# The World Trade Organization and U.S. Domestic Politics\* PRELIMINARY DRAFT

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#### Abstract

To what extent do rulings on trade disputes at the World Trade Organization (WTO) affect U.S. domestic politics? We use the random assignment of WTO Appellate Body (AB) judges to disputes as an instrumental variable to predict WTO-AB rulings. We find that voters in U.S. counties more exposed to adverse WTO-AB rulings were significantly more likely to vote for the Republican candidate in the 2016 U.S. presidential elections than for the Republican candidate in 2012. We measure a county's exposure as the cumulative share of employment in industries that are affected by AB rulings, and we control for county characteristics and other trade flows, including imports from China. We find this causal effect of WTO-AB rulings on U.S. election outcomes to depend on the average educational attainment in the county and to be concentrated in counties with a high population share of residents with less than a college degree. These findings support the view that WTO-AB rulings are salient for U.S. domestic politics and have contributed to a backlash from voters in counties whose employment was exposed to adverse WTO-AB rulings.

Keywords: International trade organizations, elections and voting behavior, trade dispute settlement

JEL Classification: D72, F13, F14, F16

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# **1** Introduction

Globalization, the multilateral order of trade agreements, and dispute settlement in particular have met renewed discontent. The legislative ratification, and the underlying political support or rejection of trade agreements, has been studied in multiple settings (for U.S. Congressional votes on the Trade Reform Act 1973, NAFTA 1994, GATT 1994 see, e.g., Magee 1994, Baldwin and Magee 2000). The domestic determinants and consequences of international trade agreements are the subject of a substantive literature in economics and in political science science.<sup>1</sup> After their ratification by the domestic legislature, however, the support for trade agreements in operation and their effect on domestic politics is arguably less well understood. We study the impact of rulings in trade disputes at the World Trade Organization (WTO) on U.S. presidential elections. We find that the exposure of U.S. counties' industries to adverse WTO rulings strongly predicts a change in county-level vote shares in favor of the Republican anti-WTO candidate in 2016 compared to the Republican presidential candidate in 2012.

We focus our analysis on the WTO's Appellate Body (AB), which randomly assigns three of its seven Appellate Body Members (henceforth called *judges* for short) to a given dispute, so we can use exogenous variation in judge characteristics to study the causal impact of WTO decisions on domestic outcomes. The role of the AB is arguably the main innovation of the dispute settlement mechanism (DSM) at the WTO over its predecessor, the General Agreement on Tariff and Trade (GATT), and serves as the final stage of arbitration. The AB can recommend that a country bring its policies or measures into conformity and, if a reasonable time period for implementation passes, authorize retaliation.<sup>2</sup> The WTO-AB has come under intense scrutiny from the United States and other WTO Members for alleged "judicial overreach:" issuing rulings that, in that view, go beyond the narrow rights and obligations specified in WTO agreements. The controversy reached a breaking point in December 2019 after the United States refused to allow the appointment of any new AB judge, rendering the AB and therefore the WTO's dispute settlement mechanism inoperable once the number of judges had dwindled to fewer than three.<sup>3</sup> In the bulk of disputes that reach the AB, the AB finds the respondent country, against which

<sup>&</sup>lt;sup>1</sup>Johnson (1953), Bagwell and Staiger (1999), Ludema and Mayda (2013) and Amador and Bagwell (2013) study economic determinants, and Grossman and Helpman (1995), Maggi and Rodriguez-Clare (1998), Krishna (1998), Staiger and Tabellini (1999), Rosendorff and Milner (2001*a*) and Maggi and Rodriguez-Clare (2007) political explanations of international trade agreements. Autor, Dorn and Hanson (2013, 2016), Feler and Senses (2017), Jensen, Quinn and Weymouth (2017), Pierce and Schott (2020), Autor et al. (2020) and Blanchard, Bown and Chor (2019) analyze the domestic economic, social, and political effects of trade and trade agreements.

<sup>&</sup>lt;sup>2</sup>The Dispute Settlement Body (DSB), to which all 164 WTO Members belong, can formally abandon an AB ruling but unanimity is required, including from all complainants and the respondent in a dispute. No AB decision has been overturned by the DSB since the WTO's inception in 1995.

<sup>&</sup>lt;sup>3</sup>Since December 2019, disputes that reach the AB remain unresolved, until the AB is reformed or WTO members find other ways to settle trade disputes (Payosova, Hufbauer and Schott 2018, Bowen and Broz 2020). There are currently 18 disputes at the AB stage in legal wait, several of them involving the United States https://urldefense.com/v3/\_\_http://www.wto.org/english/tratop\_e/dispu\_e/appellate\_body\_e.htm\_\_;!!Mih3wA!TuazJvG02sRjQvIWO0R8KhaSg\_ZrkhJoHsRGEP5HfCA3r40NP\_4S2m5ruCUIxVM\$.

the complainants bring the dispute, at fault and recommends that the respondent bring its policies or measures into conformity with WTO agreements.<sup>4</sup>

Prior to the U.S. presidential elections of 2016, the United States was the respondent in 55 WTO disputes that reached the WTO-AB (through April 2016). Of these 55 disputes, the U.S. Trade Representative (USTR) considered 47 to be complainant wins against the United States. In our subsequent analysis, we dispute DS 277 with a WTO-AB ruling from the data, keeping 54, because, DS 277 involved the WTO-AB only on the compliance stage and not as an appeals forum. These 55 disputes reference 794 products (at the HS 6-digit level), related to between 136 and 215 U.S. industries (at the NAICS 6-digit level depending on mapping), and typically involve U.S. trade remedies—anti-dumping, subsidy, and safeguard measures that protect domestic industries from import competition. In the area of anti-dumping, sometimes considered the "third rail of U.S. trade policy" (Mankiw and Swagel 2005), the United States has frequently lost WTO disputes, especially those involving *zeroing*—an approach to calculating anti-dumping tariffs that biases statistics in favor of more and higher anti-dumping duties (Bown and Prusa 2011). By ruling against an entire approach such as zeroing, the WTO-AB decisions potentially affect many more products than explicitly referenced in disputes. Anti-dumping, and zeroing in particular, therefore figure prominently in the formal U.S. complaints against the WTO-AB.<sup>5</sup> During the 2016 election, the candidate for the Republican party Donald J. Trump campaigned on a platform critical of international trade and the WTO, described the WTO as a "disaster," and proposed that the United States withdraw from the WTO.<sup>6</sup>

Our unit of analysis is the U.S. county, and our dependent variable is the change in the vote share that Trump received in the 2016 presidential election beyond the vote share of the Republican presidential candidate W. Mitt Romney in 2012. Romney campaigned in favor of free trade in 2012, so the vote share difference between Trump in 2016 and Romney in 2012 provides a county-level measure for the potential electoral impact of adverse WTO rulings. Our main explanatory variable for electoral outcomes is the share of the county's employment that is exposed to adverse WTO-AB rulings against the United States by NAICS industry between 1995 and 2016 (or during shorter time periods). The rationale for this empirical specification is that adverse WTO-AB rulings are potentially politically salient in counties whose industries are bound to suffer from fiercer import competition when the United States brings the offending policy or measure into compliance with WTO agreements. However,

<sup>&</sup>lt;sup>4</sup>Out of the total 507 WTO trade disputes through April 2016, 141 went to the WTO-AB and were ruled on, and in 128 disputes the recommendation was that the respondent bring its policies or measures into conformity with WTO agreements.

<sup>&</sup>lt;sup>5</sup>In the USTR's 174 page *Report on the Appellate Body of the World Trade Organization*, issued by Ambassador Robert E. Lighthizer in February 2020, zeroing is mentioned 95 times.

<sup>&</sup>lt;sup>6</sup>See, for example, *Meet the Press*, July 24, 2016 (available at https://urldefense.com/v3/\_\_http://www.nbcnews. com/meet-the-press/meet-press-july-24-2016-n615706\_\_; !!Mih3wA!TuazJvG02sRjQvIW00R8KhaSg\_ ZrkhJoHsRGEP5HfCA3r40NP\_4S2m5rG0TQClQ\$. For future drafts of this paper, we will prepare data from the American Presidency Project for systematic evidence on campaign positions.

the endogeneity of U.S. trade remedies to import competition in the first place, and the propensity of the WTO-AB to mostly rule against the respondent, would obviate a causal interpretation of vote share predictions from this WTO-AB exposure measure. We therefore use the random assignment of WTO-AB judges to disputes as an exogenous treatment. Concretely, we take both the dispute outcome (a win or loss for the complainants against the United States) and a set of 25 indicators for all WTO-AB judges through 2016, identify the U.S. industries references in the disputes and thus *potentially* affected by the WTO-AB ruling, and calculate the share of countylevel employment exposed to particular WTO-AB judge and the WTO-AB ruling on disputes with the United States as the respondent.

Our key result is that voters in U.S. counties that were more exposed to adverse WTO-AB rulings were significantly more likely to vote for the Republican candidate in the 2016 U.S. presidential elections, who campaigned on a platform of trade skepticism, than for the Republican candidate in 2012. In our baseline specification, we measure a county's exposure as the cumulative share of employment in industries that are affected by AB rulings between 1995 and 2016. We control for county characteristics and trade flows, including imports from China in some specifications. Our IV estimates suggests that a 10 percentage point increase in the share of county employment exposed to an adverse AB ruling resulted in a 0.37 percentage point increase in the Trump vote share over Romney's previous vote share. We find this causal effect of WTO-AB rulings on U.S. election outcomes to depend on the average educational attainment in the county and to be concentrated in counties with a high population share of residents with less than a college degree.

We show that our key findings are robust to alternative definitions of a win for complainants against the United States at the WTO: our baseline definition of a win is that the WTO-AB recommends for at least one agreement article that the respondent bring measures or policy into conformity; one alternative definition is that the USTR considers the WTO-AB decision a "loss" for the United States; and a third definition of an adverse WTO-AB ruling is the share of agreement articles for which the WTO-AB recommends that the respondent bring measures or policy into conformity. Our findings are robust to two alternative mappings from HS products to U.S. NAICS industries. Using 25 indicators for WTO-AB as instrumental variables raises the concern that our specification may be subject to weak instruments, so we limit ourselves to two instruments for the county's WTO-AB exposure and its interaction with county-level education: the gender of the WTO-AB judge and a proxy to the judge's stringency that computes the fraction of WTO-AB rulings on which the judge was a member of a three-judge AB panel that ruled against the respondent. Test statistics for two endogenous regressors and instruments reject weakness for common bias and power.

Taken together, our findings show that the WTO is a distinct and separate influence on U.S. voting for can-

didates that are skeptical about international trade. Moreover, since we measure the *potential* rather than actual economic impact of AB rulings on communities, our findings can be interpreted as operating through either an economics or an informational channel, or both. By the economic channel, voters whose employment and income prospects are hurt through adverse WTO rulings would vote in favor of curtailing the influence of the WTO. However, Freund and Sidhu (2017) test in related research whether increases in Trump's vote share in 2016, as compared with Mitt Romney's in 2012, were larger in counties that specialized in manufacturing or that experienced greater declines in manufacturing employment. Their main estimates do not support the hypothesis that these economic changes were significantly related to increases in the Trump-Romney vote share, and they conclude that the effect of manufacturing job loss on the 2016 election was moderated by cultural and racial factors.

The information channel, in contrast, posits that WTO-AB decisions may affect voting through informational cues, where voters learn that U.S. sovereignty over trade policy has been ceded to a group of judges abroad, and may thus change electoral outcomes also in the absence of economic effects. Negative news or information about trade agreements can influence the choices of voters. We present evidence that voters in specific U.S. localities have received persistent negative information about the WTO from industry executives, union leaders, and members of Congress. John Walker, former Chief Executive Officer of Weirton Steel stated that "the WTO has never ruled in favor of the United States, and we don't expect they ever will" in 2003.<sup>7</sup> Mark Glyptis, former President of Weirton Steel's Independent Steelworkers Union, advocated for withdrawal from the WTO in the same year, while Senator Robert Byrd described the WTO as a "renegade" organization.<sup>8</sup>

Our paper relates to several strands of the literature in economics and in political science. Trade remedies provide an element of flexibility in trade agreements and serve as an escape clause so that members can be responsive to politically important constituencies when they need to be without abrogating their overall commitment to trade liberalization (Bagwell and Staiger 2005, Rosendorff and Milner 2001*b*, Kucik and Reinhardt 2008, Pelc 2016, Beshkar and Bond 2017). Fischer and Prusa (2003) formalize the notion that GATT-WTO exceptions such as anti-dumping and safeguards can act as insurance for domestic import-competing sectors affected by adverse price shocks. In this paper, we explore the possibility that U.S. frustration with the WTO-AB has roots in U.S. domestic politics.

Research into import competition, especially from China, demonstrates that trade has caused long-term economic and social harm to communities where import-competing manufacturers are located (Autor, Dorn and

<sup>&</sup>lt;sup>7</sup>Charleston Gazette, July 12, 2003, "W.Va. steel furious with WTO, Tariffs that protect U.S. industry violate rules, group says".

<sup>&</sup>lt;sup>8</sup>Charleston Gazette, November 11, 2003, "WTO rules against U.S. steel tariffs Industry, union, lawmakers say ruling reflects EU bias".

Hanson 2013, 2016, Pierce and Schott 2020, Feler and Senses 2017). A related literature shows that import competition from China affects electoral outcomes in the United States and Europe (Autor et al. 2020, Feigenbaum and Hall 2015, Dippel, Gold and Heblich 2015, Che et al. 2016, Colantone and Stanig 2018*a*,*b*, Becker, Fetzer and Novy 2017, Malgouyres 2017, Jensen, Quinn and Weymouth 2017, Margalit 2011). Blanchard, Bown and Chor (n.d.) connect trade retaliation in the China-US trade war to the 2018 congressional elections. In a recent paper, Choi et al. (2021) find that the North American Free Trade Agreement (NAFTA) had long-term economic and political effects in U.S. counties exposed to imports from Mexico.

In method, our paper is related to studies that use the randomization of judges to cases in domestic courts for causal inferences. Examples include the U.S. Court of Appeals (Farhang and Wawro 2004, Boyd, Epstein and Martin 2010, Kastellec 2013, Farhang, Kastellec and Wawro 2015, Arias 2019) and the Norwegian district court system (Bhuller et al. 2020). In common with that literature, we leverage the fact that WTO-AB judges differ in their propensity to rule in favor of complainants.

The remainder of this paper proceeds as follows. In Section 2, we provide institutional details on the WTO dispute settlement mechanism and its potential salience for U.S. domestic politics. In Section 3 we describe the WTO dispute and WTO-AB judge data, and in Section 4 the U.S. county level data that we use to compute electoral outcomes, WTO-AB exposure measures, and controls. We discuss our empirical identification strategy in Section 5 and turn to our findings and their robustness in Section 6. In Section 7 we offer interpretations of our findings, including an information channel. We conclude in Section 8.

## **2** Institutional Context

The WTO's dispute settlement mechanism (DSM) has multiple stages. Figure 1 illustrates the steps. A complainant first requests consultations at the WTO. If the consultations do not result in an "out of court" settlement of the dispute, the complainant or respondent can request a Panel composed of trade law experts to arbitrate, which is subsequently established and then composed (panelists appointed). Upon completion of its inquiry, which includes hearings and deliberations, the Panel circulates a report with its ruling. If the Panel finds the respondent member state to have adopted a measure or policy in violation of a GATT or WTO-related agreement, the Panel recommends to the WTO's Dispute Settlement Body (DSB) that the DSB request the respondent to bring its disputed measure or policy into conformity with the GATT or WTO-related agreement. Within two months, the DSB then adopts the report, unless either the complainant or the respondent request an appeal.

In the case of an appeal, the Appellate Body (AB) takes up the dispute. WTO rules require unanimity among its 164 member states on the appointment of seven WTO-AB Members (who we call judges for brevity). The



Figure 1: The WTO Dispute Settlement Process

*Source*: WTO flow chart at https://urldefense.com/v3/\_\_http://www.wto.org/english/tratop\_e/ dispu\_e/disp\_settlement\_cbt\_e/c6s1p1\_e.htm\*7D.\*5C\*5C\*5Cemph\*7BNotes\_\_;JSU1JSU!!Mih3wA! TuazJvG02sRjQvIWO0R8KhaSg\_ZrkhJoHsRGEP5HfCA3r4ONP\_4S2m5r4S7Zboc\$: The vertical break, in red, indicates the point at which the United States has disrupted the process by not agreeing to appoint a further Appellate Body jduge.

judges must be individuals with a recognized standing in the field of law and international trade. They must not be affiliated with any government and they must broadly represent the range of WTO member states.<sup>9</sup> AB Judges serve staggered four-year terms that can be renewed once, and the WTO's Dispute Settlement Understanding (DSU) requires a minimum of three judges to hear a dispute. Appointment to an appeal is randomly assigned, as we discuss below. Appeals should not last more than 60 days, and must not last more than 90 days. The DSB has to accept or reject the AB report within 30 days. A DSB rejection of an AB report requires unanimity—known as "reverse consensus"—among the 164 current WTO members, including the complainants and the respondent. A negative consensus is largely a theoretical possibility and, to date, has never occurred.

After the AB has issued its ruling, it serves as the arbiter in the subsequent implementation and compliance proceedings, which include the possibility of "retaliation"—tariff countermeasures—in the event of the respondent's failure to bring a violating policy or measure into conformity with the GATT or WTO agreements over a reasonable period of time. The vertical red break in Figure 1 indicates the point at which the U.S. refusal to approve the appointment of new AB judges has disrupted dispute settlement. Since December 2019, appeals, implementation, and compliance have ground to a halt.

It is not apparent from the U.S. role at the WTO why the United States would disable the AB. Table 1 documents WTO dispute counts by country. The United States is the most active participant in the WTO dispute settlement system, both as complainant and as respondent. The WTO dispute settlement mechanism has been described as the "crown jewel" of the WTO.<sup>10</sup> However, the domestic political salience of adverse rulings at the

<sup>&</sup>lt;sup>9</sup>See https://urldefense.com/v3/\_\_http://www.wto.org/english/tratop\_e/dispu\_e/ab\_members\_ descrp\_e.htm\_\_;!!Mih3wA!TuazJvG02sRjQvIW00R8KhaSg\_ZrkhJoHsRGEP5HfCA3r40NP\_4S2m5rP4fP6ac\$.

<sup>&</sup>lt;sup>10</sup>WTO Director-General Pascal Lamy, quoted in "WTO Disputes Reach 400 Mark." WTO Press Release, 09 November

Complain	ant <sup>a</sup>	Respondent	:	Any positi	on <sup>b</sup>
Member	Disputes	Member	Disputes	Member	Disputes
United States	109	United States	126	United States	393
European Union	96	European Union	93	European Union	391
Canada	35	China	34	Japan	221
Brazil	29	India	23	Canada	195
Mexico	23	Argentina	22	India	164
Japan	22	Canada	18	China	161
India	22	Brazil	16	Brazil	145
Argentina	20	Korea	16	Australia	138
Korea	17	Japan	15	Korea	131
China	13	Australia	15	Mexico	118
Thailand	13	Mexico	14	Argentina	92
Indonesia	10	Indonesia	14	Chinese Taipei	88
Chile	10	Chile	13	Thailand	86
New Zealand	9	Turkey	9	Turkey	83
Guatemala	9	Dominican Republic	7	Norway	75
Honduras	8	Philippines	6	Chile	65
Panama	7	Russian Federation	6	Guatemala	60
Australia	7	Colombia	5	Colombia	59
Chinese Taipei	6	South Africa	5	New Zealand	57
Costa Rica	5	Peru	5	Ecuador	41

#### Table 1: Participation Counts in WTO Disputes

<sup>*a*</sup>Complainant at any stage of dispute, including Implementation (unless third party).

<sup>b</sup>Complainant, respondent, or third party at any stage of dispute, including Implementation.

Source: WTO Dispute Settlement Database (2016 version) by Hoekman et al. (2016), DS 1 (January 10, 1995) through DS 507 (April 4, 2016).

WTO-AB can help explain the U.S. position. The U.S. complaint that the AB creates law rather than enforcing established rights and obligations stems from a long history of AB decisions challenging U.S. trade remedies that the United States adopted to protect domestic industries from import competition, including anti-dumping, subsidies, and safeguard measures.<sup>11</sup> The complaints from the United States suggest that WTO-AB rulings have blunted the flexibility provided by trade remedies, hence we should expect political consequences to these rulings.

<sup>2009,</sup> see https://urldefense.com/v3/\_\_http://www.wto.org/english/news\_e/pres09\_e/pr578\_e.htm\_ \_;!!Mih3wA!TuazJvG02sRjQvIW00R8KhaSg\_ZrkhJoHsRGEP5HfCA3r40NP\_4S2m5rWY5S1G4\$.

<sup>&</sup>lt;sup>11</sup>Although safeguards are governed by their own chapter in the WTO agreements, we consider them trade remedies since, like antidumping and countervailing duty actions, they allow members to temporarily opt out of their obligations.

# **3 WTO Dispute Data**

Our data on WTO disputes is from the 2016 version of the WTO Dispute Settlement Database by Hoekman et al. (2016), the most comprehensive and accurate data set of its kind. The data cover the universe of disputes through April 2016. We use the universe to benchmark the involvement and performance of the United States in dispute settlement and to assess patterns of AB rulings.

Of the 164 current WTO members, 101 have participated in at least one dispute through April 2016 as a complainant, respondent or a third party at any stage from initial consultations through implementation. A "third party" is a WTO member that has a substantial interest in a dispute and wishes to comment on the factual claims or legal arguments made by either the respondent or the complainants. As mentioned, Table 1 shows that no other WTO member is as often a complainant as the United States. After the United States with a total of 109 complaints until April 2016 come the EU (with 96 complaints), Canada (with 35) and Brazil (29). China joined the WTO only in 2002 and now ranks tenth among the top ten complainants (13 complaints).<sup>12</sup> And no other WTO member is as often an accused respondent as the United States. After the United States with a total of 126 disputes as a respondent come the EU (with 93 disputes as a respondent), China (with 34), India (23), and Argentina (22). Overall, no other WTO member is a participant in WTO disputes as often as is the United States, which is a party to 393 disputes (78%) until April 2016—as a complainant, respondent or a third party.

#### 3.1 Trade remedies and zeroing

The United States acknowledges that trade remedies underlie its debilitating actions toward the AB. In 2017, the USTR announced that "defending U.S. national sovereignty over trade policy" and "strictly enforcing U.S. trade laws" are its two top trade policy priorities.<sup>13</sup> The concern with "national sovereignty" refers specifically to AB rulings on zeroing.<sup>14</sup> Zeroing refers to the way that U.S. administrative authorities calculate anti-dumping duties, which is to assign a "zero" to all instances in which the export price of a product crossing a U.S. port is higher than its price in the source country. Dumping is defined as selling a product abroad for less than its price in the source country on average, so zeroing tilts the odds towards finding evidence of dumping and results in higher AD duties when it does. Zeroing therefore effectively increases U.S. trade barriers. The United States

<sup>&</sup>lt;sup>12</sup>China is separate from the WTO members Hong Kong and Chinese Taipei.

<sup>&</sup>lt;sup>13</sup>President's Trade Policy Agenda of 2017, pp. 2-3.

<sup>&</sup>lt;sup>14</sup>According to Thomas Prusa, "zeroing is the single biggest reason behind the US's current position toward slowing AB decisions." Quoted in Chad P. Bown and Soumaya Keynes (2018): "Zeroing: The Biggest WTO Threat You've Never Heard Of," Trade Talks podcast Episode 45, July 2. This U.S. frustration has been voiced for years, but it took on greater urgency after China entered the WTO in 2001, as noted in the President's Trade Policy Agenda of 2017, prepared by the office of the USTR, available at ustr.gov/about-us/policy-offices/press-office/reports-and-publications/2017/2017-trade-policy-agenda-and-2016.

	Type of Dispute					
	Trade Remedies	Other Agreements	Total			
U.S. Respondent	67 (53%)	59 (47%)	126 (100%)			
U.S. Complainant	20 (19%)	85 (81%)	105 (100%)			
Others Complainant/Respondent	95 (34%)	181 (66%)	276 (100%)			
Total	182 (36%)	325 (64%)	507 (100%)			

Table 2: WTO Disputes by Type

Source: WTO Dispute Settlement Database (2016 version) by Hoekman et al. (2016),

*Note:* "Trade Remedies" include all disputes where Anti-Dumping (AD), Countervailing Duties (CVD), or Safeguards (SG) are indicated in the Hoekman et al. (2016) data set.

uses zeroing on all its anti-dumping determinations, so U.S. trade protection is higher than it would otherwise be. According to (Bown and Prusa 2011, 360), '[w]ere the United States to stop zeroing, perhaps as much as half of all U.S. anti-dumping measures would be removed and the duties in the other cases would fall significantly." For this reason, other WTO members that export to the United States have repeatedly challenged the United States for zeroing.

The U.S. position is that, since there is no explicit prohibition against zeroing in existing WTO agreements, AB rulings against the practice infringe on U.S. sovereignty.<sup>15</sup> The administration's priority on "enforcing U.S. trade law" refers to trade remedies, embedded in U.S. law. Indeed, the President's 2017 trade policy agenda is unambiguous about the importance of trade remedies: "Trade remedies are a foundation to the implementation of the WTO agreement ... [I]t is critical that WTO members fully recognize their centrality to the international trading system."<sup>16</sup>

The Hoekman et al. (2016) data allow us to document the importance of trade remedies and zeroing in WTO disputes. Table 2 shows the number and shares of WTO disputes that involve trade remedies (anti-dumping, countervailing duties, and safeguards) when the United States is the respondent, when the United States is the complainant, and for the universe of disputes. Trade remedies are involved in over half (53 percent) of all disputes where the United States is the respondent, but only 19 percent of the disputes where the United States is the complainant, and 34 percent of disputes involving other WTO members. U.S. trade remedies are controversial and make up the majority of complaints brought against the United States. Trade barriers insulate U.S. producers from foreign competition, so our conjecture is that they significantly influence U.S. domestic politics.

<sup>&</sup>lt;sup>15</sup>Stephen Vaughn, former general counsel to the USTR, presents a clear statement of the Trump administration's trade policy agenda in Chad P. Bown and Soumaya Keynes (2018): "Trade Policy Under Trump," Trade Talks podcast Episode 111, November 25. See also Rushford (2018).

<sup>&</sup>lt;sup>16</sup>President's Trade Policy Agenda of 2017, pp. 2-3.

#### **3.2 WTO dispute resolution**

Table 3 summarizes how WTO disputes are resolved. The first panel tabulates the disputes when the United States is a respondent, the second panel restricts U.S. disputes to those that involve zeroing, the third panel shows disputes when the United States is a complainant, and the fourth panel tabulates outcomes for the universe of disputes. "Panel" and "AB" refer to the WTO record of a decision at the respective stage of the dispute: a Panel decision is recorded if a final panel report was issued, and an AB decision means a final AB report was circulated. Disputes with "no Panel" and "no AB" were resolved in consultations to the satisfaction of the complainant or remain at the consultations stage at the time of our data (April 2016).

Table 3 documents that the majority of disputes that receive a panel ruling are appealed (Panel/AB). When the United States is the respondent 55 of 74 (73 percent) panel rulings are appealed, which is similar to appeal rates when the United States is a complainant (70 percent) and in the universe of disputes (67 percent). Zeroing disputes are the exception, where 4 in 10 panel (40 percent) rulings were appealed.<sup>17</sup>

Comparing across the panels in Table 3, there is a marked difference in the frequency of settlement without litigation (no Panel/no AB) when the United States is the respondent, and when the dispute involves zeroing, in comparison to when the United States is a complainant and in the universe of disputes. When the United States is the respondent, settlement without litigation occurs in 52 of 126 disputes (41 percent); when zeroing is involved, just 1 in 11 (9 percent) disputes avoid AB litigation. By comparison, 63 of 109 (58 percent) of disputes are resolved without litigation when the United States is the complainant, and 292 of 507 (58 percent) are resolved in consultations for the universe of disputes. Since AB litigation is costly, this suggests that the stakes are higher for one or both parties when the United States is the respondent, and when the complaint about the United States involves zeroing.

In summary, the United States is the most active participant in the WTO dispute settlement system as a complainant, a respondent, and as a third party. As a respondent, the United States is most likely to be accused of violating WTO rules on trade remedies. At the AB stage, the United States usually loses when it is the (Panel-stage) respondent and usually wins when it is a (Panel-stage) complainant—patterns that apply to all WTO members, possibly because litigation is costly and complainants only mount strong cases that they expect to win. Wins against the U.S. on trade remedies at the AB appear to be the driving force behind the USTR's grievance with the AB. WTO-AB rulings against the United States can therefore be expected to have repercussions in U.S. presidential elections.

<sup>&</sup>lt;sup>17</sup>The United States has prevailed at the Panel stage on some zeroing disputes, partially accounting for the lower appeal rate.

Disputes	U.S. F	Respon	ident	U.S.	U.S. Zeroing <sup>a</sup>		U.S. C		Universe				
	no AB	AB	Total	no AB	AB	Total	no AB	AB	Total	no Al	3	AB	Total
no Panel	52	0	52	1	0	1	63	0	63	29	2	0	292
Panel	19	55	74	6	4	10	14	32	46	7	2	143	215
Total	71	55	126	7	4	11	77	32	109	36	4	143	507

Table 3: Resolution of WTO Disputes

<sup>a</sup>The practice of *zeroing* in anti-dumping procedures is only used by the United States.

*Source*: WTO Dispute Settlement Database (2016 version) by Hoekman et al. (2016), DS 1 (January 10, 1995) through DS 507 (April 4, 2016); USTR information on U.S. zeroing.

*Notes*: Panel and AB refer to the WTO record of a decision at the respective stage of the dispute: a Panel decision is recorded if there is a circulated Final Panel Report, an Appellate Body decision on a dispute if there is a circulated final AB report. Disputes with no Panel and no AB were resolved in consultations or are still at the consultations stage at the time of our data (April 2016).

# 4 WTO-AB Exposure

We now formally define our dependent variable *WTO-AB Exposure* and describe its construction. Denote with  $\mathbb{1}_{it}^{adverse}$  an indicator variable that is one if there is a complainant win against the United States in industry *i* in year *t*, and zero otherwise. Define  $\alpha_{i\ell t}$  as the employment share of industry *i*, in year *t* and location  $\ell$ . In our main analysis, we cumulate exposure to adverse AB decisions in location  $\ell$ , from the beginning of the AB (1995) to year *T*. This is given by  $\mathcal{E}_{\ell T}$  and hence

$$\mathcal{E}_{\ell T} = \sum_{t=1995}^{T} \sum_{i} \alpha_{i\ell t} \mathbb{1}_{it}^{adverse}.$$
(1)

The reason we cumulate the entire universe of losses is that it captures counties that have been subject to repeated adverse AB rulings, and more extended exposure may imply greater electoral effect. In robustness exercises, we also consider time intervals of adverse rulings against the United States: 1995-2001, 2002-2008, 2009-2015, 2014-15.

The construction of the WTO-AB Exposure measure proceeds in three steps. First we restrict our sample of WTO disputes to those in which the United States is the respondent and *loses* an AB ruling. We identify the product referenced in a dispute using the Harmonized System (HS) classification. Second, we map the HS product to industry under the North American Industry Classification System (NAICS) since county employment data use NAICS codes. Finally, we calculate the county employment share affected by AB losses using County Business Patterns (CBP) data.

#### 4.1 Wins and losses

We consider three alternatives of identifying AB wins of complainants (the indicator  $\mathbb{1}_{it}^{adverse}$ ). To avoid confusion, we consistently call a ruling a "win" if the (Panel-stage) complainant(s) succeed(s) at the AB so that the AB recommends that the respondent change trade measures or policies.

First, we define a win of a dispute if the Panel-stage complainant(s) of the dispute succeed(s) and, for *at least one* cited agreement-article ("claim"), the AB recommends that the respondent bring a measure or trade policy into conformity with WTO agreements. Complainants often cite more than one agreement or article when they mount a dispute, but the AB need not rule on every one of these claims. Under the principal of "judicial economy" the AB may issue rulings only on a select subset of claims pertinent to an appeal. Given our focus on the domestic politics of WTO dispute settlement, a decision to support a single complainant claim is sufficient to require the respondent to remove the offending policy and return to compliance with WTO agreements.

Hoekman et al. (2016) provide the underlying information for our data-driven measure of "wins." The 2016 version of the data set records AB rulings at the claim level for all disputes through April 2016. To illustrate, when the United States is the respondent in a dispute, a "win" means that the United States is adversely affected and needs to bring its executive orders or laws into compliance with the WTO agreements. Defining a win at the AB stage can be problematic because the complainant or the respondent, or both, can appeal a Panel decision to the AB. Thus, we never define a "win" with respect to the appellant or appellee.

Our second measure is subjective and takes the USTR's record of "wins" from its public document in 2015 (United States Trade Representative 2015). The USTR defines a complainant win ("U.S. did not prevail on core issue(s)") and a complainant loss ("U.S. won on core issue(s)") from a U.S. perspective. For consistency across samples, with and without the United States as respondent, we always define a win as the (Panel-stage) complainants' success in changing trade measures or policies of the respondent.

Table 4 documents wins at the AB for the two measures. By the USTR's subjective win measure, the United States as a respondent is found to violate WTO agreements in 47 out of the 55 disputes that were adjudicated by the AB. By our data-driven objective win measure, in contrast, the United States as a respondent is found to violate WTO agreements in 49 of the 55 disputes at the AB. In 43 disputes both the USTR finds a win against the United States as respondent and so does our data-driven measure. Only 4 of the 11 disputes about U.S. zeroing go to the AB stage, and all are wins for the complainants against the United States. As the tabulation for the universe (any respondent) shows, almost all AB decisions result in a win for the (Panel-stage) complainant. When the United States is the respondent, complainants win 85 percent of the time (89 percent according to the USTR's scorecard). The complainant win rate is also high (91 percent) in disputes involving *any* respondent,

Disputes	sputes U.S. Respondent		dent	U.	S. Zeroi	ng <sup>a</sup>	Any	Any Respondent			
WTO Claim	C	Complainant		C	Complainant			Complainant			
	Loss	Win	Total	Loss	Win	Total	Loss	Win	Total		
USTR Complainant Loss	2	6	8	0	0	0					
USTR Complainant Win	4	43	47	0	4	4					
Total	6	49	55	0	4	4	13	128	141		

#### Table 4: Complainant Wins at the Appellate Body

<sup>a</sup>The practice of *zeroing* in anti-dumping procedures is only used by the United States.

*Source*: WTO dispute data by Hoekman et al. (2016), DS 1 (January 10, 1995) through DS 507 (April 4, 2016); USTR information on U.S. zeroing and winsUnited States Trade Representative (2015).

*Notes*: A "win" of a dispute is defined as the (Panel-stage) complainants' success at the AB stage if the AB report recommends that the respondent bring a measure or trade policy into conformity with WTO agreements. The columns report a data-driven measure of wins, by a win occurs if the AB rules for *at least one* cited agreement article ("claim") that the respondent bring a measure or policy into WTO conformity. The rows report wins as defined by the USTR.

suggesting that complainants litigate only their strongest cases. Complainants win against the United States at roughly the same high rate as complainants win in the universe of disputes.

A third measure of a complainant win in a dispute before the AB is the share of cited agreement-articles (claims) for which the AB recommends that the respondent bring a measure or trade policy into conformity with WTO agreements, out of the total number of cited agreement-articles in the dispute. Instead of using a binary indicator, this measure reflects the decisiveness with which a dispute as resolved at the AB stage in favor of the complainant. For this third exposure measure, we substitute the share of claims with a win for the indicator in equation (??).

#### 4.2 Mapping HS to NAICS

An important step in constructing the WTO-AB Exposure variable is translating AB dispute wins against the United States to affected industries by U.S. county. To do this we extract the Harmonized System (HS) product codes for the set of adverse WTO-AB rulings from Hoekman et al. (2016), and then map them to county-level NAICS employment data from the U.S. Census. The mapping of WTO products (HS) to U.S. industries i (NAICS) is crucial and empirically sensitive. We describe our approach to this mapping next.<sup>18</sup>

Our mapping is based on the concordance provided by Pierce and Schott (2012*a*) at the HS-NAICS-year level (we use their most updated 2019 version). The correspondence between HS products at the six-digit level and NAICS codes varies by year, so we adopt a time-varying HS-to-NAICS mapping from 1996 to 2015. The

<sup>&</sup>lt;sup>18</sup>A similar mapping of HS codes to NAICS and CBP data has been done in Blanchard, Bown and Chor (n.d.).

HS-to-NAICS correspondence does not permit a unique one-to-many mapping. The HS classifies products based on physical characteristics, while NAICS incorporates physical product characteristic as well as the type of economic activity (Pierce and Schott 2012*b*,*a*).

Our benchmark is what we call a *lenient* HS to NAICS mapping that keeps all NAICS industries to which an HS product corresponds. This mapping helps us broadly identify the potential exposed industries in the United States. One challenge with the lenient mapping is that the one-to-many HS-NAICS mapping may overstate the employment affected by AB decisions. Though some industries belong to the same HS-6 digit code, they are not necessarily directly affected by AB decisions because their products differ from the targeted products in the dispute.

To deal with this concern, we adopt an alternative mapping for robustness check; a *strict* HS to NAICS mapping that keeps the most frequent NAICS industry for each HS product when the mapping is otherwise one-to-many. For the HS products that have a tie of "most frequent" NAICS, we manually revisit the original Panel and AB reports, the HS definition, and the NAICS definitions, and select the most suitable single NAICS code per HS product. Based on this approach, we can narrowly identify the exposed industries to avoid potential overstatements of the affected employment, at the cost of possibly imprecision (we cannot be entirely sure that the most frequent NAICS is the same one as the targeted products in the dispute) and under-estimation (keeping only the most frequent NAICS maybe too strict, as some less dominant industries which are truly affected by AB decisions are excluded from the exposure measure).

Using the two time-varying HS-to-NAICS mappings, we compute the employment-weighted AB exposure based on the CBP employment data by NAICS industry and county under (1). The CBP data contain time-varying NAICS classifications. With two alternative mappings at hand, we can gauge potential measurement error due to the HS to NACIS mapping in a robustness exercise. If results are similar, we can be more confident that the potential measurement error is unlikely to significantly affect our findings.

#### 4.3 **Baseline correlation**

Our dependent variable is the change in the county-level vote share of the 2016 Republican candidate Donald J. Trump relative to the vote share of the Republican candidate in the 2012 presidential election W. Mitt Romney. Unlike Donald Trump, Mitt Romney campaigned in 2012 as a traditional pro-trade Republican, providing a moderate Republican baseline from which to assess the appeal of Trump's anti-WTO message. A positive change in the county-level vote share for Trump over Romney means that, in the 2016 election Republican Trump improved upon Republican Romney's 2012 share of the total vote. Our election data are from the MIT Election



#### Figure 2: Cumulative WTO-AB exposure and the 2016 Presidential Election

Source: MIT Election Data and Science Lab for election outcomes. WTO Dispute Settlement Database (2016 version) by Hoekman

Data and Science Lab and we calculate Republican candidate vote shares as the share of the total (including minor parties in the total).

Figure 2 uses maps to display the relationship between the 2016 election and our WTO-AB Exposure using the lenient HS-NAICS mapping. The map on the left shows the change in the Trump-Romney vote share from 2012 to 2016, with counties in dark green seeing the largest increases in the Trump-Romney vote share. Donald Trump did particularly well, relative to Mitt Romney in 2012, in the industrial belt—areas of the Midwest and upper South that have experienced long-term decline in manufacturing employment. The map on the right shows cumulative employment exposure to adverse WTO-AB rulings at the county level. Counties in dark red experienced the most local employment exposure to AB losses from 1995 to 2016 . Visually, there appears to be a correlation between the two variables.

# 5 Identification Strategy

To arrive at a causal estimator of the effect of county-level employment exposure to adverse WTO-AB rulings on U.S. electoral outcomes, we use the random assignment of AB judges to disputes as identifying variation. AB judges differ in their propensities to find against respondents and against the United States.

et al. (2016), DS 1 (January 10, 1995) through DS 507 (April 4, 2016), combined with CBP employment data for WTO-AB exposure. *Notes*: The map on the left shows the change in the Trump-Romney vote share from 2012 to 2016; counties in dark green exhibit the largest increases in the Trump-Romney vote share. The map on the right shows cumulative county-level employment exposure to adverse WTO-AB rulings; counties in dark red experience the most local employment exposure to adverse WTO-AB rulings from 1995 to 2016.

#### 5.1 Random assignment of Appellate Body judges

The AB has seven Members (who we call judges here) and three of the seven judges are assigned randomly to a given appeal ("division"). Article 6(2) of the Working Procedures for Appellate Review stipulates that "The Members constituting a division shall be selected on the basis of rotation, while taking into account the principles of random selection, unpredictability and opportunity for all Members to serve regardless of their national origin." This working procedure is based on the WTO Dispute Settlement Understanding (DSU, Annex 2 of the WTO Agreement), paragraph 1 of Article 17.

The goal of random assignment is to ensure that all disputes are treated ex ante equally, and to prevent governments from exerting influence on the dispute settlement process. In practice, a new judge receives a random number upon acceding to the AB, filling the vacant random number of a departing judge, and there is then a deterministic rotating assignment of three judges to a dispute appeal. The exact formula is a well guarded secret, so that no WTO member can try and time Panel decisions. An appeal to a Panel decision must be filed within a month of the approval of the Panel report by the Dispute Settlement Body (DSB).

The key to our empirical strategy is that judges are not only randomly assigned but also that they differ in terms of their propensity to rule in favor of complainants. This can occur if judges view trade disputes, trade policies, industries, products or the respondents in innately different ways. While their assignment to a dispute is random, the composition of the assigned three-judge team to an appeal may predict the outcome. We prepare data to verify randomness in assignment to appeals and to validate the predictive power of publicly available judge characteristics for AB rulings.

#### 5.2 Judge characteristics and dispute assignment

We assemble biographic information on all AB judges from public online records, including from the WTO.<sup>19</sup> The main judge specific and time invariant variables that we use are birth date, nationality, gender, and country of foreign study. We also collect the field of study and academic background if a judge has a law degree or an economics degree (both at the undergraduate, post-graduate, or doctoral level). Of the 25 AB judges that heard appeals from DS1 to DS 507 (April 2016), 21 had law degrees, five had economics degrees, and three had both.

To construct time varying and judge-dispute specific information on a judge's tenure and experience on the AB, we use the judge's AB service by dispute from the Hoekman et al. (2016) dispute data set. We compute a judge's age at the time of the AB report. From the judge's start date on the AB, we compute the judge's tenure in

<sup>&</sup>lt;sup>19</sup>See https://urldefense.com/v3/\_\_http://www.wto.org/english/tratop\_e/dispu\_e/ab\_members\_ bio\_e.htm\_\_;!!Mih3wA!TuazJvG02sRjQvIW00R8KhaSq\_ZrkhJoHsRGEP5HfCA3r40NP\_4S2m5rZWn-svQ\$.

months at the time of the current dispute's AB report. From the judge's record of AB service on prior disputes, we construct as a measure of experience the count of AB reports in which the judge participated prior to the current dispute's time of the AB report.

Also from the judge's record of AB service on prior disputes, we construct in addition as a measure of stringency the frequency with which the judge served on a three-member AB report that decided against the respondent on at least one cited agreement article. In contrast to domestic U.S. court decisions, where individual judges are identified with their opinion, the WTO does not make public which judges found against the respondent on a claim. Our stringency measure is therefore not purely judge specific and hence a less precise instrumental variable.

The United States is prominently represented on the AB. Table 5 shows nationality and studies abroad for the 25 judges who served on the AB until April 2016 (24 of them served on disputes involving the United States as a respondent). Most judges until 2016 had U.S. nationality, a total of four members. Japan and the EU (Belgium, Germany, Italy) each had three members, and three less-developed countries (Egypt, India and the Philippine) had two members each. The United States is also the country where most AB judges received a foreign education (excluding their studies in the country of nationality), in total 44 percent of all judges. While no judge to date was a national of the United Kingdom, the UK was the second most frequent place where AB judges studied abroad.

Table 6 shows the AB judge characteristics and their relationship to the disputes on which the AB judge serves. A team of three randomly selected judges adjudicates each appeal. There are thus 162 judge-appeal observations (on 54 appeals) when the United States is a respondent, and 417 judge-dispute observations overall (141 disputes that progressed to the AB).

On all characteristics that do not overlap with a country on the dispute there is no marked difference, including the average outcome of a complainant win (counting as a win an AB recommendation on at least one cited agreement article that the respondent bring a measure or policy into WTO conformity). The complainant(s) win(s) 90 percent of disputes by our data-driven measure. (The USTR considers the United States as a respondent more successful, with a U.S. loss to the complainant in only 85 percent of disputes, but the USTR does not collect or not make public similar data for other respondent countries.) The mean participation of a female judge is statistically close between the average dispute and a dispute with the United States as respondent (with a standard error just wide enough to barely reject equality). Judge age at the time of the AB report, tenure (in months) and the count of previous AB reports by the judge are statistically indiscernible between the universe of disputes and disputes with the United States the respondent. These balanced statistics are consistent with a random assignment of judges to disputes.

AB Members	Na	tionality	Study Abroad			
WTO member country	Count	Frequency	Count	Frequency		
United States	4	16%	11	44%		
United Kingdom			7	28%		
Japan	3	12%				
France			3	12%		
Egypt	2	8%				
India	2	8%				
Philippines	2	8%				
Australia	1	4%	1	4%		
Belgium	1	4%				
Brazil	1	4%				
China	1	4%				
Germany	1	4%				
Italy	1	4%	1	4%		
Korea	1	4%				
Mauritius	1	4%				
Mexico	1	4%				
Netherlands			1	4%		
New Zealand	1	4%				
South Africa	1	4%				
Switzerland			1	4%		
Uruguay	1	4%				

#### Table 5: Appellate Body Judges' Nationality and Studies Abroad

*Source*: Biographic data on Appellate Body judges are from public records. WTO dispute data by Hoekman et al. (2016), DS 1 (January 10, 1995) through DS 507 (April 4, 2016).

*Notes*: Twenty-five judges have served on the Appellate Body up to dispute DS 507. "Study Abroad" excludes studies in the country of the judge's own nationality.

When it comes to characteristics of judges that overlap with countries that are parties in a dispute, we should not expect balancing even under random assignment of judges to disputes. The reason is that some countries, such as the United States, have more judges on the AB with the country's nationality or with a past period of study abroad in the country (recall Table 5 above). The overlap of a judge's nationality with a complainant country is statistically similar between the average disputes and a dispute with the United States as respondent (a roughly 9 percent chance with a standard error just wide enough to barely reject equality). Expectedly, however, the judge has the same nationality as the respondent when the United States is the respondent in a larger share of disputes (15.4 percent) than the average respondent (10 percent). Recall that 16.0 percent of all judges have U.S. citizenship (Table 5). Random assignment would therefore suggest that the United States have a judge with U.S. citizenship in 16 percent of the disputes when it is a respondent. With a confidence band of 2.8 percent around

AB Members on dispute		U.S.	Respor	ndent			τ	Universe	e	
	Mean	p50	Min	Max	Obs.	Mean	p50	Min	Max	Obs.
Complainant wins $\geq 1$ claims	.889 (.025)	1	0	1	162	.906 (.014)	1	0	1	417
USTR: Complainant wins	.852 (.028)	1	0	1	162					
Female	.080 (.021)	0	0	1	162	.111 (.015)	0	0	1	423
Age at AB report	64.6 (.735)	67	42	84	162	64.0 (.482)	66	41	84	423
Tenure at AB report (mos.)	42.9 (2.049)	41	4	100	162	40.9 (1.128)	39	2	100	423
# Prev. reports at AB report	10.5 (.649)	9	0	26	162	9.3 (.348)	8	0	26	423
Nationality of a complainant	.086 (.022)	0	0	1	162	.090 (.014)	0	0	1	423
Nationality of respondent	.154 (.028)	0	0	1	162	.104 (.015)	0	0	1	423
Past study at a complainant	.117 (.025)	0	0	1	162	.199 (.019)	0	0	1	423
Past study at respondent	.500 (.039)	.5	0	1	162	.243 (.021)	0	0	1	423

Table 6: Appellate Body Judge Characteristics and Dispute Assignment

*Source*: Biographic data on Appellate Body judges are from public records. WTO Dispute Settlement Database (2016 version) by Hoekman et al. (2016), DS 1 (January 10, 1995) through DS 507 (April 4, 2016).

*Notes*: Twenty-five judges have served on the Appellate Body up to dispute DS 507. "Study Abroad" excludes studies in the country of the judge's own nationality.

15.4 percent, we fail to reject the hypothesis that judges are randomly assigned to disputes. Similarly, the United States faces a judge who came to the United States as a foreign student in the past in fifty percent of the disputes when it is a respondent, whereas the average respondent on a dispute has only a 24 percent change to face a judge who came to the country as a foreign student. Recall that 44 percent (11 of the 25 judges) have a degree from a U.S. university. With a confidence band of 7.8 percent around 50 percent, the U.S. overlap with past studies is statistically similar to the universe (standard errors just wide enough to barely reject equality). Similarly, in the universe of disputes, when the United States can be a complainant, the average country overlap with past studies is higher than in U.S. disputes where the United States (who hosted most judges for studies) is not the complainant. In summary, all these statistics are consistent with random assignment of judges to disputes.

Our definition of AB wins requires that the AB be involved during the litigation phase, and not during the compliance phase of the dispute (when countries to whom the Panel recommended to bring a measure or policy

into conformity can be sanctioned through a removal of WTO privileges, for example in the form of punitive tariffs). We therefore remove one disputes with an AB adjudication and the United States as the respondent (DS 277) during the compliance phase from the sample (resulting in a drop from 423 to 417 observations). For the U.S. respondent sample in Table 6, there is hence a drop from 55 disputes in Tables 3 and 4 (165 judge-dispute observations) to 54 (162 judge-dispute observations).

#### 5.3 Judges as a predictor of AB wins

To motivate the first-stage design for our subsequent Instrumental Variable (IV) regressions, we explore how biographic and judge-dispute specific information on background, tenure, and experience relates to dispute outcomes at the AB stage. While the AB Members are randomly assigned as judges of disputes, we show that their personal characteristics can still predict the WTO AB rulings in which they participated. For our sample of judge-dispute observations, we specify a linear probability model of a win for the (Panel-stage) complainant(s) in a dispute at the AB stage. For expediency, complainants and the respondent occasionally agree to link multiple complaints into a bundle of disputes on which the AB only adjudicates once. We therefore cluster the standard errors at the level of the bundles of linked disputes.

Table 7 reports predictions of the wins for the complainant(s) at the WTO AB on the disputes with the United States as the respondent and the universe of all disputes. If the complainant(s) happen to encounter a judge with their nationality or a judge with a past academic degree from studies abroad in their country, then the complainants are significantly more likely to win the dispute at the AB against the United States as the respondent: 13 and 12 percent respectively in column 1. Conversely, the United States as a respondent does not benefit when the United States happens to be assigned a judge with U.S. nationality (column 2). In the universe of disputes, the complainants benefit only from the happenstance of an overlap in studies abroad (columns 5 and 6 with statistical significance at the conventional 95 percent level only in column 6). However, in the universe, the average respondent benefits from encountering a judge with its nationality on the AB team and then prevails against the complainants with a 12 percent higher frequency (column 6). In the universe, female judges are 11 percent more likely to be on an AB report that finds against the respondent.

The observable characteristics included in the regression specifications are just a subset of the background that can induce a judge to his or her rulings. In columns 3 and 6 we include a full set of judge indicators and, expectedly find the select characteristics to have no independent predictive power for AB outcomes. The adjusted goodness of fit  $R^2$  increases strongly with the judge indicators included for disputes with the United States as respondent (column 3). This pattern suggests that the use of judge indicators as instruments is more powerful

		U.S. Res	pondent			Univere	
	Win	Win	Win	USTR	Win	Win	Win
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female	.060 (.086)	.089 (.094)			.092 (.045)**	.106 (.047)**	
Age at AB report		002 (.003)	.103 (.084)	125 (.145)		002 (.001)*	.029 (.052)
Tenure at AB report (months)	.002 (.001)	.002 (.002)	007 (.007)	.010 (.012)	.003 (.001)*	.003 (.001)*	.0009 (.004)
Nationality of a complainant	.134 (.056)**	.112 (.051)**	.052 (.041)	.016 (.089)	.050 (.031)	.021 (.035)	.024 (.031)
Nationality of respondent		091 (.096)				119 (.057)**	094 (.075)
Past study at a complainant	.122 (.050)**	.113 (.054)**	.068 (.072)	.049 (.102)	.057 (.031)*	.068 (.031)**	.064 (.033)*
Past study at respondent		.023 (.037)				.042 (.042)	.033 (.055)
Const.	.780 (.099)***	.862 (.189)***	-5.481 (5.109)	8.464 (8.849)	.778 (.086)***	.916 (.075)***	<b>968</b> (3.144)
Observations	162	162	162	162	417	417	417
# clusters	42	42	42	42	104	104	104
F statistic	1.538	.872	.959	.203	2.329	1.678	1.751
Adjusted $R^2$	.028	.021	.174	.066	.047	.063	.076

Table 7: Predicted WTO AB Rulings and AB Member Characteristics

*Source*: Biographic data on AB Members from public records. WTO Dispute Settlement Database (2016 version) by Hoekman et al. (2016), DS 1 (January 10, 1995) through DS 507 (April 4, 2016).

*Notes*: 25 AB Members served on the AB on a WTO dispute up to dispute DS 507. The country of study records a degree abroad and excludes studies in the country of the AB Member's nationality. The outcome "Win" is the data-driven measure that the AB recommends for *at least one* cited agreement article that the respondent bring a measure or policy into WTO conformity. The "USTR" outcome is from the USTR record of a win against the United States on core issues. Standard errors clustered at the level of linked disputes. Significance levels: p < 0.10, p < 0.05, p < 0.01.

than the few observable characteristics for an IV design in our subsequent analysis.

Finally we use the subjective USTR assessment of complainant wins against the United States as the outcome in column 4. For this AB win measure, the judge indicators have considerably lower predictive power, with an adjusted goodness of fit of just the indicators of 8 percent (column 4) compared to 18 percent (columns 3) for the data-driven measure of wins. While the USTR tends to allege a bias of AB Members against U.S. trade measures and policies, the USTR's own assessment of U.S. losses on core issues offers less clear evidence than our data-driven measure of wins against the United States.

Taking stock, we have verified that AB judges are randomly assigned. Our balance test shows that judges assigned to appeals where the United States is the respondent are no different on observable characteristics than

judges assigned to hear all appeals. We have also demonstrated that the unobservable characteristics of AB judges, as capture by judge dummies, appear to be highly predictive of AB rulings when the United States is the respondent. When we add to our linear model all 24 judges that ever served on an AB with the United States as the respondent, the goodness-of-fit statistic increases markedly, indicating that using judge indicators as instruments is more predictive than using judges' observable characteristics as instruments. This is the approach we employ in our first stage IV regressions.

To construct proper instrumental variables at the county level, our unit of observation, we apply formula (??) also to the judge dummies, as well as to the gender indicator and the discussed measure of judge stringency. Denote with  $\mathbb{1}_{it}^{j}$  the indicator that judge j serves on the AB panel that adjudicates a dispute affecting industry i in period t with the United States as the respondent. The judge specific employment exposure for judge j is then

$$Z_{j\ell T} = \sum_{t=1995}^{T} \sum_{i} \alpha_{i\ell t} \mathbb{1}_{it}^{j}.$$
(2)

#### 5.4 Empirical specification

Our dependent variable is Trump's increase in vote share in 2016 over Romney's vote share in 2012 in county  $\ell$ :  $Y_{\ell} = Trump_{\ell}^{2016}/Total_{\ell}^{2016} - Romney_{\ell}^{2012}/Total_{\ell}^{2012}$ , where  $Trump_{\ell}^{2016}$  stands for the tally of votes for Trump in 2016,  $Romney_{\ell}^{2012}$  for the tally of votes for Romney in the same county  $\ell$  in 2012, and  $Total_{\ell}^{2016}$  and  $Total_{\ell}^{2016}$  for the respective total votes cast on any candidate (including third-party candidates not from the Republican or Democratic parties).

We specific a two-stage least squares regressions at the county level, conditional on U.S. state fixed effects and clustering standard errors at the state level. Our main outcome equation is

$$Y_{\ell} = \beta \mathcal{E}_{\ell T} + \mathbf{X}_{\ell}' \theta + \eta_{\ell}, \tag{3}$$

where our measure of cumulative exposure of county  $\ell$  to AB losses is  $\mathcal{E}_{\ell T}$  as constructed in (1),  $X_{\ell}$  is a vector of controls including U.S. state indicators, and  $\eta_{\ell}$  a residual. We posit that the identity of AB judges assigned to the disputes underlying  $\mathcal{E}_{\ell T}$  is uncorrelated with the residual  $\eta_{\ell}$  because of the judges' random assignment to disputes. The according first-stage equation is specified as

$$\mathcal{E}_{\ell T} = \mathbf{Z}'_{\ell T} \Gamma + \mathbf{X}'_{\ell} \,\delta + \nu_{\ell},\tag{4}$$

	se in mump	Kominej v	ote bliare			
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS:baseline	IV:baseline	IV:controls	IV:ADH	IV:educ	IV:interact
WTO-AB Exposure (cum.)	0.00875***	0.0373***	0.0174**	0.0210***	0.00269	-0.668***
	(0.002)	(0.014)	(0.007)	(0.007)	(0.006)	(0.155)
share without a BA degree					0.312***	0.141***
					(0.020)	(0.047)
WTO-AB Exposure(cum.)× Share without a BA degree						0.834***
						(0.191)
China Shock				0.000308	0.000767	-0.000159
				(0.001)	(0.001)	(0.001)
N	3112	3111	3107	3103	3103	3103
R-square	0.00724	-0.0699	0.465	0.456	0.594	0.447
F-stat on IVs		9.316	8.898	10.448	9.736	9.354
Cragg-Donald F-stat		8.425	7.640	7.910	7.181	2.658
Stock-Yogo CV 10%						7.03
Standard Controls	No	No	Yes	Yes	Yes	Yes
State Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

#### Table 8: Change in Trump-Romney Vote Share

Notes: Standard errors in parentheses are clustered at the state-level; \* 0.1, \*\* 0.05, \*\*\* 0.01.

Standard controls: % unemployed, gini index, employment change 2016 over 1995, median HH income, % female, % age 65 and older, % black,

% hispanic, % white, % foreign born, % rural

ADH controls: offshorability index, routine task intensity index

where

$$\mathbf{Z}_{\ell T} = (Z_{1\ell T}, \dots, Z_{25\ell T})'$$

is the vector of AB judge employment exposure measures for each of the 25 AB judges, mapped to the U.S. county level  $\ell$  together with the disputes on which they serve using (2). We are interested in  $\beta$ , which measures the causal effect of a county's exposure to adverse WTO-AB rulings on the vote share for the anti-WTO Republican presidential candidate in 2016 compared to the Republican candidate's vote share in 2012.

## 6 Findings on the 2016 Election

We are interested in the causal effect of adverse WTO AB rulings on the 2016 U.S. presidential election. Table 8 reports results of regressing the change in the county-level Trump-Romney vote share on the cumulative WTO-AB exposure measure. All specifications include state fixed effects and standard errors are clustered at the state level. The endogenous regressor, the county's cumulative exposure to adverse WTO-AB rulings, is computed using the lenient HS-to-NAICS mapping. Specification 1 is the OLS baseline. The point estimate on WTO-AB Exposure is positive and significant at the 1-percent significance level, indicating that an increase in the share of county-level employment exposed to cumulative adverse AB rulings from 1995 to 2016 correlates with an increase in the vote share for Trump in 2016 over the vote share for Romney in 2012. We report summary

statistics and first-stage results in Appendix Tables A1 and A2.

Specifications 2-6 in Table 8 present second-stage results from two-stage instrumental variable regressions. We use all 25 AB judges as instruments (but one judge drops from the analysis having never served on a dispute with the United States as the respondent). Specification 2 is our IV baseline. Instrumented WTO-AB Exposure is positive and significant at the 1-percent significance level, indicating that an increase in the share of county-level employment exposed to cumulative adverse AB rulings from 1995 to 2016 causes an increase in Trump vote share in 2016 beyond the Romney vote share in 2012. Our baseline IV estimates suggests that a 10 percentage point increase in the share of county employment exposed to an adverse AB ruling resulted in a 0.37 percentage point increase in the Trump vote share over Romney's previous vote share. The Cragg-Donald F statistics indicate that our 25 instruments may be on the borderline to weak, according to critical values by ? for one (are two) endogenous regressor(s) and 24 instrumental variables. We address this issue in alternative robustness specifications below.

Specification 3 incorporates a set of standard economic and demographic controls at the county level: the unemployment rate, the change in employment between 1995 and 2016, the Gini index of economic inequality, median household income, the share of county population that is age 65 or older, White, Black, Hispanic, foreign born, rural and female. Instrumented WTO-AB Exposure remains positive and significant at the 95-percent confidence level.

Specification 4 includes the "'China Shock" variable and two additional controls from the Autor-Dorn-Hanson (ADH) project on the local labor market impact of import competition with China (Autor, Dorn and Hanson 2013, 2016). The China Shock estimate is small and not significantly different from zero while instrumented WTO-AB Exposure is large, positive and statistically significantly different from zero at the 1-percent significance level. The model also includes Autor-Dorn-Hanson controls for labor-market exposure to automation (routine task intensity index) and offshoring (offshorability index), raising confidence that our results reflect the impact of WTO-AB rulings rather than other aspects of global economic change.

Specification 5 adds a control for low educational attainment: the share of the county's population age 25 or older without a four-year college degree (or "Share No BA" for short). This coefficient estimate on the educational attainment variable is important because it correlates positively and significantly with voting for Trump over Romney and because our instrumented WTO-AB Exposure estimate is no longer significantly different from zero when educational attainment at the county level is included. In specification 6, we explore the possibility that low education is a moderating variable, so we interact WTO-AB Exposure with the share of county population without a Bachelor's degree. We find strong support for the idea that exposure to adverse AB rulings is conditioned by



Figure 3: Moderating Effect of Education on WTO-AB Exposure

education: in countries where more adults lack a four-year college degree, WTO-AB exposure significantly increases the Trump-over-Romney vote share.

Figure 3 displays the marginal effect of WTO-AB Exposure across the range of education attainment (left panel), and the distribution of adult population without at BA degree across counties (right panel). The right skew of the distribution indicates that in most U.S. counties most adults have less than a four-year college education. In the left panel, we see that it is precisely in these low-education countries that WTO-AB Exposure has a positive and significant effect on the propensity to support Trump over Romney. Although more research is needed, this pattern of findings is consistent with the idea that low education voters expect more difficulty adjusting to labor market dislocations than high education voters. Voters that lack college degrees are less mobile across occupations than voters with college degrees; they are also less mobile geographically, implying that these voters face a reduced prospect of moving to expanding labor markets. It is therefore plausible that less educated voters who are "stuck" in counties where employment is more exposed to adverse WTO-AB rulings would be more likely to vote for an anti-WTO candidate than are highly educated voters, who may expect to change occupations or relocate more easily.

Our second, subjective measure of complainant wins at the WTO-AB against the United States as a respondent is taken from the USTR's own official score keeping. In Table 9, we reproduce our analysis using the USTR measure. The estimates are similar in magnitude and significance to those in Table 8, which used our data-driven

Table 7. Change in Hump Kon	mey vote bi		( measure	UT TID LA	posure	
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS:baseline	IV:baseline	IV:controls	IV:ADH	IV:educ	IV:interact
WTO-AB Exposure (USTR)	0.0108***	0.0474***	0.0194***	0.0232***	0.00328	-0.741***
	(0.003)	(0.016)	(0.007)	(0.007)	(0.006)	(0.171)
share without a BA degree					0.312***	0.145***
					(0.019)	(0.046)
WTO-AB Exposure(cum.)× Share without a BA degree						0.927***
						(0.211)
China Shock				0.000239	0.000736	-0.000516
				(0.001)	(0.001)	(0.001)
N	3112	3111	3107	3103	3103	3103
R-square	0.00886	-0.0930	0.465	0.458	0.594	0.451
F-stat on IVs		8.944	8.194	9.346	8.908	6.950
Cragg-Donald F-stat		8.419	7.793	7.935	7.222	2.562
Stock-Yogo CV 10%						7.03
Standard Controls	No	No	Yes	Yes	Yes	Yes
State Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes
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Table 9: Change in	Trump-Romney V	ote Share: USTF	R Measure of AB Exposure

Notes: Standard errors in parentheses are clustered at the state-level; \* 0.1, \*\* 0.05, \*\*\* 0.01.

Standard controls: % unemployed, gini index, employment change 2016 over 1995, median HH income, % female, % age 65 and older, % black,

% hispanic, % white, % foreign born, % rural

ADH controls: offshorability index, routine task intensity index

measure of WTO-AB rulings against the United States. In Table 10 we reproduce the findings using the share of claims per dispute that the complainants against the United States won at the WTO-AB. The results are similar also for this continuous measure of WTO-AB exposures. Finally, in Table 11 we reproduce the findings using our "strict" approach to mapping HS codes to NAICS codes for the WTO-AB exposure measure. The results are stronger than when using the lenient mapping and first-stage F-statistics are above the standard threshold for rejection of weak instruments.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS:baseline	IV:baseline	IV:controls	IV:ADH	IV:educ	IV:interact	IV:weight
WTO-AB Exposure (share)	0.0182***	0.0841***	0.0307**	0.0371***	0.00684	-0.942***	-0.914*
	(0.005)	(0.026)	(0.012)	(0.012)	(0.009)	(0.283)	(0.535)
no BA sh.					0.311***	0.172***	0.199**
					(0.019)	(0.046)	(0.091)
WTO-AB Exposure (share)× no BA sh.						1.180***	1.205*
						(0.347)	(0.712)
China Shock				0.000218	0.000664	-0.000333	0.000956
				(0.001)	(0.001)	(0.001)	(0.003)
Ν	3112	3111	3107	3103	3103	3103	3103
R-square	0.00980	-0.119	0.465	0.457	0.594	0.496	0.684
F-stat on IVs		10.499	8.460	9.732	9.525	7.060	8.318
Cragg-Donald F-stat		8.775	8.032	8.290	7.595	2.468	3.196
Stock-Yogo CV 10%						7.03	7.03
Standard Controls	No	No	Yes	Yes	Yes	Yes	Yes
State Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

#### Table 10: Change in Trump-Romney Vote Share: Share Measure of AB Exposure

Notes: Standard errors in parentheses are clustered at the state-level; \* 0.1, \*\* 0.05, \*\*\* 0.01.

Standard controls: % unemployed, gini index, employment change 2016 over 1995, median HH income, % female, % age 65 and older, % black,

% hispanic, % white, % for eign born, % rural

ADH controls: offshorability index, routine task intensity index

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS:baseline	IV:baseline	IV:controls	IV:ADH	IV:educ	IV:interact	IV:weight
WTO-AB Exposure (Cum.)	0.0108***	0.0388***	0.0206***	0.0210***	0.00598	-0.709***	-0.660
	(0.003)	(0.014)	(0.007)	(0.007)	(0.006)	(0.206)	(0.494)
no BA sh.					0.311***	0.220***	0.242***
					(0.019)	(0.033)	(0.075)
WTO-AB Exposure (cum.)× no BA sh.						0.880***	0.872
						(0.251)	(0.651)
China Shock				0.00118	0.000759	0.000445	0.00158
				(0.001)	(0.001)	(0.001)	(0.002)
N	3112	3111	3107	3103	3103	3103	3103
R-square	0.00623	-0.0357	0.469	0.469	0.594	0.522	0.691
F-stat on IVs		10.230	12.796	14.041	12.270	4.213	6.303
Cragg-Donald F-stat		11.538	11.183	11.169	10.637	2.498	3.402
Stock-Yogo CV 10%						7.03	7.03
Standard Controls	No	No	Yes	Yes	Yes	Yes	Yes
State Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

#### Table 11: Change in Trump-Romney Vote Share: Strict HS-NAICS Mapping

Notes: Standard errors in parentheses are clustered at the state-level; \* 0.1, \*\* 0.05, \*\*\* 0.01.

Standard controls: % unemployed, gini index, employment change 2016 over 1995, median HH income, % female, % age 65 and older, % black,

% hispanic, % white, % for eign born, % rural

ADH controls: offshorability index, routine task intensity index

# 7 Interpretation: The Information Channel

We have presented IV evidence that WTO-AB decisions have an impact on U.S. domestic politics by way of elections. But is it plausible that voters are aware of WTO rulings that potentially expose their communities to greater import competition? In this section, we present anecdotal evidence that voters are presented with such information through local news coverage. We do so by selecting a U.S. county that is highly exposed to AB decisions and then conducting Lexis-Nexus searches to see if local news outlets covered WTO-AB rulings that related to local industries and workers. While we intend to pursue more systematic approaches to assessing voter awareness of WTO actions, this exploratory exercise suggests that knowledge is transmitted by local elites—industry leaders, union officials, and congressional representatives—through the news media to voters.

**Brooke County, WV** Our case study is of Brooke County, West Virginia which ranks high in our data in terms of exposure to adverse AB decisions. Brooke County is located on the Northern panhandle of West Virginia that extends into the steel producing region of Pennsylvania and Ohio. Less than fifty miles from Pittsburgh, PA, Brooke County's most common industries are, by number of employees, Health Care and Social Assistance (1,804 employees), and Manufacturing (1,316 employees). Just 19% of adults hold a BA degree or higher, which is well below the national average of 32.1%. Labor force participation is also lower than the national average: 55.2% vs. 63%. Brooke County is also less diverse than elsewhere: it is 95.6% White (non-Hispanic/non-Latino) relative to the national average of 60.1%. Just 1.4% of its residents are foreign born compared to 13.6% nationwide.<sup>20</sup>

Our Lexis-Nexus searches found articles in local media pertaining to the WTO, with particular attention surrounding WTO rulings in 2003 that outlawed the steel safeguards imposed by President George W. Bush in 2002. We focus on The Charleston Gazette, which provides news coverage for this part of West Virginia. The WTO Panel composed to review the steel safeguards dispute (DS232) circulated its Report on 11 July 2003. The next day, The Charleston Gazette covered the story. Similarly, on 12 November 2003, the day after the AB upheld the Panel ruling and issued its Report, The Charleston Gazette ran another story on the event.<sup>21</sup>

We quote from these news articles to illustrate a channel through which local voters can learn about the WT): voters in locations exposed to adverse WTO decisions can glean information from industry executives, union leaders, and elected politicians about WTO proceedings relevant to the local economy. Notice that after the Panel

<sup>&</sup>lt;sup>20</sup>These data are from the U.S. Census Bureau, American Community Survey (ACS) 5-year averages.

<sup>&</sup>lt;sup>21</sup>For details on DS232, seehttps://urldefense.com/v3/\_\_http://www.wto.org/english/tratop\_e/ dispu\_e/cases\_e/ds252\_e.htm\_;!!Mih3wA!TuazJvG02sRjQvIWO0R8KhaSg\_ZrkhJoHsRGEP5HfCA3r4ONP\_ 4S2m5r2DqUSno\$

ruling, news coverage captured local demands to fight the ruling, which the Bush administration did by appealing to the AB. The United States lost again and The Charleston Gazette ran another story the next day.

# 12 July 2003. The Charleston Gazette (WV). "W.Va. steel furious with WTO, Tariffs that protect U.S. industry violate rules, group says."

"The WTO cannot force the United States to terminate the tariff program, and we do not expect the administration will do so," said John Walker, chief executive officer of West Virginia's Weirton Steel Corp. "The WTO has never ruled in favor of the United States, and we don't expect they ever will."

Sen. Jay Rockefeller, D-W.Va., called the ruling "a disgrace" and said the United States should reassess its relationship with the WTO. "America has been, and remains, the largest and most open market for the world's exporters. Despite that, the WTO has chosen to make the United States the largest target of nuisance suits from other countries and unconscionably biased judgments against U.S. interests by the WTO panels," Rockefeller said.

Mark Glyptis, president of Weirton Steel's 3,000-member Independent Steelworkers Union, "has long called for the United States to withdraw from the WTO," union spokesman Dave Gossett said. "The ruling today is another example of the WTO's arrogance and disdain for the working people of the United States."

"The decision by the World Trade Organization is wrong, plain and simple," said Sen. Robert C. Byrd, D-W.Va. "The Bush administration must not abandon the American steel industry at this crucial hour. It ought to fight this decision and fight it aggressively."

#### 12 November 2003. The Charleston Gazette (WV). "WTO rules against U.S. steel tariffs."

"Steel company executives, union leaders and members of Congress criticized Monday's decision by the World Trade Organization that U.S. steel tariffs are illegal under current international trade rules."

Leo W. Gerard, president of the United Steelworkers of America, called Monday's ruling "the latest in a long line of WTO decisions undercutting America by overriding our trade laws and the nation's ability to make sovereign decisions in the interest of the American economy and the American people." The decision undoubtedly confronts Mr. Bush with a test of wills. Will he exercise his sovereign right as president to protect the jobs and survival of the entire American steel industry? Or will he knuckle under to the threat of economic blackmail being leveled by the European Union?"

Mark Glyptis, president of the Independent Steelworkers Union at Weirton Steel, called on the Bush administration "to give strong consideration to withdrawing from the WTO." Glyptis believes the European Union wants to see the U.S. steel industry collapse. "We have the greatest and most efficient steelworkers in the world. But we are penalized by this organization that ignores those countries where the steel industry is often subsidized and supported by their governments. All we have asked for is a level playing field."

Sens. Robert C. Byrd and Jay Rockefeller, both D-W. Va., have been among the most active members of the Senate Steel Caucus that advocated tariffs for years before they were imposed. Byrd called the WTO a "renegade" organization that made "yet another unjustified and wrong-headed decision that will benefit America's trading partners at our expense." The Bush administration must not abandon the American steel industry at this crucial hour. It must agree to keep the tariffs in place. If the administration uses this WTO decision to turn its back on its prior commitments to the U.S. steel industry, it will be a betrayal of steelworkers and nothing short of an earthquake for American steel communities," Byrd said.

Rockefeller said, "The ruling by the WTO is flat-out wrong. It is yet another indication of an anti-U.S. and anti-safeguard bias at the WTO. This bias needs our serious attention because it undermines the WTO and any hope of achieving fair trade." "This decision must not be used as an excuse for the president not to extend [the] tariffs. The president must not bow to this effort to pressure the United States He must keep his promise to our steelworkers," Rockefeller said.

This evidence suggests that voters can glean information about WTO-AB rulings from media coverage, which reports the anti-WTO sentiments of local industry and labor union officials. Members of Congress elected to represent these voters also get media coverage and their hostile reactions to the WTO rulings suggest that they are another source of information to voters. Overall, this evidence suggests that voters are sufficiently informed about WTO decisions by the news media, which transmits the opinions of local industry leaders, union officials, and congressional representatives.

## 8 Concluding Remarks

The WTO's main innovation over its predecessor—the General Agreement on Tariffs and Trade (GATT)—was the addition of an Appellate Body and a subsequent process of arbitration over compliance of the respondent government, whose trade policy or measures were found to lack conformity with the WTO's trade agreements. While dispute settlement under the GATT used to end after a Panel of experts had adjudicated, and there was no enforcement of compliance, the WTO's AB served to review Panel rulings and then ensure that the member state violating WTO rules brings its policies into conformity.

This dispute settlement system lasted through December 2019, when the U.S. government refused to accept the nomination of a replacement for the AB judges whose terms came to an end. WTO rules require unanimity among its 164 member states on the appointment of AB judges, and the WTO's Dispute Settlement Understanding (DSU) requires a minimum of three judges to hear a case. The refusal to appoint another AB judge therefore brought the AB to an abrupt halt as only one remaining judge's term had not yet ended. De facto, the WTO is now devoid of its innovation over the GATT, and the world trade system is operating again without an appeals process and without a multilaterally sanctioned enforcement mechanism.

In this paper, we examined whether AB rulings have repercussions in U.S. domestic politics. We took advantage of the randomization of AB judges to appeals to causally identify the impact of U.S. AB losses on the 2016 presidential election. Our IV estimates show that greater exposure of county employment to adverse AB rulings increased the vote share of the anti-trade Republican, Donald Trump, relative to Mitt Romney in 2012. We also provided anecdotal evidence that voters are exposed to information about AB decisions by local news media coverage of industry executives, union leaders, and members of Congress.

Our findings extend current research on "trade and politics" in new directions. Unlike work that has found evidence that trade flows and trade wars impact elections by way of their economic effects on communities (Feigenbaum and Hall 2015, Che et al. 2016, Jensen, Quinn and Weymouth 2017, Blanchard, Bown and Chor 2019, Autor et al. 2020), our results are also consistent with the interpretation that information about WTO rulings is an important channel through which the international environment shapes domestic elections. WTO-AB decisions may affect voting as informational cues, by which voters learn that trade policy is outside domestic control and in the hands of unelected judges at an international organization.

A question for future research is two what extent voters' perceptions of the WTO are driven by cultural factors, such as nationalism and xenophobia, or by the same self-interested economic reasoning that motivate import-competing industry executives and labor leaders to publicly oppose the WTO.

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# Appendix

# A Empirical Appendix

In this appendix, we present Tables to support our main analysis in the text.

		-				
	Obs.	Mean	Std.	Median	Min.	Max
Donald Trump's 2016 vote share difference compared to Romney 2012	3113	0.04	0.06	0.04	-0.38	0.23
WTO-AB Exposure (cum.)	3146	0.31	0.44	0.19	0.00	8.26
WTO-AB Exposure (USTR)	3147	0.28	0.40	0.17	0.00	7.76
AB Member: Georges-Michel Abi-Saab	3146	12.69	18.89	5.00	0.00	134.0
AB Member: James Bacchus	3146	11.25	14.81	6.00	0.00	104.0
AB Member: Luiz Olavo Baptista	3146	7.90	8.68	5.00	0.00	65.0
AB Member: Lilia R. Bautista	3146	3.10	4.04	2.00	0.00	30.0
AB Member: Christopher Beeby	3146	1.53	1.56	1.00	0.00	8.00
AB Member: Ujal Singh Bhatia	3146	10.80	13.85	6.00	0.00	114.0
AB Member: Peter Van den Bossche	3146	2.41	2.95	2.00	0.00	23.0
AB Member: Seung Wha Chang	3146	8.61	11.80	4.00	0.00	92.0
AB Member: Claus-Dieter Ehlermann	3146	0.98	1.14	1.00	0.00	4.0
AB Member: Said El-Naggar	3146	0.13	0.33	0.00	0.00	1.0
AB Member: Florentino P. Feliciano	3146	4.50	5.69	3.00	0.00	37.0
AB Member: A.V. Ganesan	3146	10.50	13.04	6.00	0.00	88.0
AB Member: Thomas R. Graham	3146	1.00	1.32	1.00	0.00	10.0
AB Member: Jennifer Hillman	3146	0.03	0.17	0.00	0.00	1.0
AB Member: Merit E. Janow	3146	8.27	9.33	5.00	0.00	62.0
AB Member: Julio Lacarte-Muro	3146	6.31	7.89	4.00	0.00	51.0
AB Member: John Lockhart	3146	7.62	11.57	3.00	0.00	81.0
AB Member: Mitsuo Matsushita	3146	1.96	2.02	1.00	0.00	10.0
AB Member: Shotaro Oshima	3146	0.05	0.24	0.00	0.00	2.0
AB Member: Ricardo Ramirez-Hernandez	3146	2.43	2.95	2.00	0.00	22.0
AB Member: Giorgio Sacerdoti	3146	9.07	10.86	5.00	0.00	77.0
AB Member: Shree Baboo Servansing	3146	0.00	0.00	0.00	0.00	0.0
AB Member: Yasuhei Taniguchi	3146	17.53	22.39	9.00	0.00	147.
AB Member: David Unterhalter	3146	6.05	7.78	3.00	0.00	61.0
AB Member: Yuejiao Zhang	3146	13.85	17.96	8.00	0.00	143.
Average AB Judges' stringency of all disputes (Cum.)	3146	45.95	56.74	25.90	0.00	423.
Share of Female Judges (Cum.)	3146	8.42	10.29	5.00	0.00	78.6
hare without a BA degree	3111	0.79	0.09	0.81	0.20	0.9
WTO-AB Exposure(cum.)× Share without a BA degree	3111	0.26	0.36	0.15	0.00	6.9
Employment change 2015 over 1995	3133	1.16	0.60	1.07	0.27	22.7
Median household income (thousands) in the past 12 months (in 2016 inflation-adj	3111	47.82	12.48	46.25	18.97	125.
Females as percentage of total population 2012-2016 (ACS 5-Year Estimates)	3111	0.50	0.02	0.50	0.22	0.5
Population 65 years or older as percentage of total population 2012-2016 (ACS 5-	3111	0.18	0.04	0.17	0.04	0.5
Non-Hispanic Blacks as percentage of total population 2012-2016 (ACS 5-Year Esti		0.09	0.14	0.02	0.00	0.8
Hispanics or Latinos as percentage of total population 2012-2016 (ACS 5-Year Est	3111	0.09	0.14	0.04	0.00	0.9
Non-Hispanic whites as percentage of total population 2012-2016 (ACS 5-Year Esti	3111	0.77	0.20	0.85	0.01	1.0
Foreign-born population as percentage of total population 2012-2016 (ACS 5-Year	3111	0.05	0.06	0.03	0.00	0.5
Rural population as a percentage of total population 2010	3113	0.58	0.31	0.59	0.00	1.0
Unemployed population in labor force as a percentage of total population in civi	3111	0.07	0.03	0.07	0.00	0.3
Gini index of income concentration 2012-2016 (ACS 5-Year Estimates)	3111	0.44	0.03	0.44	0.32	0.6
China Shock	3107	0.99	0.81	0.83	-0.59	7.2
Routine task intensity index	3107	2963.52	282.06	2956.76	2222.69	3665
Offshorability index	3107	-0.50	0.47	-0.56	-1.64	1.2
Observations	3148					

Table A1: Summary Statistics

	$(1) \qquad (2) \qquad (3) \qquad (4) \qquad (5)$							
	M2: WTO-AB Exp.	M3: WTO-AB Exp.	M4: WTO-AB Exp.	M5: WTO-AB Exp.	M6: WTO-AB Exp.	(6) M6: Inter.		
AB Member: Georges-Michel Abi-Saab	0.00374	0.00438	0.00452	0.00471	0.00471	0.00412		
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.005)		
AB Member: James Bacchus	-0.0469***	-0.0457***	-0.0476***	-0.0453***	-0.0453***	-0.0376***		
	(0.016)	(0.016)	(0.015)	(0.015)	(0.015)	(0.013)		
AB Member: Luiz Olavo Baptista	-0.0529***	-0.0529***	-0.0508***	-0.0468***	-0.0468***	-0.0384***		
ab Weinber. Eurz Oravo Baptista	(0.015)	(0.016)	(0.015)	(0.015)	(0.015)	(0.013)		
AB Member: Lilia R. Bautista	-0.0466***	-0.0475***	-0.0464***	-0.0438***	-0.0438***	-0.0345***		
	(0.016)	(0.016)	(0.014)	(0.014)	(0.014)	(0.012)		
AB Member: Christopher Beeby	0.0520	0.0569	0.0713	0.0739	0.0739	0.0595		
	(0.051)	(0.049)	(0.048)	(0.048)	(0.048)	(0.040)		
B Member: Ujal Singh Bhatia	-0.0346	-0.0391*	-0.0350	-0.0324	-0.0324	-0.0243		
ab Meniber. Ofai Shigh Bhata	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.018)		
	(01022)	(****)				(01010)		
AB Member: Peter Van den Bossche	-0.0527*	-0.0445	-0.0446	-0.0454	-0.0454	-0.0351		
	(0.029)	(0.030)	(0.028)	(0.029)	(0.029)	(0.023)		
AB Member: Seung Wha Chang	-0.00344	0.000118	-0.00114	-0.00157	-0.00157	-0.00464		
	(0.029)	(0.029)	(0.029)	(0.030)	(0.030)	(0.025)		
AB Member: Claus-Dieter Ehlermann	0.0574***	0.0524***	0.0544***	0.0514***	0.0514***	0.0421***		
AB Member: Claus-Dieter Emermann	(0.018)	(0.017)	(0.016)	(0.016)	(0.016)	(0.0421)		
	(0.010)	(0.017)	(0.010)	(0.010)	(0.010)	(0.015)		
AB Member: Said El-Naggar	-0.0145	-0.00714	0.00449	0.0142	0.0142	0.00825		
	(0.053)	(0.051)	(0.049)	(0.048)	(0.048)	(0.040)		
AB Member: Florentino P. Feliciano	-0.0418**	-0.0394**	-0.0372**	-0.0366**	-0.0366**	-0.0310**		
	(0.016)	(0.016)	(0.015)	(0.015)	(0.015)	(0.012)		
	0.0212**	0.021.4**	0.0107**	0.0177*	0.0177*	0.01.10*		
AB Member: A.V. Ganesan	0.0212** (0.009)	0.0214** (0.009)	0.0197** (0.009)	0.0177* (0.009)	0.0177* (0.009)	0.0149* (0.008)		
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.008)		
AB Member: Thomas R. Graham	0.0396	0.0394	0.0393	0.0375	0.0375	0.0278		
	(0.031)	(0.030)	(0.031)	(0.031)	(0.031)	(0.026)		
B Member: Jennifer Hillman	0.0726	0.0721	0.0574	0.0545	0.0545	0.0384		
	(0.052)	(0.048)	(0.047)	(0.045)	(0.045)	(0.038)		
	0.014.51	0.0105	0.010.01	0.00004	0.00004	0.0000		
AB Member: Merit E. Janow	0.0115*	0.0127** (0.006)	0.0106* (0.006)	0.00991 (0.006)	0.00991 (0.006)	0.00837*		
	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)	(0.005)		
AB Member: Julio Lacarte-Muro	0.0675***	0.0683***	0.0682***	0.0639***	0.0639***	0.0538***		
	(0.023)	(0.024)	(0.023)	(0.023)	(0.023)	(0.019)		
B Member: John Lockhart	0.0487***	0.0470***	0.0490***	0.0462***	0.0462***	0.0379***		
	(0.014)	(0.014)	(0.013)	(0.014)	(0.014)	(0.011)		
AB Member: Mitsuo Matsushita	0.00209	-0.00278	-0.0146	-0.0180	-0.0180	-0.0134		
	(0.029)	(0.028)	(0.028)	(0.028)	(0.028)	(0.023)		
AB Member: Shotaro Oshima	-0.105**	-0.118***	-0.102**	-0.0950**	-0.0950**	-0.0735**		
	(0.042)	(0.042)	(0.041)	(0.042)	(0.042)	(0.035)		
AB Member: Ricardo Ramirez-Hernandez	0.116***	0.109***	0.105***	0.102***	0.102***	0.0798***		
Ab Member: Ricardo Ramirez-Hernandez	(0.033)	(0.035)	(0.033)	(0.033)	(0.033)	(0.027)		
	(0.055)	(0.055)	(0.055)	(0.055)		(0.027)		
B Member: Giorgio Sacerdoti	0.0187***	0.0217***	0.0224***	0.0196***	0.0196***	0.0158***		
	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.004)		
B Member: Yasuhei Taniguchi	-0.0281***	-0.0311***	-0.0302***	-0.0269**	-0.0269**	-0.0224**		
	(0.010)	(0.011)	(0.010)	(0.010)	(0.010)	(0.008)		
<b></b>								
AB Member: David Unterhalter	0.0307*	0.0263	0.0268*	0.0250	0.0250	0.0189		
	(0.017)	(0.016)	(0.015)	(0.015)	(0.015)	(0.013)		
AB Member: Yuejiao Zhang	0.0255	0.0281*	0.0246	0.0226	0.0226	0.0197		
	(0.016)	(0.016)	(0.015)	(0.016)	(0.016)	(0.013)		
N	3111	3107	3103	3103	3103	3103		

Table A2: 2016 Election: First Stage of Main IV Regressions (IV: 25 Judges

 $\label{eq:standard} \begin{array}{l} \mbox{Standard errors in parentheses} \\ \ ^* p < 0.1, ^{**} p < 0.05, ^{***} p < 0.01 \end{array}$ 

	(1)	(2)	(3)	(4)	(5)	(6)
	IV: bsln.	IV: std.cntrls.	IV: ADHM	IV: educ	IV: inter.	IV: weight
WTO-AB Exp.	0.0397*	-0.205*	0.0326***	0.0148**	-1.024***	-0.554
	(0.024)	(0.122)	(0.009)	(0.007)	(0.393)	(0.426)
No DA Sh				0.299***	0.0327	0.216
No BA Sh.						
				(0.018)	(0.107)	(0.145)
WTO-AB Exp. $\times$ No BA Sh.					1.292***	0.700
					(0.478)	(0.595)
China Shock			0.000(29	0.0001(7	0.00177	0.00292
China Shock			-0.000628	-0.000167	-0.00177	0.00283
			(0.001)	(0.001)	(0.002)	(0.005)
Ν	3111	3107	3103	3103	3103	3103
R-square	-0.0833	-3.624	0.412	0.578	0.124	0.706
F-stat on IVs	9.877	4.263	11.135	10.083	10.965	7.986
Cragg-Donald F-stat	22.237	4.103	24.910	22.786	12.231	10.951
Stock-Yogo CV 10%					7.03	7.03
Standard Controls	No	Yes	Yes	Yes	Yes	Yes
ADH's controls	No	No	Yes	Yes	Yes	Yes
Voting Pop. Weight	No	No	No	No	No	Yes
State Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

# Table A3: 2016 Election: No U.S. Disputes (IVs: Stringency & Gender)

Standard errors in parentheses

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS:baseline	IV:baseline	IV:controls	IV:ADH	IV:educ	IV:interact	IV:weight
WTO-AB Exposure (2014-2015)	0.0551***	0.0518	-0.0262	0.0214	-0.0232	-2.960**	-4.046**
	(0.012)	(0.098)	(0.048)	(0.048)	(0.043)	(1.277)	(1.616)
no BA sh.					0.318***	0.212***	0.152**
					(0.021)	(0.051)	(0.068)
WTO-AB Exposure $(2014-2015) \times$ no BA sh.						3.623**	5.519***
						(1.568)	(2.063)
China Shock				0.00166	0.00134	0.000436	-0.00246
				(0.001)	(0.001)	(0.002)	(0.003)
N	3112	3111	3107	3103	3103	3103	3103
R-square	0.00640	0.00637	0.469	0.477	0.594	0.521	0.549
F-stat on IVs		7.093	8.250	7.762	7.982	3.775	6.430
Cragg-Donald F-stat		6.356	6.087	5.500	5.425	1.771	1.948
Stock-Yogo CV 10%						7.03	7.03
Standard Controls	No	No	Yes	Yes	Yes	Yes	Yes
State Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

# Table A4: 2016 Election: Recent Measure of AB Exposure

Notes: Standard errors in parentheses are clustered at the state-level; \* 0.1, \*\* 0.05, \*\*\* 0.01.

Standard controls: % unemployed, gini index, employment change 2016 over 1995, median HH income, % female, % age 65 and older, % black,

% hispanic, % white, % foreign born, % rural

ADH controls: offshorability index, routine task intensity index

	(1)	(2)	(3)	(4)	(5)	(6)
	IV: bsln.	IV: std.cntrls.	IV: ADH	IV: educ	IV: inter.	IV: weight
WTO-AB Exposure (1996-2001)	0.160***	0.0434*	0.0427*	0.0159	0.444	2.784**
	(0.040)	(0.023)	(0.023)	(0.019)	(0.781)	(1.285)
WTO-AB Exposure (2002-2008)	0.0331	0.0128	0.0151*	0.00432	0.317	-0.486
	(0.021)	(0.008)	(0.008)	(0.007)	(0.712)	(1.445)
WTO-AB Exposure (2009-2015)	-0.0177	0.00952	0.0176	-0.0112	-2.396**	-1.744
	(0.031)	(0.022)	(0.021)	(0.019)	(1.025)	(1.597)
no BA sh.				0.314***	0.183***	0.241***
				(0.021)	(0.067)	(0.090)
WTO-AB Exposure (1996-2001)× no BA sh.					-0.539	-3.404**
					(0.936)	(1.645)
WTO-AB Exposure $(2002-2008) \times$ no BA sh.					-0.369	0.575
					(0.881)	(1.891)
WTO-AB Exposure $(2009-2015) \times$ no BA sh.					2.900**	2.276
					(1.231)	(2.075)
China Shock			0.000311	0.000848	0.00110	0.00212
			(0.001)	(0.001)	(0.002)	(0.003)
N	3110	3107	3103	3103	3103	3103
R-square	-0.154	0.461	0.455	0.594	0.425	0.611
F-stat on IVs	12.558	7.071	6.820	6.669	1.427	1.494
Cragg-Donald F-stat	8.274	7.678	7.888	7.065	0.744	0.796
Stock-Yogo CV 10%					7.03	7.03
Standard Controls	No	Yes	Yes	Yes	Yes	Yes
State Fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes

Table A5: 2016 Election: By Period Measure of AB Exposure (IV: 25 Judges)

Standard errors in parentheses

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01