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April 14, 2014

Antidumping duties against China: analyzing the effect of China's accession to the World Trade Organization

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An abstract of
a thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Arts with Honors

Department of Political Science

2014

Abstract

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The authorized use of protectionist measures—especially antidumping duties—by World Trade Organization (WTO) member states has been a controversial issue. Despite the “rules-oriented” scholars’ claim for deterrence in protectionist practices among WTO members, application of discriminatory antidumping duties against China has increased since China joined the WTO in 2001. This paper examines China’s trading partners’ use of antidumping actions against China and addresses the conditions under which regulatory authorities impose affirmative rulings against Chinese firms. Adopting the “rules-oriented” perspective on the effect of international law and the economic model of the market power theory, this study predicts that without the WTO, states are less likely to impose positive antidumping rulings on cases where China has market power in order to decrease their odds of being retaliated against by China. However, upon China’s accession to the WTO, the trade regime weakens the deterrent impact of China’s market power, leveling the playing field for all members to rightfully exercise their allowable forms of trade protection. To test this argument, a probit regression analysis was employed with multiple variables addressing potential causes for the rise in positive antidumping rulings. The findings of this study support the hypothesis that states will make final antidumping decisions based on the target’s market power, but when both investigating and target states are in the WTO, the deterrent impact of market power is reduced. The most important contribution this paper makes is that it shows that international law can be especially valuable to members without market power. Instead of functioning as a guise for the most powerful states to have their way, international law helps level the playing field for states lacking the capacity to retaliate. One important implication is that developing countries that lack market power would benefit more from the WTO if they have full legal capacity.

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Acknowledgements

First of all, I would like to thank my family for supporting me throughout the entire process of writing this paper. Their unwavering support truly motivated me to strive for the best. I owe great thanks to my roommates, Jin and Kuk, who have been my other family for the past years.

I owe great thanks to Dr. Reinhardt. He has been a phenomenal help all throughout this exhausting, yet rewarding process. The idea for this project came after taking three of his classes (110, 313 and 319). These experience motivated me to major in International Studies and to write an honors thesis on political economy. His expertise in quantitative methods and his willingness to help me contextualize vague ideas have been an indispensable part of completing this thesis.

I would also like to thank Dr. Lancaster for teaching me how to better organize my thoughts in a scientific way. I was able to understand the concepts of theory and hypothesis only after a number of repeated pencil dropping demonstrations. His willingness to help me become a better writer was invaluable for this project.

Finally, I would like to thank SHY for being a great role model throughout my college years and helping me take greater interest in the field of political science. I thank Dr. Rob O'Reilly for his hard work in data collection, and I also thank Dr. Jones for being awesome.

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Introduction

Does international law constrain self-interested behavior? Realist legal scholars state that international law, which serves as a framework for the practice of stable international relations, is largely ineffective or a tool of powerful states to maximize their relative power. Looking at the global trade regime, recent scholars lend some weight to this realist perspective, contending that the World Trade Organization (WTO) is of little consequence (Rose 2003) and that what appears to be the real cause of compliance is the underlying relationship of market power, which provides the capacity to retaliate against transgressions (Gowa and Kim 2005; Bagwell and Staiger 2002). My paper dissents from this “power-oriented” perspective, contending that the WTO reduces its members’ unilateral behavior. The WTO’s clearly-defined standards and transparent environment make violations more detectable, and its binding judicial review makes defection more costly. I test this argument by examining the political economy of WTO members’ use of antidumping duties against China, which is the biggest target of this protectionist measure (Bown 2007; Kucik and Reinhardt 2008).

There is no better place to look at this tension between the role of market power and the rule in the WTO than in the case of China today. China wanted to effectively deal with rising trade tensions such as antidumping duties via its WTO membership (Zeng and Liang 2010). The point of China’s accession to the WTO was to create a more secure environment, in which Chinese investors and firms can plan with greater certainty about the market access they will receive in the future (Bown 2007). At face value, however, the outcome seems vastly different from the expectation. The proportion of antidumping investigations turning into positive rulings against Chinese exports has increased from 62.8 percent in the pre-accession period to 77.4

percent in the post-accession period. What explains this puzzling evidence and how does this relate to the rules and market power tension?

The answer to this puzzle lies in the debate about market power and a “rules-oriented” environment. Specifically, in a given unfair trade action such as an antidumping investigation, there are two parts to consider. First, there is the market power of the country that is conducting antidumping investigation against China, which may increase the likelihood of turning an investigation into a positive ruling, although there are a number of studies that suggest that this power is largely constrained if both parties are WTO members (Busch, Raciborski and Reinhardt 2008; Broda, Limao and Weinstein 2008; Ludema and Mayda 2013). Second, there is China’s market power as the target of the investigation, which may be exercised through either implicit or explicit threat to close Chinese markets for the other kinds of products of the investigating country exporting to China. It has been suggested that such deterrence may be possible through target country’s possession of market power (Busch, Raciborski and Reinhardt 2008), but there is no systematic study that examines how the WTO limits the target states’ use of this source of retaliatory threat. I intend to fill this gap in the literature, and I argue that one unintended consequence of being in the WTO for China is that its retaliatory capability, bolstered by the threat of unilateral action, may have decreased because of the WTO. If this were the case, then we would see evidence showing that as China’s market power has grown, China has been less able to use its market power to deter antidumping duties once it joins the WTO.

Examining China’s use of market power, when China was not in the WTO, it could use its market power in making implicit or explicit threats to deter other states from using protectionist measures. It did so by conducting unilateral behavior against countries that were filing unfavorable trade actions against Chinese exports. For example, in the pre-accession

period, China announced a total ban on all purchases of cotton, soybeans and chemical fibers from the United States in retaliation to the Reagan Administration's decision to impose import curbs on Chinese textile. Similarly in 2001, China filed 100 percent punitive tariffs on the import of Japanese vehicles, mobile phones and air conditioners, in retaliation for Tokyo's curbs on some Chinese agricultural products including onions and mushrooms (*New York Times*, 1983; *New York Times*, 2001). China's unfettered unilateral action sent the message to its trade partners that filing duties against China could be costly in the future. However, when China raised 100 percent import tariffs on U.S. chicken feet to retaliate against Obama administration's decision to slap tariffs on Chinese tires in the post-WTO period, the U.S. was able to curb its unilateral protectionism by filing a Dispute Settlement Understanding (DSU) in the WTO (*Washington Post*, 2011). The WTO ruled in favor of the U.S., restricting China's capability to deter positive antidumping rulings.

So what might be the overall effect of China joining the WTO? On one hand, acceding to the WTO might help China to experience less dumping in general, as scholars have suggested that stringent WTO rules make positive rulings against WTO members more costly than those against non-members (Busch, Raciborski and Reinhardt 2008). And this effect will be particularly prominent for Chinese industries with low market power as the WTO levels the playing field for all companies, including ones without the ability to use market power to deter antidumping. On the other hand, since China's accession to the WTO requires that China follow the rulings issued by the DSB just like all the other member states, I argue that this enforcement mechanism reduces unilateral actions typically conducted by industries with high market power.

In order to test this idea, I use a dataset of 860 antidumping investigations that were filed against China from 1991 to 2011. I examine the impact of China's market power over other

trading partners, other countries' market power over China, as well as other factors that affect the decision of antidumping investigations such as relative price, volume and exchange rate. My regression analysis indicates that China's accession to the WTO is helpful in decreasing the proportion of antidumping investigations ending positively. When I calculate the predicted probability, I find that Chinese exports with low market power significantly benefit from the WTO as antidumping imposition decreases from 0.945 [0.760, 0.993] in the pre-accession period to 0.705 [0.445, 0.888] in the post-accession period, while Chinese exports with high market power experience a rise in the proportion of positive rulings from 0.537 [0.184, 0.862] to 0.566 [0.308, 0.797]. These multivariate regression findings are echoed in the basic descriptive data: I find that a group of countries that are highly dependent on export to China such as Australia, South Korea, Indonesia, and Peru only made 30% positive antidumping determinations against pre-accession China, but after China joined the WTO, their rate of positive antidumping determinations rose to 91%. These findings have important implications for the value of the WTO and the conditional impact of the WTO for countries in situations where they either have or lack market power. My findings reaffirm a "rules-oriented" perspective more broadly as the WTO constrains states' exercise of unilateral actions based on market power.

Background

The WTO's legal commitments have limited policymakers' abilities to respond to domestic protectionist pressure by requiring the member states to bind their tariff rates to a certain level. Therefore, raising import tariffs above the bound legal commitment would be considered a violation of the rules of the international trading system under the WTO.

Nevertheless, member states have largely replaced their means to meet their domestic industries' demands by using their flexibility to adapt alternative trade "remedy" policy instruments such as

antidumping, countervailing duties, and safeguards (Bown 2010). Among these choices of trade remedies, antidumping duties are the most widely used form of protectionist measure.

Antidumping duties are also one of the few WTO-consistent instruments that are both measurable and relatively transparent, which make them a convenient tool for operationalizing the concept of protectionism (Bown 2007; Kucik and Reinhardt 2008). Therefore, I examine WTO states' use of antidumping duties to measure how the WTO limits unilateral protectionism. In order to study how the WTO achieves this, I first examine how the WTO regulates the use of antidumping duties among member states.

When protectionist measures including antidumping investigations are filed against countries that are not in the WTO, government officials can use their own discretion to file regulations against exporting countries. Therefore, the WTO does not have any say in controlling the spiral of retaliations that might result in worsening the situations of all members involved. However, upon accession, member states are required to sign and ratify all WTO agreements including the Anti-Dumping Agreement (ADA), by which the WTO regulates its members' use of antidumping duties. Looking into the stipulations in the ADA, for a WTO member state to file an antidumping measure against another member state, the complainant firm must present sufficient evidence that the imported product was sold at "less than normal value," customarily treated as the home market price. Then the ADA requires that the state officials conduct further investigation to find whether the imports caused "material injury" to a domestic industry with ADA stipulation on how to derive reference prices (Art. 2), calculate the level of injury, and prove causation (Art. 3). Once the investigation has been filed and tested, the government officials make a political decision whether or not to impose the final duty based on "margin shopping" and the possibility of retaliation (Busch, Raciborski and Reinhardt 2008).

In addition to spelling out the details of acceptable use of antidumping measures, the WTO ADA also stipulates that every stage of antidumping investigations must be reported to the WTO, and thus to the public, before the antidumping investigation turns into a duty. Clearly set out rules and relatively transparent processes engender economic as well as reputational costs when states violate the codified law. Not only has the WTO procedure made it more challenging for countries to legally file an antidumping duty against exports with these specifications, but also it has become even more difficult for the targeted state to shirk its duties by unilaterally rejecting the rulings. The economic cost of conducting unilateral behavior under the global trading system is weakening investor confidence, which is correlated with Foreign Direct Investment (FDI) that flows into the country (Abbott 2000; Simmons 2000). Also, not abiding by the international rule may cause a lower number of interactions by damaging the violator's status as an unreliable trading partner (Maggi 1999).

Besides providing a transparent trading environment, the WTO offers an enforcement mechanism to implement its rulings through judicial review. All member states have the right to file a WTO complaint against another member state that has violated trade laws or caused "nullification or impairment" of its WTO rights. The targeted state may file a dispute settlement against the investigating country asking the WTO to ensure the correction of its trade partner's conduct. If, however, the bilateral consultation fails to conclude in a satisfactory result, such cases can be appealed to the Appellate Body (AB), and these cases have binding legal force when adopted by the Dispute Settlement Body (DSB). DSB can instruct the defendant to bring its measure into compliance with the WTO rule or authorize the complainant to raise its own tariffs in case of noncompliance. This enforcement mechanism provided by judicial review not only decreases the likelihood of states acting unilaterally against international law, but also

increases the cost of turning investigations into positive rulings, bringing down the use of protectionist measures overall (Steinberg 2004; Busch, Raciborski and Reinhardt 2008)

While China's decision to seek entry into the WTO may be due to numerous other motives, one expected benefit associated with its entrance was less protectionist treatment against its exporting industries. Member states are required to abide by equal tariff treatment outlined by the Most-Favored-Nation (MFN) principle, and China cannot be excluded from such rights once it becomes a WTO member. China was the most frequently investigated state by the United States, facing 13% of all antidumping investigations, despite its status as only the fifth-largest exporter overall in 1995 to 2001. Not only was the mean percentage of investigations resulting in positive rulings for Chinese products higher than average, but also the antidumping duties facing Chinese products were almost twice as high as the average amount (Bown 2007).

Some studies have shown that 68 percent of U.S. antidumping investigations that were initiated against China prior to 2001 ended up in positive rulings, while only 50 percent initiated from 2001 through 2003 ended similarly. This indicates the WTO's impact in lowering the number of antidumping duties filed against China (Busch, Raciborski and Reinhardt 2008; Bown 2007). However, examining the entire antidumping investigations filed against China from 1991 to 2011 by the WTO members, the antidumping imposition rate against Chinese exports has increased from 62.8 percent in the pre-accession period to 77.43 percent in the post-accession period.

TABLE 1 HERE

Given the freedom to file and impose antidumping duties against China before 2001, the question is: why did fewer investigations turn into imposition before China's accession to the WTO than after its accession?

To tackle this puzzle, scholars have devoted their efforts to understand potential factors that might have contributed to the rising number of antidumping duties imposed against China since its accession to the WTO (Zeng and Liang 2010). The increase in the number of antidumping duties imposed against China could be due to the increased volume of trade following China's entry into the WTO. Dramatic expansion in bilateral trade between China and its trading partners, especially in the rise of Chinese export, would increase the tendency for importing countries' producers to heighten pressure to impose antidumping duties for their domestic products to gain a favorable edge over Chinese imports. Although the role of the WTO in affecting trade flow is highly contentious, the literature on trade protection suggests that industries facing import competition are more likely to lobby for protectionist measures and receive positive rulings (Lavergne 1983; Trefler 1993). For the countries with an increased volume of imports given China's accession to the WTO, it is possible that increase in import competition increases protectionist pressure from relevant industries.

This change in the proportion of positive antidumping rulings reflects that antidumping decisions are not pure products of economic facts alone. Revisiting the two steps involved in how antidumping duties are imposed, the domestic firm first files an investigation to the government with preliminary proof that unfair import is hurting its company. Then, as a second step, the government officials conduct their own research and make a final conclusion. When the government officials make the final decision, however, they have to worry about the future consequence of the final rulings, because the target states do not simply retaliate against the same product, but strategically target key exports from the investigating state, which can accrue more harm than good from filing antidumping duties (Bown 2009).

Supporting this political claim, studies have shown that welfare-maximizing states' decisions to impose antidumping duties against other states are acts of discretion exercised by authorities to yield optimal results (Rosendorff and Milner 2001; Drope and Hansen 2004). As evidenced through government officials engaging in "margin shopping," or selectively choosing among various investigations that would potentially yield margins at the most desirable level, states make decisions based on anticipated future consequence of the affirmative action (Prusa 2001; Blonigen and Bown 2003). This logic is also similar to the studies that showed how states are less likely to target a fellow WTO member with a full dispute settlement mechanism and legal capacity than ones without them (Busch, Raciborski and Reinhardt 2008; Hansen 1990).

My point is that if the facts and legal standards applied to antidumping cases are identical, then the governments will more likely rule affirmative action on the cases with less likelihood for further trouble. If state officials have in fact selectively imposed antidumping duties anticipating the future consequences of their affirmative action, it is possible that China's trading partners have intentionally turned down antidumping investigations filed by its domestic firms, fearing future retaliation.

As mentioned above, one of the key political factors that plays a role is the threat of retaliation. A number of scholars have found that an increasing number of antidumping investigations were motivated by a tit-for-tat retaliation (Prusa 2001; Blonigen and Bown 2003). One widely known example of retaliatory actions against WTO/GATT member states is Canada filing retaliatory antidumping duties against U.S. steel products. These retaliatory measures were in response to an investigation and subsequent imposition of antidumping duties against Canadian steel products in 1992. Another example is Thailand's reaction against a punitive U.S. tariff on its shrimp by boycotting the U.S. soybean industry. Numerous cases of retaliatory

actions against unfavorable decisions made by the trade partners exist despite regulations established by the WTO. It can thus easily be presumed that when states are not tied to the legal obligation of the international institution, unilateral retaliation against protectionist measures will be much more frequent.

Considering these threats of retaliation, which is shaped by the target countries' market power according to the terms of trade theory, it is possible that in the pre-WTO period, states might have deliberately imposed less antidumping duties against Chinese exports with high market power. Given China's capacity to retaliate on protectionist measures it faces when not tied by the WTO, it may be a state's reasonable response not to impose any protectionist measures against China. Therefore, in the pre-accession period, state officials may have selectively imposed more antidumping investigations on goods that have less potential for retaliation and avoided imposing duties on goods with high potential for retaliation such as Chinese goods.

Theory

The "rules-oriented" scholars contend that international institutions promote cooperation among their member states by constraining the states' inclination to defect on international law (Davis 2004; Keohane 1984; Simmons 1998). Scholars in this theoretical tradition have laid out numerous causal mechanisms on how international law constrains state behavior. Chief among these ideas is that clearly sets out rules increase the cost of unilateral practices against other members and clarify members' obligation (Busch, Raciborski and Reinhardt 2008). They further argue that such effect consequently reduces uncertainty that can otherwise lead to chains of retaliation (Finlayson and Zacher 1981; Keohane 1984). Furthermore, the WTO can enforce its measures by punishing defection through judicial review (Keohane,

Moravcsik, and Slaughter 2000). These “rules-oriented” perspectives are centered on the idea that codified rules induce change in state behavior and this change in behavior is not merely a function of market power relations among states or “harmony of interest” (Downs, Rocke and Barsoom 1996). My argument is grounded on this theoretical tradition, and I note that the focus of this paper is empirical rather than theoretical.

On the opposite side, the “power-oriented” scholars have largely found conflicting results. According to Steinberg (2002), international institutions are insignificant because only the strong states wield the real power to shape decisions. He supports this argument by observing that the European Community and the United States have dominated most of the decision outcomes at the GATT/WTO despite its sovereign equality voting system and claims that relative market size is the underlying source of bargaining power. Furthermore, Gowa and Kim (2005) build upon this “power-oriented” perspective and contend that major powers shape the rules of international institutions for their own benefits. In the area of trade policy setting, they argue that only five major states—Britain, France, Germany, Canada and the U.S.—were the primary beneficiaries of the GATT. This is mainly due to the principal-supplier rule: under the GATT protocol, trade barriers were reduced on the basis of concessions on particular goods exchanged between their principal suppliers. This also leads to the exchange of concessions only among those with strong market power, which makes GATT an institution that enhances the welfare of major trading nations. The underlying theme of the “power-oriented” scholars is that the effectiveness of international institutions heavily depends on whether member states have sufficient market power to retaliate for possible transgressions.

Indeed economic scholars have found strong evidence that market power dominates state relations in the absence of the international legal regime. When countries are not subject to

the constraints of the WTO, states that have market power in imports exploit it to set higher tariffs on inelastically supplied imports relative to those supplied elastically (Broda, Limao and Weinstein 2008; Ludema and Mayda 2013). This means that without the WTO watching over the decisions made by the individual states, countries do act at their own discretion to set the “optimal tariff:” imposing higher tariffs when the importer has market power. These findings are largely consistent with the terms-of-trade hypothesis, which posits that a government with market power acting unilaterally will tend to overuse tariffs as well as other trade restrictions such as retaliatory measures. The underlying implication of this argument is that market power will dominate considerations about antidumping imposition rates prior to WTO accession.

In particular, it has largely been shown that market power affects the country that is doing the investigation: the higher the market power possessed by the investigating country, the higher the likelihood that the antidumping investigation will turn out positive. Antidumping duties generate higher welfare for the importing country if they are implemented in goods where the importer has market power. Thus the prediction is that antidumping duties are more prevalent when the investigating states possess with high market power (Broda, Limao and Weinstein 2008). However, the WTO rules constrain the ability to use this market power, because the WTO holds the member states accountable for violation of certain WTO standards. Furthermore, transparency in both the stipulation and procedure of antidumping investigation as well as a large body of precedents constrain unilateral interpretation of WTO rules making it difficult for the investigating country to appropriate its market power. Indeed, scholars have shown that the WTO members have decreased arbitrary antidumping decisions based on the investigating country’s market power (Broda, Limao and Weinstein 2008; Ludema and Mayda 2013; Busch, Raciborski and Reinhardt 2008).

There are some reasons to suspect that the WTO may have less impact on China, however. One apparent factor is major global antidumping users' consideration and treatment of China as a Non-Market Economy (NME), which applies special treatment and methodology to establish dumping by Chinese exports resulting in discriminatory and exceedingly high antidumping duties. Until the end of 2016, China's Protocol of Accession to the WTO allows its member states to consider China as a NME. When investigating China, WTO member states apply the surrogate or analogue method, which relies on product or production data from other 'comparable' third world countries (Zeng and Liang 2010). Given the difficulty in finding a 'comparable' country, NME status is considered extremely unfavorable for Chinese imports, which can have a significant effect on the number of AD duties filed against China. In fact, countries that are selected as 'comparable' to the Chinese market often have much higher labor costs than China, resulting in much more frequent positive rulings as well as higher antidumping margins (Lardy 2002).

A number of scholars have dealt with market power from the investigator side of the equation. However, what has not been covered in the literature is how China's market power and the WTO's constraints affect the decisions made by antidumping investigating countries filing duties against China. China's reaction to its trade partners' use of protectionism before its accession to the WTO indicates that China was prone to imposing or threatening retaliatory trade sanctions, making full use of its market power. For example, in 1983, China announced a total ban on all purchases of cotton, soybeans and chemical fibers from the United States in retaliation for the Reagan Administration's decision to impose import curbs on Chinese textiles (*New York Times*, 1983). More recently, China has filed 100 percent punitive tariffs on the import of Japanese vehicles, mobile phones, and air conditioners in retaliation for Tokyo's curbs on some

Chinese agricultural products, including onions and mushrooms, in 2001 right before its accession (*New York Times*, 2001). China, whose actions were unfettered by any international institution, unilaterally decided to strategically retaliate against key imports from the investigating state (Bown 2010). Although these cases are not antidumping, they are related to China's retaliation against antidumping. In fact, China has a retaliation policy stipulated in the AD law. Article 56 of China's AD law states, "where any country takes discriminative anti-dumping measures on the products exported from the People's Republic of China, the People's Republic of China may, upon the actual circumstances, take corresponding measures against the country." No other country so clearly states its intention to retaliate against its trading partners' use of AD measures.

The trade spat between the United States and China shows what the WTO can do to curb unilateral actions conducted by powerful states. The particular product in question is chicken feet, which are considered excess parts ground into pet food in the United States, but are a popular snack in China. China was the largest importer of chicken feet from the United States, which generated about 278 million dollars' worth of trade in 2009 alone. Since China was the monopoly importer of this product and because the U.S. firms were dependent on their sales to China, China had significant market power over the U.S. In fact, China took advantage of this leverage and raised 100 percent import tariffs on U.S. chicken feet to retaliate against the Obama administration's decision to slap tariffs on Chinese tires (*Washington Post*, 2011). However, unlike in previous years when China was not part of the WTO, the U.S. was able to curb China's unilateral protectionism by filing a Dispute Settlement Body (DSB) in the WTO and inducing China to "implement the DSB recommendation and rulings in a manner that respects its WTO obligations by dropping the duties within 60 days" ("WTO Dispute Settlement" 427).

My point is that the WTO not only constrains the investigating country that is doing the antidumping, but it also constrains target country's retaliatory threat that may potentially shape the outcome of antidumping investigations. If the WTO's constraining impact on target states' market power is true, investigating countries would be less likely to impose antidumping duties against Chinese exports with high market power before the China's accession to the WTO. However, as China's threat of unilateral action that arises from market power will be constrained once it accedes to the WTO, I hypothesize that the investigating countries' imposition of antidumping duties should increase or stay constant regardless of the difference in China's possession of market power.

This paper considers whether international law matters by examining the role of the WTO in constraining the deterrent effects that arise from market power when states decide to impose antidumping duties. There lies a long tradition of debate over the effectiveness of the international law on constraining state behavior, but there has been insufficient evidence to put an end to this discussion. The challenge of the study of international trade agreements is that scholars are limited to drawing conclusions from the associations that arise between membership and observed level of trade and protection. But as Downs, Rocke and Barsoom (1996) point out, states may join the legal regime and change their behavior simply because they are ready to cooperate, not necessarily because of the legal regime itself at work. On a similar note, Simmons (1998) indicates, "it has been far more difficult, however, to show any causal link between legal commitment and behavior."

With these limitations in mind, I adopt the rules-oriented perspective, arguing that the WTO regime weakens the deterrence effect mainly derived from market power, consequentially leveling the playing field for all WTO member states regardless of their capacity to credibly

threaten retaliation. Without the WTO, states that possess market power would be likely to either threaten or unilaterally implement protectionist retaliation against their trading partners' attempts to impose antidumping measures. However, with the WTO's judicial review and enforcement mechanism by the DSB, powerful states' ability to deter any legitimate protectionist measures is significantly undermined. Not only does the WTO deter its member states from imposing unjustified protectionist measures due to transparent and publicly announced procedures, but it also prevents the members' unilateral threat to deter justifiable protectionist measures by tying the hands of officials from strong states.

Research Design

I test the use of antidumping duties by the WTO member states against China according to changes in China's market power. Controlling for potential bilateral and macro-economic factors that may increase the number of antidumping duties against China, I examine how the three independent variables (1) China's WTO accession; (2) China's market power; (3) interaction term between China's WTO accession and China's market power affect the dependent variable of the number of cases of antidumping investigations turning into imposition.

I start with a list of all antidumping investigations filed against China from 1991 through 2011. To examine the total number of antidumping initiated as well as the total number of antidumping imposed, I use data from the Global Antidumping Database collected by Chad Bown. The data has one row for every antidumping investigation by a country against China, and I have attempted to examine how many investigations took place and how many antidumping measures were imposed. I also have examined the individual product level up to 4-digit Harmonized System product codes to capture the sector-specific market power states possess against their trading partners.

Dependent Variable

The dependent variable *AD* is 1 if a foreign government ultimately imposed antidumping duties against China from the investigation, and 0 otherwise, which conveniently classifies observations as either cases or controls. The dependent variable ultimately measures the percentage of antidumping investigations turning into imposition. *AD* is 0 for all other types of case outcomes, including negative determinations as well as withdrawn and terminated investigations.

Some features of the dependent variable should be highlighted. First, economics literature emphasizes the importance of considering petitions, because the investigations themselves can cause non-trivial harm (Staiger and Wolak 1994; Busch, Raciborski and Reinhardt 2008). Scholars challenge the view that only antidumping duties can have a harmful effect on the industry when the final duties are imposed. More specifically, they contend that when the petitions result in positive preliminary determination, even if the final decisions turn out to be negative, measures taken by the government may have an investigation effect, which manifests itself by changing the price behavior of exporters in a way that cannot be overlooked by the foreign supplier (Staiger and Wolak 1994). However, investigation alone does not give any legal capacities to impose sanctions against its trading partner until the final decision. Because this paper is mainly concerned with the effect of the WTO in constraining unilateral behavior of a state with market power, the effect is fully revealed only when states impose full dumping duties.

Independent Variables

WTO Membership. One of the chief explanatory variables is WTO membership, which is dichotomous. The explanatory variable *WTO* is coded 1 if China was in the WTO when the antidumping investigation was filed and 0 otherwise. 355 cases were investigated against china

and 220 cases ended up in positive rulings from 1991 to 2001, while out of 505 investigations 391 cases were ruled positive since 2001. Although the rate at which investigations turn into duties rose from 62.8% in the pre-accession period to 77.43% in the post-accession period, I expect the WTO to have a negative coefficient as suggested by the “rules-oriented” perspective.

China’s Market Power. I examine market power, which in practice determines a country’s credible capacity to retaliate. In order for China’s retaliatory threat to be credible, China’s trading partners must export large and price-sensitive products to China, as any punitive actions taken by the Chinese authority can have a detrimental effect on the targeted industry. This export dependence is measured by trading partners’ total exports to China one year before the petition year, as a percentage of their total exports to the world one year before the petition year. It should be noted that the reason for the numerator being total exports to China, and not any specific product, is because when China decides to retaliate, it has the actual freedom to impose a duty on any products on which it wishes to inflict harm (Bown 2010). Therefore, in the interest of the welfare maximizing states’ perspective, total export to China is calculated in the numerator, rather than the exports of the specific product to China, in order to measure the comprehensive effect of market power. The continuous numbers vary from a lowest market power of around 0 to a highest market power of around 3. I expect this variable to have a negative association with the affirmative antidumping decisions.

WTO Membership China’s Market Power.* I also test the interaction between the two variables of *WTO Membership* and *China’s Market Power*. This interaction term serves as the embodiment of retaliatory capacity; it should decrease the likelihood of investigations turning positive (Blonigen and Bown 2003). This variable speaks to whether China’s WTO membership attenuates the significance of market power against WTO members’ antidumping investigations.

If the argument implied by the “power-oriented” scholars is correct, then the coefficient of this interaction would be negative (Bagwell and Staiger 2002; Bagwell and Staiger 2006; Gowa and Kim 2005; and Blonigen and Bown 2003). That would signify that membership in the WTO deters antidumping action the most when the target’s market power is the greatest. However, aligning my argument with the “rules-oriented” scholars, I expect a positive correlation.

Control Variables

Relative Price. This variable measures the natural log of the price of imports from China relative to imports from the world in the previous year. If China happens to supply higher-priced exports, then it would not be as liable to antidumping actions due to a justified consideration, rather than due to the impact of the WTO. If China’s price is higher than the rest of the world, then the country should be less likely to be found positive in the AD investigation and if China’s price is lower, there should be greater chance that investigations will turn positive. I expect a negative correlation for this variable.

Import share. This variable measures investigating states’ commodity-specific import from China as a percentage of imports from the world in the previous year. When the volume of imports is high, there is a higher likelihood that the product in question will be imposed with more antidumping duties (Busch, Raciborski and Reinhardt 2008; Zeng and Liang 2010). I expect that when this variable goes up, China becomes a more significant supplier of the particular product, making China more likely to be imposed with antidumping duties. I expect this variable to have a positive correlation.

Real growth of import. This variable measures the real growth of commodity-specific imports from China. I expect that if the total amount of imports from China is higher, there is more likelihood of antidumping imposition. Also, this means that the faster China’s imports are

growing in that particular product into that one country, the more likely antidumping duties are. Although the volume of China's imports is small, China can still be imposed with more dumping if the product in question is growing at a fast rate. Regardless of the evaluation of the prices of a product for dumping decisions, a country with a high growth of import from China may regard such cases with priority, which would increase the protectionist pressures due to political prominence (Irwin 2005).

Dollar amount of import. This variable measures the total dollar amount of China's imports in the previous year into a given country. Similar to the *Real Growth of import*, I expect the larger the import, the higher the possibility of a backlash. However, there is also a contention that this coefficient can be negative. A possible alternative explanation is that as more companies in the investigating country buy imports from China and sell the value-added goods, these companies will lobby the government to not impose protectionist actions against China.

Exchange rate. In this variable, I capture the exchange rate appreciation of the investigating country's currency versus the Rannmibi in local currency unit. Scholars (Pelc and Davis 2012; Bown and Crowley 2012) find that losses in competitiveness through an appreciation of the real exchange rate are typically associated with an increase in the number of antidumping positive rulings. Typically, the appreciation of a country's currency is associated with weakened domestic firms' competitiveness against imports (Bao and Qiu 2011). If this is the case, domestic firms are more likely to seek protection. Therefore, I expect this variable to have a negative correlation.

I also control for macro-economic measures such as unemployment, real GDP per capita and current account balance. I expect that countries that are experiencing their own period of weak economic growth are likely to impose more protectionist measures (Bown and Crowley

2012). I expect the unemployment rate in the previous year as percentage of the labor force will be negatively correlated. I expect when countries are experiencing real GDP per capita growth, there will be fewer positive antidumping rulings. Also, *Current account balance*, which measures the net current account balance between the investigating state and China in the previous year, provides a broad barometer of the protectionist sentiment in the investigating country against China. It is expected that the larger the trade deficit, the more likely that investigating countries will file antidumping duties against Chinese exports. Consequently I expect a negative relationship between this variable and the AD outcome.

I also control for the log of GDP per capita and the log of GDP of the potential investigating country, both in constant 2005 USD. Historically, less-wealthy countries have been more likely to rule positive decisions on antidumping petitions. These variables account for the different patterns of antidumping rulings depending on the size of the states' economies. Year-specific fixed effects as well as country-specific fixed effects are included since shared economic development indicators affect all antidumping investigating countries' decisions at the same time.

Results

Before examining the multivariate analysis, turn to Figure 1, which displays the average affirmative decision rates for all antidumping investigations filed against Chinese exports from 1991 to 2001 and 2001 to 2011, broken down by China's market power over the investigating states.

FIGURE 1 HERE

Before trying to tease out individual effects of each coefficient, I graphically present the states' probabilities of imposing antidumping duties at different levels of China's market power. I

divide China's market power into three categories: low, medium and high. Chinese exporters with market power have a much more favorable experience than those without market power only in the pre-accession period. Antidumping duties are deterred in only 25 percent of the cases against Chinese firms with low market power, but almost 65 percent of the investigations turned negative in the case of high market power. However, in the post-accession period, this deterrence effect arising from market power seems almost irrelevant. Chinese firms' ability to deter antidumping investigations is consistent regardless of the difference in the possession of market power. In the post-WTO period, Chinese exporters possessing low market power were able to deter approximately 23 percent of the investigations from turning positive, and so were Chinese exports possessing high market power.

TABLE 2 HERE

Multivariate Analysis

Table 2 displays the results of my regression analysis. The results are largely consistent with my hypotheses. The coefficient of *WTO* is strongly negative at -1.799 and statistically significant at $p < 0.05$. This shows that when market power of China is zero, the *WTO* decreases the likelihood of antidumping investigations from turning into positive rulings. As I have included several important variables including market power in the analysis, this deterrence effect does not derive from China's retaliatory threat, but from the *WTO* itself. This does not mean that market power is irrelevant. In fact, China's market power has a strong and statistically significant negative impact on the odds that investigating countries will impose final duties against China. China's market power has a coefficient of -1.108, statistically significant at $p < 0.01$. Everything else being equal, China's possession of market power reduces the likelihood of antidumping investigations turning positive. Also, the coefficient estimate of my interaction

term *WTO* China's Market Power* is positive at 0.832, statistically significant at $p < 0.001$. Given that the coefficient for China's market power is negative and the coefficient for the interaction term is positive, this upholds my hypothesis that the WTO weakens the deterrent impact of market power.

The effects of the control variables are also consistent with my intuition, further strengthening my confidence in the results. The regression analysis show that the greater the relative price of imports of the disputed product from China, the lower the chance of an investigation turning into duty. Similarly, the larger the volume of bilateral imports, the greater the chance of a positive ruling, and the faster the growth of Chinese exports to the investigating country, the higher the chance for positive rulings. Interestingly enough, however, the variable *Dollar amount of import* has a negative coefficient, counter to my expectation. An explanation for this trend is that as more companies in the investigating country buy imports from China and sell the value-added goods, these companies will lobby the government to not impose protection. Considering the degree of mobilization of the investigating countries' dependence on cheap Chinese imports, the regression analysis show that the higher the log value of the imports from China, the lesser the likelihood of antidumping investigations turning positive. Another result contrary to my expectations arises from the unemployment rate variable. A rise in the unemployment rate in the investigating state seems to decrease positive antidumping rulings against China. Macro-economic variables that measure exchange rate and current account balance move in expected directions, but they are not statistically significant.

TABLE 3 HERE

Having established the correspondence of the model's results with my intuition, I now turn to the substantive impact of WTO membership on Chinese exporting firms. Table 3 shows

the total impact of the WTO, controlling for all variables. Depending on China's accession to the WTO, the value takes either 0 or 1, and market power low or high. All other determinants of antidumping rulings are at their average value. In this predicted probability of positive antidumping rulings, I find that China's accession to the WTO significantly decreases the probability that the investigation will turn positive for Chinese exporters with low market power. When antidumping duties were filed against Chinese firms with low market power in the pre-accession period, a positive ruling was almost guaranteed at 95 percent with confidence interval of 0.760 to 0.993. However, after China joined the WTO, the odds of antidumping rulings dropped significantly to 70 percent [0.445, 0.888], upholding my prediction that holding everything else constant, Chinese exports with low market power will benefit from the WTO. It is clear that the WTO is helping Chinese firms without market power. On the other hand, before China joined the WTO in cases of high market power, the odds of being imposed with antidumping duties were much lower, only 53 percent with confidence interval of 0.184 to 0.862. Comparing this figure with 95 percent with confidence interval of 0.760 to 0.993 for Chinese exports with low market power before acceding to the WTO, this strongly supports the deterrent impact of market power. Although there is not as much of a drastic difference in the imposition rate for Chinese firms with high market power, the positive antidumping imposition rate increases from 0.53 percent [0.184, 0.862] to 0.566 [0.308, 0.797]. This result upholds my hypothesis that WTO member states are freer to impose antidumping duties even against Chinese exports with high market power as they can resolve political friction through the DSB. In conclusion, market power does not provide as much of a deterrence effect once China is in the WTO.

Sensitivity Test

These results are still robust with the alternative formulation of the dependent variable. In model 2, I substitute the dependent variable, which I collected from Chad Bown's *Global Antidumping Database* for final antidumping duty decisions collected by the WTO. This change in dependent variable does not change my results, but further strengthen them. In model 3, I substitute the dependent variable to preliminary decisions: 1 if there were a preliminary decision and 0 if there were not. The results show that aside from import surge from China and appreciation of exchange rate, nothing else matters. This makes sense, because preliminary duties are the product of economic facts alone, excluding the politics that is taken under consideration in the final dumping duties. In model 4, I include WTO members' possession of market power over China. Trading partners' market power, which is measured by China's exports to the specific country one year before the petition year divided by China's exports to the world one year before the petition year, may have a positive correlation with the percentage of investigations turning into positive rulings. I find that although antidumping users' market power and interaction with the WTO go in the expected direction, the effect is close to zero. I conclude that antidumping investigators' market power in this case simply does not matter, with or without the WTO. Finally, in model 5, I include Foreign Direct Investment (FDI), as some scholars have argued that the economic cost of conducting unilateral behavior may be correlated with FDI (Abbott 2000; Simmons 2000; Maggi 1999). However, I find that the incorporation of the FDI stocks variable does not change my conclusions.

Conclusion and Implications

Authorized use of protectionist measures—especially antidumping duties—by WTO member states has been a controversial issue that triggers tremendous debate. Due to the recent

phenomenon of a rapid increase in the use of antidumping duties, a wide range of attempts have been made to evaluate the causes behind this proliferation. China has thus far been the largest target of this remedy of political-economic frictions, and despite the “rules-oriented” scholars’ claim for deterrence in protectionist practices among WTO members, the application of discriminatory antidumping duties against China has increased since 2001. This paper weighs in on the debate between the power- and rules-oriented perspectives on international law by examining states’ use of antidumping actions against China. It asks whether China’s membership in the WTO deters China’s use of market power against other members and addresses the conditions under which regulatory authorities impose affirmative rulings against Chinese firms. Supporting the “rules-oriented” perspective on the effect of international law and the economic model of the market power theory, my results clearly show that without the WTO, regulatory states are less likely to impose positive antidumping ruling on cases where China has market power in order to decrease their odds of being retaliated against by China. However, upon China’s accession to the WTO, the new trade regime weakens the deterrent impact of China’s market power, leveling the playing field for all members to rightfully exercise their allowable forms of trade protection.

How could the system have this particular effect? Pre-accession China would be accustomed to making use of its market power by threatening or actually implementing unilateral protectionist retaliation to counter their partners’ contemplated antidumping actions. In contrast, when China acceded to the WTO, its unilateralism was curbed, thus undermining China’s ability to effectively deter justifiable antidumping investigations from turning positive. In essence, the WTO not only decreases the number of antidumping duties imposed against its own members

(Busch, Raciborski and Reinhardt 2008), but it also protects its members' rights to exercise the use of allowable forms of trade protection.

How generalizable are my findings? China is quickly rising to become the next largest importer, closely following the E.U. and the U.S., which gives it more market power than most of its trading partners. In the pre-accession period, China clearly took advantage of its market power to credibly threaten retaliation to deter antidumping investigations from turning positive. Controlling for a wide variety of factors that shape final antidumping decisions, I find that the WTO effectively curbs China's unfair use of its market power in deterring antidumping decisions. My findings should thus be highly generalizable, for if the WTO deters China's unilateral use of market power, it should, too, deter that of other countries with less market power.

The most important contribution this paper makes is that it shows that international law can be especially valuable to members without market power. Instead of functioning as a guise for the most powerful states to have their way (Rose 2004), international law helps level the playing field for states lacking the capacity to retaliate. One important implication is that developing countries that lack market power would benefit more from the WTO if they have full legal capacity (Busch and Reinhardt 2003a; Busch, Reinhardt, and Shaffer 2009). My results suggest that effectively utilizing the WTO's Dispute Settlement Body deters unilateralism that arises from market power.

Appendices**Table 1. AD Decisions against China 1991-2001 and 2002-2011**

	Antidumping Investigations turn Negative	Antidumping Investigations turn Positive	Total
Pre-WTO (1991-2001)	135 38.03%	220 61.97%	355 100%
Post-WTO (2002-2011)	114 22.57%	391 77.43%	505 100%
Total	249 28.95%	611 71.05%	860 100%

Table 2. Probit Selection Model of WTO Members' Antidumping Decision against China

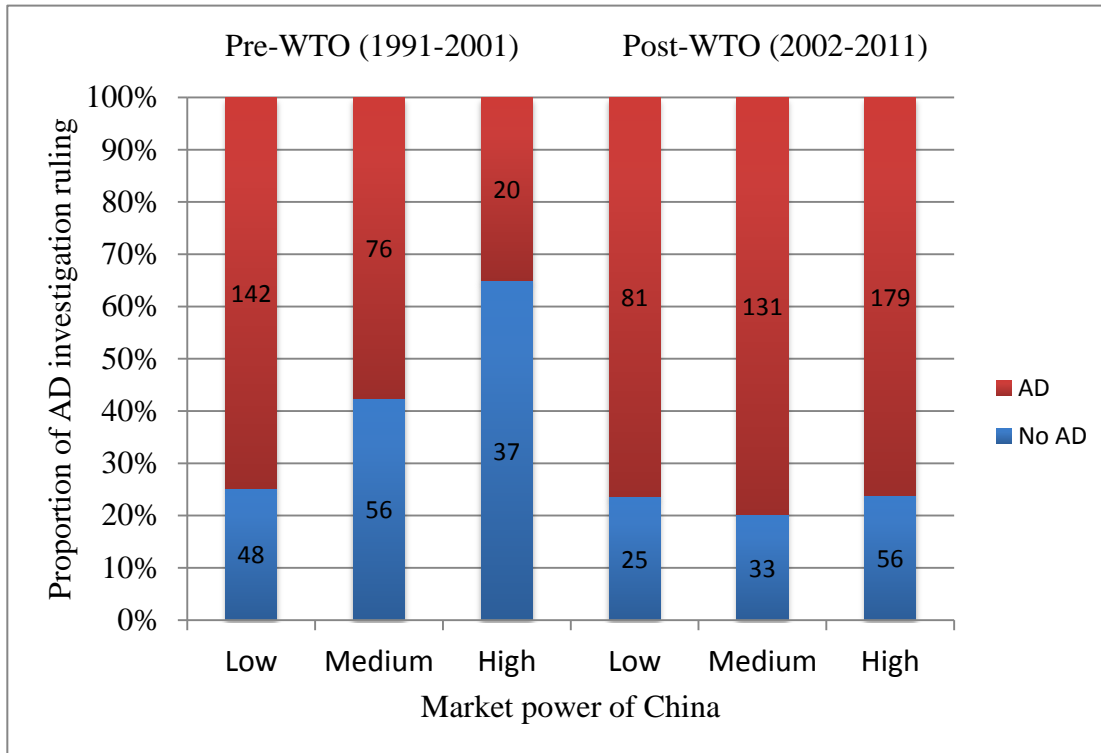
Dependent Variable	Model 1	
	Affirmative	
	<i>Coefficient</i>	<i>SE</i>
WTO, <i>t</i>	-1.799*	0.724
China's market power, <i>t-1</i>	-1.108**	0.395
WTO*China's market power	0.833**	0.253
Relative price of import, <i>t-1</i>	-0.535*	0.224
Import share, <i>t-1</i>	0.007**	0.003
Real growth of import, <i>t-2 t-1</i>	0.025*	0.012
Dollar amount of imports, <i>t-1</i>	-0.031**	0.011
Exchange rate, <i>t-1</i>	0.003	0.004
Unemployment rate, <i>t-1</i>	-0.063*	0.029
Real GDP per capita growth, <i>t-1</i>	-0.064**	0.024
Current account balance, <i>t-1</i>	-0.045	0.027
Ln GDP per capita in constant 2005 USD, <i>t-1</i>	3.687*	1.818
Ln GDP in constant 2005 USD, <i>t-1</i>	-4.358*	1.977
Constant	92.701*	41.974
Number of observations	860	
Model χ^2	177.23	
Pseudo- R^2	0.1835	

* $p < 0.05$; ** $p < 0.01$. Two-tailed tests are conducted for all estimates. Robust SEs clustered over dyads. Country-specific and year-specific fixed effects are included in the model but omitted from the table to save space.

Table 3. Predicted Probability of Positive AD Decision, Estimated from Model 1

	Pre-WTO	Post-WTO
China's Market Power is Low (sample mean – 1 SD, or $\ln MP_ch_Xl1=0.89$)	0.945 [0.760,0.993]	0.705 [0.445,0.888]
China's Market Power is High (sample mean + 1 SD, or $\ln MP_ch_Xl1=2.25$)	0.537 [0.184,0.862]	0.566 [0.308,0.797]

Figure 1. Results of antidumping investigations against China divided by market power.



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