Global Value Chains and the Political Economy of WTO Disputes

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Abstract

This paper investigates how the rise of global value chains (GVCs) in international trade affects the political economy of trade disputes. The presence of GVCs imply that countries are linked by trade in intermediate, i.e. unfinished, goods as production inputs are increasingly prominent in the phenomenon of 'trade along the international supply chain.' We argue in this paper that relative to trade in final goods only, intermediate goods trade lends itself to stronger lobbying of the prospective complainant country government and thus results in a higher likelihood of WTO dispute initiation. We test our argument relying on a two-stage empirical strategy. First, we examine the political contestation around US anti-dumping cases ongoing in the WTO era that takes place in International Trade Commission (ITC) hearings. We observe that while these cases see significant opposition from firms relying on the imports of intermediate goods, most cases end in favor of petitioners supporting the imposition of anti-dumping duties. In a second step, we quantitatively analyze the effect of intermediate goods trade in products that are the subjects of anti-dumping cases on the incidence of a formal WTO dispute. The results offer some tentative support for our argument that high levels of intermediate goods trade is associated with a *higher* likelihood of initiating a WTO dispute.

Keywords: World Trade Organization, dispute settlement, multinational firms, global production networks

I. Introduction

How has the rise of global value chains (GVCs) affected the incidence of trade disputes in the WTO? Global value chains, in which countries are linked by trade in intermediate goods, have significantly altered the composition of international economic exchange. Fewer finished or final goods cross national borders; rather, intermediate – unfinished – goods as production inputs are increasingly prominent in the phenomenon of 'trade along the international supply chain.'

The rise of GVCs has been driven by the internationalization of production, in which multinational firms form production networks that locate stages of production in different countries. In doing so, GVCs have affected significant changes in the political economy of trade. In particular, GVCs privilege the role of multinational firms as political actors, both in their home countries and in the host countries in which they invest to locate parts of their production networks. Overall, the growing body of scholarship to date shows that GVCs and trade along the international supply chain have expanded the coalition of interests favoring liberal trade and opposing protectionism.

This paper examines the link between GVCs and World Trade Organization (WTO) disputes. The project is a broader inquiry into how these changes in international trade have affected the political economy of trade disputes. The hypothesis is that higher levels of GVC-related trade leads to a higher incidence of WTO disputes. We advance the argument that relative to trade in final goods only, intermediate goods trade – as a proxy for GVC-related trade – lends itself to stronger lobbying of the prospective complainant country government. Not only do exporters of the prospective complainant country, i.e. the country against which anti-dumping duties have been levied, lobby their government for legal redress of violations of WTO law. Importers of the prospective respondent country, i.e. the country establishing the anti-dumping duties, share the interests of partner country exporters and may also join forces to lobby the same government. The paper further hypothesizes that this scenario is especially likely where there are high levels of intra-firm trade.

The hypothesis of a positive relationship between GVC-related trade and WTO dispute initiation relies on a two-part theoretical argument. First, in the domestic political arena of the country that is the potential respondent/defendant, firms that oppose the adoption of anti-dumping measures against imports are often unsuccessful due to insitutionally imposed disadvantages in the anti-dumping process itself as compared to firms in favor of anti-dumping measures. Second, from the vantage point of the country that is the potential complainant, exporters hurt by the WTO-inconsistent measures are likely to lobby their governments for redress through the WTO's dispute settlement process. The latter, in particular, has the effect of increasing the likelihood of a WTO dispute. We argue that this effect is more pronounced in the case of intermediate goods, as it is

likely to encourage cooperation and possibly coordination between the exporters of the complainant country and the politically unsuccessful importers of the respondent country.

Our contribution to the existing scholarship is to fill the knowledge gap between the activation of trade disputes at the domestic level and the effect of GVC-related trade on the initiation of WTO disputes. Existing studies show that there is an overall decline, for example, in the petitioning for anti-dumping cases in the United States, driven in large part by intra-firm trade links between potential complainants and respondents (Jensen, Quinn, and Weymouth 2015). This paper seeks to complete the picture by examining the anti-dumping cases that do arise. Thus we are interested, first, in when and how economic actors involved in intermediate goods trade may be politically activated, especially in the domestic arena well before the case escalates to the WTO as a full-blown trade dispute. The analysis examines US anti-dumping cases ongoing in the WTO era and the political contestation that takes place in International Trade Commission (ITC) hearings to decide on the adoption of anti-dumping measures. Cases see significant opposition from firms that rely on the imports of these goods, which are often intermediate goods. Nevertheless, most cases end in favor of petitioners supporting the imposition of anti-dumping duties on particular imports.

Second, the paper follows with a quantitative analysis of the effect of intermediate goods trade in products that are the subjects of anti-dumping cases on the incidence of a formal dispute filing at the WTO. Our main finding is that high levels of intermediate goods trade is associated with a *higher* likelihood of initiating a WTO dispute. This effect is more pronounced when we isolate the effect of intra-firm trade, which may reflect the cooperation of firms across the national boundaries of both complainants and respondents.

II. The Role of Firms in the WTO DSM

The dispute settlement mechanism (DSM) of the WTO provides its member countries with a mechanism to solve their trade disputes peacefully. Scholars and policy experts alike agree that the WTO DSM is one of the key elements contributing to the process of legalization in the global trading system and thus to the functioning of the international trading system more generally (Busch and Reinhardt 2002; Palmeter 2000; Steger and Hainsworth 1998). Overall, the literature dealing with WTO disputes is plentiful. Studies focus on the design of the WTO dispute body and the comparison to its predecessor under the GATT system (Busch and Reinhardt 2000; Rosendorff and Milner 2001; Zangl 2008), on WTO dispute initiation and escalation (Guzman and Simmons 2005; Sattler and Bernauer 2010; Sattler, Spilker and Bernauer 2014), on the role of developing countries in the WTO (Busch and Reinhardt 2003; Davis and Blodgett Bormeo 2009; Elsig and Stucki 2012; Francois, Horn and Kaunitz 2008), or on which countries participate in filing WTO disputes (e.g. Johns and Pelc 2014).

One aspect of the WTO dispute process that has been unattended for a long time, however, is the discrepancy between the actors affected by protectionist measures and those who can do anything about it: '[f]irms do not have legal standing in the [WTO] disputes process. They rely on governments to act as their agents in Geneva' (Lawton et al., 2009: 11).[1] One can thus conceive of states as gatekeepers at the WTO in that they are the only actors able to file disputes (Poletti and De Bièvre 2014). As a consequence, we are confronted with a situation in which governments need to decide to which firm interests to adhere to, when and how.

The literature on the WTO DSM has only recently started to evaluate how the interest of firms affects dispute settlement. Following a recent trend in the literature on the political economy of trade policy more generally (e.g. Curran, 2015; Eckhardt, 2015; Jensen et al., 2015; Kim, 2015; Manger, 2009), these studies evaluate how the presence of firms that are part of global value chains affect dispute settlement at the WTO. For example, Yildirim (2016) and Yildirim et al. (2017) show that countries comply much more swiftly with adverse WTO Panel rulings if the dispute affects sectors characterized by the presence of GVCs. The argument underlying this type of research relies on the assumption that firms that are part of GVCs have little demand for trade protection (Jensen et al. 2015). In contrast, due to their production networks spanning across various countries, barriers to trade imply increased costs for these firms and they are therefore assumed to lobby against such protectionist measures.

While this research is a huge step forward in better understanding the process of WTO dispute settlement, its exclusive focus on firms that are part of GVCs leads to the question why WTO disputes arise in the first place. If GVC firms have no interest in trade protection why do they need to lobby their government to use the WTO to get rid of such measures? Why do governments not respond beforehand and concede to the demand of these firms but rather let it escalate to the WTO and through all stages of the WTO DSM just to then swiftly comply? Given that WTO disputes impose high transaction costs (Sattler, Spilker and Bernauer 2014) it is puzzling that in the presence of GVC firms no other less costly way to solve these disputes is found.

We argue in this article that one possible explanation for this puzzle lies in the fact that different types of firms have very different incentives. And since these different types of firms all put pressure on governments, governments need to decide when to concede to which type of firms' interest. In the next section, we therefore provide a discussion of which firms have what types of interest and use this as a basis for a more general argument on the role of different types of firms in the WTO DSM.

[1] A notable exception is Davis and Shirato (2007)

III. Theoretical Framework: Different Firms and Different Interests in WTO Dispute Settlement

i. Regularities on firms and trade

Recent empirical studies have found some regularities in trade patterns suggesting that firms that export differ from firms producing for their home market, independent of the sector in which they are operating. Exporters tend to be larger in size and are much more productive (Aw et al. 1998; Bernard et al. 2003; Bernard and Jensen 1999; Eaton and Kortum 2002; Eaton et al. 2004). Furthermore, a minority of firms export and those who export typically only serve one or few markets (Eaton et al. 2004). Furthermore, there is the special group of multinationals that are part of global value chains.

Melitz (2003) introduced a theoretical model to account for the observed heterogeneity of firms within industries. In this model trade liberalization typically benefits those firms that already export and that are most productive whereas it tends to harm non-exporting firms and those that are least productive. The reason for this unequal effect of trade liberalization is that only the most productive firms can offset the increased competition in their home market by higher levels of exports. For the least productive firms, trade liberalization can even imply market exit.

Global or regional value chains act on top of these divisions with respect to trade liberalization. In principle, in each of the three categories of firms – those serving the domestic market only, those also exporting and MNCs – there exist firms that are dependent on inputs from foreign firms and those who are not. Those that depend on such inputs, i.e. those who are part of global or regional value chains, have a strong interest in cheaper inputs, which implies that they want their own country to set no tariff or quotas on such products and to have similar production and safety standards. And each of these different type of firms should have different interests on when and how to rely on the process of WTO DSM, which we lay out in the next section.

ii. Firms' interest in the context of anti-dumping

To facilitate the clarity of our argument we focus on anti-dumping disputes. Anti-dumping disputes arise because firms in industry i in State A complain that firms in the same industry of State B sell their products at an unfairly low price thereby causing a genuine injury to industry i in State A. As a consequence, State A can decide, once it has established in accordance with the WTO's Anti-Dumping Agreement (ADA) that dumping does indeed take place, to issue anti-dumping duties.

However, in most cases firms in industry i are not the only ones affected by the imports

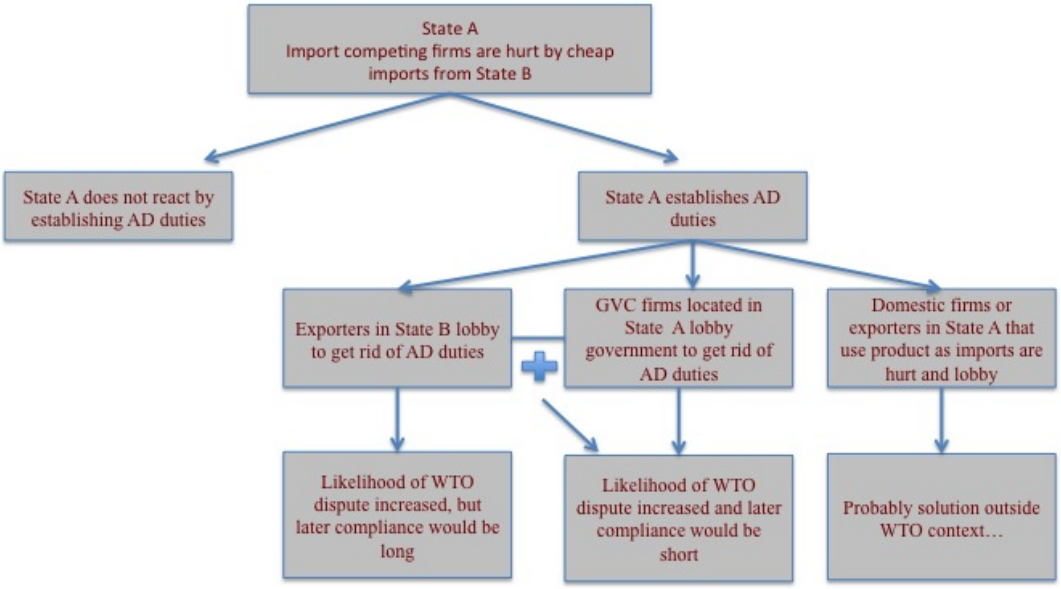

Figure 1: *Firms and Anti-dumping Disputes at the WTO*

of the respective product. Firms in other industries might rely on the respective product as an input for their production process. For those firms the issuing of anti-dumping duties implies an increase in their prices. As a consequence their final product becomes more expensive thus decreasing their revenue. Hence while anti-dumping duties might be in the interest of some firms they are often costly for other firms within the very same country.

Figure 1 shows a stylized version of this process. If State A does decide to establish AD duties there are two potential ways for firms hurt by these AD duties to get rid of them again. Either these firms try and lobby the government directly to withdraw these duties or they turn to the government of State B and lobby it to ask for dispute resolution at the WTO.

The decision of whether firms (are able to) turn to State B and thus to ultimately get access to the WTO DSM should strongly depend on the type of firms affected by the AD duties. In general, the likelihood of a WTO dispute should increase if exporters in State B are strongly affected by the AD duties established in State A and are able to convince their government to turn to the WTO instead.

This process can be reinforced if in addition to exporters in State B also GVC firms with a basis in both States A and B are involved. In this case, the likelihood of an establishment of a WTO dispute should increase significantly. Furthermore, we should also observe compliance to be more swift, which would correspond to the findings of Yildirim (2016) and Yildirim et al. (2017). In contrast, compliance should be longer if merely exporters of State B are involved (see lower left part of Figure 1).

Finally, if only domestic firms or exporters in State A are affected by the higher import prices of their inputs (see right-hand part of Figure 1), the WTO should not become involved since two opposing groups within State A mainly make up the opposing conflict lines (i.e. those firms using the respective products as inputs and those firms that produce the same product and are thus direct competitors). Which interest ultimately prevails in this case should depend on the lobbying intensity of the actors involved.

Several hypotheses follow from this model:

Stage 1: Firms who lobby for AD, CVD or safeguard measures should strongly differ from those who file the corresponding disputes at the WTO. Thus more non-GVC firms should be involved in the imposition of anti-dumping duties while GVC firms should be less likely to be involved.

Stage 2: The likelihood of filing a WTO dispute should increase if i) Exporters in State B are affected that want to sell their products in State A; ii) GVC firms with presence in both states are involved; iii) Domestic firms or exporters in State A that use the respective product as input are affected.

Stage 3: The time-to-compliance should be shortest when GVC firms with presence in both countries are involved but somewhat longer when only exporters are involved and longest if neither types of firms are involved.

IV. Who Supports, Who Opposes? Political Contestation in US Anti-Dumping Cases

This section of the paper addresses the question of how WTO dispute cases arise in the first place from domestic-level processes. The analysis focuses on the process of anti-dumping investigations and determinations in the United States, which has recorded about 1300 anti-dumping cases since the late 1970s.[2]. In describing the process of anti-dumping investigations and determinations, the discussion highlights the institutional mechanisms for political contestation between petitioning industries, firms in these petitioning industries, and opposing firms.

[2]The number of cases is determined from the Temporary Trade Barriers Dataset (Bown 2016)

In the United States, the International Trade Commission (ITC) and the Department of Commerce are charged with enforcing and administering the country's anti-dumping laws. There are largely 3 phases: i) petition; ii) investigation; and iii) review. As detailed below, firms may register their opposition to the imposition of anti-dumping duties during the investigation stage (2nd phase), during a public hearing to determine the outcome of the anti-dumping investigation, and in the review phase (3rd phase) that takes place five years after the actual imposition of anti-dumping duties.

The US Anti-Dumping Investigation Process in Brief

Phase 1: Petition. The anti-dumping investigation process in the US begins with a petition filed on behalf of an *industry*, which must provide evidence of material injury due to the 'dumping' of imports by a trade partner.[3] For a filing to be accepted, domestic supporters of the petition must comprise i) at least 25 percent of total domestic production of the 'like product' and ii) over 50 percent of production of the 'like product' for the portion of the industry either supporting or opposing the petition.[4] Petitions are required to include information on the quantity and prices of imports that are claimed to be sold at 'less than fair value,' calculated for the three years leading up to the date of filing and including information on firms that 'jumped ship' in favor of cheaper imports.

*Phase 2: Investigation.*The investigation phase consists of 5 stages variously involving the Department of Commerce and the International Trade Commission (ITC). First, investigations are initiated by the Department of Commerce within 20 days of filing of the petition.[5] It is followed by 2) the preliminary phases of the ITC's and 3) Department of Commerce's investigations, respectively.[6] In stage 4, the Department of Commerce finalizes first its investigation, followed by stage 5 in which the ITC concludes its own investigation.[7] With the concurrence of both investigating bodies on material injury, the Department of Commerce is legally bound, within 7 days, to publish an anti-dumping duty order in the Federal Register.

Phase 3: Review process The Department of Commerce and the ITC are required to undertake a review of the anti-dumping order within 5 years of its implementation. The review is conducted to determine whether revocation of the anti-dumping duty order would

[3]For an informal guide to the process prepared by staff from the International Trade Commission's Office of Investigations,see the *Antidumping and Countervailing Duty Handbook,* 14th Ed. (2015).

[4]In cases where this second condition is not fulfilled, the Department of Commerce will conduct a poll to determine the level of support for the petition.

[5]Petitioners are required to file both with the Department of Commerce and the ITC on the same day. The Department of Commerce decides for or against an investigation in response to the petition.

[6]The ITC communicates the findings of its preliminary investigation to the Department of Commerce within 45 days, and the Department of Commerce completes this stage within 115 days after that of the ITC.

[7]The Department of Commerce makes its final determination within 235 days of the filing of the petition. Within 45 days after the final determination of the Department of Commerce, the ITC also makes its final determination.

facilitate the resumption of dumping in the products under question. The Department of Commerce publishes a notice in the Federal Register calling for interested parties to participate in the review and provide information/views on the expected consequences of a revocation. The Department of Commerce is legally bound to revoke the order unless it is determined that i) dumping would resume following revocation and ii) material injury would persist. If there is 'adequate' interest, a full review of the case is conducted, paralleling the procedures of the investigation stage.

Registering Opposition: Evidence from Public Hearings of Anti-Dumping Investigations

Institutional mechanisms for opposition are provided in the Department of Commerce and ITC's anti-dumping investigation and determination procedures. Opportunities for contesting the petition for anti-dumping duties are concentrated in phase 2: the preliminary and final determinations of the two investigative bodies; and in phase 3, in the event of a full investigation concerning the revocation of an existing anti-dumping measure.

As part of anti-dumping investigations, non-petitioners may participate in the preliminary investigation of the ITC; to do so the respective party files an 'entry of appearance' with the ITC Secretary. If the Secretary deems this party to have a 'proper reason' for joining the investigative process, the non-petitioner is included in the 'public service list' document.[8] What is interesting to note is that the investigations involve questionnaires that are required to be filled out by importers, especially those importing from the countries under investigation. That is, the investigations do involve querying those that import goods from the prospective target country, that is, domestic firms that are likely opponents to anti-dumping measures.

Opposition to petitions for anti-dumping investigations are most prominent in the preliminary and final stages of the ITC investigation, when a public conference is held to determine whether an anti-dumping order should be passed. In this public hearing, parties both in support of and in opposition to the petition are given time to make opening statements (five minutes) and support their respective positions with testimonies from witnesses (one hour). Cross-examination is not permitted, but each side is given ten minutes after the presentation for rebuttal and summary. In the review stage for the five-year mark of anti-dumping measures, a similar hearing also takes place in the event of a full review. Again, importers are required to fill out mandatory questionnaires on the impact of the existing anti-dumping measure. At the hearing, parties – supporting and opposing firms – are given the opportunity to present their positions.

The ITC's online archive provides records of public hearings for cases since 2002/2003. While Chad Bown's data on US anti-dumping cases records well over 1300 investigations

[8]Requests for inclusion must be filed with the ITC Secretary within 7 days of the ITC's announcement in the Federal Register of its intention to investigate.

that have been initiated since the 1970s, records on the ITC website show approximately 300 unique cases since 2002/2003, that is, cases that can be uniquely identified by the original petition/investigation and including all subsequent five-year reviews, if any. As of this writing, 159 cases are classified as 'completed' or 'final,' that is, they are the most current cases for which ITC ITC has completed investigations of injury or made final determinations on anti-dumping measures. The remaining cases are those that have expired or have passed through repeated reviews and are still in effect.

Our research into these records – available f so far shows that a significant majority of anti-dumping petitions are contested, with firms going on record in the public hearings to oppose the anti-dumping petition. Records show that of the 157 cases for which records are available, opposition is recorded in 136 cases, about 87%. The records of public hearings also invariably identify the firms that are in opposition to the anti-dumping petition. In one of the most recent cases concerning the petition against imports of carbon, alloy steel and cut-to-length plate from Austria, Belgium, Brazil, China, France, Germany, Italy, Japan, Korea, South Africa, Taiwan and Turkey, the opposing firms included importers Dillinger America, Berg Steel Pipe Corporation, TheKnifeSource, and a business association – the National Tooling and Machining Association.[9][10]

Some notable arguments for opposing the anti-dumping measure included that of the representative of U.S. importer Dillinger America, who pointed out the need for imports as domestic producers could not adequately meet demand. The President of the U.S. knife steel manufacturing enterprise TheKnifeSource opposed the anti-dumping measure on the grounds that domestic producers have 'shown no interest' in producing the special type of knife steel bars that his industry requires. In addition, a representative of the National Tooling and Machining Association, a precision metal-producing also in favor of tool steel imports, argued that grades of tool steel from US producers did not meet their own production requirements, which necessitated the turn to better quality imports – at a much lower price.

The above case refers to two of three of the most frequent rationales for opposing the imposition of anti-dumping measures. First, many cases refer to the shortfall in supply of the product in question. The lack of adequate supply can be expressed in terms of sheer volume but also products that satisfy a particular set of standards. Products conforming to particular standards are likely to be in demand among domestic importers that employ them as intermediate inputs for products that are then exported. Second, opposition arguments also point to the problematic quality of the domestic product. This may be expressed in the general terms of overall quality, but often in terms of meeting certain product quality standards that are in force in particular industries, such as those referred to in the arguments of the National Tooling and Machine Association in the case above.

[9]This new case is at this point 'complete' and the records available as the ITC has only recently made its first determination that imports have caused 'material injury.'

[10]Investigation Nos: 701-TA-560-561 and 731-TA-1317-1328, available on the ITC website.

Third, some mention is made of supply chain considerations in opposing the imposition of anti-dumping measures. In the case of imports of silicon metal from Russia, whose investigation took place between 20 September 2002 and 19 March 2003, the petition was filed by the United Steel Workers of America (union), US producer Globe Metallurgical, the International Union of Electronic, Electrical, Salaried, Machine and Furniture Workers; as well as the Paper, Allied Industrial Chemical and Energy Workers international Union. On the opposing side in the public hearings was US importer G.E. Silicones (now named Momentive Performance Materials) as well as the Russian producer Brastk Aluminum Smelter. The representative from GE Silicones cited the firm's desire to 'fully participate' in the Russian economy and hence it was 'important to the business to keep Russia as a supplier to provide geographic diversity in the supply chain as required by prudence and by the (firm's) corporate policy'.[11]

Outcomes of US Anti-Dumping Investigations

Despite the extensive opposition registered during the hearings, anti-dumping investigations overwhelmingly find in favor of domestic industries. In 129 cases, about 82%, the ITC found evidence of 'material injury' in spite of opposing arguments, which provides the legal basis on which the Department of commerce then imposes anti-dumping duties. Thus firms that oppose the imposition of anti-dumping measures against countries from which they import see few successes. The next section examines patterns from the large-n perspective, focusing on the likelihood that an anti-dumping dispute is formally litigated at the WTO.

V. Quantitative Empirical Analysis

To test our theoretical arguments on a large scale we analyze the likelihood of US anti-dumping cases turning into WTO dispute settlement cases. To do so we compiled a new dataset based on the Temporary Trade Barriers Database (TTBD) compiled by Chad Bown (Bown 2016).[12] Since our interest lies in estimating which US anti-dumping disputes result in WTO dispute we restrict our analysis on all anti-dumping disputes that arose in the WTO period starting in 1995 until 2015. In order to determine whether a specific dispute involves GVC trade or not, we needed to determine the specific products under investigation in each case. Out of the overall number of 1360 disputes we were able to identify for 144 disputes the particular product. Out of these 144 anti-dumping disputes 22 turned into WTO disputes.[13] Since several anti-dumping disputes involved different products our final unit of analysis is the anti-dumping case by product resulting

[11] Investigation No: 731-TA-991. Transcript can be found on the ITC website.

[12] http://econ.worldbank.org/ttbd/gad/

[13] The overall number of WTO disputes in which the US acted as respondent in the WTO period until 2015 was 49.

in 295 cases.

In the analysis below, we rely on two different datasets. In a first step, we use a cross-sectional dataset with all anti-dumping dispute product combinations being included as one single observation. In this case, we use two dependent variables: First, the variable *WTO dispute* takes the value of 1 if a given US anti-dumping case becomes a WTO dispute. In this case, the target of the US' anti-dumping measure initiates a request for consultations against the US, which activates the first stage of the WTO dispute settlement process. The second dependent variable *Time to WTO dispute* measures the time between establishment of anti-dumping duties and the request for consultations in those cases in which a WTO dispute arose. For all other disputes we relied on the time of establishment of anti-dumping duties until the duties were revoked again and specify the initiation of a WTO dispute as failure.

The second dataset is in time-series-cross-section format. Each observation enters the dataset in the year, in which the anti-dumping dispute was launched and stays in the dataset either until a WTO dispute has been initiated or the anti-dumping duties have been revoked. In this case we rely on the dichotomous *WTO dispute* variable as our dependent variable, which takes the value of 0 for all years without a WTO dispute and 1 for the specific year with WTO dispute.

To measure the presence of GVC trade – our independent variable of interest – we rely on two approaches. First, we use the percentage of intra-firm trade in total trade for the respective product between the US and the complainant country. The data comes from the NAICS Related Party Database of the US Census Bureau.[14] While this measure corresponds as closely as possible to our theoretical quantity of interest, GVC trade, data are only available starting in 2002. Hence we rely on another variable to be able to analyze the whole period of investigation. In particular, the variable *intermediate* measures whether a product is an intermediate good (1) or not (0). To identify the products that are part of global value chains, we matched the product codes with those on the UNCTAD Standard Product Group List pertaining to intermediate goods.[15] Intermediate goods are those that are used to produce final goods or products, and thus placement on this list indicates strongly that the particular product at the center of an anti-dumping case is also part of the trade along global value chains. We interact this variable with the share of bilateral trade in the respective product between the US and the complainant country

In addition to our variable(s) measuring the presence of GVC trade, we include standard control variables typically included in models of WTO dispute initiation. Since the complainant in our dataset is all the time the US respondent characteristics are fixed. Hence we only include control variables for the complainant country in our models. In

[14] https://relatedparty.ftd.census.gov/. Accessed 26 June 2017.
[15] http://wits.worldbank.org/referencedata.html

particular, these are GDP per capita and total GDP. Both variables are taken from the World Development Indicators.[16] The political system of the complainant country as proxied by the Polity IV index is also included.[17] Finally, we control for overall bilateral trade between the US and the complainant country from which we have subtracted the product specific trade. The data comes from COMTRADE[18]

i. Results: Cross-sectional analysis

Table 1 lists the results of a logistic regression estimating the likelihood of WTO dispute initation. All models are estimated with robust standard errors clustered at the anti-dumping dispute level. The relevant coefficient for our theoretical argument is the interaction between intermediate product and trade in the respective product, which is displayed in the third row. While *intermediate*trade* has as positive sign, which corresponds to our argument of an increased likelihood of observing a WTO dispute under such circumstances, the coefficient barely misses standard significant levels. If foreign firms are affected by the AD measures the likelihood of a WTO dispute increases significantly. This does not change if we remove some of the control variables from the model, see Models 2 and 3 in Table 1.

[16] https://data.worldbank.org/data-catalog/world-development-indicators
[17] http://www.systemicpeace.org/inscrdata.html
[18] https://comtrade.un.org/

Table 1: *Likelihood of WTO dispute*

	(1)	(2)	(3)
intermediate	-1.37	-1.45	-1.93
	(2.278)	(2.269)	(2.152)
ln trade in product	0.01	0.01	-0.02
	(0.144)	(0.141)	(0.138)
intermediate*trade	0.13	0.14	0.17
	(0.161)	(0.161)	(0.151)
Polity2	-0.05		
	(0.107)		
ln GDP	0.12	0.19	0.15
	(0.345)	(0.322)	(0.302)
ln GDP pc	0.72	0.52**	0.50**
	(0.572)	(0.259)	(0.231)
ln bilateral trade	0.05	0.07	
	(0.290)	(0.274)	
Constant	-11.22	-11.37	-10.04
	(8.925)	(8.839)	(7.842)
Observations	196	196	221

Robust standard errors in parentheses
clustered at anti-dumping dispute
*** p<0.01, ** p<0.05, * p<0.1

Table 2 then shows the results if we use *Percent of intra-firm trade* instead of the interaction between intermediate good and product-specific trade. Since this measure is only available from 2002 onwards the number of observations is drastically reduced. As a consequence, except for the coefficient of GDP per capita, which proxies market size and thus the economic attractiveness of a complainant's market, no other variable is estimated to be significantly different from zero.

Table 2: *Likelihood of WTO Dispute – Logistic Regression*

	(1)	(2)	(3)
Percent of intra-firm trade	-0.02	-0.02	-0.02
	(0.029)	(0.024)	(0.025)
polity2	-0.18		
	(0.226)		
ln GDP	-1.60**	-1.16*	-1.13*
	(0.662)	(0.596)	(0.590)
ln GDP pc	1.00	0.26	0.26
	(1.227)	(0.421)	(0.448)
ln bilateral trade	0.33	0.53	
	(0.647)	(0.740)	
Constant	37.67**	32.19*	29.56*
	(15.717)	(17.072)	(16.130)
Observations	30	30	30

Robust standard errors in parentheses
clustered at anti-dumping dispute
*** p<0.01, ** p<0.05, * p<0.1

Finally, Tables 3 and 4 display the results of several Cox survival models using the time until a WTO Dispute has been initiated or the time until anti-dumping duties were revoked again (with the initiation of a WTO dispute being specified as failure) as the dependent variable. Again in all models, our variables of theoretical interest do not reach standard significant levels. Yet, as the results in Tabel 4 show a higher share of *Percent of intra-firm trade* is associated with a shorter time until WTO dispute initiation/anti-dumping duties revocation though not significantly so.

Table 3: *Time until WTO Dispute – Cox Survival Model*

	(1)	(2)	(3)
intermediate good	0.02	-0.09	-1.11
	(1.926)	(1.949)	(1.846)
ln trade in product	0.05	0.05	0.00
	(0.123)	(0.123)	(0.121)
interaction	0.07	0.07	0.13
	(0.141)	(0.143)	(0.133)
polity2	-0.08		
	(0.118)		
ln GDP	0.22	0.33	0.22
	(0.375)	(0.364)	(0.286)
ln GDP pc	0.78	0.41*	0.46**
	(0.646)	(0.241)	(0.221)
ln bilateral trade	0.18	0.23	
	(0.220)	(0.197)	
Observations	195	195	220

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: *Time until WTO Dispute – Cox Survival Model*

	(1)	(2)	(3)
Percent of intra-firm trade	-0.02	-0.02	-0.02
	(0.013)	(0.013)	(0.012)
polity2	-0.13		
	(0.269)		
ln GDP	-0.83	-0.58***	-0.65***
	(0.592)	(0.221)	(0.218)
ln GDPpc	0.81	0.21	0.05
	(1.615)	(0.431)	(0.361)
ln bilateral trade	0.92	0.76	
	(1.067)	(0.579)	
Observations	30	30	30

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

ii. Results: Time-series-cross-sectional analysis

In this part of the analysis, we rely on the time-series-cross-sectional version of our data. We again present two versions of models, one using the entire time period with the more indirect measure of GVC trade, i.e. the interaction between intermediate product and product-specific trade, and the second using the more direct measure of GVC trade, i.e. intra-firm trade, yet the shorter time period starting only in 2002. All models are logistic regression models estimated with robust standard errors clustered at the anti-dumping dispute level. Furthermore, we include time as well as its squared and cubic term (time, time2 and time3) to model temporal dependence (Carter and Signorino 2010).

The results in Table 5 show that while anti-dumping disputes involving intermediate goods are in general more likely to turn into WTO disputes, this effect is somewhat attenuated for products which are traded more often, which is only partially in line with our theoretical argument. Yet again, as in the case of the cross-section models, none of our theoretical variables of interest receive standard significance levels.

Table 5: *Likelihood of WTO Dispute – Logit Regression*

	(1)	(2)	(3)
intermediate good	2.29	2.29	2.29
	(2.904)	(2.907)	(2.906)
ln trade in product	0.14	0.14	0.14
	(0.169)	(0.168)	(0.166)
interaction	-0.09	-0.09	-0.09
	(0.175)	(0.175)	(0.177)
polity2	-0.01		
	(0.108)		
ln GDP	-0.06	-0.05	-0.04
	(0.340)	(0.348)	(0.356)
ln GDP pc	0.62	0.59**	0.59**
	(0.461)	(0.271)	(0.270)
ln bilateral trade	-0.06	-0.05	
	(0.237)	(0.231)	
time	-0.68	-0.68	-0.67
	(0.414)	(0.413)	(0.417)
time2	0.07*	0.07*	0.07*
	(0.040)	(0.040)	(0.040)
time3	-0.00*	-0.00*	-0.00*
	(0.001)	(0.001)	(0.001)
Constant	-10.07	-10.07	-10.32
	(10.678)	(10.658)	(10.850)
Observations	2,103	2,103	2,113

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In contrast, the models displayed in Table 6 are clearly in line with our theoretical prediction that anti-dumping disputes involving GVC trade are more likely to result in WTO disputes. Those anti-dumping dispute cases involving a high share of intra-firm trade are indeed significantly more likely to result in WTO disputes than other anti-dumping case.

Table 6: *Likelihood of WTO Dispute – Logit Regression*

	(1)	(2)	(3)
Percent of intra-firm trade	0.02**	0.02*	0.02
	(0.008)	(0.009)	(0.010)
polity2	-0.08		
	(0.103)		
ln GDP	-0.42	-0.33	-0.33
	(0.290)	(0.321)	(0.321)
ln GDP pc	0.70	0.45	0.45
	(0.437)	(0.290)	(0.289)
ln bilateral trade	-0.01	0.01	
	(0.344)	(0.317)	
time	0.28	0.28	0.28
	(0.467)	(0.471)	(0.467)
time2	-0.01	-0.01	-0.01
	(0.038)	(0.039)	(0.038)
time3	-0.00	-0.00	-0.00
	(0.001)	(0.001)	(0.001)
Constant	-0.44	-0.88	-0.88
	(8.936)	(8.856)	(8.842)
Observations	1,089	1,089	1,089

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

VI. Conclusion

Currently, rather tentative, as we are still in the process of trying to get information on more of the anti-dumping disputes in the post 2002-period ...

The aim of this paper was to investigate how the rise of global value chains (GVCs) in

international trade affects the likelihood of WTO dispute initiation. The presence of GVCs imply that countries are linked by trade in intermediate, i.e. unfinished, goods as production inputs are increasingly prominent in the phenomenon of 'trade along the international supply chain.' We know from existing scholarship that intra-firm trade is a crucial determinant for anti-dumping dispute initiation, in that it is mostly firms with no or little GVC trade that are filing petitions for anti-dumping duties in the United States (Jensen, Quinn, and Weymouth 2015). Furthermore, existing scholarship on the WTO shows that disputes involving high shares of GVC trade are much more likely to see swift compliance once a WTO panel has issued a ruling (Yildirim 2016; Yildirim et al. 2017). However, currently we know little about the part in between anti-dumping dispute initiation and compliance with WTO dispute rulings. Why do WTO disputes arise under such circumstances at all? Why do governments not respond beforehand and concede to the demand of GVC firms?

We propose a two-part argument to explain this puzzle. First, we argue that in the domestic political arena of the country that is the potential respondent/defendant, firms seeking the establishment of anti-dumping measures, which tend to be non-GVC firms, have an institutional advantage rendering them mor succesful than their GVC-counterparts seeking to prevent the establishment of anti-dumping duties. Second, once anti-dumping duties have been established, we argue that relative to trade in final goods only, intermediate goods trade lends itself to stronger lobbying of the prospective complainant country government and thus results in a higher likelihood of WTO dispute initiation.

We test our argument relying on qualitative and quantitative evidence. First, we examine the political contestation around US anti-dumping cases ongoing in the WTO era that takes place in International Trade Commission (ITC) hearings. We observe that while these cases see significant opposition from firms relying on the imports of intermediate goods, most cases end in favor of petitioners supporting the imposition of anti-dumping duties.

Second, the paper follows with a quantitative analysis of the effect of intermediate goods trade in products that are the subjects of anti-dumping cases on the incidence of a formal dispute filing at the WTO. Our main finding is that high levels of intermediate goods trade can be associated with a *higher* likelihood of initiating a WTO dispute. This effect is more pronounced when we isolate the effect of intra-firm trade, which may reflect the cooperation of firms across the national boundaries of both complainants and respondents.

VII. References

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