In international trade, the World Trade Organization governs agreements and law. When countries enter into a dispute regarding the legality of trade policies, the World Trade Organization serves as a mediator of these disputes. Typically, a change in trade policy is the instigation of a dispute. What effects lead to this change in policy and onset of disputes? What effects influence the level of concessions a defendant country makes at the resolution of a dispute? This study shows that leader turnover in countries, particularly autocracies, affects both the onset and eventual resolution of a World Trade Organization dispute.
Introduction

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 for its 153 member states, the WTO is charged with administering WTO agreements, monitoring national trade policies, and handling trade disputes between member nations.

This thesis examines what leads to the onset of trade disputes within the WTO and what factors influence the resolutions of disputes that occur. I show that leader change turnover is an important determinant of both the onset and resolution of disputes. Leaders represent the interests of their supporters, and trade policy is one tool with which leaders can privilege their supporters. When a leader changes in a country, he brings with him different supporters than those of the previous leader, and therefore different interests become represented. This change of interests can lead to the initiation of trade policies that infringe upon international trade law, as governed by the WTO.

Leader turnover leads to a substantial increase in the likelihood of a dispute occurring. In addition, a change in leadership affects the resolution of disputes already in occurrence. Defendants, and specifically autocratic defendants, are more likely to make significant concessions if leader change occurs after the initiation of a dispute.
Question Proposed

Within the greater question of how political change affects the onset of a dispute and level of concessions made in the dispute settlement process, there are also key variables that I show to be interesting to observe. In the subsequent analyses, I look at whether political change in a democracy or autocracy will make a difference as to whether or not a dispute occurs, and to the level of concessions made in any dispute that does arise. In addition, I observe the several factors symbolic of levels of trade between the two countries, and whether these factors of dyadic trade, including the GDP of each country and general level of imports and exports, influence the onset of a dispute or the level of concessions made by a defendant.

I hypothesize that:

H1: the probability of a case being filed increases with a political leadership change;
H2: autocratic leadership change will be more influential than democratic leadership change in both the onset and result of disputes;
H3: the greater the level of trade between a dyad of countries, the greater the probability of a dispute between them;
H4: a change of political leadership in a defendant country, will lead to an increased level of concessions by the defendant in the dispute resolution mechanism.

Dispute Settlement in the World Trade Organization
The way in which the WTO handles trade disputes is through the dispute settlement process of the organization. Since the establishment of the WTO, member countries have brought 427 cases through the dispute settlement process. 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 procedure is the responsibility of the Dispute Settlement Body, 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 set up 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 its 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. 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. Only if the defendant refuses to comply with the ruling of the DSB, then the WTO may 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\(^1\). When a case is closed, there are very few, if any, concessions made by the defendant in the dispute.

**Literature Review**

While there have been several papers that examine the World Trade Organization, foreign trade policy, and the success or failure of the dispute resolution mechanism, there has not been a large amount of research observing the connection between leader change, domestic politics, and the World Trade Organization specifically. Perhaps the most pertinent research on the impact of domestic politics on WTO disputes is being completed by Eric Reinhardt, at Emory University, and Marc Busch, at Georgetown University. The research that they have completed has several implications for my analysis of leader change and WTO Disputes. First, in their paper “Bargaining in the Shadow of the Law: Early Settlement in GATT/WTO Disputes”, they argue that reformations demanding greater transparency in the WTO may actually be doing more harm to the system than good because “privacy is usually more conducive to settlement\(^2\)”. They assert that member countries of a dispute may use the transparency for “political grandstanding” and might become entrenched and invested in their positions instead of becoming more willing to compromise during the negotiations portion of the dispute settlement. I believe that these assertions are critical when looking at the results of domestic leadership change in relation to the path a dispute takes, and the level of ultimate concessions made by the defendant in the WTO.

\(^1\) “Dispute Settlement”
\(^2\) Reinhardt and Busch, 2000.
Secondly, in their paper “Developing Countries and GATT/WTO Dispute Settlement”, Reinhardt and Busch proffer that negotiations are still the driving force behind WTO dispute settlement, and that wealthier countries tend have more favorable outcomes. This observation is as compared to developing countries, which typically need more assistance when pushing their case through the dispute settlement mechanism. Busch and Reinhardt endorse reforms that would limit what they call “post-ruling foot-dragging”. According to the World Trade Organization guidelines, the dispute resolution mechanism is supposed to take no more than two years. However, Dispute 267 took nearly eight years to become resolved, and is symbolic of other cases that have had a similar dispute resolution timeline. Their research proves that the wealth of a country must be taken into account and observed, as well as possibly controlled for, when observing the effects of domestic politics on the case in the WTO.

In addition to March Busch and Eric Reinhardt’s data and theories with implications of the WTO dispute settlement mechanism, there is relevant literature with respect to leader change, political institutions, and dyadic trade. Fiona McGillivray and Alastair Smith wrote the most pertinent research on this topic in their book, *Punishing the Prince*. In their research as a whole, they detail the concept of leader specific punishment. “LSP” theory dictates that a country initiating a dispute does not always aim to punish neither the targeted country as a whole nor the people of the targeted county, but rather the leader of the country. Leader specific punishments provide a targeted end to the negative relationship; if a leader remains in power, the punishment will remain in effect. LSP

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3 Reinhardt and Busch, 2003.
4 McGillivray and Smith, 2008
creates internal political divisions within the targeted state, and “encourages citizens to depose their leader, as it triggers a restoration of cooperative relations”.

McGillivray and Smith base a large part of their predictions on the selectorate theory, as illustrated in “The Logic of Political Survival”. In the selectorate theory, political institutions are classified according to the size of the winning coalition, the number of supporters needed by a leader to retain power, and the selectorate, the size of the group from which the supporters are drawn. The theory further asserts that in a small coalition system, a leader’s policies provide rewards for individuals, primarily through the purchase of private goods. However, as the coalition size grows, leaders tend to retain support through a balance of purchase of private goods, along with the provision of public goods. In large coalition systems, leaders tend to retain members of a coalition through the benefit of public goods.

Finally, as relevant to the analysis being conducted in this research, selectorate theories suggest that leadership change in small coalitions lends itself to greater volatility and variability in policies than leadership change occurring in large coalitions. This prediction of leadership changes is predicated on the fact that leader survival in larger coalitions is based primarily on public goods, so the change of a leader will not drastically shift the policy goals with respect to good provisions. Conversely, leader change in small coalition systems leads to a change in private good interests and purchases. A shift in private good

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5 McGillivray and Smith, pg 3
6 Bueno de Mesquita, Smith, Siverson, and Morrow, 2003
interests can then lead to the disruption of trade relations, and McGillivray and Smith examine.

McGillivray and Smith continue their exploration of leader turnover and leader specific punishments by observing data on political institutions, leadership turnover, and dyadic trade in a chapter of *Punishing the Prince*\(^7\). They use trade as a symbol of bilateral cooperation to observe how leader change effects bilateral cooperation. Because I am observing the onset of disputes in the WTO, which, by definition, is a deterioration of trading and lack of bilateral cooperation, this section of their research is particularly applicable. First, they discuss the coalition sizes with respect to international trade. Through a variety of methods and analyses, they show that the level of trade between two large coalition systems, which typically translates to democratic countries, is higher than trade between other pairings of states. In addition, these pairs of countries are less likely to experience deterioration in trading relations, or a collapse of cooperation. Secondly, they observe change in domestic leadership and its impact on both preexisting good relationships between nations and also on the restoration of relations between two countries. The results that they present clearly illustrate the fact that leader turnover in small coalition systems reduces trade, but a leader change in a large coalition system rarely has an effect. Conversely, if bilateral cooperation, as measured by trading relations, is sour, then leadership change in small coalition systems improves relationship. Consistent with previous results, leader change in large coalition systems has no true effect.

\(^7\) McGillivray and Smith, pg. 109 – 141
Dispute 267 – A Case Study

On September 27, 2002, Brazil requested consultations with the United States. Brazil cited the fact that United States legislation was allowing for subsidies to be provided to United States cotton producers, users, and exporters that should be prohibited under the Uruguay Round Agreement on Agriculture, the Uruguay Round Agreement on Subsidies and Countervailing Measures, and the General Agreement on Tariffs and Trade. Consultations lasted for approximately six months, and in February 2003, Brazil requested that a panel be formed to hear the dispute formally. The DSB formed a panel, and listened to the arguments from Brazil and from the United States. Ultimately, when the panel report was circulated in September 2004, the United States was found to be granting prohibited subsidies to cotton producers. During any point in time, either the United States or Brazil could have chosen to make concessions and the dispute would have ended.

However, shortly after the panel report was circulated, the United States filed an appeal, and an appellate body was formed. The appellate report not only upheld the findings of the initial panel, but the DSB adopted the appellate report, and recommended that the United States take action within six months to remove the subsidies that were the cause of the dispute. The compliance period was set, and the United States then had until September 2005 to comply with the recommended courses of action. A compliance board met in 2006, and in 2007, notified the DSB that the United States had failed to remove the subsidies, and were not in compliance with the recommended actions made to the United States by the DSB. In 2009, Brazil formally requested the ability to retaliate and to change their own
trade policy to punish the United States for failing to comply with international trade agreements. One year later, in 2010, the permission was granted, and Brazil announced its intention to increase import duties on certain products entering Brazil from the United States.

It was only at this point that the United States decided to re-enter into negotiations with Brazil in order to postpone the import duties. Brazil announced that it would delay the beginning of the import duties, and the United States and Brazil entered into a dialogue that resulted in the “Framework for a Mutually Agreed Solution to the Cotton Dispute” which provides for negotiations between the United States and Brazil four times a year to discuss how they will change their trade policies to appease the cotton subsidies that the United States has still not yet fully removed.

Domestic Politics and the World Trade Organization

In the aforementioned Dispute 267, both the United States and Brazil refused to submit themselves to concessions or the losing side of negotiations until Brazil threatened retaliatory trade measures. What specifically drove this case to retaliation? Why do cases go through the dispute settlement mechanism at all, rather than just being sorted out during the consultation period?

In 2002, the year when Dispute 267 was first brought to the WTO, Luiz Inácio Lula da Silva was elected as the President of Brazil. “Lula”, as he is popularly known, was a large

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8 “Dispute Settlement: DS267”
supporter and participant in labor unions and movements. Before rising to political power, Lula became president of the Steel Workers’ Union of Sao Bernado do Campo and Diadema. When elected to President of Brazil in 2002, Lula brought his passion and support of the workers, of farmers, to the office. As president of a largely agricultural state, President da Silva generally opposed and criticized farm subsidies. Not only was it during his tenure that Dispute 267 was filed, but President da Silva’s position on agricultural subsidies is largely regarded as a primary reason for the walk out and subsequent failure of the Cancun World Trade Organization talks in 2003. Was it President da Silva’s reformation of Brazil’s trade policies and economy that led to the filing of Dispute 267? More exactly, if he had failed to become elected, would Dispute 267 have continued all the way to retaliatory measures? Or would the case have perhaps taken a different course through the dispute settlement mechanism?

When a country joins the WTO, they agree to be subjected to the trade agreements negotiated by the organization, and therefore, to the dispute settlement mechanism, should that country violate any terms of a trade agreement made under the auspices of the WTO. The fact that domestic governments subject themselves to the ruling of a supranational body is unique to certain countries, particularly to those who have joined the WTO but refrain from ratifying other international legislative bodies such as the International Criminal Court. It is apparent that domestic politics are one of the primary driving factors of a case through the WTO, and therefore it is interesting to observe whether or not a domestic political change occurring within a set time period after the complaint is filed, the

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9 “President Lula”
panel is formed, or the ruling is given, will change the probability of concessions made by
the defendant.

**Data Description**

The first set of data where I began my data analyses and work came from the paper written
by Marc Busch and Eric Reinhardt, entitled “Developing Countries and General Agreement
on Tariffs and Trade/World Trade Organization Dispute Settlement\(^{10}\)” Their dataset
included GATT and WTO disputes from 1 January 1980 through the end of 2000, WTO
Dispute 210. Because of the differing of rules between the GATT and the WTO, I used the
latter half of their data set, whereby the disputes were settled under WTO rules.

Following Hudec\(^ {11}\), 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, Nordstrom and Mavroidis\(^ {12}\). 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.

\(^{10}\) Reinhardt and Busch, 2003.
\(^{11}\) Hudec, 1993.
\(^{12}\) Horn, Mavroidis, and Nordström, 1999.
In their data set, Busch and Reinhardt capture a variety of information, including the WTO Dispute number, the names of each the complainant, defendant, and respective country codes, and the official title of the dispute. In addition, they code the level of concessions made by the defendant, 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 and if discriminatory measures were the target of the complaint. A final two dummy variables were coded if there was a ruling established at all, and if the case was deemed politically “sensitive” by definition of “biosafety, environmental protection, cultural preservation, or national security.”

In order to be able to run a more substantial analysis with respect to leader change and the current data, I compiled my own data set by building on top of Busch and Reinhardt’s data in two ways. First, I added seven new variables concerning the dates of the dispute. While Busch and Reinhardt had coded the start date and the start year, I added the year and dates of when a panel was established, when the panel issued its final ruling, when the dispute finally concluded. I also added a dummy variable coding whether or not the complainant fully withdrew their complaint prior to the ruling date.

Secondly, since Busch and Reinhardt’s data ended in 2001, I included an additional 172 disputes through 2009 in order to better grasp the trends over time at the WTO. I followed the same guidelines as Busch and Reinhardt did with respect to the lack of duplicate cases.
and the recording of cases that were formally brought to the DSB through the rules of the WTO. The cases are extended through the end of 2009 due to the average length of a WTO dispute lasting between two and three years. As I completed the data collection for this project at the end of 2011, I did not want to include any cases that have not yet had the chance to become completely resolved.

In addition to the WTO dispute data, there were several additional facts and figures that needed to be captured in order to run the appropriate analyses on the data. First, I used the EUGene software to capture dyadic trade data between each set of countries from 1990 through 2009. Second, I used the Archigos leader change data to account for all leader change two years prior to the onset of a dispute, and two years after the dispute had begun. I captured this data for both the complainant and defendant in order to create a robust and complete data set. Third, I used the World Bank Data Bank to compile the individual countries’ data, including GDP in constant 2000 USD. Finally, I used the data compiled by Bruce Bueno de Mesquita and colleagues in “The Logic of Political Survival” concerning selectorate theory and winning coalition systems.

**Empirical Research Design**

In order to look at the research questions as a whole, there are three distinct methods that are used in order to accurately analyze the data and answer the questions asked.
To look at the onset of disputes, I used four distinct rare events logit models. The dependent variable in each case is whether or not a WTO dispute occurs. I chose the rare event logit model to run due to the fact that at any given point, the explicit chance that a WTO dispute will occur between any two given countries is extremely rare.

The first rare events logit model takes into account the most basic aspects: the winning coalition size of each country, the logged GDP of each country, the year, whether or not there was leader change in each country in the two years preceding a dispute, and an interaction term of the winning coalition with whether or not there was leader change. The second model takes into account a variety of individual trade data variables; growth of GDP for each country, and trade as a percentage of the individual countries’ GDP.

In the third model, I include a variety of political and non-economic factors, such as contiguity, colonial contiguity, population, and Tau-b scores. Contiguity and colonial contiguity are calculated using the Correlates of War specifications for types of contiguity: land contiguity, contiguous for up to 12 miles of water, contiguous for 13 – 24 miles of water, contiguous for up 25 – 150 miles of water, contiguous for 151- 400 miles of water, or not contiguous at all. For each of the aforementioned categories, the variable is coded from 1 to 6, respective of the type of contiguity. Colonial contiguity takes into account the relationship between state A, the complainant, and state B, the defendant. In order to effectively use this variable, I have also included colony1 and colony2, which denotes the relationship between the complainant and defendant. The population variables denote the total population of each country. I ran the regression with first total population, then urban
population, and subsequently both variables, and the results were all similar so the regression here includes only total population. Finally, Tau-b scores, as defined by Bueno de Mesquita in 1975 and 1981, is a variable that is calculated to identify the correlation between two states’ alliance portfolios. The variable is ranked between -1 and +1, representing the variation between complete opposite alliances and complete agreement in alliances and the way in which they are formed.

In the fourth model, I take into account trade between the dyad of countries. The variables that include are the nine basic variables of the first regression, along with the additional four variables of the second regression. I add in the logged variable of imports from country A to country B, and from country B to country A. Because of dropped observations due to the lack of European Union import and export data, I ran this fourth model discounting all EU cases.

Once a dispute has occurred, there are two separate analyses that I conducted. Although Marc Busch and Eric Reinhardt were not looking at leader change and the effect of leader change on the level of concessions\textsuperscript{13}, I reran the regressions they used in their paper, adding in the additional 172 cases that I coded. The analysis that was run was an ordered probit model, with the dependant variable signifying the level of concessions made by the defendant. Because Busch and Reinhardt were observing level of developed and developing countries in the WTO dispute settlement mechanism, they also included per capita income as a measure of the level of development. The model includes dummy

\textsuperscript{13} Reinhardt and Busch, 2003.
variables for whether or not a panel was established, if the case was multilateral, denoted by whether or not there were more than two disputants or if there were third parties involved, and cases involving agricultural measures, discriminatory measures, and politically sensitive cases. I reran the regression two times; the first time I ran it with their collected data, but with the World Bank economic indicators I procured to ensure the same results; the second, with all 325 observations including both the original data from Busch and Reinhardt and my added data.

The additional analysis that I ran observing the disputes after they had already begun was an expansion of the ordered probit models run by Busch and Reinhardt. In this second analysis, I add a set of six new variables to the previous ordered probit models. The variables capture if there was a leader change within two years after the initiation of the dispute for either the complainant or defendant, the winning coalition size of each of the states involved, and an interaction term of the winning coalition size interacted with whether or not there has been a leader change. In order to ensure that the trends were observable without so many controls, I also ran the ordered probit model with the same dependent variable, concessions, but only accounting for the economic factors (logged GDP and logged GDP per capita), leader change, and winning coalition size for each the complainant and the defendant.

After running initial regressions using all of the aforementioned models, I noticed a significant drop in the number of observations; the missing the coding of the European Union caused this drop in observations. Due to the way in which the EU functions as a
trading block, the EU can bring a dispute against anyone who has wronged a EU country, and is the target of disputes if any EU country has implemented policies that are in violation of international trade law. Because there are only 325 disputes that meet the coding requirements set forward by both Busch and Reinhardt and myself, losing over 70 cases because of lack of EU coding was not an option. In order to remedy this situation, I added as much data as possible. Because of the democratic nature of the countries that comprise the EU, and the nature of the EU itself, the European Union, prior the European Communities, is coded with a winning coalition of $W=1$. However, leader change would be exceedingly difficult to calculate in every individual country, and pair the leader change with the country in question of the European Union. Therefore, the EU Is coded as a large winning coalition, with no leader change.

**Onset of WTO Dispute**

Overall, my findings suggest that the onset of disputes is likely to occur between large, economically powerful nations. Geographical proximity, trade as a percentage of GDP, economic growth, and security alignments have a relatively small impact on whether or not a dispute will occur between a directed dyad of two countries. Overall, democratic nations are more likely to initiate WTO disputes, but there is no clear indication that either democratic or autocratic nations are likely to be the target in disputes. Leadership change within a country does influence the likelihood of the onset of a dispute.
Table 1.1 The Onset of WTO Disputes: 1995 - 2009

<table>
<thead>
<tr>
<th>WTO Dispute Occurrence</th>
<th>Model 1 Coefficient</th>
<th>Robust SE</th>
<th>Model 2 Coefficient</th>
<th>Robust SE</th>
<th>Model 3 Coefficient</th>
<th>Robust SE</th>
<th>Model 4 Coefficient</th>
<th>Robust SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winning Coalition A</td>
<td>1.292***</td>
<td>0.382</td>
<td>1.864***</td>
<td>0.417</td>
<td>3.633***</td>
<td>0.834</td>
<td>1.196**</td>
<td>0.470</td>
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<tr>
<td>Winning Coalition B</td>
<td>-0.233</td>
<td>0.387</td>
<td>0.114</td>
<td>0.412</td>
<td>1.414*</td>
<td>0.858</td>
<td>0.346</td>
<td>0.516</td>
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<tr>
<td>Log GDP A</td>
<td>0.754***</td>
<td>0.038</td>
<td>0.674***</td>
<td>0.041</td>
<td>0.605***</td>
<td>0.073</td>
<td>0.246***</td>
<td>0.083</td>
</tr>
<tr>
<td>Log GDP B</td>
<td>0.891***</td>
<td>0.043</td>
<td>0.808***</td>
<td>0.049</td>
<td>0.650***</td>
<td>0.083</td>
<td>0.071</td>
<td>0.090</td>
</tr>
<tr>
<td>Year</td>
<td>-0.011</td>
<td>0.008</td>
<td>0.022**</td>
<td>0.011</td>
<td>0.194***</td>
<td>0.025</td>
<td>0.018</td>
<td>0.018</td>
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<tr>
<td>Leader Change A</td>
<td>2.183***</td>
<td>0.401</td>
<td>2.339***</td>
<td>0.427</td>
<td>2.635***</td>
<td>0.783</td>
<td>1.906***</td>
<td>0.476</td>
</tr>
<tr>
<td>Winning Coalition * Leader Change A</td>
<td>-2.631***</td>
<td>0.434</td>
<td>-2.831***</td>
<td>0.463</td>
<td>-3.468***</td>
<td>0.833</td>
<td>-2.201***</td>
<td>0.523</td>
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<tr>
<td>Leader Change B</td>
<td>0.905**</td>
<td>0.415</td>
<td>0.854*</td>
<td>0.451</td>
<td>0.545</td>
<td>0.774</td>
<td>0.674</td>
<td>0.531</td>
</tr>
<tr>
<td>Winning Coalition * Leader Change B</td>
<td>-0.951***</td>
<td>0.454</td>
<td>-0.871*</td>
<td>0.501</td>
<td>-0.800</td>
<td>0.855</td>
<td>-0.376</td>
<td>0.592</td>
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<tr>
<td>Trade as % GDP, A</td>
<td>-0.007***</td>
<td>0.003</td>
<td>-0.003</td>
<td>0.005</td>
<td>-0.016***</td>
<td>0.004</td>
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<tr>
<td>Trade as % GDP, B</td>
<td>-0.008***</td>
<td>0.003</td>
<td>-0.006</td>
<td>0.005</td>
<td>-0.022***</td>
<td>0.005</td>
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<tr>
<td>GDP Growth, A</td>
<td>0.027</td>
<td>0.020</td>
<td>0.049*</td>
<td>0.027</td>
<td>0.017</td>
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<tr>
<td>GDP Growth, B</td>
<td>0.023</td>
<td>0.020</td>
<td>0.044**</td>
<td>0.021</td>
<td>-0.010</td>
<td>0.026</td>
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<td>Contiguity</td>
<td></td>
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<td></td>
<td></td>
<td>0.038</td>
<td>0.078</td>
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<td>Colonial Contiguity</td>
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<td></td>
<td>0.334**</td>
<td>0.149</td>
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<td>Tau Global</td>
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<td></td>
<td>0.508</td>
<td>0.506</td>
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<tr>
<td>Tau Region</td>
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<td></td>
<td>-0.026</td>
<td>0.422</td>
<td></td>
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<tr>
<td>Ln(Total Population) A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.282***</td>
<td>0.096</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(Total Population) B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.167*</td>
<td>0.097</td>
<td></td>
<td></td>
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<tr>
<td>Imports of Country A from B</td>
<td>0.418***</td>
<td>0.114</td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>Imports of Country B from A</td>
<td>0.603***</td>
<td>0.120</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Models 1 – 3: Number of Observations: 567,486 | Number of Disputes Contained within the Analysis: 274
Model 4: Number of Observations: 403,428 | Number of Disputes Contained within the Analysis: 171

Note: * denotes p < 0.10, ** denotes p < 0.05, *** denotes p < 0.01
Looking at the first pair of variables of winning coalition size, it is apparent that more democratic countries are more likely to initiate disputes as the plaintiff. The coefficient is large across all of the models, and significant in each. Using the third model as the observable effect when controlling for economic and political effects, a large coalition system is three and a half times more likely to initiate a dispute than is a small coalition system, with the results being highly significant. With respect to the defendant, country B, the winning coalition size has little to no effect, dependant upon the model. In the first Model that doesn’t control for economic and political effects, having a larger winning coalition actually decreases the probability a country will be the target of a dispute. However, in the model that controls for political and economic factors, having a large winning coalition increases your likelihood of being targeted in a dispute. Larger countries, in terms of GDP, are more likely to enter into disputes, both as the complainant and the defendant.

When observing leader change, the results are clear and robust: leader change matters. A leader change in the potential complainant state with a small winning coalition leads to the likelihood of a dispute increasing 264% more than if there was no leader change. This result is highly significant. However, if the leader change occurs in a state with a large winning coalition, the effect is weakly negative, leading to 83% decrease of a chance of a dispute occurring.
For the potential defendant of a dispute, a leader change in a small coalition state also increases the likelihood of a dispute being brought against a country. Here, the model that we observe makes a difference as to the results of the regression. When accounting for trade as a function of GDP, GDP growth, and contiguity, leader change leads to a 64% increased chance that a dispute will be filed, and the figure is not statistically significant. However, when we do not take in any external factors (Model 1), the results are both increased, and significant. In this model, a change of leadership in a small coalition system increases the chance of a dispute being filed against that country by 90%, with the results being highly statistically significant. In large winning coalition systems, a leader change decreases the chance of the onset of a dispute by 20%, and although the value slightly varies through the models, the number is not statistically significant.

The higher the level of trade of the complainant, the lower the chance that the country will initiate a dispute. Similarly, the lower the level of trade of the defendant, the lower the chance that the country will be the target of a dispute. The effect is negligible and not at all significant. GDP Growth also has a small but statistically significant effect. In any country, an increase in the level of growth of GDP increases the chance of initiating or being the target of a dispute by 4%. Contiguity has a very small effect on the onset of a dispute or not, however colonial contiguity between a pair of states does impact the probability of the onset of a dispute. An increase in the colonial contiguity scale, as previously defined represents a decrease of the value of colonial contiguity, increases the likelihood of an onset of a dispute by 33%, significant at the 2% level.
Larger countries, as noted by the log of the total population, are more likely to both enter into disputes and be the target of disputes. An increase in the logged population of a country would indicate a 28% increase in likelihood of that country initiating a dispute, and a 17% increase in the likelihood of being the target of a dispute.

Finally, with respect to the onset of disputes, imports can be observed in Model 4. Using this model, which discounts the cases involving the European Union, it is evident that the level of trade between the two countries matters, as measured by imports by the complainant from the defendant as well as imports by the defendant from the complainant. A higher level of imports of Country A from Country B indicates a 41.8% increased likelihood of Country A initiating a dispute. Similarly, a higher level of imports of Country B from Country A indicates a 60.3% increased chance that country B will be targeted in a dispute from Country A. Both of these numbers are highly statistically significant.

Against this backdrop, leader change can significantly affect the initiation of sanctions, which leads to the onset of a WTO dispute. As seen in the case study of dispute 267, the Lula election in Brazil, the leader turnover increases the likelihood of dispute initiation when the potential plaintiff is not fully democratic. Leader change is less important, although still notable, in the nations targeted in a dispute. The size of the nation also plays a key role, both with respect to economic size and total size of countries’ populations.

**Resolution of WTO Disputes**
Having seen that leader change affects the onset of WTO disputes, I now show that leader change also affects the outcome and level of concessions of disputes. In particular, an autocratic leader change leads to a higher likelihood of concessions being made by the defendant. This effect is heightened when the autocratic leader turnover takes place in the defendant country. In addition, the more democratic a country in either the plaintiff or defendant, the higher likelihood the dispute will resolved with concessions by the defendant. However, democratic leader change bears little effect on the level of concession.

When adding in leader change to the ordered probit models that Busch and Reinhardt created, there is a clear and observable statistical effect of leader change on the level of concessions made in a dispute. Concessions, in this case, are coded as one of three classifications: no concessions, partial concessions, or substantial concessions as made by the defendant.
Using Model 2, the regression run without all of the dummy variables included by Busch and Reinhardt, there are several identifiable effects, although not all significant. The logged GDP per capita with respect to the plaintiff country has a weakly positive effect (12.7%) towards the level of concessions made, and a weakly negative effect in the defendant (9.9%), although neither of these numbers are statistically significant. Conversely, in the
logged GDP overall, there is the opposite effect observed. An increase in the size of the GDP in the plaintiff, there is a weakly negative (3%) effect on the level of concessions by the defendant. An increase in the size of the GDP of the defendant, there is a weakly positive (5.5%) effect on the level of concessions. These numbers translate into the observation that a larger GDP in the plaintiff leads to a decrease in concessions made by the defendant, and a larger GDP in the defendant leads to an increase in concessions made. While these trends are interesting, neither of them is statistically significant.

The data illustrates that being a large coalition system plaintiff increases the level of concessions made by the defendant by 39%, although not incredibly statistically significant. Conversely, if the defendant is a large coalition system, the increased level of concessions made is 50.5% compared to a small coalition system. A leader change in the two years following the onset of a dispute in a small coalition system increases the level of concessions made by the defendant. If the small coalition system acts as the plaintiff, the effect is 31.1%, and is not extremely statistically significant. However, if the small coalition system acts as the defendant, a leader change influences the level of concessions made 68.9%, at a highly significant level.

Leadership changes in large coalition systems, regardless of whether the large coalition system country is serving as the plaintiff and defendant, do not largely influence the level of concessions made by the defendant. In the plaintiff, a shift of leadership in a large coalition system leads to a decrease in the level of concessions by approximately 6.3%, though this coefficient is not statistically significant. In the defendant, a shift of leadership in a large
coalition system in fact increases the level of concessions by 51.3%, but this figure is highly statistically insignificant.

Overall, logged GDP per capita and logged total GDP have inverse effects, although insignificant statistically. Increased GDP per capita in the plaintiff leads to more concessions by the defendant, although increased GDP per capita in the defendant leads to fewer concessions. Conversely, larger countries that act as the plaintiff negatively impact the level of concessions of the defendant, while larger countries in the defendant tend to make more substantial concessions. Democratic countries are more likely to make concessions, as either the plaintiff or defendant. Leader change in the plaintiff country has no strong effect on concessions in neither democracies nor autocracies. However, leader change in the defendant has a large effect, particularly with autocrats. Autocratic countries with leaders who come into office are more likely to make more substantial concessions.

After examining the effects of leader change, it is worth reexamining Busch and Reinhardt’s analysis of the level of concessions in WTO disputes. Looking at 153 disputes from 1995 through 2000, they found to be important the fact that a panel was established, ruling in favor of the defendant, and if it was a politically sensitive case with respect to WTO aspects of the dispute. In addition, they also found complainant’s per capita GDP to be positively related to the amount of concessions made by the defendant.

Through the rerunning of their models using the additional 172 cases with which I expanded on their data, there are several differences to note. For example, if a case is a
multilateral case it has a large effect on the level of concessions. In addition, whereas Busch and Reinhardt found ruling in favor of the defendant to have a strongly significant negative effect, I found a weakly positive effect that was highly insignificant. However, I do not proffer that these results refute Busch and Reinhardt’s assertions. Conversely, these differences are symptomatic of trends that have developed over time in the World Trade Organization, as seen in Table 3.1.

Table 3.1 - WTO Panel Rulings: 1995 - 2009

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No ruling</td>
<td>90</td>
<td>22</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>58.4%</td>
<td>12.7%</td>
<td>34.3%</td>
</tr>
<tr>
<td>Ruling for Complainant</td>
<td>41</td>
<td>119</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td>26.6%</td>
<td>68.8%</td>
<td>48.9%</td>
</tr>
<tr>
<td>Mixed Ruling</td>
<td>14</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>9.1%</td>
<td>2.9%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Ruling for Defendant</td>
<td>9</td>
<td>27</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>5.8%</td>
<td>15.6%</td>
<td>11.0%</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>173</td>
<td>327</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Numbers in italics represent percentages of total cases in the grouping.*

As is apparent in Table 3.1, there have been some significant changes to the outcome of cases overall since the first five years of the WTO, observed by Busch and Reinhardt. When observing the pure numbers, it is evident that over time, there have become many fewer instances of no rulings. In the first five years of the WTO’s existence, 41 disputes were settled with rulings for the complainant. This number, which represents 26% of the total cases during the first six years of the WTO, is more than doubled, both in number and percentage between Period 1 and Period 2. The number of mixed rulings has significantly
decreased from 9.1% of cases to a mere 2.9%. In addition, panels have increasingly found in favor of the defendant, increasing from 5.8% of cases to 15.6%.

Table 3.2 describes the differences in the ordered probit models of WTO dispute outcomes between the first six years, and the complete fifteen-year history of disputes in the WTO.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Robust SE</td>
</tr>
<tr>
<td>Panel Established</td>
<td>0.920**</td>
<td>0.414</td>
</tr>
<tr>
<td>Ruling for Complainant</td>
<td>-0.625</td>
<td>0.440</td>
</tr>
<tr>
<td>Mixed Ruling</td>
<td>-0.566</td>
<td>0.520</td>
</tr>
<tr>
<td>Ruling for Defendant</td>
<td>-1.836***</td>
<td>0.578</td>
</tr>
<tr>
<td>Complainants per capita income</td>
<td>0.231*</td>
<td>0.133</td>
</tr>
<tr>
<td>Defendant’s per capita income</td>
<td>-0.016</td>
<td>0.138</td>
</tr>
<tr>
<td>Complainant’s GDP</td>
<td>-0.014</td>
<td>0.082</td>
</tr>
<tr>
<td>Defendant’s GDP</td>
<td>-0.002</td>
<td>0.084</td>
</tr>
<tr>
<td>Agricultural Case</td>
<td>-0.175</td>
<td>0.271</td>
</tr>
<tr>
<td>Multilateral Case</td>
<td>0.556*</td>
<td>0.295</td>
</tr>
<tr>
<td>Discriminatory Measure</td>
<td>-0.140</td>
<td>0.251</td>
</tr>
<tr>
<td>“Sensitive Case”</td>
<td>-0.925***</td>
<td>0.307</td>
</tr>
</tbody>
</table>

Number of Observations: Model 1: 153 | Model 2: 325
Model 2: Threshold 1: .615 (SE: 1.10) | Threshold 2: 1.11 (SE: 1.29)

Note: * denotes p < 0.10, ** denotes p < 0.05, *** denotes p < 0.01

Over time, several of the implications of the independent variables have changed. The simple fact of a panel being established does not influence the level of concessions nearly as much as it previously had during the first five years of the WTO’s existence. While both numbers are statistically significant, the fact that the panel was established previously indicated a 92% increase in the level of concessions, as opposed to currently where it only
indicates a 49% increase. The rulings issued for the complainant and a mixed ruling still have a negative impact on the level of concessions made by the defendant, and the statistical significance has increased. However, a ruling for the defendant, which we previously observed to be substantially more common during the later years of the WTO, previously had a largely negative effect on the level of concessions. This seems to have shifted over the years, and now has a fairly significant positive effect as to the number of concessions made.

The majority of the remainder of the observations seems to be held constant throughout the years of the WTO. The few exceptions to this are that discriminatory measures now hold a weakly positive impact on the levels of concessions made, albeit an insignificant effect, and a politically “sensitive case” still has a negative impact on concessions, but the statistical significance, along with the coefficient itself as substantially decreased. Additionally, as previously suggested, if a case is multilateral, it increases the level of concessions made by 64% as opposed to if the case was a simple bilateral case between the plaintiff and defendant. Previously, this effect was a similar number but not nearly as statistically significant.

Over the fifteen-year course of WTO disputes, the composition of disputes has changed, and therefore so has the effect of certain factors on the level of concessions within WTO disputes. Rulings in the defendants favor have little effect on the level of concessions made by a defendant, and discriminatory measures now typically indicate a higher level of concessions made by the defendant, although it is not a significant number. Finally,
defendants are more likely to make concessions if a case is multilateral, as characterized by either multiple complainants or countries reserving third party rights as observers.

**Implications and Conclusions**

The winning coalition and leader change data illustrates, firstly, that larger coalition systems are more likely to enter into disputes. Secondly, that political leader change is at least partially the cause of the onset of disputes, thereby confirming Hypothesis 1. Hypothesis 2 is observed and confirmed, that autocratic leadership change will be more influential then democratic leadership change, and is observed in both Hypothesis 1 and Hypothesis 4.

As is observed in Model 4 of the first set of regressions, an increased level of trade between a dyad of countries does influence the probability that a dispute will occur between the two respective states. This effect is slightly elevated in the fact that the greater the imports of the second country from the first, the more likely that the second country will be the target of a dispute from the first country. These observations confirm Hypothesis 3.

Overall, a change in autocratic leaders leads to the increased likelihood that a country will become involved in disputes. As autocracies are essentially defined by small coalition selectorates, the patterns in small coalition systems can be extrapolated to autocracies within the WTO. This observation fits perfectly with the aforementioned selectorate
theory. When autocratic, small coalition leaders change, the purchase and interests of certain private goods change as well.

In addition, McGillivray and Smith accurately predict the observations of small coalition autocratic leader change with respect to selectorate theory, leader change, and trade relations. When trading relations are negative, as characterized by two countries already having formally entered into a WTO dispute, and an autocratic leader of either the plaintiff or the defendant changes, concessions are nearly always increased. As shown by Table 4, there are several instances where an autocratic leader change leads to substantial concessions. Leader change in autocratic defendant, as defined by either a winning coalition less than .75, or a winning coalition less than 1, primarily leads to substantial concessions by that state.

When observing particularly autocratic states, as characterized by W<.75, four out of the five cases wherein a leader changes in the defendant results in substantial concessions. This result robustly confirms Hypothesis 4.

The unique outlier of no concessions made with extreme autocratic leaders is Dispute 370, when the European Union brought a case against Thailand with respect to certain customs valuations. The dispute began on January 25, 2008 and the Thai leader change occurred a mere three days later on January 28, 2008\textsuperscript{14}. However, the leader who came into power had been elected at the end of 2007; this political change perhaps is more relevant to the

\textsuperscript{14} “The Red Crisis"
onset of the dispute and the fact that it occurred as opposed to looking at it in the context of leader change after the occurrence of a dispute. At the time, the Thai government was undergoing a large reformation and a high amount political turmoil. Although Thailand is classified as having a small coalition system as $W=.5$, during 2008 there was increased political discontent amongst the Thai people\(^{15}\). Because of this unrest, the government was consistently searching for solutions to stay in power maintain the necessary coalition, thereby not acting entirely as selectorate theory would predict. If we exclude this case, all four instances of an autocratic leader change during a dispute have lead to substantial concessions, which is extremely telling.

In addition to observing extremely small winning coalitions, when looking at any defendant country that has a smaller winning coalition less than $W=1$, leader change leads to substantial concessions in over 60% of cases. Even looking at democracies, leader change tends to lead to substantial concessions being made. Although statistically fairly insignificant numbers due to external control variables, anecdotally this helps confirm Hypothesis 4.

\(^{15}\) Leeahtam, Pisit.
Table 4 - Dispute Outcome and Leader Change in the Defendant

<table>
<thead>
<tr>
<th>Level of concessions by defendant</th>
<th>Autocratic Defendant (W&lt;.75)</th>
<th>Autocratic Defendant (W&lt;1)</th>
<th>Democratic Defendant* (W=1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Leader Change</td>
<td>Leader Change</td>
<td>No Leader Change</td>
</tr>
<tr>
<td>No concessions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>1</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>35.3%</td>
<td>20%</td>
<td>48.5%</td>
</tr>
<tr>
<td>Partial concessions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>29.4%</td>
<td>0%</td>
<td>17.7%</td>
</tr>
<tr>
<td>Substantial concessions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>35.3%</td>
<td>80%</td>
<td>33.8%</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>5</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Numbers in italics represent percentages of total cases in the grouping.

*Due to EU coding of having no leader change, all EU Defendant cases have been excluded to not skew the data.

Returning to Dispute 267, Brazil has a smaller winning coalition size (W=.75) than does the US (W=1). Both countries were large countries in terms of population and GDP, which, as previously predicted, indicate that the dispute was more likely to occur. In addition, the case was multilateral with 14 countries reserving their rights as third parties, which indicated concessions were likely to be made. In the end of the dispute, the US finally made substantial concessions to Brazil through the final round of negotiations. In this case, there was leader change in a small coalition system-plaintiff within two years after the dispute was filed. The analysis suggests that leader change in a small coalition plaintiff will lead to increased concessions by the defendant. In this dispute, although it went back and forth throughout the most stages possible in the WTO dispute settlement mechanism, the United States ended up making substantial concessions to Brazil.
The selectorate theory and leader specific punishment theory accurately describe the phenomenon that is illustrated by the data: autocratic leader change is more likely than democratic leader change to influence the flow of WTO negotiations and dispute settlement. In addition, Busch and Reinhardt accurately predict and prove that the size of a country matters with respect to the level of concessions made by a defendant country. This assertion is extrapolated to show that the size of a country, including both GDP and population, matters with respect to the onset of disputes in the WTO.

Changing trade policies are often the result of a change in leader, because new leaders bring with them new supporters who have particular interests that must be respected by the new leader. Leader change helps us to better contextualize and understand what leads to disputes and the resolution of disputes in the World Trade Organization.
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World Development Indicators, The World Bank