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

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Abstract
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 – as presently constituted – modestly 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 expected redistribution leads to a 1.8 percentage point increase in the probability of voting in favor of an FTA. Although statistically significant, expected redistribution only alters the outcomes of votes that are extremely close.

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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 McLaren and Hakobyan (2012) and Autor et al. (2013).[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 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

[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 Stein (1982), Aho and Bayard (1984), 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.

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 or safety regulations, rarely yield gains for all affected parties. The resulting tension between winners and losers most likely creates political resistance to reform. Our analysis sheds light on the ability of targeted redistribution to increase the political feasibility of such government actions. As such, 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.

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."

Prior to delving into our analysis, it is noteworthy that anecdotal evidence suggests 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...".[6] While such anecdotes are noteworthy, formal evidence is needed to determine whether there exists a *causal* relationship between trade-related redistribution and the political viability of free trade.

The specific question we seek to answer here is whether there is a *causal* effect of expected TAA-induced redistribution within a congressional district (CD) on the propensity of the CD's representative to vote

[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)).

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

in favor of an FTA in the US House of Representatives. To do this, we analyze over 4600 votes cast on the 11 FTAs brought before Congress since 1998 (all 11 bills passed) and investigate whether spatial and temporal variation in expected CD-level redistribution under TAA impacts the voting behavior of the district's representative. For trade-displaced workers in a CD, expected redistribution under the TAA depends on the likelihood of benefit receipt and the generosity of benefits conditional on receipt. The CD-level likelihood of receipt is based on the historical sector-level certification rate of TAA petitions weighted by the historical industrial composition of the CD. In other words, if a given CD historically 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. 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).

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), representative and FTA-by-region fixed effects, and allowing for the potential endogeneity of several key variables in the model, we do indeed find support for the notion that expected transfers from winners to losers strengthens the political viability of policies with distributional implications. Specifically, expected redistribution to the losers from free trade administered through the TAA is a statistically significant determinant of voting behavior. In particular, a one standard deviation (SD) *increase* in expected redistribution *raises* the probability of voting in favor of an FTA by 1.8 percentage points.

To interpret the economic significance of this effect, we compare it to the effects on voting behavior arising from the expected CD-level tariff gains and tariff losses associated with an FTA. One one hand, a one SD *increase* in expected redistribution is sufficient to offset, for a Republican, a 0.69 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). On the other hand, a one SD *increase* in expected redistribution is sufficient to offset, for a Democrat, a 0.57 SD *decrease* in a CD's local tariff gains from a specific FTA. Consequently, the practical relevance of expected redistribution is seemingly modest; economic considerations related to expected changes in tariffs matter comparatively more. Aside from CAFTA and the US-Oman FTA, the model predicts that, *ceteris paribus*, elimination of expected redistribution across all CDs could have occurred without impacting the passage of the remaining nine FTAs examined. For CAFTA (US-Oman), however, the model predicts that a *ceteris paribus* 0.13 (0.79) SD *reduction* in expected redistribution across all CDs would have prevented their passage (in expectation) given the small margin by which each was ratified. Thus, expected redistribution under TAA only matters for extremely close votes.

Even though we find the economic significance of trade-related redistribution on political viability to be modest, the robust statistical significance of this relationship has two important implications. First, in a

recent study examining the cost effectiveness of TAA commissioned by the US Department of Labor, 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." Thus, our results could indeed be the difference between TAA passing and failing a cost-benefit analysis.

Second, there is evidence suggesting that there exists significant scope for improvement within TAA. Reforms that improve the TAA program's efficacy could increase the magnitude of the effects of expected redistribution on the political viability of free trade. For example, recent work by Park (2012) and Schochet et al. (2012) find that TAA participant outcomes are better for those who are "matched" with reemployment in the industry for which they receive TAA training. However, only 37.5% of trainees are currently "matched," suggesting that the effectiveness of TAA could be much higher. Moreover, as discussed in Section 2.1, among displaced workers eligible for TAA benefits, the take-up rate is quite low. This offers another mechanism by which the efficacy of TAA may be improved.

Apart from the generosity of TAA, our model also 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. Local tariffs matter, but differently across political parties. Republicans are concerned with local tariff vulnerability; Democrats are concerned with local tariff gains. 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 provides a brief overview of the TAA program and literature review. Section 3 outlines some theoretical motivations and our empirical methodology. Section 4 presents the data. Section 5 discusses the results and a number of sensitivity analyses, including instrumental variable specifications dealing with the possible endogeneity of the TAA variables as well as trade-related political money. Section 6 concludes.

2 Background

2.1 Institutional Details

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 workers.[7] However, the take-up rate by eligible workers is less than 50%.[8] 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)).[9]

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.[10] 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)).[11] Other benefits include the Health Coverage Tax Credit (HCTC), job search services, relocation allowances, and wage supplements.[12] 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.

[7] 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)).

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

[9] 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).

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

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

[12] 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)).

2.2 Prior Literature

Our analysis is related to two strands of literature. The first comprises empirical studies of TAA. 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.

The second strand addresses the determinants of representative voting behavior on trade bills brought before the US Congress. Here, the role of trade-related redistribution has been ignored or overshadowed. For example, although not a main point of their paper, Conconi et al. (2012a) argue that factors driving the magnitude of US redistribution has not driven US trade policy. Rather, the focus of this literature has been on the role of interest groups and local economic gains. 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.[13] Using firm-level lobbying data, Ludema et al. (2011) analyze 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 outweighs the effect of lobbying by proponents and opponents. 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 (proxied by, respectively, employment in export sectors divided by employment in import sectors within the district relative to the US as a whole or the share of residents

[13] Im and Sung (2011) follow the same empirical strategy for the seven US Congressional votes on FTAs between 2003 and 2006 and find similar results.

with at least a Bachelor's degree).[14]

3 Empirics

3.1 Theoretical Background

Our purpose in this section is to outline the political economy environment we envision that could produce a systematic relationship between trade-related redistribution and congressional voting behavior. More generally, we sketch the motivations of Congressional representatives when voting on FTAs.

Our starting point is a Congressional representative motivated by concerns for re-election (or election to higher offices). As such, the views of current constituents are an important determinant of representative voting behavior. To the extent that constituents' views are influenced by the potential CD-level economic effects of an FTA (both positive and negative) and expected redistribution from winners to losers under an FTA, these factors represent important determinants of representative voting behavior on FTAs. The CD-level economic effects of an FTA, in turn, depend on the industrial composition of the CD and the structure of the local labor market.

In terms of the structure of the local labor market, we assume a geographically immobile labor pool where unemployment is possible. In their online theory appendix, Autor et al. (2013) present a full-employment model where labor is geographically immobile. This lack of geographical mobility has received significant empirical support in Artuc et al. (2010), McLaren and Hakobyan (2012) and Autor et al. (2013). Further, Davidson and Matusz (2006) present a dynamic model featuring trade-induced unemployment. The authors model trade as displacing "low-tech" workers who then search for new employment in the "low-tech" sector or engage in training for "high-tech" jobs which allows them to search for new employment in the "high-tech" sector. This framework – combining geographical immobility and trade-induced unemployment – implies that workers at risk of trade-induced unemployment should take notice of FTA bills in Congress as well as TAA benefits that they may need.[15]

While Davidson and Matusz (2006) provide a useful framework to conceptualize our empirical analysis, the model does not outline the factors determining the magnitude of trade-induced unemployment or the magnitude of trade-induced employment. Upon FTA formation, we presume these magnitudes depend on

[14] Although not a study of Congressional voting behavior, Bombardini and Trebbi (2009) also use firm level lobbying data to explore the link between lobbying and trade policy. They focus on explaining inter-industry variation in protectionism by whether within-industry lobbying is primarily undertaken by individual firms or collectively via trade associations.

[15] Indeed, a 2010 Pew Research survey revealed 46% of respondents believed US FTAs had hurt the finances of their *own* family (only 26% believed such agreements had helped) with these beliefs starker in older, less educated and lower income demographics. See `http://www.people-press.org/2010/11/09/public-support-for-increased-trade-except-with-south-korea-and-china/`; accessed September 15 2014. Thus, it is very plausible that the median voter in many districts is one who believes they will be hurt by the FTAs entered into by the US.

six factors at the CD-level: (i) the economic size of the FTA partner(s), (ii) the pre-FTA tariffs imposed by the US on the FTA partner(s)[16], (iii) the pre-FTA tariffs imposed by the FTA partner(s) on the US, (iv) the pattern of comparative advantage of the FTA partner(s) across sectors, (v) the pattern of US comparative advantage across sectors, and (vi) the industrial composition of the CD. All else equal, a CD with greater concentration of employment in US import-competing sectors is likely to experience a larger increase in unemployment when the pre-FTA tariffs are higher and the FTA partner is more capable of taking advantage of the fall in tariffs due its size and pattern of comparative advantage. Moreover, all else equal, a CD with greater concentration of employment in US export sectors is likely to experience a larger increase in employment when the pre-FTA tariffs in the FTA partner(s) are higher and the US is more capable of taking advantage of the fall in tariffs due its size and pattern of comparative advantage.

Aside from these economic factors, we expect state-, CD-, and representative-level attributes to also influence the voting behavior of representatives (see, e.g., Baldwin and Magee (2000)). At the representative-level, political ideology, campaign contributions, and lobbying are likely to be salient. Campaign contributions and lobbying may affect voting behavior on a quid-pro-quo basis (e.g. Grossman and Helpman (1994)) or because representatives use interest groups as a vehicle to extract relevant information (e.g. Austen-Smith (1995), Wright (1996)). At the state- and CD-level, demographic and economics attributes are likely to influence political preferences and, hence, voting behavior.

3.2 Empirical Model

To assess the causal impact of trade-related redistribution on voting behavior, we formulate an empirical model that captures the relevant factors outlined in Section 3.1. Specifically, we estimate variants of the following specification

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

where v_{idsbt} is the vote cast 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-, CD-, and state-level covariates, respectively. R_{dt} is expected trade-related redistribution. Thus, θ is the parameter 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,

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

[16] Given various preferential tariff schemes such as the Generalized System of Preferences (GSP), the pre-FTA tariffs imposed by the US may differ from the Most Favored Nation tariffs of the US.

where λ_{br} are FTA-by-region fixed effects and α_i are representative fixed effects.[17]

Representative fixed effects are included in the model to control for time invariant unobserved 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 use FTA fixed effects to help control for factors affecting the economic impact of forming an FTA with a specific partner or partners (for example, the partner's economic size). Further, allowing the FTA fixed effects to vary across regions helps control for additional geographical heterogeneity in the potential gains and losses from a particular FTA (due to, for example, distance to the country or countries in question). Since there are multiple FTA votes in some years, FTA fixed effects (as opposed to time fixed effects) are more comprehensive. The remaining covariates x_{it}, x_{dt}, x_{st} and R_{dt} are discussed in the following section.

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.

Before turning to the next section, it is important to discuss potential threats to identification. 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. While not the focus of this paper, if contributions, or measurement error in contributions, are correlated with expected redistribution (e.g., if pro-trade groups spend more when expected redistribution is low), then ignoring the endogeneity of political model will bias the estimate of θ. Although we do not think contributions are correlated with our measure of expected redistribution in practice, we revisit this issue below in Section 5.2.

Expected redistribution may also be endogenous. While we instrument for expected redistribution

[17] We utilize eight regions based on the US Bureau of Economic Analysis (BEA) regional breakdown. See `http://www.bea.gov/regional/docs/regions.cfm`.

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

in Section 5.2, we now explain three potential reasons that give rise to endogeneity concerns. To start, consider the generosity of TAA benefits within a CD. One might worry that CDs 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 expected redistribution 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, given TAA benefits are determined at the state level and given our host of fixed effects and control variables, temporal variation in generosity is unlikely to be correlated with unobserved temporal variation in the determinants of CD-level voting behavior.

Finally, one might be concerned that expected redistribution is endogenous due to spurious correlation between the likelihood of benefit receipt and voting behavior. Specifically, there may be concern 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 *historical* employment shares across industries within a CD. Consequently, our measure is not based on specific dealings with the TAA certification process by individual representatives 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

[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.

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.

4 Data

Given the numerous data requirements needed to estimate (1), we pool together data from a large number of sources. Here, we provide cursory details of the data utilized. Table A1 in the Appendix presents a more detailed description of the variables used and their sources. The Appendix also contains a detailed description of the data construction process for select variables.

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. We restrict the 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.[21] 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 the appendix). Thus, our final sample includes 4647 votes.

We define expected trade-related redistribution as the product of two variables. The first measures the likelihood that a trade-displaced worker 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 the employment shares in a given CD in 2000. Specifically, the expected probability of TAA certification is defined as

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

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 three years preceding year t.[22] J^{TRD} represents the 554 4-digit SIC sectors engaged in trade (SIC codes 0111-3999).

[21] 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 US-Chile FTA in 2003; so, our sample effectively begins in 2003.

[22] 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

These SIC-specific certification rates are then averaged using CD-specific weights, ω_{jd}^{TRD}. The weights are defined as

$$\omega_{jd}^{TRD} = \frac{E_{jd,2000}}{\sum_{j \in J^{TRD}} E_{jd,2000}} \tag{4}$$

and represent the employment shares of each traded sector within a given CD in 2000. We utilize time invariant weights based on 2000 industrial composition since this pre-dates any of the FTA votes analyzed here and thus alleviates concerns that industrial composition may be affected by passage of the FTAs being examined. The Appendix provides more details on the data underlying (3) and (4).

The second variable used to construct expected trade-related redistribution is the expected generosity of TAA benefits within a given CD. Since extended UI benefits are a major component of the TAA benefits, 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. In the end, R in (1) is given by $P \times RR$.

The remaining data corresponds to the representative, CD, and state covariates included in (1). Depending on the particular specification, our representative covariates x_{it} include party affiliation variables (not only party affiliation itself but also 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), gender, education level (less than a Bachelor's degree, Bachelor's degree, or advanced degree) and years since one first served as a member of the US House of Representatives.[23] We also compute a measure equal to the sum of the *trade-related* contributions given to each representative and expenditures incurred by entities lobbying each representative on *trade-related* issues. Additionally we allow the effect of political money to vary by party affiliation. For specifications in which political money is treated as endogenous, we use indicators for serving as the chairperson of four potentially salient committees (Education and Workforce, Energy and Commerce, International Relations, and Ways and Means) and for whether the representative has been in the House previously.

Our CD-level covariates x_{dt} largely consist of socioeconomic variables: 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. However, we also compute CD-level

significant empty cell issue as many CDs have not had any workers covered by recent TAA certifications.

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

variables designed to capture the expected economic gains and losses from a particular FTA and allow the effects of these variables to vary by party affiliation.[24]

We construct FTA-specific measures of what we refer to as local tariff vulnerability (LTV) and local tariff gain (LTG). Local tariff vulnerability is a measure where CDs with high employment shares in sectors with high pre-FTA tariffs in which the proposed FTA partner(s) have a high revealed comparative advantage (RCA) are considered most vulnerable to a particular FTA (McLaren and Hakobyan (2012) use a similar measure). Specifically, we begin with the pre-FTA tariff (at time t) imposed by the US on FTA partner b in sector j, τ_{jt}^{US-b}, and weight this by the RCA of the FTA partner in sector j, RCA_{jt}^{b}. We use the Proudman and Redding (2000) definition of RCA_{jt}^{b} which has a nice interpretation. RCA_{jt}^{b} exceeds one if and only if partner b's share of world exports in sector j exceeds the partner's average share of world exports across all sectors; thus, Proudman and Redding (2000) interpret $RCA_{jt}^{b} > 1$ as indicating that b specializes in sector j. Finally, we aggregate over all sectors using CD-industry employment shares to get our CD-level measure of local tariff vulnerability:

$$LTV_{dbt} = \sum_{j \in J} \omega_{jdt} RCA_{jt}^{b} \tau_{jt}^{US-b}. \tag{6}$$

where ω_{jdt} is defined analogously to ω_{jdt}^{TRD} in (4) except that it is a weight over *all* 4-digit SIC sectors, J, and not only the traded sectors J^{TRD}. Our measure of local tariff gain is defined analogously to (6):

$$LTV_{dbt} = \sum_{j \in J} \omega_{jdt} RCA_{jt}^{US} \tau_{jt}^{b-US}. \tag{7}$$

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. The Appendix contains more details about LTV and LTG including the data underlying these measures.

Our state-level covariates x_{st} include the political affiliation of the Governor, unemployment and employment rates, real per capita GSP (gross state product), the shares of agriculture and manufacturing in GSP, and union coverage within private manufacturing.

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

[24] 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.

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.[25]

5 Results

5.1 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; the full set of results for the specifications in column (7) of Tables 4 and 5 is provided in Table A2 of the Appendix.[26]

When controlling for year or year-by region fixed effects (Table 4), expected redistribution is statistically significant at the $p < 0.10$ confidence level in all specifications except column (1). Moreover, in columns (2) – (7), the point estimate is very stable around 0.4. In terms of the magnitude of the effect, in the most comprehensive model (column (7)), we find that a *ceteris paribus* one SD increase in expected redistribution raises the probability of voting in favor of an FTA by roughly 1.8 percentage points. Thus, a one SD increase across all CDs raises the expected number of pro-FTA votes on a given bill by approximately eight. Thus, while statistically significant, modest variation in expected redistribution may not affect the outcome of a given vote unless it is very close.

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.[27] Second, we obtain a statistically significant (at conventional levels) positive association between political money and pro-FTA votes for

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

[26] The full set of results are available upon request.

[27] 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).

Democrats in all specifications. However, the effect is significantly reduced once representative fixed effects are added to the model. Among the models with representative fixed effects, political money is only statistically significant at the $p < 0.10$ confidence level for Republicans in column (7).

Third, local tariff vulnerabilities and potential local tariff gains matter, but in different ways for Republicans and Democrats. Republicans are responsive to local tariff vulnerability; greater vulnerability has a negative and statistically significant effect on the probability of voting in favor of an FTA for Republicans.[28] The effect is statistically insignificant for Democrats.[29] Democrats, however, are responsive to local tariff gains; greater gains has a positive and statistically significant effect on the probability of voting in favor of an FTA for Democrats.[30] The effect is statistically insignificant for Republicans. While the coefficient on local tariff gains for Democrats is smaller in absolute value than the coefficient on local tariff vulnerability for Republicans, the scale of the local tariff gain variable is much larger. As such, the economic significance of each is not markedly different. Specifically, while a one SD *decrease* in local tariff vulnerability raises the likelihood of a Republican voting in favor of an FTA by 2.6 percentage points, a one SD *increase* in local tariff gains raises the likelihood of a Democrat voting in favor of an FTA by 2.2 percentage points.

Next, we turn to Table 5 where we now control for FTA or FTA-by-region fixed effects. The results are virtually unchanged from Table 4 despite the fact that the FTA-by-region fixed effects now control for characteristics of the FTA partner that affect all CDs in the region equally, such as the overall economic size of the FTA partner. The stability of the coefficients on expected redistribution to the various sets of covariates across columns (2) – (7), as well as on the other covariates across columns (4) – (7), in Tables 4 and 5 suggests we are indeed identifying the causal effect of expected redistribution.

Before continuing to various sensitivity analyses, including the use of instrumental variables, we conduct two final thought exercises to help quantify the economic significance of expected trade-related redistribution. First, we compare the relative importance of local tariffs and expected redistribution. For Republicans, we find that a 1.44 SD increase in expected redistribution is needed to offset a one SD increase in local tariff vulnerability in order to leave the probability of a pro-FTA vote unchanged (using the estimates in column (7) of Table 5). For Democrats, we find that a 1.75 SD increase in expected redistribution is needed to offset a one SD decrease in local tariff gains in order to leave the probability of a pro-FTA vote unchanged (using the estimates in column (7) of Table 5).[31] Thus, the overall economic significance

[28] Technically, this result applies to non-Democrats (i.e., Republicans and Independents). However, since Independents make up 0.2% of the sample, we simply refer to Republicans.

[29] Note, the total effect for a Democrat is $-0.234 + 0.276 = 0.042$ ($p = 0.58$) in column (7).

[30] Note, the total effect for a Democrat is $-0.018 + 0.043 = 0.025$ ($p = 0.03$) in column (7).

[31] In unreported results, we extended the baseline models in column (7) of Tables 4 and 5 by interacting expected redistribution with party affiliation. The interaction was not statistically significant at conventional levels in either case. As such, we are comfortable using a constant marginal effect of expected redistribution for representatives of both parties.

of expected redistribution appears modest; it is less relevant than other economic considerations related to an FTA. For our second thought experiment, we estimate the *ceteris paribus* reduction in expected redistribution across all districts necessary to prevent the passage of each FTA. For US-CAFTA, which passed by a vote of 217-216, a 0.13 SD decline in expected redistribution across all CDs would have been sufficient to preclude passage (in expectation). For US-Oman, which passed by a vote of 218-212, a 0.79 SD decline would have been sufficient. However, for all other FTAs considered here, a *ceteris paribus* decline in expected redistribution to zero for all CDs still would not have altered the outcomes (in expectation).

In sum, the results from our most preferred model (specification (7) in Table 5), due to its control of the greatest amount of unobserved heterogeneity, indicate that, in practice, expected redistribution does not alter the political viability of free trade unless the vote is extremely close. We now turn to various sensitivity analyses to assess the robustness of this finding.

5.2 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.

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 alternatives, we estimate Chamberlain's correlated random effects (CRE) probit model and a fixed effects probit model. The benefit of the CRE and fixed effects probit models are that they restrict 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 and the fixed effects probit model (or a fixed effects logit model), the CRE probit model places some structure on the nature of this correlation.

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

$$\Pr(v_{idsbt} = 1 \mid X_{idsbt}, \alpha_i) = \Phi(X_{idsbt}\beta + \lambda_{br} + \alpha_i), \tag{8}$$

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

$$\alpha_i \mid X_{idsbt} \sim \mathbb{N}(\delta_0 + \overline{X}_i\delta_1, \sigma_a^2), \tag{9}$$

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 (8) and (9), we obtain

$$\begin{aligned} \Pr\left(v_{idsbt} = 1 \mid X_{idsbt}\right) &= \Phi\left[(\delta_0 + X_{idsbt}\beta + \lambda_{br} + \overline{X}_i\delta_1) \times (1 + \sigma_a^2)^{-1/2}\right] \\ &= \Phi\left[\delta_0^a + X_{idsbt}\beta^a + \lambda_{br}^a + \overline{X}_i\delta_1^a\right], \end{aligned} \tag{10}$$

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

$$\mathrm{E}\left[\frac{\partial \Pr(v_{idsbt} = 1 \mid X_{idsbt})}{\partial X_j}\right] = \beta_j^a \times \phi(\delta_0^a + X_{idsbt}\beta^a + \lambda_{br}^a + \overline{X}_i\delta_1^a), \tag{11}$$

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

The results are presented in columns (1) and (2) in Table 6.[32] The estimated effects for local tariff vulnerability and gains, party affiliation, and expected redistribution are qualitatively similar to our prior results obtained using a LPM. Specifically, we find a negative effect of local tariff vulnerability on the propensity of Republicans to vote in favor of an FTA, a positive effect of local tariff gains 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. Furthermore, the effect of redistribution is positive and the corresponding average marginal effects are very close to the LPM estimate of 0.4. However, the standard errors are much larger in Tables 4 and 5. Nonetheless, the results remain consistent with a positive, but economically modest impact of trade-related redistribution.

Columns (3) and (4) display the results from the fixed effects probit. While the incidental parameters problem should be noted, we have at least ten repeated observations for more than 100 representatives. Thus, the longer 'time' dimension may mitigate the bias. Moreover, as shown in Alexander and Breunig (2013), the fixed effects probit performs well in terms of estimating marginal effects despite the incidental parameters problem in simple data-generating processes. Assessing the results, we see that the effect of expected redistribution remains positive, but is larger in magnitude compared to the prior results. However, because the estimates are very imprecise and because of the incidental parameters problem, the

[32] The marginal effects for the (non-linear) CRE and probit models are reported in the square brackets of Table 6.

larger magnitudes should be viewed cautiously.

Addressing Potential Endogeneity Our next sensitivity analysis addresses 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 ability. However, such contributions are unlikely to affect voting on trade issues. 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 (5) and (6) in Table 6.[33] 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 80. Finally, Hansen's J test of overidentification fails to reject the validity of the instruments (the p-values exceed 0.80). 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 coefficients indicates that political money matters only for Democrats; the combined coefficient for Democrats is roughly 0.63 and is statistically significant at the $p < 0.03$ confidence level in both models. 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 0.25). Second, as expected, the results pertaining to the effect of expected redistribution are essentially unchanged. The same holds true for the other coefficients reported (i.e., local tariff vulnerability and gains and party affiliation).

[33] Estimation is performed via Generalized Method of Moments (GMM) using -xtivreg2- in Stata (Schaffer (2010)).

The second potential source of endogeneity concerns the generosity of the UI system. As discussed previously, TAA recipients constitute a very small portion of UI recipients so we do not believe states manipulate UI generosity in order to affect TAA generosity. Moreover, given our host of fixed effects and control variables, we do not believe unobserved attributes are correlated with both state UI benefits and representative preferences concerning FTA formation. Nonetheless, we instrument for expected redistribution using exclusion restrictions found in the labor literature.[34] We utilize two instruments: the reserve ratio of the state UI system and the maximum weekly UI benefit permitted in the state (each interacted with the prior TAA certification rate). 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. Conditional on our host of fixed effects and control variables, we do not believe the solvency of the UI system is correlated with representative voting behavior on FTAs. In addition, following Krueger and Mueller (2010), we utilize the weekly maximum benefit.

The results are presented in columns (7) and (8) in Table 6. Again, the instruments appear to perform well. 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 49. Finally, Hansen's J test of overidentification fails to reject the validity of the instruments (the p-values are near 0.20). In terms of the coefficient estimates, very little changes. In fact, we again fail to reject the null of exogeneity. That said, the coefficient estimates on expected redistribution are no longer statistically significant as they fall to closer to 0.3.

Finally, in columns (9) and (10) we instrument for political money and expected redistribution. Thus, we have three 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 fare 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 (5) and (6), while the coefficient estimates on the trade-related redistribution variables are now closer to 0.4 and again statistically significant at the $p < 0.10$ confidence level.

In sum, concerns related to the potential endogeneity of political money and expected redistribution do not have much empirical support. Our instrument sets perform very well in terms of their first-stage strength and excludability. However, the point estimates are relatively unchanged from the baseline specifications and we always easily fail to reject exogeneity. As such, the baseline specifications treating these variables as exogenous are preferred on efficiency grounds.

[34] The best argument in favor of treating expected redistribution as endogenous is the presence of measurement error due to the fact that it may be an imperfect proxy for overall TAA generosity. We will return to this later.

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.[35] 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.[36] 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).

Given this, the model we would like to estimate is

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

where now $R \equiv P \times B$. 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) yields

$$\begin{aligned} v_{idsbt} &= x_{it}\beta_1 + x_{dt}\beta_2 + x_{st}\beta_3 + \theta[P_{dt} \times (RR_{dt} + \Psi_t)] + \widetilde{\varepsilon}_{idsbt} \\ &= x_{it}\beta_1 + x_{dt}\beta_2 + x_{st}\beta_3 + \widetilde{\theta}_t P_{dt} + \theta(P_{dt} \times RR_{dt}) + \widetilde{\varepsilon}_{idsbt}, \end{aligned} \tag{14}$$

where $\widetilde{\theta}_t \equiv \theta\Psi_t$. 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). Thus, despite Ψ_t being unobserved, we can still recover unbiased estimates of all of the parameters of the model. As such, we are able to compute the marginal effect of the expected redistribution accounting for other benefits – given by θ – for comparison

[35] 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)).

[36] 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.

to our baseline specifications.

The results are displayed in columns (1) and (2) in Table 7. We obtain three key findings. First, the coefficient estimates are virtually unchanged. Second, we fail to reject the null that $\widetilde{\theta}_t$ is constant over time at conventional levels in both models. This is consistent with the value of non-UI related TAA benefits being time invariant during the sample period. Third, while the effect of expected redistribution is no longer statistically significant, given the enormous increase in the standard errors, the point estimates are at 0.4 and thus unchanged from our prior estimates. 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 appear problematic.

Alternative Controls for Prior TAA Certification Success In the remaining columns in Table 7 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 window of the preceding three 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 five years. Columns (7) and (8) utilize a rolling window of the preceding ten 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 expected redistribution is nearly unchanged from our baseline model when we use the TAA certification rate in just the prior year (columns (3) and (4)). When we define the prior TAA certification over five or ten years, the coefficients on expected redistribution are attenuated and no longer statistically significant. This is consistent with the introduction of classical measurement error if we are mismeasuring expected redistribution by using a prior window that is wider than what guides expectations about certification rates for voters and/or representatives.

Alternative Controls for Political Money In the baseline specifications, our political money variable comprised *trade-related* contributions and lobbying expenditures. Given the difficulty in parsing out trade-related and non-trade contributions and lobbying expenditures, we alternatively define political money as the sum of *all* contributions and lobbying expenditures (i.e., trade plus non-trade plus unallocated) in columns (1) and (2) of Table 8 . Again, the results are remarkably stable with the exception of coefficients on political money. Now, the coefficients on political money are extremely small although the pattern of relative magnitudes and statistical significance remains the same as in the prior specifications. Moreover, since the SD of the new political money variable is roughly six times that of our trade-related political

money variable, the marginal effects of a one SD increase in political money is the roughly identical to our baseline specifications.

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.[37] Moreover, we follow Baldwin and Magee (2000) and now exclude lobbying expenditures. The results indicate a positive and statistically significant effect of business contributions which columns (5) and (6) show is driven by the business contributions received by Democrats. The remainder of the results are nearly identical to those in our baseline specifications.

Heterogenous Effects of Redistribution Our final sensitivity analysis allows for heterogeneous effects of expected redistribution depending on local tariffs. Specifically, we augment the baseline specification by adding interactions between expected redistribution and local tariff vulnerability and local tariff gains. The idea is that the mechanism underlying why trade-related redistribution should impact voting relates to the ability of such redistribution to compensate losers from trade. As a result, expected redistribution should affect voting only in CDs which stand to lose from trade. Thus, we expect the marginal effect of expected redistribution to be small (large) when local tariff vulnerability is low (high). Similarly, since expected redistribution has nothing to do with whether a CD gains through a reduction in tariffs imposed by an FTA partner on the US, we expect the marginal effect of expected redistribution to be independent of local tariff gains.

The results are presented in Table 9 and confirm our expectations. For both Republicans and Democrats, the marginal effect of expected redistribution is small and not statistically significant at conventional levels. However, the interaction with local tariff vulnerability is positive and statistically significant in columns (1) – (3). Moreover, the interactions with local tariff gains are never statistically significant. Further, using the results from column (2), we obtain a marginal effect of expected redistribution evaluated at the average value of local tariff vulnerability equal to roughly 0.35, very close to our baseline specification results. This suggests that the positive effect of expected redistribution that has been consistently found across our various specification is, in fact, reflecting the underlying mechanism we believe to be operating.

6 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

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

welfare based on expected income transfers from winners to losers under policies with strong distributional implications. To our knowledge, the impact of such transfers on voting behavior has not been investigated empirically. 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 remarkably stable across numerous sensitivity analyses. In terms of economic significance, however, the results do not engender much belief that redistribution markedly affects the political landscape. A one SD *increase* in expected trade-related redistribution *raises* the probability of voting in favor of an FTA by 1.8 percentage points. This is a much smaller impact than a one SD change in local tariff vulnerability or gains. Moreover, while a one SD *reduction* in expected redistribution across the entire US in 2005 and 2006 would have been sufficient to preclude the passage of CAFTA-DR and the US-Oman FTA (in expectation), the complete elimination of the TAA would not have affected the outcome of the other nine FTAs considered here. Thus, current levels of redistribution appear sufficient to break a deadlock, but otherwise have limited impact on voting behavior.

If one wishes to amend the TAA program in an effort to ratchet up the effect of redistribution on the political viability of free trade, there is scope to do so. Recent work assessing the effectiveness of the TAA program using program data (Park (2012), Schochet et al. (2012)) suggests TAA could be more useful in terms of increasing political support for free trade. Moreover, as noted earlier, 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 a small component of the political economy story.

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Appendix

Table A1 in this appendix defines the variables used and provides their sources. Here, we provide a more detailed description of data construction process for select variables.

Expected trade-related redistribution Expected trade-related redistribution is the product of two variables: CD-level prior TAA certification rate and the UI replacement rate. The replacement rate is straightforward; however, the CD-level prior TAA certification requires further explanation. This variable is a rolling, weighted average of past certification rates across industries, where the weights reflect the employment shares in a given CD in 2000. As noted in the text, this variable is defined as

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

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. 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_{jd}^{TRD}. The weights are defined as

$$\omega_{jd}^{TRD} = \frac{E_{jd,2000}}{\sum_{j \in J^{TRD}} E_{jd,2000}}$$

and represent the employment shares of each traded sector within a given CD in 2000.

The data on the disposition of TAA petitions is from the DoL. 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 in 2000 are derived from the Quarterly Census of Employment and Wages (QCEW). To align with the TAA petition data at the 4-digit SIC level, we convert the QCEW data to 4-digit SIC industries using concordances from the US Census Bureau.[38] We then use concordances from the Missouri Census Data Center for the 108^{th} and 109^{th} Congresses and from the US Census Bureau for the 110^{th} Congress to convert the data from the county-level to the CD-level.[39]

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

[39] 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 110^{th} Congress when only Texas and Georgia engaged in redistricting. There was no redistricting for the 111^{th} 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)).

Local tariff vulnerability and local tariff gain In terms of the CD-level covariates, the local tariff vulnerability and gain variables merit further explanation. As noted in the text, local tariff vulnerability captures the expected average tariff decline in a given CD adjusted to account for the industrial composition of CDs, sector-specific pre-FTA tariffs imposed on the proposed FTA partner(s), and the sector-specific revealed comparative advantage (RCA) of the proposed FTA partner(s) (see, e.g., McLaren and Hakobyan (2012)). Formally, define the employment share of sector j in district d in 2000 as

$$\omega_{jd} = \frac{E_{jd,2000}}{\sum_{j \in J} E_{jd,2000}}$$

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

$$LTV_{dbt} = \sum_{j \in J} \omega_{jd} RCA^{b}_{jt} \tau^{US-b}_{jt}$$

where RCA^{b}_{jt} is the RCA of the proposed partner(s) in FTA bill b in sector j in year t and τ^{US-b}_{jt} 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.[40] [41]

With one minor difference, we use the Proudman and Redding (2000) definition of RCA^{b}_{jt}. The Proudman and Redding (2000) measure is:

$$RCA^{b}_{jt} = \frac{x_{jb}}{\frac{1}{J}\sum_{j=1}^{J} x_{jb}}$$

where X_{jb} denotes country b's exports of sector j to the world and $x_{jb} = X_{jb} / \sum_{j=1}^{J} X_{jb}$ denotes sector j's share of country b's exports to the world. Our measure of RCA_{jb} differs from this only because we define X_{jb} as country b's exports of sector j to the world *excluding* the US as an export destination. In either case, it is simple to verify that $\frac{1}{J}\sum_{j=1}^{J} RCA_{jb} = 1$.

Our local tariff gain measure is analogous, but reflects the expected average tariff decline in the proposed FTA partner(s) adjusted to account for the industrial composition of CDs, sector-specific pre-FTA tariffs faced by the US in the proposed FTA partner, and the sector-specific revealed comparative advantage (RCA) of the US. Formally, local tariff gain, LTG, is defined as

$$LTG_{dbt} = \sum_{j} \omega_{jd} RCA^{US}_{jt} \tau^{b-US}_{jt}$$

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

[41] 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.

where RCA_{jt}^{US} is the RCA of the US in sector j in year t 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. Analogous to RCA_{jt}^{b}, RCA_{jt}^{US} is given by

$$RCA_{jt}^{US} = \frac{x_{jUS}}{\frac{1}{J}\sum_{j=1}^{J} x_{jUS}}$$

where X_{jUS} denotes US exports of sector j to the world *excluding* FTA partner(s) b as export destinations and $x_{jb} = X_{jb}/\sum_{j=1}^{J} X_{jb}$ denotes sector j's share of country b's exports to the world (again, excluding FTA partner(s) b as export destinations).

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, and CD-level employment shares in 2000 (described above). All data are available at the 4-digit SIC level. Export data are obtained from the COMTRADE database within the World Bank's Integrated Trade Solution (WITS) database. The 4-digit SIC tariff data are also from the 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).[42] 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 Generalized System of Preferences.

Political money In terms of the representative-level covariates, political money is the most complex. We collect data on a representative's political money from the Center for Responsive Politics (CRP). 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. As discussed by Bombardini and Trebbi (2012), 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.[43] 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. Nevertheless, the lobbying data has its own shortcoming: 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

[42] 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.

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

not the representatives being targeted.

We overcome these shortcomings 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.[44]

Specifically, we begin with the contributions given to representative i by group g in period t, denoted C_{igt}, and the lobbying expenditures on issue k by group g in period t, denoted L_{kgt}.[45][46] 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 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.

[44] Our approach of tying trade-specific lobbying expenditures to representative recipients distinguishes our use of lobbying expenditures from others, such as Bombardini and Trebbi (2012), who analyze lobbying from the perspective of the lobbying firm. Our trade-related contribution and trade-related lobbying expenditure measures are publicly available on the website of the corresponding author (analogous variables are available there for each of the 79 possible lobbying issues).

[45] Like Baldwin and Magee (2000), political money associated with a representative's vote in a given year is that expended in the election cycle leading upto the current Congress. In other words, voting behavior in, say, 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 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.

[46] 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.

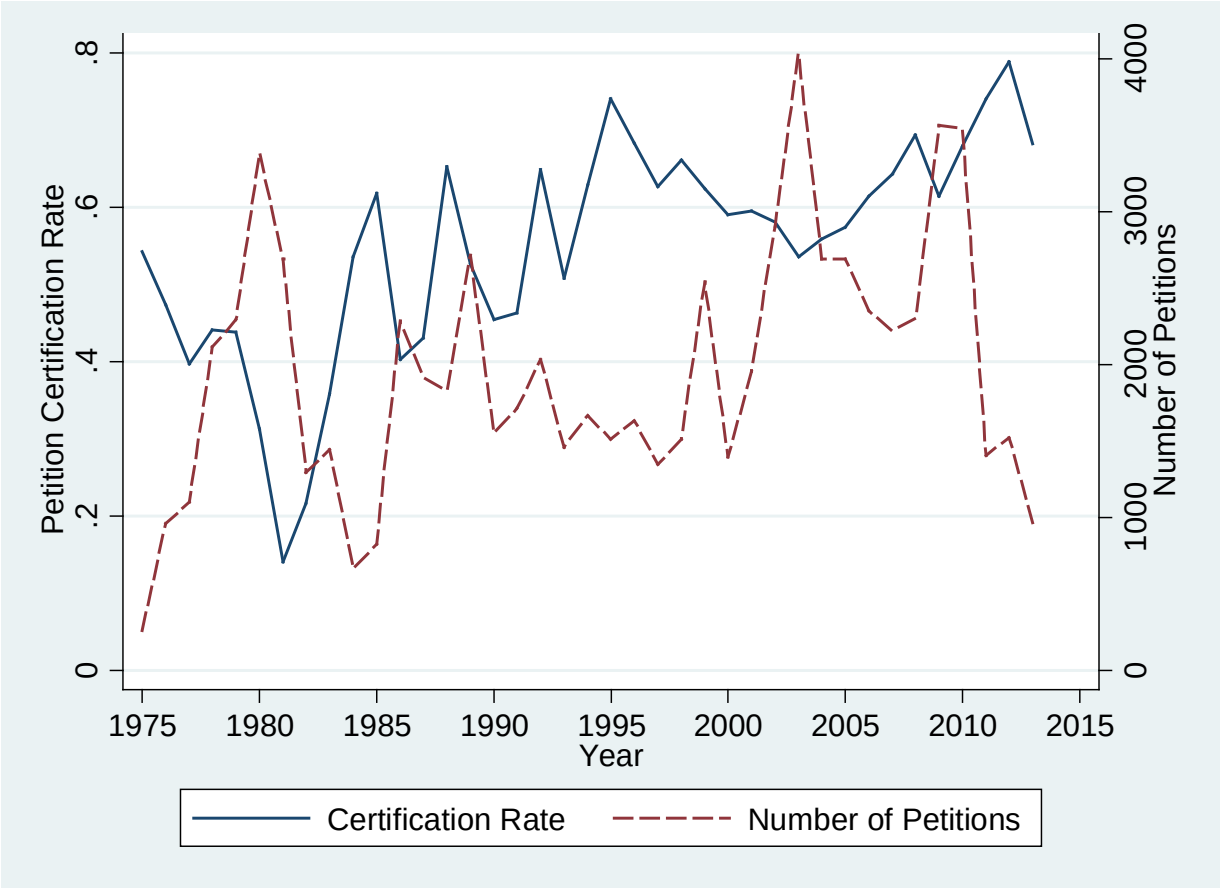

Figure 1. TAA Certification History.
Note: Certification rate is based on the number of petitions either certified or partially certified out of all petitions dispensed of during a given year. The total number of petitions includes all petitions dispensed of in a given year, including those coded as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

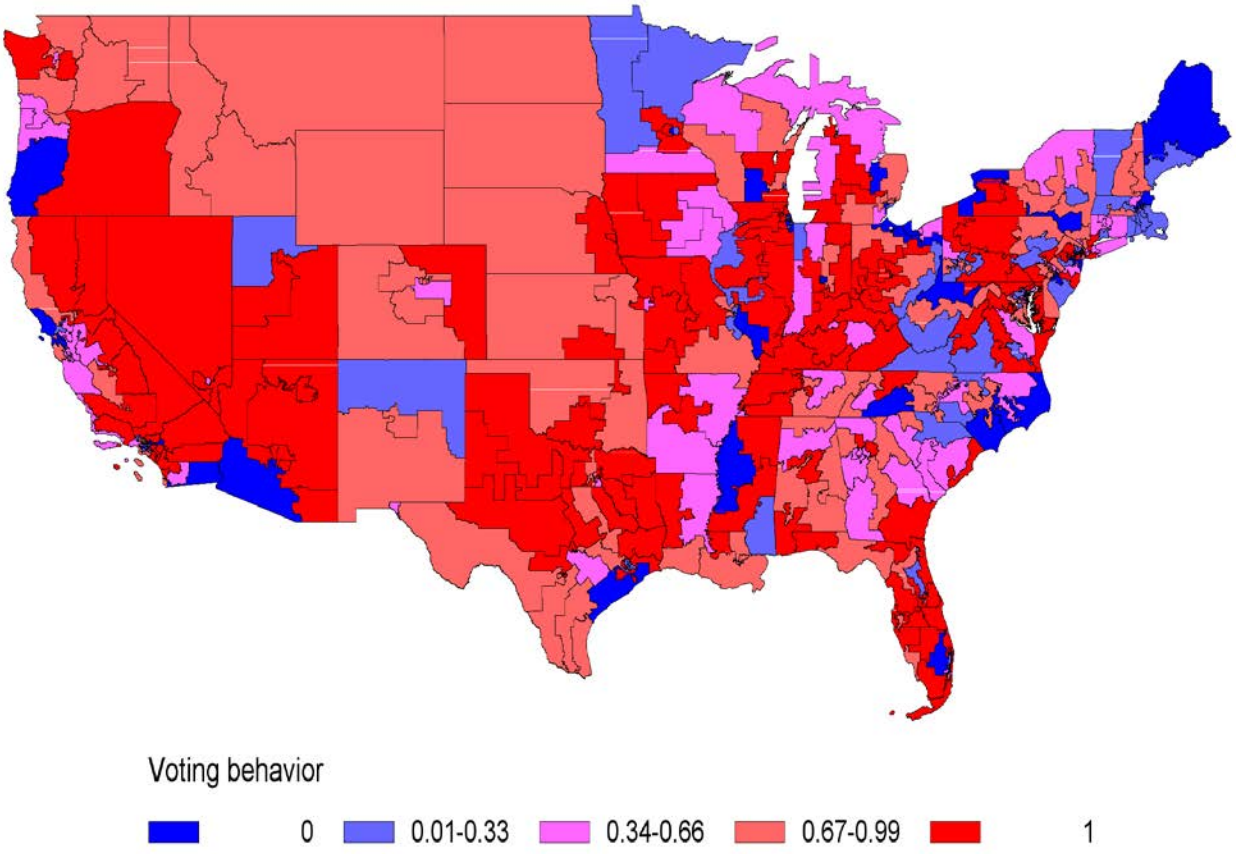

Figure 2. Congressional District Voting Behavior.
Note: The figure depicts the proportion of FTA votes in our sample that a Congressional districts' representative(s) cast in favor of proposed FTAs.

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
Expected Redistribution	0.189	0.046	0.025	0.361
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$)	365955.9	287457.8	-2974.9	2408148.0
Same Party as President (1 = Yes)	0.498	0.500	0	1
Same Party as House Majorty (1 = Yes)	0.537	0.499	0	1
Same Party as Governor (1 = Yes)	0.530	0.500	0	1
District Covariates				
Local Tariff Vulnerability	0.038	0.111	0	3.582
Local Tariff Gain	0.534	0.876	0	15.371
Education, % HS Graduate (Aged 25+)	0.295	0.065	0.119	0.494
Education, % Some College (Aged 25+)	0.075	0.016	0.031	0.131
Education, % BA (Aged 25+)	0.172	0.056	0.044	0.370
Education, % Advanced Degree (Aged 25+)	0.100	0.046	0.016	0.312
UR, Less than HS (Aged 25-64)	12.145	5.047	2.0	38.8
UR, HS (Aged 25-64)	7.792	3.288	1.5	28.2
UR, Some College (Aged 25-64)	6.148	2.602	1.7	21.0
UR, BA or Higher (Aged 25-64)	3.331	1.416	0.5	11.3
Household Median Income	50692.540	17492.990	15506	117288
State Covariates				
Governor (1 = Independent)	0.005	0.072	0	1
Governor (1 = Democrat)	0.449	0.497	0	1
Governor (1 = Republican)	0.546	0.498	0	1
Real GSP (Per Capita, 2005$)	0.042	0.006	0.028	0.065
Agriculture (% of GSP)	0.010	0.009	0.001	0.098
Manufacturing (% of GSP)	0.127	0.052	0.015	0.366
Unemployment Rate	6.320	2.021	2.500	13.200
Employment Rate	0.576	0.036	0.480	0.766
Union Coverage (%, Private Manufacturing)	12.058	6.384	1.200	31.300
UI Reserve Ratio	0.005	0.008	-0.008	0.037
UI Weekly Maximum Benefit	397.659	110.677	200	937

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. GSP = Gross State Product. 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												
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**N**
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	0.703*	0.727*	0.366*	0.134	0.170	0.162	0.205‡
	(0.130)	(0.126)	(0.132)	(0.099)	(0.110)	(0.115)	(0.115)
Total Money	1.856*	1.852*	0.956*	0.860*	0.775*	0.781*	0.708*
x Democrat	(0.408)	(0.414)	(0.287)	(0.269)	(0.263)	(0.270)	(0.263)
Local Tariff Vulnerability	-0.226†	-0.168†	-0.238*	-0.247*	-0.246*	-0.244*	-0.242*
	(0.090)	(0.069)	(0.088)	(0.088)	(0.091)	(0.091)	(0.092)
Local Tariff Vulnerability	0.238†	0.159†	0.258†	0.299*	0.277*	0.276*	0.273†
x Democrat	(0.098)	(0.073)	(0.107)	(0.103)	(0.107)	(0.106)	(0.107)
Local Tariff Gain	-0.005	-0.008	-0.013‡	-0.020†	-0.017†	-0.017†	-0.018†
	(0.009)	(0.009)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Local Tariff Gain	0.026‡	0.019	0.035*	0.046*	0.043*	0.043*	0.043*
x Democrat	(0.014)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Democrat	-0.653*	-0.650*	-0.506*	-0.614‡	-0.581‡	-0.563‡	-0.579‡
	(0.053)	(0.056)	(0.061)	(0.329)	(0.317)	(0.300)	(0.311)
Expected Redistribution	-0.175	0.434‡	0.399‡	0.485†	0.412‡	0.429‡	0.399‡
	(0.199)	(0.240)	(0.224)	(0.214)	(0.223)	(0.224)	(0.227)
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

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: 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, employment rate, real per capita gross state product, 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	0.707*	0.732*	0.371*	0.133	0.169	0.161	0.204‡
	(0.131)	(0.127)	(0.133)	(0.099)	(0.110)	(0.115)	(0.116)
Total Money	1.851*	1.846*	0.952*	0.859*	0.776*	0.783*	0.710*
x Democrat	(0.408)	(0.415)	(0.287)	(0.270)	(0.265)	(0.271)	(0.264)
Local Tariff Vulnerability	-0.215†	-0.149†	-0.222†	-0.229†	-0.239†	-0.236†	-0.234†
	(0.087)	(0.063)	(0.091)	(0.090)	(0.100)	(0.100)	(0.101)
Local Tariff Vulnerability	0.241†	0.156†	0.260†	0.299*	0.279*	0.279*	0.276†
x Democrat	(0.095)	(0.068)	(0.104)	(0.100)	(0.107)	(0.107)	(0.107)
Local Tariff Gain	-0.003	-0.007	-0.011	-0.017‡	-0.014	-0.013	-0.014
	(0.011)	(0.010)	(0.009)	(0.010)	(0.010)	(0.011)	(0.011)
Local Tariff Gain	0.025‡	0.017	0.034†	0.045*	0.050*	0.050*	0.050*
x Democrat	(0.014)	(0.014)	(0.014)	(0.013)	(0.014)	(0.014)	(0.014)
Democrat	-0.652*	-0.648*	-0.505*	-0.613‡	-0.583‡	-0.565‡	-0.581‡
	(0.053)	(0.056)	(0.061)	(0.329)	(0.319)	(0.303)	(0.313)
Expected Redistribution	-0.177	0.432‡	0.396‡	0.478†	0.405‡	0.422‡	0.392‡
	(0.199)	(0.241)	(0.225)	(0.214)	(0.225)	(0.226)	(0.229)
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

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. Determinants of Pro-FTA Votes in the House of Representatives: Alternative Estimation Techniques.

	Population-Averaged Correlated RE Probit		FE Probit		FE LPM-IV-GMM					
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Total Money	3.537†	3.444†	5.288	6.067	0.182	0.179	0.207‡	0.204‡	0.188	0.186
	(1.655)	(1.673)	(3.515)	(4.346)	(0.135)	(0.134)	(0.114)	(0.114)	(0.134)	(0.134)
Total Money	-1.333	-1.361	-1.390	-1.760	0.450	0.456	0.710*	0.714*	0.440	0.446
x Democrat	(1.833)	(1.834)	(3.809)	(4.707)	(0.293)	(0.293)	(0.261)	(0.261)	(0.293)	(0.293)
Local Tariff Vulnerability	-0.918‡	-0.879	-3.065*	-4.187*	-0.242*	-0.234†	-0.242*	-0.237†	-0.240*	-0.235†
	(0.479)	(0.556)	(1.081)	(1.216)	(0.091)	(0.099)	(0.091)	(0.100)	(0.091)	(0.099)
Local Tariff Vulnerability	0.872‡	0.940‡	2.909*	4.183*	0.264†	0.268†	0.277*	0.280*	0.265†	0.270*
x Democrat	(0.518)	(0.560)	(1.122)	(1.245)	(0.104)	(0.104)	(0.106)	(0.106)	(0.104)	(0.104)
Local Tariff Gain	-0.044	-0.035	-0.096	-0.079	-0.018†	-0.015	-0.018†	-0.014	-0.018†	-0.015
	(0.050)	(0.064)	(0.072)	(0.117)	(0.008)	(0.010)	(0.008)	(0.010)	(0.008)	(0.010)
Local Tariff Gain	0.079	0.105	0.141	0.198	0.043*	0.049*	0.043*	0.049*	0.043*	0.049*
x Democrat	(0.056)	(0.065)	(0.096)	(0.139)	(0.013)	(0.013)	(0.013)	(0.014)	(0.013)	(0.013)
Democrat	-2.705*	-2.742*	-10.628*	-11.240*	-0.547‡	-0.549‡	-0.582‡	-0.585‡	-0.550‡	-0.554‡
	(0.950)	(0.972)	(0.872)	(0.938)	(0.315)	(0.317)	(0.309)	(0.310)	(0.316)	(0.317)
Expected Redistribution	1.870	1.748	3.408‡	3.536‡	0.458†	0.456†	0.312	0.308	0.377‡	0.377‡
	(1.172)	(1.215)	(1.767)	(2.115)	(0.215)	(0.216)	(0.236)	(0.238)	(0.224)	(0.226)
	[0.396]	[0.351]	[0.830]	[0.689]						
N	4647	4647	2003	1994	4626	4626	4626	4626	4626	4626
Representative Covariates	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
District Covariates	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
State Covariates	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year-by-Region Fes	Y	N	Y	N	Y	N	Y	N	Y	N
FTA-by-Region Fes	N	Y	N	Y	N	Y	N	Y	N	Y
Representative FEs/REs	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Endogenous Covariates					Money, Money x Dem.		Exp. Redist.		Money, Money x Dem., Exp. Redist.	
Underidentification Test					p=0.000	p=0.000	p=0.000	p=0.000	p=0.000	p=0.000
Overidentification Test					p=0.830	p=0.822	p=0.227	p=0.195	p=0.803	p=0.782
Endogeneity Test					p=0.264	p=0.265	p=0.532	p=0.523	p=0.370	p=0.374
Rk F-statistic					85.370	84.432	49.288	642.885	75.743	74.944
Joint Significance of of Endogenous Variables					p=0.000	p=0.000	p=0.203	p=0.189	p=0.000	p=0.000

Notes: ‡ p<0.10, † p<0.05, * p<0.01. Dependent variable equals one for pro-FTA vote, zero otherwise. Standard errors are robust in columns (1) - (2) and clustered at the representative in the remaining columns. Average marginal effects for expected redistribution are reported in brackets. Excluded instruments in columns (5), (6), (9), and (10) 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 (7), (8), (9), and (10) include: UI net reserves divided by total wages in covered employment and UI maximum weekly benefit each interacted with prior TAA certification rate. See Table 4 for further details.

Table 7. 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		5 Years		10 Years	
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Total Money	0.218‡	0.217‡	0.207‡	0.206‡	0.197‡	0.196‡	0.200‡	0.198‡
	(0.114)	(0.114)	(0.116)	(0.117)	(0.115)	(0.116)	(0.115)	(0.116)
Total Money	0.693*	0.696*	0.706*	0.707*	0.720*	0.722*	0.718*	0.720*
x Democrat	(0.266)	(0.267)	(0.264)	(0.265)	(0.262)	(0.264)	(0.262)	(0.263)
Local Tariff Vulnerability	-0.236*	-0.229†	-0.244*	-0.236†	-0.244*	-0.237†	-0.245*	-0.238†
	(0.090)	(0.098)	(0.091)	(0.100)	(0.092)	(0.102)	(0.093)	(0.102)
Local Tariff Vulnerability	0.259†	0.261†	0.277*	0.279*	0.275†	0.278†	0.276†	0.278†
x Democrat	(0.105)	(0.105)	(0.106)	(0.106)	(0.108)	(0.108)	(0.108)	(0.108)
Local Tariff Gain	-0.017†	-0.013	-0.017†	-0.012	-0.017†	-0.013	-0.017†	-0.013
	(0.008)	(0.010)	(0.008)	(0.011)	(0.008)	(0.011)	(0.008)	(0.011)
Local Tariff Gain	0.042*	0.048*	0.042*	0.049*	0.043*	0.050*	0.043*	0.050*
x Democrat	(0.014)	(0.014)	(0.013)	(0.014)	(0.013)	(0.014)	(0.013)	(0.014)
Democrat	-0.572‡	-0.574‡	-0.586‡	-0.588‡	-0.581‡	-0.584‡	-0.580‡	-0.582‡
	(0.306)	(0.308)	(0.313)	(0.316)	(0.315)	(0.318)	(0.315)	(0.317)
Expected Redistribution	0.404	0.398	0.365†	0.370†	0.140	0.139	0.159	0.187
	(1.050)	(1.055)	(0.158)	(0.158)	(0.225)	(0.225)	(0.347)	(0.349)
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 Equality of Prior TAA Cert. Rate over Time	p=0.253	p=0.258						

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 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	0.039	0.038				
	(0.023)	(0.023)				
Total Money	0.085‡	0.086‡				
x Democrat	(0.048)	(0.048)				
Labor Contributions			0.102	0.100	0.680	0.664
			(0.228)	(0.229)	(0.527)	(0.531)
Labor Contributions					-0.671	-0.655
x Democrat					(0.613)	(0.619)
Business Contributions			0.084†	0.084†	0.026	0.026
			(0.034)	(0.035)	(0.031)	(0.032)
Business Contributions					0.127‡	0.127‡
x Democrat					(0.067)	(0.068)
Local Tariff Vulnerability	-0.244*	-0.237†	-0.243*	-0.235†	-0.245*	-0.237†
	(0.092)	(0.102)	(0.092)	(0.101)	(0.093)	(0.103)
Local Tariff Vulnerability	0.277*	0.280*	0.276†	0.278*	0.278*	0.281*
x Democrat	(0.107)	(0.107)	(0.107)	(0.107)	(0.108)	(0.108)
Local Tariff Gain	-0.018†	-0.014	-0.018†	-0.014	-0.018†	-0.014
	(0.008)	(0.011)	(0.008)	(0.011)	(0.008)	(0.011)
Local Tariff Gain	0.044*	0.051*	0.044*	0.050*	0.044*	0.050*
x Democrat	(0.013)	(0.014)	(0.013)	(0.014)	(0.013)	(0.014)
Democrat	-0.565‡	-0.568‡	-0.510	-0.512	-0.519‡	-0.522‡
	(0.330)	(0.333)	(0.333)	(0.335)	(0.296)	(0.299)
Expected Redistribution	0.410‡	0.403‡	0.412‡	0.405‡	0.408‡	0.401‡
	(0.227)	(0.229)	(0.228)	(0.230)	(0.227)	(0.229)
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

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: Heterogeneous Effects of Expected Redistribution

Variable	(1)	(2)	(3)	(4)
Total Money	0.238†	0.234†	0.219‡	0.213‡
	(0.117)	(0.117)	(0.114)	(0.114)
Total Money	0.690*	0.698*	0.687*	0.695*
x Democrat	(0.265)	(0.266)	(0.264)	(0.265)
Local Tariff Vulnerability	-0.883*	-0.653†	-1.010†	-0.733‡
	(0.269)	(0.274)	(0.450)	(0.441)
Local Tariff Vulnerability			0.183	0.089
x Democrat			(0.522)	(0.510)
Local Tariff Gain	-0.013	-0.006	-0.024*	-0.011
	(0.009)	(0.009)	(0.007)	(0.008)
Local Tariff Gain			0.041	0.060
x Democrat			(0.060)	(0.065)
Democrat	-0.552‡	-0.554‡	-0.570‡	-0.575‡
	(0.306)	(0.308)	(0.309)	(0.313)
Expected Redistribution	0.154	0.243	0.181	0.273
	(0.238)	(0.238)	(0.238)	(0.239)
Expected Redistribution	3.920*	2.913†	3.713‡	2.432
x Local Tariff Vulnerability	(1.223)	(1.252)	(2.082)	(2.061)
Expected Redistribution			0.468	0.928
x Local Tariff Vulnerability x Democrat			(2.406)	(2.359)
Expected Redistribution	0.045	0.000	0.024	-0.020
x Local Tariff Gain	(0.057)	(0.052)	(0.052)	(0.051)
Expected Redistribution			0.009	-0.057
x Local Tariff Gain x Democrat			(0.336)	(0.360)
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=0.010	p=0.066	p=0.224	p=0.377

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 A1. Variable Definitions and Sources.

Variable	Definition	Source
FTA Vote	1 = yes, 0 = otherwise	https://www.govtrack.us
Expected Redistribution	TAA certification success during prior three years, averaged across industries using CD-specific employment shares from 2000, multiplied by the average UI replacement rate in the state	Department of Labor (http://www.doleta.gov/tradeact/taa/taa_search_form.cfm, http://workforcesecurity.doleta.gov/unemploy/hb394.asp); Bureau of Labor Statistics (http://www.bls.gov/cew/datatoc.htm)
Member Covariates		
Experience	Years since elected to the House of Representatives	US Congress (http://history.house.gov/Institution/, http://bioguide.congress.gov/biosearch/biosearch.asp); Wikipedia (e.g., http://en.wikipedia.org/wiki/United_States_congressional_delegations_from_New_Jersey)
Independent	1 = yes, 0 = otherwise	
Democrat	1 = yes, 0 = otherwise	
Republican	1 = yes, 0 = otherwise	
Gender	1 = male, 0 = female	
Education, Less than BA Degree	1 = yes, 0 = otherwise	
Education, BA Degree	1 = yes, 0 = otherwise	
Education, Advanced Degree	1 = yes, 0 = otherwise	
Committee Chair, Education & Workforce	1 = yes, 0 = otherwise	
Committee Chair, Energy & Commerce	1 = yes, 0 = otherwise	
Committee Chair, Int'l Relations	1 = yes, 0 = otherwise	
Committee Chair, Ways & Means	1 = yes, 0 = otherwise	
Same Party as President	1 = yes, 0 = otherwise	
Same Party as House Majority	1 = yes, 0 = otherwise	
Same Party as Governor	1 = yes, 0 = otherwise	
Total Money (2010 US$)		https://www.opensecrets.org/myos/
Labor Contributions (2010 US$)		
Business Contributions (2010 US$)		
State Covariates		
Governor, Independent	1 = yes, 0 = otherwise	Wikipedia (e.g., http://en.wikipedia.org/wiki/Governor_of_Alabama)
Governor, Democrat	1 = yes, 0 = otherwise	
Governor, Republican	1 = yes, 0 = otherwise	
Real GSP (Per Capita, 2005$)	Real per capita GSP	Bureau of Economic Analysis (http://www.bea.gov)
Agriculture (% of GSP)	Share of GSP	
Manufacturing (% of GSP)	Share of GSP	
Employment Rate	Employment divided by population	
Unemployment Rate	Official unemployment rate	Bureau of Labor Statistics (obtained via http://www.dlt.ri.gov/lmi/laus/us/annavg.htm)
Union Coverage	Percent covered in private manufacturing	http://www.unionstats.com
UI Reserve Ratio	End-of-year net reserves divided by total wages paid in covered employment	Department of Labor (http://workforcesecurity.doleta.gov/unemploy/hb394.asp)
UI Weekly Maximum Benefit	State-level maximum UI benefit	

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. GSP = Gross State Product.

Table A1 (cont.). Variable Definitions and Sources.

Variable	Definition	Source
District Covariates		
Local Tariff Vulnerability	Average weighted pre-FTA sector-specific tariff imposed on FTA partner(s) where weights are sector-specific revealed comparative advantage of FTA partner(s) and averaging takes place across industries using CD-specific employment shares from 2000	World Bank's Integrated Trade Solution (WITS) database (http://wits.worldbank.org/); Bureau of Labor Statistics (http://www.bls.gov/cew/datatoc.htm)
Local Tariff Gain	Average weighted pre-FTA sector-specific tariff imposed on US by FTA partner(s) where weights are sector-specific revealed comparative advantage of US and averaging takes place across industries using CD-specific employment shares from 2000	
Education, % HS Graduate (Aged 25+)	Population share by education	American Community Survey (http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t); values for 2003-2004 are assumed to be equal to 2005 values
Education, % Some College (Aged 25+)	Population share by education	
Education, % BA (Aged 25+)	Population share by education	
Education, % Advanced Degree (Aged 25+)	Population share by education	
UR, Less than HS (Aged 25-64)	Unemployment rate	
UR, HS (Aged 25-64)	Unemployment rate	
UR, Some College (Aged 25-64)	Unemployment rate	
UR, BA or Higher (Aged 25-64)	Unemployment rate	
Household Median Income	Household median income	

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. GSP = Gross State Product.

Table A2. Determinants of Pro-FTA Votes in the House of Representatives: All Coefficient Estimates.

Variable	(1)	(2)		(1)	(2)
Representative Covariates			***State Covariates***		
Total Money	0.205‡	0.204‡	Governor is a Democrat	0.005	0.005
	(0.115)	(0.116)		(0.022)	(0.022)
Total Money	0.708*	0.710*	Unemployment Rate	-0.004	-0.004
x Democrat	(0.263)	(0.264)		(0.017)	(0.018)
Democrat	-0.579‡	-0.581‡	Employment Rate	-2.866	-2.867
	(0.311)	(0.313)		(1.766)	(1.773)
Same Party as House Majority	0.078*	0.078*	Real Per Capita GSP	13.418	13.229
	(0.017)	(0.018)		(12.268)	(12.322)
Same Party as President	-0.030‡	-0.029‡	Share of GSP, Agriculture	-5.604	-5.646
	(0.016)	(0.016)		(5.264)	(5.308)
Same Party as Governor	0.016	0.017	Share of GSP, Manufacturing	-1.351‡	-1.337‡
	(0.014)	(0.014)		(0.724)	(0.729)
District Covariates			Union Coverage Rate	0.005	0.005
Local Tariff Vulnerability	-0.242*	-0.234†		(0.004)	(0.004)
	(0.092)	(0.101)			
Local Tariff Vulnerability	0.273†	0.276†	***Redistribution***		
x Democrat	(0.107)	(0.107)	Expected Redistribution	0.399‡	0.392‡
Local Tariff Gain	-0.018†	-0.014		(0.227)	(0.229)
	(0.008)	(0.011)			
Local Tariff Gain	0.043*	0.050*			
x Democrat	(0.013)	(0.014)			
Population Share, Less than	0.566	0.555	N	4647	4647
a HS Diploma	(0.879)	(0.885)	Year-by-Region Fixed Effects	Y	N
Population Share, HS Degree	-0.342	-0.369	FTA-by-Region Fixed Effects	N	Y
	(1.421)	(1.426)	Representative Fixed Effects	Y	Y
Population Share, Some College	-0.126	-0.106			
	(0.764)	(0.765)			
Population Share, At Least a	0.339	0.326			
Bachelor's Degree	(1.289)	(1.296)			
Unemployment Rate, Less than	-0.005‡	-0.005‡			
a HS Diploma	(0.003)	(0.003)			
Unemployment Rate, HS	0.002	0.002			
Diploma	(0.006)	(0.006)			
Unemployment Rate, Some	-0.007	-0.007			
College	(0.007)	(0.007)			
Unemployment Rate, At Least a	0.008	0.008			
Bachelor's Degree	(0.008)	(0.008)			
Median Household Income	0.012	0.012			
	(0.063)	(0.064)			

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.