaintiff states significantly increases the likelihood of substantial concessions from 27 % to 61 %. This latter result is contrary to theoretical expectations. The theory predicts that leader change in non-democratic plaintiffs should reduce the leader's desire to push for concessions. Yet these simple contingency tables suggest, that to the contrary, successor leaders are on average more successful at obtaining concessions.⁷

⁷ One partial explanation for this finding lies in the distribution of defendant regime types. As we have already seen, democratic defendants are more likely to make substantial concessions than autocratic ones, and democratic defendants are not evenly distributed across the cases. Of the 86 cases of non-democratic plaintiffs where leader change does not occur, the defendant is democratic in 55 % of the cases. In contrast, in the 55 cases where leader change occurs in a non-democratic plaintiff, the defendant is democratic in 76 % of the cases.

However, once other factors are controlled for, the systematic analyses of dispute outcomes that follow show that changes in plaintiff leaders have little impact.

Table 4 shows a series of ordered probit models. The dependent variable in each model is the level of concessions by the defendant. Our primary focus is how leader change and political institutions affect dispute outcomes. The leader change variable is a dummy variable that is coded as one if leader change occurs between the initiation and termination of a WTO dispute. We report the impact of institutions and leader change estimated from model 5 using Clarify with the other variables set to their mean level. The effects are similar in other models.

Each of the analyses in Table 4 suggests that democratic defendants are significantly more likely to make substantial concessions than non-democratic defendants, about 21 % more likely. There is less evidence that the plaintiff’s regime type matters. Although the coefficient estimates on the Democracy A variable are positive in each model, the impact of large coalition size is much smaller than in defendant (about 10 %) and the 95 % confidence interval encompasses 0. Democratic defendants are

Table 4 The impact of institutions and leader change on WTO outcomes (Leader change at any time during the dispute)

Ordered probit. Model	Defendant concessions			
	5	6	7	8
Democracy A (WA=1)	0.344 (0.256)	0.340 (0.265)	0.310 (0.268)	0.412 (0.322)
Leader change A	0.722 (0.241)**	0.457 (0.252)	0.409 (0.255)	0.705 (0.295)*
Leader change A* (WA=1)	-0.726 (0.320)*	-0.494 (0.331)	-0.490 (0.338)	-0.639 (0.418)
Democracy B (WB=1)	0.653 (0.275)*	0.546 (0.285)	0.566 (0.293)	0.910 (0.352)**
Leader change B	0.934 (0.261)**	0.920 (0.264)**	0.859 (0.269)**	0.775 (0.313)*
Leader change B*(WB=1)	-0.420 (0.329)	-0.366 (0.335)	-0.296 (0.341)	-0.152 (0.420)
Log(GDP per capita)A	0.209 (0.102)*	0.157 (0.105)	0.185 (0.109)	0.255 (0.127)*
Log(GDP per capita)B	-0.151 (0.111)	-0.185 (0.114)	-0.154 (0.117)	-0.337 (0.154)*
Log(GDP)A	-0.048 (0.047)	-0.050 (0.048)	-0.058 (0.050)	-0.075 (0.062)
Log(GDP)B	0.011 (0.049)	0.030 (0.051)	-0.000 (0.053)	0.056 (0.065)
Log(Dispute length)	0.158 (0.072)*	0.090 (0.088)	0.089 (0.090)	0.064 (0.113)
Panel established		0.531 (0.202)**	0.206 (0.247)	0.119 (0.308)
Ruling for plaintiff		-0.695 (0.165)**	-0.573 (0.177)**	-0.318 (0.223)
Mixed ruling		-0.789 (0.339)*	-0.626 (0.344)	-0.772 (0.426)
Ruling for defendant		0.005 (0.287)	0.062 (0.291)	0.126 (0.390)
Agricultural case			0.206 (0.247)	-0.356 (0.215)
Multilateral case			-0.166 (0.165)	0.567 (0.283)*
Discriminatory measure			0.498 (0.231)*	0.279 (0.195)
“Sensitive case”			0.146 (0.151)	-0.044 (0.348)
Threshold 1			-0.401 (0.269)	0.119 (0.308)
Threshold 2	0.890 (1.582)	-0.059 (1.662)	-0.398 (1.713)	-0.144 (1.965)
Observations	325	325	325	215

* $p < 0.05$; ** $p < 0.01$

more likely to make substantial concessions than autocrats, but the regime type of plaintiffs has relatively little impact.

Leader change affects the resolution of WTO disputes. However, context matters. The effect of leader change is largest in non-democratic defendant states. Should leader change occur in a non-democratic defendant, the probability of significant concessions increases by an average of 31 %, with a 95 % confidence interval between .13 and .49. Leader change matters in democratic defendants too, but to a lesser extent. The 95 % confidence interval for the increased likelihood of substantial concessions is .02 to .36.

Leader change also matters in the plaintiff state. For instance, simulations using model 5 suggest leader change in a non-democratic plaintiff increases the likelihood of substantial concessions by 24 %. However, the impact of plaintiff leader change is not substantially different from zero in the other models reported in Table 4. As seen in the simple contingency tables, basic specifications suggest leader changes in autocratic plaintiffs increase the likelihood of concessions, but these effects are not robust. Leader change in large coalition plaintiffs has no significant impact on the likelihood of concession.

Leader turnover in plaintiffs increases the likelihood of significant concessions, and, as predicted, the effect is larger in small coalition systems than large coalition systems. Although some model specifications suggest autocratic plaintiff leader change affects outcomes, this result is not robust. We now turn to the impact of other factors.

Models 5 and 8 offer some evidence that wealthy plaintiffs (measured in terms of per capita GDP) tend to obtain greater concessions. Model 8 also suggests that wealthy defendants make greater concessions. However, these effects are relatively small. For instance, a one standard deviation increase in plaintiff wealth increases the likelihood of a substantial concession by about 7 %, an effect about one third of the impact of institutional change.

Models 6, 7 and 8 include variables corresponding to whether a panel was established and how it ruled. We find substantial differences compared to prior estimates by Busch and Reinhardt (2003). In their analysis of WTO cases between 1995 and 2000, they found a stronger positive relationship between panel formation and concessions than we estimated. They also found a stronger negative relationship between a ruling for the defendant and the size of concessions. Yet, models 6, 7 and 8 find no statistical support for this finding. The differences between their findings and ours lie in the changed sample. If we restrict our sample to pre-2001 (the sample examined by Busch and Reinhardt), then we obtain very similar results to their study.

We conjecture that the evolution of the WTO dispute mechanism explains the differences in how rulings affect outcomes. Table 5 in the [Appendix](#) provides summary statistics of the crises divided into pre- and post-2000. Rulings differ substantially before and after 2000. For instance, in Busch and Reinhardt's sample only about 27 % of cases resulted in a ruling for the plaintiff. Yet, in subsequent disputes, this figure has jumped to 69 %. In contrast, mixed rulings now occur much less frequently. Since its origins, the WTO appears to have become more decisive in its ruling and more likely to rule for the plaintiff. At the same time, its rulings appear to have less effect on the outcome of disputes, as demonstrated by a comparison of our results with those of Busch and Reinhardt.

As the WTO has become more decisive in its rulings, it is also reasonable to presume that its decisions have become more predictable. If disputants can reliably predict panel

rulings, then it is likely that they considered such factors before initiating the dispute process (Butler and Hauser 2000). As such, the actual rulings are likely to have relatively little impact because states endogenized the likely ruling in the first place.

Leader change affects WTO dispute resolutions. Leader changes in defendant states increase concessions by the defendant. This observation is particularly true when the defendant is non-democratic. Leader change in the plaintiff state also affects concessions, although to a lesser extent than leader change in the defendant. The analyses in Tables 2, 3 and 4 examine leader change during the course of a WTO dispute. Yet WTO disputes last different amounts of time. The median duration of WTO disputes is 566 days, with a mean of 829 days. Ideally we would like to study the impact of leader turnover at different stages of the dispute and so be able to contrast the impact of political change during consultation periods with that after rulings, and after the appeals process. Unfortunately, the sample it is too small to support such analyses.

Driven by concerns about the differing lengths of dispute, we present additional analyses in the [online appendix](#). Obviously leader change is far more likely to occur in a dispute that lasts five years compared to a dispute that lasts only one year. If outcomes are related to the length of a dispute, then leader change might be erroneously correlated with outcomes. As a robustness check against this possibility, in the [online Appendix](#) we reexamine the analyses in Tables 2, 3 and 4, but focusing only on leader change within two years of the initiation of the dispute. These results, reported in tables A2, A3 and A4, yield similar substantive results. Leader change, particularly in defendant states, is an important determinant of WTO dispute outcomes.

6 Conclusions

Disputes in the WTO typically occur between two nations with large economies. Such nations conduct substantial trade, have more vested in the international system and have the resources, influence and clout to make using the WTO dispute mechanism worthwhile. Democratic states are also more likely than autocrats to turn to the WTO's rule based system. Against this backdrop, we examine the importance of individual leaders and domestic political institutions in shaping the occurrence and resolution of trade disputes.

International relations scholars are increasingly sensitive to the importance of individual leaders and the context in which they hold office (for a recent review see Bueno de Mesquita and Smith 2012). This paper falls squarely within this genre by showing that domestic political institutions and leader change influence the likelihood of trade dispute onset and the outcome of ongoing disputes.

We argue that when leader change occurs, there is a shift in the set of interests represented in trade policy. Such a shift in priorities leads to new rows and differences between states and reduced salience for ongoing disputes. Redistribution is more intense in autocracies than in democracies. An autocrat rules by targeting intense rewards to a small coalition of supporters. Hence when a new autocrat takes office, a small, but often different, group finds itself privileged. Autocratic trade policy is narrow and intense and, most important for this project, volatile when leader change occurs. Democrats want to reward their supporters too. However, their supporters are

so much more numerous that redistribution tends to be mild and directed towards large, often centralist, groups. Leader change in democracies results in coalitional changes, but there is typically substantial overlap between the supporters of one leader and the next. Furthermore redistributive policies tend to be moderate. The shifts in trade policy associated with democratic leader change tend to be mild and moderate and so less likely to trigger new disputes or affect ongoing disputes.

Our analyses of dispute onset and resolution support these predictions. Leader change is an important aspect in identifying both when and between whom the onset of trade disputes is likely to occur. Within non-democratic states, leader change in either the plaintiff or the defendant increases the risk of WTO disputes occurring. Yet, leader change has a smaller effect in democracies.

The resolution of disputes is observed through the level of concessions made by the defendant. Absent leader change, democracies tend to make concessions more often than non-democracies. However, the effect of leader change is particularly strong in non-democracies. Conditional on a dispute already occurring, a leader change in the defendant has a substantial effect on the outcome of the dispute.

Appendix

Table 5 Summary statistics of WTO disputes

Variable	All WTO dispute			Pre-2001 WTO disputes			Post-2000 WTO disputes		
	Obs.	Mean	S.D.	Obs.	Mean	S.D.	Obs.	Mean	S.D.
Democracy A (WA=1)	327	0.57	0.50	154	0.71	0.46	173	0.45	0.50
Leader change A	327	0.29	0.46	154	0.26	0.44	173	0.32	0.47
Democracy B (WB=1)	327	0.63	0.48	154	0.65	0.48	173	0.61	0.49
Leader change B	327	0.29	0.45	154	0.35	0.48	173	0.24	0.43
Log(GDP per capita)A	326	9.13	1.28	153	9.38	1.24	173	8.92	1.28
Log(GDP per capita)B	326	9.26	1.28	154	9.21	1.32	172	9.31	1.23
Log(GDP)A	326	27.64	2.14	153	28.04	2.11	173	27.27	2.10
Log(GDP)B	326	28.01	2.04	154	27.67	2.07	172	28.31	1.96
Panel established	327	0.58	0.49	154	0.55	0.50	173	0.61	0.49
Ruling for plaintiff	327	0.49	0.50	154	0.27	0.44	173	0.69	0.46
Mixed ruling	327	0.06	0.23	154	0.09	0.29	173	0.03	0.17
Ruling for defendant	327	0.11	0.31	154	0.06	0.24	173	0.16	0.36
Agricultural case	327	0.34	0.47	154	0.38	0.49	173	0.29	0.46
Multilateral case	327	0.69	0.46	154	0.77	0.42	173	0.62	0.49
Discriminatory measure	327	0.50	0.50	154	0.59	0.49	173	0.41	0.49
“Sensitive case”	327	0.07	0.26	154	0.16	0.36	173	0.00	0.00
Dispute length (days)	327	829	891	154	917	1101	173	751	642

The observations include 2 cases where Hong Kong is a participant. These are excluded from our analyses

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