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Free Trade and the Formation of Environmental Policy: Evidence from US Legislative Votes*

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Abstract

We test the hypothesis that governments alter environmental policy in response to trade by studying NAFTA's effects on the formation of environmental policy in the US House of Representatives between 1990 and 2000. We find that reductions in US tariffs decreased political support for environmental legislation, altering outcomes for 36% of environmental bills. This decrease appears to be due to: (i) a reduction in support by incumbent Republican legislators in response to trade-induced changes in the policy preferences of their constituents, and (ii) voters in affected districts electing Republicans to replace Democrats who had supported the trade agreement.

JEL Codes: F18, F64, F68, Q56, Q58
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1 Introduction

The hypothesis that governments alter environmental policy in response to trade underlies much of the debate over the environmental consequences of globalization. It is at the core of much of the theoretical literature examining the environmental effects of trade, and manifests in popular concerns that governments will seek to counter the effects of trade liberalization by weakening or eliminating environmental regulations to ease the regulatory burden facing domestic firms. Yet despite the prominence of this hypothesis in both the academic literature and policy debates, there is currently little empirical evidence of whether individual governments alter environmental policy in response to trade.[1] This makes it difficult to assess whether such changes are empirically relevant.

In this paper, we make progress on this issue by examining how a key determinant of federal environmental policy in the United States (US) – legislative voting by members of the House of Representatives during roll call votes (RCVs) on environmental legislation – was affected by trade liberalization between the US and Mexico after the enactment of the North American Free Trade Agreement (NAFTA) on January 1, 1994.[2] NAFTA is an ideal context for our study for at least two reasons. First, it was an episode of bilateral trade liberalization, making it possible to examine the effects of reductions in both domestic (US) and foreign (Mexican) tariffs on the voting behavior of affected US legislators.[3] Importantly, these tariff reductions were accompanied by significant increases in trade volumes (Romalis, 2007; Caliendo and Parro, 2015), suggesting that the agreement could have had a material impact on legislator decisions. Second, previous research suggests that NAFTA's effects varied across the continental US (Hakobyan and McLaren, 2016; Cherniwchan, 2017). This geographic variation allows us to study voting by legislators who represent the districts most affected by the agreement.

We begin our analysis by examining the effects of both US and Mexican tariff reductions on the environmental RCVs cast by representatives of affected congressional districts. To do so, we use a generalized difference-in-difference (DID) research design that compares the voting choices of legislators who represent districts that were highly exposed to each tariff cut to those representing districts that were not (first difference), before and after NAFTA (second difference). We follow the approach taken elsewhere in the literature examining the regional effects of trade policy (e.g. Topalova (2010),

[1]For recent overviews of existing work examining the relationship between international trade and the environment, see Cherniwchan et al. (2017), Copeland et al. (2021), or Cherniwchan and Taylor (2022).

[2]We examine RCVs as they have been the focus of previous work studying determinants of US federal environmental policy (e.g. Nelson (2002), Herrnstadt and Muehlegger (2014), or Bouton et al. (2021)).

[3]While NAFTA also involved Canada, trade between the US and Canada was previously liberalized as a result of the Canada-US Free Trade Agreement (CUSFTA).

Hakobyan and McLaren (2016), or Pierce and Schott (2020)), and calculate district-level changes in US and Mexican tariffs using initial labor market shares as weights. We employ a data set that contains information on the votes of legislators in the US House of Representatives on environmental bills from the League of Conservation Voters (LCV), district tariff cuts, and other district characteristics over the period 1990-2000.[4]

Our results provide robust evidence that US tariff reductions reduced support for environmental legislation amongst representatives of affected districts.[5] The estimate from our preferred specification indicates that a one percentage point (pp) reduction in a district's average US tariff reduced the likelihood its representative casts a pro-environment vote by 14 pp. This implies that the US tariff cuts reduced the likelihood that an affected representative casts a pro-environment vote by 3.6 pp on average. In contrast, the estimate from our preferred specification suggests that reductions in Mexican tariffs had little effect on the likelihood an affected representative casts a pro-environmental vote.

While the implied effect of reduced US tariffs appears to be relatively small, it is not immaterial given that 49% of RCVs cast during our period of study were pro-environment. As such, NAFTA may have changed the outcomes of some RCVs. We examine this possibility via a simple partial equilibrium back-of-the-envelope calculation in which we use our coefficient estimates to construct estimates of the proportion of pro-environment votes that would have prevailed on each RCV in the absence of NAFTA. The results of this exercise suggest that close to 36% of the RCVs for which the pro-environment side failed to pass the House from 1994 to 2000 would have received enough support to do so in the absence of the agreement.

Given that these estimates support the hypothesis that governments alter environmental policy in response to trade, we next turn to examine why this phenomenon occurs. We consider three potential mechanisms that could explain our results: (i) concerns over industrial flight due to differences in regulatory stringency between the US and Mexico, (ii) trade-induced changes in the demand for environmental policy among

[4]We end our study in 2000 to avoid contamination created by the effects of trade liberalization following China's ascension into the WTO (e.g. Autor et al. (2013), Pierce and Schott (2016)).

[5]We perform a number of robustness exercises, including estimating an event-study version of our main empirical specification, controlling for the effects of changes in Most-Favored Nation tariffs, the effects of CUSFTA, and the effects of trade with China, as well as accounting for the alignment between a representative and the party in power in the House, Senate, and Presidency, differential voting behavior on RCVs in election years, differential trends across Census Divisions, and pre-existing industrial decline. We also show our results are robust to accounting for redistricting, restricting our sample to exclude bills that may include non-environmental components, and restricting our sample to exclude bills that are subject to multiple RCVs, that our main estimates are not biased by our use of a two-way fixed effects estimator, and provide evidence that NAFTA did not systematically alter of the set of bills introduced in the House of Representatives. For the sake of brevity, these results are reported in the online appendix.

voters, and (iii) trade-induced changes in partisan representation.

We first examine whether our results are consistent with representatives from affected districts altering their voting behavior in response to concerns that new or revised environmental legislation would cause industrial flight to Mexico. This type of offshoring was a salient issue for the US public both before and after NAFTA was signed; for example, over two-thirds of respondents to a 1999 opinion survey expressed concern that companies would relocate to countries with weak environmental standards to avoid the costs associated with stringent regulation Kull (2000).[6] Moreover, cross-country differences in environmental regulation affected the pattern of US-Mexico trade even prior to NAFTA (Levinson and Taylor, 2008), meaning new environmental legislation could have had a material impact on where goods were produced.

We test the "industrial flight" hypothesis by estimating a version of our baseline estimating equation in which we allow the estimated effect of the NAFTA tariff reductions to vary across districts based on whether the average cost of complying with environmental regulation for industries in the district at the beginning of our study period is relatively high or low. If legislators are motivated by concerns that passing environmental legislation would cause the relocation of dirty industries abroad, then the magnitude of the estimated effect of US tariff reductions should be larger in districts for which these industries comprise a relatively high share of economic activity. We find no evidence to indicate that this is the case, suggesting our baseline results are not due to legislators responding to concerns of industrial flight by dirty industries.

Next, we ask if our findings can be rationalized via trade-induced changes in the demand for environmental policy. This mechanism has been at the core of much of the debate over trade's effect on the environment since the work of Grossman and Krueger (1991). The intuition is straightforward: if environmental quality is a normal good, then the changes in incomes and pollution levels brought about by trade will alter the demand for environmental policy in the affected population.[7] Hence, our results could be explained by legislators simply responding to changes in constituent policy preferences.

We examine whether NAFTA affected the demand for environmental policy in two ways. First, we examine whether tariff reductions affected constituents' stated support for environmental policy. Second, given that standard models suggest that the demand for environmental policy is determined by real incomes and pollution levels, we examine whether NAFTA caused regional incomes and ambient pollution concentrations to

[6]This concern also partially underpinned Ross Perot's claim during the 1992 presidential campaign that NAFTA would lead to a "giant sucking sound going South."

[7]For formal treatments of this intuition, see Copeland and Taylor (1994) and Copeland and Taylor (1995), or the textbook discussion of Copeland and Taylor (2003).

change in a manner consistent with decreased demand for environmental policy.

These estimates indicate that reductions in US import tariffs decreased the demand for environmental policy in affected districts, but reductions in Mexican tariffs had no meaningful effect on this demand. In light of the fact that our main estimates indicate that representatives of affected regions only altered their voting behavior in response to reductions in US tariffs, these results are consistent with NAFTA-induced changes in constituent policy demands driving legislator responses on environmental RCVs.

We next ask whether our results can be rationalized as a result of trade-induced changes in the partisan representation of affected districts. This is also a plausible explanation, as the agreement increased Republican support due to their position as the protectionist party over this period (Choi et al., 2021), and Republican representatives are less likely to support environmental legislation (Nelson, 2002; Kim and Urpelainen, 2017). We find that reductions in US import tariffs significantly increased both the probability an affected district elected a Republican, and the likelihood it switched from being represented by a Democrat to a Republican. Thus our baseline estimates need not reflect changes in voting tied to views on environmental policy; they could instead be due to NAFTA-induced changes in partisan representation resulting from affected constituents electing Republicans due to their views on other policy issues, such as protectionism.

Altogether, our examination of potential mechanisms suggests our baseline results are consistent with trade-induced changes in both the demand for environmental policy and partisan representation. Thus, as a next step we conduct a series of analyses to determine the empirical relevance of these two mechanisms.

We begin this exercise by estimating a series of regressions in which we allow the estimated effects of the NAFTA tariff reductions to vary according to the party membership of the district's incumbent representative. We first estimate these effects using our full sample of data. As these estimates potentially capture both the effects of changes in behavior on the part of incumbents as well as changes in political representation, we then isolate NAFTA's effects on incumbent behavior by: (i) supplementing this regression with representative fixed effects, and (ii) estimating this regression using the subset of districts represented by a single legislator throughout our period of study.

These results suggest that our baseline estimates are the product of both affected districts electing Republican representatives and affected Republican legislators decreasing their support for environmental policy.[8] In addition, both channels appear to be economically meaningful; trade-induced changes in both political representation and the

[8] As we show below, we reach similar conclusions if we instead adopt the approach taken by Lee et al. (2004), and measure ideology using the DW-Nominate scores constructed by Poole and Rosenthal (1997).

voting behavior of incumbent Republican legislators both explain close to half of the effect of reductions in US import tariffs.

We then turn to examine if the changes in the voting behavior of incumbent Republicans can still be rationalized as a product of trade-induced changes in constituent policy preferences. We find that reductions in US import tariffs reduced the demand for environmental policy amongst constituents in both Democratic and Republican represented districts, whether measured directly via stated support for environment policy or indirectly via changes in average incomes and ambient pollution levels. However, the reduction in stated support for environmental policy in both sets of districts is due to constituents who self-identify as Independents or Republicans. Moreover, these reductions are driven by the set of districts that are represented by a single party throughout our period of study; our estimates indicate that the tariff reductions had little effect on stated constituent support for environmental policy in the set of districts for which there is a change in representation. These findings suggest that the partisan differences in NAFTA's effects are due, in part, to incumbent legislators responding to differences in the policy preferences of their party's primary constituency.

These results also suggest that changes in policy demand are unlikely to explain the pattern of environmental RCVs in districts that experienced changes in partisan representation during our period of study. Thus, we ask if Republican electoral gains are consistent with affected voters punishing Democrats for supporting NAFTA. We find evidence that supports this; reductions in US import tariffs significantly increased the likelihood that a district that had been represented by a Democrat who voted for NAFTA flipped to the Republican party, but had little effect in districts that had been represented by a Democrat who voted against the agreement. This suggests that much of NAFTA's effect on the formation of environmental policy is an incidental byproduct of voters electing Republicans to replace pro-NAFTA Democrats.

A final concern with our analysis is that our results may not be capturing changes in views that are specific to the environment, but rather reflect a broader NAFTA-induced shift towards "conservatism" on a range of policy issues. There is reason to believe this may be the case, as previous research has documented that import competition can lead to general rightward shifts in political preferences (e.g. Autor et al. (2020)). Hence, as the last step in our analysis, we examine whether our results can be explained as a product of a broader trade-induced shift towards conservatism.

We explore this possibility in two ways. First, we use additional data from the ANES to examine if NAFTA led to changes in constituent preferences on non-environmental policy issues. Second, we examine whether NAFTA's effects on RCVs on reproductive rights are similar to those on environmental policy. The results of these exercises suggest that our main results are not capturing a broader trade-induced conservative shift. We find that reductions in US tariffs did not impact stated support for welfare, social security, crime, legal abortion, or increased immigration, suggesting that increased import competition did not lead to a systematic shift in policy preferences amongst affected constituents. Moreover, we find that reductions in US tariffs only impacted RCVs on reproductive rights through changes in partisan representation, which further suggests that our findings as to NAFTA's effects on environmental RCVs do not reflect a systematic conservative shift in legislative voting behavior across all policy issues.

Taken together, our findings contribute to a large literature examining how international trade affects the environment. Trade-induced changes in environmental policy have been thought to be a key channel through which trade affects the environment since the pioneering work of Grossman and Krueger (1991). Indeed, previous studies have developed models to examine trade's effects on the environment under a variety of assumptions about the policy formation process, including models in which governments respond directly to the demands of a representative agent (e.g. Copeland and Taylor (1994, 1995); McAusland and Millimet (2013)) or groups with different preferences (e.g. Antweiler et al. (2001); McAusland (2003); Copeland and Taylor (2003)), as well as models featuring regulatory capture (e.g. McAusland (2008)), lobbying (e.g. Fredriksson (1999); Conconi (2003)) or corruption (e.g. Damania et al. (2003)). Yet, empirical evidence as to how trade affects the formation of environmental policy by individual governments remains scarce.[9] Hence, our paper contributes to the literature by providing the first such evidence, and by highlighting the empirical relevance of a core mechanism first proposed by Grossman and Krueger: governments responding to trade-induced changes in the demand for environmental policy by their constituents. Our results also highlight the potential importance of a mechanism that has been previously overlooked in this literature – namely, partisan politics – suggesting that trade's effect on environmental policy, and thus, the environment, may hinge on the relevant political context.

Our research also contributes to a large literature examining the political economy of environmental policy.[10] Researchers have examined numerous factors that affect how legislators enact environmental policy, including changes in constituent demographics (Kahn, 2002), ideology and party affiliation (Nelson, 2002; Beland and Boucher, 2015),

[9]One notable exception to this is the work of McAusland and Millimet (2013), who use data on LCV scores to examine the effects of international and intranational trade flows on the stringency of environmental policy. In contrast, we use the LCV data to study the effects of trade on individual RCVs, and focus our analysis on a specific episode of trade liberalization.

[10]For an overview of this literature, see Oates and Portney (2003).

lobbying and public persuasion (Yu, 2005; Pacca et al., 2021), electoral incentives (List and Sturm, 2006; Bouton et al., 2021) and weather (Herrnstadt and Muehlegger, 2014). We contribute to this literature by providing empirical evidence that international trade can influence legislative choices on environmental policy.

Finally, our work contributes to the literature studying the interaction between international trade and political outcomes. Much of this work has focused on how trade affects voters (e.g. Autor et al. (2020); Jensen et al. (2017); Che et al. (2016); Dippel et al. (2022); Choi et al. (2021)) or legislative votes on trade policy (e.g. Conconi et al. (2012, 2014); Feigenbaum and Hall (2015)). Our results contribute to this literature by demonstrating that trade also impacts the formation of domestic policy by both altering political representation, and changing how incumbent politicians vote on legislation.

The rest of this paper proceeds as follows. Section 2 provides some further background on NAFTA, and discusses our research design. Section 3 presents our data. Our results are summarized in Section 4. Finally, Section 5 concludes.

2 Research Design

Our goal in this paper is to assess whether bilateral trade liberalization between the United States and Mexico following NAFTA altered federal environmental policy in the US. We face two primary empirical challenges in doing so: (i) measuring federal environmental policy, and (ii) identifying the causal effects of trade liberalization.

The challenge we face in measuring environmental policy arises, in part, because policy creation is a complex process that embeds economic, scientific, and political dimensions (Dixit, 1996). As such, capturing the entire policy process is effectively intractable. Instead, we adopt an approach that is common in both economics and political science, and focus on a particular dimension of policy: roll call votes (RCVs) cast by legislators in the US House of Representatives (Lee et al., 2004; Feigenbaum and Hall, 2015; Bouton et al., 2021). For any House bill to become law, it must achieve majority support in an RCV by Congress, making these votes an important component of the federal policy making process.[11] In addition, RCVs provide insight into how legislators view an issue (Ansolabehere and Jones, 2010), which may manifest in other dimensions of the policy process. As a result, we focus our analysis on environmental RCVs.[12]

Though environmental policy can be set at municipal and state levels, studying federal legislation is attractive because many important improvements in environmental

[11]Bill amendments must also pass an RCV. Thus, we consider both amendment and bill passage RCVs.
[12]We describe the process we use to identify relevant House RCVs for our purposes in Section 3.

quality in the US have been the result of federal laws. For example, the Clean Air Act (CAA) and subsequent amendments caused large improvements in air quality in the US (Currie and Walker, 2019), the Clean Water Act reduced water pollution in US rivers (Keiser and Shapiro, 2019), and the Superfund law has led to over $4 billion in disbursements to cleanup over 1,500 chemical sites (Environmental Protection Agency, 2018).

The challenge in identifying the causal effects of international trade on the formation of federal environmental policy arises due to the potential for both reverse causality and omitted variable bias. A large theoretical literature has argued both that governments have an incentive to set trade and environmental policies jointly and alter trade policy in response to changes in environmental quality (Copeland et al., 2021). Moreover, trade flows are themselves potentially determined by environmental policy (Levinson and Taylor, 2008; Cherniwchan and Najjar, 2022). Thus, a simple correlation between trade flows and environmental policy is unlikely to reflect a causal relationship.

To address these empirical challenges, we exploit plausibly exogenous variation created by reductions in US and Mexican tariffs following the introduction of NAFTA. Although it was a federal policy, research has shown that there were large geographic discrepancies in its effects across the US (Hakobyan and McLaren, 2016; Cherniwchan, 2017). We use these geographic differences, and temporal variation in tariff rates created by the agreement, to identify its effects on the RCVs cast by legislators from affected Congressional districts using a generalized difference-in-difference research design.

Our research design's first difference exploits the fact that pre-existing differences in industrial composition created differential exposure to NAFTA's tariff reductions across Congressional districts. We utilize this geographic variation by comparing RCVs cast by legislators in highly-exposed districts to RCVs cast by legislators in less-exposed districts. This allows us to account for any national-level shocks that may affect RCVs in all districts, such as political factors like changes in the presidency or the party in control of the Senate, or aggregate changes in the US economy.

Our research design's second difference exploits the timing of NAFTA's implementation. Although negotiations began in 1991 and the initial agreement was signed a year later, there was substantial uncertainty over whether it would be ratified after the 1992 election.[13] This uncertainty was resolved shortly before NAFTA came into force on January 1st, 1994 after the agreement passed both the House and Senate in November 1993. Thus, NAFTA resulted in a de facto shock to trade policy for the US starting in 1994.[14] We exploit this temporal variation in tariff protection by comparing RCVs

[13]For further discussion, see Cherniwchan (2017).

[14]Although some tariffs were not immediately eliminated and were phased-out systematically over 5

cast before NAFTA (pre-1994) to those cast after, allowing us to account for any time invariant differences in factors affecting RCVs across districts.

In sum, our research design combines both temporal and geographic variation in tariff protection by comparing changes in RCVs over time in highly exposed districts to changes in RCVs over time in less exposed districts. Furthermore, because the relative reductions in US and Mexican tariffs varied across industries due to pre-existing differences in tariff protection in the two countries, we are able to jointly estimate the effects of both import and export liberalization across districts. That is, our research design embeds two generalized difference-in-differences; one exploiting geographic exposure to NAFTA's liberalization of US import tariffs and the other exploiting geographic exposure to NAFTA's liberalization of Mexican import tariffs. We implement this research design by estimating the following regression:

$$y_{vrt} = \beta_0 + \beta_{USA}\left[\Delta\tau_r^{USA} \text{ x Post}_t\right] + \beta_{Mex}\left[\Delta\tau_r^{Mex} \text{ x Post}_t\right] + \lambda_r + \psi_t + e_{vrt}, \qquad (1)$$

where y_{vrt} is an indicator for any pro-environment RCV v cast by representative for district r in year t, $\Delta\tau_r^{USA}$ and $\Delta\tau_r^{Mex}$, respectively, are measures of district r's exposure to the US and Mexican tariff cuts resulting from NAFTA,[15] Post_t is an indicator for any year after 1993, λ_r is a district fixed effect, ψ_t is a year fixed effect, and e_{vrt} is an error term that captures idiosyncratic variation in RCVs across districts and time. For inference, we use cluster-robust standard errors two-way clustered by state and bill, to address potential heteroskedasticity across districts within states and across representatives on a particular issue, and to address potential autocorrelation within districts over time.

The coefficients β_{USA} and β_{Mex} capture the effects of a 1 pp reduction in US and Mexican tariffs, respectively, on the likelihood an affected House legislator casts a pro-environment RCV. For these estimates to identify the causal effects of NAFTA on RCVs there can be no differential shocks to RCVs across districts that are correlated with a district's exposure to NAFTA. As differential trends in RCVs may reflect changes in local social, economic, or political conditions, one potential violation of this assumption could arise if a district's exposure to tariff changes are correlated with changes in other socioeconomic conditions. In Online Appendix A, we show that this appears to be the case for several socioeconomic variables.[16] To help ensure this does not pose an issue, in

or 10 year intervals, the schedule of tariff reductions was known when NAFTA came into force.

[15]We formally define $\Delta\tau_r^{USA}$ and $\Delta\tau_r^{Mex}$ in Section 3.

[16]Though exposure is correlated with socioeconomic conditions, the results in Online Appendix A suggest that exposure is uncorrelated with the district's political conditions prior to NAFTA. Nevertheless, in Online Appendix B we report the results from several robustness checks in which we control for pre-

our analysis we estimate specifications where we flexibly control for differential trends across districts based on a set of initial demographic and economic characteristics. To ensure our estimates are capturing the effects of trade liberalization, and not simply a response to the effects of federal environmental regulation, we also estimate specifications in which we control for district exposure to CAA regulations, as previous research has found that they have impacted labor markets (Currie and Walker, 2019).

3 Data and Measurement

Implementing our research design requires information on environmental RCVs, tariff rates, and district characteristics. We obtain these data from a variety of sources.

We obtain information on environmental RCVs from the League of Conservation Voters' (LCV) National Environmental Scorecard database. Each year since 1971, the LCV has employed a panel of experts to assess RCVs in the US House of Representatives. These experts determine which bills and amendments are relevant for the environment, classify each of the relevant RCVs into various categories, determine whether supporting the bill/amendment is "pro-environment" or "anti-environment," and record the vote of each congressperson.[17] We use these assessments to construct a database of all RCVs cast on environmental bills from 1990 to 2000 in the House.[18] Each observation in the database reflects an RCV cast on a particular bill by a particular Congressperson. We use this information to construct an indicator of whether the RCV on bill v by the representative of district r in year t is "pro-environment."[19]

We construct measures of the tariff changes experienced by each Congressional district using data on tariff rates from Romalis (2007), and employment data from Eckert et al. (2020). We calculate the change in both US and Mexican tariffs by industry between 1993 and 1999 to measure the extent of trade liberalization during our period of study, and then aggregate these industry level changes to the Congressional district level using

existing differences in political conditions.

[17]Following the LCV, we code both negative votes and abstentions as not supporting a bill. In Online Appendix B we examine the robustness of our results to omitting abstentions from our analysis.

[18]We exclude RCVs cast by representatives from Hawaii or Alaska, and independents not affiliated with the Democratic or Republican parties from our analysis (four representatives).

[19]Several previous studies have used the LCV scorecard database to study the formation of environmental policy, either by examining LCV scores over time or by examining specific RCVs (e.g., Nelson (2002), Herrnstadt and Muehlegger (2014), or Bouton et al. (2021)).

the 1990 industry employment shares as weights.[20,21] More concretely, the change in US import tariffs experienced by district r, $\Delta\tau_r^{USA}$, is constructed as:

$$\Delta\tau_r^{USA} = \sum_i \left[\frac{l_{ir,90}}{l_{r,90}}\right] \left[Tariff_{i,99}^{USA} - Tariff_{i,93}^{USA}\right], \tag{2}$$

where $l_{ir,90}$ is employment in industry i in district r in 1990, $l_{r,90}$ is total employment in district r in 1990, and $Tariff_{i,j}^{USA}$ is the tariff assessed on Mexican imports to the US from industry i in year j.[22] The Mexican tariff change for district r, $\Delta\tau_r^{Mex}$, is constructed as:

$$\Delta\tau_r^{Mex} = \sum_i \left[\frac{l_{ir,90}}{l_{r,90}}\right] \left[Tariff_{i,99}^{Mex} - Tariff_{i,93}^{Mex}\right], \tag{3}$$

where $Tariff_{i,j}^{Mex}$ is the tariff assessed on US exports to Mexico from industry i in year j, and all other variables are as in Equation (2).

We obtain data on initial district characteristics from Adler (2021) and the adjusted county business patterns (CBP) database by Eckert et al. (2020). From Adler, we compute 1990-level data on: the share of the district's population aged 65 and older, the share that identify as black, the share born outside the US, the share living in rural areas, the median income in the district, and the share of the workforce employed in farming, and in "blue-collar" occupations. From the CBP data, we compute the share of employment in manufacturing in 1990. We also use the CBP data to construct a measure of district exposure to regulation under the CAA. Specifically, we measure a district's exposure to the CAA as the share of district employment in counties that are in non-attainment with at least one of the CAA's National Ambient Air Quality Standards in 1990.

Summary statistics for our main dependent variable and US and Mexican tariff changes are shown in Table 1. The indicator for a pro-environment RCV is shown in the first row, while the second and third rows shows the reduction in district USA import tariffs and district Mexican tariffs due to NAFTA, respectively. The mean, standard

[20]As the data from Romalis (2007) is reported at the HS-8 level, we convert the commodity-level tariff data to the four-digit Standard Industrial Classification-level using the concordance developed in Pierce and Schott (2012). We weight the commodity level data using trade data from Schott (2008) and the UN Comtrade database so the resulting industry tariff measures are import-weighted.

[21]We aggregate the county-level employment data from Eckert et al. (2020) to the Congressional district-level using the Geocorr crosswalks created by the Missouri Census Data Center. We employ two crosswalks to address redistricting in the 103rd congress: one for 1990-1992 that uses the 102nd Congressional district boundaries and one for 1993-2000 that uses the 103rd Congressional district boundaries. In our analysis, we examine the robustness of our results to ensure they are not capturing the effects of redistricting.

[22]It is worth noting that prior to NAFTA, Mexico received preferential tariff treatment under the Generalized System of Preferences (GSP); our measure of applied tariffs, $Tariff_{i,93}^{USA}$, reflects these preferences. Mexican imports were no longer subject to the GSP after NAFTA entered into force.

Table 1: Summary Statistics

Variable	(1) Mean	(2) SD	(3) Min	(4) Max
$\mathbb{1}\{$Pro-Environment Vote$\}$	0.49	0.50	0.00	1.00
$\Delta\tau_r^{USA}$	0.26	0.31	0.00	2.00
$\Delta\tau_r^{Mex}$	1.13	0.90	-8.63	3.14
Number of Bills	109			
Number of Votes Cast	51,956			

Notes: Table shows summary statistics for the NAFTA tariff cuts and legislator roll call vote outcomes between 1990 and 2000. The first row reports summary statistics for our main dependent variable: an indicator of whether the roll call vote cast is pro-environment. Rows two and three report summary statistics for the reduction in US import tariffs and Mexican tariffs created by NAFTA across congressional districts. The calculation of these tariff changes are defined in the main text. Row four reports the total number of environment-related bills voted on between 1990 and 2000. Row five reports the total number of roll call votes cast on environment-related bills between 1990 and 2000.

deviation, minimum, and maximum of each variable are shown in Columns (1) through (4), respectively. Table 1 also reports the number of environmental bills voted on in the House between 1990 and 2000, as well as the total number of RCVs cast on those bills.

As Table 1 shows, there are 51,956 RCVs on 109 bills in our sample,[23] across which 49% of all RCVs are pro-environment. This suggests that even a small change in RCVs could have material effects on the formation of environmental policy by potentially altering the outcomes of some bills. Moreover, there is substantial variation in NAFTA tariff reductions across districts. The average district experienced a 0.26 pp reduction in US import tariffs, with a range from zero to 2 pp. Districts are, on average, more exposed to the change in Mexican tariffs, with the average district experiencing a 1.13 pp tariff reduction. There is also considerable variation in the change in Mexican tariffs across districts, which ranges from a 8.63 pp *increase*[24] to a 3.14 pp decrease.

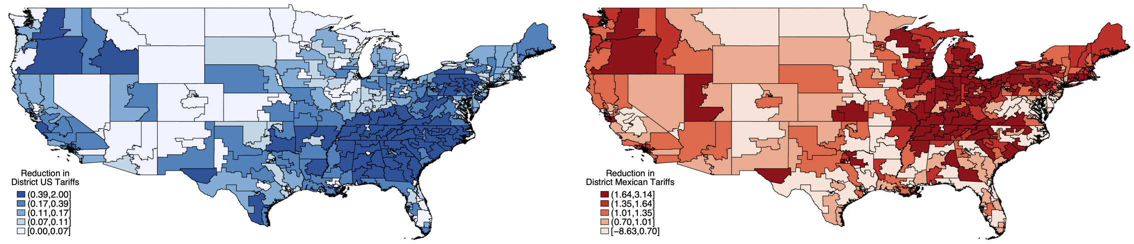
We further illustrate the variation in tariff reductions following NAFTA in Figure 1, which displays two maps highlighting the magnitudes of the average US and Mexican tariff cuts across districts, using district definitions from the 101st Congress. Panel (a) shows the reduction in average US import tariffs by district, $\Delta\tau_r^{USA}$, grouping districts by quintiles. Districts shown in light blue were in the bottom quintile of the distribution of US import tariff reductions, while districts in dark blue were in the top quintile. Panel

[23]Note that some bills are subject to multiple RCVs. For these bills, we include each RCV in our analysis, but consider them as one bill for the sake of clustering, when including bill fixed effects, and in our counterfactual analysis. Table 1 reports the collapsed bill count.

[24]Twenty-four districts experienced an increase in average Mexican tariffs over our study period. These increases are driven by increased protection for a small number of agricultural commodities. Our research design includes controls for differential trends by district characteristics, including characteristics capturing agricultural activity, in part, to address potential issues this may raise. We also perform a robustness test in which we drop these districts from our main sample; doing so does not affect our conclusions.

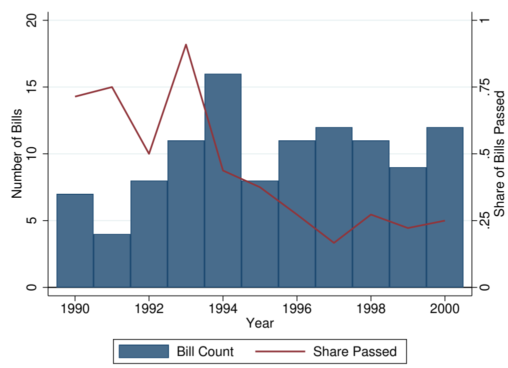
Figure 1: Exposure to NAFTA Across House Districts

(a) Average Change in US Import Tariffs (b) Average Change in Mexican Tariffs



Notes: Figure shows maps of each Congressional district's exposure to NAFTA. Panel (a) shows the reduction in the average US import tariff by district, grouping districts by tariff change quintile. Lighter blue districts experienced smaller changes in US import tariffs, while darker blue districts experienced larger changes. Panel (b) shows the reduction in the average Mexican tariff by district, grouping districts by quintiles of the change in Mexican tariffs. Lighter red districts experienced smaller changes in Mexican tariffs, while darker red districts experienced larger changes. These maps were constructed using the 101st Congress district boundaries.

Figure 2: House Environmental Bills Over Time



Notes: Figure shows the number of environmental bills voted on and the share that passed a simple majority in the House of Representatives from 1990 to 2000. Bill count is shown in blue bars (left axis) and share passed is shown in the red line (right axis).

(b) shows the reduction in average Mexican tariffs by district, $\Delta\tau_r^{Mex}$, again grouping districts by quintiles. Districts shown in light red were in the bottom quintile of the distribution of Mexican tariff changes, while districts in dark red were in the top quintile.

Figure 1 highlights two main facts. First, the NAFTA tariff reductions are distributed widely across the continental US. This suggests our research design will not simply capture differential trends in political conditions across broad regions, such as Eastern vs. Western states or coastal vs. inland districts. Second, there is variation in the relative exposures of districts to the US and Mexican tariff reductions, which we exploit to estimate the effects of both import and export liberalization.

To highlight how environmental RCVs changed during our period of study, Figure 2 shows trends in the number of environmental bills that were put forth for an RCV in the House and their outcomes over time. The number of bills put up for an RCV ranges from five to sixteen per year, with an annual average of just under ten and a slight increase over time. Most notable is the stark reduction in the share of bills that passed a simple majority after NAFTA's introduction. Between 1990 and 1993, between 50% and 80% of environmental bills passed a simple majority. Following the implementation of NAFTA, however, this share fell immediately to below 50%, and declined each year until 1997, hovering near 25% for the rest of our sample. In the analysis that follows, we attempt to determine how much of this change is in fact due to NAFTA by exploiting the geographic variation in exposure to NAFTA across Congressional districts.

4 Results

4.1 Environmental Roll Call Votes in the House of Representatives

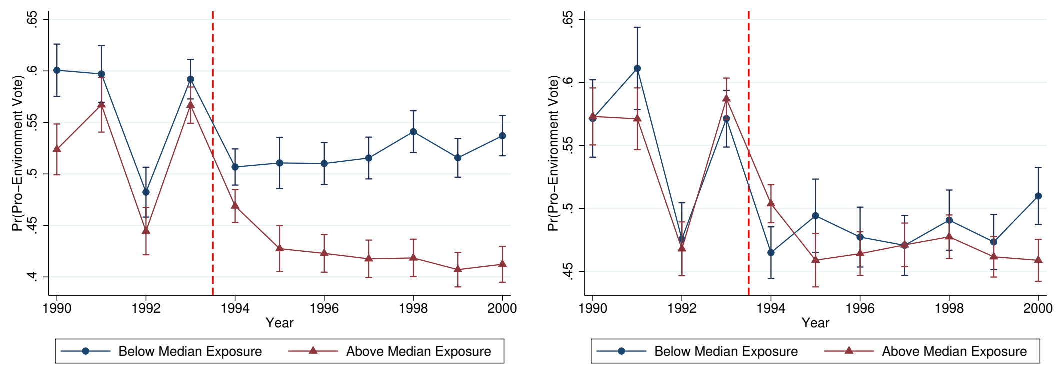
Given our difference-in-difference research design, we begin our analysis with a simple exercise in which we divide districts into two groups based on the magnitude of their average tariff changes (above and below median reductions), and plot the share of pro-environment roll call votes in each year by the districts that comprise these two groups over our period of study. Our purpose for doing so is to provide a simple test of our research design; if NAFTA did, in fact, affect voting on environmental bills in the US House of Representatives, then we should observe distinct changes in voting patterns across these two groups after the agreement went into effect on January 1, 1994.

The results of this exercise are displayed in Figure 3. Panel (a) shows how the share of pro-environmental votes changed over time for districts that experienced relatively high and low changes in US import tariffs, while panel (b) shows the corresponding changes for Mexican tariffs. In both panels, the voting pattern of districts that experienced below- and above-median tariff changes are depicted with blue and red lines, respectively.

The results of this exercise lend confidence to our research design, and provide suggestive evidence that changes in US tariffs due to NAFTA affected federal environmental policy in the United States. As panel (a) of Figure 3 shows, while there were small level differences in the likelihood of a pro-environment vote across districts that experienced large and small changes in US tariffs, the trends in voting across the two groups followed a similar pattern prior to 1994. After NAFTA's enactment, the trends appear to diverge due to reductions in the pro-environmental votes of districts that are highly exposed to the US tariff reductions. In contrast, panel (b) of Figure 3 suggests Mexican tariff changes did little to affect the formation of environmental policy in the United States, as there are no meaningful differences in the likelihood of a pro-environmental vote across districts

Figure 3: House Pro-Environment Voting Over Time

(a) House Votes & US Import Tariff Changes (b) House Votes & Mexican Tariff Changes



Notes: Figure shows the annual share of pro-environment roll call votes on environmental bills in the House of Representatives from 1990 to 2000. Panel (a) and Panel (b) show the plots by the size of each district's change in US import tariffs and Mexican tariffs, respectively. In Panel (a), the blue line (circles) shows voting patterns for districts that receive a below-median change in import tariffs and the red line (triangles) shows voting patterns for districts that receive an above-median change in import tariffs. In Panel (b), the blue line (circles) shows voting patterns for districts that receive a below-median change in Mexican tariffs and the red line (triangles) shows voting patterns for districts that receive an above-median change in Mexican tariffs. In both panels, whiskers display 95% confidence intervals.

that experienced large and small changes in Mexican tariffs before or after NAFTA.

While Figure 3 is suggestive of NAFTA's effects on pro-environmental voting, it does not fully exploit the variation in tariff changes created by trade liberalization. As such, as the next step in our analysis we present estimates of the average effects of the reductions in US import tariffs and Mexican tariffs using our main empirical specification.

These estimates are displayed in Table 2, which reports the coefficient estimates from four empirical specifications based on Equation (1). Column (1) reports estimates from our simplest specification, which only includes district and year fixed effects. The specification reported in column (2) includes initial district NAAQS non-attainment status interacted with year fixed effects to account for the effects of the CAA. Column (3) includes initial district-characteristics interacted with year fixed effects to account for the possibility of differential trends across districts due to systematic differences in demographics and industrial composition. Finally, our baseline specification, reported in column (4), simultaneously includes initial district CAA non-attainment status and characteristics interacted with year fixed effects. In all four columns, standard errors two-way clustered by state and bill are reported in parentheses.

The estimates presented in Table 2 indicate that reductions in US import tariffs after NAFTA decreased support for environmental policy. For example, our baseline estimate, reported in column (4), indicates that a 1 pp decrease in US import tariffs reduced the likelihood of a pro-environment vote in affected congressional districts by 14 pp. Given

Table 2: The Effects of NAFTA on House Roll Call Votes

	(1)	(2)	(3)	(4)
$\Delta\tau_r^{USA}$ x Post$_t$	-0.113^a	-0.114^a	-0.140^a	-0.140^a
	(0.039)	(0.039)	(0.046)	(0.046)
$\Delta\tau_r^{Mex}$ x Post$_t$	-0.007	-0.007	-0.013	-0.014
	(0.010)	(0.011)	(0.009)	(0.009)
CAA Trends		X		X
Charac. Trends			X	X
R^2	0.33	0.33	0.34	0.34
Obs.	51956	51956	51956	51956

Notes: Table shows results of the reductions in US import tariffs and Mexican tariffs on roll call votes on environmental bills in the House of Representatives between 1990 and 2000. The dependent variable in all regressions is an indicator for whether the roll call vote cast by a representative on a particular bill is pro-environment. All regressions include congressional district and year fixed effects. Column (1) shows the results of a simple difference-in-difference regression. Column (2) controls for the effects of the Clean Air Act with initial district non-attainment status trends. Column (3) includes district baseline characteristic trends. Column (4) is our baseline specification, which includes all additional controls and fixed effects. Standard errors two-way clustered by state and bill are shown in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

that the average district in our data faced an import tariff reduction of 0.26 pp, this estimate implies that NAFTA's import liberalization decreased the likelihood that an affected representative cast a pro-environment vote by 3.6 pp, on average. In contrast, the change in Mexican tariffs appears to have caused a relatively small and statistically insignificant change in support for environmental policy. Our baseline estimate indicates that a 1 pp decrease in Mexican tariffs decreased the likelihood of a pro-environment vote in affected congressional districts by 1.4 pp. As the average district faced a Mexican tariff reduction of 1.13 pp, this estimate means that the tariff reduction decreased the likelihood of a pro-environmental vote by 1.6 pp, although this effect is not statistically significant at conventional levels.

4.1.1 Robustness

We probe the robustness of our results along several dimensions. For brevity, we briefly describe these tests here, and relegate a full discussion to the online appendix.

We begin by examining other potential explanations for our results. First, we examine whether our estimates are capturing the effects of other episodes of trade liberalization, particularly the ongoing effects of the Canada-US Free Trade Agreement (CUSFTA), changes in Most Favored Nation tariffs, and increased trade with China. We then examine whether our results are capturing the effects of other factors that may affect voting on environmental RVCs, including the alignment between a representative and the party in power in the House, Senate, and Presidency, idiosyncratic aspects of specific bills, differential voting incentives in election years, differential trends across Census Divisions, pre-existing industrial decline, and pre-existing differences in political conditions across districts. The results from these tests, reported in Online Appendix B, indicate that our baseline estimates are not capturing the effects of other factors.

Next, we examine whether our baseline estimates are capturing differential trends in outcomes across districts. Although the data plotted in Figure 3 provides suggestive evidence to the contrary, we further examine this possibility by estimating an event-study version of our baseline specification. These results, presented in Online Appendix B, corroborate the evidence presented in Figure 3; they suggest that our baseline estimates are not simply capturing pre-existing differences in trends across districts.

We next show that our results are robust to several sample restrictions, including to account for the effects of redistricting, districts that experience increases in average Mexican tariff rates, and legislators that abstain from casting an RCV, as well as omitting bills that include non-environmental provisions, are subject to multiple RCVs, or are related to fossil fuels. The results of these sample restrictions, shown in Online Appendix B, all support our main findings.

We then turn to examine whether NAFTA also altered the set of bills that are subject to an RCV in the House. While we do not believe this is a major concern in our setting because we focus on RCVs used by the LCV to construct their Environmental Scorecard and the LCV is explicit in considering "the most important issues of the year" ensuring our sample only includes meaningful environmental bills, if tariff changes systematically alter the bills that are proposed, then our estimates may be biased due to a selection effect. We examine this possibility in two ways. First, we use data on the full set of bill proposals in the House between 1990 and 2000 to examine whether NAFTA affected the likelihood with which a congressperson introduced a new environmental bill. Second, we examine NAFTA's effect on the complexity of environmental bills by following an approach used in political science (e.g. Davidson et al. (1988)) and measuring complexity as the number of committee referrals received by each bill. As we show in Online Appendix C, the results from these exercises suggest bill selection is not of material importance for our analysis. We find that NAFTA had statistically insignificant and economically small effects on both bill proposals and on the likelihood that a new environmental bill was referred to multiple committees.

Lastly, we investigate whether our estimates are biased due to our reliance on a two-way fixed effect estimator to implement our research design. To ensure this is not a cause for concern, we implement our research design using the DID_l estimator proposed by de Chaisemartin and D'Haultfœuille (2020), which is robust to the presence of treatment-heterogeneity and dynamic treatment effects when treatment is both non-staggered and non-binary. As we show in Online Appendix D, this alternative implementation leaves our baseline result – that reductions in US import tariffs caused a reduction in the likelihood of a pro-environmental vote – unchanged. The DID_l estimation results show that US tariff reductions caused a significant reduction in pro-environment RCVs in all years following NAFTA, with the magnitude of this effect growing throughout the decade. The placebo estimates produced by the DID_l estimator also provide further evidence that treated and control districts are not trending differently prior to NAFTA.

4.1.2 Economic Significance

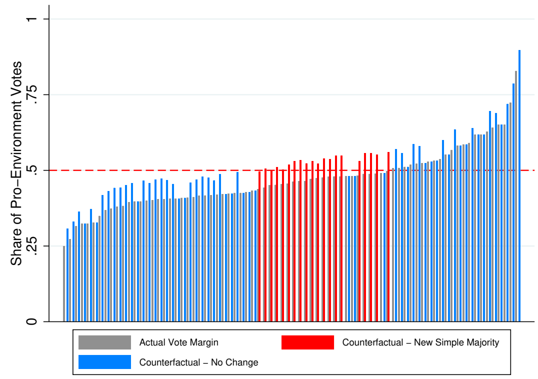
The estimates presented in Table 2 and in the online appendix provide robust evidence that reductions in US tariffs due to NAFTA significantly decreased the likelihood that a representative of an affected district casts a pro-environment roll call vote. Although the implied changes in voting behavior appear to be small, these small changes likely influenced the outcome of some roll call votes during our period of study, given that the average likelihood of a pro-environmental vote in our sample is 0.49. To further assess this possibility, we perform a simple, back-of-the-envelope counterfactual exercise in which we use the event study coefficient estimates reported in Figure B.2 of the online appendix to construct estimates of the proportion of pro-environmental votes that would have prevailed on each environmental bill in the absence of NAFTA.

To illustrate this simple counterfactual, consider an environmental bill b voted on in year t. Let the actual share of votes cast in favor of the environment on b be given by $S_b = \frac{1}{N}\sum_r y_{brt}$, where N is the number of districts and y_{brt} is an indicator for whether the vote cast on that bill by the representative for district r was pro-environment. Our estimates of a 1 pp reduction in US import tariffs and Mexican tariffs on the probability of voting pro-environment in year t from the event study version of Equation (1) reported in Online Appendix B are, respectively, $\hat{\beta}^t_{USA}$ and $\hat{\beta}^t_{Mex}$. This, paired with district-level information on the NAFTA tariff reductions, means we can construct an estimate of the share of votes that would have been cast in favor of the environment on b, absent NAFTA. This counterfactual vote share is given by $\hat{S}_b \equiv S_b - \hat{\beta}^t_{USA}\frac{1}{N}\sum_r \Delta\tau_r^{USA} - \hat{\beta}^t_{Mex}\frac{1}{N}\sum_r \Delta\tau_r^{Mex}$. We calculate these counterfactual vote shares for each environmental bill voted on in the House between 1994 and 2000.[25]

The results of this exercise are shown in Figure 4, which displays the actual share

[25]So as to be conservative in our assessment, we set any estimate of β^t_{USA} or β^t_{Mex} that is not statistically significant at the 95% level equal to zero. Our results are similar if we relax this assumption.

Figure 4: Counterfactual Bill Outcomes, 1994-2000



Notes: Figure shows the results of an exercise assessing NAFTA's effects on the support of environmental bills in the US House of Representatives. The figure plots actual and predicted vote shares for the pro-environment side on each bill. The share of actual roll call votes cast in favor of the environment on each bill is shown in gray bars. Counterfactual estimates of the share of roll call votes that would have been cast in favor of the environment on each bill if NAFTA had not been implemented are shown in the colored bars. Blue bars indicate the "status" of the bill would not have changed without NAFTA. Red bars indicate that the pro-environment side of the bill would have received majority support without NAFTA. The dashed red line shows the cut-off for a simple majority.

of pro-environmental votes for each bill in our sample during the post-NAFTA period (1994-2000), as well as the counterfactual vote share that would have prevailed in the absence of the agreement. In the figure, the actual vote share for each bill is depicted in gray, while the corresponding counterfactual vote share is depicted in either blue or red. The blue counterfactual vote shares depict counterfactual changes that would not have impacted whether the pro-environment side of the bill received majority support in the House, whereas the red counterfactual vote shares depict counterfactual changes that would have altered a bill's passage. As the figure shows, of the 79 environmental RCVs that were considered in the post-NAFTA period, the pro-environment side of only 23 received majority support. Our counterfactual estimates imply that in the absence of NAFTA, the pro-environment side of an additional 20 votes would have received majority support. This suggests that nearly 36 percent of the "failed" pro-environmental RCVs would have received majority support if NAFTA had not been enacted.

4.2 NAFTA and Concerns Over Industrial Flight

Thus far, we have shown that reductions in US import tariffs as a result of NAFTA significantly reduced support for new environmental legislation in the US House of Representatives. We now turn to ask if this result can be rationalized as a result of concerns that "dirty" industries – those for which complying with environmental regulation comprises a significant share of production costs – would relocate production to Mexico to take advantage of weaker environmental regulation. There are at least two reasons to believe this mechanism could explain our results. First, differences in the stringency of environmental regulation significantly affected the pattern of trade between the US and Mexico prior to NAFTA (Levinson and Taylor, 2008), meaning legislators would have had reason to be concerned that new or revised environmental legislation would result in industrial flight from their districts. Second, the threat of outsourcing in response to differences in environmental policy was a salient issue for much of the US public at the time. For example, 67% of respondents on a 1999 US opinion survey indicated that they believed companies that wanted to avoid the costs associated with high environmental standards would relocate to countries where standards were weak (Kull, 2000). Hence, one explanation for our results is that they are capturing the effects of legislators from affected districts altering their voting behavior in an effort to prevent industrial flight.

We test this hypothesis by examining if the effects of the NAFTA tariff reductions vary across districts on the basis of their initial specialization in relatively dirty industries for which the cost of abating pollution and complying with environmental regulation is relatively high. If legislators are motivated by concerns that passing environmental legislation would cause the relocation of dirty industry abroad, then the magnitude of the estimated effect of US tariff reductions should be larger in districts for which these industries comprise a relatively high share of economic activity. To test this formally, we estimate four regressions based on Equation (1) in which we allow the effects of the tariff cuts to vary across districts on the basis of whether the initial average cost of complying with environmental regulation for industries in the district is relatively high or low.

The results of this exercise are reported in the two panels of Table 3. Each panel of the table presents results using a different measure of the average cost of compliance with environmental regulation. In Panel (a) we follow the approach taken by Ederington et al. (2005) and measure the costs of complying with environmental regulation in each industry as the ratio of pollution abatement operating costs (PAC) to the total cost of materials. In Panel (b) we follow Levinson and Taylor (2008) and measure the costs of complying with environmental regulation as the share of PAC in industry value added. In both cases, we measure a district's average cost of compliance with environmental regulation as the employment weighted share of 1990 industry compliance costs using 1990 industry employment shares as weights.[26] In the first column of each panel, we classify districts as having relatively high or low compliance costs (High and Low PAC, respectively) if the average costs of complying with environmental regulation are above

[26]We obtain industry PAC data from the 1990 Pollution Abatement Cost and Expenditure survey conducted by the US Census Bureau, and data on total materials costs and value added by industry from the NBER-CES Manufacturing Industry Database Bartelsman and Gray (1996).

or below that of the average district. Similarly, in the second column of each panel, we classify districts as having High or Low PAC if the average costs of complying with environmental regulation are above or below that of the median district.

As the results reported in Table 3 show, the estimated effects of the reduction in US import tariffs following NAFTA in High PAC districts appear to be similar in magnitude to those in Low PAC districts, regardless of measurement. For example, the estimates reported in column (1) of the table indicate that a 1 pp decrease in US import tariffs reduced the likelihood of a pro-environment vote in affected High PAC districts by 13.1 pp and by 14.2 pp in Low PAC districts. Moreover, these estimates are not statistically different from each other, and the same is true for the estimates reported in the remaining columns of the table. This pattern stands in stark contrast to that which would arise if legislators were motivated by the potential relocation of dirty industries; if it were the motivating concern, the estimated effects of the US import tariff reductions should be largest in High PAC districts. As such, the estimates reported in Table 3 suggest our baseline results are not due to legislators responding to concerns over industrial flight.

4.3 NAFTA and the Demand for Environmental Policy

Given that our baseline estimates do not appear to be a product of a concerns over industrial flight, we next turn to examine if they can be rationalized as a result of legislators altering their voting behavior in response to trade-induced changes in the policy preferences of their constituents. There is strong reason to believe that this mechanism may be underlying our findings, as trade has long been thought to alter the level of environmental policy demanded by affected individuals. This hypothesis stems from the pioneering work of Grossman and Krueger (1991), who argued that if environmental quality is a normal good, then the changes in incomes and pollution levels brought about by trade will alter the public's demand for environmental policy. Thus, the responses of incumbent legislators documented in Table 6 could simply reflect changes in the demand for environmental policy induced by trade liberalization.

We explore this possibility in two ways. First, we take a direct approach and use survey data to examine NAFTA's effects on the stated policy views of voters. However, given that individuals could misrepresent their preferences in surveys, we also adopt an indirect approach for inferring changes in the demand for environmental policy. This approach is informed by models of trade and the environment that formalize the intuition outlined by Grossman and Krueger (1991) and allow for endogenous environmental policy changes in response to trade (e.g. Copeland and Taylor (1994, 1995)). These models

Table 3: The Effects of NAFTA on Roll Call Votes in High and Low Pollution Abatement Cost Districts

	Panel (a): PAC/Materials Costs		Panel (b): PAC/Value Added	
	(1)	(2)	(3)	(4)
$\Delta\tau_r^{USA}$ x Post_t				
x High PAC	-0.131	-0.088	-0.110	-0.113[c]
	(0.082)	(0.069)	(0.075)	(0.063)
x Low PAC	-0.142[a]	-0.162[a]	-0.149[a]	-0.151[a]
	(0.053)	(0.057)	(0.050)	(0.054)
$\Delta\tau_r^{Mex}$ x Post_t				
x High PAC	-0.015	-0.025	-0.018	-0.018
	(0.022)	(0.020)	(0.017)	(0.015)
x Low PAC	-0.014	-0.015	-0.015	-0.015
	(0.010)	(0.010)	(0.009)	(0.010)
R^2	0.34	0.34	0.34	0.34
Obs.	51956	51956	51956	51956

Notes: Table reports estimates of the effects of the NAFTA tariff reductions on roll call votes in the House of Representatives allowing the effects to vary across districts on the basis of their average costs of complying with environmental regulation. The dependent variable in all regressions is an indicator of whether the roll call vote cast by a representative on a particular bill is pro-environment. In Panels (a) and (b), the cost of complying with environmental regulation are measured as the ratio of PAC to the total cost of materials, and the ratio of PAC to value added, respectively. In the first column of each panel, districts are classified as having relatively high or low compliance costs (High and Low PAC, respectively) if the average costs of complying with environmental regulation are above or below that of the average district. In the second column of each panel, districts are classified as having High or Low PAC if the average costs of complying with environmental regulation are above or below that of the median district. All regressions include district and year fixed effects, as well as controls for the effects of the Clean Air Act and differential trends in baseline characteristics. Standard errors two-way clustered by state and bill are shown in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by [a], [b], and [c], respectively.

suggest that the demand for environmental policy is determined by real incomes and environmental quality. Given this, we examine NAFTA's effects on average income levels and environmental conditions to see if they change in a manner that would suggest that the demand for environmental policy changed, at least in theory.

We investigate NAFTA's effects on voters' stated views on environmental policy using data from the American National Election Studies (ANES) survey from 1990 to 2000.[27] The ANES surveyed between 1,300 and 2,500 individuals in each federal election year. As part of this survey, respondents are asked about their ideology, views on many policy issues, demographic characteristics, and for their congressional district.

We use the ANES data to construct a measure of each voter's support for environmental policy. Specifically, we create an indicator of whether the respondent thought the federal government should increase spending to improve and protect the environment.

[27]The ANES is a national survey that has been run each election since 1948. It has been used in many economics and political science studies, including Gentzkow (2006) and Charles and Stephens Jr. (2013).

While the ANES includes other questions related to environmental issues, we focus on environmental spending because this question was asked consistently throughout our period of study, making it possible to examine how responses changed as a result of trade liberalization following NAFTA.

We examine NAFTA's effects on income levels and environmental conditions using annual county-level data from 1990 to 2000.[28] We obtain these data from two main sources. We measure average income levels using data on income per capita from the Bureau of Economic Analysis. We measure local environmental conditions using data on the average annual daily concentration of total suspended particulates (TSPs) collected from the Environmental Protection Agency.[29]

We estimate the effects of NAFTA's tariff cuts on stated support for environmental policy in affected districts, and on county per-capita incomes and ambient TSP concentrations using specifications analogous to Equation (1). Two key differences bear mention. First, in our direct approach that relies on ANES surveys, we supplement our specifications with respondent demographic-by-year and demographic-by-region fixed effects to account for the possibility of differential trends across different groups of voters. Specifically, we allow for trends by gender, age group, race, education level, family income level, and number of children.[30] We also weight these regressions using the ANES sample weights. Second, as our measures of pollution and income are reported at the county level, in our indirect approach we estimate the following regression:

$$z_{ct} = \alpha_0 + \alpha_{USA} \left[\Delta\tau_c^{USA} \text{ x } \text{Post}_t \right] + \alpha_{Mex} \left[\Delta\tau_c^{Mex} \text{ x } \text{Post}_t \right] + \varphi_c + \psi_t + e_{ct}, \tag{4}$$

where z_{ct} is either the level of income per capita or natural log of the annual average daily TSP concentrations in county c in year t, $\Delta\tau_c^{USA}$ and $\Delta\tau_c^{Mex}$ are the county analogues to Equation (2) and Equation (3), respectively, and φ_c and ψ_t are county and year fixed effects.[31] As such, α_{USA} and α_{Mex} measure changes in the outcome of interest in response

[28] We perform this analysis at the county, rather than district, level as regional economic data is not publicly available for congressional districts. An alternative approach would be to use the Geocorr crosswalk to convert county economic data to the district level. However, as we use this same crosswalk to construct our district-level tariff cut measures, doing so would introduce non-classical measurement error. As such, we opt to perform this analysis at a finer level of geographic aggregation. For consistency, we also perform our analysis of air quality at the county level.

[29] We focus on particulate matter as it poses considerable health consequences and has been previously studied in the context of NAFTA (Cherniwchan, 2017). Furthermore, we use TSPs as our measure of particulate matter because it was consistently monitored over our sample period. However, it is worth noting that we restrict our analysis of TSPs to county-years that contain a valid air quality monitor reading.

[30] We also include similar controls for interviewer characteristics in these regressions to allow for the possibility of differential trends across voters owing to differences in the characteristics of interviewers.

[31] We employ the log transformation for TSPs to address the underlying skewness in its distribution.

to a one pp reduction in average USA import tariffs and Mexican tariffs, respectively.

The results of the direct and indirect analyses are reported in the three panels of Table 4. Panel (a) reports estimates of the effects of the NAFTA tariff cuts on voters' stated support for environmental policy, while panels (b) and (c) report the corresponding estimates for income per capita and ambient pollution concentrations, respectively. In each panel, the first column reports a specification analogous to our "simple" specification reported in Table 2; panel (a) includes district and year fixed effects, as well as voter and interviewer characteristic trends, while panels (b) and (c) include county and year fixed effects. The second column in each panel is our baseline specification, which also accounts for differential trends due to environmental regulations and regional characteristics. In all cases, standard errors clustered by state are reported in parentheses.

The estimates reported in panel (a) indicate that reductions in US tariffs significantly reduced support for environmental policy among voters. Our preferred specification, reported in column (2), indicates that a 1 pp US tariff reduction reduced the likelihood of a respondent agreeing that the federal government should increase spending on environmental protection by 14 pp. In contrast, reductions in Mexican tariffs have a much smaller effect on stated support; a 1 pp Mexican tariff reduction only reduced the likelihood of a respondent agreeing that the federal government should increase spending on environmental protection by 2.4 pp, although this effect is imprecisely estimated. Moreover, this pattern is capable of rationalizing the estimates presented in Table 2; it suggests that NAFTA-induced changes in constituent policy demands are driving legislator responses on environmental RCVs.[32]

Together, the estimates reported in panels (b) and (c) yield similar conclusions. These estimates indicate that, on average, reductions in US import tariffs decreased per capita incomes and TSP concentrations in affected counties. For example, our estimate in column (4) indicates that a 1 pp reduction in US import tariffs decreased per capita incomes in affected counties by $115, while the estimate in column (6) indicates that a 1 pp reduction in US import tariffs reduced TSP concentrations in these counties by 4%. As the average county received a 0.54 pp tariff reduction, this suggests that the US import tariff reductions caused per capita incomes in affected counties to fall by just over $62 per year, and TSP concentrations in these counties to decrease by just under 2.2%. When interpreted through the lens of models in which the demand for environmental policy is determined by income levels and environmental quality, these estimates suggest that constituent demand for environmental policy should fall, as the willingness to pay for

[32]In Online Appendix E, we present estimates from an event-study specification of the effects of tariff reductions on voter views on the environment and find no evidence of pre-trends.

Table 4: The Effects of NAFTA on the Demand for Environmental Policy

	Panel (a): Support for Env. Prot'n		Panel (b): Income Per Capita		Panel (c): ln(TSP)	
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta\tau_r^{USA}$ x Post_t	-0.062[b]	-0.140[b]	-156.509[a]	-114.916[a]	-0.030[a]	-0.040[a]
	(0.025)	(0.059)	(40.256)	(41.586)	(0.010)	(0.012)
$\Delta\tau_r^{Mex}$ x Post_t	-0.012	-0.024	9.851[c]	2.628	0.010[a]	0.008[b]
	(0.018)	(0.017)	(5.392)	(5.293)	(0.003)	(0.003)
CAA Trends		X		X		X
Charac. Trends		X		X		X
R^2	0.20	0.20	0.95	0.96	0.88	0.89
Obs.	7766	7766	33143	33143	1973	1973

Notes: Table shows results of the NAFTA tariff reductions on stated views on environmental policy (Panel (a)), local economic conditions (Panel (b)), and local environmental conditions (Panel (c)). The dependent variable in Panel (a) is an indicator for whether a survey respondent believes the federal government should increase spending on environmental protection. Data is taken from the American National Election Studies (ANES) survey. The dependent variable in Panel (b) is the county's average income per capita. Data is taken from the Bureau of Economic Analysis's Regional Economic Accounts. The dependent variable in Panel (c) is the natural log of the county's median daily ambient total suspended particulate concentration. Data is taken from the Environmental Protection Agency's Air Quality System. All regressions in Panel (a) include congressional district fixed effects, year fixed effects, and voter and interviewer characteristic trends, and are weighted by the ANES sample weights. All regressions in Panels (b) and (c) include county and year fixed effects. In each Panel, the first column shows the result of a difference-in-difference regression without regional economic, regulatory, and demographic trends, the second column adds in these regional trends based on baseline conditions in districts (Panel (a)) or counties (Panels (b) and (c). Standard errors clustered by state are reported in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by [a], [b], and [c], respectively.

improvements in environmental quality will decrease if either incomes or ambient pollution levels decrease. Our estimates also suggest that reductions in Mexican tariffs should have little effect on the demand for environmental quality, as they had little effect on per-capita income levels, but caused a very small increase in ambient TSP concentrations.[33]

4.4 NAFTA and Partisan Representation

The estimates presented above suggest trade-induced changes in constituent preferences for environmental policy may explain why affected legislators altered their votes on environmental RCVs following NAFTA. However, a plausible alternative hypothesis is that our baseline estimates are instead a product of trade-induced changes in the partisan representation of affected districts for reasons unrelated to environmental policy. There is reason to believe that this could be the case. Previous work has shown that the environment is a partisan issue; Republican legislators are less likely to support environmental legislation than their Democratic counterparts (e.g. Nelson (2002), Kim and Urpelainen

[33]In Online Appendix E, we present the corresponding event-study estimates, which indicate pre-trends in per capita incomes or TSP concentrations are not a concern.

(2017)). Moreover, research by Choi et al. (2021) indicates that NAFTA increased support for Republicans due to their position as the protectionist party around the time of the agreement. As a result, our baseline estimates need not reflect trade-induced changes in views on environmental policy; they could instead be an incidental byproduct of affected constituents electing Republicans due to their views on protectionism.

We examine the veracity of this alternative hypothesis by studying the effects of the NAFTA tariff cuts on electoral outcomes. If our baseline estimates can be rationalized as a product of trade-induced changes in political representation, then we should observe that reductions in US tariffs lead to the election of more Republican legislators, whereas reductions in Mexican tariffs have little-to-no effect on electoral outcomes. As such, we study NAFTA's effects on electoral outcomes along two margins: the party of the elected representative, and the "flipping" of districts from one party to another.

To do so, we adopt a variant of our research design and estimate the effects of the NAFTA tariff cuts on electoral outcomes from the 102^{nd} to 106^{th} congresses using data on electoral results from the MIT Election Data Lab. Specifically, we estimate:

$$v_{rl} = \delta_0 + \delta_{USA}\left[\Delta\tau_r^{USA} \text{ x Post}_l\right] + \delta_{Mex}\left[\Delta\tau_r^{Mex} \text{ x Post}_l\right] + \lambda_r + \eta_l + e_{rl}, \tag{5}$$

where v_{rl} is a measure that reflects the outcome of the election in House district r and congressional election l, η_l is an election fixed effect, δ_{USA} and δ_{Mex} are our estimates of the effects of a 1 pp reduction in US import and Mexican tariffs, respectively, on the likelihood of a particular electoral result, and all other variables are as defined in Equation (1). v_{rl} is either an indicator for whether the representative elected is in the Republican party, an indicator for whether the district changed parties as a result of the election, an indicator of whether the district changed from Republican to Democrat, or an indicator of whether the district changed from Democrat to Republican.

Our coefficient estimates from Equation (5) are reported in Table 5. For each dependent variable, we report results from two specifications: the first is analogous to our "simple" specification from Table 2 and only includes district and election fixed effects, while the second corresponds to our baseline specification and includes district characteristic and CAA non-attainment status trends. In the table, columns (1) and (2) display the effects of the NAFTA tariff cuts on the likelihood of a Republican being elected, where the dependent variable is an indicator reflecting whether the elected representative is a member of the Republican party. Columns (3) through (8) report the effects of the NAFTA tariff cuts on the likelihood of a Congressional district changing partisan representation, examining three different dependent variables. The dependent variable

Table 5: The Effects of NAFTA on Electoral Outcomes

	Pr(Repub.)		Pr(Change Party)		Pr(Change Rep. to Dem.)		Pr(Change Dem. to Rep.)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta\tau_r^{USA}$ x Post_t	0.249^a	0.260^a	0.133^a	0.146^a	-0.003	0.021	0.097^a	0.113^a
	(0.063)	(0.084)	(0.039)	(0.052)	(0.023)	(0.032)	(0.027)	(0.035)
$\Delta\tau_r^{Mex}$ x Post_t	-0.001	0.002	0.019	0.013	0.002	-0.000	0.013	0.015
	(0.016)	(0.015)	(0.014)	(0.014)	(0.008)	(0.008)	(0.011)	(0.012)
CAA Trends		X		X		X		X
Charac. Trends		X		X		X		X
R^2	0.72	0.75	0.28	0.30	0.21	0.22	0.20	0.21
Obs.	2133	2133	2133	2133	2133	2133	2133	2133

Notes: Table shows results of the NAFTA tariff reductions on results of elections in the House of Representatives for the 102nd to the 106th congress. The dependent variable in Columns (1) and (2) is an indicator for whether the representative elected is a member of the Republican party. The dependent variable in Columns (3) and (4) is an indicator for whether the district changed party in the last election. The dependent variable in Columns (5) and (6) is an indicator for whether the district changed from the Republican to Democratic party in the last election. The dependent variable in Columns (7) and (8) is an indicator for whether the district changed from the Democratic to Republican party in the last election. All regressions include district and year fixed effects, and regressions in Columns (2), (4), (6), and (8) also include district baseline characteristic and CAA non-attainment trends. Standard errors clustered by state are shown in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

in columns (3) and (4) is an indicator for whether the district changed parties from the last to current election. The dependent variable in columns (5) and (6) is an indicator for whether the district changed from a Republican representative to a Democratic representative. The dependent variable in columns (7) and (8) is an indicator for whether the district changed from a Democratic representative to a Republican representative. In all cases, standard errors clustered by state are reported in parentheses.

The estimates presented in Table 5 suggest that the reductions in US import tariffs following NAFTA led to considerable changes in political representation. The estimate in the first row of column (2) indicates that a 1 pp reduction in US tariffs increased the probability of a district electing a Republican by 26 pp. In contrast, the reduction in Mexican tariffs had almost no effect on representation, with a 1 pp reduction in Mexican tariffs leading to a 0.2 pp increase in the probability of a Republican being elected, although this effect is not significant at conventional levels.

In addition, the estimates presented in columns (3) to (8) of Table 5 indicate that this change in representation was the result of Democratic districts electing Republicans. For example, the result in column (4) shows that the reduction in US tariffs increased the likelihood of a district flipping, while reductions in Mexican tariffs had no effect. Columns (6) and (8) indicate that this flipping primarily benefited the Republican party. The estimate in column (8), for example, shows that a 1 pp reduction in US import tariffs increased the likelihood a district switched from Democrat to Republican by 11.3 pp, while the estimate in column (6) indicates that the US tariff change had no significant effect on the likelihood a Republican district switched to a Democrat. Moreover, NAFTA's effect on Democrat-to-Republican switching was economically meaningful. Multiplying the coefficient estimate in column (8) by the average district US tariff reduction suggests that NAFTA increased these district switches by 2.9 pp. Over our entire sample, the odds of a Democrat-to-Republican switch is 5.9 pp, indicating that the effects of the NAFTA tariff reductions following NAFTA explain just under 50% of the observed district switches between 1990 and 2000. This suggests that changes in partisan representation could have had a material impact on the outcomes of environmental RCVs.[34]

4.5 The Demand for Environmental Policy vs. Partisan Representation

The estimates reported in Sections 4.3 and 4.4 suggest that our main finding – that reductions in US import tariffs caused a reduction in support for new environmental legislation in the US House of Representatives – could be rationalized via two starkly different mechanisms: (i) incumbent politicians responding to trade-induced changes in the demand for environmental policy, and (ii) trade-induced changes in partisan representation. As they have very different implications for how international trade affects the formation of environmental policy, as well as other domestic policies, we now turn to assess the extent to which our main estimates can be attributed to these mechanisms.

To do so, we estimate a series of regressions based on Equation (1) in which we allow the effects of the tariff cuts to vary by either the political party of the district's representative or an indicator of the representative's political ideology as an alternative measure of partisanship.[35] In each case, we estimate three regressions. The first is analogous to our baseline specification reported in Table 2, and uses our full sample of data. Since our unit of observation for this specification is a district-year pair, these estimates potentially capture both the responses of incumbents as well as changes in political representation. As such, we supplement the second regression with representative fixed effects to isolate NAFTA's effects on incumbent voting behavior. As an alternative to this approach, our third regression again estimates a specification analogous to our baseline specification, but restricts the sample to the set of districts that are represented by a single, "con-

[34]In Online Appendix E, we present the corresponding event-study estimates.

[35]We adopt a common measure of legislator ideology used in political economy and political science (Poole and Rosenthal, 1997): a legislator's DW-Nominate score. This score is calculated using each legislator's vote on all House bills throughout their career. The score is a rating on a Liberal-to-Conservative scale, with a range of -1 (the most Liberal) to +1 (the most Conservative). We use the DW-Nominate score to label representatives as either Liberal (a negative score) or Conservative (a positive score).

tinuing," incumbent legislator throughout our period of study. Although endogenous, this restriction allows us to purge our estimates of any partisan switching. If NAFTA primarily affects RCVs by changing affected incumbent legislators' support for the environment, then our estimates should be closely aligned across all three regressions.

The results from this exercise reported in Table 6. Panel (a) displays the effects of NAFTA, interacting both the change in US and Mexican tariffs with an indicator that reflects the party (i.e. Republican or Democrat) of the district's representative. Panel (b) also reports the effects of NAFTA, instead interacting both tariff changes with indicators capturing the ideology (i.e. Conservative or Liberal) of the district's representative. In each panel, the estimates of the effect of changes in US tariffs on pro-environmental voting by legislators from districts that are represented by Republicans (panel (a)) or Conservatives (panel (b)) are reported in the first row. The second row reports these estimates for districts represented by Democrat (panel (a)) or Liberal (panel (b)) legislators. The results in the third and fourth rows display analogous estimates for the effects of the Mexican tariff changes. Each panel reports results from the three specifications described above, starting with the regression for the full sample of districts, then adding representative fixed-effects, and finally estimating the initial regression with the set of districts the have continuing representatives only. In all cases, standard errors two-way clustered by state and bill are reported in parentheses.

The estimates reported in column (1) of panel (a) show that our baseline estimates of the effects of changes in both US import tariffs and Mexican tariffs mask considerable heterogeneity on the basis of a district's political representation. As the estimates reported in column (1) show, in districts represented by a Republican legislator, a 1 pp reduction in US tariffs reduced the likelihood of a pro-environment RCV by approximately 22 pp. Conversely, US tariff reductions had almost no effect in districts represented by a Democrat. Moreover, a 1 pp reduction in Mexican tariffs caused the representatives of Republican districts to reduce their support for environmental legislation by 6.6 pp, but caused the representatives of Democratic districts to increase the likelihood of voting pro-environment by 9.1 pp.[36]

The estimates reported in the first row of columns (2) and (3) suggest that the effects of US tariff reductions in Republican districts reported in column (1) are a product of changes in both political representation and voting by incumbent politicians. As column (2) shows, including legislator fixed effects causes our estimate of the effect of a change

[36]These differences across parties and ideologies are statistically significant. For example, a Wald test comparing the baseline import liberalization estimates (Column (1)) for Republicans to that for Democrats returns an F-statistic of 22.9 and a p-value of 0.00. A Wald test comparing the baseline export liberalization estimate for Republicans to that for Democrats returns an F-statistic of 38.31 and a p-value of 0.00.

Table 6: The Effects of NAFTA on Roll Call Votes by Party and Ideology

	Panel (a): Party			Panel (b): Ideology		
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta\tau_r^{USA}$ x Post_t						
x Rep./Cons.	-0.218^a	-0.095^b	-0.149^a	-0.225^a	-0.122^b	-0.154^a
	(0.047)	(0.043)	(0.042)	(0.053)	(0.052)	(0.047)
x Dem./Lib.	0.005	-0.011	-0.057	0.015	-0.004	-0.056
	(0.057)	(0.043)	(0.048)	(0.057)	(0.042)	(0.047)
$\Delta\tau_r^{Mex}$ x Post_t						
x Rep./Cons.	-0.066^a	-0.012	-0.047	-0.066^a	-0.010	-0.047
	(0.014)	(0.013)	(0.030)	(0.015)	(0.014)	(0.030)
x Dem./Lib.	0.091^a	0.008	0.002	0.089^a	0.006	0.005
	(0.019)	(0.023)	(0.027)	(0.017)	(0.022)	(0.027)
Leg. FEs		X			X	
Contin. Leg.			X			X
R^2	0.37	0.42	0.42	0.37	0.42	0.42
Obs.	51956	51955	16655	51956	51955	16655

Notes: Table shows results of the NAFTA tariff reductions on roll call votes in the House of Representatives allowing the effect of treatment to vary by either the party of the current representative or their ideology score. The dependent variable in all regressions is an indicator of whether the roll call vote cast by a representative on a particular bill is pro-environment. Panel (a) allows the effect of NAFTA to vary by the representative's party. Panel (b) allows the effect of NAFTA to vary by the representative's ideology, as measured by their DW-Nominate score (a positive score indicates conservative ideology and a negative score indicates a liberal ideology). All regressions include district and year fixed effects, and baseline district characteristic and CAA non-attainment status trends. The first column in each panel shows the results of our baseline analysis for our full sample. The second column adds legislator fixed effects, and is estimated on the set of legislators that cast more than one roll call vote in our sample. The third column eschews legislator fixed effects, but restricts the sample to legislators that hold their district for the entirety of our sample. The first row shows the effect of a reduction in US import tariffs for districts currently with a Republican or conservative representative. The second row shows the effect of a reduction in US import tariffs for districts currently with a Democratic or liberal representative. The third row shows the effect of a reduction in Mexican import tariffs for districts currently with a Republican or conservative representative. The fourth row shows the effect of a reduction in Mexican import tariffs for districts currently with a Democratic or liberal representative. Standard errors two-way clustered by state and bill are shown in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

in US tariffs in affected Republican districts to attenuate; a 1 pp reduction in US import tariffs reduced the likelihood of a pro-environmental RCV by 9.5 pp among Republican representatives.[37] As column (3) shows, adopting our alternative approach to assessing within-legislator responses to NAFTA yields similar conclusions. This estimate indicates that a 1 pp reduction in US import tariffs reduced the likelihood of a pro-environmental RCV by an affected incumbent Republican by 14.9 pp. Together these estimates suggest that the effects of changes in political representation and changes in incumbent voting are both substantial; they indicate that changes in incumbent voting explain 44-68% of the reduction in pro-environmental voting in Republican held districts.

[37]Note that, by necessity, representatives that participate in only one RCV over our sample are omitted from this regression. We lose one observation as a result.

In contrast, the estimates reported in the last two rows of columns (2) and (3) suggest that the effects of Mexican tariff reductions are entirely due to changes in political representation. The estimates of the effects of the Mexican tariff reductions reported in both columns are small and statistically insignificant, indicating that changes in incumbent voting behavior explains little of the observed effect. However, as the results in Table 5 indicate that voters responded to the reduction in US import tariffs as a result of NAFTA, but not to the reduction in Mexican tariffs, this suggests that the estimates in column (1) of Table 6 are driven by electoral churn unrelated to NAFTA.[38]

Panel (b) paints a similar picture to panel (a). For example, the estimated effects of reductions in US import tariffs appear to be concentrated in districts represented by ideological conservatives (Column (4)), with over half of the estimated effect being driven by changes in the voting behavior of incumbent conservative legislators (Columns (5) and (6)). Similarly, Mexican tariff reductions appear to have significantly impacted voting in both conservative and liberal districts (Column (4)), but these effects again appear to be entirely due to changes in political representation (Columns (5) and (6)).

4.5.1 NAFTA and the Demand for Environmental Policy: Redux

The estimates presented in Table 6 indicate that changes in the voting behavior of incumbent Republicans explain close to half of NAFTA's effects on the formation of environmental policy in the US. The results presented in Section 4.3 suggest that such changes are due to these legislators responding to the demands of their constituents. However, those estimates capture the average effect of tariff changes across all affected districts, meaning that they need not necessarily reflect changes in the demands of constituents in Republican districts. Given this, we examine whether the changes in the voting behavior of incumbent Republicans can still be rationalized as a product of trade-induced changes in the policy preferences of their constituents.

We do so by estimating a series of regressions analogous to our preferred specifications from Table 4, in which we allow the effects of the US and Mexican tariff cuts to vary on the basis of the political party of the district's (or county's) representative. These results are presented in Table 7. Panel (a) reports our estimates of NAFTA's effects on stated support for spending on environmental protection. Panels (b) and (c) report the corresponding estimates for income per capita, and ambient pollution concentrations, respectively. In each panel, the first column reports estimates for the full sample of

[38]Due to the stark differences in environmental support across parties, any district that changed from Democrat to Republican would likely see a large reduction in pro-environment RCVs, and any district that changed from Republican to Democrat would likely see a large increase, as we observe in column (1).

data; as a result, these estimates capture the average effects of US and Mexican tariff cuts across Democratic and Republican held districts (or counties, in panels (b) and (c)). The specification reported in the second column restricts the sample to the set of "continuing" districts (or counties) that are held by a single party (or legislator) throughout our period of study, while the third restricts the sample to the set of "non-continuing" districts (or counties) that change parties (or legislators) at least once during our period of study.[39] We include controls corresponding to the analogous preferred specification in Table 4, and standard errors clustered by state are reported in parentheses.

Three key findings emerge from Table 7. First, reductions in US tariffs caused a decrease in support for environmental policy in Republican represented districts and counties, and this effect is larger in incumbent districts and counties that were represented by the Republican party throughout our period of study. For example, our estimates indicate that a 1 pp reduction in US tariffs led to a 15.9 pp reduction in the likelihood a respondent supported increased spending on environmental protection across all Republican districts, but a 41.7 pp reduction in Republican districts in our continuing sample. Our estimates for income per capita and ambient pollution concentrations exhibit a similar pattern. This suggests that our finding that incumbent Republicans reduced their support for environmental policy in response to reductions in US tariffs can indeed be rationalized as a product of trade-induced changes in constituent preferences.

Second, reductions in US tariffs appear to have had, at most, a limited effect on the demand for environmental policy in our non-continuing sample, regardless of the district's party. For example, the estimates reported in column (3) indicate that a 1 pp reduction in US tariffs led to a 9.8 pp reduction in the likelihood a respondent supported increased spending on environmental protection in Republican districts and a 5.7 pp reduction in Democratic districts, although these estimates are not statistically significant at conventional levels. Our corresponding estimates for income per capita and ambient pollution concentrations are also small when compared with the estimates from our sample of continuing counties. These findings suggest that changes in constituent demands for environmental policy are unlikely to explain the observed shift toward the Republican party in response to NAFTA, a point to which we return in Section 4.5.2.

The third, and final, key finding that emerges from Table 7 is that reductions in US tariffs also appear to have reduced the demand for environmental policy amongst constituents represented by Democrats. For example, the estimate reported in the second row of column (1) indicates that a 1 pp reduction in US tariffs led to a 12.7 pp reduction

[39] As the ANES samples individuals from a subset of districts in each year, we define continuing districts as those represented by a single party, rather than single representative, over our sample.

Table 7: The Effects of NAFTA on the Demand for Environmental Policy, by Party

	Panel (a): Support for Env. Prot'n			Panel (b): Income Per Capita			Panel (c): ln(TSP)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\Delta\tau_r^{USA}$ x Post$_t$ x Rep.	-0.159^b	-0.417^a	-0.098	-109.199^b	-356.180^a	-72.201^c	-0.067^a	-0.131	-0.055^a
	(0.066)	(0.141)	(0.110)	(42.469)	(86.592)	(42.553)	(0.024)	(0.154)	(0.014)
$\Delta\tau_r^{USA}$ x Post$_t$ x Dem.	-0.127^b	-0.219	-0.057	-79.344^b	-201.638^a	-28.833	-0.046^b	0.046	-0.029^b
	(0.062)	(0.184)	(0.102)	(35.806)	(45.771)	(33.367)	(0.020)	(0.054)	(0.013)
$\Delta\tau_r^{Mex}$ x Post$_t$ x Rep.	-0.023	0.049	0.012	6.714	16.625^c	2.954	0.010^b	0.031	0.007
	(0.025)	(0.058)	(0.059)	(6.196)	(8.907)	(8.108)	(0.004)	(0.028)	(0.004)
$\Delta\tau_r^{Mex}$ x Post$_t$ x Dem.	-0.024	-0.024	0.013	-3.379	-13.996	-3.245	0.014^c	-0.077	0.007
	(0.017)	(0.070)	(0.057)	(4.564)	(31.505)	(5.172)	(0.007)	(0.051)	(0.006)
Continuing		X			X			X	
Non-Continuing			X			X			X
R^2	0.20	0.24	0.25	0.95	0.97	0.95	0.89	0.86	0.91
Obs.	7766	4359	3407	28431	6028	22403	1291	358	932

Notes: Table shows results of the NAFTA tariff reductions on stated views on environmental policy (Panel (a)), local economic conditions (Panel (b)), and local environmental conditions (Panel (c)), allowing the effects to vary by each region's political party. The dependent variable in Panel (a) is an indicator for whether a survey respondent believes the federal government should increase spending on environmental protection. Data is taken from the American National Election Studies (ANES) survey. The dependent variable in Panel (b) is the county's average income per capita. Data is taken from the Bureau of Economic Analysis's Regional Economic Accounts. The dependent variable in Panel (c) is the natural log of the county's median daily ambient total suspended particulate concentration. Data is taken from the Environmental Protection Agency's Air Quality System. In each Panel, the first column shows the results allowing the effect of NAFTA's tariff reductions to vary by the party held by the region's representative. The second column in each panel restricts this analysis to regions represented by the same party (Panel (a)) or legislator (Panel (b) and (c)) throughout. The third column in each panel restricts this analysis to regions that change parties (Panel (a)) or legislators (Panel (b) and (c)). All regressions in Panel (a) include congressional district fixed effects, year fixed effects, voter and interviewer characteristic trends, district economic, regulatory, and demographic trends, and are weighted by the ANES sample weights. All regressions in Panels (b) and (c) include county and year fixed effects, and county economic, regulatory, and demographic trends. Standard errors clustered by state are reported in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

in the likelihood a respondent supported increased spending on environmental protection in Democratic districts, while the corresponding estimates in columns (2) and (3) suggest that a 1 pp reduction in US tariffs decreased per capita incomes and ambient pollution levels in affected Democratic counties by close to 79 dollars and 4.6%, respectively. However, recall that the results presented in Table 6 indicate incumbent Democratic legislators, unlike their Republican counterparts, do not change their voting behavior on environmental bills in response to reductions in US tariffs.

To investigate this discrepancy further, we exploit the fact that the ANES also contains information as to whether each respondent is a member of the Democratic or Republican parties, or identifies as an independent. This allows us to examine whether there is heterogeneity in the effects of the NAFTA tariff cuts on stated support for environmental policy across voters with different political affiliations.

To do so, we estimate three regressions analogous to our preferred specification from panel (a) of Table 4, but we now allow the effects of the US and Mexican tariff reductions to vary by both the political party of the district's representative, as well as the respondent's self-reported political affiliation. These results are reported in Table 8. As in panel (a) of Table 7, we first examine the full sample (column (1)), and then our continuing and non-continuing samples (columns (2) and (3), respectively). All specifications include controls corresponding to the preferred specification from panel (a) of Table 4, and in all cases, standard errors clustered by state are reported in parentheses.

The estimates reported in Table 8 indicate that the reductions in the demand for environmental policy in response to US tariff reductions documented in Table 7 are driven by the responses of constituents who self identify as either a Republican or an Independent. For example, the estimates reported in the first three rows of column (2) suggest that a 1 pp reduction in US tariffs led to large reductions in the likelihood of supporting spending on environmental protection amongst Independents and Republicans in districts always represented by a Republican legislator (reductions of 65.4 pp and 37.5 pp, respectively). In contrast, a 1 pp reduction in US tariffs only led to a 11.3 pp reduction in the likelihood of support amongst Democrats in these districts, although this effect is not statistically significant at conventional levels. A similar pattern arises in districts represented by Democratic legislators; a 1 pp reduction in US tariffs led to 3.1 pp, 45.2 pp, and 35.7 pp reductions in the likelihood of supporting spending on environmental protection amongst Democrats, Independents, and Republicans, respectively. These results provide a natural explanation for the observed difference in the change in voting of incumbent Republican and Democratic legislators in response to the US tariff cuts: Democratic legislators appear not to change their votes because trade liberalization does

Table 8: Heterogeneity in NAFTA's Effects on Voters' Views on Environmental Policy

	(1)	(2)	(3)
$\Delta\tau_r^{USA}$ x Post$_t$ x Rep. Dist.			
x Dem. Voter	0.003	-0.113	0.048
	(0.081)	(0.172)	(0.139)
x Ind. Voter	-0.219^b	-0.654^a	-0.170
	(0.098)	(0.176)	(0.124)
x Rep. Voter	-0.253^b	-0.375^b	-0.224
	(0.099)	(0.170)	(0.145)
$\Delta\tau_r^{USA}$ x Post$_t$ x Dem. Dist.			
x Dem. Voter	-0.054	-0.031	-0.055
	(0.088)	(0.241)	(0.121)
x Ind. Voter	-0.236^a	-0.452^b	-0.033
	(0.084)	(0.172)	(0.104)
x Rep. Voter	-0.161^c	-0.357^c	-0.080
	(0.091)	(0.200)	(0.139)
$\Delta\tau_r^{Mex}$ x Post$_t$ x Rep. Dist.			
x Dem. Voter	-0.004	0.018	0.025
	(0.031)	(0.063)	(0.071)
x Ind. Voter	0.004	0.117^c	0.011
	(0.026)	(0.059)	(0.070)
x Rep. Voter	-0.059^c	-0.022	-0.016
	(0.030)	(0.057)	(0.077)
$\Delta\tau_r^{Mex}$ x Post$_t$ x Dem. Dist.			
x Dem. Voter	-0.017	-0.052	0.017
	(0.021)	(0.095)	(0.062)
x Ind. Voter	0.030	0.053	0.046
	(0.023)	(0.065)	(0.072)
x Rep. Voter	-0.074^b	-0.064	-0.041
	(0.029)	(0.075)	(0.072)
R^2	0.21	0.25	0.26
Obs.	7766	4359	3407

Notes: Table reports estimates of the effects of NAFTA tariff reductions on views expressed on environmental policy stringency. Panel (a) reports estimates using all districts, Panel (b) reports estimates using the sub-sample of districts that are always represented by the same party over our period of study, and Panel (c) reports estimates using the sub-sample of districts whose party changes over our period of study. The dependent variable in all regressions is an indicator of whether the survey respondent believes the federal government should increase spending on environmental protection. All regressions include congressional district and year fixed effects, baseline district Clean Air Act non-attainment status and characteristic trends, and voter and interviewer demographic trends, and are weighted using the ANES sample weights. Standard errors clustered by state are reported in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

not impact the environmental policy demands of their main political constituency.

4.5.2 NAFTA and Changes in Partisan Representation: Redux

The estimates reported in Table 8 also provide further evidence that that trade-induced changes in partisan representation are unlikely to be due to the effects of tariff reductions on constituent preferences for environmental policy, as both US and Mexican tariff cuts have little effect on voter views in non-continuing districts. Hence, we next investigate whether the change in partisan representation, that resulted in a change in voting on environmental RCVs, is consistent with affected voters punishing Democratic legislators for adopting pro-NAFTA positions prior to the agreement's ratification.

There is reason to believe that this type of protectionist response could underlie the change in partisan representation. As we noted above, the work of Choi et al. (2021) suggests that voters in regions most affected by NAFTA were more likely to switch from supporting Democrats to Republicans due to the latter party's relatively protectionist views during this period. Given the stark difference in support for environmental issues across the two parties, this "protectionist backlash" could manifest as a reduction in pro-environmental RCVs if it led to the election of more Republicans.

We investigate this possibility by again estimating the effects of the NAFTA tariff cuts on electoral outcomes using Equation (5), and our data on electoral results from the MIT Election Data Lab. However, we now consider the effects of the tariff cuts across two sub-samples differentiated according to whether the district's representative voted for or against the NAFTA Implementation Act (HR 3450), the roll call vote to ratify the agreement. In the first, we restrict the sample to the set of districts whose representative opposed NAFTA, while in the second, we restrict the sample to the set of districts whose representative supported NAFTA. For each sample, we examine whether the NAFTA tariff cuts affected the likelihood that the district flipped from Republican to Democrat, and from Democrat to Republican.

The results from this exercise are reported in the two panels of Table 9. Panel (a) reports estimates of the effects of the NAFTA tariff cuts on the likelihood a district flipped from Republican to Democrat, while panel (b) reports estimates of these effects for districts that flipped from Democrat to Republican. In all cases, standard errors clustered by state are reported in parentheses.

The results presented in Table 9 suggest that NAFTA caused voters to punish Democratic representatives who voted in favor of NAFTA. For example, the results in column (4) show that among the sample of districts whose representative voted in favor of NAFTA, a 1 pp reduction in import tariffs caused a 19 pp increase in the likelihood of

Table 9: The Effects of NAFTA on Electoral Outcomes, by NAFTA Vote Status

	Panel (a): Pr(Change Rep. to Dem.)		Panel (b): Pr(Change Dem. to Rep.)	
	(1)	(2)	(3)	(4)
$\Delta\tau_r^{USA}$ x Post_t	0.087	-0.028	0.030	0.190[a]
	(0.061)	(0.045)	(0.050)	(0.068)
$\Delta\tau_r^{Mex}$ x Post_t	0.007	0.003	-0.016	0.019
	(0.021)	(0.008)	(0.021)	(0.016)
Pro-NAFTA Vote		X		X
R^2	0.26	0.24	0.25	0.23
Obs.	970	1159	970	1159

Notes: Table shows results of the NAFTA tariff reductions on election outcomes in the House of Representatives for the 102nd to the 106th congress, splitting the sample by the representative's vote status on the NAFTA Implementation Act (HR 3450). The dependent variable in Panel (a) is an indicator for whether the district changed from the Republican to Democratic party in the last election. The dependent variable in Panel (b) is an indicator for whether the district changed from the Democratic to Republican party in the last election. The first column in each panel restricts the sample to districts whose representative opposed NAFTA, and the second column in each panel restricts the sample to districts whose representative voted in favor of NAFTA. All regressions include district and year fixed effects and district baseline characteristic and CAA non-attainment trends. All regressions are restricted whose representative voted on HR 3450. Standard errors clustered by state are shown in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

the district flipping from Democrats to Republicans. In contrast, the results in column (3) show no significant change in party among the anti-NAFTA districts. Moreover, a Wald test comparing these two coefficients indicates that these differences are statistically significant (p-value = 0.07). In addition, the table suggests no punishment occurred for Republicans, with the results in Panel (a) showing no significant effect of either tariff change on the likelihood of a district switching from the Republican to Democratic party in either sub-sample. Together, these results suggest that roughly half of NAFTA's effect on the formation of environmental policy in the US House of Representatives is an incidental byproduct of voters electing Republicans to replace pro-NAFTA Democrats.

4.6 Is Environmental Policy Different?

Altogether, our results suggest that NAFTA significantly impacted legislative voting on environmental bills in the US House of representatives by: (i) causing a reduction in support for environmental policy by Republican legislators in response to trade-induced changes in the demand for environmental policy by their constituents, and (ii) causing voters in affected districts to elect Republicans to replace Democrats who had supported the trade agreement. One question that remains is whether the first of these mechanisms is unique to environmental policy. There is reason to believe that this might not be the case, as previous research has documented that import competition can lead to a general rightward shift in political preferences (e.g. Autor et al. (2020)). This means our findings could be capturing a broader NAFTA-induced shift towards "conservatism" on a range of issues, rather than a specific change on environmental policy.

We explore this possibility in two ways. First, we examine whether NAFTA similarly affected constituents' policy preferences for five alternative policy issues: welfare, social security, crime, abortion, and immigration. To do so, we again rely on data from the ANES. We construct indicators analogous to our environmental policy indicator for views towards welfare, social security, and crime reduction using the questions related to whether the federal government should increase spending on each program. We construct an indicator of whether respondents support legal abortion based on whether the respondent thought women should always be able to access abortion, by law. We construct a similar indicator of support for immigration based on whether the respondent thought the US should increase employment-based immigration.[40]

We then use these indicators as dependent variables in five specifications analogous to Equation (1) to examine if the NAFTA tariff cuts significantly impacted voter policy views on non-environmental issues. As in our baseline specification for views on environmental policy, each regression includes district and year fixed effects, and district characteristic and CAA non-attainment status-by-year trends as well as controls to allow differential trends across different groups of voters as well as interviewers with different characteristics. Each regression is weighted using the ANES sample weights, and standard errors are clustered by state in all cases. Lastly, as we are interested in performing several hypothesis tests jointly (i.e. testing the significance of NAFTA's tariff changes on multiple policy views), we adopt the stepwise multiple testing procedure of Romano and Wolf (2005) to control for the familywise error rate across all tests.

The results from this exercise are reported in Table 10. Column (1) again reports our baseline estimates of the effects of the NAFTA tariff cuts on stated support for environmental policy from column (2) of Table 4, whereas columns (2) through (4) report how NAFTA affected voters' views on federal spending on welfare, social security, and crime, respectively. Columns (5) and (6) show how NAFTA affected voters' views on abortion and immigration, respectively. The first row in the table reports the effect of reductions in US tariffs, while the second row reports the effects of Mexican tariff reductions.

The estimates presented in Table 10 suggest that NAFTA did not cause a systematic shift in constituent policy preferences. If such a shift occurred, then in response to US tariff reductions we should observe changes in support for all forms of Federal spend-

[40]It is worth noting that the questions pertaining to federal spending were not asked in the 1998 ANES questionnaire. The questions on crime, welfare, and immigration were not asked in 1990.

Table 10: The Effects of NAFTA on Voters' Policy Views

	(1)	(2)	(3)	(4)	(5)	(6)
	Increase Federal Spending on:				Other Policies:	
	Env. Prot'n	Welfare	Social Sec.	Crime	Legal Abortion	Increase Immig.
$\Delta\tau_r^{USA}$ x Post$_t$	-0.140^{b†}	-0.025	-0.019	-0.008	0.003	0.031
	(0.059)	(0.055)	(0.054)	(0.058)	(0.061)	(0.033)
$\Delta\tau_r^{Mex}$ x Post$_t$	-0.024	0.015	0.042^c	-0.029	0.032^c	-0.004
	(0.017)	(0.022)	(0.022)	(0.019)	(0.018)	(0.013)
R^2	0.20	0.22	0.26	0.19	0.21	0.19
Obs.	7766	6111	7791	6160	8761	6912

Notes: Table shows results of the NAFTA tariff reductions on views expressed on federal policy issues by voters between 1990 and 2000. Voter views are taken from the American National Election Studies survey. The dependent variables in columns (1) through (4) are indicators of whether the survey respondent believes the federal government should increase spending on: environmental protection (column (1)), welfare (column (2)), social security (column (3)), or crime reduction (column (4)). The dependent variable in column (5) is an indicator for whether the respondent believes abortions should always be permitted by law. The dependent variable in column (6) is an indicator for whether the respondent believes the government should allow more immigration. All regressions include congressional district and year fixed effects, baseline district Clean Air Act non-attainment status and characteristic trends, and voter and interviewer demographic trends. All regressions are weighted by the ANES sample weights. Standard errors clustered by state are shown in parentheses. Significance in a standard t-test at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively. Significance in a Romano and Wolf (2005) multiple hypothesis test at the 10% level is denoted by †.

ing, and changes in support for legal abortion and immigration. Instead, it appears that these tariff reductions did little to change constituents' stated preferences for other policies, meaning that trade liberalization altered support for environmental policy amongst affected voters without systematically impacting their views on other issues.

Although the estimates presented in Table 10 provide strong evidence that our findings are not capturing a systematic conservative shift in affected constituent preferences in response to trade liberalization, it is possible that respondents are misrepresenting their views on the ANES. Hence, as our second exercise we examine if the NAFTA tariff cuts had similar effects on RCVs for an alternative policy issue: abortion. Reproductive rights are a well known partisan issue (Bouton et al., 2021); if our results are simply capturing a broader NAFTA-induced shift towards conservatism, then NAFTA should have similar effects on votes on reproductive rights to those we observe on environmental policy. That is, we should observe that reductions in US tariffs decreased the support for reproductive rights in affected districts by causing both changes in partisan representation and decreasing support amongst incumbent legislators.

We examine NAFTA's effects on support for reproductive rights using data from the congressional scorecard constructed by the American Conservative Union's Center for

Table 11: NAFTA and Roll Call Votes on Reproductive Rights

	(1)	(2)	(3)	(4)
$\Delta\tau_r^{USA}$ x Post$_t$	-0.214^a			
	(0.056)			
x Rep.		-0.239^a	-0.053	-0.091
		(0.062)	(0.053)	(0.092)
x Dem.		-0.109^b	-0.132^b	-0.064
		(0.042)	(0.054)	(0.084)
$\Delta\tau_r^{Mex}$ x Post$_t$	-0.006			
	(0.015)			
x Rep.		-0.045^a	0.020	-0.014
		(0.015)	(0.016)	(0.027)
x Dem.		0.091^a	-0.015	-0.066^c
		(0.019)	(0.023)	(0.036)
Leg. FEs			X	
Contin. Leg.				X
R^2	0.64	0.65	0.77	0.75
Obs.	6802	6802	6798	2205

Notes: Table shows results of the NAFTA tariff reductions on roll call votes on bills relating to reproductive rights. The dependent variable in all regressions is an indicator of whether the roll call vote cast by a representative on a particular bill corresponds to the "pro-choice" position. Column (1) shows the overall effect of both the US and Mexican tariff changes. In columns (2)-(4), the effects of NAFTA are allowed to vary by the representative's party. Column (2) reports results from our baseline specification. Column (3) adds legislator fixed effects, and is estimated on the set of legislators that cast more than one roll call vote on the panel's issue. Column (4) eschews legislator fixed effects, but restricts the sample to legislators that hold their district for the entirety of our sample. All regressions include district and year fixed effects, and baseline district Clean Air Act non-attainment status and characteristic trends. Standard errors are clustered by state and are shown in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

Legislative Accountability (CLA).[41] We compile voting records on each RCV related to reproductive rights included in the CLA scorecard between 1990 and 2000, and then use this information to construct an indicator of whether the RCV on bill v cast by the representative of district r at time t is pro-choice. We then estimate NAFTA's effects on the likelihood an affected legislator casts a pro-choice RCV using Equation (1).[42]

The results of this analysis are presented in the four columns of Table 11. Each column corresponds to a different specification. Column (1) reports the average effects of the US and Mexican tariff reductions for RCVs on each issue. For comparison, the anal-

[41]Similar to the LCV, the CLA develops the its scorecard as a means of assessing the voting records of each member of the House of Representatives, and has been doing so since 1971. The CLA determines the conservative position of relevant bills and classifies them by issue. We use this information to determine the set of bills that pertain to reproductive rights and each representative's position on these bills.

[42]Unlike with our analysis of NAFTAs effects on environmental RVCs, there are relatively few RCVs on reproductive rights. Thus, we cluster standard errors by state, rather than state and bill.

ogous estimate on environmental RCVs is reported in column (4) of Table 2. Columns (2)-(4) allow the effect of both US and Mexican tariff reductions to vary by the party of the district's representative, akin to the analysis of environmental RCVs presented in Panel (a) of Table 6. Column (2) reports estimates of the effect of each tariff allowing the effect to vary across districts based on the contemporaneous party membership of the district's representative. The specification in column (3) allows NAFTA's effects to vary by party and includes a representative fixed effect. The specification in column (4) again allows NAFTA's effects to vary by party, but restricts the sample to continuing incumbent legislators who hold their district for the entirety of our sample.

The estimates presented in Table 11 provide further evidence that our findings are not capturing a systematic conservative shift in constituent policy preferences in response to reductions in US tariffs. While the estimate reported in the first row of column (1) suggests that, on average, a 1 pp reduction in US tariffs led to a 21.4 pp reduction in the likelihood that the representative of an affected district casts a pro-choice vote, the estimates reported in the second and third rows of columns (2)-(4) indicate that this effect is driven primarily by changes in political representation in Republican held districts. As the estimate reported in the second row of column (2) shows, a 1 pp reduction in US tariffs led to a 23.9 pp reduction in the likelihood the representative of an affected Republican district casts a pro-choice vote. However, once we include legislator fixed effects, as in column (3), or restrict the sample to the set of districts that were represented by a single incumbent legislator, as in column (4), this estimate attenuates considerably and is no longer statistically significant at conventional levels. This suggests that the estimate reported in column (2) is driven by changes in partisan representation rather than changes in the voting behavior of incumbent legislators.[43]

5 Conclusion

This paper tests the hypothesis that governments alter environmental policy in response to trade liberalization. We do so by examining the effects of bilateral tariff reductions between the US and Mexico following NAFTA on the roll call votes cast by legislators in the US House of Representatives on environmental legislation over the period 1990-2000. We isolate the causal effects of trade liberalization by leveraging: (i) temporal variation

[43]It is worth noting that the results presented in the third row suggest that incumbent Democrats may be reducing the likelihood they cast a pro-choice RCV in response to reductions in US tariffs, although the evidence for this is mixed. However, as we show in Online Appendix E, this change appears to be due to these Democrats responding to changes in preferences of self-identified Independent voters in their districts, as opposed to a general conservative shift in preferences across all groups.

in US and Mexican tariff rates created by the implementation of the agreement, and (ii) geographic variation in the level of exposure to the tariff cuts across congressional districts created by differences in initial industrial composition. We exploit these two sources of variation in a generalized difference-in-difference research design.

We find robust evidence that trade liberalization following NAFTA significantly affected federal environmental policy in the United States. Our preferred estimates indicate that, on average, a 1 percentage point reduction in US import tariffs in an affected House district reduced the likelihood that the district's representative votes in support of the environment by 14 percentage points. In contrast, we find no evidence to suggest that reductions in Mexican tariffs significantly altered the likelihood of a pro-environment vote by representatives in affected districts. These effects are economically significant; a simple counterfactual exercise based on our estimates suggests that nearly 36% of the legislation where the pro-environment side failed to pass the House over the period 1994-2000 would have passed in the absence of NAFTA.

These results appear to be caused by: (i) incumbent Republican legislators decreasing their support for environmental policy in response to the demands of their main political constituency, and (ii) voters in affected congressional districts punishing Democrats who supported NAFTA by electing Republicans. We find no evidence to suggest that legislator responses were motivated by concerns of industrial flight by dirty industries, despite such flight being a salient issue for much of the US public at the time. We also find no evidence to suggest that our results are capturing the effects of a broader trade-induced shift towards conservatism.

While our findings suggest that governments alter environmental policy in response to trade, they also highlight the potential importance of elections, electoral incentives, and partisan politics in mediating this relationship. As such, our results suggest that trade's effect on the formation of environmental policy may hinge on political context. We leave further investigation of this possibility to future work.

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Appendices for: Free Trade and the Formation of Environmental Policy: Evidence from US Legislative Votes*

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Appendix A Additional Summary Statistics

This section provides additional summary statistics to complement those presented in the main paper. First, Table A.1 shows correlations between the tariff changes resulting from NAFTA and various district characteristics, as these motivate the inclusion of characteristic-trends in our analysis. District characteristics include various 1990 demographics, taken from Adler (2021), covering the share of the district's population aged 65 and above, the share black, the share born outside the US, and the share living in a rural area. We also include district median incomes and share of employment in farming, both from Adler, and the share of employment in manufacturing, taken from the adjusted county business patterns (CBP) database developed by Eckert et al. (2020). The first column shows correlations for the US tariff change and the second column shows correlations for the Mexican tariff change, with p-values in brackets.

Table A.1: Correlations Between District Tariff Changes and 1990 Characteristics

	(1) US Tariff Change	(2) Mexican Tariff Change
Pop. Share - Above 65	0.030	-0.098^{b}
	[0.531]	[0.041]
Pop. Share - Black	0.137^{a}	-0.107^{b}
	[0.004]	[0.027]
Pop. Share - Foreign	-0.063	-0.009
	[0.191]	[0.853]
Pop. Share - Rural	0.118^{b}	-0.029
	[0.015]	[0.544]
Median Income	-0.406^{a}	0.119^{b}
	[0.000]	[0.013]
Emp. Share - Farm	0.100^{b}	-0.144^{a}
	[0.038]	[0.003]
Emp. Share - Manuf.	0.555^{a}	0.343^{a}
	[0.000]	[0.000]

Notes: Table shows pairwise correlations between the districts tariff change as a result of NAFTA and various district characteristics. All district characteristics are measured for 1990. Column (1) shows correlations for the US import tariff change, while Column (2) shows correlations for the Mexican tariff change. Rows one through four show correlations between tariff changes and the share of the population aged 65 or older, black, born outside the US, and living in a rural area, respectively. Row five shows correlations between tariff changes and district median incomes. Rows six and seven show correlations between tariff changes and the share of the workforce employed in farming and manufacturing, respectively. The p-value on each correlation is shown in brackets. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

The statistics in column (1) of Table A.1 indicate that the size of a district's US tariff reduction is positively correlated with the district's rural population share, share of the population that identifies as black, employment share in farming, and employment share in manufacturing, but negatively correlated with the district's income level. The second column indicates that the size of a district's Mexican tariff reduction is positively correlated with the district's employment share in manufacturing and income level, but

Table A.2: Correlations Between District Tariff Changes and 1992 Republican Vote Share

	(1) US Tariff Change	(2) Mexican Tariff Change
Republican Vote Share	-0.045	0.019
	[0.354]	[0.690]

Notes: Table shows the correlation between the district tariff change as a result of NAFTA and the vote share of the Republican party in the election prior to NAFTA. Column (1) shows the correlation for the US tariff changes. Column (2) shows the correlation for the Mexican tariff changes.

Table A.3: Correlations in Constituent Policy Views

	(1)	(2)	(3)	(4)	(5)	(6)
	Env. Spending	Welfare Spending	Soc. Sec. Spending	Crime Spending	Pro-Choice	Immig'n
Env. Spending	1.000					
Welfare Spending	0.167^a	1.000				
Soc. Sec. Spending	0.109^a	0.183^a	1.000			
Crime Spending	0.126^a	0.061^a	0.158^a	1.000		
Pro-Choice	0.091^a	0.016	-0.027^b	-0.039^a	1.000	
Immig'n	0.049^a	0.084^a	0.001	-0.032^b	0.026^c	1.000

Notes: Table shows correlations between each of the respondent policy views assessed in Table 5. Voter policy views are taken from the American National Election Studies survey. Significance in a standard t-test at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

negatively correlated with the share of the district's population above the age of 65, the share of the population that identifies as black, and the employment share in farming.

In addition, Table A.2 assess whether the magnitude of the NAFTA tariff changes vary systematically depending on pre-NAFTA political conditions. We do so by computing the correlation between each of the district's tariff changes (both Mexican and US) and the share of votes received by the Republican party in 1993. In the table, the first column reports the correlation for the US tariff changes, while the second column shows the correlation for the Mexican tariff changes, with p-values in brackets. As the table shows, the correlation between each tariff and the Republican vote share in the pre-NAFTA election are both small and statistically insignificant, suggesting changes in tariffs were unrelated to political conditions.

Lastly, Table A.3 shows correlations between each of the six policy preference variables used in our analysis of policy preferences (Table 10). Of note is that views on environmental protection are positively correlated with all additional policy measures. That is, respondents who believe the federal government should spend more on environmental protection are more likely to believe the government should spend more on welfare, social security, and crime, and are more likely to be pro-choice and favor increased immigration.

Appendix B Robustness Tests

We probe the robustness of our main results along four main dimensions.

First, we examine other potential explanations for our results. The results of the first such exercise are reported in the nine columns of Table B.4. In columns (1) and (2) we examine whether our estimates are capturing the effects of ongoing changes in tariffs as the result of other relevant trade agreements, with column (1) addressing ongoing tariff changes due to the Canada-US Free Trade Agreement (CUSFTA) and column (2) addressing multilateral trade negotiations as part of the General Agreement on Tariffs and Trade. In column (1), to flexibly control for the effects of CUSFTA, we incorporate into our baseline regression an interaction between the change in both the district's Canadian and US tariffs resulting from CUSFTA that occurred after NAFTA's implementation (that is, between 1994 and 2000) with a post-NAFTA indicator.[1] In column (2), we include an interaction between the change in the Most Favored Nation (MFN) tariffs that occurred after NAFTA's implementation with a post-NAFTA indicator. In column (3) we account for each district's exposure to trade with China, to ensure our results are capturing the effects of the China shock (Autor et al., 2013). We do so by controlling for the natural logarithm of the district's imports from and exports to China in each year.[2] In column (4) we supplement our baseline specification with indicators that reflect whether a given representative is a member of the majority party in the House of Representatives and Senate, or whether the representative's party affiliation aligns with the party of the President. We include these controls to account for differential voting incentives that may arise depending on who controls the Senate and Presidency. In column (5), we include bill fixed effects to ensure that we are not capturing idiosyncratic aspects of specific bills. In column (6), we include district by election-year fixed effects to account for the possibility of differential roll call voting behavior in election years. In column (7), we include Census Division by year fixed effects to ensure our results are not capturing differential trends across broadly defined regions. In column (8), we control for each district's share of workers employed in blue-collar jobs by including baseline blue-collar worker share by year fixed effects to ensure our results are not capturing the effects of industries already on the decline prior to NAFTA (see, e.g. Hakobyan and McLaren (2016)). Column (9) controls for all of these additional factors simultaneously.

As the estimates reported in Table B.4 show, our main findings are highly robust. The estimates reported in the table are similar in magnitude to those from our baseline specification, indicating that our baseline estimates are not capturing the effects of other factors.[3]

[1] We follow the same procedure outlined in Section 3 of the main text, and create the district's exposure to CUSFTA as a weighted average of each industry's tariff changed, using district employment shares as weights.

[2] Similar to the approach taken by Autor et al., we construct measures of district imports and exports by allocating industry trade flows to the district level using the initial share of district industry employment in national industry employment as weights.

[3] Controlling for CUSFTA tariff changes appears to substantially increase the estimated effects of the US tariff changes (Column (1)), while controlling for MFN tariff changes appears to substantially increase the estimated effects of the Mexican tariff changes (Column (2)), both of which suggest our baseline regression may be underestimating NAFTA's effects on RCVs. However, these estimates are not statistically different

Table B.4: The Effects of NAFTA on House Roll Call Votes - Robustness Tests

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\Delta\tau_r^{USA}$ x Post_t	-0.242^a	-0.111^c	-0.139^a	-0.111^b	-0.140^a	-0.139^a	-0.093^c	-0.132^a	-0.184^b
	(0.084)	(0.062)	(0.046)	(0.044)	(0.048)	(0.048)	(0.053)	(0.046)	(0.085)
$\Delta\tau_r^{Mex}$ x Post_t	-0.007	-0.052	-0.014	-0.015	-0.014	-0.014	-0.021^b	-0.014	-0.087^c
	(0.016)	(0.040)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.045)
CUSFTA	X								X
MFN		X							X
China Shock			X						X
Alignm. Vars.				X					X
Bill FEs					X				X
Dist.-Elec. FEs						X			X
Cen. Div-Year FEs							X		X
Blue Collar								X	X
R^2	0.34	0.34	0.34	0.36	0.40	0.35	0.35	0.34	0.42
Obs.	51956	51956	51956	51956	51956	51956	51956	51956	51956

Notes: Table shows results of the NAFTA tariff cuts on roll call votes in the House of Representatives. The dependent variable in all regressions is an indicator for whether the roll call vote cast by a representative on a particular bill is pro-environment. All regressions include district and year fixed effects, and district baseline characteristic and CAA non-attainment status trends. Column (1) includes interactions between the change in both the district's Canadian and US tariffs resulting from the Canada-US Free Trade Agreement (CUSFTA) that occurred after NAFTA's implementation (that is, between 1994 and 2000) with a post-NAFTA indicator. In column (2), we include an interaction between the change in the World Trade Organization's Most Favored Nation (MFN) tariffs that occurred after NAFTA's implementation with a post-NAFTA indicator. Column (3) controls for the natural log of each district's exports to and imports from China. Column (4) adds variables capturing the representatives alignment with the party in power in the House, Senate, and Presidency. Column (5) includes bill fixed effects. Column (6) adds district by election-year fixed effects. Column (7) includes census division by year fixed effects. Column (8) adds the district's share of workers in blue collar sectors in the set of baseline characteristic trends. Column (9) adds to the baseline regression all additional controls and fixed effects from Columns (1) to (8). Standard errors two-way clustered by state and bill are shown in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

In our second robustness exercise, we examine the possibility that our results are capturing the effects of time-varying changes in political conditions. We omitted such changes from our baseline specifications as NAFTA exposure is uncorrelated with pre-NAFTA political conditions, as shown in Online Appendix A. For completeness sake, however, we report the results from controlling for such differential trends in Table B.5. We adopt three approaches to account for the possibility of differential trends based on initial political conditions. First, in column (1) we include an interaction between the Democratic party's initial vote share in the district and year fixed effects. Second, in column (2), we include an interaction between the party the holds the district's seat in the first year the district enters our sample (1990 for most districts, and 1993 for the districts created following redistricting) and a year fixed effect. Third, in column (3), we include both additional controls. As the estimates reported in Table B.5 show, accounting for a district's party of representation or voting patterns prior to NAFTA causes no meaningful change in our estimates of NAFTA's effects on RCVs.

Table B.5: The Effects of NAFTA on House Roll Call Votes - Additional Robustness Tests

	(1)	(2)	(3)
$\Delta\tau_r^{USA}$ x Post_t	-0.133[a]	-0.134[a]	-0.133[a]
	(0.045)	(0.047)	(0.045)
$\Delta\tau_r^{Mex}$ x Post_t	-0.013	-0.013	-0.013
	(0.009)	(0.009)	(0.009)
Init. Party	X		X
Democrat Share		X	X
R^2	0.35	0.35	0.35
Obs.	51956	51956	51956

Notes: Table shows results of the reductions in US import tariffs and Mexican tariffs on roll call votes on environmental bills in the House of Representatives between 1990 and 2000, controlling for pre-NAFTA political conditions. Column (1) includes an interaction between the Democratic party's vote share in the first year the district enters our sample and a year fixed effect. Column (2) includes an interaction between the party that holds the district's seat in the first year the district enters our sample and a year fixed effect. Column (3) includes both controls. The dependent variable is an indicator for whether the roll call vote cast by a representative on a particular bill is pro-environment. The regression includes district Clean Air Act and baseline characteristic trends, and district and year fixed effects. Standard errors two-way clustered by state and bill are shown in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by [a], [b], and [c], respectively.

The third dimension along which we probe our main results is to ensure they do not reflect differential trends in outcomes across districts. We do so by estimating the

from our baseline estimates at conventional levels.

following event-study version of our baseline specification:

$$y_{vrt} = \beta_0 + \sum_{k=-m}^{M} \beta_{USA}^{k} \left[\tau_r^{USA} \times \mathbf{1}(t=k) \right] + \sum_{k=-m}^{M} \beta_{Mex}^{k} \left[\tau_r^{Mex} \times \mathbf{1}(t=k) \right] + \lambda_r + \psi_t + e_{vrt} \qquad \text{(B.1)}$$

where the regression coefficients β_{USA}^k and β_{Mex}^k measure the effect of the changes in US import tariffs and Mexican tariffs, respectively, in the m years before to the M years after NAFTA, and all other variables are defined as before. If, as we have assumed, there are no other factors aside from NAFTA driving differential trends across districts, then we should observe $\hat{\beta}_{USA}^k = 0$ and $\hat{\beta}_{Mex}^k = 0$ for $m = \{1990, 1991, 1992\}$.

The results of this analysis are displayed in the two panels of Figure B.1.[4] Panel (a) depicts our estimates of β_{USA}^k, while panel (b) depicts our estimates of β_{Mex}^k. In both cases the associated 95% confidence intervals constructed using standard errors that are two-way clustered by state and bill are plotted around the estimates.

The coefficients plotted in the figure suggest that our baseline estimates are not simply capturing pre-existing differences in trends across districts, as $\hat{\beta}_{USA}^k$ and $\hat{\beta}_{Mex}^k$ are, for the most part, small and not statistically different from zero prior to 1994.[5] Moreover, the coefficient estimates displayed in Panel (a) indicate that the effect of the US import tariff reduction increased in magnitude between 1994 and 1998, suggesting that NAFTA's effect on environmental voting grew over time. This potentially reflects the fact that many of NAFTA's tariff reductions were phased-in over our period of study.[6]

Lastly, we examine whether our results are robust to several sample restrictions. First, we reproduce the analysis in Table 2 of the main text dropping any environmental bills related to fossil fuels, as these bills may be treated differently compared to legislation on other environmental issues. These results, shown in Table B.6, indicate that the effects of NAFTA on non-fossil fuel related environmental bills are very similar to our main estimates.

We also produce an event study using this sample of bills by estimating Equation (B.1). The results of the event study are shown in Figure B.2, with panel (a) showing the estimates for the US tariff change and panel (b) showing the estimates for the Mexican tariff change. Omitting fossil fuel related bills lends further confidence to our results. The US tariff reductions produce no significant change in RCVs prior to NAFTA, and cause a significant reduction in pro-environmental voting after NAFTA's introduction.

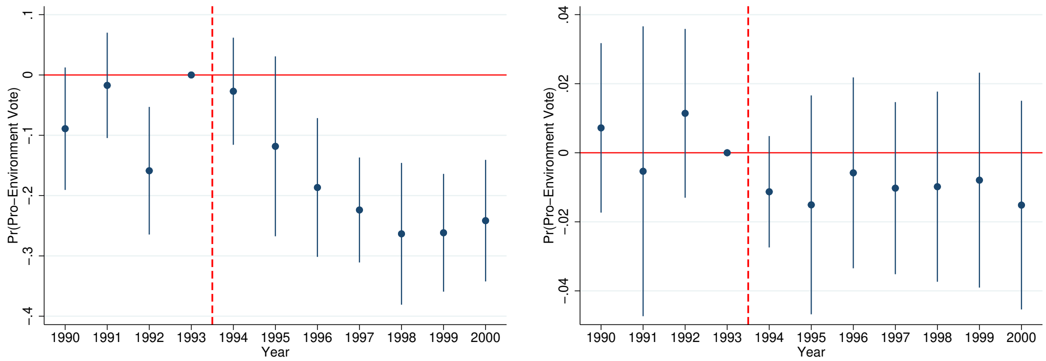
[4]The corresponding point estimates and standard errors are available from the authors on request.

[5]One notable exception is that $\hat{\beta}_{USA}^{1992}$ is negative and statistically significant. This is caused by environmental bills that regulate fossil fuels, of which there were an unusually large number in 1992. This produces this effect for two reasons. First, fossil fuel-related bills in our dataset receive less support than other environmental bills (42% vs. 50% pro-environment). Second, there is a negative correlation between a district's tariff change and their support for fossil fuel-related bills prior to NAFTA. In Figure B.2, we show that dropping the 18 bills related to fossil fuels from our analysis eliminates any significant estimates prior to NAFTA, but leaves our main results unchanged.

[6]Over 50% of US tariffs on Mexican imports and 31% of Mexican tariffs on US imports were removed

Figure B.1: House Roll Call Vote Event Study

(a) USA Import Tariff Reduction (b) Mexico Tariff Reduction



Notes: Figure shows coefficient estimates from a difference-in-difference event study estimating the effects of the NAFTA tariff reductions on roll call votes in the House of Representatives. Panel (a) shows estimates of the effects of US import tariff reductions and panel (b) shows estimates of the effects of Mexican tariff reductions. The dependent variable is an indicator for whether the roll call vote cast by a representative on a particular bill is pro-environment. The regression includes controls for initial CAA non-attainment status and district baseline characteristic trends and includes district, year, and district-by-election year fixed effects. The year prior to NAFTA, 1993, is the omitted category. 95% confidence intervals from standard errors two-way clustered by state and bill are plotted around the coefficient estimates.

Table B.6: The Effects of NAFTA on Non-Fossil Fuel Roll Call Votes

	(1)	(2)	(3)	(4)
$\Delta\tau_r^{USA}$ x Post$_t$	-0.146^a	-0.149^a	-0.173^a	-0.173^a
	(0.043)	(0.043)	(0.049)	(0.049)
$\Delta\tau_r^{Mex}$ x Post$_t$	-0.008	-0.007	-0.013	-0.013
	(0.011)	(0.012)	(0.009)	(0.010)
CAA Trends		X		X
Charac. Trends			X	X
R^2	0.38	0.38	0.39	0.39
Obs.	43792	43792	43792	43792

Notes: Table shows results of the reductions in US import tariffs and Mexican tariffs on roll call votes on environmental bills in the House of Representatives between 1990 and 2000, omitting any bills that pertain to fossil fuels. The dependent variable in all regressions is an indicator for whether the roll call vote cast by a representative on a particular bill is pro-environment. All regressions include congressional district and year fixed effects. Column (1) shows the results of a simple difference-in-difference regression. Column (2) controls for the effects of the Clean Air Act. Column (3) includes district baseline characteristic trends. Column (4) is the baseline analysis, which includes all additional controls and fixed effects. Standard errors two-way clustered by state and bill are shown in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

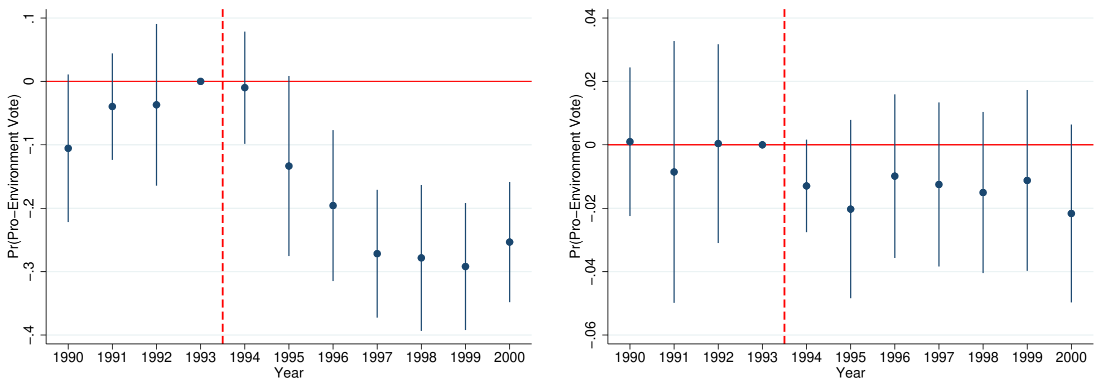
We then perform five additional sample restrictions. The results of these regressions are shown in Table B.7. In column (1) we restrict our sample to the years 1993 onward to ensure that our baseline estimates are not being driven by the district reapportionment

immediately upon NAFTA's implementation, while the majority of the remaining tariffs were removed according to predetermined schedules within ten years (Kowalczyk and Davis, 1998).

Figure B.2: House Roll Call Vote Event Study

(a) USA Import Tariff Reduction

(b) Mexico Tariff Reduction



Notes: Figure shows coefficient estimates from a difference-in-difference event study estimating the effects of the NAFTA tariff reductions on roll call votes in the House of Representatives, omitting any bills that pertain to fossil fuels. Panel (a) shows estimates of the effects of US import tariff reductions and Panel (b) shows estimates of the effects of Mexican tariff reductions. The dependent variable is an indicator for whether the roll call vote cast by a representative on a particular bill is pro-environment. The regression includes district and year fixed effects, and district baseline Clean Air Act non-attainment status and characteristic trends. The year prior to NAFTA, 1993, is the omitted category. 95% confidence intervals from standard errors two-way clustered by state and bill are plotted around the coefficient estimates.

that occurred following the 1990 census. In column (2) we restrict our sample to exclude bills where the issue classification includes "other" to ensure that our estimates are not potentially capturing voting on other issues that have been included on environmental bills. In column (3) we omit the twenty-four congressional districts that experienced an increase in Mexican tariffs over our sample period, as the political conditions in these districts may be systematically different from the rest of the country. In column (4) we restrict our sample to omit bills that are subject to multiple roll call votes, as the votes for these bills may be subject to different incentives than other votes in our sample. In column (5) we omit RCV abstentions, which our main analysis treats as not supporting a bill.

As the estimates reported in Table B.7 show, all five restricted samples produce estimates that are not statistically distinguishable from those in our baseline specification, which suggests that our preferred estimates are not capturing the effects of redistricting, particular characteristics of certain bills and districts, or the LCV's treatment of abstentions.

Table B.7: The Effects of NAFTA on House Roll Call Votes - Restricted Samples

	(1)	(2)	(3)	(4)	(5)
$\Delta\tau_r^{USA}$ x Post$_t$	-0.206^a	-0.129^a	-0.152^a	-0.111^b	-0.155^a
	(0.045)	(0.045)	(0.045)	(0.048)	(0.046)
$\Delta\tau_r^{Mex}$ x Post$_t$	-0.008	-0.013	-0.019	-0.010	-0.013
	(0.011)	(0.008)	(0.033)	(0.008)	(0.009)
R^2	0.38	0.31	0.35	0.32	0.38
Obs.	42936	41232	49253	42520	49974

Notes: Table shows results of the NAFTA tariff cuts on roll call votes in the House of Representatives with various sample restrictions. The dependent variable in all regressions is an indicator for whether the roll call vote cast by a representative on a particular bill is pro-environment. All regressions include district and year fixed effects, and district baseline characteristic and CAA non-attainment status trends. Column (1) restricts the sample to years after redistricting (1993-2000). Column (2) omits any bills that may address non-environmental issues (in addition to environmental issues). Column (3) omits any districts that experienced an increase in average export tariffs. Column (4) omits any bills that are subject to multiple roll call votes. Column (5) omits abstentions. Standard errors two-way clustered by state and bill are shown in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

Appendix C The Introduction of New Environmental Bills

As discussed in the main text, a potential issue with our estimates is that they may be biased due to a selection effect created by a NAFTA-induced change in the set of bills that appear before Congress. That is, if NAFTA systematically changed the set of environmental bills introduced in the House, then comparing roll call votes before and after NAFTA would misrepresent NAFTA's effect on RCVs. Though we have strong reason to believe this concern is minor in our setting, as we discuss in Section 4.1.1 of the main paper, here we examine this issue directly by estimating NAFTA's effects on the likelihood that a congressperson introduced a new environmental bill, as well as the complexity of the environmental bills introduced (measured by number of committee referrals). If bill selection is an important concern, then we should find a change in bill proposals or complexity by legislators more exposed to NAFTA's tariff reductions.

To perform this exercise, we collect data on all bill proposals in the House between 1990 and 2000 from the Congressional Bills Project data of Adler and Wilkerson (2021). The Congressional Bills Project records information on all bill proposals to the House between 1947 and 2008. The dataset includes information on the bill's sponsor, committee referrals, and a categorization of it's main topic.[7] We use this information to construct a district-level panel capturing the introduction of new bills by the district's representative. We use this data to collect all bills that are related to the environment, and then construct two measures for each district-year: an indicator of whether the district's representative introduced at least one environment-related bill that year and an indicator of whether any of their environmental bills were referred to multiple committees.

Before discussing our analysis, we first describe our approach to measuring bill complexity. While a full examination of bill content is beyond the scope of this paper, we

[7]The dataset categorizes bills into 23 different topic areas, using the topic definitions from the Comparative Agendas Project. The topic list is available at: `http://www.comparativeagendas.net/pages/master-codebook`.

examine a simple measure of bill complexity: the number of committees to which a bill has been referred. After a bill is introduced in the House, it must be referred to committee for further assessment, before potentially returning to the House floor for a roll call vote. Bills may be referred to one or more committees for assessment. The ability to refer bills to multiple committees is a relatively recent change to congressional rules; it was introduced to the House in 1975 to both aid in assessing complex policy issues and to encourage inter-committee cooperation on jurisdictional conflicts (Davidson et al., 1988). Thus, bills assigned to multiple committees should, on average, be more complex than single-committee bills. We use this logic to examine whether NAFTA affected the complexity of new environmental bills.

With this data, we then estimate a generalized difference-in-difference regression analogous to that used in our main analysis by estimating the following regression:

$$b_{rt} = a_0 + a_{USA}\left[\Delta\tau_r^{USA} \text{ x } \text{Post}_t\right] + a_{Mex}\left[\Delta\tau_r^{Mex} \text{ x } \text{Post}_t\right] + \lambda_r + \psi_t + e_{rt}, \tag{C.2}$$

where r and t index house districts and years, respectively, and b_{rt} is either the new bill indicator or multiple referral indicator. In Equation (C.2), all other variables are as in Equation (1), and a_{USA} and a_{Mex} are our estimates of the effects of a 1 pp reduction in US and Mexican tariffs, respectively. Lastly, we cluster standard errors by state.

The results of this analysis are presented in the two panels of Table C.1. In Panel (a), the dependent variable is the indicator of whether the district's representative introduced at least one environmental bill in a particular year. The sample for this analysis includes all district-years. In Panel (b), the dependent variable is an indicator for whether the district's representative introduced an environmental bill that was referred to multiple committees that year. The sample for this analysis only includes district-years that introduced at least one environmental bill. Each panel shows results of four specifications, each of which includes a different set of controls, as indicated by the table.

The results in Panel (a) of Table C.1 show reductions in both US import tariffs and Mexican tariffs did not significantly impact the introduction of environmental bills. For example, our baseline estimates (column (4)), indicate that a 1 pp reduction in US import tariffs reduced this likelihood by 9.1 pp. Not only is this estimate not statistically different from zero, but it is economically small as well. Given the average reduction in US import tariffs across districts is 0.26 pp, this suggests that NAFTA reduced the likelihood of introducing a new environmental bill by 2.4 pp.[8]

The results in Panel (b) indicate that neither the US nor Mexican tariff reductions had a measurable effect on committee referrals. For example, our baseline estimate (column (8)) shows that reductions in US import tariffs caused a small, but statistically insignificant, decrease in the likelihood that a district's representative had an environmental bill referred to multiple committees. On average, US import tariff reductions reduced the likelihood of a multiple bill referral by less than 1 pp among district-years with at least one environmental bill.[9] As approximately 40% of district-years that introduce an environmental bill have at least one referred to multiple committees in our sample, the effects

[8]Note that representatives in 22% of district-years introduced a new environmental bill in our sample.

[9]This statistic is computed by multiplying the point estimate in Column (4) of Table C.1 by the average reduction in district import tariffs.

Table C.1: NAFTA and the Introduction and Complexity of Environmental Bills

		Panel (a): Pr(Environmental Bill)		
	(1)	(2)	(3)	(4)
$\Delta\tau_r^{USA}$ x Post$_t$	-0.032	-0.031	-0.092	-0.091
	(0.048)	(0.048)	(0.065)	(0.065)
$\Delta\tau_r^{Mex}$ x Post$_t$	-0.011	-0.011	-0.021	-0.022
	(0.021)	(0.021)	(0.028)	(0.027)
CAA Trends		X		X
Charac. Trends			X	X
R^2	0.24	0.24	0.27	0.27
Obs.	4735	4735	4735	4735
		Panel (b): Pr(Multiple Referral)		
	(5)	(6)	(7)	(8)
$\Delta\tau_r^{USA}$ x Post$_t$	-0.135	-0.120	-0.026	-0.022
	(0.138)	(0.138)	(0.181)	(0.212)
$\Delta\tau_r^{Mex}$ x Post$_t$	0.052	0.054	0.001	0.004
	(0.035)	(0.037)	(0.030)	(0.029)
CAA Trends		X		X
Charac. Trends			X	X
R^2	0.37	0.38	0.46	0.46
Obs.	937	937	937	937

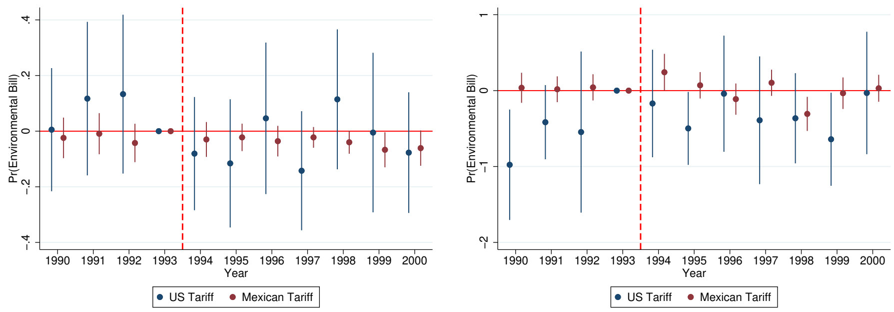
Notes: Table shows results of the NAFTA tariff cuts on the introduction of new bills pertaining to the environment, energy, or public lands in the House of Representatives. The dependent variable in Panel (a) is an indicator of whether the district's representative introduced a new bill in a particular year. The dependent variable in Panel (b) is an indicator of whether an environmental bill introduced by the district's representative in a given year was referred to multiple committees, estimated on the sample of district-years for which the district's representative sponsored a new environmental bill. All regressions include congressional district and year fixed effects. Column (1) shows the results of a simple difference-in-difference regression. Column (2) controls for the effects of the Clean Air Act. Column (3) includes district baseline characteristic trends. Column (4) is the baseline analysis, which includes all additional controls and fixed effects. Standard errors clustered by state are shown in parentheses.

of both the US and Mexican tariff reductions on multiple referrals appear to be relatively small. This suggests that NAFTA did little to alter the complexity of the environmental bills introduced in the House, as measured by committee referrals.

To assess the robustness of the results presented in Table C.1, we estimate an event study variant of Equation (C.2) for both dependent variables, adopting our baseline specification (columns (4) and (8) in Table C.1). Coefficient estimates and associated 95% confidence intervals from both event studies are shown in Figure C.1. In Panel (a), the dependent variable is the indicator of whether the district's representative introduced at least one environmental bill in a particular year. In Panel (b), the dependent variable is our multiple-committee referral indicator. Both event study estimates show no meaningful pattern for either the US or Mexican tariff reductions, further suggesting that bill selection is not of material importance in our setting.

Figure C.1: Bill Selection Event Study

(a) Pr(Environmental Bill) (b) Number of Environmental Bills



Notes: Figure shows coefficient estimates from an study estimating the effects of the NAFTA tariff cuts on the introduction of new bills pertaining to the environment, energy, or public lands in the House of Representatives. The dependent variable in Panel (a) is an indicator of whether the district's representative introduced a new bill in a particular year. The dependent variable in Panel (b) is an indicator of whether an environmental bill introduced by the district's representative in a given year was referred to multiple committees, estimated on the sample of district-years with at least one environmental bill. In each panel, coefficient estimates and 95% confidence intervals are shown for US tariffs (in blue) and Mexican tariffs (in red). All regressions include congressional district and year fixed effects, and district characteristic and CAA non-attainment trends. The year prior to NAFTA, 1993, is the omitted category. 95% confidence intervals from standard errors clustered by state are plotted around the coefficient estimates.

Appendix D An Alternative Estimator

As noted in the main text, one additional concern with our baseline estimates is that they may be biased due to the presence of systematic differences in treatment effects across groups or time. This potential concern arises because we have implemented our research design using a two-way fixed effect estimator. However, as shown by de Chaisemartin and D'Haultffuille (2020), if there are differences in treatment effects across groups or time, then the treatment effect estimates returned from such estimators are a weighted average of these underlying heterogeneous effects, where the weights may be negative. Thus, one may be concerned that our finding of a negative effect of the US import tariffs on RCVs is simply a spurious result due to the presence of negative weights in our two-way fixed effect regression. To address this concern, we implement our research design using the DID_l estimator proposed by de Chaisemartin and D'Haultffuille (2020), which is robust to the presence of treatment-heterogeneity and dynamic treatment effects.

The results of this exercise are reported in Table D.1, which displays estimates from our main empirical specification (Equation (1)) as implemented by the DID_l estimator. We report coefficient estimates from four specifications. As in Table 2 of the main paper, column (1) reports estimates which only includes district and year fixed effects. Column (2) adds initial district CAA non-attainment status trends. Column (3) includes initial district-characteristic trends. Finally, column (4), corresponds to our baseline specification which simultaneously includes initial district CAA non-attainment status and district-characteristic trends. Given the nature of the DID_l estimator, each specification reports estimates of the US import tariff's effects on the likelihood of casting a pro-environment RCV by year, controlling for Mexican import tariff changes. In all cases,

Table D.1: The Effects of NAFTA on RCVs: An Alternative Estimator

	(1)	(2)	(3)	(4)
$\Delta\tau_r^{USA}$				
x 1994	-0.025^b	-0.042^a	-0.089^a	-0.089^a
	(0.014)	(0.017)	(0.031)	(0.031)
x 1995	-0.086^a	-0.119^a	-0.214^a	-0.214^a
	(0.032)	(0.032)	(0.061)	(0.061)
x 1996	-0.082^a	-0.132^a	-0.274^a	-0.274^a
	(0.028)	(0.034)	(0.084)	(0.084)
x 1997	-0.085^a	-0.154^a	-0.347^a	-0.347^a
	(0.029)	(0.044)	(0.109)	(0.109)
x 1998	-0.109^a	-0.193^a	-0.434^a	-0.434^a
	(0.027)	(0.051)	(0.132)	(0.132)
x 1999	-0.101^a	-0.199^a	-0.480^a	-0.480^a
	(0.033)	(0.058)	(0.154)	(0.154)
x 2000	-0.121^a	-0.239^a	-0.571^a	-0.571^a
	(0.033)	(0.065)	(0.180)	(0.180)
CAA Trends		X		X
Charac. Trends			X	X
N	37,202	37,202	37,202	37,202

Notes: Table shows results of NAFTA's US import tariff reduction on the likelihood of a pro-environment RCV, using de Chaisemartin and D'Haultfœuille (2020)'s DID_l estimator that is robust to treatment heterogeneity and dynamic treatment effects. Estimates for each year from 1994 to 2000 are shown. Results from three specifications are shown. Each regression includes district and year fixed effects. Column (1) has no controls, Column (2) adds initial Clean Air Act (CAA) non-attainment status trends , Column (3) adds baseline characteristic trends, and Column (4) includes initial CAA non-attainment status and baseline characteristic trends. Standard errors are cluster-bootstrapped by state, using 300 repetitions. The table also shows the number of observations used in estimation (N).

bootstrapped standard errors, clustered by state, are reported in parentheses.[10]

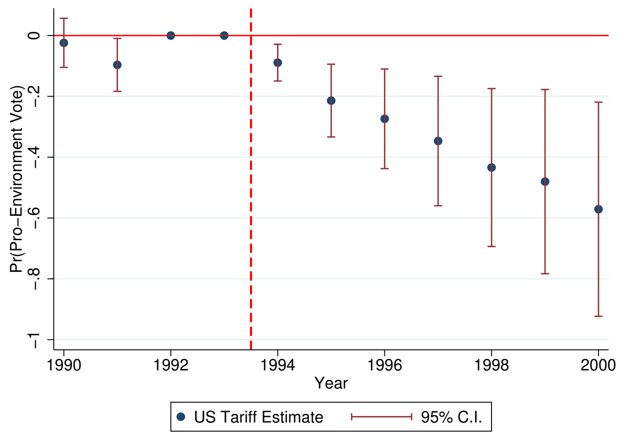
The estimates reported in Table D.1 are consistent with our main results. For our baseline specification (column (4)), a reduction in US import tariffs caused a statistically significant reduction in pro-environment RCVs in each year from 1994 to 2000. As in the event-study estimates reported in Figure B.1, the magnitude of the US import tariff change effect also increases over time. In addition, the estimates from the alternative specifications (columns (1)-(3)) all show a similar pattern, although the estimated magnitudes are smaller without district-characteristic trends.

For our baseline specification, (column (4) in Table D.1), we also use the DID_l estimator to perform an alternative event-study style placebo test for the presence of pre-existing differences in trends across the treated and control groups. This exercise uses DID_l estimation to estimate treatment effects two or more years prior to treatment, omitting the year immediately prior to treatment. The results of this exercise are shown in Figure D.1, which shows the placebo estimates from 1990 to 1992 and the main treatment

[10]These standard errors are bootstrapped 300 times. We cluster by state rather than by state and bill as the DID_l estimator does not allow for two-way clustering.

effect estimates from 1994 to 2000. For each estimate, a 95% confidence interval is displayed, produced from standard errors bootstrap-clustered by state with 300 repetitions.

Figure D.1: DID_l Placebo Estimates



Notes: Figure shows results of NAFTA's US import tariff reduction on the likelihood of a pro-environment RCV, using de Chaisemartin and D'Haultffuille (2020)'s DID_l estimator that is robust to treatment heterogeneity and dynamic treatment effects. Placebo treatment effect estimates from 1990 to 1992 and treatment effect estimates from 1994 to 2000 are shown with a 95% confidence interval. Standard errors are cluster-bootstrapped by state, using 300 repetitions.

The placebo estimates in Figure D.1 indicate that are main results are not simply due to pre-existing differential trends in RCVs, as they show no meaningful pattern prior to NAFTA. The placebo estimates are all relatively small in magnitude and are statistically indistinguishable from zero in 1990 and 1992, and marginally significant in 1991.[11] This corroborates the results of the event study analysis presented in Figure B.1, which also indicated that pre-existing differences by trade-exposure are not an issue in our setting. As these placebo estimates are robust to the presence of dynamic treatment effects, they provide further support for our research design.

[11]The estimate and standard error in 1992 is very small, which is why it appears omitted in the figure.

Appendix E Additional Results

This section presents additional empirical results referenced in the main text. Section E.1 presents additional event study results, while Section E.2 presents other results.

E.1 Event Study Results

This subsection presents additional event study results to complement the analysis presented in the main paper. To save space, coefficient estimates and 95% confidence intervals are shown for each event study.[12]

First, to complement the analysis presented in Section 4.2 that examines NAFTA's effects on the demand for environmental policy, we produce event studies for voters' stated views on environmental policy, and county economic and environmental conditions. The event study on voters' views on environmental policy is shown in Figure E.1. The dependent variable in this event study is an indicator for whether the respondent feels the federal government should increase spending on environmental protection. The regression includes district CAA non-attainment status and baseline-characteristic trends, respondent and interviewer demographic-by-year and by-state fixed effects, and district and year fixed effects, with standard errors clustered by state. The omitted year in all regressions for both the US and Mexican tariffs is 1993, the year prior to NAFTA.[13] Estimates for US tariff changes are shown in blue; estimates for Mexican tariff changes are shown in red. As the figure shows, US and Mexican tariff changes prior to NAFTA had no significant effect on environmental policy views of respondents. Following NAFTA, US import tariff reductions reduced support for the environment, with the peak occurring in 2000. In contrast, Mexican tariff changes had no significant effect on environmental policy views post-NAFTA.

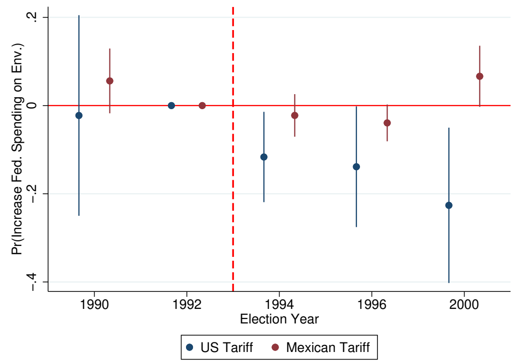
Second, Figure E.2 shows the results of event studies examining the effects of NAFTA on county income per capita (Panel (a)) and ambient total suspended particulate concentrations (Panel (b)) between 1990 and 2000. The dependent variable in Panel (a) is the county's per capita income, while the dependent variable in Panel (b) is the natural log of the county's average daily TSP concentration recorded over the year. Each regression includes county CAA non-attainment status and baseline-characteristic trends, and county and year fixed effects, with standard errors clustered by state. The omitted year for both the US and Mexican tariffs is 1993, the year prior to NAFTA. Estimates for US tariff changes are shown in blue; estimates for Mexican tariff changes are shown in red.

The results in Panel (a) of Figure E.2 show no significant effect of NAFTA on county incomes prior to 1994, and a stark reduction tied to import tariffs beginning in 1994 and persisting throughout the decade. The results in Panel (b) show no significant effect of the import tariff reductions prior to NAFTA's implementation, with a significant reduction in TSP following NAFTA, although the effect is not statistically significant in the years between 1996 and 1998. Panel (b) also shows no meaningful pattern with respect to the Mexican tariff reductions.

[12] Result tables are available upon request.

[13] The relevant ANES question was not asked in 1998. Hence, that year is omitted from the regression.

Figure E.1: Voter Environmental Policy View Event Study

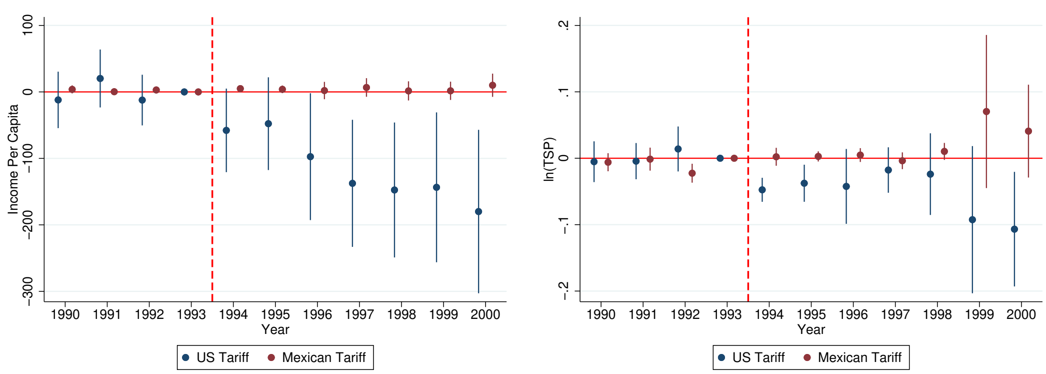


Notes: Figure shows coefficient estimates from a difference-in-difference event study estimating the effects of the NAFTA tariff reductions on views expressed on environmental policy stringency by voters between 1990 and 2000. Voter views are taken from the American National Election Studies survey. The dependent variable is an indicator of whether the survey respondent believes the federal government should increase spending on environmental protection. Coefficient estimates and 95% confidence intervals are shown for the US tariff reduction (in blue) and the Mexican tariff reduction (in red). The regression includes district and year fixed effects, district baseline characteristic and CAA non-attainment trends, and respondent and interviewer demographics interacted with year and state fixed effects. Standard errors clustered by state are shown in parentheses. The year prior to NAFTA, 1993, is the omitted category. Standard errors are clustered by state. The year 1998 is omitted, as this question was not asked in that survey.

Figure E.2: County Economic and Environmental Conditions Event Studies

(a) Income Per Capita

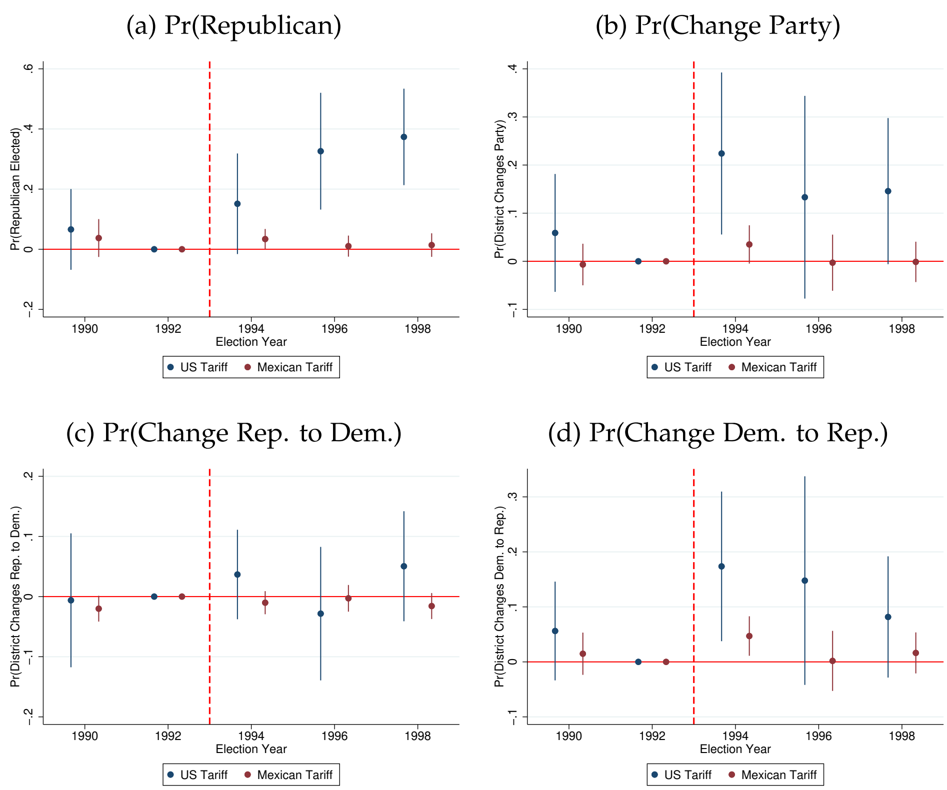
(b) Total Suspended Particulates



Notes: Figure shows coefficient estimates from a difference-in-difference event study estimating the effects of the NAFTA tariff reductions on county economic conditions and environmental quality. The dependent variable in Panel (a) is the county's average income per capita, while the dependent variable in Panel (b) is the natural log of the county's median daily ambient total suspended particulate concentration. In each panel, coefficient estimates and 95% confidence intervals are shown for the import shock (in blue) and the export shock (in red). Each regression includes county baseline characteristic and CAA non-attainment status trends, and county and year fixed effects. The year prior to NAFTA, 1993, is the omitted category. Standard errors are clustered by state.

Third, we assess the robustness of our analysis of NAFTA's effects on electoral outcomes, shown in Section 4.4, by estimating event study variants of the regressions included in Table 5 of the main text. Coefficient estimates and confidence intervals from these event studies are shown in Figure E.3. Results of four regressions are shown, each of which corresponds to the different dependent variables in Table 5 (as labeled in the figure). All regressions include district baseline characteristic and CAA non-attainment trends and district and year fixed effects, with standard errors clustered by state. The omitted year in all regressions for both the US and Mexican tariffs is 1993, the year prior to NAFTA. Estimates for US tariff changes are shown in blue; estimates for Mexican tariff changes are shown in red. The results of all four regressions indicate that there is no evidence of differential trends in electoral outcomes between treated and control districts prior to NAFTA, and a significant change in electoral outcomes following NAFTA's introduction.

Figure E.3: Electoral Outcome Event Studies



Notes: Figure shows coefficient estimates from a difference-in-difference event study estimating the effects of the NAFTA tariff reductions on electoral outcomes. The results of four regressions, corresponding to four different dependent variables, are shown in panels (a)-(d). The dependent variable in panel (a) is an indicator for whether the representative elected is a member of the Republican party. The dependent variable in panel (b) is an indicator for whether the district changed party in the last election. The dependent variable in panel (c) is an indicator for whether the district changed from the Republican to Democratic party in the last election. The dependent variable in panel (d) is an indicator for whether the district changed from the Democratic to Republican party in the last election. In each panel, coefficient estimates and 95% confidence intervals are shown for US tariffs (in blue) and Mexican tariffs (in red). Each regression includes district baseline characteristic and CAA non-attainment trends, and district and year fixed effects. The year prior to NAFTA, 1993, is the omitted category. Standard errors are clustered by state.

E.2 Other Results

This section reports additional empirical results referenced in the main text.

As we discuss in Section 4.6 of the main text, our findings indicate that incumbent Democrats may be less likely to cast a pro-choice RCV in response to US tariffs, and we note that this appears to be due to these Democrats responding to changes in the preferences of self-identified Independent voters in their districts. The corresponding results that suggest this are displayed in Table E.1, which reports estimates of the effects of the NAFTA tariff reductions on expressed views on reproductive rights, using the public opinion data from the ANES. In the table, Panel (a) reports estimates using all districts, while Panel (b) reports estimates using the sub-sample of districts that are always represented by the same party over our period of study, and Panel (c) reports estimates using the sub-sample of districts whose party changes over our period of study. In all cases, the dependent variable is an indicator of whether the survey respondent believes the federal government should allow abortion. All regressions include congressional district and year fixed effects, baseline district Clean Air Act non-attainment status and characteristic trends, and voter and interviewer demographic trends, and are weighted using the ANES sample weights. In the table, standard errors clustered by state are reported in parentheses.

As the estimates reported in column (1) of Table E.1 show, the reduction in US tariffs only had a statistically significant effect on the views of Independent voters that reside in districts held by Democrats. While imprecisely estimated, the results reported in columns (2) and (3) suggest that this effect is likely driven by independent voters in districts that are held by Democrats throughout our period of study, suggesting that the responses of incumbent Democratic legislators that we observe in Table 11 of the main text may be due to these legislators responding to the demands of an important electoral constituency on this issue.

Table E.1: Heterogeneity in NAFTA's Effects on Voters' Views on Reproductive Rights

	(1)	(2)	(3)
$\Delta\tau_r^{USA}$ x Post$_t$ x Rep. Dist.			
x Dem. Voter	0.055	0.253	-0.125
	(0.096)	(0.204)	(0.145)
x Ind. Voter	0.021	0.150	-0.135
	(0.110)	(0.202)	(0.126)
x Rep. Voter	-0.114	-0.176	-0.203
	(0.083)	(0.179)	(0.156)
$\Delta\tau_r^{USA}$ x Post$_t$ x Dem. Dist.			
x Dem. Voter	0.060	0.221	-0.151
	(0.073)	(0.136)	(0.138)
x Ind. Voter	-0.144^c	-0.154	-0.055
	(0.077)	(0.120)	(0.092)
x Rep. Voter	-0.027	0.022	0.069
	(0.093)	(0.151)	(0.107)
$\Delta\tau_r^{Mex}$ x Post$_t$ x Rep. Dist.			
x Dem. Voter	0.084^b	0.092	0.012
	(0.032)	(0.068)	(0.072)
x Ind. Voter	0.065^b	0.081	-0.016
	(0.032)	(0.073)	(0.065)
x Rep. Voter	-0.002	0.011	-0.060
	(0.025)	(0.063)	(0.051)
$\Delta\tau_r^{Mex}$ x Post$_t$ x Dem. Dist.			
x Dem. Voter	0.066^b	0.036	0.053
	(0.025)	(0.055)	(0.039)
x Ind. Voter	0.046^c	0.061	-0.018
	(0.025)	(0.046)	(0.054)
x Rep. Voter	-0.018	-0.022	-0.073
	(0.027)	(0.053)	(0.049)
R^2	0.22	0.27	0.26
Obs.	8761	4871	3890

Notes: Table reports estimates of the effects of NAFTA tariff reductions on views expressed on reproductive rights. Panel (a) reports estimates using all districts, Panel (b) reports estimates using the sub-sample of districts that are always represented by the same party over our period of study, and Panel (c) reports estimates using the sub-sample of districts whose party changes over our period of study. The dependent variable in all regressions is an indicator of whether the survey respondent believes the federal government should allow abortion. All regressions include congressional district and year fixed effects, baseline district Clean Air Act non-attainment status and characteristic trends, and voter and interviewer demographic trends, and are weighted using the ANES sample weights. Standard errors clustered by state are reported in parentheses. Significance at the 1%, 5%, and 10% levels are denoted by ^{a}, ^{b}, and ^{c}, respectively.

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