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An Empirical Analysis of Trade-Related Redistribution and the Political Viability of Free Trade

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An Empirical Analysis of Trade-Related Redistribution and the Political Viability of Free Trade

James Lake
Daniel L. Millimet

March 2014

Forschungsinstitut
zur Zukunft der Arbeit
Institute for the Study
of Labor

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James Lake
Southern Methodist University

Daniel L. Millimet
Southern Methodist University
and IZA

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IZA

P.O. Box 7240
53072 Bonn
Germany

Phone: +49-228-3894-0
Fax: +49-228-3894-180
E-mail: iza@iza.org

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ABSTRACT

An Empirical Analysis of Trade-Related Redistribution and the Political Viability of Free Trade*

Even if free trade creates net welfare gains for a country as a whole, the associated distributional implications can undermine the political viability of free trade. We show that trade-related redistribution increases the political viability of free trade in the US. We do so by assessing the causal effect of expected redistribution associated with the US Trade Adjustment Assistance program on US Congressional voting behavior on eleven Free Trade Agreements (FTAs) between 2003 and 2011. We find that a one standard deviation increase in redistribution leads to more than a 3% point increase in the probability of voting in favor of an FTA for the median representative. In addition, a one standard deviation decrease in redistribution across the entire US would have precluded passage of two of the eleven FTAs in our sample.

JEL Classification: F13, H50, J65

Keywords: free trade agreements, trade adjustment assistance, political economy, redistribution

Corresponding author:

James Lake
Department of Economics
Southern Methodist University
Box 0496
Dallas, TX 75205-0496
USA
E-mail: jlake@smu.edu

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1 Introduction

According to canonical models of international trade, free trade results in net welfare gains for all countries involved. This theoretical prediction has strong empirical belief as well. For example, in 2012 the Initiative on Global Markets at the University of Chicago asked roughly 50 leading economists to comment on two statements concerning free trade.[1] The first statement is: "Freer trade improves productive efficiency and offers consumers better choices, and in the long run these gains are much larger than any effects on employment." The second statement is: "On average, citizens of the U.S. have been better off with the North American Free Trade Agreement than they would have been if the trade rules for the U.S., Canada and Mexico prior to NAFTA had remained in place." For each statement, 95% of the respondents either agreed or strongly agreed, with the remainder being uncertain.[2]

While the claim that free trade is welfare-enhancing *on average* may be relatively incontrovertible, it is also well recognized that free trade has important *distributional* implications. Indeed, Davidson and Matusz (2006, p. 123) state: "Two of the most generally accepted propositions in economics are that trade liberalization harms some groups but that it also generates aggregate net benefits". Put simply, there are winners and losers from free trade. Recently, the costs imposed on losers have been well-documented empirically in Autor et al. (2013) and McLaren and Hakobyan (2012).[3] That said, if the winners win by more than losers lose, appropriately designed transfers from the winners to the losers can ensure free trade is Pareto improving. Theoretical papers demonstrating this include Dixit and Norman (1986) (using a traditional full employment model) and Feenstra and Lewis (1994) (emphasizing the effects of immobile factors). More recently, Davidson et al. (2007) show this in a median voter model with unemployment and costly search and training.[4]

The possibility that winners from trade liberalization might compensate losers is more than a mere theoretical curiosity; it merits serious empirical investigation. Because the presence of losers can create political resistance to trade liberalization, trade-related redistribution has the potential to make free trade politically feasible in situations where it might otherwise be infeasible. Thus, improving our knowledge

[1] See `http://www.igmchicago.org/igm-economic-experts-panel/poll-results?SurveyID=SV_0dfr9yjnDcLh17m`..

[2] Going back to Viner (1950), it is well known that standard trade models predict *free trade* will raise each country's welfare but *freer trade* in the form of Free Trade Agreements (FTAs) may lower each country's welfare. The source of this result is a tension between welfare enhancing 'trade creation' and welfare reducing 'trade diversion' with the latter vanishing under a move to free trade. Nevertheless, the quoted statements refer to freer trade rather than free trade and, for example, Romalis (2007) and Caliendo and Parro (2012) find non-negative welfare effects of NAFTA and CUSFTA.

[3] Other examples include Kletzer (1998), Hummels et al. (2001), Kletzer (2004) and Davidson and Matusz (2005).

[4] This idea goes back to earlier work including Aho and Bayard (1984), Stein (1982), Lawrence and Litan (1986) and Bhagwati (1989). In a different but related context, Furusawa and Lai (1999) show how such redistribution can increase the extent of trade liberalization in a two country infinitely repeated game where workers incur adjustment costs when switching sectors.

of the underlying political economy of trade policy in general, and the impact of redistribution on the adoption of trade liberalization in particular, is vital. To that end, the goal of this paper is to augment our understanding of such issues in the context of US trade policy.

The analysis undertaken here should also prove insightful in other policy contexts where distributional implications threaten to derail policies that generate net welfare gains. Government actions, whether they comprise international policies related to globalization or domestic public policies such as environmental regulation, rarely yield gains for all affected parties. The resulting tension between winners and losers most likely creates political resistance to reform even in the presence of net welfare gains for society as a whole. Our analysis sheds light on the ability of targeted redistribution to increase the political feasibility of such government actions.

In the US, the main vehicle by which trade-related redistribution occurs is the Trade Adjustment Assistance (TAA) program.[5] US Government Accountability Office (2007, p. 1) states: "The Trade Adjustment Assistance program, administered by the Department of Labor, is the nation's primary program providing income support, job training, and other benefits for manufacturing workers who lose their jobs as a result of international trade." TAA was established under President Kennedy in 1962 with the goal of providing benefits to workers who become unemployed as a result of import competition (Kletzer and Rosen (2005)). The program has undergone various changes, most notably by the 2002 Trade Act and the Trade Globalization and Adjustment Assistance Act of 2009 (TGAAA) enacted as part of the 2009 American Recovery and Reinvestment Act (ARRA), that altered benefits, eligibility, and funding rules (Dolfin and Berk (2010)).

To become eligible for benefits, a petition is filed with the Department of Labor (DoL) on behalf of a group of workers thought to be adversely affected by trade. Petitions may be filed by the employer, a union, a state or local workforce agency, or a group of at least three workers (US Government Accountability Office (2007)). If the petition is certified by the DoL, workers covered by the petition are notified and may apply for individual benefits. During 2012, 85.5% of petitions ruled on were certified, covering more than 81,000

[5] TAA is sometimes referred to as TAA for Workers to delineate it from three significantly smaller programs in the US. TAA for Firms is administered by the Department of Commerce and provides technical assistance to firms by "... developing business recovery plans and providing matching funds to implement the projects in the plans" (US Government Accountability Office (2012b, p. 4)). This program cost less than $16 million annually in 2009 through 2012. TAA for Farmers is administered by the Department of Agriculture and provides training and support to producers of agricultural commodities and fishermen (US Government Accountability Office (2012a, p. 11)). TAA for Communities provides funds administered through the Department of Labor to institutions of higher education for "... expanding and improving education and career training programs for persons eligible for training under the TAA for Workers program" and the Department of Commerce administers "... technical assistance to trade-affected communities" and "... awards and oversees strategic planning and implementation grants" (US Government Accountability Office (2012a, p. 11)).

workers.[6] However, the take-up rate by eligible workers is less than 50%.[7] The corresponding figures were 79.3%, covering nearly 105,000 workers, in 2011 and 77.5%, covering more than 287,000 workers, in 2010 (US Department of Labor (2012)). Almost 60% of certified petitions were brought by the manufacturing sector in 2012 (US Department of Labor (2012)).[8]

Eligible workers are entitled to numerous benefits administered at the state-level. However, the two primary benefits are extended unemployment insurance (UI) benefits and subsidized training.[9] UI benefits are determined at the state-level and typically last for 26 weeks. For individuals qualifying for benefits under TAA, these UI benefits are extended, potentially up to a total of 130 weeks under the 2002 Trade Act and 156 weeks under the TGAAA of 2009 (Dolfin and Schochet (2012)). Occupational training is the most common type of training; remedial training makes up most of the remainder (US Government Accountability Office (2007)).[10] Other benefits include the Health Coverage Tax Credit (HCTC), job search services, relocation allowances, and wage supplements.[11]

The total amount of funds transferred from the federal government to the states to pay for TAA benefits was nearly $855 million in 2012 (US Department of Labor (2012)). Thus, TAA represents a significant, albeit most likely partial, compensatory program for individuals harmed by trade. The question we seek to answer here is whether spatial and temporal variation in TAA certification success and benefit generosity impact the voting behavior of members of the US House of Representatives on the 11 Free Trade Agreements (FTAs) considered (and adopted) by Congress between 2003 and 2011.[12] Specifically, we assess the *causal*

[6] The most common reason for denial of a petition by the DoL is that workers were not engaged in production, but rather in 'service' occupations such as computer programming or aircraft maintenance (US Government Accountability Office (2007)). Other rationales relate to insufficient evidence regarding an adverse impact from trade. Under the TGAAA, eligbility was expanded to include service workers and other previously ineligible workers (US Government Accountability Office (2012a)).

[7] `http://www.doleta.gov/tradeact/TAPR_2012.cfm?state=US`, accessed December 27, 2013.

[8] See Figure 1 for further details on the history of TAA certifications. Note, the certification rate displayed in Figure 1 is below the figures given above as the certification rate reported by the DoL represents the percentage of petitions certified over the number of petitions certified or denied. In Figure 1, the denominator includes all petitions dispensed of in a given year (which includes those 'terminated' and coded as 'other' by the DoL).

[9] Extended UI benefits provided under the TAA program are referred to as Trade Readjustment Allowances (TRA).

[10] Of the 130 weeks of UI benefits under the 2002 Trade Act, 52 weeks (78 weeks under TGAAA) are available regardles of training participation. An additional 52 weeks and 26 weeks, respectively, are conditional on participation in occupational and remedial training.

[11] Wage supplements/insurance is known as the Alternative Trade Adjustment Assistance (ATAA) program. To participate, workers must be over the age of 50, have been laid off from a firm having a significant portion of workers at least 50 years old, lack easily transferable skills, and find a new job within 26 weeks of being laid off that pays below $50,000 and below their prior wage. Workers meeting these criteria are then entitled to 50% of the shortfall between their new and prior salaries, up to a maximum of $10,000, for two years (US Government Accountability Office (2007)). However, participants must forego TAA-provided job training. These requirements and benefits were revised in 2009 under the TGAAA (US Government Accountability Office (2012a)).

[12] In addition to improving our understanding of the political economy of US trade policy, our analysis also sheds light on the cost effectiveness of the TAA program itself. In a recent extensive study examining the cost effectiveness of TAA commisioned by the DoL, Dolfin and Schochet (2012) found a negative net benefit of the program. However, the authors (p. ii) conclude that "if TAA made even a relatively modest contribution to the ease of enacting free trade policies, the program's total benefits would outweigh its costs."

impact of expected TAA-induced redistribution within a representative's district on his or her propensity to vote in favor of an FTA. Our analysis can also be viewed as a test of Rodrik (1998) who argues that government social safety nets can reduce political resistance to globalization.

Prior to delving into our analysis, it is noteworthy that anecdotal claims have been put forth suggesting that TAA does, in fact, improve the political feasibility of trade liberalization. For instance, Dolfin and Berk (2010, p. iv) state that TAA was "introduced in 1962 to facilitate the passage of free trade legislation." Scheve and Slaughter (2001) argue that anti-trade sentiment in the US declines when trade liberalization is linked with trade-related redistribution. Magee (2001) quotes Senator Orrin Hatch during the 1993 debate over NAFTA as stating that Congress uses TAA to gain the acquiescence of labor regarding the adoption of trade liberalization. More recently, a *Wall Street Journal* article (July 6, 2011) states: "The deals [Free Trade Agreements] with Colombia, South Korea and Panama ... are on a knife-edge over disagreements between Republicans and Democrats over Trade Adjustment Assistance... The White House, Democratic leaders and some Republicans say the 50-year-old program helps laid-off workers learn new skills and find jobs in more vibrant industries...".[13]

Despite these statements, there is little formal evidence concerning the causal impact of trade-related redistribution implemented under the TAA on the political viability of free trade. The paper most related to ours is Magee (2001). Magee (p. 105-6) states that "the strongest argument in favor of such a program [TAA] is that the government can offer extended unemployment compensation to workers as a payoff in exchange for a reduction in their demands for tariff protection" and that "adjustment assistance can be used to make trade liberalization Pareto-improving by compensating the losers from international trade." However, Magee addresses this issue only indirectly through an analysis of the DoL's certification decisions. On the one hand, he finds that an industry's petition certification rate increases with the decline in tariff protection. This is consistent with TAA as a tool for redistribution to increase the political viability of free trade. On the other hand, this finding is quite sensitive. Moreover, industries with higher levels of tariff protection have a higher certification rate. This does not seem to be consistent with the TAA program as a mechanism to redistribute gains from winners to losers. Thus, Magee concludes (p. 123) that "the evidence that TAA is being used to make trade liberalization Pareto-improving is inconclusive." Our objective is to provide an answer to this question by undertaking the first systematic investigation (to our knowledge) of whether TAA increases the politically viability of free trade via representative voting behavior.

There is a burgeoning literature analyzing the determinants of representative voting behavior on trade

[13] `http://online.wsj.com/news/articles/SB10001424052702303982504576428261535365834`, accessed December 19, 2013.

bills brought before the US Congress. Here, the focus has been on the role of interest groups and local economic gains; trade-related redistribution has been ignored or overshadowed. For example, Baldwin and Magee (2000) find that political action committee (PAC) contributions by business and labor groups each have a statistically significant effect on voting behavior. Moreover, given the observed level of labor contributions, the analysis predicts that NAFTA would not have passed in the absence of the observed business contributions.[14] Using firm-level lobbying data, Ludema et al. (2011) look at the role of lobbying on temporary tariff suspension bills brought before Congress from 1999-2006. The authors find that verbal opposition by groups whose opinion was sought by the US International Trade Commission (USITC) matters, as does lobbying by proponents and opponents. However, the impact of verbal opposition is greater in magnitude. Recently, Conconi et al. (2012b) and Conconi et al. (2012a) examine votes since 1974 on fast track authority and all major trade-related bills, respectively. The papers find that voting behavior depends positively on a district's potential gains from trade. In the former study, gains are proxied by employment in export sectors divided by employment in import sectors within the district relative to the US as a whole. In the latter study, gains are measured by the share of residents with at least a Bachelor's degree.

In our analysis, we analyze over 4600 votes cast on the 11 FTAs brought before Congress since 2003. All 11 bills passed. Our focus is on the effect of congressional district (CD) level variables reflecting the local likelihood of receipt and (expected) generosity of TAA benefits. The generosity of benefits is captured by the current state-level UI replacement rate (i.e., the ratio of the average weekly UI benefit to the average weekly wage). The local likelihood of receipt is based on the historical sector-level certification rate of TAA petitions weighted by the industrial composition of the CD. In other words, if a given CD contains a large employment share in sectors with a history of successful TAA petitions, then our CD-level measure of expected TAA receipt is high. Finally, we include the interaction of these two variables as representatives from CDs with both a high expectation of TAA receipt and generous TAA benefits should be more likely to vote in favor of an FTA, *ceteris paribus*, if trade-related redistribution improves the political feasibility of free trade.

After controlling for a host of representative-specific attributes (such as lobbying and political contributions), CD-level characteristics (such as local tariff exposure and economic conditions), state-level attributes (such as union strength and economic conditions), in addition to representative and FTA-by-region fixed effects, we do indeed find support for the notion that transfers from winners to losers strengthens the

[14] Im and Sun (2008) follow the same empirical strategy for the seven US Congressional votes on FTAs between 2003 and 2006 and find similar results.

political viability of policies with distributional implications. Specifically, we reach three striking conclusions. First, expected redistribution to the losers from free trade administered through the TAA is a statistically and economically significant determinant of voting behavior. In particular, a simultaneous, one standard deviation (SD) *increase* in the expected likelihood of TAA receipt and TAA generosity *raises* the probability of voting in favor of an FTA by more than three percentage points for a representative from a CD with median levels of each variable. For a CD initially at the 75th percentile of each variable, the effect is six percentage points. Alternatively, a simultaneous, one SD *increase* in the expected likelihood of TAA receipt and TAA generosity in a district with median levels of each variable is sufficient to offset, for a Democrat, a one SD *increase* in a CD's local tariff vulnerability to a specific FTA (rendering the representative's propensity to vote in favor of the FTA unchanged). That is, trade related redistribution and local vulnerabilities to tariff cuts are equally important in determining the political viability of free trade.

To view the results yet another way, we ask what *equal* and *proportionate decrease* in the expected likelihood of TAA receipt and TAA generosity *across all CDs* would have been necessary to preclude the passage of each FTA in our sample. For the US FTA with Central America and the Dominican Republic (CAFTA-DR), which narrowly passed by two votes, a 0.24 SD *reduction* in both variables in all CDs would have lead to the failure of this trade bill. At the other extreme, for the US-Bahrain FTA, which passed 327-95, a 3.6 SD *reduction* in both variables in all CDs would have lead to its failure.

Second, there are important interactions between the likelihood of TAA receipt and TAA generosity in the determination of voting behavior. While the average marginal effects of the likelihood of receipt and generosity (on the probability of voting in favor of an FTA) are typically close to zero, the marginal effect for either become positive and sizeable if the other variable is sufficiently high. In practice, we find that the marginal effect of each variable is positive for about 60% of the sample in our preferred, baseline specification; the percentage is even greater under certain sensitivity analyses.

Third, our model highlights a number of other interesting determinants of voting behavior. As expected, party affiliation plays an enormous role. Indeed, 91% of votes cast by Republicans are in favor of FTAs, whereas only 37% of votes by Democrats are pro-trade. Democrats are particularly concerned with local tariff vulnerability but Republicans are not. But neither Democrats nor Republicans seemed concerned with our measure of local potential gains from an FTA. Lastly, we utilize firm-level quarterly lobbying data filed under the 1995 Lobbying Disclosure Act as well as data on PAC contributions data to compute the amount of trade-related PAC contributions and trade-related lobbying expenditures. We find a positive effect of trade-related political money on pro-FTA votes, with the effect being statistically and economically

larger for Democrats.

The remainder of the paper is as follows. Section 2 outlines the empirical methodology. Section 3 presents the data. Section 4 discusses the results and a number of sensitivity analyses. Section 5 concludes.

2 Empirical Methodology

To assess the causal impact of trade-related redistribution on voting behavior, we posit an empirical model that relates votes to constituency attributes and political money (see, e.g., Baldwin and Magee (2000)). Specifically, we estimate variants of the following specification

$$v_{idsbt} = x_{it}\beta_1 + x_{dt}\beta_2 + x_{st}\beta_3 + R_{dt}\theta + \widetilde{\varepsilon}_{idsbt}, \tag{1}$$

where v_{idsbt} is the vote case by representative i from CD d located in state s on FTA bill b in year t. This is a binary outcome, taking on the value of one (zero) if the representative votes in favor (against) the proposed FTA. The vectors x_{it}, x_{dt}, and x_{st} represent sets of representative-, district-, and state-level covariates, respectively. R_{dt} is a vector capturing our trade-related redistribution variables. Thus, θ is the vector of parameters of interest. Finally, the composite error term, $\widetilde{\varepsilon}_{idsbt}$, includes both an idiosyncratic component, ε_{idsbt}, as well as various combinations of fixed effects. In our preferred specification,

$$\widetilde{\varepsilon}_{idsbt} = \lambda_{br} + \alpha_i + \varepsilon_{idsbt}, \tag{2}$$

where λ_{br} are FTA-by-region fixed effects and α_i are representative fixed effects.[15]

Representative fixed effects are included in the model to control for time invariant heterogeneity that affects voting behavior and may be correlated with the political or economic climate of a representative's CD (Conconi et al. (2012a)). We estimate (1) using a linear probability model (LPM) and cluster the standard errors at the representative level as in Ludema et al. (2011) and Conconi et al. (2012a). The LPM avoids the well-known incidental parameters problem that affects some non-linear models, such as the probit model (Chamberlain (1984)). Some prior studies on voting behavior have utilized a fixed effects logit model. However, the shortcoming with that model is that the average marginal effects of the covariates cannot be computed because these depend on the fixed effects which are conditioned out of the likelihood function (Wooldridge, 2010, p. 622-3). We return to this later.

Since there are multiple FTA votes in some years, FTA fixed effects (as opposed to time fixed effects)

[15] We utilize eight regions based on the US Bureau of Economic Analysis (BEA) regional breakdown. `http://www.bea.gov/regional/docs/regions.cfm`, accessed December 28, 2013.

are more comprehensive. Moreover, allowing the FTA fixed effects to vary across region helps control for additional heterogeneity in the potential gains and losses from a particular FTA (due to, for example, distance to the country or countries in question). Representative fixed effects similarly allow us to remove time invariant heterogeneity that might otherwise bias the estimates. For example, unobserved career aspirations of a representative may affect voting behavior. Whether failing to remove such unobserved attributes would lead to biased estimates of θ, however, is not clear. Nonetheless, we include representative fixed effects to guard against this possibility.

Covariates in x_{it} include: party affiliation; binary variables taking on the value of one if the representative is from the same political party as the president, the governor of one's own state, and the majority party in the House of Representatives; political money; and political money interacted with party affiliation.[16] Covariates in x_{dt} include: a measure of local tariff vulnerability and local tariff gain; each local tariff variable interacted with party affiliation; the ratio of average employment share in sectors in which the US is a net exporter to the average employment share in sectors in which the US is a net importer; population shares by education levels; unemployment rates by education levels; and household median income.[17] Covariates in x_{st} include: party affiliation of the governor, unemployment rate, share of gross state product (GSP) from agriculture, share of GSP from manufacturing, and union coverage. Lastly, covariates in R_{dt}, intended to reflect a representative's expected value of future redistribution to his or her constituents if a given FTA passes, include: the likelihood of future receipt of TAA benefits, the expected generosity of TAA benefits, and their interaction.

Before turning to the next section, it is important to discuss potential endogeneity concerns in the model. As discussed in Chappell (1982), Baldwin and Magee (2000), and Magee (2010), political money is not likely to be randomly assigned.[18] For example, representatives that are visible proponents or opponents to trade liberalization may be more likely to receive funds from pro- or anti-trade groups, respectively. Such funds may be a mechanism to reinforce a representative's existing views. Alternatively, representatives that are marginally inclined to vote one way may receive significant funds from groups on the other side in an attempt to alter voting behavior. In this case, funds may be a mechanism to change a representative's existing views. Moreover, political money is potentially measured with error as not all money given is necessarily trade-related and the data (discussed in the next section) do not allow us to perfectly filter out funds associated with non-trade issues. As such, it is unlikely that the coefficients on political money in

[16] Note, party affiliation is time-varying due to the presence of some representatives who switch parties during the sample period.

[17] To be clear, we could actually use the notation x_{dbt} rather than x_{dt} because the local tariff vulnerability and local tariff gain measures are specific to the FTA partner(s) in bill b.

[18] See, however, Conconi et al. (2012a) for a recent paper treating political contributions as exogenous.

(1) may be interpreted in a causal manner. That said, we are less interested in the causal effect of political money in this study; our focus is on the effects of redistribution, given by θ. If political money is endogenous, it will not bias our estimates of θ unless political money and our variables capturing redistribution are correlated conditional on the other controls in the model. This is not likely, but we revisit this issue below.

Our trade-related redistribution variables may also be endogenous. To start, consider the generosity of TAA benefits within a CD. One might worry that CD's may manipulate the level of benefits in order to influence future trade votes. We do not believe this to be a source of bias. First, our measure of benefits is solely a function of a state's UI system; there is no separate benefit calculation for TAA recipients. Since TAA beneficiaries represent a tiny fraction of the UI system, it is not likely that states alter UI benefits in anticipation of future trade votes. For instance, state UI regular benefit outlays were anticipated to be about $44 *billion* in 2013.[19] There were 414,000 *new* UI claims in the week of December 14, 2013; nearly 2.9 million total claims.[20] In contrast, only 81,000 workers were even *eligible* for TAA benefits in 2012 and the total cost of extended UI benefits received through the TAA program was less than $240 *million*. Second, even if states do adjust the level of UI generosity to sway upcoming votes, this does not lead to bias as θ will reflect the causal impact of this variation in generosity on voting behavior.

Alternatively, one might be concerned that TAA generosity is endogenous due to unobserved attributes correlated with both generosity and the propensity of representatives to vote in a particular direction on FTA bills (see, e.g., Magee (2001)). We also do not find this argument credible. First, our use of representative fixed effects and extensive controls for the political and local economic climate should adequately capture the underlying propensity of a representative to vote in favor of an FTA. Second, TAA benefits are determined at the state level and thus temporal variation in generosity is unlikely to be correlated with unobserved, temporal variation in the determinants of CD-level voting behavior. Nevertheless, again, we revisit this issue below.

In terms of the likelihood of future TAA receipt, one might worry that the DoL is more lenient in its certification decisions when new FTA bills are under consideration. Thus, perhaps the DoL uses the certification process to manipulate upcoming votes. Again, we do not believe this to be an issue. First, we base our measure of the likelihood of future receipt on historical data (discussed in the next section). Second, our measure is based on the weighted average of the historical certification rates across industries, where the weights represent the employment shares across industries within a CD. Consequently, our measure is not based on specific dealings with the TAA certification process by individual representatives

[19] `http://workforcesecurity.doleta.gov/unemploy/content/prez_budget.asp`, accessed December 28, 2013.
[20] `http://workforcesecurity.doleta.gov/unemploy/page8/2013/121413.html`., accessed December 28, 2013.

or their constituents. Third, as discussed above in relation to the possible manipulation of the UI system by states, we do not believe such manipulation by the DoL would introduce bias in our estimates. If the DoL is more likely to certify petitions made during periods leading up to a new FTA vote, our estimates of θ will reflect the causal effect of this variation in certification probability on voting behavior. Again, though, we do not believe this to be case. For example, in Figure 1 we see that between 1992 and 2011, seven of the eight years with the lowest certification rate were 2000-2006 during which many FTAs were being negotiated and voted upon.

3 Data

Given the numerous data requirements needed to estimate (1), we pool together data from a large number of sources. The dependent variable – US Congressional voting behavior – is collected for all representative votes cast on each FTA bill brought before Congress between 1998 and 2013.[21] We restrict our sample to the post-1998 period because lobbying data are unavailable prior to this. As a result, our sample excludes NAFTA (1993), the US-Canada FTA (1988), and the US-Israel FTA (1985). Table 1 lists the 11 FTA bills which form our sample, as well as the years and the breakdown of votes by party affiliation.[22] Vote totals shown in Table 1 represent only those votes retained in our sample. There are a possible 435 votes in the House on each bill, for a total sample of 4785 votes. 16 votes are missing due to vacant seats in the House at the time of the vote. 87 representatives abstained. 35 votes are omitted due to missing data on political money (see footnote 33). Thus, our final sample includes 4647 votes.

We construct two covariates to capture trade-related redistribution. The first captures the likelihood that workers in a CD will be successful in gaining TAA certification. Since the usual predictor of future success is recent past experience, we compute a rolling, weighted average of past certification rates across industries, where the weights reflect employment shares in a given CD. Specifically, our covariate is defined as

$$P_{dt} = \sum_{j \in J^{TRD}} \omega_{jdt}^{TRD} \left[\sum_{\tau=t-1}^{t-5} \left(\frac{n_{j\tau}}{N_{j\tau}} \right) \right] \tag{3}$$

where $n_{j\tau}$ is the number of petitions from industry j that are certified or partially certified in year τ and $N_{j\tau}$ is the total number of petitions from industry j that are ruled on (or withdrawn) in year τ. Thus, the term in brackets represents the average certification rate for a given industry over the five years preceding

[21] Voting data obtained from `https://www.govtrack.us`.

[22] The US and Jordan entered into a FTA in 2001. However, only a voice vote was conducted; there is no record of the actual votes. Hence, the first FTA brought before Congress after 1998 that includes a vote record is the Chile-US FTA in 2003; so, our sample effectively begins in 2003.

year t.[23] J^{TRD} represents the 554 4-digit SIC sectors engaged in trade (SIC codes 0111-3999). These SIC-specific certification rates are then averaged using CD-specific weights, ω_{jdt}^{TRD}. The weights are defined as

$$\omega_{jdt}^{TRD} = \frac{E_{jdt}}{\sum_{j \in J^{TRD}} E_{jdt}} \tag{4}$$

and represent the employment shares of each traded sector within a given CD.

The data on the disposition of TAA petitions is from the DoL.[24] Each petition is assigned a unique identification number, and the data include the decision date, DoL decision, and the 4-digit SIC of the firm covered by the petition. The data on CD-level employment shares are derived primarily from the County Business Patterns (CBP).[25] The CBP provides annual county employment at the 6-digit NAICS level.[26] To align with the TAA petition data at the 4-digit SIC level, we convert the CBP data to 4-digit SIC industries using concordances from the US Census Bureau.[27] We then use concordances from the Missouri Census Data Center for the 108th and 109th Congresses and from the US Census Bureau for the 110th Congress to convert the data from the county-level to the CD-level.[28]

Our second redistribution variable reflects the expected generosity of benefits within a given CD if workers become eligible as a result of the current FTA bill under consideration. Here, we borrow from the literature on UI benefits and utilize a standard measure of UI generosity: the replacement rate (see, e.g., Gruber (1997)). The replacement rate is defined as

$$RR_{dt} = \frac{UI_{st}}{w_{st}}, \tag{5}$$

where UI_{st} is the average weekly UI benefit in state s during year t and w_{st} is the average weekly wage.

[23] We intentionally do not create a CD-level measure of past success based explicitly on TAA petitions involving firms located within the CD. First, this would likely give rise to endogeneity concerns as discussed in Section 2. Second, there would be a significant empty cell issue as many CDs have not had any workers covered by recent TAA certifications.

[24] `http://www.doleta.gov/tradeact/taa/taa_search_form.cfm`

[25] `http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml`

[26] The CBP does not provide data on NAICS sectors 111-112 (crop and animal production). The American Community Survey (ACS), however, provides total agricultural employment (NAICS 11) from 2005 onward; available at `http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml`. For 2005-2011, we impute employment in NAICS 111-112 sectors by subtracting employment according to the CBP in NAICS 113-115 from total agricultural employment according to the ACS. This difference is then allocated equally across all 6-digit NAICS sectors in NAICS 111-112 categories. For 2003 and 2004, we use the 2005 values.

[27] `http://www.census.gov/eos/www/naics/concordances/concordances.html`

[28] Missouri Census Data Center concordances can be found at `http://mcdc.missouri.edu/websas/geocorr2k.html`. Census concordances can be found at `http://www.census.gov/geo/maps-data/data/cd_state.html`. Unlike the Census, the Missouri Census Data Center allows users to download concordances for all states at once. However, the Missouri Census Data Center does not provide concordances for the 110th Congress when only Texas and Gerogia engaged in redistricting. There was no redistricting for the 111th Congress which is the last Congress in our sample. The concordances give population allocation shares for counties which lie in multiple districts. We use these as weights when allocating a county's employment level in a given sector across across districts (see, e.g., Conconi et al. (2012b)).

The replacement rate is obtained from Smith and Wenger (2013) for years 2000-2007 and the DoL for years 2008-2012.[29] In the end, the vector R in (1) is given by $[P \quad RR \quad P \times RR]$.

The remaining data corresponds to the representative, CD, and state covariates included in (1). At the representative-level, we gather data on party affiliation, gender, education level (less than a Bachelor's degree, Bachelor's degree, or advanced degree), years since one first served as a member of the US House of Representatives, and indicators for serving as the chairperson of four potentially salient committees (Education and Workforce, Energy and Commerce, International Relations, and Ways and Means).[30] We also collect data on a representative's political money from the Center for Responsive Politics.[31] Our objective is to construct a measure of the amount of *trade-related* contributions given to each representative and expenditures incurred by entities lobbying each representative on *trade-related* issues.

For each two-year Congressional election cycle, data are available on the PAC contributions received by a representative. In addition, the lobbying expenditures incurred by any interest group mandated to file Federal lobbying expenditure reports under the 1995 Lobbying Disclosure Act (either because it hired a firm to lobby on its behalf or because it employed in-house lobbyists) are available. The shortcoming with the contributions data is that a given PAC may be concerned with multiple issues and thus not all of the contribution represents a 'trade-related' gift.[32] The quarterly filed lobbying expenditure reports, on the other hand, must include the issues lobbied on from a pre-defined list of issues; trade is one option. The shortcoming with the lobbying data, however, is that the politicians being lobbied are not included. Thus, the contributions data contains the representatives being targeted, but not the issue of concern, whereas the lobbying data contains the issue of concern, but not the representatives being targeted.

We overcome these shortcoming by utilizing the fact that the majority of PAC contributions come from interest groups who also lobby and the majority of lobbying expenditures accrue from interest groups who also give PAC contributions (Ansolabehere et al. (2002), Lake (2014)). As such, most political money comes from 'groups' for which we observe (i) their contributions given to individual representatives and (ii) their total trade-related lobbying expenditures. Following Lake (2014), we use this information to compute separate values for the amount of trade-related contributions and trade-related lobbying received by each representative.

Specifically, we begin with the contributions given to representative i by group g in period t, denoted

[29] `http://workforcesecurity.doleta.gov/unemploy/hb394.asp`

[30] `http://history.house.gov/Institution/`, `http://bioguide.congress.gov/biosearch/biosearch.asp`, and Wikipedia (e.g., `http://en.wikipedia.org/wiki/United_States_congressional_delegations_from_New_Jersey`).

[31] Lobbying and PAC contributions data can be obtained at `https://www.opensecrets.org/myos/`. Lobbying data can be viewed at `http://www.opensecrets.org/lobby/`, while PAC contribution data can be viewed at `http://www.opensecrets.org/pacs/`.

[32] Because of this, Ludema et al. (2011) omit contributions from their analysis and focus solely on lobbying expenditures.

C_{igt}, and the lobbying expenditures on issue k by group g in period t, denoted L_{kgt}.[33][34] Note that even though the lobbying data does not detail the representatives targeted, it does detail the government agencies lobbied (e.g. House, Senate, Office of US Trade Representative). Additionally, any lobbying report filed only details the total lobbying expenditure for the filing period (quarterly or semi-annually) and the list of issues lobbied. Thus, we divide the lobbying expenditure on a report equally between all issues and agencies lobbied. We then compute the share of group g's contributions going to representative i in period t, denoted $c_{igt} = \frac{C_{igt}}{\sum_i C_{igt}}$, and the share of group g's lobbying expenditures in period t devoted to trade, denoted $l_{k^*gt} = \frac{L_{k^*gt}}{\sum_k L_{kgt}}$ where $k^* \equiv trade$. Next, we compute the trade-related contributions received by representative i in period t as $C_{it}^{trade} = \sum_g l_{k^*gt} C_{igt}$ and the trade-related lobbying expenditure spent on representative i in period t as $L_{it}^{trade} = \sum_g c_{igt} L_{k^*gt}$. Finally, we sum C_{it}^{trade} and L_{it}^{trade} to form a representative's total trade related political money; we refer to this variable in the tables merely as "Total Money".

In essence, we allocate an interest group's trade-related lobbying expenditures across representatives in proportion to the interest group's allocation of PAC contributions across representatives. Similarly, we allocate an interest group's PAC contributions to a representative across issues (with trade being the issue we focus on) in proportion to the interest group's allocation of lobbying expenditures across issues. For contributions made by groups that do not engage in lobbying, we create a separate category for "unallocated" contributions.

At the CD-level, we use data from the American Community Survey to obtain population shares over the age of 25 by education (the percentage with less than a high school degree, high school degree, some college, and a Bachelor's degree or higher), the unemployment rate of residents between 25 and 64 years of age for the same four education groups, and household median income.[35] We also compute additional CD variables designed to capture the expected economic gains and losses from a particular FTA.

First, we construct the ratio of average employment share in sectors in which the US is a net exporter to the average employment share in sectors in which the US is a net importer. To do so, we use the

[33] At the risk of a bit of redundant notation, a period here constitutes a 2-year election cycle *preceding* an election. Given that the first FTA vote in our sample occurs in 2003 and the last occurs in 2011, the 'political money' periods in our sample are t = 2002, 2004, 2006, 2008, and 2010, where t indicates the year of the general election. For example, representatives elected to the 108th Congress ran for office in the November 2002 general election and so political money relating to FTA votes in 2003 are from 2002. In other words, voting behavior in 2003 and 2004 is assumed to depend on lobbying and contributions made leading up to one's election in Fall 2002. This timing issue explains why we have missing data on political money for 35 votes in our sample. These 35 votes are cast by representatives who were not elected, but rather appointed mid-term due to fill a vacant seat. As a result, there is no data on the political money raised by these individuals during the preceding election cycle.

[34] In the CRP dataset, contributions given to the representative are "direct contributions". This contrasts with "indirect contributions" which are spent on behalf of the representative.

[35] `http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml`

employment data described above as well as trade data from the COMTRADE database within the World Bank's Integrated Trade Solution (WITS) database.[36] Formally,

$$\Gamma_{dt} = \frac{\frac{1}{\sum_{j \in J^{TRD}} \mathrm{I}[NX_{jt} \geq 0]} \sum_{j \in J^{TRD}} \omega_{jdt}^{TRD} \cdot \mathrm{I}[NX_{jt} \geq 0]}{\frac{1}{\sum_{j \in J^{TRD}} \mathrm{I}[NX_{jt} < 0]} \sum_{j \in J^{TRD}} \omega_{jdt}^{TRD} \cdot \mathrm{I}[NX_{jt} < 0]}, \tag{6}$$

where $\mathrm{I}[\cdot]$ is an indicator variable (taking on the value one if the statement in brackets is true, zero otherwise), NX_{jt} denotes the level of net exports in sector j in year t for the US as a whole, and ω_{jdt}^{TRD} is defined in (4).

Second, we construct FTA-specific measures of what we refer to as local tariff vulnerability and local tariff gain. Local tariff vulnerability captures the expected average tariff decline in a given CD. This expected decline accounts for the industrial composition of CDs, sector-specific pre-FTA tariffs with the proposed FTA partner, and the sector-specific revealed comparative advantage (RCA) of the proposed FTA partner(s) (see, e.g., McLaren and Hakobyan (2012)). In words, CDs with high employment shares in sectors with high pre-FTA tariffs in which the proposed FTA partner(s) have a high RCA are considered most vulnerable to a particular FTA. Formally, define the employment share of sector j in district d in year t as

$$\omega_{jdt} = \frac{E_{jdt}}{\sum_{j \in J} E_{jdt}} \tag{7}$$

where J represents all 4-digit SIC sectors. Then, local tariff vulnerability, LTV, is defined as

$$LTV_{dbt} = \sum_{j \in J} \omega_{jdt} RCA_{jt}^{b-US} \tau_{jt}^{US-b}, \tag{8}$$

where RCA_{jt}^{b-US} is the RCA of the proposed partner(s) in FTA bill b in sector j in year t with the US and τ_{jt}^{US-b} is the pre-FTA tariff imposed by the US on imports from the proposed partner(s) in FTA bill b in sector j in year t.[37] Specifically, RCA_{jt}^{b-US} is given by

$$RCA_{jt}^{b-US} = \frac{X_{jt}^{b-US} / X_{jt}^{ROW-ROW}}{\sum_j X_{jt}^{b-US} / \sum_j X_{jt}^{ROW-ROW}}, \tag{9}$$

[36] `http://wits.worldbank.org/wits/`

[37] We treat the RCA of non-traded sectors as zero.

where X_{jt}^{b-US} is exports from the proposed partner(s) in FTA bill b in sector j in year t to the US and

$$\begin{aligned} X_{jt}^{ROW-ROW} &= X_{jt}^{WORLD} - X_{jt}^{US-WORLD} - X_{jt}^{b-WORLD} - X_{jt}^{WORLD-US} \\ &\quad - X_{jt}^{WORLD-b} + X_{jt}^{b-US} + X_{jt}^{US-b}, \end{aligned} \tag{10}$$

where X_{jt}^{WORLD} denotes world exports of sector j in year t and $X_{jt}^{US-WORLD}$, $X_{jt}^{b-WORLD}$, $X_{jt}^{WORLD-US}$, $X_{jt}^{WORLD-b}$, and X_{jt}^{US-b} are defined analogously to X_{jt}^{b-US}.[38]

Our local tariff gain measure is analogous, but reflects the expected average tariff decline in the proposed FTA partner(s) and the extent to which this benefits a given CD. In words, CDs with high employment shares in sectors in which the proposed FTA partner(s) have high pre-FTA tariffs and which the US has a high RCA are considered most likely to gain from a particular FTA.[39] Formally, local tariff gain, LTG, is defined as

$$LTG_{dbt} = \sum_j \omega_{jdt} RCA_{jt}^{US-b} \tau_{jt}^{b-US}, \tag{11}$$

where RCA_{jt}^{US-b} is the RCA of the US in sector j in year t with the proposed partner(s) in FTA bill b and τ_{jt}^{b-US} is the pre-FTA tariff on US exports in the proposed partner(s) in FTA bill b in sector j in year t. Specifically, RCA_{jt}^{US-b} for the US is given by

$$RCA_{jt}^{US-b} = \frac{X_{jt}^{US-b} / X_{jt}^{ROW-ROW}}{\sum_j X_{jt}^{US-b} / \sum_j X_{jt}^{ROW-ROW}}.$$

Computation of LTV and LTG requires data on pre-FTA tariffs imposed by the US on the FTA partner(s) and vice versa, export data (described above), and CD-level employment shares (described above). All data are available at the 4-digit SIC level. We obtain the 4-digit SIC tariff data from the World Bank's World Integrated Trade Solution (WITS) database. Where possible, we use the TRAINS data set within WITS for tariffs since it provides ad valorem equivalent tariffs (which convert non ad valorem tariffs into an ad valorem rate).[40] Often, the pre-FTA tariffs imposed by the US on FTA partners are below the Most Favored Nation (MFN) level due to non-reciprocal preferential schemes such as the

[38] X_{jt}^{b-US}, for example, is added back because it is included in both $X_{jt}^{b-WORLD}$ and $X_{jt}^{WORLD-US}$.

[39] We treat the industry j pre-FTA tariff imposed by the US on CAFTA-DR as a trade weighted average across the CAFTA-DR countries where a country's weight is that country's share of total industry j exports from CAFTA-DR to the US. Similarly, we use US export shares to construct the industry level pre-FTA tariffs imposed by CAFTA-DR on the US.

[40] For Morocco's tariffs in 2004, there is no data in the WITS database (either TRAINS or WTO) so we use the TRAINS tariffs from 2003. For Panama and Korea, the last pre-FTA tariffs in TRAINS are in 2007 even though there are 2011 WTO tariffs. However, the WTO tariffs are not advalorem equivalent. So for each sector j we compute the ratio of the ad valorem equivalent tariff to the ad valorem tariff in 2007 using the TRAINS dataset, say γ_j, and then multiply the WTO 2011 tariff in sector j by γ_j to get an imputed ad valorem equivalent tariff.

Generalized System of Preferences.

At the state-level, we obtain data on the political affiliation of the Governor, unemployment rate, the shares of agriculture and manufacturing in GSP, and union coverage within private manufacturing.[41]

Summary statistics are provided in Table 2. Table 3 displays a breakdown on the voting behavior of representatives in our sample across different FTAs. Since our preferred specification incorporates representative fixed effects, as shown in (2), Table 3 highlights the within-representative variation in voting behavior used to identify the model. For example, of the 670 representatives appearing in our sample, 198 vote on all 11 FTAs we consider. One-third vote in favor of all 11; 15% vote against all 11. The remainder are fairly uniformly distributed between one and ten pro-FTA votes. Overall, 237 of the 670 representatives are observed casting both pro- and anti-FTA votes; 162 Democrats and 75 Republicans. Figure 2 depicts the spatial variation in voting behavior patterns across CDs.[42]

4 Results

4.1 Baseline Specifications

Select results from variants of the model in (1) are displayed in Tables 4 and 5. Table 4 contains either year or year-by-region fixed effects in each specification. Table 5 contains either FTA or FTA-by-region fixed effects in each specification. In both tables, column (1) controls only for representative covariates (both time-varying and time invariant) and year or FTA fixed effects, but omits CD- and state-level covariates as well as any geographic or representative fixed effects. Column (2) adds state fixed effects. Column (3) adds CD fixed effects. Columns (4) – (7) add representative fixed effects and thus now only include time-varying representative covariates. Columns (5) – (7) replace the year or FTA fixed effects with year-by-region or FTA-by-region fixed effects. Finally, column (6) adds time-varying CD attributes and column (7) adds time-varying state attributes. Thus, column (7) is the most comprehensive in each in table.

For each specification, we present the coefficient estimates for a subset of the covariates.[43] We also provide the results of a test of the joint significance of the three trade-related redistribution variables: UI replacement rate, prior TAA certification rate, and the interaction. Finally, because of the heterogeneous effects of the UI replacement rate and prior TAA certification rate across districts, we provide summary statistics of the marginal effects at the bottom of each table. Specifically, we report the average marginal

[41] `http://www.dlt.ri.gov/lmi/laus/us/annavg.htm`, `http://www.unionstats.com`, and Wikipedia (e.g., `http://en.wikipedia.org/wiki/Governor_of_Alabama`).

[42] Representatives from Alaska and Hawaii voted against all FTAs on which they voted.

[43] The full set of results are available upon request. The full set of results for the specifications in column (7) of Tables 4 and 5 are provided in Table A1 of the Appendix.

effect (and standard error) for each variable, as well as the fraction of the sample with positive marginal effects of each variable.

When controlling for year or year-by region fixed effects (Table 4), our trade-related redistribution variables are only jointly statistically significant at conventional levels in one specification (column (4) with year and representative fixed effects). That said, the point estimates on the trade-related redistribution variables are fairly stable across columns (4) – (7). Specifically, the coefficients on the UI replacement rate and prior TAA certification rate are both negative, but the interaction term is positive. Thus, the marginal effect of each variable is negative (positive) when the other variable is low (high), providing some – albeit statistically weak – evidence that greater redistribution in CDs with already high levels of redistribution improves the political viability of free trade. For example, in the most comprehensive model (in column (7)), we find greater TAA generosity provided through a higher UI replacement rate raises the probability of a representative voting in favor of an FTA for nearly two-thirds of the sample.

Panel A in Figure 3 provides a graphical depiction of the heterogeneous marginal effects obtained in column (7) of Table 4. The left (right) panel displays the marginal effect of prior TAA certification success (UI replacement rate) as a function of the UI replacement rate (prior TAA certification success rate). 95% confidence intervals are included, as well as vertical lines denoting the 25th and 75th percentiles of the variable on the x-axis. The interquartile range of the variable on the x-axis is included to highlight where the middle range of the sample lies. Here, we see that the marginal effect of prior TAA certification success is positive for only half the sample, but the confidence interval excludes zero for CDs in the upper tail of the distribution of UI replacement rate. On the other hand, despite the marginal effect of the UI replacement rate being positive for nearly two-thirds of the sample, the confidence intervals never exclude zero.

The other coefficients displayed in Table 4 are also interesting and informative. First, political affiliation is a strong predictor of voting behavior, as suggested in Tables 1 and 3. Specifically, all else held constant, Democrats are more than 50% less likely to vote in favor of an FTA.[44] Second, we obtain a statistically significant (at conventional levels) positive association between political money and pro-FTA votes for Democrats in all specifications. However, the effect is reduced by up to two-thirds once representative fixed effects are added to the model. Similar, although less robust results hold for Republicans.[45] Third,

[44] This result should be interpreted cautiously as the effect of party affiliation is identified in the models that include representative fixed effects solely from two individuals who switch from Democrat to Republican during the sample period (Rodney Alexandar from Louisiana and Ralph Hall from Texas). Nonetheless, it is consistent with prior results in Blonigen and Figlio (1998), Baldwin and Magee (2000), Conconi et al. (2012b), and Conconi et al. (2012a).

[45] While we caution against interpreting the coefficients on political money in a causal manner, the magnitudes imply that roughly $5,400 in additional money per Democrat is needed to sway one more pro-FTA vote (in expectation) given 47% of representatives in our sample are Democrats. Approximately $22,000 per Republican is needed given 53% of representatives in our sample are Republicans. These are based on the results in column (7) in Tables 4 and 5 and are significantly higher than found in Baldwin and Magee (2000).

local tariff vulnerability has a negative and statistically significant effect on the probability of voting in favor of an FTA for both Republicans and Democrats. However, the effect is roughly three times larger for Democrats.[46] The coefficients on local tariff gains, on the other hand, are smaller in magnitude and only statistically significant for Republicans.[47] Moreover, counter-intuitively, this effect is negative indicating that Republicans are less likely to vote in favor of FTAs when our local tariff gain measure is higher. This result is robust to numerous robustness checks.[48]

When controlling for FTA or FTA-by-region fixed effects (Table 5), we obtain stronger results in favor of a salient effect of trade-related redistribution on voting behavior. Specifically, our trade-related redistribution variables are now jointly statistically significant at least at the $p < 0.05$ level in columns (3) – (7). In addition, the point estimates on the trade-related redistribution variables are fairly stable once representative fixed effects are included (columns (4) – (7)). As in Table 4, the coefficients on the UI replacement rate and prior TAA certification rate are both negative, but the interaction term is positive. Again, this implies that the marginal effect of each variable is negative (positive) when the other variable is low (high), indicating that greater redistribution in CDs with already high levels of redistribution improves the political viability of free trade.

In terms of the marginal effects of the redistribution variables, we find that greater TAA generosity and a higher prior TAA certification success rate each raise the probability of a representative voting in favor of an FTA for over 60% of the sample. The average marginal effect of each variable is positive, but not statistically significant at conventional levels. Panel B in Figure 3 provides greater detail. Here, we see that the marginal effect of prior TAA certification success is positive and statistically significant at the $p < 0.05$ level for CDs in the top quartile of the distribution of UI replacement rate. The confidence interval for the marginal effect of the UI replacement rate continues to include zero in all cases.

The results for the other covariates reported in Table 5 are essentially unchanged from Table 4 with one exception. Whereas the effect of local tariff vulnerability is negative and statistically significant at conventional levels for Republicans in all specifications in Table 4, this is not the case in Table 5. Here, the effect is positive for Republicans. The effect is statistically significant at conventional levels in all

[46] Note, the total effect for a Democrat is $-0.067 + (-0.145) = -0.212$.

[47] While the coefficient on local tariff gains is smaller in magnitude than the corresponding coefficient on local tariff vulnerability, the scale of the local tariff gain variable is much larger. Nonetheless, a one standard deviation increase in local tariff vulnerability has roughly twice the impact on the voting behavior of a Republican as compared to a one standard deviation increase in local tariff gains.

[48] We tried varying the way political money affects voting behavior to control for any lingering omitted variable bias on this dimension (added quadratic and cubic terms (and interactions with Democrat), using contributions only, using lobbying only). We also attempted to ensure the result is not driven solely by the industrial composition within LTG_{dbt} (added controls for district level 1-digit SIC employment shares, squared terms for union coverage and various union interactions, interaction of Γ_{dt} with Democrat; computed LTG_{dbt} by only aggregating over tradable sectors).

specifications including representative fixed effects.

Prior to assessing the sensitivity of these results along various dimensions, Tables 6 and 7 provide some additional computations in order to gauge the economic significance of the preceding results. Panel A displays the marginal effect of a *simultaneous* one SD increase in both the UI replacement rate and prior TAA certification rate. Columns (1) – (3) are derived from specifications (5) – (7) in Table 4; columns (4) – (6) are derived from specifications (5) – (7) in Table 5. Because the magnitude of the marginal effect depends on the initial values of the variables, we compute the marginal effects for hypothetical CDs at the 25th, 50th, and 75th percentiles of both the UI replacement rate and prior TAA certification rate.[49] Given the positive coefficient on the interaction terms in the models, the marginal effects are increasing in the baseline values of the variables. For a CD with baseline values at the 25th percentile, a simultaneous one SD increase in both variables has essentially no impact on voting behavior. For values corresponding to the median (75th percentiles), the marginal effect is about 2-3 (5-6) percentage points. With 435 representatives potentially voting on a given bill, this represents an expected swing of nearly 14 votes at the median baseline using our preferred specification in column (6).[50]

Panel B in Table 6 compares the magnitudes of the effect of the trade-related redistribution variables to the effect of local tariff vulnerability. Specifically, we compute the equal, proportionate SD increase (denoted by π) in both the UI replacement rate and prior TAA certification rate necessary to *offset* a one SD increase in local tariff vulnerability for a Democrat, leaving the representative's probability of voting in favor of an FTA unchanged. Again, these values depend on the baseline values of the redistribution variables.[51] Here, given the positive coefficient on the interaction terms in the models, the marginal

[49] Formally, the marginal effect is given by

$$\begin{aligned} \mathrm{E}[v|X,R'] - \mathrm{E}[v|X,R] &= \theta_1 \Delta P + \theta_2 \Delta RR + \theta_3 \Delta(P \times RR) \\ &= \theta_1 \sigma_P + \theta_2 \sigma_{RR} + \theta_3(\sigma_P RR_o + \sigma_{RR} P_o + \sigma_P \sigma_{RR}), \end{aligned}$$

where X is a vector of all other covariates in the model, σ_P and σ_{RR} are the SDs of P and RR, respectively, P_o and RR_o are the baseline values of P and RR, respectively, and θ_1, θ_2, and θ_3 are the elements of θ in (1).

[50] The predicted number of pro-FTA votes is given by

$$\mathrm{E}[\text{votes}|X,R] = \sum\nolimits_i \left(X_i \widehat{\beta} + R_i \widehat{\theta} \right),$$

where X is a vector of all other covariates in the model including the fixed effects (see, e.g., Baldwin and Magee (2000)).

[51] Formally, the impact of a one SD increase in LTV for a democrat is given by

$$\mathrm{E}[v|\widetilde{X}, LTV', Dem = 1] - \mathrm{E}[v|\widetilde{X}, LTV, Dem = 1] = \sigma_{LTV}(\beta_{2LTV} + \beta_{2LTV \times DEM}) < 0, \tag{a}$$

where $\widetilde{X}$ is a vector of all other covariates in the model, σ_{LTV} is the SD of LTV, and β_{2LTV} and $\beta_{2LTV \times DEM}$ are the relevant parameters in β_2 in (1). The marginal effect of an equal, proprtionate SD increase in both redistribution variables is given by

$$\mathrm{E}[v|X,R'] - \mathrm{E}[v|X,R] = \theta_1 \pi \sigma_P + \theta_2 \pi \sigma_{RR} + \theta_3(\pi \sigma_P RR_o + \pi \sigma_{RR} P_o + \pi^2 \sigma_P \sigma_{RR}), \tag{b}$$

where $\pi > 0$ is a scalar and represents the equal, proportionate SD increase in both redistribution variables and all other notation is defined in footnote 49. We solve for π by equating (b) and the absolute value of (a).

effects are decreasing in the baseline values of the variables. For a CD with baseline values at the 25th percentile, a simultaneous 1.6 – 2.6 SD increase in both redistribution variables is necessary to offset a one SD increase in local tariff vulnerability for a Democrat. For baseline values corresponding to the median (75th percentiles), a simultaneous 0.9-1.8 (0.6-1.2) SD increase in both redistribution variables is required. Our preferred specification in column (6) yields the lowest values of π. In this case, the redistribution variables and local tariff vulnerability have similar effects on voting behavior at the median baseline. That is, trade related redistribution and local vulnerabilities to tariff cuts are equally important in determining the political viability of free trade.

In Table 7, we answer a different question. Here, we compute the equal, proportionate SD *reduction* (again, denoted by π) in both the UI replacement rate and prior TAA certification rate *across all CDs in the US* necessary to prevent (in expectation) the passage of each of the FTAs in our sample.[52] For brevity, we only display the results obtained using specification (7) in Table 5. The values range from 0.24 in the case of CAFTA-DR to 3.58 in the case of US-Bahrain. In other words, if both the UI replacement rate and prior TAA certification rate had been one-quarter SD lower across the entire US in 2005, our model predicts that CAFTA-DR would not have passed. For the US-Bahrain FTA, which passed by an overwhelming number of votes, a 3.58 SD reduction in the trade-related redistribution variables across the entire US would have been necessary to derail the bill. For the US-Oman FTA, a 0.72 SD reduction in the trade-related redistribution variables across the entire US would have been necessary to preclude passage.

In sum, we believe the result from our most preferred model (specification (7) in Table 5), due to its control of the greatest amount of unobserved heterogeneity, points to a meaningful effect of trade-related redistribution on the political viability of free trade, at least for FTA bills lacking overwhelming support and in CDs with high initial levels of redistribution or employment shares in industries with prior TAA certification success. We now turn to various sensitivity analyses.

4.2 Sensitivity Analyses

To assess the robustness of the baseline results, we conduct several additional analyses. In all cases, our focus is on the robustness of specification (7) in Tables 4 and 5. In other words, all of the results in this section contain representative fixed effects and either year-by-region or FTA-by-region effects.

[52] The predicted number of pro-FTA votes after an equal, proportionate SD decrease in both redistribution variables is given by

$$\mathrm{E}[\text{votes}|X, R, \pi > 0] = \sum_i \left[X_i\widehat{\beta} + \widehat{\theta}_1(P_i - \pi\sigma_P) + \widehat{\theta}_2(RR_i - \pi\sigma_{RR}) + \widehat{\theta}_3(P_i - \pi\sigma_P)(RR_i - \pi\sigma_{RR}) \right],$$

where the notation is defined in footnote 49. We conduct a grid search over π until $\mathrm{E}[\text{votes}|X, R, \pi > 0]$ falls below the number of votes required for passage of each FTA in our sample.

Alternative Functional Form As pointed out in Balli and Sørensen (2013), econometric models including interaction terms can yield spurious results on the statistical significance of the interaction term if the functional form for the uninteracted terms is mis-specified. In particular, erroneous omission of nonlinear terms for the uninteracted variables can lead to a biased estimate of the interaction effect. In our case, if the effects of P and RR are nonlinear, then mis-specification can lead to a spurious, statistically significant estimate of the interaction term, $P \times RR$. Table A2 in the Appendix shows that including squared terms for P and RR in our baseline specifications does not alter our results.

Restricted Controls for Local Vulnerability and Gains The prior literature has relied on relative employment shares in net export as compared to net import sectors to control for local vulnerability or gains from trade liberalization (e.g., Baldwin and Magee (2000), Conconi et al. (2012b)). In our model, we include this ratio (given in (6)) as well as our measures of local tariff vulnerability and gains (given in (8) and (11), respectively). As shown in Table A1 of the Appendix, the employment ratio variable is not statistically significant. For comparison to the literature, we re-estimate our preferred specifications omitting our local tariff variables, but retaining the employment ratio variable and interacting it with a dummy variable if the representative is a Democrat. We do not present the results, but simply note that neither of the employment ratio variables are statistically significant at the $p < 0.10$ level.[53] Thus, our local tariff variables seem to be superior in capturing relevant determinants of voting behavior.

Alternative Controls for Political Money In the baseline specifications, our political money variable comprised *trade-related* contributions and lobbying expenditures. In columns (1) and (2) in Table 8, we define political money as the sum of *all* contributions and lobbying expenditures (i.e., trade plus non-trade plus unallocated). The biggest changes in the results are that now the associations between political money and voting behavior are extremely small and only statistically significant for Democrats. These results highlight the insight gained by parsing out contributions and lobbying that are directly tied to trade issues. In terms of the other coefficients in the models, very little has changed. If anything, the results are a bit more supportive of the role of trade-related redistribution. In particular, the average marginal effect of the UI replacement rate rises (from 0.139 to 0.173 in the models with year-by-region effects and from 0.093 to 0.126 in the models with FTA-by-region effects). However, given the size of the standard errors, this result should treated with caution. Moreover, the fraction of the sample with a

[53] In the model with year-by-region effects, the estimates are -0.02 (standard error = 0.015) and 0.023 (standard error = 0.022) on the direct effect and interaction term, respectively. In the model with FTA-by-region effects, the corresponding estimates are -0.02 (standard error = 0.015) and 0.023 (standard error = 0.023).

positive marginal effect of the UI replacement rate increases from 0.659 to 0.697 (0.601 to 0.637) in the models with year-by-region (FTA-by-region) effects.

In columns (3) and (4) in Table 8, we follow Baldwin and Magee (2000) and divide political contributions into funds originating from business groups and funds originating from labor groups.[54] Moreover, we follow Baldwin and Magee (2000) and now exclude lobbying expenditures. The results indicate a positive and statistically significant association between business contributions and pro-FTA votes which columns (5) and (6) show is driven by the business contributions received by Democrats. However, the magnitude of these contribution-related effects is much lower than the effect of our (trade-related) political money variable in our baseline specifications. This again highlights the gain of parsing out trade-related contributions and lobbying. The coefficient on labor contributions is positive as well, but smaller in magnitude and not statistically significant. The remainder of the results are nearly identical to those in columns (1) and (2).

Accounting for Other TAA Benefits TAA generosity depends only in part on extended UI benefits. As noted earlier, job training, career services, relocation allowances, HCTC, and wage supplements represent a significant portion of the benefits. Thus, our measure of TAA benefits is necessarily incomplete. However, the availability of these other benefits per recipient is unknown.[55] That said, these benefits are paid for by federal transfers to the states using an allocation rule based on historical and anticipated usage but that is otherwise invariant across states.[56] As a result, we assume that the expected value of these other benefits per eligible worker are constant across states and vary only by year. The expected level of TAA generosity is given by

$$B_{dt} = RR_{dt} + \Psi_t, \tag{12}$$

where Ψ_t is the (unobserved) expected level of expenditure per beneficiary in year t on non-UI benefits (normalized by the average wage so that RR and Ψ are in comparable units).

[54] The PAC contribution data obtained from the Center for Responsive Politics (see Data section for more information) indicates the type of PAC. The possible types are business, labor, ideological, other, unknown or outside spending group.

[55] Individual-level data on the utilization of various benefits under the TAA are available through the Trade Act Participant Report (see, e.g., Park (2012)). However, even combining this with data on total federal funds allocated to each state, the data are not sufficient to derive a reasonable estimate of total state-level benefits per recipient – denoted by Ψ in (12) – that varies across states due to the fact that the funds allocated to each state are based on historical transfers and anticipated participation levels. Moreover, funds can be spent at any point over a three-year period (US Government Accountability Office (2007)). Thus, federal funds allocated to a state in a given year do not necessarily represent the level of funds spent on program participants. Roughly half of all states do place limits on the cost of training programs participants may attend. However, these are typically not binding (US Government Accountability Office (2007)).

[56] The rough guidelines used to apportion funds for training to states are available at `https://www.dol.gov/regulations/taa-qa.htm`. Funding rules used from 2004-2007 are described in US Government Accountability Office (2007). Prior to 2004, there were no codified rules for allocating funds for training to states (US Government Accountability Office (2007, p. 65)). Currently, states are allocated funds at the start of the fiscal year based on state-level trends in training participation over the previous four quarters for which data are available. Additional funds are allocated over the remainder of the year in response to unanticipated demand.

Given this, the model we would like to estimate is

$$v_{idsbt} = x_{it}\beta_1 + x_{dt}\beta_2 + x_{st}\beta_3 + R_{dt}\theta + \widetilde{\varepsilon}_{idsbt}, \tag{13}$$

where now $R \equiv [P \quad B \quad P \times B]$. P is defined as before in (3). Our prior measure of TAA generosity, RR, is replaced by the total level of benefits an eligible worker would expect to receive given in (12).

Substituting (12) into (13) and writing out the individual elements of $R_{dt}\theta$ yields

$$\begin{aligned} v_{idsbt} &= x_{it}\beta_1 + x_{dt}\beta_2 + x_{st}\beta_3 + \theta_1 P_{dt} + \theta_2(RR_{dt} + \Psi_t) + \theta_3[P_{dt} \times (RR_{dt} + \Psi_t)] + \widetilde{\varepsilon}_{idsbt} \\ &= x_{it}\beta_1 + x_{dt}\beta_2 + x_{st}\beta_3 + \widetilde{\theta}_{1t}P_{dt} + \theta_2 RR_{dt} + \theta_3(P_{dt} \times RR_{dt}) + \left[\widetilde{\theta}_{2t} + \widetilde{\varepsilon}_{idsbt}\right], \end{aligned} \tag{14}$$

where $\widetilde{\theta}_{1t} \equiv \theta_1 + \theta_3\Psi_t$ and $\widetilde{\theta}_{2t} \equiv \theta_2\Psi_t$. To estimate (14), given that Ψ_t is unknown, entails interacting P_{dt} with a vector of year dummies (since the coefficient on P_{dt} now varies over time). The term $\widetilde{\theta}_{2t}$ constitutes a vector of year fixed effects. Since we already include year-by-region or FTA-by-region fixed effects in the model, $\widetilde{\theta}_{2t}$ is subsumed into these terms. Thus, despite Ψ_t being unobserved, we can still recover unbiased estimates of all of the parameters of the model with the exception of θ_1.[57] As such, we are still able to compute the marginal effect of the UI replacement rate – given by $\theta_2 + \theta_3 P_{dt}$ – for comparison to our baseline specifications.

The results are displayed in columns (1) and (2) in Table 9. We obtain three key findings. First, the coefficient estimates, particularly on the non-redistribution variables, are qualitatively unchanged. Second, we reject the null that the coefficients on redistribution variables (which now include $\widetilde{\theta}_{1t}$, $t = 1, ..., T$, θ_2, and θ_3) are jointly equal to zero at least at the $p < 0.05$ level. In addition, we reject the null that $\widetilde{\theta}_{1t}$ is constant over time at conventional levels in the model with year-by-region effects, but not in the model with FTA-by-region effects. Third, the average marginal effect of the UI replacement rate is modestly smaller compared with the corresponding estimates in Tables 4 and 5, yet still positive for over half the sample. In sum, while it would be ideal to have location-specific data on the value of all TAA benefits, our focus on the generosity of extended UI benefits alone in the baseline specifications does not seem particularly problematic.

Alternative Controls for Prior TAA Certification Success In the remaining columns in Table 9 we revert back to the original model in (1). However, now we alter our computation of a CD's prior TAA certification rate. In our baseline specifications, the prior certification rate is computed using a rolling

[57] The T estimates of $\widetilde{\theta}_{1t}$, $t = 1, ..., T$, depend on $T + 1$ unknown parameters (θ_1 and Ψ_t, $t = 1, ..., T$) in addition to θ_3.

window of the preceding five years, as shown in (3). Here, we experiment with different window widths. Columns (3) and (4) utilize data from just the prior year (e.g., votes in 2003 depend on the certification history from 2002). Columns (5) and (6) utilize a rolling window of the preceding ten years. Columns (7) and (8) utilize a rolling window of the preceding 15 years.

Two primary results emerge. First, the coefficients on the non-redistribution variables are essentially unchanged in all cases from the baseline specifications. Second, the impact of trade-related redistribution is generally stronger than in our baseline model. For instance, the trade-related redistribution coefficients are jointly statistically significant at conventional levels even in the specifications using year-by-region effects in columns (3) and (7). Moreover, the average marginal effects are much larger in magnitude (two to three times as big as our preferred baseline specification), statistically significant for the prior TAA certification rate in columns (3) and (4), and positive for a larger fraction of the sample in nearly all cases. In particular, when basing the prior TAA certification rate only on the preceding year, we obtain positive marginal effects of both redistribution variables for over 80% of the sample. The marginal effect of the prior TAA certification rate is also statistically significant for over half the sample in this case (see Figure 4).

Despite the stronger results here, our baseline specifications use a five-year rolling window to guard against possible concerns regarding the potential endogeneity of TAA certification decisions. The fact that our results are qualitatively similar, or even stronger, using window widths out to the preceding 15 years suggests otherwise, in our view. Moreover, examination of the time trend in the certification rate displayed in Figure 1 does not reveal any significant spikes in certification rates in years preceding the FTA votes in our sample. As stated earlier, between 1992 and 2011, seven of the eight years with the lowest certification rate were 2000-2006 during which many FTAs were being negotiated and voted upon. The overall upward trend in the certification rate after 2003 could be attributable to an increase in the credibility of petitions filed after the passage of the FTAs at this time. The 'cleanest' example of this occurs in 2002. While two FTA bills were voted on in 2003, the most recent prior FTA was NAFTA in 1993. However, the TAA certification rate continued to decline in 2002; it does not start to rise until 2004.

In sum, if representatives use just the most recent history of TAA certification results in forming expectations of the likelihood that workers in their CDs will receive future TAA benefits, then trade-related redistribution has a particularly pronounced impact on voting behavior.

Alternative Estimation Technique As discussed above, we utilize LPMs to avoid the well-known incidental parameters problem (that plagues fixed effects probit models) and enable estimation of average

marginal effects (which is not possible with fixed effects logit models). As noted by Wooldridge (2010, p. 608), "[I]t is often useful to begin with a linear model with an additive, unobserved effect." As an alternative, we estimate Chamberlain's correlated random effects (CRE) probit model. The benefit of the CRE probit model is that it restricts the probability that $v = 1$ to the unit interval while allowing for correlation between the unobserved effects and the covariates. In contrast to the LPM (or a fixed effects logit model), however, it places some structure on the nature of this correlation.

Formally, the 'structural' model is assumed to be given by

$$\Pr(v_{idsbt} = 1 \mid X_{idsbt}, \alpha_i) = \Phi(X_{idsbt}\beta + \lambda_{br} + \alpha_i), \tag{15}$$

where X_{idsbt} includes the full set of covariates in (1), including our redistribution variables but omitting the intercept, and Φ is the standard normal cumulative density function. All other notion is defined previously. The Mundlak (1978) version of the CRE probit model further assumes

$$\alpha_i \mid X_{idsbt} \sim \mathbb{N}(\delta_0 + \overline{X}_i\delta_1, \sigma_a^2), \tag{16}$$

where $\overline{X}_i$ is the average of X_{idsbt} for each representative and σ_a^2 is the variance of a_i in the equation $\alpha_i = \delta_0 + \overline{X}_i\delta_1 + a_i$.

Under (15) and (16), we obtain

$$\begin{aligned} \Pr\left(v_{idsbt} = 1 \mid X_{idsbt}\right) &= \Phi\left[(\delta_0 + X_{idsbt}\beta + \lambda_{br} + \overline{X}_i\delta_1) \times (1 + \sigma_a^2)^{-1/2}\right] \\ &= \Phi\left[\delta_0^a + X_{idsbt}\beta^a + \lambda_{br}^a + \overline{X}_i\delta_1^a\right], \end{aligned} \tag{17}$$

which is estimable using a population-averaged probit model (Wooldridge (2010)) where, for example, $\delta_0^a = \delta_0 \times (1 + \sigma_a^2)^{-1/2}$. Marginal effects averaged over the distribution of a are then given by

$$\mathrm{E}\left[\frac{\partial \Pr(v_{idsbt} = 1 \mid X_{idsbt})}{\partial X_j}\right] = \beta_j^a \times \phi(\delta_0^a + X_{idsbt}\beta^a + \lambda_{br}^a + \overline{X}_i\delta_1^a), \tag{18}$$

where $\mathrm{E}[\cdot]$ is the expectation operator, which is taken over the distribution of the unobserved heterogeneity, a, and j indexes a continuous covariate included in X.

The results are presented in Table 10. Columns (1) and (2) measure TAA certification success over the prior year, as in Columns (3) and (4) in Table 9. Columns (3) and (4) utilize a five year window width to compute prior TAA certification success as in our baseline specification. The results are generally

consistent with our prior results using a LPM. Specifically, we find a consistently negative effect of local tariff vulnerability on the propensity of Democrats to vote in favor of an FTA, as well as a negative direct association between being a Democrat and voting pro-trade. In addition, although the redistribution variables are only jointly statistically significant at conventional levels in Columns (1) and (2), the patterns of the marginal effects are similar to those obtained from the LPMs.[58] Using a one (five) year window width for the measure of prior TAA certification and including FTA-by-region effects, the marginal effect of prior TAA certification, averaged over the distribution of a, is positive for 94% (64%) of the sample. The corresponding marginal effect of TAA generosity is positive for 82% (81%) of the sample. Thus, although the estimates are imprecise, the results remain consistent with a positive effect of trade-related redistribution on the political viability of trade liberalization.

Addressing Potential Endogeneity One might be concerned about two potential sources of endogeneity. First, as discussed above, political money may not be strictly exogenous. Funds may be used by an interest group to reinforce a representative's already favorable stance towards the group's policy preference. Alternatively, funds may be used in an effort to sway a representative's vote. Prior empirical evidence on the endogeneity of political money is mixed (e.g., Baldwin and Magee (2000)). To assess the sensitivity of our results concerning the impact of trade-related redistribution, we instrument for political money and political money interacted with Democrat using exclusion restrictions found in the existing literature. Following the spirit of Baldwin and Magee (2000) and Magee (2010), we utilize dummy variables indicating whether a representative is the chairperson of the Education and Workforce, Energy and Commerce, International Relations, or Ways and Means committee. We also create a dummy variable if the representative has been a member of the House for at least two years. These variables are designed to capture a representative's legislative influence. Finally, we follow the spirit of Ludema et al. (2011) and utilize contributions made to a representative related to issues other than trade. Intuitively, contributions made for non-trade reasons are indicative of a representative's legislative power and fundraising

[58] Due to the interaction term between the redistribution variables, the marginal effect for observation i *averaged over the distribution of* a is given by

$$\mathrm{E}\left[\frac{\partial \Pr(v_{idsbt}=1 \mid X_{idsbt})}{\partial P_{dt}}\right] = (\beta^a_P + \beta^a_{P\times RR} RR_{dt}) \times \phi(\delta^a_0 + X_{idsbt}\beta^a + \lambda^a_{br} + \overline{X}_i \delta^a_1) \tag{a}$$

for prior TAA certification success and

$$\mathrm{E}\left[\frac{\partial \Pr(v_{idsbt}=1 \mid X_{idsbt})}{\partial RR_{dt}}\right] = (\beta^a_{RR} + \beta^a_{P\times RR} P_{dt}) \times \phi(\delta^a_0 + X_{idsbt}\beta^a + \lambda^a_{br} + \overline{X}_i \delta^a_1) \tag{b}$$

for TAA generosity. The estimated (population) average marginal effect reported in Table 10 is given by (a) and (b) *averaged across the sample.*

ability. However, such contributions are unlikely to affect voting on trade issues.[59] Each instrument is also interacted with the dummy variable indicating if the representative is a Democrat.

The results, based on a LPM, are presented in columns (1) and (2) in Table 11.[60] Before examining the coefficient estimates, it is important to note that the instruments appear to do very well. The instruments are strongly related to the endogenous variables. We easily reject the null that the model is underidentified at the $p < 0.01$ level according to the Kleibergen-Paap rk LM statistic. In addition, the Kleibergen-Paap rk Wald F-statistic exceeds 75. Finally, Hansen's J test of overidentification fails to reject the validity of the instruments (the p-values exceed 0.82). Thus, the model appears to be well-specified.

In terms of the coefficient estimates, two interesting findings emerge. First, the weak-instrument robust test of joint significance of the endogenous regressors rejects the null that the coefficients are jointly equal to zero at the $p < 0.01$ level. Thus, political money matters. However, examining the individual coefficients indicates that political money only matters for Democrats ($p < 0.03$). That said, the test of endogeneity, based on the difference of two Sargan-Hansen statistics, fails to reject the null of exogeneity (the p-values exceed 0.20). Second, as expected, the results pertaining to the effects of trade-related redistribution are essentially unchanged. The same holds true for the other coefficients reported (i.e., local tariff vulnerability and gains and party affiliation).[61]

The second potential source of endogeneity concerns the generosity of the UI system. As discussed previously, because TAA recipients constitute a very small portion of UI recipients, we do not believe this to be an issue. Moreover, we do not believe unobserved attributes are correlated with both state UI benefits and representative preferences concerning FTA formation. Nonetheless, we instrument for the UI replacement rate and its interaction with the prior TAA certification rate.[62] We utilize three instruments: the reserve ratio of the state UI system, the state's GSP, and the maximum weekly UI benefit permitted in the state. The UI reserve ratio is the year-end trust fund balance divided by total covered wages during the year. As discussed in Smith and Wenger (2013), the reserve ratio reflects the solvency of the state's UI system and affects the generosity of benefits. Similarly, the state's GSP affects its overall size and scale of economic activity. Finally, following Krueger and Mueller (2010), we utilize the weekly maximum benefit.

The results are presented in columns (3) and (4) in Table 10. Again, the instruments appear to perform well. We easily reject the null that the model is underidentified at the $p < 0.01$ level according

[59] This is supported by the fact that the effects of political money became much smaller in magnitude when we pooled trade and non-trade political money in Table 8.

[60] Estimation is performed using -xtivreg2- in Stata (Schaffer (2010)).

[61] Similar patterns emerge when instrumenting for political money if we categorize money separately by business and labor contributions as in Baldwin and Magee (2000). See Table A3 in the Appendix.

[62] The best argument in favor of treating UI benefits as endogenous is due it being an imperfect proxy for overall TAA generosity, as shown in (12), where Ψ_t represents one-sided (nonclassical) measurement error.

to the Kleibergen-Paap rk LM statistic. In addition, the Kleibergen-Paap rk Wald F-statistic exceeds 67. Finally, Hansen's J test of overidentification fails to reject the validity of the instruments (the p-values exceed 0.10). In terms of the coefficient estimates, very little changes. In fact, we again fail to reject the null of exogeneity. The biggest difference is that now the marginal effects of the UI replacement rate are now strictly positive for the entire sample; the average marginal effects are statistically significant at the $p < 0.10$ level. However, the estimates are imprecise.

Finally, in columns (5) and (6) we instrument for political money and the UI replacement rate, along with the relevant interactions. Thus, we have four endogenous regressors. We utilize the combined set of instruments from the preceding specifications. Overall, the results do not differ much from those just described. The instruments continue to fair well according to the various specification tests and, again, we fail to reject the null of exogeneity. In addition, the coefficient estimates on political money are very similar to those in columns (1) and (2), albeit now statistically significant for Republicans as well, while the coefficient estimates on the trade-related redistribution variables are essentially unchanged from columns (3) and (4), albeit now jointly statistically significant at the $p < 0.05$ level in column (6). The corresponding marginal effects from these final two specifications are displayed in Figure 5. Both marginal effects are positive over a wide range of the sample. The marginal effect of the UI replacement rate is statistically significant for about 25% of the sample.

5 Conclusion

There is a burgeoning literature in economics and political science on the determinants of voting behavior. Much of this literature focuses on the roles of political contributions and lobbying, information flows to policymakers, and the welfare of constituents. In this study, we investigate a particular aspect of constituent welfare based on expected income transfers from winners to losers under policies with strong distributional implications. The impact of such transfers on voting behavior has not been investigated empirically to our knowledge. However, this seems to be of first order importance as most policy reforms are not Pareto improving even if the net welfare gains are positive. Thus, while our analysis is in the context of trade policy, the implications are much broader.

Our results indicate that redistribution under the auspices of the TAA program is, in fact, a statistically significant determinant of the political viability of free trade. This effect is robust to numerous sensitivity analyses. In terms of economic significance, a simultaneous one SD *increase* in the expected likelihood of TAA receipt and TAA generosity *raises* the probability of voting in favor of an FTA by more than three

percentage points for a representative from a CD with median levels of each variable. The impact doubles for a CD initially at the 75th percentile of each variable. Alternatively, a simultaneous, one SD *increase* in the expected likelihood of TAA receipt and TAA generosity in a district with median levels of each variable is sufficient to offset a one SD *increase* in the local tariff vulnerability of a Democrat's district, leaving his or her pro-FTA vote propensity unchanged. In this sense, trade related redistribution and local tariff vulnerabilities are equally important determinants of the political viability of free trade. Finally, a one SD *reduction* in the expected likelihood of TAA receipt and TAA generosity across the entire US in 2005 and 2006 would have been sufficient to preclude the passage of CAFTA-DR and the US-Oman FTA.

Recent work assessing the effectiveness of the TAA program using program data (Park (2012), Schochet et al. (2012)) suggests TAA could be even more useful in terms of increasing political support for free trade. Moreover, as noted in the Introduction, the take-up rate of benefits among eligible workers is less than 50%. On the other hand, it could be that extended UI benefits and job training may not be the optimal form of compensation for workers who suffer due to trade. For example, Davidson and Matusz (2006) develop a model where trade adversely affects not only workers who lose their jobs (and subsequently engage in costly search prior to re-employment), but also those in declining industries. The authors find that extended UI benefits and training is not the optimal compensation policy. Rather, wage subsidies for successful 'switchers' and employment subsidies for 'stayers' is optimal. Thus, future work should consider not only whether transfers improve the viability of policies which, even though not Pareto improving, yield net welfare gains but also the optimal form of such transfers (e.g. Brander and Spencer (1994), Kletzer (2004), Davidson and Matusz (2006)). Regardless, the results here suggest that transfers from winners to losers are an important component of the political economy story.

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Table A1. Determinants of Pro-FTA Votes in the House of Representatives: All Coefficient Estimates.

Variable	(1)	(2)
Representative Covariates		
Total Money	0.209‡	0.220‡
	(0.112)	(0.114)
Total Money	0.691*	0.699*
x Democrat	(0.265)	(0.265)
Democrat	-0.562‡	-0.558‡
	(0.304)	(0.305)
Same Party as House Majority	0.070*	0.068*
	(0.017)	(0.017)
Same Party as President	-0.037†	-0.040†
	(0.017)	(0.017)
Same Party as Governor	0.006	0.010
	(0.014)	(0.014)
District Covariates		
Local Tariff Vulnerability	-0.067†	0.057†
	(0.027)	(0.025)
Local Tariff Vulnerability	-0.145*	-0.168*
x Democrat	(0.044)	(0.036)
Local Tariff Gain	-0.005†	-0.005†
	(0.002)	(0.003)
Local Tariff Gain	0.006	0.009
x Democrat	(0.006)	(0.007)
Employment Share Ratio (Export	-0.009	-0.009
Sectors Divided by Import Sectors)	(0.011)	(0.011)
Population Share, Less than	0.492	0.391
a HS Diploma	(0.884)	(0.885)
Population Share, HS Degree	-0.470	-0.563
	(1.434)	(1.444)
Population Share, Some College	-0.358	-0.226
	(0.771)	(0.772)
Population Share, At Least a	0.522	0.390
Bachelor's Degree	(1.313)	(1.315)
Unemployment Rate, Less than	-0.004‡	-0.005‡
a HS Diploma	(0.003)	(0.003)
Unemployment Rate, HS Diploma	0.003	0.003
	(0.006)	(0.006)
Unemployment Rate, Some College	-0.005	-0.005
	(0.007)	(0.007)
Unemployment Rate, At Least a	0.006	0.007
Bachelor's Degree	(0.008)	(0.009)
Median Household Income	0.029	0.022
	(0.063)	(0.064)

	(1)	(2)
State Covariates		
Governor is a Democrat	-0.001	0.001
	(0.020)	(0.020)
Unemployment Rate	0.001	0.003
	(0.013)	(0.013)
Share of GSP, Agriculture	-4.842	-5.153
	(4.856)	(4.901)
Share of GSP, Manufacturing	-0.559	-0.566
	(0.435)	(0.439)
Union Coverage Rate	0.006	0.006
	(0.004)	(0.004)
Redistribution Covariates		
UI Replacement Rate	-1.816	-2.089‡
	(1.119)	(1.133)
UI Replacement Rate	3.668†	4.096†
x Prior TAA Certification Rate	(1.680)	(1.703)
Prior TAA Certification Rate	-1.270†	-1.317†
	(0.626)	(0.632)
N	4647	4647
Year-by-Region Fixed Effects	Y	N
FTA-by-Region Fixed Effects	N	Y
Representative Fixed Effects	Y	Y

Notes: N = 4647. ‡ p<0.10, † p<0.05, * p<0.01. Linear probability models. Dependent variable equals one for pro-FTA vote, zero otherwise. Standard errors clustered at the representative level. Full results of specification (7) from Tables 4 and 5 shown in column 1 and 2, respectively. See text for further details.

Table A2. Determinants of Pro-FTA Votes in the House of Representatives: Quadratic Specification.

	Alternative Money Definition	
Variable	**(1)**	**(2)**
Total Money	0.210‡	0.220‡
	(0.112)	(0.114)
Total Money	0.692*	0.701*
x Democrat	(0.267)	(0.267)
Local Tariff Vulnerability	-0.068†	0.055†
	(0.027)	(0.025)
Local Tariff Vulnerability	-0.146*	-0.169*
x Democrat	(0.044)	(0.036)
Local Tariff Gain	-0.005†	-0.005†
	(0.002)	(0.003)
Local Tariff Gain	0.006	0.009
x Democrat	(0.006)	(0.007)
Democrat	-0.548‡	-0.545‡
	(0.302)	(0.302)
UI Replacement Rate	-3.891	-4.309
	(4.388)	(4.432)
(UI Replacement Rate)^2	2.994	3.157
	(5.465)	(5.506)
UI Replacement Rate	3.778†	4.240†
x Prior TAA Certification Rate	(1.779)	(1.807)
Prior TAA Certification Rate	-2.510*	-2.384*
	(0.812)	(0.824)
(Prior TAA Certification Rate)^2	1.183†	0.999‡
	(0.534)	(0.543)
N	4647	4647
Representative Covariates	Y	Y
District Covariates	Y	Y
State Covariates	Y	Y
Year-by-Region Fixed Effects	Y	N
FTA-by-Region Fixed Effects	N	Y
Representative Fixed Effects	Y	Y
Joint Significance of	p=0.041	p=0.017
Redistribution Variables		
Marginal Effect of TAA Cert.:		
Ave. Marginal Effect	0.041	0.129
	(0.111)	(0.111)
% Positive	0.576	0.693
Marginal Effect of UI:		
Ave. Marginal Effect	0.169	0.109
	(0.379)	(0.388)
% Positive	0.673	0.615

Notes: ‡ p<0.10, † p<0.05, * p<0.01. Linear probability models. Dependent variable equals one for pro-FTA vote, zero otherwise. Standard errors clustered at the representative in parentheses. See Table 4 and text for further details.

Table A3. Determinants of Pro-FTA Votes in the House of Representatives: Alternative Controls for Political Money (IV Estimation).

Variable	(1)	(2)	(3)	(4)
Labor Contributions	0.733	0.789	0.559	0.606
	(0.514)	(0.509)	(0.488)	(0.482)
Business Contributions	0.020	0.018	0.036	0.034
	(0.033)	(0.033)	(0.032)	(0.031)
Local Tariff Vulnerability	-0.066†	0.054†	-0.067†	0.051†
	(0.026)	(0.024)	(0.026)	(0.024)
Local Tariff Vulnerability	-0.148*	-0.170*	-0.141*	-0.161*
x Democrat	(0.043)	(0.036)	(0.043)	(0.036)
Local Tariff Gain	-0.004‡	-0.005‡	-0.004‡	-0.004
	(0.002)	(0.002)	(0.002)	(0.002)
Local Tariff Gain	0.005	0.008	0.007	0.011
x Democrat	(0.006)	(0.007)	(0.006)	(0.007)
Democrat	-0.532	-0.532	-0.550	-0.555
	(0.350)	(0.352)	(0.353)	(0.355)
UI Replacement Rate	-1.719	-1.998‡	0.557	0.658
	(1.084)	(1.093)	(1.746)	(1.771)
UI Replacement Rate	4.031†	4.457*	2.789	2.807
x Prior TAA Certification Rate	(1.647)	(1.660)	(2.174)	(2.206)
Prior TAA Certification Rate	-1.378†	-1.423†	-0.952	-0.851
	(0.610)	(0.613)	(0.797)	(0.807)
N	4626	4626	4626	4626
Representative Covariates	Y	Y	Y	Y
District Covariates	Y	Y	Y	Y
State Covariates	Y	Y	Y	Y
Year-by-Region Fixed Effects	Y	N	Y	N
FTA-by-Region Fixed Effects	N	Y	N	Y
Representative Fixed Effects	Y	Y	Y	Y
Endogenous Covariates	Money, Money x Dem.		Money, Money x Dem., UI Repl. Rate, UI Repl. Rate x Prior TAA Success Rate	
Underidentification Test	0.002	0.002	0.003	0.003
Overidentification Test	0.869	0.875	0.527	0.531
Endogeneity Test	0.673	0.612	0.561	0.466
Rk F-statistic	46.731	46.209	32.354	32.007
Joint Significance of	p=0.000	p=0.000	p=0.000	p=0.000
of Endogenous Variables				
Joint Significance of	p=0.063	p=0.010	p=0.068	p=0.021
Redistribution Variables				
Marginal Effect of TAA Cert.:				
Ave. Marginal Effect	0.000	0.100	0.001	0.108
	(0.107)	(0.107)	(0.108)	(0.109)
% Positive	0.480	0.633	0.480	0.772
Marginal Effect of UI:				
Ave. Marginal Effect	0.429	0.377	2.043‡	2.154†
	(0.626)	(0.630)	(1.057)	(1.062)
% Positive	0.854	0.818	1.000	1.000

Notes: ‡ p<0.10, † p<0.05, * p<0.01. Estimation by GMM. Dependent variable equals one for pro-FTA vote, zero otherwise. Standard errors clustered at the representative. See Table 11 for further details.

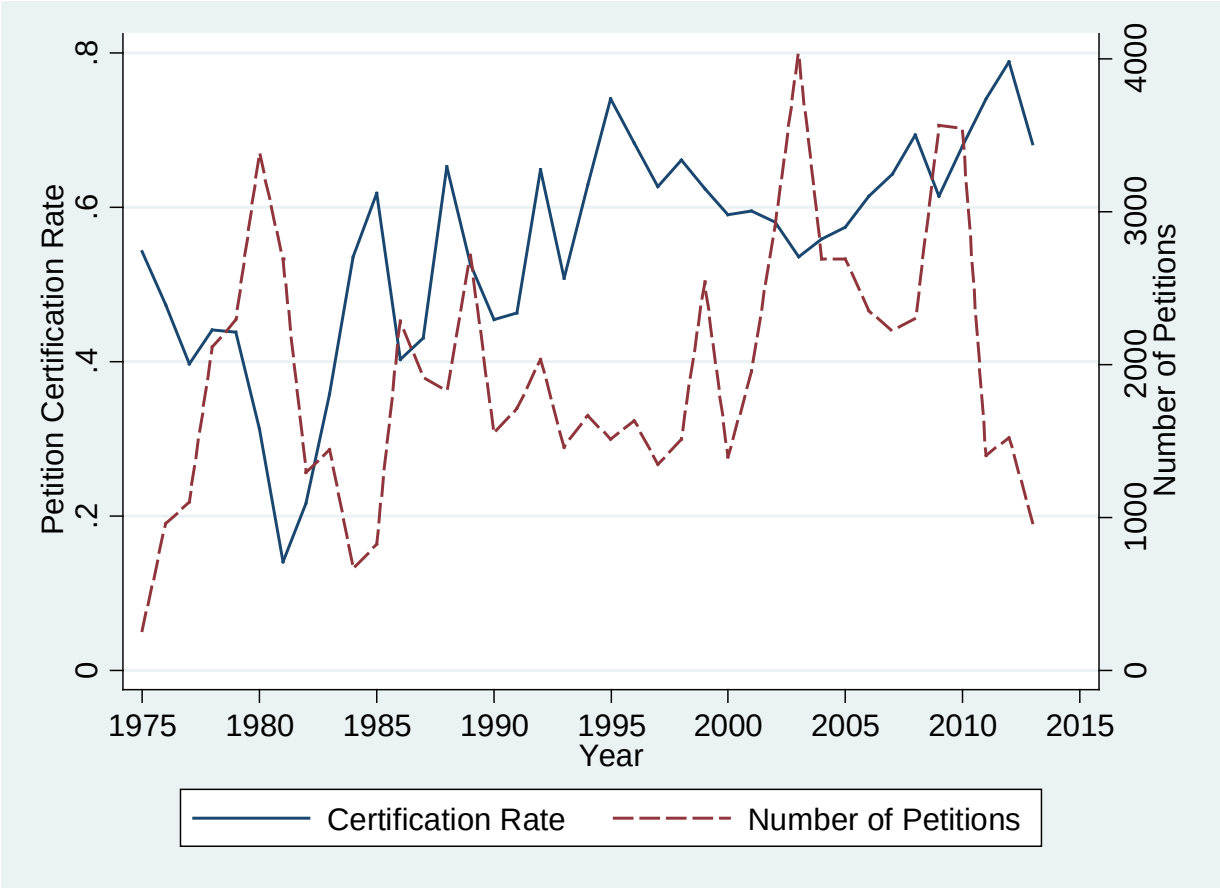


Figure 1. TAA Certification History.
Note: Certification rate is based on the number of petitions either certified or partially certified out of all petitions dispensed of during a given year. The total number of petitions includes all petitions dispensed of in a given year, including those coded as 'terminated' or 'other' by the US Department of Labor.

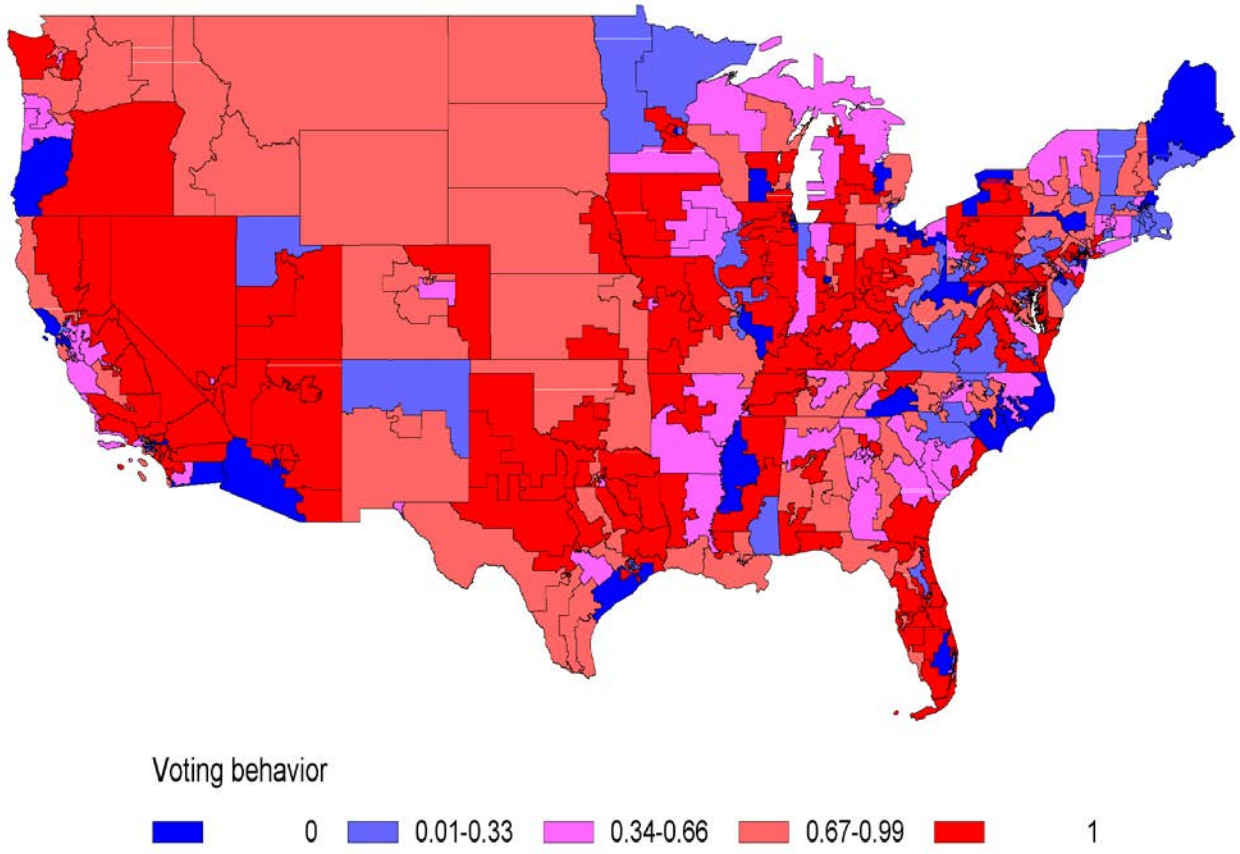
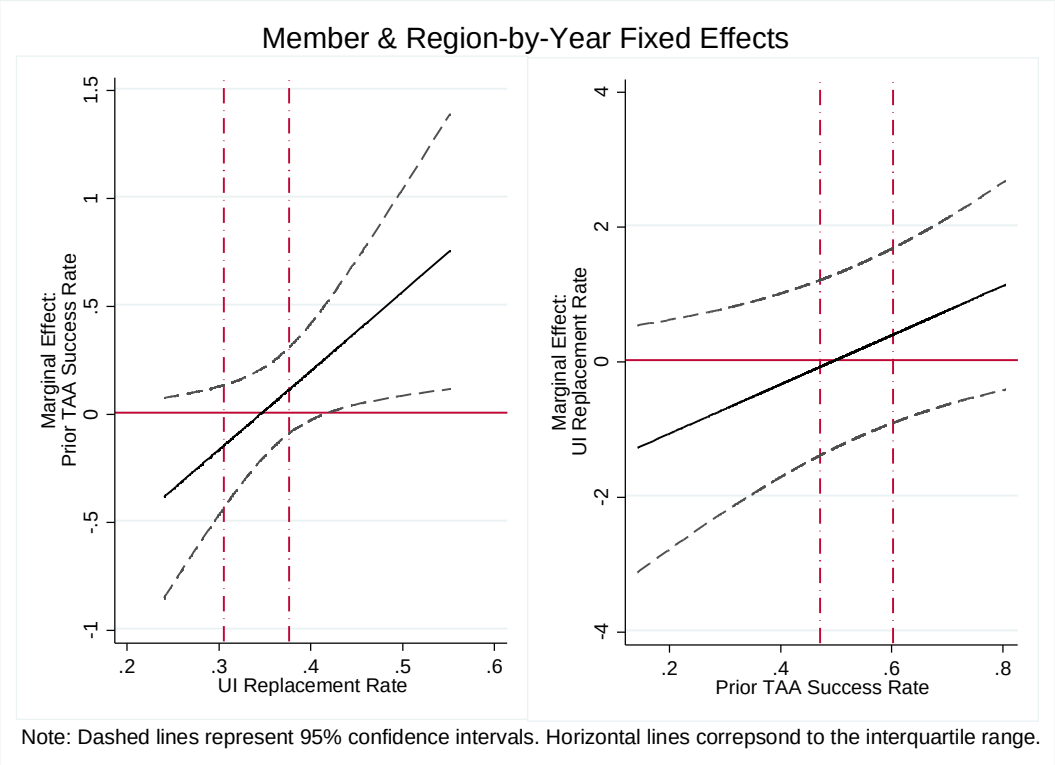


Figure 2. Congressional District Voting Behavior.
Note: The figure depicts the proportion of FTA votes in our sample that a Congressional districts' representative(s) cast in favor of proposed FTAs.

Panel A.



Panel B.

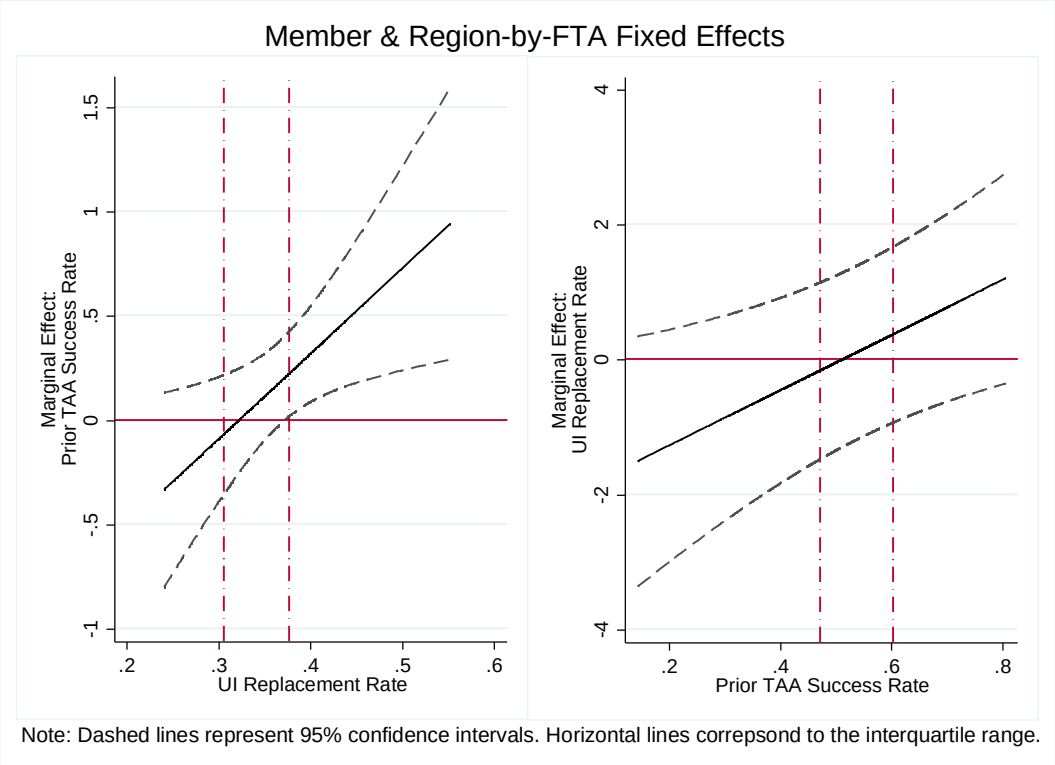
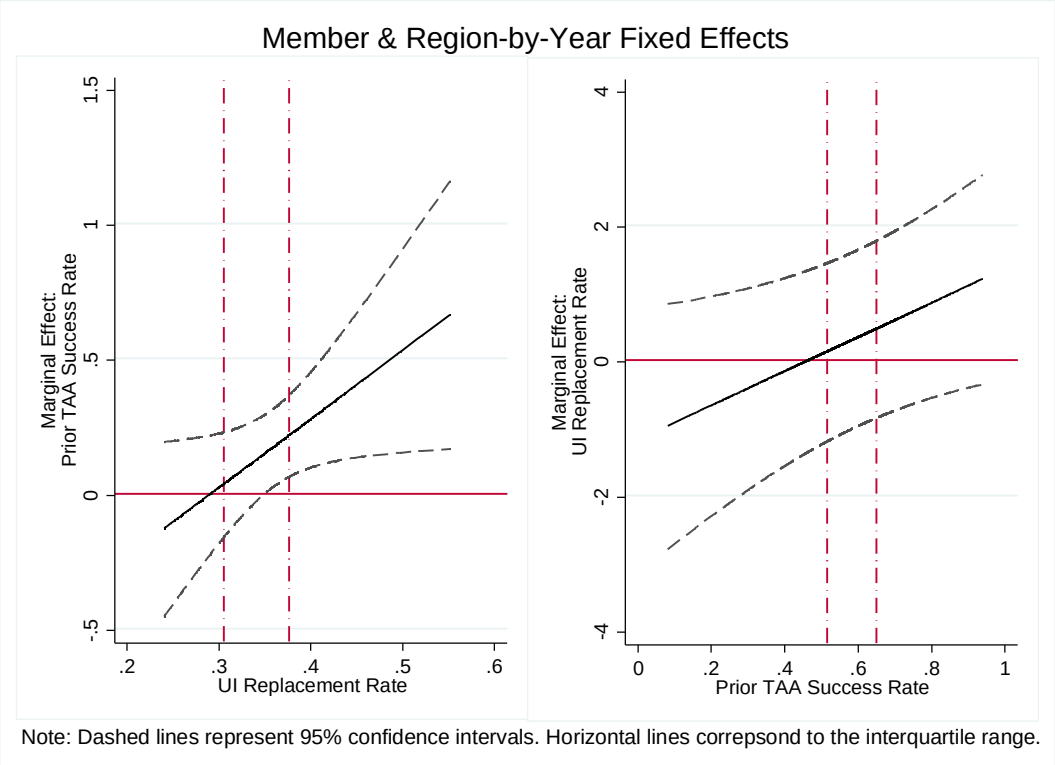


Figure 3. Marginal Effects of UI Replacement Rate and Prior TAA Success on Pro-FTA Voting.
Note: Panel A based on column (7) in Table 4. Panel B based on column (7) in Table 5.

Panel A.



Panel B.

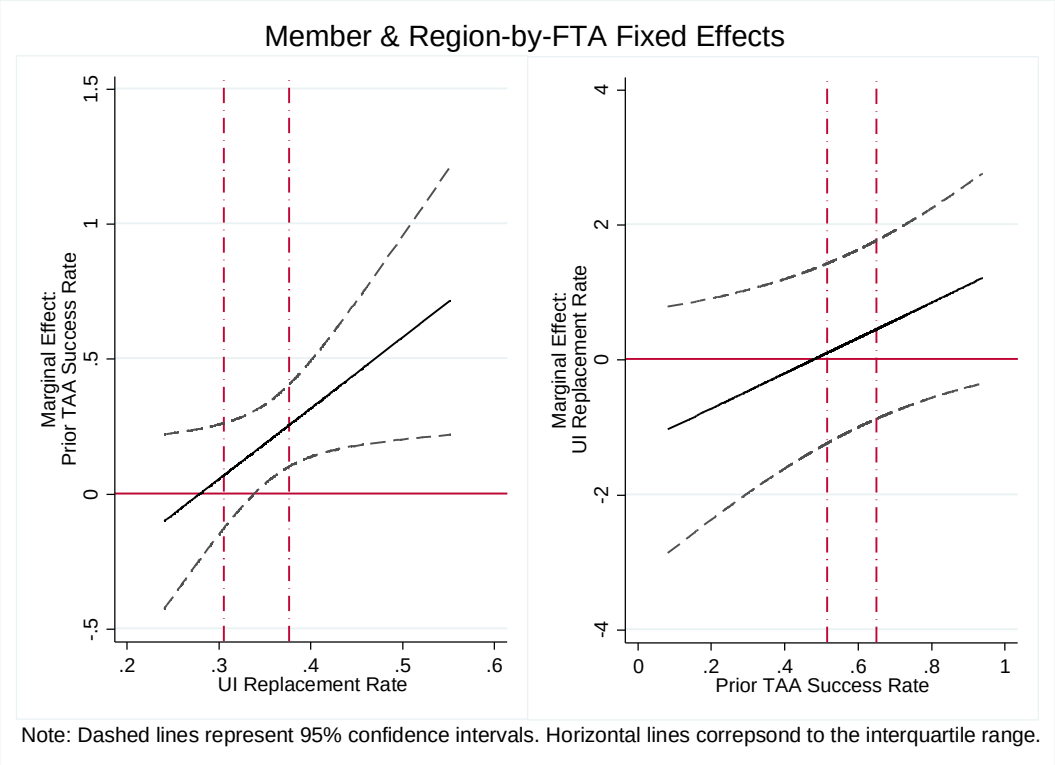
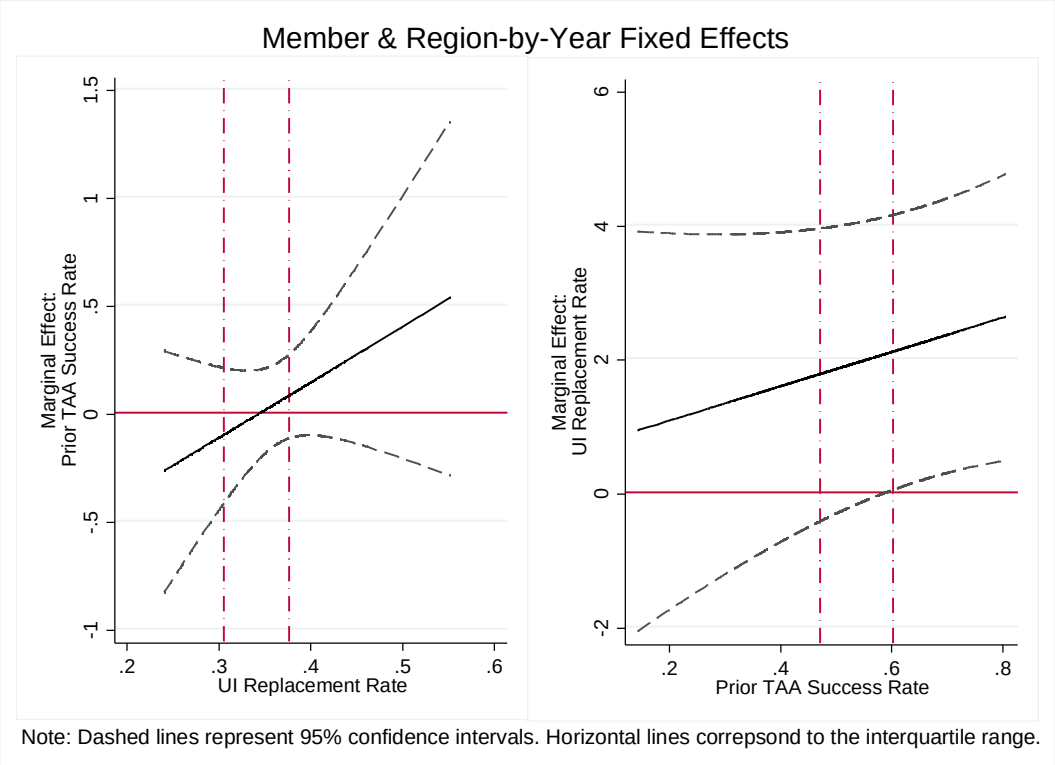


Figure 4. Marginal Effects of UI Replacement Rate and Prior TAA Success on Pro-FTA Voting: Alternative Window Width for Prior TAA Certification Rate.

Note: Panel A based on column (3) in Table 9. Panel B based on column (4) in Table 9.

Panel A.



Panel B.

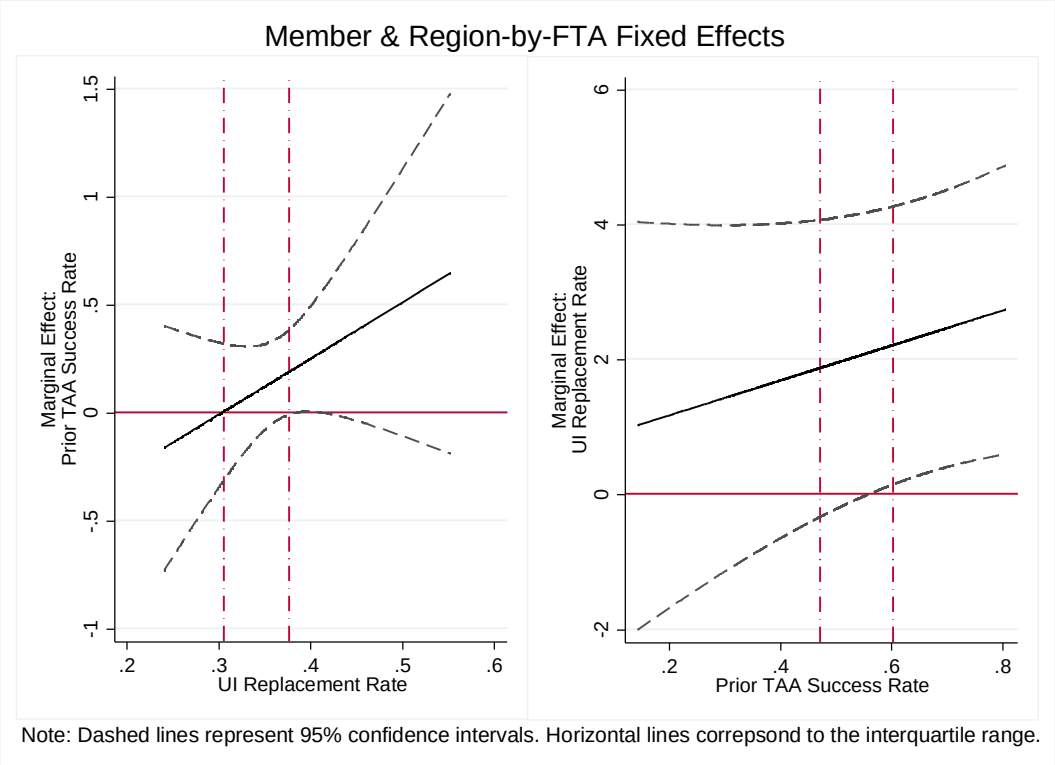


Figure 5. Marginal Effects of UI Replacement Rate and Prior TAA Success on Pro-FTA Voting: Political Money & UI Replacement Rate Treated as Endogenous.
Note: Panel A based on column (5) in Table 10. Panel B based on column (6) in Table 10.

Table 1. Breakdown of Votes by FTA

		Political Party			
	Vote	**Independent**	**Democrat**	**Republican**	**Total**
US-Chile (2003)	N	1	128	27	156
	Y	0	74	194	268
					424
US-Singapore (2003)	N	1	127	27	155
	Y	0	74	196	270
					425
US-Australia (2004)	N	1	82	24	107
	Y	0	116	196	312
					419
US-Morocco (2004)	N	1	79	18	98
	Y	0	118	201	319
					417
US-Bahrain (2005)	N	1	81	13	95
	Y	0	114	211	325
					420
US-CAFTA (2005)	N	1	186	27	214
	Y	0	15	202	217
					431
US-Oman (2006)	N	1	175	28	204
	Y	0	22	196	218
					422
US-Peru (2007)	N	0	114	16	130
	Y	0	109	175	284
					414
US-Colombia (2011)	N	0	156	9	165
	Y	0	31	229	260
					425
US-Panama (2011)	N	0	121	6	127
	Y	0	66	232	298
					425
US-South Korea (2011)	N	0	128	21	149
	Y	0	59	216	276
					425

Notes: Vote totals differ across FTAs due to abstentions and vacant seats. Votes represent those included in our sample. Some votes are excluded due to missing covariates used in the analysis.

Table 2. Summary Statistics.

Variable	Mean	SD	Min	Max
FTA Vote (1 = Yes)	0.656	0.475	0	1
UI Replacement Rate	0.342	0.048	0.240	0.551
Prior TAA Certification Rate	0.533	0.101	0.143	0.804
Member Covariates				
Experience	10.127	8.420	0	46
Independent (1 = Yes)	0.002	0.039	0	1
Democrat (1 = Yes)	0.468	0.499	0	1
Republican (1 = Yes)	0.530	0.499	0	1
Gender (1 = Male)	0.852	0.355	0	1
Education (1 = Less than BA Degree)	0.072	0.259	0	1
Education (1 = BA Degree)	0.288	0.453	0	1
Education (1 = Advanced Degree)	0.640	0.480	0	1
Committee Chair (1 = Education & Workforce)	0.002	0.049	0	1
Committee Chair (1 = Energy & Commerce)	0.002	0.049	0	1
Committee Chair (1 = Int'l Relations)	0.002	0.049	0	1
Committee Chair (1 = Ways & Means)	0.002	0.049	0	1
Total Money (2010 US$)	67130.7	65629.8	-1007.3	650899.8
Labor Contributions (2010 US$)	90938.5	96268.0	-5949.8	507753.5
Business Contributions (2010 US$)	365955.9	287457.8	-2974.9	2408148.0
Same Party as President (1 = Yes)	0.498	0.500	0	1
Same Party as House Majorty (1 = Yes)	0.537	0.499	0	1
Same Party as Governor (1 = Yes)	0.530	0.500	0	1
District Covariates				
Local Tariff Vulnerability	0.085	0.276	0.000	5.251
Local Tariff Gain	0.760	1.873	0.000	60.844
Ratio of Ave. Employment Share in Net Export Sectors to Net Import Sectors	1.619	0.925	0.174	10.568
Education, % HS Graduate (Aged 25+)	0.295	0.065	0.119	0.494
Education, % Some College (Aged 25+)	0.075	0.016	0.031	0.131
Education, % BA (Aged 25+)	0.172	0.056	0.044	0.370
Education, % Advanced Degree (Aged 25+)	0.100	0.046	0.016	0.312
UR, Less than HS (Aged 25-64)	12.145	5.047	2.0	38.8
UR, HS (Aged 25-64)	7.792	3.288	1.5	28.2
UR, Some College (Aged 25-64)	6.148	2.602	1.7	21.0
UR, BA or Higher (Aged 25-64)	3.331	1.416	0.5	11.3
Household Median Income	50692.540	17492.990	15506	117288
Population (Aged 25+)	447691.300	47221.390	250977	719603
State Covariates				
Governor (1 = Independent)	0.005	0.072	0	1
Governor (1 = Democrat)	0.449	0.497	0	1
Governor (1 = Republican)	0.546	0.498	0	1
UR	6.320	2.021	2.5	13.2
Gross State Product	570545	494083	21604	1763450
Agriculture (% of GSP)	0.010	0.009	0.001	0.098
Manufacturing (% of GSP)	0.127	0.052	0.015	0.366
Union Coverage (%, Private Manufacturing)	12.058	6.384	1.2	31.3
UI Reserve Ratio	0.005	0.008	-0.008	0.037

Notes: N = 4647. Data cover votes on 11 Free Trade Agreements (FTAs) over the period 2003-2011 in the House of Representatives. UI = Unemployment Insurance. TAA = Trade Adjustment Assistance. BA = Bachelor's. HS = High School. UR = Unemployment Rate. See text for sources and other details.

Table 3. Distribution of Votes Across Representatives

Number of Votes Cast by a Representative	Number of Pro-FTA Votes												N
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	
I. Full Sample													
1	0.52	0.48											21
2	0.20	0.00	0.80										5
3	0.15	0.03	0.11	0.72									151
4	0.21	0.07	0.09	0.10	0.53								70
5	0.13	0.00	0.25	0.13	0.13	0.38							8
6	0.13	0.07	0.00	0.07	0.13	0.13	0.47						15
7	0.16	0.01	0.06	0.02	0.04	0.13	0.09	0.49					82
8	0.08	0.08	0.04	0.05	0.05	0.06	0.08	0.09	0.46				98
9	0.33	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.33			3
10	0.16	0.05	0.00	0.11	0.00	0.00	0.00	0.16	0.11	0.16	0.26		19
11	0.15	0.08	0.04	0.04	0.06	0.05	0.04	0.02	0.06	0.07	0.08	0.33	198
II. Democrats													
1	0.65	0.35											17
2	0.50	0.00	0.50										2
3	0.58	0.11	0.19	0.11									36
4	0.39	0.13	0.16	0.08	0.24								38
5	0.20	0.00	0.20	0.20	0.20	0.20							5
6	0.20	0.20	0.00	0.20	0.20	0.20	0.20						5
7	0.45	0.05	0.23	0.00	0.05	0.18	0.00	0.05					22
8	0.16	0.16	0.07	0.09	0.04	0.09	0.18	0.13	0.09				45
9	0.50	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00			2
10	0.30	0.10	0.00	0.20	0.00	0.00	0.00	0.30	0.10	0.00	0.00		10
11	0.26	0.14	0.06	0.05	0.10	0.06	0.06	0.02	0.08	0.06	0.05	0.04	110
III. Non-Democrats													
1	0.00	1.00											4
2	0.00	0.00	1.00										3
3	0.02	0.00	0.08	0.90									115
4	0.00	0.00	0.00	0.13	0.88								32
5	0.00	0.00	0.33	0.00	0.00	0.67							3
6	0.10	0.00	0.00	0.00	0.10	0.10	0.70						10
7	0.05	0.00	0.00	0.03	0.03	0.12	0.12	0.65					60
8	0.02	0.02	0.02	0.02	0.06	0.04	0.00	0.06	0.77				53
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00			1
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.33	0.56		9
11	0.01	0.00	0.00	0.01	0.01	0.03	0.01	0.02	0.03	0.07	0.11	0.69	89

Notes: Number of votes refers to the number of FTA votes participated in by representatives in the sample. N = number of representatives in the sample. Total sample includes 670 representatives. One representative who participated in all 11 FTA votes switched parties and thus shows up in Panels II and III. Rows may not sum to one due to rounding. See text for further details.

Table 4. Determinants of Pro-FTA Votes in the House of Representatives: Baseline Specifications (Year Fixed Effects).

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total Money	0.710*	0.722*	0.342*	0.133	0.169	0.176	0.209‡
	(0.129)	(0.124)	(0.132)	(0.100)	(0.108)	(0.112)	(0.112)
Total Money	1.876*	1.862*	0.943*	0.816*	0.733*	0.733*	0.691*
x Democrat	(0.407)	(0.407)	(0.282)	(0.267)	(0.261)	(0.269)	(0.265)
Local Tariff Vulnerability	-0.083†	-0.093*	-0.073*	-0.063†	-0.067†	-0.068†	-0.067†
	(0.034)	(0.033)	(0.028)	(0.028)	(0.026)	(0.027)	(0.027)
Local Tariff Vulnerability	-0.073	-0.086‡	-0.130*	-0.142*	-0.143*	-0.144*	-0.145*
x Democrat	(0.050)	(0.050)	(0.043)	(0.044)	(0.043)	(0.044)	(0.044)
Local Tariff Gain	-0.002	-0.003	-0.003	-0.005†	-0.005†	-0.005†	-0.005†
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Local Tariff Gain	0.005	0.007	0.004	0.007	0.005	0.005	0.006
x Democrat	(0.008)	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Democrat	-0.638*	-0.640*	-0.485*	-0.598‡	-0.568‡	-0.561‡	-0.562‡
	(0.053)	(0.055)	(0.061)	(0.329)	(0.317)	(0.303)	(0.304)
UI Replacement Rate	0.261	-0.391	-1.491‡	-1.902†	-1.710	-1.697	-1.816
	(0.908)	(1.078)	(0.863)	(0.963)	(1.057)	(1.108)	(1.119)
UI Replacement Rate	-1.369	-0.630	1.120	3.577†	3.342†	3.534†	3.668†
x Prior TAA Certification Rate	(1.545)	(1.545)	(1.321)	(1.486)	(1.529)	(1.641)	(1.680)
Prior TAA Certification Rate	0.345	0.207	-0.311	-1.223†	-1.139†	-1.216†	-1.270†
	(0.570)	(0.560)	(0.480)	(0.560)	(0.572)	(0.612)	(0.626)
N	4647	4647	4647	4647	4647	4647	4647
Representative Covariates	Y	Y	Y	Y	Y	Y	Y
District Covariates	N	N	N	N	N	Y	Y
State Covariates	N	N	N	N	N	N	Y
Year Fixed Effects	Y	Y	Y	Y	N	N	N
Year-by-Region Fixed Effects	N	N	N	N	Y	Y	Y
State Fixed Effects	N	Y	N	N	N	N	N
District Fixed Effects	N	N	Y	N	N	N	N
Representative Fixed Effects	N	N	N	Y	Y	Y	Y
Joint Significance of Redistribution Variables	p=0.183	p=0.344	p=0.161	p=0.066	p=0.132	p=0.146	p=0.146
Marginal Effect of TAA Cert.:							
Ave. Marginal Effect	-0.123	-0.009	0.072	-0.001	0.004	-0.008	-0.016
	(0.130)	(0.119)	(0.089)	(0.101)	(0.109)	(0.110)	(0.110)
% Positive	0.027	0.393	0.921	0.478	0.504	0.478	0.467
Marginal Effect of UI:							
Ave. Marginal Effect	-0.469	-0.727	-0.894‡	0.005	0.071	0.186	0.139
	(0.299)	(0.472)	(0.499)	(0.568)	(0.662)	(0.653)	(0.654)
% Positive	0.002	0.000	0.000	0.508	0.594	0.716	0.659

Notes: ‡ p<0.10, † p<0.05, * p<0.01. Linear probability models. Dependent variable equals one for pro-FTA vote, zero otherwise. Standard errors clustered at the state (columns (1) - (2)), district (column (3)), or representative (columns (4) - (7)) in parentheses. Representative covariates include: 2 education dummies, experience and experience squared, gender, dummy for democrat, dummy if same political party as president, dummy if same political party as the House majority, and dummy if same political party as governor (education, experience, and gender are excluded in models with representative fixed effects). District covariates include: ratio of average employment share in net export to net import sectors, share of the population aged 25+ by education (high school, some college, bachelor's degree, and advanced degree), unemployment rate by education (less than high school, high school, some college, and bachelor's degree or higher), and median household income. State covariates include: dummy for governor being a democrat, unemployment rate, share of gross state product from agriculture, share of gross state product from manufacturing, and the union coverage rate in private manufacturing. See text for further details.

Table 5. Determinants of Pro-FTA Votes in the House of Representatives: Baseline Specifications (FTA Fixed Effects).

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total Money	0.729*	0.738*	0.358*	0.142	0.182	0.187‡	0.220‡
	(0.129)	(0.125)	(0.133)	(0.102)	(0.110)	(0.114)	(0.114)
Total Money	1.849*	1.833*	0.938*	0.816*	0.737*	0.740*	0.699*
x Democrat	(0.407)	(0.407)	(0.282)	(0.267)	(0.262)	(0.269)	(0.265)
Local Tariff Vulnerability	0.018	0.010	0.045‡	0.059†	0.056†	0.056†	0.057†
	(0.037)	(0.036)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)
Local Tariff Vulnerability	-0.097†	-0.108*	-0.151*	-0.164*	-0.167*	-0.168*	-0.168*
x Democrat	(0.040)	(0.039)	(0.037)	(0.037)	(0.036)	(0.036)	(0.036)
Local Tariff Gain	-0.002	-0.002	-0.002	-0.004‡	-0.005†	-0.005†	-0.005†
	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Local Tariff Gain	0.005	0.007	0.004	0.007	0.008	0.009	0.009
x Democrat	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Democrat	-0.636*	-0.637*	-0.484*	-0.593‡	-0.565‡	-0.556‡	-0.558‡
	(0.053)	(0.055)	(0.061)	(0.327)	(0.317)	(0.304)	(0.305)
UI Replacement Rate	0.039	-0.578	-1.685‡	-2.104†	-1.953‡	-1.944‡	-2.089‡
	(0.923)	(1.093)	(0.877)	(0.972)	(1.076)	(1.126)	(1.133)
UI Replacement Rate	-0.992	-0.331	1.445	3.893*	3.711†	3.919†	4.096†
x Prior TAA Certification Rate	(1.582)	(1.570)	(1.353)	(1.505)	(1.557)	(1.667)	(1.703)
Prior TAA Certification Rate	0.262	0.161	-0.334	-1.232†	-1.166†	-1.249†	-1.317†
	(0.581)	(0.566)	(0.490)	(0.566)	(0.580)	(0.620)	(0.632)
N	4647	4647	4647	4647	4647	4647	4647
Representative Covariates	Y	Y	Y	Y	Y	Y	Y
District Covariates	N	N	N	N	N	Y	Y
State Covariates	N	N	N	N	N	N	Y
FTA Fixed Effects	Y	Y	Y	Y	N	N	N
FTA-by-Region Fixed Effects	N	N	N	N	Y	Y	Y
State Fixed Effects	N	Y	N	N	N	N	N
District Fixed Effects	N	N	Y	N	N	N	N
Representative Fixed Effects	N	N	N	Y	Y	Y	Y
Joint Significance of Redistribution Variables	p=0.287	p=0.289	p=0.030	p=0.007	p=0.026	p=0.031	p=0.031
Marginal Effect of TAA Cert.:							
Ave. Marginal Effect	-0.077	0.048	0.159‡	0.098	0.102	0.090	0.082
	(0.132)	(0.122)	(0.089)	(0.101)	(0.110)	(0.110)	(0.111)
% Positive	0.050	0.996	1.000	0.640	0.652	0.636	0.625
Marginal Effect of UI:							
Ave. Marginal Effect	-0.490‡	-0.754	-0.915‡	-0.030	0.025	0.144	0.093
	(0.295)	(0.464)	(0.502)	(0.567)	(0.668)	(0.657)	(0.658)
% Positive	0.000	0.000	0.000	0.462	0.531	0.658	0.601

Notes: ‡ p<0.10, † p<0.05, * p<0.01. Linear probability models. Dependent variable equals one for pro-FTA vote, zero otherwise. Standard errors clustered at the state (columns (1) - (2)), district (column (3)), or representative (columns (4) - (7)) in parentheses. See Table 4 for further details.

Table 6. Magnitudes of Redistribution Effects.

Baseline	(1)	(2)	(3)	(4)	(5)	(6)
A. Marginal Effect of a One SD Increase in UI Replacement Rate and Prior TAA Certification Rate						
25th Percentile	-0.002	0.002	-0.002	0.005	0.009	0.005
50th Percentile	0.020	0.025	0.023	0.029	0.035	0.032
75th Percentile	0.043	0.049	0.048	0.055	0.061	0.060
Representative Covariates	Y	Y	Y	Y	Y	Y
District Covariates	N	Y	Y	N	Y	Y
State Covariates	N	N	Y	N	N	Y
Year-by-Region Fixed Effects	Y	Y	Y	N	N	N
FTA-by-Region Fixed Effects	N	N	N	Y	Y	Y
Representative Fixed Effects	Y	Y	Y	Y	Y	Y
B. Increase in UI Replacement Rate and Prior TAA Certification Rate (in SDs) Necessary to Offset a One SD Increase in Local Tariff Vulnerability for a Democrat						
25th Percentile	2.557	2.359	2.449	1.728	1.572	1.669
50th Percentile	1.788	1.632	1.686	1.026	0.925	0.969
75th Percentile	1.249	1.138	1.162	0.636	0.577	0.590
Representative Covariates	Y	Y	Y	Y	Y	Y
District Covariates	N	Y	Y	N	Y	Y
State Covariates	N	N	Y	N	N	Y
Year-by-Region Fixed Effects	Y	Y	Y	N	N	N
FTA-by-Region Fixed Effects	N	N	N	Y	Y	Y
Representative Fixed Effects	Y	Y	Y	Y	Y	Y

Notes: SD = standard deviation. Columns (1) - (3) are derived from specifications (5) - (7) in Table 4; columns (4) - (6) from specifications (5) - (7) in Table 5. Baseline percentile refers to the initial values of the UI replacement rate and prior TAA success rate. See text for further details.

Table 7. Reduction in UI Replacement Rate and Prior TAA Certification Rate Across all Representatives Necessary to Prevent the Passage of Each FTA

FTA	Votes Cast	"Aye" Votes	Number of Votes Needed	Reduction (in SDs) Necessary to Prevent Passage
US-Chile (2003)	424	268	213	2.19
US-Singapore (2003)	425	270	213	2.23
US-Australia (2004)	419	312	210	3.42
US-Morocco (2004)	417	319	209	3.57
US-Bahrain (2005)	420	325	211	3.58
US-CAFTA (2005)	431	217	216	0.24
US-Oman (2006)	422	218	212	0.72
US-Peru (2007)	414	284	208	2.87
US-Colombia (2011)	425	260	213	1.81
US-Panama (2011)	425	298	213	2.60
US-South Korea (2011)	425	276	213	2.17

Notes: SD = standard deviation. Results derived from specification (7) in Table 5. See text for further details.

Table 8. Determinants of Pro-FTA Votes in the House of Representatives: Alternative Controls for Political Money.

	Alternative Money Definition		Decomposition of Money by Source			
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Total Money	0.036	0.036				
	(0.023)	(0.023)				
Total Money	0.085‡	0.089‡				
x Democrat	(0.050)	(0.050)				
Labor Contributions			0.142	0.138	0.669	0.581
			(0.229)	(0.229)	(0.567)	(0.561)
Labor Contributions					-0.613	-0.519
x Democrat					(0.654)	(0.650)
Business Contributions			0.078†	0.080†	0.024	0.026
			(0.035)	(0.035)	(0.031)	(0.031)
Business Contributions					0.119‡	0.121‡
x Democrat					(0.068)	(0.068)
Local Tariff Vulnerability	-0.067†	0.057†	-0.067†	0.056†	-0.068†	0.056†
	(0.027)	(0.025)	(0.027)	(0.025)	(0.027)	(0.025)
Local Tariff Vulnerability	-0.148*	-0.171*	-0.148*	-0.171*	-0.146*	-0.170*
x Democrat	(0.044)	(0.036)	(0.044)	(0.036)	(0.044)	(0.036)
Local Tariff Gain	-0.005†	-0.005†	-0.005†	-0.005†	-0.005‡	-0.005‡
	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)
Local Tariff Gain	0.006	0.009	0.006	0.009	0.006	0.009
x Democrat	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)
Democrat	-0.550‡	-0.547‡	-0.499	-0.494	-0.508‡	-0.510‡
	(0.323)	(0.325)	(0.329)	(0.330)	(0.296)	(0.301)
UI Replacement Rate	-1.757	-2.032‡	-1.647	-1.917‡	-1.662	-1.949‡
	(1.124)	(1.139)	(1.114)	(1.129)	(1.144)	(1.161)
UI Replacement Rate	3.622†	4.048†	3.584†	4.006†	3.454†	3.896†
x Prior TAA Certification Rate	(1.683)	(1.707)	(1.679)	(1.703)	(1.722)	(1.748)
Prior TAA Certification Rate	-1.252†	-1.299†	-1.237†	-1.283†	-1.190‡	-1.244‡
	(0.627)	(0.633)	(0.625)	(0.632)	(0.641)	(0.649)
N	4647	4647	4647	4647	4647	4647
Representative Covariates	Y	Y	Y	Y	Y	Y
District Covariates	Y	Y	Y	Y	Y	Y
State Covariates	Y	Y	Y	Y	Y	Y
Year-by-Region Fixed Effects	Y	N	Y	N	Y	N
FTA-by-Region Fixed Effects	N	Y	N	Y	N	Y
Representative Fixed Effects	Y	Y	Y	Y	Y	Y
Joint Significance of	p=0.152	p=0.032	p=0.149	p=0.032	p=0.194	p=0.043
Redistribution Variables						
Marginal Effect of TAA Cert.:						
Ave. Marginal Effect	-0.014	0.084	-0.012	0.086	-0.010	0.088
	(0.110)	(0.111)	(0.110)	(0.111)	(0.110)	(0.111)
% Positive	0.470	0.628	0.470	0.628	0.478	0.630
Marginal Effect of UI:						
Ave. Marginal Effect	0.173	0.126	0.263	0.218	0.179	0.128
	(0.658)	(0.662)	(0.655)	(0.659)	(0.656)	(0.660)
% Positive	0.697	0.637	0.782	0.721	0.713	0.643

Notes: ‡ p<0.10, † p<0.05, * p<0.01. Linear probability models. Dependent variable equals one for pro-FTA vote, zero otherwise. Standard errors clustered at the representative in parentheses. In columns (1) and (2), total money includes all contributions plus lobbying expenditures related to trade. In columns (3) and (4), money includes only contributions, separated by labor or business PACs. See Table 4 and text for further details.

Table 9. Determinants of Pro-FTA Votes in the House of Representatives: Alternative Specifications.

	Accounting for Training Benefits		Alternative Window Width for Computing Prior TAA Certification Rate					
			1 Year		10 Years		15 Years	
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Total Money	0.186	0.203‡	0.214‡	0.232†	0.211‡	0.227‡	0.208‡	0.224‡
	(0.113)	(0.115)	(0.112)	(0.115)	(0.113)	(0.116)	(0.112)	(0.114)
Total Money	0.715*	0.716*	0.698*	0.698*	0.690*	0.690†	0.701*	0.704*
x Democrat	(0.270)	(0.269)	(0.265)	(0.268)	(0.266)	(0.268)	(0.265)	(0.266)
Local Tariff Vulnerability	-0.078*	0.051‡	-0.066†	0.054†	-0.068*	0.049†	-0.067†	0.053†
	(0.028)	(0.027)	(0.026)	(0.024)	(0.026)	(0.024)	(0.026)	(0.024)
Local Tariff Vulnerability	-0.144*	-0.168*	-0.143*	-0.166*	-0.144*	-0.167*	-0.146*	-0.169*
x Democrat	(0.044)	(0.036)	(0.044)	(0.036)	(0.043)	(0.036)	(0.043)	(0.036)
Local Tariff Gain	-0.004‡	-0.005‡	-0.005†	-0.005†	-0.004‡	-0.005‡	-0.005†	-0.005‡
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Local Tariff Gain	0.006	0.009	0.005	0.009	0.005	0.008	0.005	0.009
x Democrat	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)
Democrat	-0.546‡	-0.546‡	-0.566‡	-0.556‡	-0.553‡	-0.545‡	-0.556‡	-0.549‡
	(0.294)	(0.295)	(0.308)	(0.309)	(0.296)	(0.296)	(0.298)	(0.297)
UI Replacement Rate	-1.697	-2.032‡	-1.174	-1.254	-2.875‡	-3.216‡	-3.701†	-4.110†
	(1.151)	(1.168)	(1.002)	(1.006)	(1.653)	(1.671)	(1.719)	(1.731)
UI Replacement Rate	3.388†	3.861†	2.550†	2.626†	6.257†	6.868†	7.862†	8.634*
x Prior TAA Certification Rate	(1.711)	(1.741)	(1.253)	(1.251)	(3.140)	(3.162)	(3.224)	(3.242)
Prior TAA Certification Rate	vary by	vary by	-0.740	-0.733	-2.001‡	-2.154‡	-2.693†	-2.844†
	year	year	(0.455)	(0.454)	(1.123)	(1.127)	(1.177)	(1.179)
N	4647	4647	4647	4647	4647	4647	4647	4647
Representative Covariates	Y	Y	Y	Y	Y	Y	Y	Y
District Covariates	Y	Y	Y	Y	Y	Y	Y	Y
State Covariates	Y	Y	Y	Y	Y	Y	Y	Y
Year-by-Region Fixed Effects	Y	N	Y	N	Y	N	Y	N
FTA-by-Region Fixed Effects	N	Y	N	Y	N	Y	N	Y
Representative Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Joint Significance of Redistribution Variables	p=0.043	p=0.071	p=0.023	p=0.007	p=0.151	p=0.078	p=0.088	p=0.029
Joint Equality of Prior TAA Cert. Rate over Time	p=0.033	p=0.117						
Marginal Effect of TAA Cert.:								
Ave. Marginal Effect			0.131‡	0.164†	0.137	0.193	-0.006	0.107
			(0.077)	(0.077)	(0.182)	(0.183)	(0.192)	(0.192)
% Positive			0.848	0.913	0.630	0.686	0.478	0.604
Marginal Effect of UI:								
Ave. Marginal Effect	0.108	0.025	0.302	0.266	0.307	0.277	0.178	0.150
	(0.655)	(0.657)	(0.668)	(0.672)	(0.669)	(0.674)	(0.663)	(0.666)
% Positive	0.641	0.531	0.875	0.834	0.821	0.777	0.670	0.637

Notes: ‡ p<0.10, † p<0.05, * p<0.01. Linear probability models. Dependent variable equals one for pro-FTA vote, zero otherwise. Standard errors clustered at the representative in parentheses. In columns (3) and (4), total money now includes all contributions plus lobbying expenditures related to trade. See Table 4 and text for further details.

Table 10. Determinants of Pro-FTA Votes in the House of Representatives: Correlated Random Effects Probit Model.

	Window Width for Computing Prior TAA Certification Rate			
	1 Year		5 Years	
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Total Money	3.393†	3.259‡	3.208†	3.090‡
	(1.623)	(1.694)	(1.602)	(1.652)
Total Money	-1.180	-1.004	-1.020	-0.885
x Democrat	(1.799)	(1.869)	(1.787)	(1.842)
Local Tariff Vulnerability	-0.298*	0.175	-0.307*	0.162
	(0.108)	(0.112)	(0.110)	(0.114)
Local Tariff Vulnerability	-0.448‡	-0.568*	-0.455‡	-0.575*
x Democrat	(0.265)	(0.182)	(0.264)	(0.180)
Local Tariff Gain	-0.017	-0.020	-0.015	-0.019
	(0.017)	(0.018)	(0.017)	(0.018)
Local Tariff Gain	0.013	0.028	0.012	0.028
x Democrat	(0.022)	(0.027)	(0.022)	(0.027)
Democrat	-2.567*	-2.576*	-2.576*	-2.593*
	(0.939)	(0.953)	(0.933)	(0.952)
UI Replacement Rate	-4.999	-4.785	-4.190	-4.664
	(4.520)	(4.729)	(5.172)	(5.500)
UI Replacement Rate	11.216‡	9.808	10.366	10.330
x Prior TAA Certification Rate	(6.106)	(6.387)	(7.842)	(8.318)
Prior TAA Certification Rate	-3.241	-2.620	-3.537	-3.278
	(2.263)	(2.389)	(2.958)	(3.162)
N	4647	4647	4647	4647
Representative Covariates	Y	Y	Y	Y
District Covariates	Y	Y	Y	Y
State Covariates	Y	Y	Y	Y
Year-by-Region Fixed Effects	Y	N	Y	N
FTA-by-Region Fixed Effects	N	Y	N	Y
Representative Fixed Effects	Y	Y	Y	Y
Joint Significance of Redistribution Variables	p=0.018	p=0.013	p=0.483	p=0.382
Marginal Effect of TAA Cert.:				
Ave. Marginal Effect	0.128	0.151‡	0.004	0.054
	(0.078)	(0.078)	(0.110)	(0.113)
% Positive	0.867	0.943	0.480	0.638
Marginal Effect of UI:				
Ave. Marginal Effect	0.307	0.170	0.277	0.165
	(0.583)	(0.571)	(0.577)	(0.571)
% Positive	0.898	0.816	0.895	0.809

Notes: ‡ p<0.10, † p<0.05, * p<0.01. Population-averaged correlated random effects probit model. Dependent variable equals one for pro-FTA vote, zero otherwise. Standard errors clustered at the representative in parentheses. See Table 4 and text for further details.

Table 11. Determinants of Pro-FTA Votes in the House of Representatives: Instrumental Variable Estimation.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Total Money	0.177	0.168	0.244†	0.254†	0.223‡	0.213‡
	(0.132)	(0.131)	(0.111)	(0.112)	(0.130)	(0.128)
Total Money	0.432	0.462	0.638†	0.643†	0.334	0.364
x Democrat	(0.304)	(0.302)	(0.263)	(0.262)	(0.302)	(0.301)
Local Tariff Vulnerability	-0.067†	0.054†	-0.066†	0.056†	-0.067†	0.051†
	(0.026)	(0.024)	(0.027)	(0.025)	(0.026)	(0.024)
Local Tariff Vulnerability	-0.146*	-0.167*	-0.142*	-0.163*	-0.140*	-0.160*
x Democrat	(0.043)	(0.036)	(0.043)	(0.036)	(0.043)	(0.036)
Local Tariff Gain	-0.005†	-0.005†	-0.005‡	-0.004‡	-0.004‡	-0.004‡
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Local Tariff Gain	0.005	0.008	0.008	0.011‡	0.007	0.011‡
x Democrat	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)
Democrat	-0.529‡	-0.529‡	-0.576‡	-0.575‡	-0.538‡	-0.543‡
	(0.309)	(0.309)	(0.312)	(0.313)	(0.318)	(0.319)
UI Replacement Rate	-1.799	-2.090‡	0.850	0.978	0.558	0.648
	(1.099)	(1.109)	(1.915)	(1.942)	(1.762)	(1.787)
UI Replacement Rate	3.835†	4.243†	2.194	2.244	2.581	2.600
x Prior TAA Certification Rate	(1.637)	(1.653)	(2.241)	(2.277)	(2.172)	(2.203)
Prior TAA Certification Rate	-1.319†	-1.357†	-0.762	-0.675	-0.888	-0.788
	(0.608)	(0.611)	(0.826)	(0.838)	(0.796)	(0.807)
N	4626	4626	4626	4626	4626	4626
Representative Covariates	Y	Y	Y	Y	Y	Y
District Covariates	Y	Y	Y	Y	Y	Y
State Covariates	Y	Y	Y	Y	Y	Y
Year-by-Region Fixed Effects	Y	N	Y	N	Y	N
FTA-by-Region Fixed Effects	N	Y	N	Y	N	Y
Representative Fixed Effects	Y	Y	Y	Y	Y	Y
Endogenous Covariates	Money, Money x Dem.		UI Repl. Rate, UI Repl. Rate x Prior TAA Success Rate		Money, Money x Dem., UI Repl. Rate, UI Repl. Rate x Prior TAA Success Rate	
Underidentification Test	0.000	0.000	0.000	0.000	0.000	0.000
Overidentification Test	0.824	0.820	0.121	0.121	0.491	0.486
Endogeneity Test	0.229	0.231	0.268	0.197	0.264	0.228
Rk F-statistic	77.362	76.555	67.651	67.194	31.013	30.789
Joint Significance of of Endogenous Variables	p=0.000	p=0.000	p=0.048	p=0.039	p=0.000	p=0.000
Joint Significance of Redistribution Variables	p=0.092	p=0.015	p=0.183	p=0.070	p=0.105	p=0.036
Marginal Effect of TAA Cert.:						
Ave. Marginal Effect	-0.008	0.093	-0.012	0.092	-0.006	0.101
	(0.106)	(0.106)	(0.112)	(0.113)	(0.108)	(0.108)
% Positive	0.480	0.633	0.466	0.804	0.480	0.772
Marginal Effect of UI:						
Ave. Marginal Effect	0.245	0.171	2.019‡	2.173‡	1.934‡	2.034‡
	(0.625)	(0.629)	(1.224)	(1.227)	(1.075)	(1.080)
% Positive	0.757	0.671	1.000	1.000	1.000	1.000

Notes: ‡ p<0.10, † p<0.05, * p<0.01. Estimation by GMM. Excluded instruments in columns (1) and (2) include: dummy variables for chairperson of education and workforce, energy and commerce, international relations, and ways and means committees; a dummy variable for at least two years in the House; non-trade related contributions; and each variable interacted with democrat. Excluded instruments in columns (3) and (4) include: UI net reserves divided by total wages in covered employment; gross state product; maximum weekly benefit; and, each variable interacted with prior TAA certification rate. Dependent variable equals one for pro-FTA vote, zero otherwise. Standard errors clustered at the representative. See Table 4 for further details.