Global Value Chains as a Constraint on Sovereignty: Evidence from Investor-State Dispute Settlement*

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Abstract

That economic integration constrains state sovereignty has been a longstanding concern and the subject of much study. We assess the validity of this concern in the context of two very particular components of contemporary economic globalization: development-enhancing global value chain (GVC) integration and Investor-State Dispute Settlement (ISDS). We argue that multinational corporations (MNCs) with the potential to disrupt GVC integration are more likely to see host state regulations changed in their favor. Contemporary ISDS arbitration, in which MNCs sue host states over alleged violations of investment treaties, make this process visible. Using the non-parametric difference-in-differences estimator by Imai, Kim and Wang (2020), we connect ISDS filings to substantial decreases in GVC trade. We bring that finding to our novel dataset, in which we document that host states have abandoned 24% of regulations disputed in ISDS (1987-2017). Our argument and evidence suggest that, in combination, GVC integration and ISDS can grow an MNC's power to such an extent that the host state quite literally abandons a regulation that the MNC disputes.

Keywords: Global Value Chains; Investor-State Dispute Settlement; sovereignty; regulation; regulatory coordination

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1 Introduction

Power concerns the capacity to influence the behavior of others. Led by the pioneering work of Susan Strange, many scholars see multinational corporations (MNCs) as a key locus of power, able to influence the behavior of governments not just at home, but also in the host states in which they invest (Strange, 1983). A priority in contemporary political science research is to understand the extent to which MNCs are in fact forcing a "retreat of the state" (Strange, 1996). This article probes the conditions under which foreign, private market actors shape regulatory policy in host states under contemporary economic globalization. We focus on two phenomena core to the status quo of foreign direct investment (FDI), MNC activities, and host state choices over economic openness: global value chain (GVC) integration, and the ability of foreign investors to sue host states under treaty-based Investor-State Dispute Settlement (ISDS), facilitated by thousands of international investment agreements (IIAs). Our argument and evidence suggest that these phenomena can generate both directly and indirectly advantages for MNCs. It follows that host states choosing economic openness may be particularly exposed to constraints on sovereignty consistent with the retreat of the state.

The first of these contemporary phenomena is global value chain (GVC) integration, the increasingly dominant choice of MNCs to fragment production across host states via subsidiaries and/or subcontractors (Kim and Rosendorff, 2021), which accounts for some 70% of international trade.[1] GVC integration likely plays a role in all globalized industries because it involves trade in services and not only in physical goods (Weymouth, 2017). For host states, GVC integration is associated with increased productivity, employment, living standards, and economic diversification; according to the World Bank, it provides states "the opportunity to leap-frog their development process."[2] It follows that host states value GVC integration as a (if not the) key benefit of economic globalization.

The second phenomenon is treaty-based Investor-State Dispute Settlement (ISDS), the controversial face of international investment law. ISDS gives foreign investors standing to sue host states for alleged property rights violations in ad hoc arbitration, as facilitated by thousands of decentralized bilateral and regional IIAs that do not codify foreign investor commitments to

[1] `https://www.oecd.org/trade/topics/global-value-chains-and-trade/`, Accessed 10 August 2021.
[2] `https://www.worldbank.org/en/topic/global-value-chains`, Accessed 10 August 2021.

the host state. Treaty-based ISDS arbitrations have skyrocketed in the 2010s, and developing host states have borne the brunt of ISDS costs as respondents (Moehlecke and Wellhausen, N.d.). Respondent host states that lose at arbitration have to pay monetary compensation to the claimant investor, often on the order of USD millions (Franck, 2019). ISDS reform efforts are proceeding in earnest, driven by international organizations and the efforts of individual states, but abrogated or renegotiated ISDS treaty commitments remain today the exception, not the rule (Thompson, Broude and Haftel, 2019; Peinhardt and Wellhausen, 2016).

Taken together, these phenomena create a status quo in which states seek to grow their role as suppliers of intermediate goods and services to MNCs via GVC integration, and have made legal commitments to ISDS (Cutler and Lark, 2020). The first phenomenon suggests that a host state would set policies advantageous to MNCs that account for GVC integration (Johns and Wellhausen, 2016). The second phenomenon suggests that, should such a GVC-enabling MNC sue a host state in ISDS over a given policy, the host government has incentives to resolve the dispute to protect GVC integration. The definition of resolution has been touted as a key upside of ISDS design. Specifically, respondent host states have a legal commitment to provide compensation to the claimant foreign investor in the event of adverse rulings. But there is no requirement that respondent states abandon the disputed policy, making ISDS a "breach and pay" system that stands out in international economic law (Pelc and Urpelainen, 2015; Wellhausen, 2019). Moreover, there is no norm that respondent states change the policy; ISDS reform has focused on preserving host states' sovereign authority to maintain policies even if they have adverse consequences for foreign investors (Haftel et al., 2018). Our question is whether the power of GVC-enabling MNCs incentivizes the host government to go beyond its treaty commitments. We intuit that the respondent host government is more likely to abandon the policy when the foreign claimant is key to GVC integration. The implication is that contemporary economic globalization facilitates conditions that force the "retreat of the state," even in ways that sovereign states have explicitly excluded from their commitments to private market actors.

To probe these expectations, we first needed to generate the dependent variable: variation in the post-ISDS filing status of regulations disputed in ISDS. Among ISDS arbitrations triggered by a specific regulation, we find that respondent host states abandoned some 24% of disputed regulations, resulting in policy environments closer to claimant preferences (ISDS filed 1987-2017, assessed as of 2018). In 20 instances, the state abandoned the regulation *despite winning the ISDS arbitration.*

Given selection effects and peculiarities of both legal and investment data, we pursue creative empirical strategies to get at our expectations' observable implications. Using the non-parametric difference-in-differences estimator by Imai, Kim and Wang (2020), we find evidence linking disputed regulations to disruption of GVC trade, especially in the claimant's specific industry. We follow this with a medium-n approach, presenting descriptive statistics consistent with our argument and analyzing one illustrative case as a proof-of-concept. We believe both our novel data and empirical strategies have great potential to further evaluate the starkest normative concerns about market-generated constraints on sovereign states' regulatory policy making.

2 MNC Leverage, Regulatory Change, and ISDS Arbitration

A vast scholarship indicates that MNCs exert power over host states through various channels. Indirectly, MNCs lean on diplomatic support from their home governments when embroiled in conflict in a host state (Wellhausen, 2015*b*; Gertz, 2018; Gertz, Jandhyala and Poulsen, 2018). MNCs influence their home governments in international negotiations, shaping the priorities and content of international agreements with host states (Sell and Prakash, 2004). MNCs further indirectly influence host states when they invest in private governance, third-party monitoring, and other substitutes for traditional state-led regulation of their activities (Markus, 2012; Locke, 2012; Distelhorst and Locke, 2018; Malesky and Mosley, 2018). Directly, MNCs have shaped international regime complexes around climate change and other issues (Raustiala and Victor, 2004; Vogel, 2008; Keohane and Victor, 2011). Treaty shopping provides advantages to foreign – and not domestic – market actors (Busch, 2007; Arel-Bundock, 2017; Thrall, 2021). Foreign MNCs have also found success directly lobbying governments in host states (Mitchell et al., 2015; Hansen and Mitchell, 2000; Weymouth, 2012). Finally, structural issues in the host economy can weaken less-competitive domestic firms' attempts to counter such efforts by foreign MNCs (Salamon and Siegfried, 1977; Bauerle Danzman, 2019; Johns, Thrall and Wellhausen, 2020).

None of these channels of influence require the legal institution of treaty-based ISDS arbitrations. However, ISDS arbitration today is the face of outsized MNC power relative to that of host states, encountering near-universal popular and practitioner backlash. Being sued under ISDS generates costs for respondent host states, whether monetary, diplomatic, or reputational (Franck, 2019; Gertz, Jandhyala and Poulsen, 2018; Allee and Peinhardt, 2011). Costs also increase as evolving legal standards across ad hoc tribunals broaden what host states had originally expected to be more limited IIA commitments (Poulsen et al., 2013; Schultz and Dupont, 2014; Pelc, 2017). Leaders of reform efforts contend that the decentralized and overlapping set of host state IIA commitments to ISDS, plus the design choices of ISDS adjudication itself, push host governments to choose between sovereignty and foreign investors' preferences.[3]

Several scholars have taken up the task of explaining variation in ISDS constraints on host state autonomy (Waibel et al., 2010; Van Harten, 2016, 2012; Milner, 2014). Arguments about "regulatory chill" raise the specter that ISDS deters host states from fully exercising their sovereignty. Specifically, if a host state expects that enacting a potentially investor-unfriendly regulation risks ISDS, it may be "chilled" so that it chooses not to enact that regulation (Simmons, 2014). Careful research indicates that "regulatory chill" is bounded, even in most-likely cases, which tempers the direst normative concerns (Moehlecke, 2020). Still, should a host state enact a disputed regulation, and be sued in ISDS for doing so, its choice to abandon the regulation is consistent with being belatedly "chilled."[4] Our data collection effort involves finding the set of such instances, and then exploring whether they are consistent with regulatory chill triggered by threats to GVC-integration.

ISDS is an important topic of study itself, but it also has a key characteristic that rules out important alternative hypotheses for explaining host government (in)actions: ISDS does not require the respondent host state sued in arbitration to change the regulation(s) the claimant foreign investor disputes. Rather, the host state meets its obligations when it pays the award (if any) that results from adjudication by the tribunal as compensation for the host state's property rights violation.[5] Further, there is no established norm that a respondent host state should abandon

[3]Not every IIA contains ISDS provisions (John, 2018), but ISDS clauses in direct foreign investor-host state contracts are standard and some states incorporate ISDS in domestic law. Thus, states worldwide have some exposure to ISDS.

[4]Host states might gain enough benefits from this course of action such that it is actually what is known as efficient breach (Pelc and Urpelainen, 2015). However, recent evidence suggests that only perhaps 31% of post-ISDS investment outcomes conform to efficient breach logic (Wellhausen, 2019).

[5]In some cases, tribunals have reached a pro-investor ruling, but awarded zero monetary compensation. Another point of controversy has been some treaty protections that effectively award compensation for future lost profits because of host state's action. Revisions to NAFTA Chapter 11, the USMCA, and other modern IIAs, attach some

a disputed regulation. Rather, the dominant norm among states and international organizations is that ISDS should not infringe on states' sovereignty.[6]

Absent a legal obligation or norm to abandon regulations disputed in ISDS, we expect foreign, private market actors to be a key explanation for why host governments sometimes abandon regulations. Before presenting our theory, we introduce our novel data documenting the existence and trends in our dependent variable.

3 Data: ISDS arbitrations and specific disputed regulations

Has ISDS found the sweet spot – enforcing international regulatory convergence for the rule of law via compensation awards, while allowing host states regulatory autonomy? Our novel data collection effort verifies this. We start by examining whether respondent host states have abandoned specific regulations disputed by foreign claimants. Given that states sometimes make such changes – without a legal or norm-driven reason behind – we see a clear puzzle to be explained.

We start with the UNCTAD dataset of treaty-based ISDS arbitrations, covering 809 cases filed from 1987-2017. This is a non-random sample of the true population, due to variation in rules and norms regarding public disclosure of treaty-based ISDS; nonetheless, this dataset is appropriate for our setting, as undisclosed arbitrations cannot reasonably transmit information to the market actors involved in GVC integration.[7] Our first tasks were to identify if there is a specific underlying regulation disputed by the claimant, and if so, its characteristics.[8] Our coding of "regulation" is based on the dictionary definition of any "rule or directive made and maintained by an authority."[9] Coding relied primarily on case documents and, secondarily, on academic case notes and other reliable sources.[10] To qualify as a disputed regulation for our purposes, the rule or directive had to be "on the books." For example, in 2012, Swedish energy firm Vattenfall filed for ISDS arbitration against Germany, disputing the law requiring the phase-out of all nuclear plants

limits to such bases for compensation.

[6] See for example "UNCTAD's Reform Package for the International Investment Regime" (2018). New York and Geneva: United Nations.

[7] As of June 2021, UNCTAD counts 1104 treaty-based ISDS arbitrations; a private service of investigative journalism (IA Reporter) has found 1127.

[8] If an investor cites multiple regulations in a single case, we record all disputed regulations.

[9] Google Dictionary.

[10] Academic case notes are published in journals like *The ICSID Review*. Other news sources include *IA Reporter*, business and legal news sources, and memos released by claimant firms and their legal representation.

in the country by 2022 (*Vattenfall v. Germany II*).[11]

We confirm a specific, disputed host state regulation for 46% of ISDS filings (370 of 809). The primary reason this is far from 100% is that many claimants sue for issues other than an allegedly unlawful regulation. Specifically, we do not code instances in which the claimant accuses the host state of breaking its own regulation, as this does not represent the claimant disagreeing with the regulation's content. For example, in *Allard v. Barbados*, the claimant alleged that the government of Barbados breached several of its own domestic environmental regulations in violation of the Canada-Barbados BIT.[12] Additionally, ISDS arbitrations alleging covert or extralegal government actions are not coded, as they suggest risks to foreign investors beyond adverse regulation. Lastly, we do not code ISDS arbitrations alleging contract violations by the host state, as these disputes concern enforcement of something that is not a regulatory policy. Another reason why the percentage is far from 100% is that claimants sometimes do not specify the exact regulation that triggered the dispute, as they can keep the content of ISDS arbitration confidential (Hafner-Burton, Steinert-Threlkeld and Victor, 2016). We do not attempt to infer which regulation(s) might be applicable when compelling documentation is unavailable. Thus, we bias toward undercounting specific regulations disputed in ISDS.

Our next step was to code whether the host state abandoned the disputed regulation at any point from the ISDS filing through the end of the study period (2018).[13] In sum, we find the host state made a pro-claimant change to the disputed regulation in 87 of the 370 ISDS arbitrations in which a specific regulation is disputed (24%).[14] This gives us prima facie corroboration that ISDS is sometimes associated with regulatory convergence toward the claimant's preferences.[15] We confirm that the disputed regulation was not changed in 49% of applicable cases (180 of 370). We are unable to find conclusive evidence that a regulation had either changed or not since ISDS filing in 36% of applicable cases (134 of 370). We chose to code conservatively to make it more difficult

[11] The Bundestag approved the law with over 80% of the votes. Vattenfall alleged the law breached Germany's obligations under the Energy Charter Treaty, an IIA with ISDS access.

[12] Allard, who purchased land to develop an eco-tourism project, claimed that government violations of its own regulations caused environmental damage that diminished his investment's value.

[13] We do not capture regulations that might have been changed in association with negotiations undertaken before the claimant formally invoked ISDS. Thus, we undercount potential instances in which the host state may be "chilled" by the claimant.

[14] This is 11% of all 809 ISDS arbitrations, including those in which no specific regulation is publicly disputed.

[15] We are careful to label this a pro-claimant and not a pro-FDI change, as we cannot assume foreign investors' preferences are homogeneous (Gulotty, 2020; Bauerle Danzman, 2020).

to establish that there is indeed variation in our dependent variable.[16]

Then, we operationalize change dichotomously: cases are coded 1 if the regulation is "abandoned," meaning there is a pro-claimant change in a disputed regulation at any point since ISDS filing.[17] We coded abandonment whenever we found evidence in governmental and/or specialized news sources that the disputed regulation had been amended, repealed, replaced, expired, or annulled/overruled by the domestic judiciary. One example is *IMFA v. Indonesia*, filed in 2015 under the India-Indonesia BIT. IMFA sought USD 600 million in compensation, as the mining permits it had obtained overlapped with seven other permits granted to other firms. This issue referred to a 2009 Indonesian law that did not require the various permit-issuing agencies to use a harmonized map when drawing permit boundaries. After the ISDS filing, Indonesia abandoned the previous regulation and replaced it with Regulation 43/2015, which then established criteria for the resolution of overlapping permits.

We code 0 if we could find definitive evidence that the regulation was not substantively altered since ISDS filing. We also coded 0 if the regulation has been changed, but not toward the claimant's preferences. One example of this coding decision is in *GAMI v. Mexico*, filed in 2002 under NAFTA. GAMI held shares of a Mexican holding company that owned five sugar mills in the country. GAMI disputed a decree issued by the Mexican government that expropriated sugar mills owned by local subsidiaries, which aimed at revitalizing the Mexican sugar industry. Since ISDS filing, the applicable Mexican Expropriation Law has been amended several times. However, none of the amendments have addressed the core issue disputed by the investor.[18]

Although there is no requirement or norm that the host state abandon the disputed regulation whatever the outcome of the arbitration, Table 1 addresses whether ISDS outcomes are sufficient to account for patterns in abandonment. When the investor won or settled before a ruling, the host state abandoned the disputed regulation in (only) around one-third of applicable cases. What is surprising is that the host state abandoned regulations in 20% of applicable cases that the state, in fact, won. That is, the state went through formal ISDS procedures, was ruled not to be liable for compensation to the claimant investor, and abandoned the underlying disputed

[16] For more information, see the code book and replication data. We aim at being exceedingly transparent to make these materials helpful to others.

[17] In the rare event a claimant disputes multiple specific regulations, we code 1 if any of those have been abandoned.

[18] `http://www.diputados.gob.mx/LeyesBiblio/pdf/35.pdf`

regulation anyway. Moreover, the host state had already abandoned the disputed regulation in 12% of applicable pending cases at the end of the study period. These descriptive patterns cast doubt on the notion that ISDS outcomes are the key driver of patterns in the dependent variable, although we revisit their potential influence in our empirical analyses.

Table 1: **ISDS outcomes and abandoned regulations (1987-2017, assessed 2018).** Notably, host states have abandoned disputed regulations even after winning the related ISDS arbitration.

ISDS Outcome	Case count	Abandoned	Pct
Investor win	113	37	33%
Settled	45	17	38%
State win	99	20	20%
Pending	113	13	12%
Total	*370*	*87*	*24%*

In Appendix 1, we provide further descriptive statistics summarizing variation in the 87 ISDS arbitrations associated with abandoned regulations. Disputed regulations include laws passed by the legislative branch, executive decrees, judicial rulings, or some combination of these (Table A-3). The most common method of regulation abandonment is expiration, but judicial and legislative actions also show up (Table A-4). Although the lion's share of abandoned regulations is in ISDS filings by US investors, claimants have come from 23 other home states (Table A-5). Additionally, while the modal claimant is in utilities, there are claimants from 14 other industries (Table A-6). Twenty-eight host states have abandoned disputed regulations, including not only developing countries, but also Canada and the United States (Table A-7). Finally, it is not the case that arbitrations heard early in the study period have disproportionately high rates of regulatory abandonment by the end of it (Figure A-4). Nevertheless, the 2002 Emergency Law in Argentina did triggered 25 ISDS filings in the dataset. As that law expired in 2018, these arbitrations play an important role in the data. While these data points fit the criteria for inclusion, our results are robust to their exclusion (Appendix 2.4).

4 Theory: Abandoning Regulations to Avoid GVC Disruption

We use our novel ISDS data to examine the conditions under which foreign, private market actors influence regulatory policy in the host states in which they invest. If the host state sets a regulation that an MNC considers to have violated its property rights, and the MNC sues under ISDS, under what conditions is the host state more likely to abandon the disputed regulation? Our expectation is that the host state is more likely to abandon the regulation, and thus move toward the claimant's preferences, if maintaining the regulation imposes sufficient costs on the host state. The question becomes under what conditions does a host state face expected or realized costs that are sufficient for it to abandon its regulation.

The status quo in international investment law allows us to rule out several potential sources of costs. First, we can discard any legal obligation; ISDS treaty commitments do not require policy change. Second, we can dismiss norm-driven pressure on host states to abandon regulations; rather, norms in civil society, at international institutions, and even within the US government reinforce host states' sovereignty. For example, US Trade Representative in the Trump administration Robert Lighthizer testified that ISDS has "sovereignty issues...I'm always troubled by the fact that non-elected, non-Americans can make a decision that a United States law is invalid...I find that offensive." The Director of the Board of Investment in Sri Lanka criticized "bitter lessons from international arbitrations and the tendency for BITs to constrain domestic policy space." In advocating for reform, the UN Conference on Trade and Development writes that "broad and vague formulations...have enabled investors to challenge core domestic policy decisions – for instance, in environmental, financial, energy, and health policies."[19]

A third hypothesis is that losing at ISDS arbitration motivates the host state to abandon the disputed policy to avoid future litigation costs. It is true that the probability of future ISDS arbitrations over the same disputed regulation is not zero, given double jeopardy and related constraints in decentralized international investment law. However, there is also a weak role of precedent (Johns, Pelc and Wellhausen, 2019). Hence, the outcome of the first arbitration over a disputed regulation is not a perfect predictor of the outcome of the second, as host states like the Czech Republic and Argentina have experienced (Wellhausen, 2016). That future litigation can occur whatever the ISDS outcome is consistent with the descriptive patterns reported in Table 1.

[19] USTR Lighthizer testified to Senate Finance Committee members in response to Sen. Sherrod Brown's (D-Ohio) question on whether ISDS will be removed from NAFTA (21 June 2017). Champika Malagoda, Director of Research and Policy Advocacy Department, Board of Investment of Sri Lanka (16 October 2014). UNCTAD, "Chapter 3: Recent Policy Developments and Key Issues," World Investment Report 2017: Investment and the Digital Economy (9 May 2017). All quotations sourced from Public Citizen compilation, available here: `https://www.citizen.org/wp-content/uploads/isds-quote-sheet.pdf`.

Regulatory abandonment occurs following not only host state losses, but also wins.

Our explanation for variation in regulatory change around ISDS derives from a feature and not a bug of contemporary economic globalization: integration via global value chains (GVCs). The global movement of intermediate goods and services used as inputs in firms' design, branding, manufacturing, distribution, customer support and after-sale activities has spread deeply and widely, and makes up the bulk of contemporary global trade (Kim and Rosendorff, 2021). GVCs are what allow intermediate raw materials, equipment, and services to move across states to generate finished products. Among forms of FDI and related sub-contracting, GVC integration carries notable host state benefits, as domestic entrepreneurs find opportunities to become suppliers along the GVC and greater access to finance (Bauerle Danzman, 2020).[20] On the flip side, the greater dependence of GVC-linked domestic firms on foreign investors – often their monopsony buyers – raises the stakes of any disruption to that integration to host states. Indeed, Johns and Wellhausen (2016) argue that the politically salient hardships stemming from disrupting GVC-integrated domestic firms incentivize host states to do more to mitigate political risks to the foreign investor. Given GVC integration is measured as trade in intermediate-level goods and services, we propose: *The more an ISDS claimant can provoke negative shocks to trade in intermediate goods and services, the more likely the host state is to abandon the disputed regulation and move the regulatory environment in a pro-claimant direction.*

We highlight several important takeaways of our theory's contributions. First, a key observable implication is that final-goods trade is not as important to MNC leverage over host state regulations as trade in intermediates. Disruption of final-goods exported by the MNC to the host state could certainly hurt consumers in the host state market. However, disruption to final-goods trade can carry benefits for domestic producers, as disruption can increase the price-competitiveness and domestic market share of domestic producers.[21] This mitigates the political leverage of MNCs that export final goods into the host state relative to MNCs engaged in trade in intermediate goods and services.

Second, the mechanism implied by our theory is different from one that says well-integrated

[20] For more benefits, see UNCTAD (2013). "Global Value Chains: Investment and Trade for Development." World Investment Report.

[21] Indeed, this was the result of tariffs that President Trump continually trumpeted in his public comments (i.e. tweets).

MNCs transmit regulations across borders via their supply chain connections (Schiller, 2017). In our theory, the GVC-integrated ISDS claimant does not use its domestic suppliers to build coalitions, facilitate learning-based diffusion, or otherwise influence the host state's choice over whether and how to regulate. Rather, the host state is influenced by the costs to its domestic economy implied by an adverse policy environment for MNCs driving GVC integration.

Third, globalization-linked regulatory constraints are generally theorized to hold for net-capital-importing developing states, and are tested on the sub-sample of developing states. Our theory does not reference the development level of the host state. As GVC integration is a primary channel through which economic openness generates benefits for economic growth and development, we assume that host states that choose economic openness are interested in GVC integration. As developed host states are increasingly sued in ISDS, spurring new waves of criticism against the regime (Pelc, 2017; Johns, Thrall and Wellhausen, 2020), it is important that our argument and empirical strategy include both developed and developing states.[22]

4.1 Is this out of equilibrium behavior?

We acknowledge that a natural concern about our theory is that this is host states' out-of-equilibrium behavior. Why would states enact regulations that provoke ISDS arbitration and disrupt GVC integration? One possibility is that host states engage in "efficient breach," meaning they find it sufficiently advantageous to knowingly set and commit to an unlawful regulation, and accept the costs incurred by being sued and providing compensation when the regulation is ruled a treaty violation (Pelc and Urpelainen, 2015; Wellhausen, 2019). From this perspective, too, observing abandoned regulations is puzzling.

An argument that host states are boundedly rational would help explain observed host state actions, as these theories have gained prominence regarding IIAs and ISDS (Poulsen et al., 2013; Poulsen, 2015, e.g.). However, this type of outcome can occur in equilibrium, even without appealing to bounded rationality. Consider a simple model of a host state's decision whether to enact a given regulation. The host state enacts the regulation when:

$$\mathbb{E}\Big[B^p\Big] > \mathbb{E}\Big[R^p + \tau(R^p + X)\Big] \tag{1}$$

[22] In robustness tests, we confirm that results hold for developing states only.

where B^p is the expected benefit of the regulation, and R^p is the expected direct cost of any arbitration the regulation provokes. $\tau(R^p + X)$ is the expected cost of GVC disruption, which is a function of changed investment decisions following ISDS filing, as well as other factors X (e.g., the loss of tariff/VAT revenue). A rational host state would implement a regulation if the benefit of doing so is greater than its costs. What is key is that B^p, R^p, and $\tau(R^p + X)$ are random variables with distributions. After enacting a regulation, draws from each of these distributions are realized, and the state retains the regulation when:

$$B_i^p > R_i^p + \tau(R_i^p + X_i) \tag{2}$$

Even in a world where states are not boundedly rational, and can correctly determine the costs and benefits in expectation, the inequality in Equation 2 is not necessarily satisfied merely because the inequality in Equation 1 is. This is because the distributions of the random variables may be high-variance, such that (for example) $\mathbb{E}\left[R^p\right] = 0$ but in the observed draw $R_i^p >> 0$. There are many reasons to suspect that each of the distributions has substantial variance. For example, the benefits of a regulation (B^p) may depend on how well it is implemented, which policymakers may not perfectly control. For one thing, consider that sub-national governments often implement national regulations, and that sub-national actions can trigger ISDS arbitrations.[23]

Additionally, the potential costs of ISDS (R^p) could fluctuate with the latent litigiousness of the state's foreign investors. In equilibrium, states should be well-informed about the potential costs of ISDS before passing a controversial regulation, because investors would communicate to the host government their intention to file a case if the regulation was implemented.[24] However, threatening to sue is a costless action for firms ("cheap talk"); if threatening to file for ISDS arbitration reduces the probability that a regulation is passed, firms have incentives to make such threats even in response to regulations that they would not be willing to sue for. Therefore, investors' threats to file cases in the future are not informative signals about the costs that governments will pay for implementing a given regulation.

[23] Sub-national (in)action was a key trigger for the wave of ISDS arbitrations filed in the wake of Argentina's 2001/2002 peso devaluation and financial crisis (see Appendix 2.4).

[24] Our theory implies that large GVC-linked foreign investors would be more likely to file for ISDS, all else equal. While our research design does not facilitate testing this implication, large MNCs are more likely to file for ISDS (Van Harten, 2016). Still, even if large MNCs' GVC integration plays a role in their filing choice, it is also the case that a bias toward large MNCs fits with the considerable expense of arbitration (Franck, 2019).

In sum, while it is reasonable to expect that host states choose to implement regulations based on their estimations of the average cost-benefit ratio, their choice to keep the regulations is based on the observed costs and benefits. Differences between expected and observed outcomes are not necessarily evidence of bounded rationality by host states. They are just as easily explained by the fact that both costs and benefits are random variables with non-zero variances.

5 Research Design

Recall our theory: host governments will be more likely to abandon disputed regulations when they believe that failure to do so would jeopardize their economy's integration into GVCs. The implication in our setting is that when a host state is sued in ISDS, and the claimant can generate costly disruptions to GVCs, the host state is more likely to abandon the regulation. Unfortunately, it is difficult for us to provide direct evidence that any specific instance of regulatory abandonment was motivated by the threat of GVC disruption rather than by some other factor. It is further complicated for us to establish this relationship in our setting of ISDS arbitration, given that host governments are loath to reveal that pressure from MNC claimants drives their domestic policy decisions. Therefore, our research design focuses on creative ways to provide direct and indirect evidence to support our theory. What we can quantitatively test is a key premise of our argument, that ISDS arbitrations disrupt host states' positions in GVCs. Given quantitative evidence in support of our premise, we provide qualitative evidence consistent with the main thrust of our theory. To do so, we analyze descriptive patterns in the data via medium-n analysis, focusing on evidence of predicted correlations, while taking into account other potential factors, which we complement with a detailed proof-of-concept.

We fully acknowledge our evidence speaks to correlation rather than causality. Nevertheless, even documenting correlations is of pressing importance, given widespread concerns about constraints on sovereignty generated by contemporary economic globalization. There are undeniable normative implications if host states that value the most development-enhancing form of economic integration while also committing to the status quo in investment protection are, in making those choices, creating circumstances that grow MNC power.

5.1 Operationalizing GVC disruption

Empirically, GVC disruption manifests as lowered levels of trade in intermediate goods and services. Our main theoretical proposition is agnostic about the mechanism(s) by which an ISDS claimant could reduce trade in intermediates. A vast scholarship has examined under what conditions foreign investor-host state disputes decrease cross-border economic activity (Wellhausen, 2015*a*; Graham, Johnston and Kingsley, 2018; Haftel et al., 2018; Betz and Pond, 2019; Kim et al., 2019; Arel-Bundock, Peinhardt and Pond, 2020). A theoretical tension precisely concerns the mechanisms linking disputes and cross-border activity. Does it operate at the national level, implying that disputes affect foreign market actors uniformly? Or, are effects heterogeneous across firms, such that the mechanisms operate at disaggregated levels?

To support our theory, we must find one or more mechanisms by which ISDS claimants can impact levels of trade in intermediates. The benefit of our theory's agnosticism is that we can consider mechanisms derived from literature: evidence that these mechanisms impact related dependent variables implies that one or more of them should impact our dependent variable. If none of these mechanisms stemming from literature affects trade in intermediates, it is unlikely that the threat of GVC disruption motivates policymakers to abandon disputed regulations.

First, we consider a mechanism *at the national-level*, which is consistent with influential scholarship that links ISDS to aggregate, national-level FDI flows (Allee and Peinhardt, 2011; Aisbett, Busse and Nunnenkamp, 2018; Kerner and Pelc, 2021). Next, we draw on the fast-growing literature theorizing around heterogeneous effects. Following Shim, Jung and Owen (2021), we consider heterogeneous effects *across industries*, based on the mechanism that an ISDS claimant would be most likely to disrupt trade in intermediates in its own industry. In fact, our setting matches the theory in that article quite well. Those authors establish that risks to one MNC imply risks to co-industrial MNCs conditional on the industry having low fixed asset intensity. We expect that the activities captured by trade in intermediates have, by the nature of GVC integration, low fixed asset intensity. We also explore the potential for shared risks and thus heterogeneous effects of GVC disruption *across investor nationalities*, although it is not as obvious how abandoning a given regulation would mitigate risks for one but not another group of co-national investors (Wellhausen, 2015*b*; Gertz, Jandhyala and Poulsen, 2018). We design tests based on *national-level,* *industry-level, and nationality-level* mechanisms.[25]

6 Quantitative Evidence

We examine trade in intermediate goods and services as our outcome variable, a common measure of GVC activity. We begin by assembling panel datasets of states' intermediate imports. As previously explained, we examine trade in intermediates *in total*, *disaggregated by industry*, and *disaggregated by nationality (investor home state)* (1990-2015). To estimate the effect of ISDS on trade in intermediates, we use the nonparametric difference-in-differences estimator developed by Imai, Kim and Wang (2020).

Our key independent variable is an indicator of whether each host faced an ISDS claim in the given year. Our sample has 169 states, observed annually between 1990 and 2015. Figure 1 plots the distribution of ISDS arbitrations across host states and time. Figure 1 covers the full set of ISDS arbitrations, not the subset of arbitrations in which a specific regulation was disputed. We use the full set of ISDS arbitrations to probe the relationship between ISDS and trade in intermediates. Why? Our expectation is simply that ISDS arbitrations are associated with deceases in trade in intermediates, whatever the underlying nature of the dispute. We do not have compelling theoretical priors on what relationship, if any, exists between filed ISDS arbitrations and the likelihood that a specific regulation is in dispute. Nor do our data suggest obvious empirical patterns (see Appendix 1). Thus, it would be unconvincing to make an inferential leap from patterns in the subset of regulation-triggered ISDS arbitrations to the set of ISDS arbitrations as a whole.

Our first unit of analysis is at the *host state-year* level. The outcome variable is the logged value of the host state's imports of intermediates, drawn from the OECD's trade data, and the key independent variable is a binary indicator of whether an ISDS arbitration was filed against the host state in that year. Our second unit of analysis is at the *host state-claimant industry-year* level. Here, we examine 33 distinct industries as defined by two-digit International Standard Industrial Classification (ISIC) codes. The full set of industries (see Appendix Table 2.1) speaks to the

[25] Heterogeneous effects *at the firm-level* would be consistent with the finding that firm-level characteristics influence ISDS claimant's future investment decisions (Wellhausen, 2019). In this setting, the total costs facing a host state are most relevant, so we focus our (scarce) research resources on aggregate measures that combine direct and indirect costs, without attention to heterogeneity in proportions.

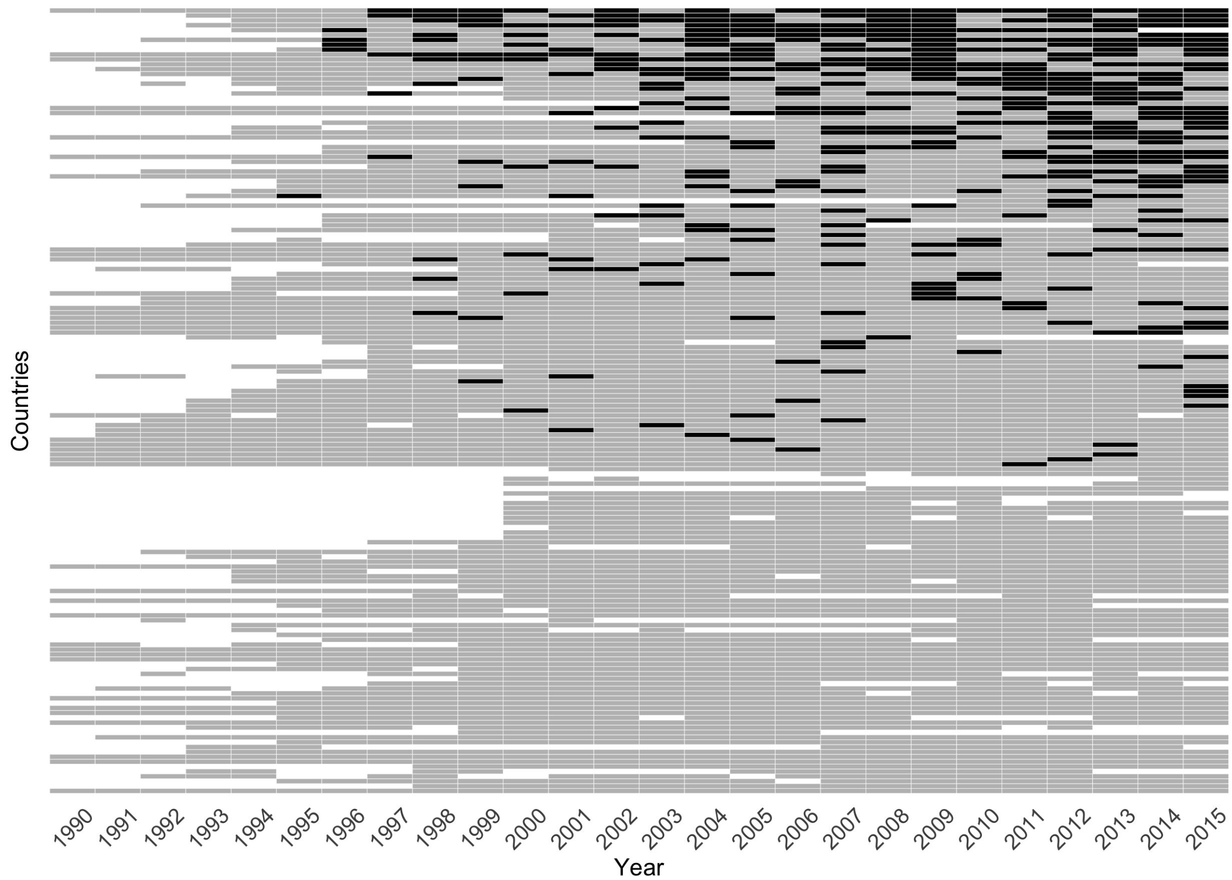

Figure 1: **Distribution of ISDS cases across host states and time**. Each row is a host state, each column is a year. White cells indicate the state-year observation is missing; grey cells indicate the host state was observed that year, but was not filed against in ISDS; black cells indicate the host state was observed that year and it was filed against. claim.

broad importance of trade in intermediate goods and services, the latter becoming an increasingly important feature of global trade (Baccini, Weymouth and Osgood, 2019). The key independent variable is a binary indicator of whether an ISDS arbitration was filed against a host state in a given industry in a given year. To create this variable, we first isolate each industry (at the ISIC two-digit level) that UNCTAD lists as associated with each ISDS arbitration. While most cases are associated with a single industry, some are associated with and thus coded as occurring in as many as four.

Finally, though our estimator is non-parametric, we still adjust for confounders: GDP growth (from the World Bank's World Development Indicators), Regime type (measured by V-Dem's additive polyarchy index), FDI stocks (from UNCTAD), the number of bilateral investment treaties to which the state is party (logged, from UNCTAD), and general economic openness (measured by the KOF Overall Globalization index).

6.1 Estimation Strategy

Recent studies have shown that two-way fixed effects models perform poorly in settings where treatment is applied to different units at different times, and in settings where treatment "turns off" and back on again over time (Callaway and Sant'Anna, 2020; Goodman-Bacon, 2021). In brief, they generate inappropriate comparisons: units treated at time $t-1$ serve as the comparison group for units treated at time t, resulting in an estimate that does not map to any desired estimand. As our treatment – ISDS arbitration – is applied to different units at different times, and turns on and off again for the same units over time, standard fixed effects estimators are not appropriate.

Instead, we use the nonparametric estimator developed by Imai, Kim and Wang (2020) (hereafter IKW). The IKW estimator involves three main steps: first, each treated observation it is matched with a set of other observations M_{it} that had the same treatment history for the previous L time periods, but did *not* receive treatment at time t. Next, the set is "refined" to ensure that the counterfactual observations are similar to the treated observations regarding their covariate and outcome variable histories. The refinement can be done using either inverse propensity score weighting (which upweights more similar counterfactual observations) or Malahanobis distance-based matching procedures (which exclude poor matches from the matched set). Finally, the counterfactual sets for each treated observation are inserted into the following nonparametric difference-in-differences estimator:

$$\hat{\delta}(F,L) = \frac{1}{\sum_{i=1}^{N}\sum_{t=L+1}^{T-F} D_{it}} \sum_{i=1}^{N}\sum_{t=L+1}^{T-F} D_{it}\Big\{(Y_{i,t+F} - Y_{i,t-1}) - \sum_{i' \in M_{it}} w_{it}^{i'}(Y_{i',t+F} - Y_{i',t-1})\Big\} \qquad (3)$$

The intuition behind is that each treated observation is matched with a set of other observations (which are highly comparable on past treatment, outcome, and covariate histories) that serve as counterfactuals. The term in curly brackets represents the difference-in-differences estimate calculated for each treated unit by comparing its pre- and post-treatment outcomes with those of the counterfactuals;[26] the estimated quantity, $\hat{\delta}$, is simply the average of the individual diff-in-diff estimates and can be interpreted as a weighted average treatment effect on the treated (ATT). L is the researcher-determined length of the treatment history, and F is the researcher-determined number of time periods post-treatment at which the outcome is measured. The IKW estimator is ideal for our setting, as it avoids inappropriate comparisons while being tolerant of missing data and allowing for covariate adjustment.

For both the host state-year and the host state-industry-year analyses, we set $L = 4$ and report estimates of $\hat{\delta}$ in the year the ISDS case was filed as well as the four subsequent years. We also report the results for both the matching-based refinement and the inverse propensity score-weighting refinement. Standard errors are calculated by a block bootstrapping procedure with 1,000 iterations. All analyses were implemented using IKW's `PanelMatch` R package.

6.2 Results

Figure 2 displays the results. The right panel reports results based on the host state-year level of analysis. The plot shows the effect of receiving an ISDS claim on a state's (logged) total intermediate imports across all industries. In this specification, we do not find support for our premise: ISDS arbitration has no statistically distinguishable effect on host states' overall intermediate imports. This is regardless of whether the matched sets are refined via inverse propensity score weighting or Mahalanobis distance matching. Null results at the host state-year level of aggregation are not entirely surprising, as past work has found that investors react most strongly to disputes occurring within their own industry (Shim, Jung and Owen, 2021). Still, these null results place an important upper bound on ISDS arbitration's ability to disrupt GVCs.

The left panel reports results at the host state-claimant industry-year level of analysis. The plot shows the effect of receiving an ISDS claim on the host state's (logged) intermediate imports in the industry of the claimant that filed the dispute.[27] Here, receiving an ISDS claim does have a negative and significant impact on GVC trade within the industries involved in the dispute. Regardless of whether the weighting or matching-based refinement is used, the estimated ATT of

[26] If the inverse propensity score weighting refinement is used, $w_{it}^{i'}$ represents the nonnegative weight given to each observation in the matched set. If the matching-based refinement is used, then all observations in the matched set are weighted equally, thus $w_{it}^{i'} = \dfrac{1}{|M_{it}|}$.

[27] Results cover multiple industries and multiple claimants as appropriate.

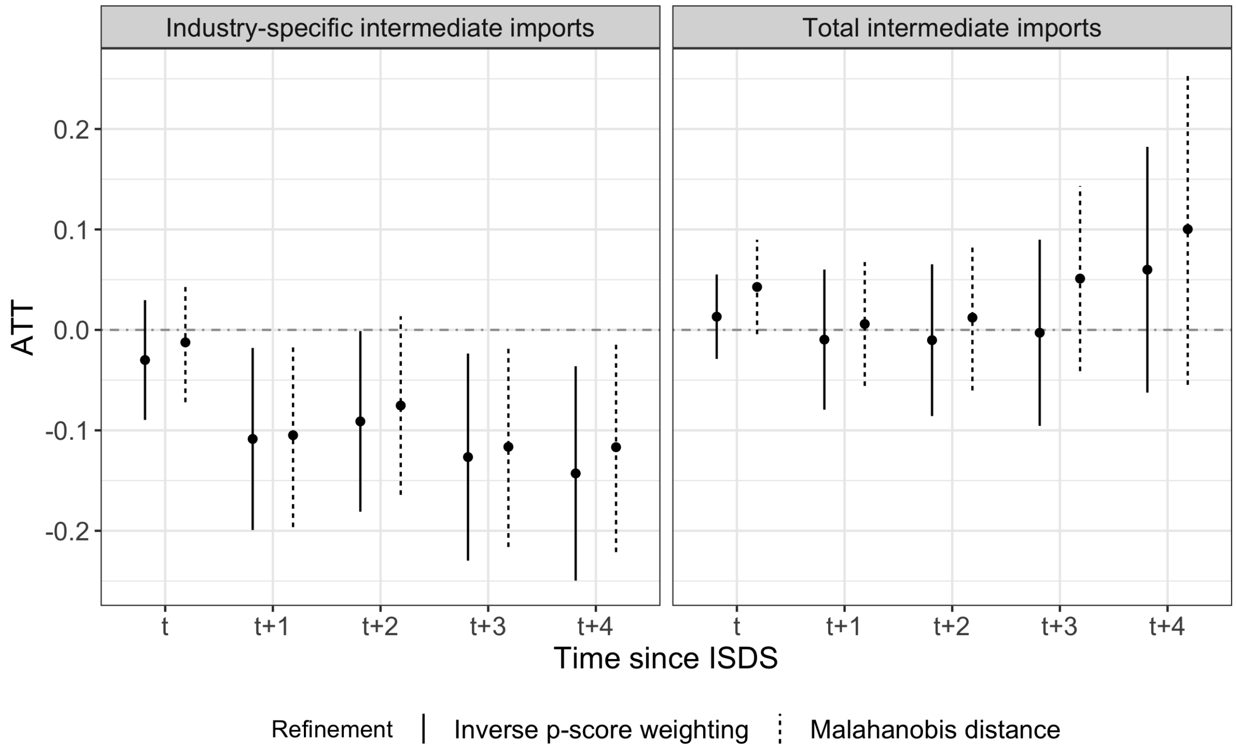

Figure 2: **ISDS disrupts global value chains in the associated industries, but not outside them**. ATTs estimated via Equation 3 and presented alongside 95% confidence intervals. Results can be found in tabular form in Tables A-9 and A-10.

ISDS arbitration on industry-specific imports is negative and significant in the year after the case was filed. The effect size is also substantively meaningful, constituting a reduction in imports of approximately 12% after one year. Further, there is evidence that the disruption is not short-lived: even four years after the ISDS case was initiated, the negative effect on intermediate imports in the relevant industr(ies) remains significant and of similar magnitude.

Does ISDS arbitration specifically disrupt imports of intermediates at the industry level, or does it simply disrupt all trade in that industry? If intermediate imports are merely proxying for total imports, then the effect that we find may not be one of GVC disruption and may be spurious. As a placebo test, we re-estimate the previous analyses taking as our outcome variable the host state's (logged) imports of final goods rather than of intermediates. Final goods are typically imported for domestic consumption, meaning that exporters of final goods should be more interested in their trade partners' consumer markets than their property rights protections. Thus, if we find that ISDS arbitration negatively affects host state imports of final goods as well,

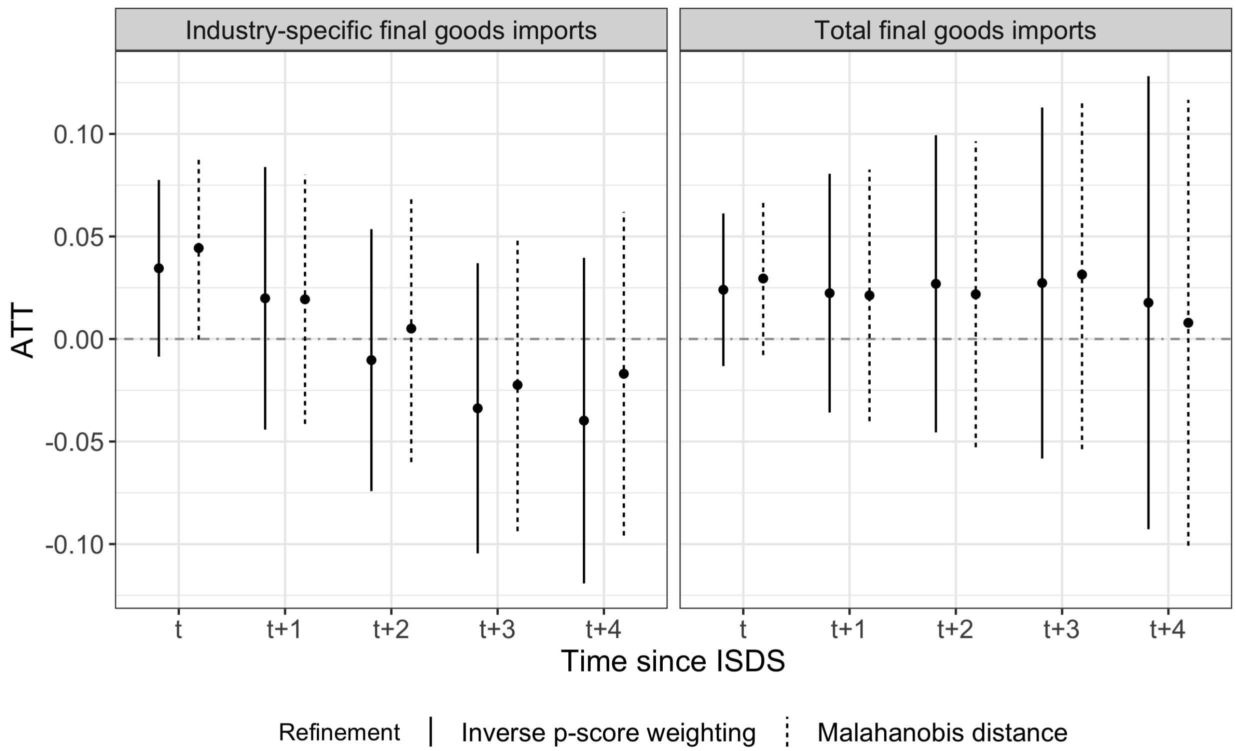

Figure 3: **ISDS has no effect on total or industry-specific trade in final goods**. ATTs estimated via Equation 3 and presented alongside 95% confidence intervals. Results can be found in tabular form in Tables A-11 and A-12.

it would cast doubt on our proposed mechanism. The results, presented in Figure 3, provide some reassurance: unlike the industry-specific intermediate-goods and-services results, receiving an ISDS claim seems to have no significant negative relationship with the host state's imports of final goods in the affected industry or overall. These null results indicate that ISDS leads upstream suppliers in a given industry to divert their GVCs away from the host state, rather than simply depressing trade flows (of whatever type) in the aggregate.

Our results corroborate previous findings that a firm's mode of integration with the global economy shapes its preferences. As Kim et al. (2019) show, MNCs and exporters deeply integrated into GVCs are much more concerned about investment protection than exporters of finished goods and domestic firms.[28] Our findings indicate that the importance highly-integrated firms grant to investment protection may also be associated with their ability to disrupt trade in intermediates

[28]Highly-integrated firms themselves acknowledge an important connection between GVCs and investment protection. As a United States Council for International Business document from 2014 states: "A key message is that in this increasingly GVC-driven world, effective investment protection and promotion is a vital enabling framework." `https://www.uscib.org/docs/2014_10_fdi_pillars.pdf`

in the host state, as we theorize.

6.3 Robustness

In addition to *national-level and industry-level* mechanisms linking ISDS to lower levels of trade in intermediates, the literature suggests a potential *nationality-level* mechanism. Past studies have found that foreign investors are more sensitive to host state mistreatment of co-national firms (Johns and Wellhausen, 2016), and that the incidence of an ISDS filing in a given bilateral setting is associated with lower future bilateral FDI flows (Wellhausen, 2015*b*). A similar logic might apply to bilateral trade in intermediates. An ISDS claim filed by an investor from a given home state could send a negative signal to upstream exporters from that home state due to social ties (Cruz and Graham, 2021), media coverage, or some other channel. However, as reported in Appendix 2.3, ISDS claims do not disproportionately reduce trade in intermediates at the bilateral level between the claimant's home state and the host state.

Next, specialists might worry that the many ISDS cases filed against Argentina triggered by the 2001 Emergency Law expired in 2018 and coded as 1 for an abandoned regulation could be driving our results. In Appendix 2.4, we show our results are robust to excluding Argentina. Nevertheless, those cases belong in the sample: while numerous, they are not qualitatively different, and we should therefore expect them to have the same average effect on GVC trade.

7 Qualitative Evidence

We now provide evidence to support our core argument that threats to GVC integration are associated with a higher likelihood of pro-claimant regulatory change by the host state. We employ a medium-n analysis, in which we consider whether descriptive statistics in our data are consistent with observable implications of our argument, follow by the presentation of a proof-of-concept case.

In 20 instances (20% of applicable cases), the host state abandoned the disputed regulation despite having won at ISDS. This outcome is especially surprising, given the absence of legal requirements, contrary international norms, and the common-sense notion that winners are vindicated.[29] We examine the parties in these abandonment-despite-winning cases to consider whether

[29] It is more common for host states to abandon the regulation when they lose (33% of cases; chi-squared test p-value = 0.06.) See again Table 1.

patterns in their observable characteristics are so stark as to point to an alternative key explanation for variation. Table 2 demonstrates considerable heterogeneity that strongly suggests that explanations based on host state, home state, industry, and/or timing are insufficient. The 12 host states include nine OECD states, such that abandonment-despite-winning is not obviously correlated with more economically vulnerable hosts. Heterogeneity across home states suggests that this is not only a story of US investors' leverage. Cases occur in the primary, secondary and tertiary sectors, weakening an explanation based on investor mobility. Lastly, arbitrations were filed throughout the study period, such that learning (by claimants or host states) or other time effects are also not an obvious explanation.

Table 2: Pro-state ruling + Abandoned regulation. Description and (count)

Host State	**Home State**	**Industry**	**Filing Year**
Argentina (4)	Belgium (1)	Agriculture, forestry and fishing (2)	1995 (2)
Canada (3)	Canada (3)	Chemical and pharma products (2)	1999 (2)
Egypt (1)	Chile (1)	Electricity, gas, steam and AC supply (7)	2000 (1)
Ghana (1)	Croatia (1)	Mining and quarrying (2)	2002 (1)
Hungary (1)	Germany (2)	Motor vehicles and trailers (1)	2003 (1)
Moldova (1)	Greece (1)	Other activities (6)	2004 (1)
Malaysia (1)	Luxembourg (1)		2005 (3)
Saint Kitts and Nevis (1)	Netherlands (1)		2006 (1)
Slovenia (1)	Poland (1)		2007 (1)
Spain (1)	United Kingdom (2)		2008 (2)
Turkey (2)	United States (6)		2009 (1)
United States (3)			2011 (1)
			2012 (2)
			2013 (1)

Can our arguments about threats to GVC trade better explain the outcomes of these otherwise surprising cases?[30] Given data constraints and inferential limitations due to selection processes, we provide a proof of concept using one of the cases from Table 2, filed by a foreign investor with limited asset mobility in 2011, against an OECD host state, and resolved in 2016, near the end of our study period: *Mesa Power v. Canada.* In its October 2011 filing, the American firm Mesa Power alleged that three specific components of Ontario's Feed-In-Tariff (FIT) program, pursuant to its Green Energy Act of 2009 (GEA), unlawfully harmed its wind farm investments: (1) the January 2010 contract between Ontario and a consortium led by Samsung C&T

[30] Appendix 3 presents evidence that GVC trade (at the *national level, across industries*, and *across investor nationalities*) is highest in this subset of abandonment-despite-winning cases.

that granted this group of Korean firms preferential access to the province's grid; (2) the June 2011 "sudden and discriminatory" regulatory changes that allowed competitors to jump ahead of Mesa Power's projects; (3) and the upcoming January 2012 increase in local content requirements (Nelson, 2013).[31] Although Canada won in March 2016, Ontario had already abandoned parts of the disputed regulations before 2016; in 2017 Ontario's energy minister gave a public "mea culpa" admitting mistakes in the GEA (Hill, 2017); and Ontario fully repealed the GEA in January 2019.

We find strong evidence that wind energy *industry-level* threats to considerable GVC integration were a key motivation for Ontario to abandon the disputed regulations. More than 65 industries are involved in wind energy GVCs, including 37 industries manufacturing the more than 150 components and 8,000 individual parts of a single wind turbine, as well as firms dedicated to non-manufacturing activities, like project development and construction.[32] Ontario's 2009 GEA legislation had a specific goal of deepening local GVC integration in the wind energy sector. This status quo was consistent with the worldwide trend that GVCs in renewable energy and wind in particular are highly internationalized and verticalized (Meckling and Hughes, 2017; Nahm, 2017). By 2015, the province had witnessed the creation of nearly 12,000 jobs in the sector, expanded local manufacturing capacity, and reduced import dependence (Brown and Shorthouse, 2017, p. 44).

More specifically, according to a 2017 report commissioned by the Canadian Wind Energy Association, Ontario officials prioritized adverse consequences for the aforementioned existing and future GVC integration in their regulatory decision-making (Brown and Shorthouse, 2017). Given that disrupting wind farm investments like Mesa Power's could cause cascading disruptions to upstream and downstream firms' commercial interests, it follows that Ontario would abandon regulations that credibly threatened its industrial policy goals irrespective of their status under international law. Indeed, outside of a legal setting, other wind farm investors disapproved GEA regulations as they allowed Ontario to arbitrarily dictate the form, pricing, and criteria for approving projects (Holburn, Lui and Morand, 2010, pp. 471-473). Even the Samsung C&T-led Korean consortium, whose preferential treatment was part of Mesa Power's claims, was frustrated: Samsung's vice-president compared Ontario's level of regulatory uncertainty to that in developing

[31] See case's notice of arbitration in: `https://www.italaw.com/sites/default/files/case-documents/italaw1203.pdf`

[32] At the six-digit NAICS level (Brown and Shorthouse, 2017).

countries (Hamilton, 2011).

One very precise threat in this context was potential disruption to the supply chain for turbine nacelles manufacturing, a component for which Ontario remained wholly dependent on imports (Brown and Shorthouse, 2017, p. 43). In May 2014, the German Siemens and the Korean consortium signed onto Ontario's massive K2 Wind Project[33], which extended the kinds of local manufacturing and production requirements "hard-wired" into the Korean consortium's contract to Siemens as well (Holburn, 2012, p. 644). The K2 Wind contract established that turbine nacelles would be imported from a Siemens' factory in the United States (Merecicky, 2014). If Mesa Power and other investors in wind farms like K2 and others pulled investments because the government did not abandon the disputed regulations, demand for blades, towers and other equipment manufactured locally by Siemens and others would decline. Ultimately, disruptions could cascade to the imports of nacelle components, for which no immediate substitute existed. The July 2017 closure of one of Siemens' local turbine manufacturing plants is precisely the kind of event that could have heightened policymakers' concerns about GVC disruption (Postmedia News, 2017).

Now, one plausible alternative explanation is that Canada's obligations under international trade law and not pressure from the market is the proximate cause of Ontario's abandonment-despite-winning. Ontario's renewable energy legislation triggered Japan to sue Canada at the WTO (DS412) in September 2010, a year before Mesa Power's ISDS filing, followed by the European Union in September 2011 (DS426), one month before Mesa Power's ISDS filing. In December 2012, the WTO panel ruled against Canada; in May 2013, the ruling survived Canada's appeal; and in June 2014 Canada confirmed that Ontario and thus Canada was in compliance.[34] Both Japan and the EU disputed the local content requirement that was one part of Mesa Power's claim, calling it an unlawful trade-related investment measure (Timmins, Wagner and Sahadev, 2013). Lauding the WTO ruling and in support of the Japanese and the EU's demands, the global wind industry trade association specifically referenced GVCs, citing the economic inefficiencies "of the local content requirement rules in a world where supply chains are globalized" (Global Wind Energy Council, 2013, p. 6).[35] However, while compliance in ISDS requires only compensation, compliance with

[33] https://k2wind.ca/

[34] See https://www.wto.org/english/tratop_e/dispu_e/disp_settlement_cbt_e/c7s1p1_e.htm.

[35] Two exporters of turbine nacelles components to Ontario (other than Siemens), the American General Electric

WTO rules requires abandonment of the disputed regulation. Additionally, international norms coincide with WTO compliance, and Canada's loss fits the common-sense norm that losers are not vindicated. As such, the three factors that aid us in isolating the GVC mechanism for abandoning-despite-winning at ISDS are not applicable in the context of these WTO disputes.

Nevertheless, even assuming that Canada's loss at the WTO fully explains Ontario's 2014 abandonment of the local content requirement, the ruling is not sufficient in itself to explain why Ontario went on to abandon the full set of regulations disputed by Mesa Power. Recall the timeline: after Canada's compliance with the WTO ruling, Ontario went on to amend the FIT program[36] in ways consistent with Mesa Power's preferences (both before and after Canada's 2016 ISDS win). Then, Ontario offered its "mea culpa" for the GEA as a whole in 2017, and fully repealed it in 2019. That these actions were not required by the WTO suggests that the binding WTO legal requirements or related norms are not in themselves sufficient to explain Ontario's full set of regulatory abandonment-despite-winning at ISDS. Rather, the events made visible by the Mesa Power v. Canada ISDS arbitration are fully consistent with our core argument that potential threats to GVC integration influence host governments to abandon their chosen policies, especially given the fact that the full set of disputed regulations apply to MNCs engaging in FDI (like Mesa Power, but also Siemens and Samsung), and not only to foreign firms engaging in trade.[37]

8 Conclusions

This article examined the effects of GVC integration on domestic regulatory policy, using ISDS as a setting to identify controversial regulations and their MNC challengers. When faced with ISDS arbitration, we argue that host states weigh the cost of forgoing their chosen regulatory policy against the potential cost of GVC disruption. Quantitatively, we find support for a key premise of our theory: that ISDS arbitrations disrupt GVC integration in the host economy. The effect is particularly substantial at the level of the claimant's industry, as we find a 12% reduction in imports of intermediates one year after the ISDS claim is filed.

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and the Danish Vestas (USITC, 2012), had criticized the local content requirement since at least the time of Mesa Power's ISDS filing (Romano, 2011).

[36] https://www.ieso.ca/en/Sector-Participants/Feed-in-Tariff-Program/FIT-Archive

[37] Our findings in this section are also consistent with Moehlecke (2020)'s, which establishes that it is an error to assume that governments chill all regulatory policy in a sector in response to precise legal challenges to individual regulations in that sector.

Our qualitative medium-n analysis yields evidence consistent with observable implications of the core argument. The most puzzling cases in our dataset – those in which the host state abandons a regulation even when winning the ISDS arbitration – are those associated with the highest levels of GVC integration. These also display significant heterogeneity across other more obvious explanations. Taken together, the evidence supports the article's claim that a MNC that can credibly disrupt GVC integration in the host state has more leverage to get the host state to abandon what it sees as an unwelcome regulation. More broadly, the evidence validates the longstanding concern that international market actors can constrain host state sovereignty, even under the form economic globalization takes today. This is further supported by our proof-of-concept using the Mesa Power v. Canada arbitration.

GVC integration has incredible potential to spur economic growth and development in host states. Benefits include resources to upgrade production processes; reliable long-term partners; increased employment both directly and through spillover effects; technology transfer; opportunities to move up the supply chain; economic diversification with the promise of reliable export markets; access to finance; and more. It follows that GVC integration has been a particularly sought-after goal of host states choosing economic openness. Yet, our findings imply that states benefiting from this kind of integration are those especially vulnerable to MNCs' power.

The Investor-State Dispute Settlement (ISDS) setting has characteristics that could mitigate the dynamic of an integration-sovereignty trade-off. In ISDS, both claimant MNCs and respondent host states have agreed *ex ante* to third party arbitration. The burden is on claimants to prove that a disputed regulation violates their property rights or constitutes an unlawful action by the host state under the applicable treaty. Host states can be found "innocent," such that the regulation is not ruled illegitimate. Host states can be found "guilty," meaning they are required to pay compensation to the claimant for costs associated with the unlawful regulation. Crucially, even when found "guilty," host states have no legal obligation to abandon the disputed regulation. Furthermore, although international organizations and non-market actors have found much to criticize about ISDS, those same actors encourage host states not to abandon disputed regulations. Despite all this, we document that a wide swath of host states sued in ISDS – found "innocent," "guilty," or even before any resolution is reached – have abandoned the disputed regulation. Neither law nor norms can explain this. Thus, our data alone helps identify those cases in which this touted benefit of ISDS design proved irrelevant.

One way to look at our findings is to imagine a bright side for international coordination. If deep GVC integration can push international regulatory coordination, it may provide a structural counterweight to contemporary challenges to the legitimacy of international coordination. Threats to maintaining heterogeneous regulations may push host states to instead choose regulations that improve international public goods provision. Whether it is normatively good for structural features of the international economy to do this work is an open question. Whether GVC-integrated MNC claimants do such public-good-enhancing work as they sue states is, we believe, less of an open question.

Finally, our results highlight the challenges ahead of states in a global economy fraught with threats to further integration. The COVID-19 pandemic spurred pressures on home governments to bring production structures back from overseas. This suggests diminishing positive development effects of GVC integration for host states, as GVC instability counteracts the longer-term benefits for which they are otherwise well-known.

Broadly, our findings are consistent with the premise most famously articulated by Susan Strange, that deep economic integration risks sovereignty erosion. From this perspective, the growing scholarship finding that economic integration is consistent with sovereignty could be summarized as a literature focused on "loopholes." The term "loophole" need not carry normative weight: surely, documenting and explaining the savvy means by which states maintain autonomy despite the constraints of economic globalization are substantively meaningful in shaping outcomes in the international political economy. Still, there remains the nagging adage that the exception(s) prove the rule.

References

Aisbett, Emma, Matthias Busse and Peter Nunnenkamp. 2018. “Bilateral investment treaties as deterrents of host-country discretion: the impact of investor-state disputes on foreign direct investment in developing countries.” *Review of World Economics* 154(1):119–155.

Allee, Todd and Clint Peinhardt. 2011. “Contingent credibility: The impact of investment treaty violations on foreign direct investment.” *International Organization* 65(3):401–432.

Arel-Bundock, Vincent. 2017. “The Unintended Consequences of Bilateralism : Treaty Shopping and International Tax Policy.” *International Organization* 71(2):349–371.

Arel-Bundock, Vincent, Clint Peinhardt and Amy Pond. 2020. “Political Risk Insurance: A New Firm-level Data Set.” *Journal of Conflict Resolution* 64(5):987–1006.

Baccini, Leonardo, Stephen Weymouth and Iain Osgood. 2019. “The Service Economy: U.S. Trade Coalitions in an Era of Deindustrialization.” *The Review of International Organizations* 14(2):261–296.

Bailey, Michael A, Anton Strezhnev and Erik Voeten. 2017. “Estimating Dynamic State Preferences from United Nations Voting Data.” *Journal of Conflict Resolution* 61(2):430–456.

Bauerle Danzman, Sarah. 2019. *Merging Interests: When Domestic Firms Shape FDI Policy.* Cambridge: Cambridge University Press.

Bauerle Danzman, Sarah. 2020. “Foreign Direct Investment Policy, Domestic Firms, and Financial Constraints.” *Business and Politics* 22(2):279–306.

Betz, Timm and Amy Pond. 2019. “Foreign Financing and the International Sources of Property Rights.” *World Politics* 71(3):503–541.

Brown, Carol-Ann and Paul Shorthouse. 2017. Alberta Wind Energy Supply Chain Study Final Report. Technical report Delphi Group.

Busch, Marc L. 2007. “Overlapping Institutions, Forum Shopping, and Dispute Settlement in International Trade.” *International Organization* 61(4):735–761.

Callaway, Brantly and Pedro H.C. Sant'Anna. 2020. "Difference-in-Differences with multiple time periods." *Journal of Econometrics* pp. 1–45.

Cruz, Cesi and Benjamin A T Graham. 2021. "Social ties and the political participation of firms." *The Review of International Organizations* (March):1–26.

Cutler, A. Claire and David Lark. 2020. "The hidden costs of law in the governance of global supply chains: the turn to arbitration." *Review of International Political Economy* 0(0):1–30.
URL: *https://doi.org/10.1080/09692290.2020.1821748*

Distelhorst, Greg and Richard M. Locke. 2018. "Does Compliance Pay? Social Standards and Firm-level Trade." *American Journal of Political Science* 62(3):695–711.

Franck, Susan D. 2019. *Arbitration Costs: Myths and Realities in Investment Treaty Arbitration.* Oxford: Oxford University Press.

Gertz, Geoffrey. 2018. "Commercial diplomacy and political risk." *International Studies Quarterly* 62(1):94–107.

Gertz, Geoffrey, Srividya Jandhyala and Lauge N.Skovgaard Poulsen. 2018. "Legalization, diplomacy, and development: Do investment treaties de-politicize investment disputes?" *World Development* 107:239–252.

Global Wind Energy Council. 2013. "Global Wind Report: Annual Market Update 2012.".
URL: *https://gwec.net/wp-content/uploads/2012/06/Annual$_{r}$eport$_{2}$012$_{L}$owRes.pdf*

Goodman-Bacon, Andrew. 2021. "Difference-in-differences with variation in treatment timing." *Journal of Econometrics* .

Graham, Benjamin A.T., Noel P. Johnston and Allison F. Kingsley. 2018. "Even Constrained Governments Steal: The Domestic Politics of Transfer and Expropriation Risks." *Journal of Conflict Resolution* 62(8):1784–1813.
URL: *http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2106621*

Gulotty, Robert. 2020. *Narrowing the Channel: The Politics of Global Supply Chains.* Chicago: University of Chicago Press.

Hafner-Burton, Emilie M, Zachary C Steinert-Threlkeld and David G Victor. 2016. "Predictability Versus Flexibility- Secrecy in International Investment Arbitration." *World Politics* 68(3):413–453.

Haftel, Yoram Z., Alexander Thompson, Haftel Yoram Z. and Alexander Thompson. 2018. "When Do States Renegotiate Investment Agreements? The Impact of Arbitration." *Review of International Organizations* 13(1):25–48.

Hamilton, Tyler. 2011. "Samsung hasn't received 'one cent from Ontario'.".

URL: *https://www.thestar.com/business/tech*$_n$*ews*/2011/06/17/*samsung*$_h$*asnt*$_r$*eceived*$_o$*ne*$_c$*ent*$_f$*rom*$_o$*ntario.ht*

Hansen, Wendy L and Neil J Mitchell. 2000. "Disaggregating and Explaining Corporate Political Activity : Domestic and Foreign Corporations in National Politics." *American Political Science Review* 94(4):891–903.

Hill, Brian. 2017. "Ontario energy minister admits mistake with green energy program." Global News.

URL: *https://globalnews.ca/news/3272095/ontario-energy-minister-admits-mistake-with-green-energy-program/*

Holburn, Guy. 2012. "Assessing and managing regulatory risk in renewable energy: Contrasts between Canada and the United States." *Energy Policy* 45:654–665.

Holburn, Guy, Kerri Lui and Charles Morand. 2010. "Policy Risk and Private Investment in Ontario's Wind Power Sector." *Canadian Public Policy* 36:465–486.

Imai, Kosuke, In Song Kim and Erik Wang. 2020. "Matching Methods for Causal Inference with Time-series Cross-Sectional Data.".

John, Taylor St. 2018. *The Rise of Investor-State Arbitration: Politics, Law, and Unintended Consequences*. Oxford: Oxford University Press.

Johns, Leslie, Calvin Thrall and Rachel L Wellhausen. 2020. "Judicial Economy and Moving Bars in International Investment Arbitration." *The Review of International Organizations* 15(4):923–945.

Johns, Leslie, Krzysztof J Pelc and Rachel L Wellhausen. 2019. "How a Retreat from Global Economic Governance May Empower Business Interests." *The Journal of Politics* 81(2):731–738.

Johns, Leslie and Rachel L. Wellhausen. 2016. "Under one roof: Supply chains and the protection of foreign investment." *American Political Science Review* 110(1):31–51.

Keohane, Robert and David G. Victor. 2011. "The Regime Complex for Climate Change." *Perspectives on Politics* 9(1):7–23.

Kerner, Andrew and Krzysztof J Pelc. 2021. "Do Investor-State Disputes (Still) Harm FDI?" *British Journal of Political Science* .

Kim, In Song, Helen V. Milner, Thomas Bernauer, Iain Osgood, Gabriele Spilker and Dustin Tingley. 2019. "Firms and Global Value Chains: Identifying Firms' Multidimensional Trade Preferences." *International Studies Quarterly* 63(1):153–167.

Kim, Soo Yeon and B Peter Rosendorff. 2021. "Firms, states, and global production." *Economics & Politics* n/a(n/a).

Locke, Richard. 2012. *The Promise and Limits of Private Power*. Cambridge: Cambridge University Press.

Malesky, Edmund J and Layna Mosley. 2018. "Chains of Love ? Global Production and the Firm-Level Diffusion of Labor Standards." *American Journal of Political Science* 62(3):713–728.

Markus, Stanislav. 2012. "Secure Property as a Bottom-Up Process: Firms, Stakeholders, and Predators in Weak States." *World Politics* 64:242–277.

Meckling, Jonas and Llewelyn Hughes. 2017. "Globalizing solar: Global supply chains and trade preferences." *International Studies Quarterly* 61(2):225–235.

Merecicky, Andrew. 2014. "Siemens receives turbine and service order for largest wind farm in Ontario, Canada.".

URL: *https://www.windpowerengineering.com/siemens-receives-turbine-service-order-largest-wind-farm-ontario-canada/*

Milner, Helen V. 2014. "Introduction: The global economy, FDI, and the regime for investment." *World Politics* 66(1):1–11.

Mitchell, Neil J, Wendy L Hansen, Eric M Jepsen, Neil J Mitchell, Wendy L Hansen and Eric M Jepsen. 2015. "and Foreign The Determinants of Domestic Activity Corporate Political." 59(4):1096–1113.

Moehlecke, Carolina. 2020. "The chilling effect of international investment disputes: Limited challenges to state sovereignty." *International Studies Quarterly* 64(1):1–12.

Moehlecke, Carolina and Rachel L. Wellhausen. N.d. "Political Risk and International Investment Law.".

Nahm, Jonas. 2017. "Renewable futures and industrial legacies: Wind and solar sectors in China, Germany, and the United States." *Business and Politics* 19(1):68–106.

Nelson, Annalise. 2013. "Green energy arbitration moves forward as arbitrators are picked and preliminary arguments tabled by investor (Mesa) and Canada." IA Reporter.
URL: *https://www.iareporter.com/articles/green-energy-arbitration-moves-forward-as-arbitrators-are-picked-and-preliminary-arguments-tabled-by-investor-mesa-and-canada/*

Peinhardt, Clint and Rachel Wellhausen. 2016. "Withdrawing from Investment Treaties but Protecting Investment." *Global Policy* 7(4):571–576.

Pelc, Krzysztof J. 2017. "What Explains the Low Success Rate of Investor-State Disputes?" *International Organization* 71(03):559–583.

Pelc, Krzysztof J and Johannes Urpelainen. 2015. "When do international economic agreements allow countries to pay to breach?" *Review of International Organizations* 10(2):231–264.

Postmedia News. 2017. "Siemens closes wind turbine plant in Tillsonburg — 340 green energy jobs gone.".

Poulsen, Lauge N. Skovgaard. 2015. *Bounded Rationality and Economic Diplomacy: The Politics of Investment Treaties in Developing Countries*. Cambridge: Cambridge University Press.

Poulsen, Lauge Skovgaard, Emma Aisbett, Lauge N. Skovgaard Poulsen and Emma Aisbett. 2013. "When the Claim Hits: Bilateral Investment Treaties and Bounded Rational Learning." *World Politics* 65(2013):273–313.

Raustiala, Kal and David G Victor. 2004. "The Regime Complex for Plant Genetic Resources." *International Organization* 58(2):277–309.

Romano, Benjamin. 2011. "GE and Vestas slam Canadian provinces over local content.". **URL:** *https://gwec.net/wp-https://www.rechargenews.com/wind/ge-and-vestas-slam-canadian-provinces-over-local-content/1-1-842079*

Salamon, Lester M and John J Siegfried. 1977. "Economic Power and Political Influence : The Impact of Industry Structure on Public Policy Economic Power and Political Influence." *American Political Science Review* 71(3):1026–1043.

Schiller, Christoph. 2017. "Global Supply-Chain Networks and Corporate Social Responsibility.".

Schultz, Thomas and Cédric Dupont. 2014. "Investment arbitration: Promoting the rule of law or over-empowering investors? A quantitative empirical study." *European Journal of International Law* 25(4):1147–1168.

Sell, Susan K. and Aseem Prakash. 2004. "Using Ideas Strategically: The Contest Between Business and NGO Networks in Intellectual Property Rights." *International Studies Quarterly* 48(1):143–175.

Shim, Gyu Sang, Yoo Sun Jung and Erica Owen. 2021. "Heterogeneity in How Investors Respond to Disputes: Greenfield FDI and Co-Industrial Disputes." *Journal of Politics* pp. 1–35.

Simmons, Beth A. 2014. "Bargaining over BITs, arbitrating awards: The regime for protection and promotion of international investment." *World Politics* 66(1):12–16.

Strange, Susan. 1983. *Casino Capitalism.* Hoboken: Blackwell Publishing.

Strange, Susan. 1996. *The Retreat of the State: The Diffusion of Power in the World Economy.* Cambridge: Cambridge University Press.

Thompson, Alexander, Tomer Broude and Yoram Z Haftel. 2019. "Once Bitten, Twice Shy? Investment Disputes, State Sovereignty, and Change in Treaty Design." *International Organization* 73(4):859–880.

Thrall, Calvin. 2021. "Spillover Effects in International Law: The Case of Tax Planning and Investor-State Dispute Settlement.".

Timmins, Thomas J., Wendy J. Wagner and Neeta Sahadev. 2013. "The WTO decision - what it means for Ontario FIO 1.0 and 2.0 projects." Lexology.
URL: *https://www.lexology.com/library/detail.aspx?g=6b13dc17-0b27-4b2f-af71-d132a7937f02*

USITC. 2012. "U.S. Wind Turbine Export Opportunities in Canada and Latin America.".
URL: *https://www.usitc.gov/publications/332/ID-032$_f$inal.pdf*

Van Harten, Gus. 2012. "Arbitrator Behaviour in Asymmetrical Adjudication : An Empirical Study of Investment Treaty Arbitration." *Osgoode Hall Law Journal* 50(1):211–268.

Van Harten, Gus. 2016. "Who Has Benefited Financially from Investment Treaty Arbitration ? An Evaluation of the Size and Wealth of Claimants." *Osgood Legal Studies Research Paper Series* p. 20.

Vogel, David. 2008. "Private Global Business Regulation." *Annual Review of Political Science* 11(1):261–282.

Waibel, Michael, Asha Kaushal, Kyo-Hwa (Liz) Chung and Claire Balchin. 2010. *The Backlash against Investment Arbitration : Perceptions and Reality*. New York: Kluver Law International.

Wellhausen, Rachel. 2015*a*. "Bondholders v. Direct Investors? Competing Responses to Expropriation." *International Studies Quarterly* 59(4):750–764.

Wellhausen, Rachel. 2015*b*. *The Shield of Nationality: When Governments Break Contracts with Foreign Firms*. New York: Cambridge University Press.

Wellhausen, Rachel L. 2016. "Recent Trends in Investor–State Dispute Settlement." *Journal of International Dispute Settlement* 7(1):117–135.

Wellhausen, Rachel L. 2019. "International Investment Law and Foreign Direct Reinvestment." *International Organization* 73(4):839–858.

Weymouth, Stephen. 2012. "Firm lobbying and influence in developing countries : a multilevel approach." *Business and Politics* 14(4):1–26.

Weymouth, Stephen. 2017. "Service Firms in the Politics of US Trade Policy." *International Studies Quarterly* 61(4):935–947.

1 Appendix: Descriptive Statistics

Table A-3: **Branch(es) of host state national government tied to disputed and abandoned regulations, by case.** (Filed 1987-2017, assessed 2018.) The majority of disputed and abandoned regulations are tied to legislative and/or executive actions.

Branch	Disputed (count)	Abandoned (count)
Legislative	94	38
Executive	180	29
Legislative and Executive	37	12
Judicial	51	6
Judicial and Executive	5	1
Judicial and Legislative	3	1
Total	*370*	*87*

Table A-4: **Method of disputed regulation abandonment, by case.** (Filed 1987-2017, assessed 2018.) The most common method by which host states abandoned regulations is expiration.

Method	Abandoned (count)
Expiration	34
Repealed	13
Court action	16
Repealed and replaced	14
Amended	10
Total: Changed	*87*
Total: No change	*180*
Total: Insufficient evidence	*134*

Table A-5 organizes cases by home state. A claimant's home state is determined by the IIA invoked by the claimant; where the claimant does not invoke a treaty indicating its home state, it is determined by the foreign investor's incorporation. Note that some cases involve claimants from multiple states; for this reason, cases in Table A-5 do not sum to 87. The ranking suggests that OECD countries known for higher levels of outward FDI are generally associated with more regulatory abandonment in the context of ISDS arbitration. This mirrors the pattern of ISDS more generally, in which investors from these home states initiate more claims than others (Wellhausen, 2016; Van Harten, 2016).

At the same time, Table A-5 raises questions about "nationality-shopping" (Peinhardt and Wellhausen, 2016). Foreign investors often have ownership claims in multiple states, which often allows them to access IIAs from a home state that might not be the one popularly understood

Table A-5: **Comparing cases of regulation abandonment to total cases, by claimant investor home country.** (1987-2017, assessed 2018.) The pattern suggests that more regulation abandonment is associated with cases brought by investors from OECD countries associated with more outward FDI and more ISDS cases in general.

Home Country	Abandoned (count)	Total cases (count)	% Abandoned
United States	26	154	16.9%
Netherlands	9	86	10.5%
United Kingdom	9	72	12.5%
Canada	7	46	15.2%
France	7	41	17.1%
Germany	7	52	13.5%
Spain	6	39	15.4%
Luxembourg	4	32	12.5%
Chile	2	7	28.6%
Greece	2	16	12.5%
Bahamas	1	2	50%
Belgium	1	15	6.7%
Bermuda	1	2	50%
Croatia	1	2	50%
Cyprus	1	18	5.6%
Italy	1	35	2.9%
India	1	4	25%
Mauritius	1	7	14.3%
Panama	1	3	33.3%
Poland	1	6	16.7%
Qatar	1	3	33.3%
Russia	1	16	6.3%
Sweden	1	7	14.3%
Switzerland	1	25	4%

as the home of the firm. For example, relatively permissive Dutch BITs have been under fire for facilitating shopping; in one case infamous in Venezuela, the Netherlands served as the home state for Exxon to sue the state, despite Venezuela not having a BIT with the United States.[38]

Table A-6 categorizes the number of cases associated with an abandoned regulation by industry. We follow the OECD standard in using the International Standard Industrial Classification of All Economic Activities (ISIC) Rev 4, using ISIC's industry classifications rather than the individual codes.[39] Around 40% of the cases where there has been an abandoned regulation belong to Electricity, Gas, Water Supply, Sewerage, Waste, and Remediation services. This is a tertiary, aggregated industry, and arguably very well-connected via a broad conceptualization of economic integration, since utility services are inputs into all other industries. Under our argument, one reason the host state would abandon disputed regulations in this industry is to minimize negative spillovers that would stem from the interruption of provision of such key, and effectively universal, inputs. We again emphasize the importance of Argentina; out of the 32 cases in this industry, 16 were filed against Argentina in response to the particular 2001 Emergency Law. However, as demonstrated in Appendix 2.4, effects are robust to excluding Argentina. Several of the other notable industries are ones in which trade in intermediate GVC goods is at least anecdotally of importance, especially as compared to industries such as real estate and health and social work that are associated with zero cases.

Table A-7 organizes the count of ISDS cases associated with an abandoned regulation by host state. Again, Argentina accounts for an important number of cases. Also notable are cases involving Canada, the United States, and Mexico, which is consistent with deep economic integration among these three members of NAFTA and the repeated use of NAFTA's ISDS clause.[40] It is particularly noteworthy that the United States is on the list at all, not to mention so high: the United States has famously never lost a case (to date), but it has nonetheless abandoned regulations. This is further evidence of the importance of our research question, given normative

[38]Mobil Cerro Negro Holding, Ltd., Mobil Cerro Negro, Ltd., Mobil Corporation and others v. Bolivarian Republic of Venezuela (ICSID Case No. ARB/07/27).

[39]ISIC defines an industry as "the set of all production units engaged primarily in the same or similar kinds of productive activity." See `https://unstats.un.org/unsd/classifications/Econ/Download/In%20Text/ISIC_Rev_4_publication_English.pdf`

[40]The renegotiated USMCA scales down ISDS by limiting the scope of possible arbitration against the United States and Mexico and excluding Canada, although Canada has a variety of ISDS-enabling treaties with other countries. See Bodea, Cristina, Andrew Kerner, and Fangjin Ye, "There's a hidden cost in Trump's new trade agreement with Canada and Mexico" *Washington Post: Monkey Cage* (2 January 2019).

Table A-6: **Comparing cases of regulation abandonment to total cases, by claimant investor industry.** (1987-2017, assessed 2018.) The pattern suggests that more abandoned regulations are associated with utilities.

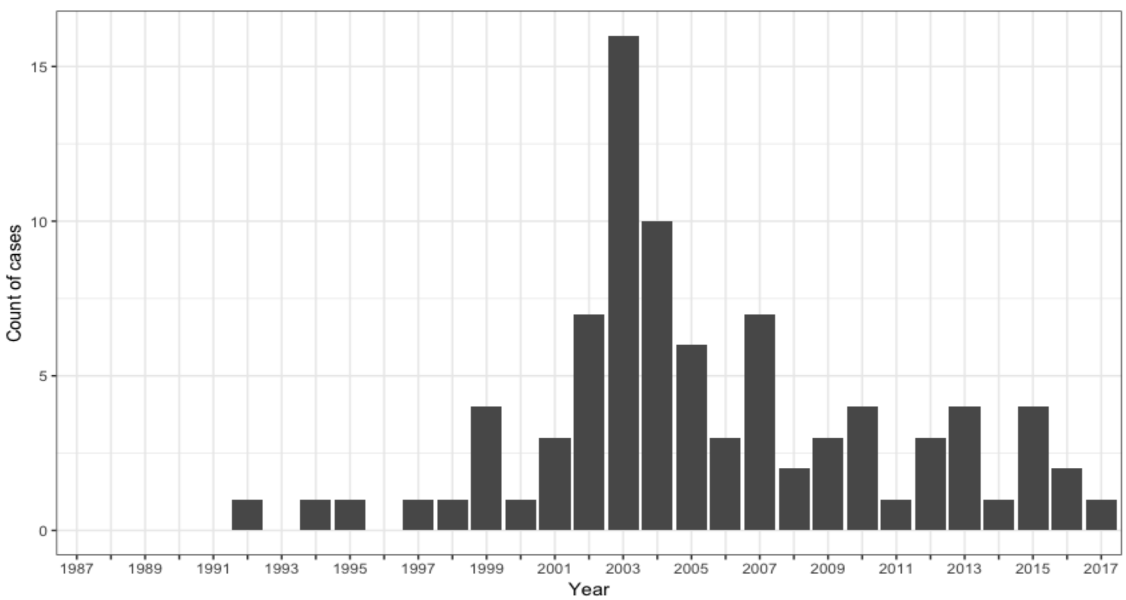
Industry	Abandoned (count)	Total cases (count)	% Abandoned
Electricity, gas, water supply, sewerage, waste and remediation services	32	167	19.2%
Mining and extraction of energy producing products	10	70	14.3%
Financial and insurance activities	7	66	10.6%
Telecommunications	7	39	17.9%
Agriculture, forestry and fishing	6	26	23.1%
Chemicals and pharmaceutical products	5	19	26.3%
Food products, beverages and tobacco	4	36	11.1%
Mining and quarrying of non-energy producing products	2	52	3.8%
Transportation and storage	2	32	6.3%
Construction	2	62	3.2%
Wholesale and retail trade; repair of motor vehicles	2	13	15.4%
Other business sector services	2	18	11.1%
Motor vehicles, trailers and semi-trailers	1	2	50.0%
Public admin. and defence; compulsory social security	1	2	50.0%
Publishing, audiovisual and broadcasting activities	1	12	8.3%
Mining support service activities	0	4	0.0%
Textiles, wearing apparel, leather and related products	0	6	0.0%
Other non-metallic mineral products	0	9	0.0%
Basic Metals	0	15	0.0%
Electrical equipment	0	2	0.0%
Machinery and equipment	0	5	0.0%
Other transport equipment	0	3	0.0%
Other manufacturing; repair and installation of machinery and equipment	0	3	0.0%
Accomodation and food services	0	8	0.0%
Real Estate Activities	0	27	0.0%
Human health and social work	0	3	0.0%
Arts, entertainment, recreation and other service activities	0	9	0.0%

concerns that ISDS in general favors the US.

Table A-7: **Comparing cases of regulation abandonment to total cases, by host state respondent.** (1987-2017, assessed 2018.) NAFTA countries are important, as well as Argentina.

Host Country	Abandoned (count)	Total cases (count)	% Abandoned
Argentina	35	59	59.3%
Canada	6	21	28.6%
United States	5	15	33.3%
Mexico	4	23	17.4%
Turkey	3	11	27.2%
Venezuela	3	42	7.1%
Belize	3	4	75.0%
Egypt	3	29	10.3%
India	2	21	9.5%
Peru	2	13	15.4%
Poland	2	25	8.0%
Spain	2	34	5.9%
Zimbabwe	2	3	66.7%
Bolivia	1	15	6.7%
Ghana	1	3	33.3%
Hungary	1	14	7.1%
Indonesia	1	7	14.3%
Latvia	1	7	14.3%
Malaysia	1	3	33.3%
Moldova	1	8	12.5%
Mongolia	1	4	25.0%
Nicaragua	1	1	100.0%
Philippines	1	5	20.0%
Romania	1	13	7.7%
Saint Kitts and Nevis	1	1	100.0%
Slovenia	1	3	33.3%
Sri Lanka	1	4	25.0%
Ukraine	1	21	4.8%

Figure A-4: **Count of cases associated with an abandoned regulation, by year of filing.** (1987-2017, assessed 2018.) Earlier cases are not disproportionately associated with abandoned regulations. The spike in cases in 2003 are associated with Argentina's Emergency Law.



2 Appendix: Quantitative Analysis

2.1 Industry Data

Table A-8: **Unique industries included in industry-level analysis.**

D01 - Crop and animal production, hunting
D02 - Forestry and logging
D03 - Fishing and aquaculture
D05 - Mining of coal and lignite
D06 - Extraction of crude petroleum and natural gas
D07 - Mining of metal ores
D08 - Other mining and quarrying
D10 - Food products
D11 - Beverages
D12 - Tobacco products
D13 - Textiles
D14 - Wearing apparel
D15 - Leather and related products
D16 - Wood and products of wood and cork, except furniture
D17 - Paper and paper products
D18 - Printing and reproduction of recorded media
D19 - Coke and refined petroleum products [CD]
D20 - Chemicals and chemical products [CE]
D21 - Basic pharmaceutical products and pharmaceutical preparations [CF]
D22 - Rubber and plastics products
D23 - Other non-metallic mineral products
D24 - Basic metals
D25 - Fabricated metal products, except machinery and equipment
D26 - Computer, electronic and optical products [CI]
D27 - Electrical equipment [CJ]
D29 - Motor vehicles, trailers and semi-trailers
D30 - Other transport equipment
D31T32 - Furniture, other manufacturing [CM]
D35 - Electricity, gas, steam and air conditioning supply [D]
D36T99 - Other activities
D37T39 - Waste collection, treatment and disposal activities; materials recovery
D58 - Publishing
D59T60 - Audiovisual and broadcasting

2.2 PanelMatch estimates in tabular format

	DV: Industry-specific intermediate imports				
	t	$t+1$	$t+2$	$t+3$	$t+4$
	(1)	(2)	(3)	(4)	(5)
Panel A: Propensity score weighting refinement					
ISDS	−0.030	-0.109^{**}	-0.091^{**}	-0.127^{**}	-0.143^{***}
	(0.030)	(0.046)	(0.046)	(0.053)	(0.054)
Panel B: Mahalanobis matching refinement					
ISDS	−0.012	-0.105^{**}	-0.075^{*}	-0.116^{**}	-0.117^{**}
	(0.030)	(0.047)	(0.045)	(0.051)	(0.053)
Treated country-industry-years: 272					
Average matched (control) set size: 2,861					

Table A-9: **Estimates from Figure 2, left panel.**

	DV: Total intermediate imports				
	t	$t+1$	$t+2$	$t+3$	$t+4$
	(1)	(2)	(3)	(4)	(5)
Panel A: Propensity score weighting refinement					
ISDS	0.013	−0.010	−0.010	−0.003	0.060
	(0.021)	(0.036)	(0.039)	(0.047)	(0.062)
Panel B: Mahalanobis matching refinement					
ISDS	0.043	0.006	0.012	0.051	0.100
	(0.024)	(0.031)	(0.037)	(0.047)	(0.079)
Treated country-years: 163					
Average matched (control) set size: 43					

Table A-10: **Estimates from Figure 2, right panel.**

	DV: Industry-specific final good imports				
	t	$t+1$	$t+2$	$t+3$	$t+4$
	(1)	(2)	(3)	(4)	(5)
Panel A: Propensity score weighting refinement					
ISDS	0.034	0.020	−0.010	−0.034	−0.040
	(0.022)	(0.033)	(0.033)	(0.036)	(0.041)
Panel B: Mahalanobis matching refinement					
ISDS	0.044*	0.019	0.005	−0.022	−0.017
	(0.023)	(0.031)	(0.033)	(0.036)	(0.040)
Treated country-industry-years: 272					
Average matched (control) set size: 2,861					

Table A-11: **Estimates from Figure 3, left panel.**

	DV: Total final goods imports				
	t	$t+1$	$t+2$	$t+3$	$t+4$
	(1)	(2)	(3)	(4)	(5)
Panel A: Propensity score weighting refinement					
ISDS	0.024	0.022	0.027	0.027	0.018
	(0.019)	(0.030)	(0.037)	(0.044)	(0.056)
Panel B: Mahalanobis matching refinement					
ISDS	0.029	0.021	0.022	0.031	0.008
	(0.019)	(0.031)	(0.038)	(0.043)	(0.055)
Treated country-years: 163					
Average matched (control) set size: 43					

Table A-12: **Estimates from Figure 3, right panel.**

2.3 Bilateral Trade in Intermediates

For the bilateral sample, we use the OECD's data on bilateral trade in intermediate goods and services. Our new outcome variable is (logged) intermediate exports from the investor(s)' home state(s) to the host state.[41] To make sure that we are identifying investors' actual home states, rather than the states in which they have incorporated their holding companies, we use Thrall (2021)'s coding of investor nationality rather than the nationalities that are listed on official case documents.[42] We also include a set of covariates: home and host state GDP per capita (logged), the population-weighted distance between home and host, the UN voting ideal point difference between home and host (Bailey, Strezhnev and Voeten, 2017), as well as variables indicating whether home and host have signed a BIT and a PTA together. We conduct the analysis using IKW's estimator (Equation 3) with the same specifications as previous models.

Figure A-5 presents the results. Unlike previous models, the choice of method that is used to refine the set of counterfactual observations that are selected for each treated observation meaningfully affects the results. When Mahalanobis distance matching is used, the ATTs are not statistically significant and are close to zero in magnitude. However, when inverse propensity score weighting is used the ATT declines steadily over time, nearing statistical significance ($.05 < p < 0.1$) and similar magnitude to the monadic industry-specific effect by the fourth year after the case was filed. Due to their sensitivity to the weighting scheme, we interpret these results as inconclusive; they provide neither strong evidence in support of nor strong evidence against the claim that ISDS arbitration negatively impacts bilateral trade in intermediates between the host state and the claimant's home state. Results when excluding OECD host states are equivalent (available upon request).

[41] This measure is non-missing for approximately 74% of the dyad-years in our sample.

[42] For example, a U.S. oil company may use its Dutch shell company subsidiary to file a case against Argentina. While official case statistics would record the investor as being from the Netherlands, Thrall (2021) would code the investor as American.

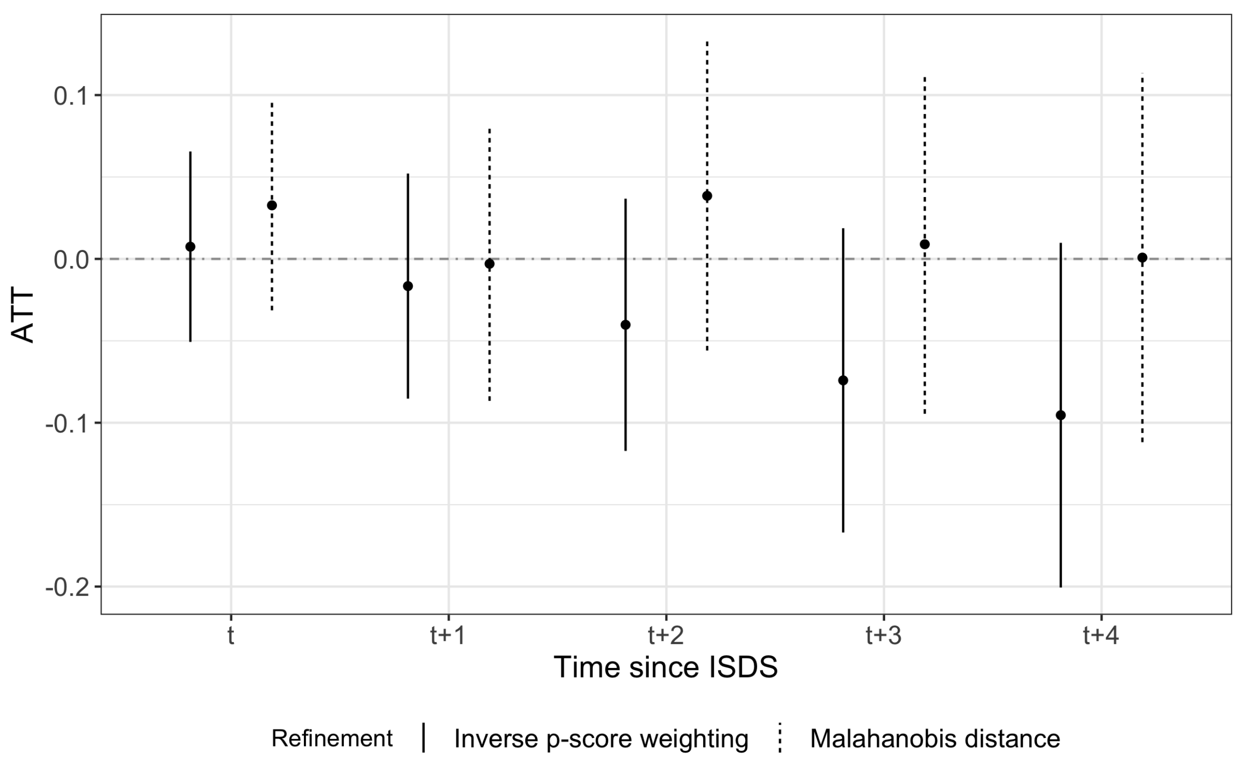


Figure A-5: **ISDS may have some negative effect on bilateral trade in intermediates, but it is sensitive to model specification**. ATTs estimated via Equation 3 and presented alongside 95% confidence intervals.

2.4 Argentina Emergency Law Cases

A potential concern with our main results is that they are driven by the large number of cases filed against Argentina in response to its 2001 Emergency Law (which, among other things, imposed capital controls and "pesification" on foreign investors). If this were the case, it would suggest that we may be picking up GVC disruption that was caused by Argentina's policies rather than by ISDS itself. To illustrate that our results are not driven by Emergency Law cases, we re-estimate our models after excluding Argentina from the sample. The results are nearly identical to the main estimates (Figure A-6); robustness with regard to other estimates available on request.

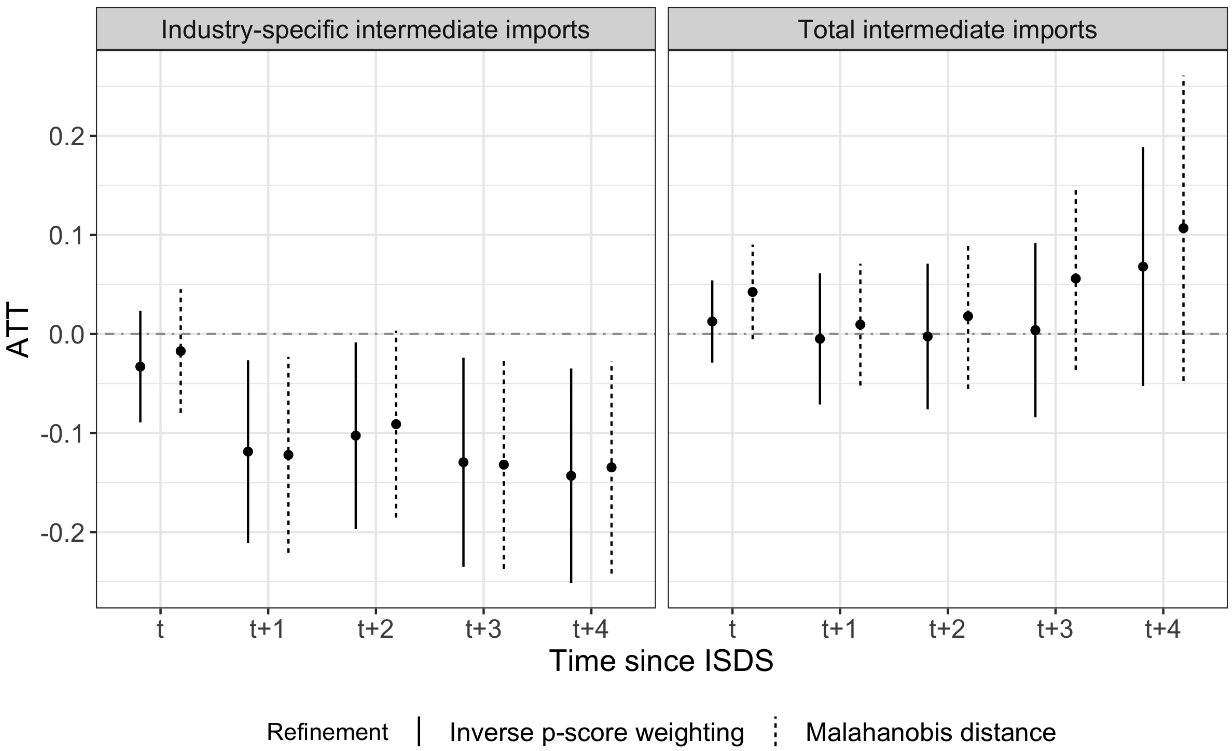


Figure A-6: **ISDS disrupts global value chains in the associated industries, but not outside them. Estimated per Figure 2 with Argentina excluded from the sample**.

3 Appendix: Qualitative Analysis

3.1 Patterns of GVC trade across case categories

Here we consider cases classified in four categories, according to whether the host state won or lost the case, and whether the host abandoned or kept the disputed regulation[43]. This yields the following categories: *Win, Cancel* = 20, *Win, Keep* = 76, *Lose, Cancel* = 37, *Lose, Keep* = 77. Our intuition is that deeper GVC integration should be high in the subset of surprising abandonment-despite-winning (*Win, Cancel*) cases considered above. We also expect GVC integration to be low in the subset of surprising keep-despite-losing case (*Lose, Keep*). Neither of these outcomes are consistent with the common-sense explanation that winners are vindicated and losers are not, so we are less concerned that patterns in GVC integration are epiphenomenal to this reasonable alternative hypothesis. We do not have clear expectations about patterns in the *Win, Keep* or *Lose, Cancel* categories.

To operationalize GVC trade, we mirror our quantitative approach in examining trade in intermediates at the *national level, across industries*, and *across investor nationalities.* Figure A-7 plots average GVC trade for each of the three measures, for each of the four categories. The first takeaway is that patterns are consistent with our expectation that average GVC trade is highest for the category of *Win, Cancel* cases (of which *Mesa Power v. Canada* is one. See again 7). This is true for all three of the aggregations of trade in intermediates suggested by the literature. Second, GVC trade is very low in the *Lose, Keep* category, and the difference between averages in *Lose, Keep* and *Win, Cancel* are nearly statistically significant for all three trade-in-intermediates measures.[44]

[43] We collapse settlements into investor wins.

[44] Because our hypothesis is directional, we run one-tailed t-tests between the *Win, Cancel* and the *Lose, Keep* categories. These yield the following p-values: across industries = 0.064; at the national level = 0.017 and; across investor nationalities: = 0.012.

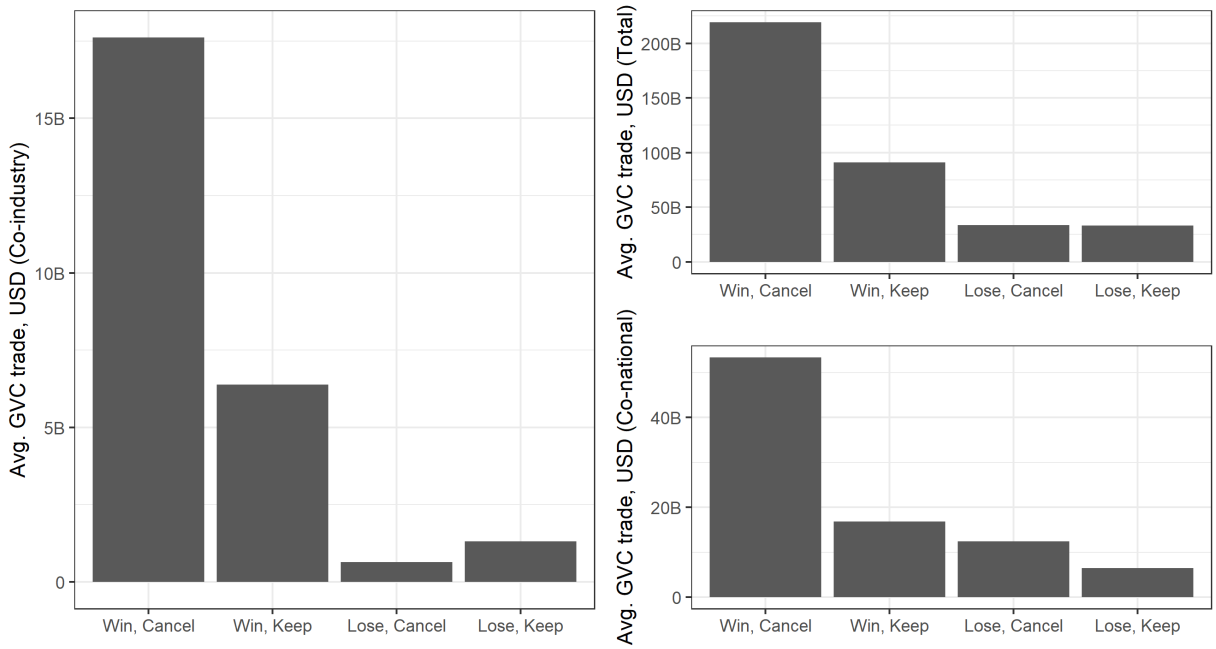


Figure A-7: **GVC integration (at the national-, industry-, or nationality-level), by ISDS and regulation outcomes.** Patterns in the puzzling abandoning-despite-winning ("Win, Cancel") and keep-despite-losing ("Lose, Keep") categories are consistent with our theory.

3.2 Pending Cases

Here, we focus on the ISDS arbitrations that remained pending at the end of the study period (2018). Even without knowing the outcome, the host state moved the regulation in the pro-claimant direction in 13 instances (12% of applicable cases). Why would a host state do this? According to our argument, risk of GVC disruption in this subset of pending cases would be particularly high. If so, the host state has incentives to abandon the disputed regulation to avoid costs from GVC disruption – even in the presence of uncertainty over the eventual ISDS outcome. Figure A-8 replicates Figure A-7 in 3.1. In two of three plots, the higher average for *Pending, Cancel* compared to *Pending, Keep* is consistent with our argument, although these differences are not statistically significant. This is unsurprising, given given layered selection effects as well as the small n (13 cases).

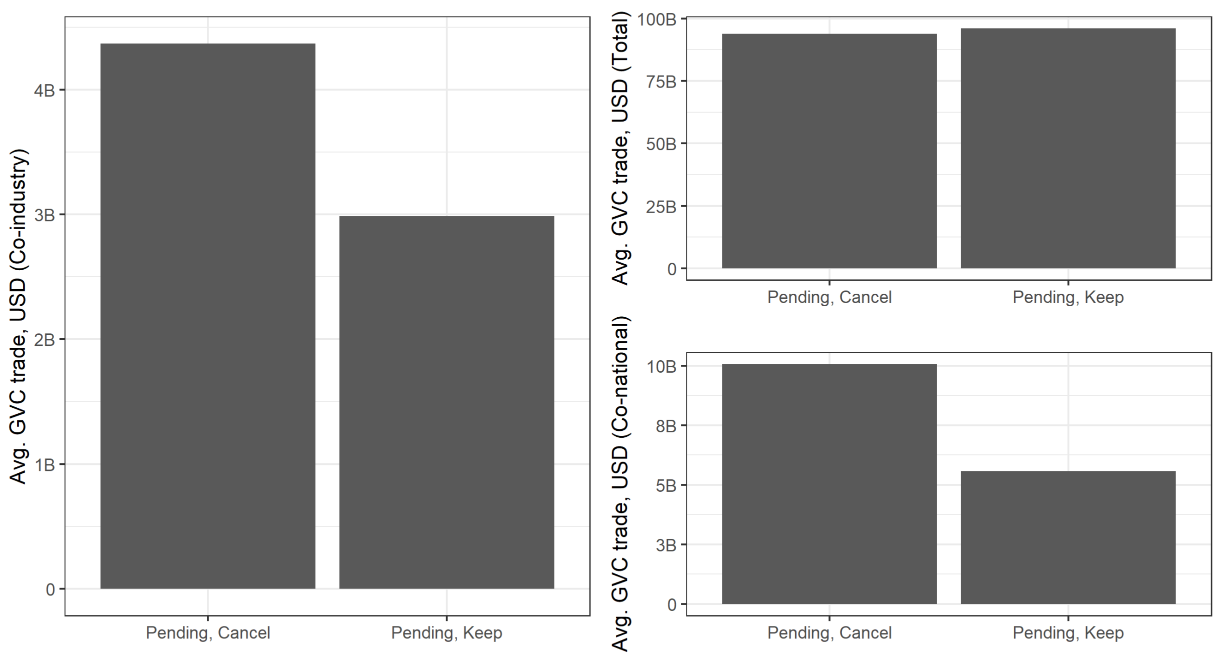


Figure A-8: **Average national-, co-industry, and co-national imports of intermediate goods and services in host for the subset of Pending Cases.** The host abandoning the regulation is associated with higher levels of GVC trade for 2 of 3 measures.