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# **Empirical Analyses of U.S. Congressional Voting on Recent FTA Bills**

INTERNATIONAL  
ECONOMIC POLICY

**Hyejoon Im and Hankyoung Sung**



Korea Institute for International  
Economic Policy

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## **Executive Summary**

This paper discusses what political and economic factors affect house representatives' voting behavior on free trade agreement (FTA) implementation bills in the 108th and 109th Congresses in the U.S. using a simultaneous probit-tobit model that consists of contribution equations and voting equations. We find that partisanship, especially when the results of roll-calls have narrow margins; a relative employment size in trade-sensitive sectors; and contribution funds exert great influence on the voting behaviors of representatives. The marginal effects of political and economic variables in the study could provide some policy implications for the prediction of the passage of future FTA bills in Congress.

## 국문요약

본 논문은 미 의회 108회기와 109회기에서 처리된 FTA 법안에 대한 하원 의원의 투표결과에 영향을 미친 정치·경제 요인을 분석한다. 이를 위해 정치기여금 방정식 및 투표 방정식으로 구성된 동시적 프로빗-토빗 모델(simultaneous probit-tobit model)을 이용한다. 하원 의원의 투표결과에 영향을 미치는 주요한 변수로는 당파(partisanship), 특히 찬성표와 반대표의 수가 별 차이가 없는 경우, 해당 선거구내 민감산업에 종사하는 근로자 수 비중, 정치기여금 등으로 나타났다. 본 연구의 정치·경제 변수의 한계효과는 향후 미 의회에서 처리될 FTA 법안의 통과여부 전망에 관한 정책적 시사점을 제공할 수 있을 것이다.

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『한·중 FTA 보건의료서비스 예상쟁점과 기대효과 분석』 (2006)

# Contents

I. Introduction .....	9
II. Literature Review .....	13
III. FTA Bills in the 108th and 109th Congresses .....	16
IV. Model and Data.....	20
V. Results.....	27
1. Labor PAC Contribution Equations .....	27
2. Business PAC Contribution Equations .....	28
3. Voting Equations.....	30
4. Comparisons .....	35
5. Policy Implication from Marginal Effects.....	41
VI. Concluding Remarks .....	45
References .....	47



## Tables

Table 1. Roll-call Vote Results on FTA in the House .....	16
Table 2. Time Schedule for FTA bills .....	17
Table 3. Descriptions and Means of Variables .....	22
Table 4. Results on Estimating Labor PAC Contribution Equations..	28
Table 5. Results on Estimating Business PAC Contribution Equations ...	29
Table 6. Results on Estimating Voting Equations .....	31
Table 7. The Distribution of Trade Adjustment Assistance Approvals in 2005..	34
Table 8. USITC's Sectoral Effects for FTA Bills in the 108th and 109th Congress.	36
Table 9. Marginal Effects of Estimates in Voting Equations .....	43

## Figures

Figure 1. Proportion of Yeas for FTA Bills by Party .....	18
Figure 2. House members' Approval rates on FTA bills across Committees .....	19

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# Empirical Analyses of U.S. Congressional Voting on Recent FTA Bills\*

Hyejoon Im<sup>+</sup> and Hankyoung Sung<sup>++</sup>

## I. Introduction

The U.S. Congress plays a substantial role in trade agreements. As shown in the U.S. Constitution, Article 1, most rights for trade negotiation are given to Congress. However, in general, administrative government has preceded the negotiations on trade agreements under the Fast Track or Trade Promotion Authority (TPA). In the U.S., bilateral trade agreements between countries or economic communities, including free trade agreements (FTAs), also must go through the legislative process in order to become effective. Although Fast Track and TPA give

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rights to administrative government without intervention by Congress and the final agreements may not be mended by Congress as long as the administrative government follows the procedures specified in TPA, the agreements submitted as a form of implementation act must be approved by both the House of Representatives and the Senate.

The purpose of this paper is to show which factors affected the voting behavior on recent FTA implementation bills in the 108th and 109th Congresses, and to draw from them implications on future FTA bills that will be considered by Congress, including the Korea-U.S. FTA (KORUS FTA), the U.S.-Columbia FTA, and the U.S.-Panama FTA.<sup>1</sup> In this paper, as shown in Table 1, we use the roll-call results of seven FTA implementation bills in the House of the 108th (2003–2004) and 109th (2005–2006) Congresses and examine political and economic factors that may exert influences on House representatives' voting decisions of these bills. Since this paper investigates only FTA bills, we can compare house members' voting behaviors between FTA bills and assess any common or different characteristics in the voting behaviors.

As an empirical model, we employ a simultaneous probit-tobit model to address the endogeneity of political action committee (PAC) contributions in the voting decisions of representatives. Contributions from interest groups such as PACs are endogenous in the sense that they would be given more [less] to representatives who are more [less] likely to vote for what the interest groups desire.

As in the previous literature (Baldwin and Magee, 2000a and 2000b),

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<sup>1</sup> The U.S.-Columbia FTA was signed in November 2006 and both the Korea-U.S. FTA and the U.S.-Panama FTA in June 2007, all of which are yet to be approved in the U.S. Congress.

we find that larger contributions from labor PACs, which generally object to free trade, are less likely to lead representatives to vote in favor of FTA bills, but that larger contributions from business PACs are more likely to do so. We also find that unemployment and the proportion of less-skilled workers in a district are negatively related to a representative's approval for FTA bills. We expect this comes from public sentiment that FTAs may result in a surge of cheap imports, which costs American jobs, and that free trade may expedite the export of jobs to foreign countries.

The main findings of the paper are as follows. First, representatives' party matters when the results of roll-calls are relatively narrow margins as in the case of Chile, Singapore, Dominican Republic-Central America (DR-CAFTA), and Oman FTA bills. For these FTA bills, Republican representatives are more likely to vote in favor of them and Democratic representatives are less likely to do so. Second, representatives whose districts have relatively more employment in textiles including apparels and leather; petroleum products including chemicals, plastics, and rubber; and electronics are less likely to approve FTA bills. According to recent statistics on approvals of Trade Adjustment Assistance (TAA), which is a program to help workers who lose their jobs due to a surge of foreign imports, these industries are the ones that have been most adversely affected by trade liberalization.

Other findings in this paper can be summarized as follows. It is argued that representatives' voting behaviors reflect the interest of members' congressional districts. For example, if an FTA were to be detrimental to employment in the industry that is a principal one in their

congressional district, they would not vote in favor of the FTA bill. However, by comparing our results with the U.S. International Trade Commission (USITC) reports, which investigate the potential economic effects of FTAs before Congress considers the FTAs, we conclude that the members' voting behaviors on FTAs are not always consistent with the results in the USITC reports. Next, we find that membership in a labor-related committee, such as the Education and Labor Committee, meant more contributions from labor PACs in the 108th Congress but not necessarily in the 109th. Similarly, Democrats used to get more funds from business PACs in the 108th Congress, but no longer in the 109th Congress. Finally, larger Hispanic populations in districts do not necessarily mean higher approval rates on FTAs with Latin American countries as in the DR-CAFTA.

The main implication for future FTA bills, including the KORUS FTA, is that the probability that representatives vote for an FTA bill decreases with their Democratic partisanship,<sup>2</sup> more [less] contributions from labor [business] PACs, and higher unemployment rate and higher employment ratio in the sensitive industries such as textiles, petroleum products, and electronic industries in members' districts.

The rest of the paper is as follows. Previous literature related to this paper is reviewed in Section II. Section III provides brief descriptions of the FTA bills in the 108th and 109th Congresses. Section IV describes models and data. In Section V, we discuss econometric results and their implications. Finally, Section VI concludes.

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<sup>2</sup> The probability decreases with a Democratic partisanship more strongly when roll-call margins get narrow.

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## II. Literature Review

There exists a large amount of literature in both economics and political science investigating the determinants of trade policy votes of legislators. Potters and Sloof (1996) survey an empirical literature that examines the influences of interest groups on the formation of various public policies. Romer and Snyder (1994) show that contributions from PACs, which are given to House members, play a crucial role in decisions of committees in which the representatives are included.

There is also some research on voting behavior in experimental economic fields such as Frechette, Kagel, and Lehrer (2003), Frechette, Kagel, and Morelli (2005a, b, and c), Kagel, Sung, and Winter (2008), and Sung (2007). Their results show that shares that voters take would be the key variables to explain players' voting patterns. For representatives, the benefit, like shares in the above experimental works, could be reelected in their congressional district by representing people's interest or receiving more funds from PACs in order to facilitate their congressional work. Thus, experimental results indirectly imply that PAC contributions could be material variables that explain voting behaviors.

Beaulieu and Magee (2004) construct a dataset that links both corporate and labor PACs to industries and examine how factors in production and industry characteristics, and some combinations of the two affect PACs' preferences. They find that PACs for business contribute to candidates in favor of trade liberalization regardless of the net export position of the industries they represent. However, for labor PACs,

industry characteristics influence contributions, although the evidence is rather weak; labor PACs in import-competing industries tend to oppose trade liberalization more strongly than those in exporting industries.

Magee (2008) investigates whether a party similarity between the President and a member of Congress matters for House trade votes. He uses the results on five trade votes: three fast-track votes in 1991, 1998, and 2001; the North American Free Trade Agreement (NAFTA) vote in 1993; and the DR-CAFTA vote in 2005. He shows that Congress members are more likely to support trade votes if the representative and the President belong to the same party meaning that divided government makes the passage of trade liberalization measures less likely.

Chae *et al.* (2007) include some econometric works on PAC contributions and voting behaviors of representatives. They argue that house members who were in the Ways and Means Committee got more funds from business PACs, but members of the Education and Labor Committee got less funds from business PACs, other things being equal. However, funds from labor PACs are not significantly dependent on whether they are in Ways and Means Committee or the Education and Labor Committee. The results of Chae *et al.* (2007) are consistent with ours and those of Baldwin and Magee (2000a) in that members in the Ways and Means Committee get more funds from business PACs. However, unlike their results, we find that in the 108th Congress, House members on the Education and Labor Committee get more funds from labor PACs.

The results of Baldwin and Magee (2000a, 2000b) are the most simi-

lar to ours. Baldwin and Magee (2000a) examine congressional voting behavior on three trade bills of the 1990s: the NAFTA bill in 1993, the implementation laws on the results of the Uruguay Round (UR) in 1994, and the Fast Track bill in 1998. Baldwin and Magee (2000b) examine the extension of most favored nation (MFN) treatment to China in 1994 as well as the NAFTA and the General Agreement on Tariffs and Trade (GATT). Both papers find that the ideology of legislators, PAC contributions, and economic conditions in legislators' districts or states influence their voting behaviors on trade bills.

While the previously mentioned authors investigate not only FTA bills but also GATT and Fast Track bills, this paper considers only recent FTA bills so that we can compare the effects of political, demographic, and economic variables on representatives' voting behaviors with the USITC's sectoral effects for each FTA bill. Furthermore, by investigating FTA bills in two recent Congresses, we can assess any changes or trends in political and economic variables in districts in determining representatives' voting results on FTA bills.



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### III. FTA Bills in the 108th and 109th Congresses

Four FTA bills were passed in the 108th Congress (Chile, Singapore, Australia, and Morocco) and three bills in the 109th (DR-CA, Bahrain, and Oman), as shown in Table 1. The Chile FTA and the Singapore FTA were both passed on the same day (July 24, 2003) with similar roll-call results, 270 yeas vs. 156 nays and 272 yeas vs. 155 nays, respectively. In July 2004, FTA bills with Australia and Morocco were also passed, but by a wider margin: 314 vs. 109 and 323 vs. 99, respectively. However, in the 109th Congress both the DR-CAFTA and the Oman FTA passed by very narrow margins. The former was passed with just two more yeas (217 vs. 215), and the latter passed with 16 more yeas (221 vs. 205). The Bahrain FTA was easily passed by a wider margin: 327 vs. 95.

**Table 1. Roll-call Vote Results on FTA in the House**

Congress	FTA Partners	Roll-Call Results (Yea-Nay)	Voting Dates
108th	Chile	270 -156	7/24/2003
	Singapore	272 - 155	7/24/2003
	Australia	314 - 109	7/14/2004
	Morocco	323 - 99	7/22/2004
109th	DR-Central America	217 - 215	7/28/2005
	Bahrain	327 - 95	12/7/2005
	Oman	221 - 205	7/20/2006

Source: Thomas Library.

FTA bills passed in the 108th and 109th Congresses were following the legal procedure made a rule in Trade Act 2002. As FTAs should be implemented as public law, they must be approved by both houses of the U.S. Congress. According to the TPA in Trade Act 2002, which is called a right to be given to the administrative government in order to facilitate trade negotiations with foreign countries, trade agreements that were signed before the end of June 2007 and met all requirements specified by the law, the implementation act, which includes ratification on agreements, can go through Congress without amendments on agreements.

Table 2 shows the legislative process of which the act has to go through in Congress. As the acts arrive in Congress, the act would be considered in both House and Senate. However, typically, the Ways and Means Committee in the House discusses acts first, because most trade agreements inevitably result in changes in tariffs, which is one of tax incomes for the U.S. government. As it goes through committees in the House, it must be approved in a general session of the House. In the Senate, the act should be discussed in the Finance Committee first and approved in a general session of the Senate. The full legislative process must be finalized within 90 days.

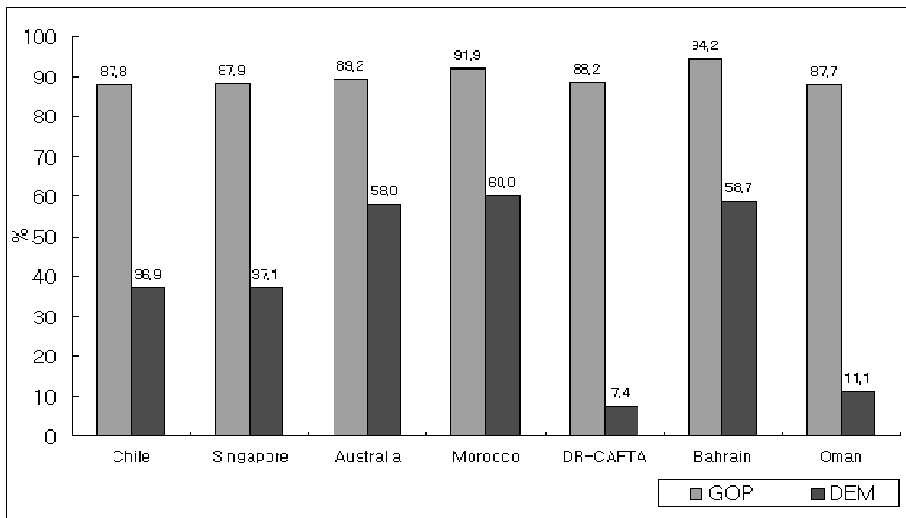
**Table 2. Time Schedule for FTA bills**

House			Senate		
Body	Time Allowed (days)		Body	Time Allowed (days)	
Committee on Ways and Means	45	60	Committee on Finance	75	90
General Session	15		General Session	15	

Source: Hornbeck and Cooper (2006).

The first observation on house members' votes on FTA bills in the 108th and 109th Congresses is that their voting behavior depends on their partisanship. The proportion of members who support trade acts is usually lower for members of the Democratic Party and higher for members of the Republican Party. This can also be observed for FTA bills, as shown in Figure 1. More than 88% of Republican representatives approved FTA bills in the 108th and 109th Congresses. However, the approval rate by Democratic representatives is no more than 60%, and it was even lower than 11% for the DR-CAFTA and Oman FTA bills.

**Figure 1. Proportion of Yeas for FTA Bills by Party**

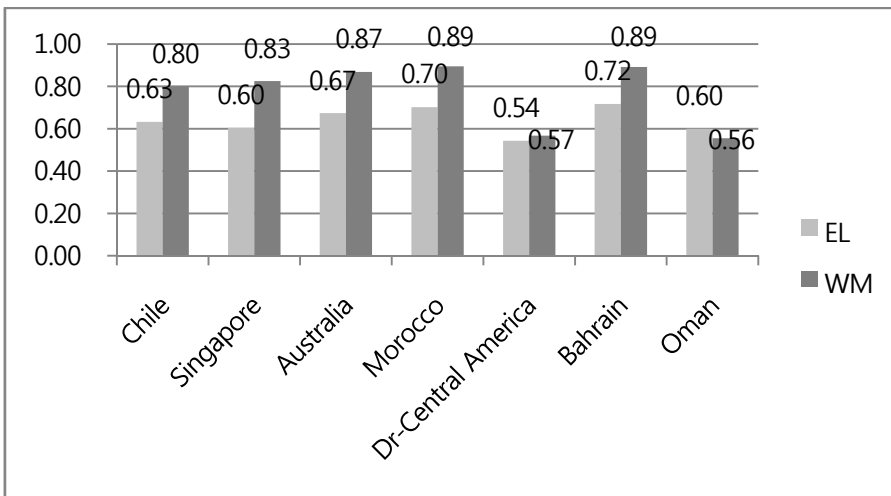


Sources: Thomas Library; Chae *et al.* (2008)

The second observation is that House members' voting behavior depends on their membership in committees. As shown in Figure 2, mem-

bers of the Ways and Means Committee, where most trade-related bills must first go are generally more supportive of FTA bills than are members of the Education and Labor Committee, who are influenced by unions or other labor-related PACs, and they generally object to FTA bills.

**Figure 2. House members' Approval rates on FTA bills across Committees**



Source: Thomas Library.

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## IV. Model and Data

As in Chappell (1982) and Baldwin and Magee (2000), we employ a simultaneous probit-tobit model in order to fix the endogeneity issue associated with contributions that a representative receives from PACs. PACs contributions affect the voting behavior of representatives, but they are endogenous in that the amount of contributions that a representative receives depends on his or her policy stances and the influence that he or she wields within Congress. If this issue were not correctly addressed, we would have a biased estimate, which is a simultaneous equation bias.

The model consists of two “contribution” equations that determine the campaign contributions received by members of Congress from labor and business PACs—equations (1) and (2), respectively—and a “voting” equation that determines representatives’ voting behavior [equation (3)]. Basically, a voting equation is the same as a probit model; while a contribution equation is the same as a tobit model. We simultaneously estimate this system of equations for each FTA bill in the 108th and 109th Congresses using the method of full information maximum likelihood (FIML).

$$LPAC_i = l^*, \text{ if } l^* = \alpha' Y_i + \varepsilon_{l,i} \geq 0 \quad (1)$$
$$0, \text{ otherwise}$$

$$BPAC_i = b^*, \text{ if } b^* = \gamma' Z_i + \varepsilon_{b,i} \geq 0 \quad (2)$$
$$0, \text{ otherwise}$$

$$Vote_i = F(\beta' X_i + \beta_1(LPAC_i) + \beta_2(BPAC_i)) + \varepsilon_i \quad (3)$$

Let us explain the system of equations in detail and first explain the voting equation. The dependent variable *Vote* in the voting equation [equation (3)] is a binary variable that is equal to 1 if representative *i* votes for a particular FTA or 0 otherwise. Hence, the voting equation can be estimated by a standard probit model.  $F$  is a cumulative density function of a standard normal distribution.  $X$  is a vector of constituency variables that affect members' voting behavior, and  $LPAC$  [ $BPAC$ ] is a contribution from labor [business] PACs.  $\epsilon$ 's are random error terms. As mentioned earlier, the contribution funds that representatives receive from interest groups are essentially endogenous variables. Thus, we include the contribution equations [equations (1) and (2)] into a system of equations that are estimated simultaneously.

Constituency variables in the voting equation are as follows: a dummy variable indicating whether a representative is a Democrat; the fraction of district population, which has no high school diploma; the fraction of district population, which has a high school diploma but no college degree; the fraction of Hispanic population in the district; unemployment rate in the district; union membership rate in the state; and ratios of employment in agriculture and eight manufacturing sectors in the district. Table 3 presents the descriptions of the variables in the model along with their mean values.

For contribution equations [equations (1) and (2)], we have truncated data for contributions that are greater than 0 since we only observe data on contribution funds when they are positive. Hence, we estimate the contribution equations using a tobit model. The dependent variables in the two contribution equations are the amount of con-

**Table 3. Descriptions and Means of Variables**

Variables	Description	Mean	
		108th	109th
lpac	Labor PAC contribution to a representative in \$1,000	86	96
bpac	Business PAC contribution to a representative in \$1,000	337	410
party	Equals to 1 if a representative is Democratic	0.42	0.42
LCV rating	Rating of a representative by League of Conservation Voters	46.21	46.83
COC rating	Rating of a representative by the U.S. Chamber of Commerce	68.07	69.67
el	Equals to 1 if a representative is a member of Committee on Education and Labor	0.11	0.11
wm	Equals to 1 if a representative is a member of Committee on Ways and Means	0.09	0.09
rm	Equals to 1 if a representative is a chair of major House committee or in the House leadership.	0.06	0.06
vote	Equals to 1 if a representative votes for FTA j	0.69	0.60
nhdr	Fraction of population which has no high school diploma in district in 2003, in 2005	19.82	16.0
ncdr	Fraction of population which has a high school diploma but no college degree in district in 2003, in 2005	49.70	49.81
hpr	Fraction of Hispanic population in district in 2003, in 2005	12.55	14.11
unem	Unemployment rate in district in 2003, in 2005	5.86	6.99
unmr	Union membership rate in state in 2003, in 2005	12.94	12.53
agemr	Ratio of employment in agriculture to total employment in district in 2003, in 2005	0.026	0.025
food	Ratio of employment in food and beverage (NAICS 311, 312) to total employment in district in 2003, in 2005	0.016	0.016
textile	Ratio of employment in textile, apparel, and leather (NAICS 313, 314, 315, 316) to total employment in district in 2003, in 2005	0.008	0.007
wood	Ratio of employment in wood, paper, printing, and furniture (NAICS 321, 322, 323, 337) to total employment in district in 2003, in 2005	0.018	0.017
petro	Ratio of employment in petroleum, chemicals, and plastics & rubber (NAICS 324, 325, 326) to total employment in district in 2003, in 2005	0.018	0.017
metal	Ratio of employment in primary and fabricated metal (NAICS 331, 332) to total employment in district in 2003, in 2005	0.019	0.018
transp	Ratio of employment in machinery and transportation equipment (NAICS 333, 336) to total employment in district in 2003, in 2005	0.026	0.026
electro	Ratio of employment in computer, electronics, and electrical equipments (NAICS 334, 335) to total employment in district in 2003, in 2005	0.015	0.013
misc	Ratio of employment in miscellaneous manufacturing including minerals (NAICS 339, 327) to total employment in district in 2003, in 2005	0.011	0.011

tributions from labor PACs and business PACs. Independent variables  $Y$  and  $Z$  are vectors of variables that influence the contribution funds that members receive from labor and business PACs, respectively. Explanatory variables in the labor contribution equation include a dummy for a Democratic representative; a rating of the representative by the League of Conservation Voters (LCV); a dummy for a representative who is a member of the Committee on Education and Labor; and a dummy for a representative who is a chair of a committee or holds a leadership position in the House. Explanatory variables for business contributions include the same variables as in the contribution equation, except that LCV is replaced by a rating of the representative by the U.S. Chamber of Commerce (COC) and the Committee on Education is replaced by the Committee on Ways and Means.

Contributions from PACs depend on several characteristics of the representatives. As we know, since the ideological position of the Democratic Party is relatively closer to that of labor PACs, while the Republican Party's position is closer to that of business PACs, it is expected that members get more contributions from PACs that share ideological positions similar to those of their own party. Since a high rating by the COC implies that the representative is pro-business, it is expected that he or she is likely to receive more funds from business PACs. However, the LCV rates legislators in terms of environmental protection, which is an important issue, in addition to labor, in an FTA, and thus a representative rated higher by the LCV is likely to receive more funds from labor PACs. A representative who belongs to the Committee on Ways and Means [Committee on Education and Labor]



is expected to more contributions from business PACs [labor PACs]. A chair or leader in the House is expected to receive more contributions from both business and labor PACs, since he or she wields more influence than other members in decision-making.

In voting equations, we expect a negative sign for LPAC but a positive for BPAC because workers tend to object to free trade for the fear of losing their jobs. Businesses, however, tend to support it because businesses could seek more opportunities in the market expanded by FTAs. Unskilled labors who have not reached to high school or college degree tend to be against FTA for fearing losing their jobs. Thus, we expect that a representative whose constituency has a large population of unskilled labors will vote against FTA bills. Also, labor interest groups in the U.S. are essentially against free trade, often arguing that cheap imports cost American jobs; thus, a representative whose constituency has a high rate of unemployment and high union membership is expected to vote against FTA bills.

For the ratio of Hispanic populations, we do not have a prediction for the Hispanic population *a priori*, but we expect that House members in congressional districts with significant Hispanic populations would be favorable to FTA bills with Latin American countries such as Chile and DR-CA.

The signs for the ratio of employment in agriculture and manufacturing sectors depend on how the FTA affects each industry sector. A particular FTA would be beneficial for some industries but would be detrimental to others. Under TPA 2002, the USITC is supposed to submit a report that assesses the likely effects of a particular FTA on vari-

ous industries on behalf of the USTR before the House votes for the FTA. We investigate whether the predicted effects on different sectors in these reports are consistent with our empirical findings.

While Baldwin and Magee (2000a, 2000b) investigate roll-calls in both the House and Senate, this paper discusses only the roll-call results of the House, because the results would be better for analyzing members' voting behaviors in Congress. It is known that voting decisions of House members, who have just two-year tenures, depend not only on their political positions, but also on the economic situations in their congressional districts in order to represent the economic interest of their congressional district. Because of House members' short tenure, they would be sensitive to the needs or interests of their congressional districts. If House members consider an FTA that would result in higher unemployment in their relatively small congressional district, even though the FTA would be beneficial for the U.S., they would be reluctant to vote in favor of the FTA implementation act. However, Senators, who have six-year tenure and represent states, are relatively less sensitive because their wide districts, individual states, could have mixed opinions. This is supported by the fact that the roll-call margin for FTA bills in the Senate is wider than in the House and that some are passed even without roll-calls.

Congressional district characteristics such as the Hispanic population, unemployment ratio, and the proportions constituents without a high school diploma or with a high school diploma but with no college degree are taken from Census 2000 and the 108th Congressional District Summary Files for the 108th Congress and from the 2005 Ameri-

can Community Survey for the 109th Congress, respectively.<sup>3</sup>

The employment ratio of a manufacturing sector for each district is calculated based on the level of employment by county, which is obtained from the County Business Patterns for 2003 and 2005. We convert the employment data at the county level to that of district level. For this, we assume that the distribution of the population employed for each industry in a district is the same as the population distribution of the county for that district. The employment data are for eight manufacturing industries.

The fraction of population employed in agriculture by district is the number of employment in agriculture by district, which are from Census 2000 and the 108th and 109th Congressional District Summary Files, divided by the total employment by district, which are derived from the County Business Patterns for 2003 and 2005. The union membership ratios in each state are taken from the compilation by Hirsch and Macpherson.<sup>4</sup>

Political variables are available in websites open to public. The Center for Responsive Politics provides the amount of contributions from labor and business PACs to each House member on its website. Most voting records and information on House members are from Thomas Library, and LCV and COC rating are from their own websites.

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<sup>3</sup> Although the 109th Congressional District Summary File is available, it is also based on Census 2000, like the 108th file, and does not significantly differ from the 108th except for several districts, which were redistricted between the two congress periods. Hence, we updated the data for the 109th using the 2005 American Community Survey.

<sup>4</sup> This Compilation can be found at [unionstats.com](http://unionstats.com).

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## V. Results

In this section, we report and discuss the results. We start this section by discussing the results for the 108th and 109th Congresses, and then we compare the results between two Congresses and provide some paired comparisons.

### 1. Labor PAC Contribution Equations

Table 4 shows the estimation results on labor PAC contributions in the 108th Congress. The estimates of coefficients of *party*, *LCV rating*, and *el* are all positive and statistically significant at less than 1% or 5% significance levels. It means that a House member gets more contribution from labor PACs as he or she is in the Democratic Party, has a higher LCV rating, or is on the Education and Labor Committee. This is a quite predictable result considering that the Democratic Party and LCV's ideological positions are generally in favor of labor issues, and that the Education and Labor Committee mainly discusses issues related to interest in labor.

However, estimates for *ranking member* in Table 4 are all positive but not statistically significant at any conventional level. Thus, we may not argue that House member would get more contributions from a labor PAC if he or she is in a ranking position.

**Table 4. Results on Estimating Labor PAC Contribution Equations**

	108th Congress				109th Congress		
	Chile	Singapore	Australia	Morocco	DR-Central America	Bahrain	Oman
constant	22.103 (15.669)	22.101 (15.397)	21.316 (16.917)	20.119 (15.708)	27.751* (16.491)	25.816 (19.039)	26.760 (20.029)
party	65.326*** (20.846)	66.016*** (20.998)	70.883*** (20.831)	67.353*** (22.926)	46.265*** (11.648)	49.764*** (12.977)	52.056*** (13.341)
LCV rating	0.661*** (0.242)	0.648*** (0.246)	0.623** (0.247)	0.678*** (0.258)	1.008*** (0.262)	1.004*** (0.273)	0.959*** (0.302)
el	35.314** (16.672)	34.776** (16.120)	39.036** (17.538)	37.059** (16.257)	-2.260 (26.606)	1.317 (27.442)	-2.372 (26.784)
ranking member	19.759 (35.199)	22.414 (34.894)	22.943 (35.188)	22.754 (34.908)	24.267 (24.500)	22.344 (27.190)	39.976 (26.571)
Observations	420	421	420	417	426	418	423

Note: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

In the 109th Congress, *party*, *LCV rating*, and *ranking member* have similar impacts on contributions from labor PACs. However, the estimate for *el* is not always positive and not statistically significant at any conventional significance levels in the 109th Congress. Thus, we may conclude that the impact of representatives' membership in the Education and Labor Committee on contributions from labor PACs has faded away between the 108th and 109th Congresses.

## 2. Business PAC Contribution Equations

Table 5 shows the estimation results on business contributions

in the 108th Congress. The estimates of coefficients of *party*, *COC rating*, *wm*, and *ranking member* are all positive and statistically significant at 1% or 5%, for all FTA bills. This result implies that House members get more contributions from business PAC if they are in the Democratic Party. This is a bit surprising because it is known that House members in the Republican Party, also known as the Grand Old Party (GOP), usually get more funds from business due to their business-friendly ideology. However, looking at contributions from business PACs in detail, we find that the standard deviation of the funds from business PACs is twice as large for members of the GOP than those of the Democratic Party though the average funds from business PACs is higher for members of the GOP than for those of the Democratic Party

**Table 5. Results on Estimating Business PAC Contribution Equations**

	108th Congress				109th Congress		
	Chile	Singapore	Australia	Morocco	DR-Central America	Bahrain	Oman
constant	-171.926 (123.200)	-198.482 (129.500)	-215.521 (125.000)	-208.679* (123.500)	-116.514 (157.900)	-151.532 (138.500)	-187.569 (147.700)
party	160.990** (76.037)	176.061** (78.833)	185.710** (76.932)	183.124** (76.749)	108.990 (83.254)	124.045* (75.175)	149.703* (79.098)
COC rating	6.067*** (1.312)	6.365*** (1.377)	6.475*** (1.346)	6.488*** (1.294)	6.374*** (1.730)	6.769*** (1.527)	7.175*** (1.615)
wm	142.973*** (34.324)	144.507*** (34.064)	147.923*** (34.175)	152.800*** (32.634)	253.927*** (38.173)	264.690*** (36.651)	265.300*** (39.046)
ranking member	228.019*** (50.591)	222.974*** (50.222)	230.483*** (48.934)	227.915*** (51.320)	263.048*** (35.452)	221.886*** (37.011)	318.742*** (36.592)
Observations	420	421	420	417	426	418	423

Note: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

in the 108th Congress. The impacts of *COC rating* and *wm* are predictable because higher COC rating and being on the Ways and Means Committee typically imply that the representative has pro-business tendencies. In addition, as a ranking member, the representative gets more funds from business PACs in the 108th Congress.

In the 109th Congress, as shown in Table 8, the estimates for *COC rating*, *wm*, and *ranking member* are all positive and statistically significant at less than 1% significance level. However, the estimates for *party* are statistically significant at less than 10% or not statistically significant. Unlike Democratic representatives in the 108th Congress, it is not clear that they get more contributions from business PACs in the 109th Congress.

### 3. Voting Equations

#### 3.1 Impact by Political Variables

From Table 6, the estimates of coefficient of *bpac* [*lpac*] are positive [negative] and statistically significant at less than 1% or 5% significance levels, in the 108th Congress. However, those for *party* are (negative and) statistically significant at less than 1% or 5%, only for the Chile and Singapore FTAs. Thus, more contributions by business [labor] PACs are more [less] likely to lead House members to vote in favor of all FTA bills, other things being equal. However, the impact of partisanship is relatively clear when

Table 6. Results on Estimating Voting Equations

	108th Congress				109th Congress		
	Chile	Singapore	Australia	Morocco	DR-Central America	Bahrain	Oman
constant	2.490 <sup>***</sup> (0.744)	2.484 (0.719)	2.123 <sup>**</sup> (0.827)	1.545 <sup>**</sup> (0.697)	0.351 (0.625)	3.167 <sup>***</sup> (0.743)	1.585 <sup>**</sup> (0.674)
bpac	0.004 <sup>***</sup> (0.001)	0.005 <sup>***</sup> (0.001)	0.004 <sup>***</sup> (0.001)	0.003 <sup>***</sup> (0.001)	0.003 <sup>***</sup> (0.001)	0.004 <sup>***</sup> (0.001)	0.003 <sup>***</sup> (0.000)
lpac	-0.005 <sup>**</sup> (0.002)	-0.006 <sup>***</sup> (0.002)	-0.003 <sup>***</sup> (0.001)	-0.006 <sup>***</sup> (0.001)	-0.014 <sup>***</sup> (0.002)	-0.006 <sup>***</sup> (0.001)	-0.003 <sup>**</sup> (0.001)
party	-0.588 <sup>**</sup> (0.231)	-0.666 <sup>***</sup> (0.225)	-0.280 (0.181)	0.087 (0.183)	-1.322 <sup>***</sup> (0.228)	-0.197 (0.158)	-1.887 <sup>***</sup> (0.282)
unem	-0.099 <sup>*</sup> (0.052)	-0.092 <sup>*</sup> (0.053)	-0.105 <sup>**</sup> (0.046)	-0.062 (0.039)	-0.147 <sup>**</sup> (0.072)	-0.063 <sup>*</sup> (0.034)	-0.161 <sup>**</sup> (0.067)
unmr	-0.004 (0.011)	0.007 (0.011)	-0.020 <sup>*</sup> (0.012)	-0.001 (0.012)	0.018 (0.014)	-0.003 (0.011)	-0.037 <sup>***</sup> (0.013)
nhdr	-0.028 <sup>*</sup> (0.015)	-0.049 <sup>**</sup> (0.016)	-0.018 (0.015)	-0.018 (0.014)	0.017 (0.021)	-0.017 (0.016)	-0.002 (0.023)
ncdr	-0.028 <sup>**</sup> (0.013)	-0.033 <sup>***</sup> (0.013)	-0.011 (0.014)	-0.005 (0.013)	0.009 (0.014)	-0.039 <sup>***</sup> (0.014)	-0.006 (0.014)
hpr	0.020 <sup>***</sup> (0.006)	0.030 <sup>***</sup> (0.007)	0.016 <sup>**</sup> (0.006)	0.012 <sup>**</sup> (0.006)	0.010 (0.006)	0.005 (0.007)	0.007 (0.006)
agemr	2.007 (2.468)	3.256 (2.355)	-9.822 <sup>***</sup> (2.484)	1.036 (2.405)	-13.699 <sup>***</sup> (3.610)	0.898 (3.857)	-2.920 (3.015)
food	2.050 (5.298)	-0.107 (5.244)	-1.892 (4.541)	-3.446 (5.093)	23.575 <sup>***</sup> (7.849)	10.843 <sup>*</sup> (6.504)	4.455 (6.267)
textile	-22.145 <sup>***</sup> (6.168)	-32.603 <sup>***</sup> (7.140)	-2.277 (6.174)	-30.021 <sup>***</sup> (6.489)	-22.618 <sup>***</sup> (6.318)	-21.693 <sup>***</sup> (7.254)	-52.995 <sup>***</sup> (10.525)
wood	14.792 <sup>**</sup> (5.472)	24.364 <sup>**</sup> (5.992)	2.159 (6.402)	13.329 <sup>**</sup> (5.549)	-12.066 <sup>***</sup> (4.430)	0.347 (5.952)	14.327 <sup>*</sup> (7.755)
petro	-12.992 <sup>*</sup> (6.896)	-10.908 (7.441)	0.069 (6.680)	-13.915 <sup>**</sup> (6.347)	2.658 (5.529)	-14.438 <sup>**</sup> (6.667)	-4.554 (5.868)
metal	1.182 (6.587)	2.118 (7.147)	-4.045 (6.049)	-12.937 <sup>*</sup> (6.700)	9.810 (11.448)	-16.248 <sup>**</sup> (7.727)	14.051 <sup>*</sup> (8.345)
transp	3.960 (3.417)	8.499 <sup>**</sup> (4.110)	-0.168 (3.371)	5.874 <sup>*</sup> (3.420)	2.727 (4.876)	8.509 <sup>**</sup> (3.899)	-1.475 (4.329)
electro	-10.865 <sup>**</sup> (4.999)	-7.751 (5.172)	-6.474 (5.142)	-13.251 <sup>***</sup> (5.100)	-16.817 <sup>**</sup> (7.259)	-5.304 (6.733)	-18.986 <sup>**</sup> (7.579)
misc	-9.803 (14.085)	-8.705 (15.822)	4.600 (13.292)	18.786 (14.014)	31.246 (20.764)	10.108 (12.874)	13.894 (14.111)
Observations	420	421	420	417	426	418	423

Note: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.



the margin between yeas and nays is narrow, as is the cases of the Chile and Singapore FTA bills.

Overall, impact by political variable is not much different between the 108th and 109th Congresses, and the impacts of *bpac* and *lpac* in the 109th Congress are qualitatively the same as those in the 108th Congress. Especially, for *party*, the estimates are large negative and statistically significant at less than 1% significance level for DR-CAFTA and Oman FTA bills, whose roll-call margins were considerably narrow. This fact implies that partisanship would be an important determinant for House members' voting behaviors when the passage of the FTA bill is in not indisputable.

### 3.2 Impact by Demographic Variables

As shown in Table 6, the estimates of coefficients of *unem*, *unmr*, *nhdr*, and *ncdr* are mostly negative in the 108th Congress whenever those are statistically significant at less than 1%, 5%, or 10% significance levels. This implies that House members whose districts have higher unemployment, higher union participation rates, or higher ratios of unskilled labors are less likely to vote in favor of some FTA bills, other things being equal. However, the estimates for *hpr* are positive and statistically significant at less than 1% or 5% significance levels for all FTA bills. Thus, a higher ratio of Hispanics would lead House members to be more likely to vote in favor of FTA bills.

Similar patterns on the effects of demographic variables are found in the voting results for FTA bills in the 109th Congress. In particular, the estimates for *unem* are all negative and statistically significant for all FTA bills in the 109th Congress. However, unlike the results in the 108th Congress, the estimates for *hpr* are not statistically significant at any conventional levels for all FTA bills in the 109th Congress.

### 3.3 Impacts by Economic Variables

In the 108th Congress, estimates for *agemr*, *textile*, *petro*, *metal*, and *electro* are all negative whenever they are statistically significant at less than 1%, 5%, or 10% significance levels. In contrast, estimates for *wood* and *transp* are all positive whenever they are statistically significant at less than 1%, 5%, or 10% levels. This means that House members are less likely to vote in favor of some FTA bills if their districts have relatively higher ratios of employment in agriculture, textile, petroleum, metal, and electronics, while they are more likely to vote in favor of some FTA bills if their districts have relatively higher ratios of employment in wood and transport. The estimates for *food* are not statistically significant at any conventional levels.

In the 109th Congress, the estimates for *agemr*, *food*, *textile*, *petro*, *metal*, *transp*, and *electro* show similar patterns to those in the 108th Congress. In particular, estimates for *textile* are all negative and statistically significant at less than the 1% level. However, for

the DR-CAFTA bill, the estimate for *wood* is negative and statistically significant at less than 1% significance level.

It is noteworthy that industries such as *textile*, including apparel and leather products; *petro* including chemicals, plastics, and rubber; and *electro* including electrical equipments, have also been adversely affected by FTAs and trade liberalization that the U.S. has undertaken. Table 7 shows the top ten industries that had

**Table 7. The Distribution of Trade Adjustment Assistance Approvals in 2005**

SIC Code Number	Industry	Number of Approvals	Proportion (%)
22	<b>Textile Mill Products</b>	213	0.14
36	<b>Electronic and other Electrical Equipment/ Components, Except Computer Equipment</b>	198	0.13
23	<b>Apparel and other Finished Products Made from Fabrics and Similar Materials</b>	183	0.12
35	Industrial and Commercial Machinery and Computer Equipment	114	0.07
34	Fabricated Metal Products, Except Machinery/ Transportation Equipment	104	0.07
38	Measuring, Analyzing, and Controlling Instruments, Photographic, Medical, Optical Goods, Watches and Clocks	102	0.07
37	Transportation Equipment	93	0.06
25	Furniture and Fixtures	85	0.05
30	<b>Rubber and Miscellaneous Plastics Products</b>	72	0.05
28	<b>Chemicals and Allied Products</b>	55	0.04

Note: Industries in bold are also found in the current study as sensitive industries to trade liberalization.

Source: U.S. Department of Labor.

the largest number of approvals in TAA in 2005.<sup>5</sup> In 2005, 1,551 cases were approved in total. Among these, 396 cases were approved for textile and apparel, 198 cases for electronics, and 127 cases for chemicals and rubber. To summarize, these industries are the industries that turn out to be adversely affected by trade liberalization, and we confirm that representatives whose districts have a larger employment in these sectors are indeed less likely to vote in favor of FTA bills.

#### **4. Comparisons**

##### **4.1 Comparison with the USITC's Sectoral Effects**

In the following section, we compare the estimation results for the FTA bills with the likely effects of the FTAs investigated by the USITC before the bills are passed. The USITC prepares reports, which assess the likely effects of possible FTAs with countries on the behalf of the Office of the United States Trade Representative (USTR). Since the reports provide House members with an important reference when they consider the likely impacts of an FTA bill on their districts, it is useful to compare the results from these reports with our findings. The USITC reports both qualitative and quantitative assessments, with the latter being based on a computable general equilibrium (CGE) model, except

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<sup>5</sup> TAA is an assistance program for firms, workers, and farmers who are adversely affected by a surge in imports or relocation of factories to foreign countries.

for the FTAs with Bahrain and Oman, in which a partial equilibrium model was used. For comparison, we take note of both of these assessments with an emphasis on the most considerable sectoral effects of each FTA on U.S. output and employment. Table 8 shows the USITC's Sectoral Effects for FTA Bills in the 108th and 109th Congress.

**Table 8. USITC's Sectoral Effects for FTA Bills in the 108th and 109th Congress**

Partner country		Potential Effect on Industries	
		Positive	Negative
108th Congress	Chile	Machinery and motor vehicles	Agriculture
	Singapore	Agriculture, processed foods	Textile*
	Australia	Motor vehicles and parts	Agriculture*
	Morocco	Agriculture	n/a
109th Congress	DR-Central America	n/a	Textile*, agriculture*
	Bahrain	Transport equipments*	Apparels*
	Oman	Transport and machine equipments	Apparels*

Note: \* indicates the industries whose potential effects reported in the USITC reports are consistent with the results in the current study.

Source: USITC.

For the potential effects of the FTA with Chile, the USITC's study (2003a) predicts negative effects on agricultural products in terms of the domestic output, such as vegetables, fruits, and

nuts, and employment, while it predicts positive effects on machinery and motor vehicles. However, we find that the estimates of coefficients of *agemr* and *transp* are not statistically significant at any conventional level.

According to the USITC's study (2003b), textile, apparel, and leather products would be adversely affected by the U.S.-Singapore FTA while vegetables, fruits, nuts, and processed foods are positively affected. We find that the estimates of the coefficient of *textile*, as predicted in USITC report, are negative and statistically significant, but those of *agemr* and *food* are not statistically significant at any conventional level.

For U.S.-Australia FTA, the USITC (2004a) expects negative impacts on agricultural products, particularly meats and cattle, but positive impacts on motor vehicles and parts. Our result also shows a predicted sign for agriculture, which is the only industry whose coefficient is statistically significant.

Given the small economic size of Morocco relative to the U.S. economy, the likely impacts of the U.S.-Morocco FTA on output and employment throughout industry sectors are found to be very small (USITC 2004b) with the relatively large favorable impacts on grains. However, our results show that the estimate of the coefficient of *agemr* is not statistically significant.

Table 8 also reports USITC's sectoral effects on all FTA bills in the 109th Congress. According to the USITC's study (2004c), negative effects of the DR-CA FTA on output and employment, albeit small, are expected for textile, apparel, and leather products,

and sugar products. Clearly, as in the USITC report, the estimates of coefficients of *agemr* and *textile* are negative and statistically significant at less than 1% or 5% significance levels.<sup>6</sup> In other words, House members whose congressional districts have higher employment ratios in the agriculture and textile sectors are less likely to vote in favor of the DR-CAFTA bill, other things being equal.

The USITC's study (2004d) on the potential effects of the U.S.-Bahrain FTA expects negative effects for apparel while expecting positive effects for transport equipment, although both effects are very small due to the relative economic size of Bahrain. Our results also show that House members whose districts have higher employment ratios in the textile industry are less likely to vote in favor of the Bahrain FTA bill, and those whose districts have higher employment ratios in the transport industry are more likely to vote for the bill, other things being equal.

The USITC's study (2006) expects small negative effects from the U.S.-Oman FTA on apparel, while small positive effects on transport and machine equipments are expected. According to our results, as in the USITC report, House members whose districts have higher employment ratios in the textile industry are less likely to vote in favor of the Oman FTA bill, other things being equal. However, the estimate of the coefficient of *transp* is negative but not statistically insignificant.

In sum, our some estimation results on textiles or agriculture for some FTAs turn out to be consistent with the USITC's

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<sup>6</sup> The coefficient of agriculture, which includes sugar crops, is found to be negative.

results, but the estimation results on other industries are generally not consistent.

#### 4.2 Some Pair-wise Comparisons between FTA bills

In the comparison between the Chile FTA and the DR-CA FTA, we could expect that the effect of variables for the Chile FTA and the DR-CAFTA would be similar because both areas are in Latin America and geographically close to the U.S. However, we find little evidence that the effect of demographic or employment variables are similar. In particular, for Chile, House members are more likely to vote in favor of the FTA bill if their districts have higher Hispanic ratio in the population, but it is not as clear for the DR-CAFTA. Except that the employment in textile and electronic industry negatively affects the members' voting decisions, there is no particular similarity in the employment variables between the two FTA bills.

Bahrain and Oman are both located in Middle East. Thus, one could expect that some variables would have similar influences on House members' decisions, but this turns out not to be the right conjecture for most variables we used in the models. Although the coefficients of employment in the textile industry and the unemployment rate are estimated to be negative and statistically significant at less than 1% or 10% levels for both FTA bills, those of other demographic and employment variables have almost no similar influence on members' voting decision.



Singapore and Australia have some common features in that both are the economically most advanced countries with which the U.S. had an FTA in the 108th and 109th Congresses, are located in the Asia-Pacific area, and have close trade relationships with Southeast Asian countries. However, at the industry level, the strengths of the two countries are in quite different areas. According to the USITC (2003b, 2004), while Singapore is more likely to have a comparative advantage in manufacturing sectors such as *textile* and *electro*, Australia has strengths in agricultural products such as meat and cattle. The effects of demographic variables in the districts on representatives' voting behaviors are also quite different. For example, *nhdr* and *ncdr* are significant variables for the Singapore FTA, but not for the Australia FTA. Furthermore, considering only significant variables, there is no employment variable, by industry, that has a similar impact on representatives' voting behavior between on the two FTA bills.

Another interesting comparison would be between the Chile and Singapore FTA bills, because they not only passed on the same day in the House, but also their voting results are very similar (270 yeas vs. 156 nays for Chile; 272 yeas vs. 155 nays for Singapore). It is hard to find any geographic, cultural, or economical similarity between two countries except that they are enthusiastically pursuing FTAs with other countries. USITC (2003a, 2003b) also shows that the potential economic effects of both countries on the U.S. are different from industry to industry. However, as a matter of fact, many explanatory variables in voting equations

exhibit similar influences on voting results for the two bills, except *transp* and *electro*. This similarity implies that although the two FTAs differ in terms of geography and potential economic effects, representatives' voting behavior does not differ from one another. We can call this the "same-day effect". We argue that House members are overwhelmed by atmosphere when they vote the bills up or down. It is evident that there is almost no similarity between the impacts of demographic and economic variables on roll-calls between the Australia and Morocco FTA bills, despite the Morocco FTA bill being roll-called only eight days later than the Australia FTA bill in the House. The same-day effect gives some policy implications on the timing of roll-calls for FTA bills in the House.

### 5. Policy Implication from Marginal Effects

In this section, we discuss the marginal effects of the coefficients in voting equations for the FTA bills in the 108th and 109th Congresses and use them to draw some policy implications. Since the probit and tobit models are non-linear ones, the estimates themselves cannot provide the marginal effects. We calculate the marginal effects for continuous variables by averaging the individual marginal effects across the sample effect and those for binary variable, such as *party*, taking an average of the differences in estimated probabilities when *party* equals to 1 and 0 across all observations.<sup>7</sup> In so doing, we constrain our discussion

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<sup>7</sup> This method is known as the average partial effect (Wooldridge 2006).

to the variables that are found to influence voting results commonly throughout the FTA bills.

Table 9 reports the marginal effects. First, the marginal effects of campaign funds from business PACs range from 0.04% to 0.10%. This means that a \$1,000 increase in business contributions increases the approval probability for an FTA bill by 0.04–0.10%p. In contrast, a \$1,000 increase in labor contributions reduces the probability by a range of 0.05–0.19%p. These marginal effects are not negligible given the fact that the standard deviation of business contributions in the 109th Congress is \$335,000 and that of labor contributions is \$128,000. Specifically, an increase of business contributions by one standard deviation increases the probability that a representative votes for an FTA bill in the 109th Congress by 13.4–33.5%p, while an increase in labor contributions by one standard deviation reduces the probability by 6.4–24.3%p.

As argued earlier, *party* is an important variable that influences voting behaviors, especially when the margins in the roll-calls are narrow. In our results, as a representative changes his or her party from Republican to Democrat, the probability for members to approve FTA bills would be reduced by 14.8–44.5%p.<sup>8</sup> Although we rarely find cases in which representatives change their partisanship, this result suggests that if we have two representatives who are alike in all variables other than a partisanship, then the probability that a Democrat approves FTA bills is 14.8–44.5%p higher than that for a Republican. Furthermore, the

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<sup>8</sup> We exclude the case, which estimates are not statistically significant.

marginal effects of party for the DR-CAFTA and Oman FTA bills, which had very narrow roll-call margins, are much larger than for other FTA bills. All in all, we can conclude that a partisanship is a substantially influential determinant on voting behaviors.

**Table 9. Marginal Effects of Estimates in Voting Equations**

	108th Congress				109th Congress		
	Chile	Singapore	Australia	Morocco	DR-Central America	Bahrain	Oman
constant	0.5738***	0.4993	0.4889**	0.3538**	0.0472	0.6145***	0.2657**
bpac	0.0009***	0.0010***	0.0009***	0.0007***	0.0004***	0.0008***	0.0005***
lpac	-0.0012**	-0.0012***	-0.0007***	-0.0014***	-0.0019***	-0.0012***	-0.0005**
party	-0.1490**	-0.1481***	-0.0663	0.0199	-0.2582***	-0.0390	-0.4446***
unem	-0.0228*	-0.0185*	-0.0242**	-0.0142	-0.0198**	-0.0122*	-0.0270**
unmr	-0.0009	0.0014	-0.0046*	-0.0002	0.0024	-0.0006	-0.0062***
nhdr	-0.0065*	-0.0098***	-0.0041	-0.0041	0.0023	-0.0033	-0.0003
ncdr	-0.0065**	-0.0066***	-0.0025	-0.0011	0.0012	-0.0076***	-0.0010
hpr	0.0046***	0.0060***	0.0037**	0.0027**	0.0013	0.0010	0.0012
agemr	0.4625	0.6544	-2.2620***	0.2372	-1.8420***	0.1742	-0.4895
food	0.4724	-0.0215	-0.4357	-0.7890	3.1699***	2.1038*	0.7469
textile	-5.1032***	-6.5528***	-0.5244	-6.8740***	-3.0412***	-4.2090***	-8.8847***
wood	3.4087***	4.8969***	0.4972	3.0520**	-1.6224	0.0673	2.4020*
petro	-2.9939*	-2.1924	0.0159	-3.1861**	0.3574	-2.8014**	-0.7635
metal	0.2724	0.4257	-0.9316	-2.9622*	1.3191	-3.1525**	2.3557*
transp	0.9126	1.7082**	-0.0387	1.3450*	0.3667	1.6510**	-0.2473
electro	-2.5038**	-1.5579	-1.4910	-3.0341***	-2.2612**	-1.0291	-3.1830**
misc	-2.2590	-1.7496	1.0594	4.3015	4.2013	1.9612	2.3294

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

The marginal effects of the unemployment rate and the employment ratio in some industries on representatives' voting behaviors are negative. As for the marginal effects of the unemployment rate, a 1%p increase in the unemployment rate in a district reduces the approval rates on FTA bills by 1.2–2.7%p. As for the marginal effects of the employment ratio on some industries that are sensitive to trade liberalization, 1%p increase in the employment ratio in textile, petroleum, and electronic sectors in a district reduces the probability of a representative's approving an FTA bill by 3.04–8.88%p, 2.80–3.19%p, and 2.80–3.19%p, respectively. Among them, the marginal effects of *textile* are relatively larger than in the other sensitive sectors.

In a nutshell, these marginal effects suggest that the probability for a representative's approval of an FTA bill decreases with Democratic partisanship, more contribution funds from labor PACs, and a higher unemployment rate and a higher employment ratio in the sensitive sectors in a member's district. These marginal effects could provide some policy implications. For instance, from the marginal effects of the unemployment rate or the employment ratio in the sensitive industries, we could guess how much influence these variables have on the passage of FTA bills. Similarly, the results on the marginal effect of contributions can be used to predict how much the contributions business or labor PACs could work for or against the passage of bills of interest.

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## VI. Concluding Remarks

In this paper, we use the roll-call results of recent FTA bills in the 108th (2003–2004) and 109th (2005–2006) Congresses and examine political and economic factors that may exert influence on House representatives' voting results on these bills. We employ a simultaneous probit-tobit model in order to address the endogeneity of campaign contributions in voting decisions by representatives. Unlike the previous literature, we focus on FTA bills to investigate any regularity in members' voting behaviors across different FTAs. Our results show that a representative's partisanship is a very influential determinant, especially when there are narrow margins in the roll-call results: a Republican is more likely to approve FTAs while a Democrat is less likely to do so. Also, we find that a representative is less likely to approve FTAs if he or she is from a district that has a high unemployment rate or a high employment ratio in the industries sensitive to trade liberalization—such as textiles including apparels and leather; petroleum products including chemicals, plastics, and rubber; or electronics including electrical equipments. Furthermore, we find that when FTA bills, for which partner countries do not share commonalities, are considered on the same day, members' voting behaviors could be similar, which we call the “same-day effect”. This finding may suggest some policy implications regarding the timing of roll-call voting on FTA bills.

Marginal effects of influential determinants on voting behaviors suggest that when a representative decides to vote for or against a fu-

ture FTA bill, including the KORUS FTA, the member is less likely to support it if the member is a Democrat, has large contributions from labor-related interest groups, or has a high employment ratio in the sensitive sectors in his or her district. These marginal effects could provide some useful policy implications. For instance, we can predict how much contribution from labor or business PACs could work for or against the passage of FTA bills or how much the relative employment size in a sensitive industry matters for their passage.

It would be worthwhile for future research to construct a panel dataset, since it allows us to control for any unobserved time-invariant individual characteristics. In the current study, we use only two terms of Congress, and the data on political variables, contributions, and demographic variables stay constant within a single Congress term. Hence, we can construct a panel dataset by expanding time periods to cover more Congresses. Also, it would be worthwhile to include characteristics of partner countries in the model such as a GDP ratio between the U.S. and the partner country, which will help to explain how characteristics of a partner country affect representatives' voting behaviors. Finally, it would be useful to explore the industry characteristics of PACs, whether they are from export-orient or import-competing industries. As argued in Beaulieu and Magee (2004), even if PACs are from a labor group, labor PACs from import-competing industries are more likely to oppose FTA bills than those from export-orient ones are.

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## Empirical Analyses of U.S. Congressional Voting on Recent FTA Bills

Hyejoon Im and Hankyoung Sung

This paper discusses what political and economic factors affect house representatives' voting behavior on free trade agreement (FTA) implementation bills in the 108th and 109th Congresses in the U.S. using a simultaneous probit-tobit model that consists of contribution equations and voting equations. We find that partisanship, especially when the results of roll-calls have narrow margins; a relative employment size in trade-sensitive sectors; and contribution funds exert great influence on the voting behaviors of representatives. The marginal effects of political and economic variables in the study could provide some policy implications for the prediction of the passage of future FTA bills in Congress.

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