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Is trade policy for sale? Congressional voting on recent trade bills

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Abstract. This paper examines voting by U.S. Representatives on the North American Free Trade Agreement, the Uruguay Round Agreement, and most-favored nation status for China. Using recent political economy models of trade policy to formulate an empirical specification of congressional voting behavior, we find evidence that campaign contributions influenced legislators' votes on the NAFTA and Uruguay Round bills. Labor group contributions were associated with votes against freer trade while business contributions were associated with votes in favor of freer trade. Economic conditions in each member's district as well as the broad policy views of the legislators also affected representatives' voting decisions.

> "...The bigger contributions you accept, the more expectations some people have that they have a call on their government for something in return".[1]
>
> Senator Joseph Lieberman, October 22, 1997

1. Introduction

Conventional wisdom suggests that interest groups are buying something when they contribute to a politician's campaign. These interest groups must be giving money to influence either the outcome of the election or the policy decisions made by elected officials. Senator Lieberman's statement highlights the second possibility – that campaign contributions allow interest groups to affect policy outcomes. Theoretical models in the economics and political science literature suggest that this *quid pro quo* aspect of contributions may play an important role in the determination of public policy (Magee, Brock and Young, 1989; Grossman and Helpman, 1994; Austen-Smith, 1995).

This paper attempts to determine the importance of campaign contributions and other factors affecting voting behavior in the House of Representatives on three important trade-policy bills that came before the United States

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Congress in 1993–94: the North American Free Trade Agreement (NAFTA), the General Agreement on Tariffs and Trade (GATT) Uruguay Round agreement, and most favored nation (MFN) status for China. Understanding the economic, social and political factors that influenced the voting decisions made by members of Congress on these measures is particularly important in light of the failure of Congress in 1997 and 1998 to approve fast-track negotiating authority for an expansion of NAFTA. Our analysis also provides a test of traditional hypotheses about congressional voting behavior.

The following section briefly outlines some of the analytical models developed by economists and political scientists in trying to understand how members of Congress and various political pressure groups interact to determine voting outcomes. In Section 3, we provide a brief legislative history of each of the three trade bills we examine. Section 4 outlines the political economy framework on which our econometric model is based while Section 5 includes the specification of the empirical model and a description of the data used in the tests. The results of the statistical analysis are presented in Section 6, and the final section concludes.

2. Models of political behavior

In the public choice literature, policy outcomes are endogenous. Policies are determined by the interactions between elected officials, who are suppliers of particular public policies, and organized interest groups, who are demanders of such policies. Interest groups provide the campaign funds that public officials need to stress the merits of their candidacies to imperfectly informed voters. In exchange, politicians provide public policies that raise the economic rents earned by the interest groups. These rent-seeking activities are constrained by increased political opposition from individuals and firms whose welfare is reduced by the policy actions.

In one well-known version of endogenous policy modeling, elected officials weigh the increased political support they receive from pursuing policies beneficial to a particular industry against lost support from other industries and from consumers. In the end, government officials implement the policy that maximizes their political support (see Hillman, 1989).[2]

Two main models of trade policy formation attempt to reduce the "black box" elements of the political support function approach. In Magee, Brock, and Young (1989), political candidates set their policy positions and then interest groups contribute funds in order to improve the probability that their preferred candidate will be elected. In Grossman and Helpman (1994), interest groups offer the government a menu of political contributions that each group is willing to pay for a variety of trade policies chosen. The govern-

ment policy maker chooses a particular set of contributions and associated policies to maximize his or her welfare function. In both models, politicians are essentially selling trade policy in exchange for campaign contributions.

Political scientists have long viewed some public policies as determined by competing domestic interest groups interacting with government officials, as E.E. Schattschneider's (1935) classic study of the Tariff Act of 1930 illustrates. They model the policy-making process in broader political terms than economists, however, and give greater importance to the institutional framework within which the decision process takes place.[3]

The orthodox view of political scientists has been that political contributions buy access to legislators but only influence their voting behavior under special circumstances (Smith 1995: 91–97; Morton and Cameron 1992: 80–83; Austin-Smith and Wright 1992 and 1994). According to this interpretation, members of Congress generally respond favorably only to information supplied by lobbyists whose basic ideological positions are consistent with their own. Nevertheless, some political scientists maintain that contributions can influence voting behavior if the public visibility of the issue is low or the issue is specialized.

Austin-Smith (1991, 1995), Austin-Smith and Wright (1992, 1994), and Ainsworth and Sened (1993) have argued that the conventional view underestimates the importance of campaign contributions and lobbying in influencing voting behavior and have formally modeled the manner in which this influence takes place. Their models exploit the idea that legislators possess incomplete information about the consequences of a particular policy for their electorate. By strategically providing information that reduces elected officials' uncertainty, lobbyists can sometimes gain by altering legislators' voting behavior. Smith (1984) also suggests that other elected officials or lobbyists are able to influence a legislator's voting behavior with arguments about how the measure being considered affects the individual's personal goals.

As the preceding description of political economy models indicates, there are significant differences in the manner in which economists and political scientists analyze political decision-making. In most economic models, campaign contributions from organized interest groups play the major role in accounting for the existence of public policies that reduce social welfare. In the Grossman-Helpman model, for example, the socially desired outcome occurs if politicians do not value campaign contributions. In contrast, the mainstream view of political scientists is that contributions influence voting behavior only through increased access to a legislator, and they reject the notion that campaign contributions buy political favors directly (Austin-Smith, 1991).

Both economists and political scientists agree, however, that constituent interests are important determinants of a legislator's vote. The political-support and campaign contribution approaches of economists include the concept that elected officials consider the interests of constituents in determining their voting behavior, since to do otherwise leads to defeat at the polls. Most political scientists also regard constituent interests as a major factor shaping voting behavior because of the power of constituents at the ballot box (Kingdon, 1973 and Arnold, 1990). Political scientists in addition postulate that voting behavior is affected by such factors as pressure from political leaders in the legislative and executive branches, as well as by personal ideology. As Kau and Rubin (1982: 31–35) point out, some of these factors can be interpreted as indicating the manner in which legislators gauge constituent interest rather than representing independent forces shaping voting behavior.

Among previous empirical studies that have included campaign contributions as a variable in analyzing the determinants of congressional voting on recent trade bills are Kahane (1996), Steagall and Jennings (1996), Box-Steffensmeier, Arnold and Zorn (1997), Holian, Krebs and Walsh (1997) and Uslander (1998). These studies all focus on the NAFTA vote and find that labor contributions are negatively correlated with a favorable vote on this measure, while business contributions are positively correlated with a favorable vote. A problem with these studies is that they assume campaign contributions to be an exogenous variable rather than, as Chappell (1982) points out, an endogenous variable. Labor organizations, for instance, were likely to donate extra funds in 1992 to representatives they knew would oppose NAFTA. Thus, campaign contributions are correlated with the residual in the voting equation and the coefficient estimates in a single-equation model are biased. We solve this problem by simultaneously estimating the probability of voting for each trade bill and the amount of campaign contributions received.

3. NAFTA, GATT, and MFN for China: A brief legislative history

Congressional approval in 1993 and 1994 of measures establishing a free trade area for the United States, Canada and Mexico, implementing the multilateral agreements reached in the Uruguay Round and continuing most favored nation status for China represented major accomplishments for those favoring greater trade liberalization. Their approval was remarkable in that interest groups that were exploiting the appeal of "fair" trade to push for protectionist policies seemed to be gaining political dominance in the 1980s and early 1990s.

3.1. *NAFTA*

Of the three measures we examine, NAFTA was clearly the most controversial. Destler (1995: 217) states that NAFTA "set off the most prominent and contentious domestic debate on trade since the Smoot-Hawley Tariff Act of 1930". The intensity of the debate was surprising because half of Mexican imports were already entering the United States duty free and the remainder faced an average tariff rate of only 4 percent. In addition, there was already the lack of significant investment barriers between the two countries, and the Mexican economy was small compared to that of the United States (Mexico's GDP was only 1/25th of that of the United States). Consistent with these facts, most general equilibrium analyses predicted the impact of the agreement would be very modest, with U.S. average wages estimated to rise from between .1 and .3 percent and aggregate U.S. employment to increase by between .03 and .08 percent (International Trade Commission 1993, ch. 2). These models predicted appreciable job losses in only a few industries, such as apparel, household appliances, sugar and ceramics.

Several factors explain why the NAFTA debate was more intense and widespread than seems justified by its predicted economic impact. The most important reason was the decision by organized labor to oppose congressional approval in the strongest terms. In doing so, most labor unions were convinced that the adverse employment effects would be much more widespread than economists had predicted. They also feared that approval of NAFTA would lead to similar agreements with other low wage countries and result in a flood of imports, exerting strong downward pressures on U.S. employment and wages.

Concerns expressed by various environmental groups over the polluting activities of the many *maquiladoras* near the U.S.-Mexican border further focused attention on NAFTA. Not only were these groups apprehensive about a rise in pollutants along the border as production in Mexico expanded, but they were also fearful that a rush of U.S. firms to Mexico would encourage American legislators to weaken U.S. environmental laws.

The initial position of President Clinton toward NAFTA also helps account for the heated nature of the debate. The agreement had been negotiated by the Bush administration and was formally signed in December 1992. Candidate Clinton endorsed the basic text but called for side agreements that would strengthen organizing rights and safety standards for Mexican workers, tighten environmental standards in Mexico and guard against surges of imports. Once in office, President Clinton did not press for rapid negotiation of the side agreements, and thus they were not completed and approved until August of 1993. The White House finally launched a vigorous effort to gain support for the agreement in early fall. Traditional supporters of a liberal

trade policy such as the business community, editorial writers and academics were organized in a more coherent manner, while opposition from most environmental groups ceased due to the provisions of the side agreement on the environment. In addition, meetings between President Clinton and undecided House members at which the President made concessions or granted them unrelated favors appear to have been effective in gaining votes for NAFTA.

The success of these various efforts is indicated by the fact that, far short in September of the votes needed to gain House approval,[4] the administration had closed to within ten votes of a majority a week before the final vote. The House approved the North American Free Trade Agreement by a vote of 234 to 200 on November 17, 1993. Only 40 percent of House Democrats (102 members) voted in favor of the measure, however, whereas 75 percent of the Republicans (132 members) supported NAFTA. The Senate approved the pact 61 to 38 three days later.

3.2. *GATT*

Though it received far less national media attention than the vote on NAFTA, the House and Senate legislation in November and December of 1994 implementing the Uruguay Round agreements is likely to have a greater impact on the welfare of U.S. citizens than the NAFTA. Among the major accomplishments of the agreements were: (i) the reduction of export subsidies and import quotas in the agricultural sector and the phasing out of the Multifiber Arrangement; (ii) the extension of GATT rules to trade in services; (iii) the negotiation of a multilateral agreement protecting intellectual property rights; (iv) the liberalization of trade-related investment measures; (v) the reduction of average tariff levels by about one-third and the ban of voluntary export restraints; (vi) the strengthening of dispute settlement procedures; and (vii) the establishment of the World Trade Organization (WTO) to provide a framework for administering trade agreements.[5]

Unlike the NAFTA, President Clinton did not inherit an already-signed international agreement on the GATT Uruguay Round. Although the Bush administration made a concerted effort to complete the negotiations, which had started in 1986, the effort failed and the Clinton administration was faced with the tasks of completing the international negotiations and getting Congress to approve the resulting agreements. After seven years of negotiations, the appointments of a new Director General of the GATT (Peter Sutherland), a new chief negotiator for the European Union (Leon Brittan) and a new U.S. Trade Representative (Mickey Kantor) seemed to revitalize the negotiations in 1993, and they were completed in December.

The congressional approval process continued for another year. Objections raised by some members of Congress concerning a loss of U.S. sovereignty

under the WTO and the high level of R&D subsidies permitted under the agreement were two of the main reasons for the delay. Environmentalists, who had split over NAFTA approval, were united in their disapproval of the Uruguay Round agreement, whereas organized labor, which had vigorously fought against NAFTA, criticized the agreement but did not oppose it as strenuously. Ross Perot and consumer advocate Ralph Nader opposed approval of the agreements, as they had NAFTA. Nonetheless, the implementing legislation easily passed in the House of Representatives on November 29, 1994 by a 288 to 146 vote and in the Senate on December 1, 1994 by a 76 to 24 vote. A majority of both parties in the House and Senate approved the measure.

3.3. *MFN for China*

As part of the efforts to improve U.S.-Chinese relations and in response to China's move in the late 1970s toward a more market-oriented economy, President Carter first granted most favored nation status to China in 1980 under authority set forth in the Trade Act of 1974. This Act provides that the President can extend MFN treatment on an annual basis, provided Congress does not vote to disapprove such action. Until the brutal action taken in 1989 against Chinese dissidents in Tienanmen Square, there was little congressional resistance to the continuance of this trade policy toward China. Since then, however, many members of Congress have sought to tie continuation of MFN status to improvements in the Chinese government's human rights behavior. In 1993, President Clinton secured a one-year extension but issued an executive order tying the 1994 extension to improved human rights performance by the Chinese government. Under strong political pressure from the business community, however, he renewed MFN for China in 1994 even though he explicitly recognized that the Chinese government had not made the progress in human rights called for in his executive order. He argued that maintaining close contact with the Chinese through trade would better serve overall U.S. goals than the withdrawal of MFN status. While there was some dissatisfaction with this policy position, the proposal to disapprove President Clinton's renewal recommendation was easily defeated in the House by a vote of 320 to 106.

4. Political economy framework

The political economy framework we adopt draws on the modeling efforts of both economists and political scientists. Members of Congress are assumed to behave in a manner designed to maximize their chances of reelection.

In doing so, they are influenced by what they perceive to be the impact of the legislation on their constituents as well as by the wishes and information provided by the major contributors to their campaigns.

Two main trade models provide divergent predictions about which groups in the U.S. will support trade liberalization. In the Heckscher-Ohlin trade model, relatively scarce factors of production lose economically from international trade while relatively abundant factors gain. With perfect mobility between sectors, the industry in which a factor is employed does not affect this prediction. Since the United States is relatively scarce in less skilled labor, the model suggests that legislators will be more likely to oppose NAFTA, GATT and MFN for China the higher the proportion of less educated individuals and the lower the per-capita income in their districts. Because labor unions represent mainly blue-collar workers, a higher proportion of union members in a district also increases the likelihood the representative will oppose the trade bills.

The Ricardo-Viner trade model, on the other hand, assumes that the services of some productive factors are completely or partly industry-specific. A natural resource or particular type of physical capital may be suitable for use only in a single industry or a few industries, for example, and workers may acquire sector-specific skills. The implication is that individuals' attitudes toward trade liberalization depend on the industry in which they are employed rather than on their factor status. We include detailed data on employment by industry within each congressional district to determine the importance of specific industries in shaping representatives' voting behavior.[6]

Ideological considerations are likely to be important in determining how legislators vote for two reasons. Since most voters view agreements such as NAFTA as having little direct impact on their real income levels, their broad political, social and economic concerns are not overwhelmed by the personal economic implications of the agreements. The political leanings of each constituency, reflected in the broad policy stances of their legislators, will affect the position each legislator adopts. Politicians may also have an interest in defining themselves as conservative, liberal, strong on national defense issues, or allies of labor in order to appeal to constituencies that are important to their re-election efforts.

Campaign contributions may affect legislators' voting patterns, either directly as economists postulate, or through increased access and strategically provided information as the political science literature suggests. Because we do not observe access to legislators, we are unable to distinguish between these two views. We divide campaign contributions into those from PACs representing labor unions and from PACs representing business interests. The

Heckscher-Ohlin model suggests that labor unions will oppose free trade while business groups will support it.

As political scientists have documented, the campaign funds that interest groups give to a member of Congress depend partly on the representative's influence in the legislative process. Members of important committees will receive greater contributions from interest groups that are affected by the committee actions. Business groups, for example, are likely to provide large contributions to members of the House Ways and Means Committee, which deals with taxes, whereas labor unions are likely to target members of the Education and Labor Committee. Political action committees also tend to support legislators with a record of voting in their interest.

5. Econometric specification and data

The political economy framework described above suggests that a legislator's voting behavior is influenced by various constituency characteristics and by the magnitude of campaign contributions from different interest groups. The campaign funds received by a representative depend on the legislator's policy positions and the influence that he or she wields within the government. As Chappell (1982) and Stratmann (1991) point out, voting behavior should not be estimated using only a single equation because contributions are endogenous. In addition, legislators who take a policy stance on one of the trade bills are likely to vote similarly on the other bills. Thus, the residuals in the voting equations for NAFTA, GATT and MFN for China may be correlated. Consequently, we analyze the voting on all three legislative initiatives and the campaign contributions received by each representative from labor and business groups simultaneously by the method of full information maximum likelihood (FIML). The system of equations we estimate for the House of Representatives is:

$$\text{Vote}_{\text{nafta}} = \text{F}(\text{A}'\text{X} + \text{A}_{\text{L}}^{*}(\text{Labor contributions}) + \text{A}_{\text{B}}^{*}(\text{Business contributions}) + \varepsilon_{\text{n}}$$

$$\text{Vote}_{\text{gatt}} = \text{F}(\text{B}'\text{X} + \text{B}_{\text{L}}^{*}(\text{Labor contributions}) + \text{B}_{\text{B}}^{*}(\text{Business contributions}) + \varepsilon_{\text{g}}$$

$$\text{Vote}_{\text{mfn}} = \text{F}(\text{C}'\text{X} + \text{C}_{\text{L}}^{*}(\text{Labor contributions}) + \text{C}_{\text{B}}^{*}(\text{Business contributions}) + \varepsilon_{\text{m}}$$

$$\text{Labor contributions} = \begin{cases} \text{D}'\text{Y} & \text{if } \text{D}'\text{Y} - \sigma\varepsilon_{\text{l}} \geq 0 \\ 0 & \text{if } \text{D}'\text{Y} - \sigma\varepsilon_{\text{l}} < 0 \end{cases}$$

$$\text{Business contributions} = \text{E}'\text{Z} + \varepsilon_{\text{b}}$$

where F is the cumulative standard normal distribution, X is a vector of constituency variables that influence members voting behavior, and Y and

Z are vectors of variables that determine campaign contributions received by legislators from labor and business PACs, respectively.

In order to test the endogeneity of the contribution variables, we run a Hausman test on labor and business contributions in each of the three voting equations. In the NAFTA equation, the Hausman test rejected the null hypothesis (at the 5% significance level) that business contributions are exogenous but failed to reject the hypothesis that labor contributions are exogenous. In the GATT equation, the Hausman test did not reject the exogeneity hypothesis for either contribution variable, and only the labor contribution variable was found to be endogenous in the China MFN equation. Given the mixed results from these tests and the theoretical justifications for doing so, we estimate the system of equations above, treating campaign contributions as endogenous.[7] The means and descriptions of each variable are presented in Table 1. The roll call votes of members of the House on the GATT, NAFTA, and MFN for China measures are available in the *Congressional Quarterly Almanac*. A vote in favor of approval is assigned a value of one, while a vote against a bill is assigned a zero. Campaign contributions from labor PACs are estimated as a Tobit equation since the dependent variable is censored at zero. Because there were so few representatives (16) who received no contributions from business groups, the business contribution equation is assumed to be linear.

Data on campaign contributions to members of Congress are taken from Makinson and Goldstein (1994). The contribution data used in this study are the total contributions received by each representative in the 1992 election from political action committees that Makinson and Goldstein identify as representing either labor or business interests.

Congressional district characteristics such as the proportion of individuals over 25 with no high school degree, the fraction with a high school diploma but no college degree, the level of per capita income, the unemployment rate, and the proportion of the population of Hispanic origin are available in the Census publication *Population and Housing Characteristics for Congressional Districts of the 103rd Congress*. We include the percentage Hispanic variable only in the NAFTA equation. The proportion of private sector workers in each district who are unionized is from Box-Steffenmeier, Arnold, and Zorn (1997) and was provided by the authors.

Employment in congressional districts by two-, three-, and four-digit manufacturing industries is estimated from data collected at the county level in the 1993 *County Business Patterns*. If a county contains more than one congressional district within its borders, the number of workers from an industry who are in each district is estimated by using the fraction of the county's population (in 1990) residing in each district. Data on population size by congressional district and county are reported in *Congressional Districts in*

Table 1. Means and descriptions of variables

Variable	Description	Mean
NAFTA	=1 if representative voted for NAFTA	0.54
GATT Uruguay Round	=1 if representative voted for GATT	0.66
MFN China 1993	=1 if representative voted to approve MFN for China 1993	0.75
Ways and Means Committee	=1 if member of Ways and Means Committee 1993	0.09
Labor Committee	=1 if member Education and Work Force Committee	0.09
Terms in Office	House terms served (including 1993–94)	5.0
Labor Contributions	Labor group contributions 1991–92, thousands of $	53.5
Business Contributions	Business group contributions 1991–92, thousands of $	152.2
No High School Degree	1990 Fraction of population (25+) without a high school degree	0.25
No College Degree	1990 Fraction of pop. (25+) with HS degree, without college degree	0.49
Per-capita Income	1990 District per-capita income (thousands of $)	14.4
Unionization Rate	1991–92 fraction of private sector workers unionized	0.12
Unemployment Rate	1990 District unemployment rate (percent)	6.4
Percent Hispanic	1990 Fraction of population of Hispanic origin (percent)	8.8
Export ratio	Employment in export industries/employment in import industries	1.37
ACU Rating	1993–94 Rating by American Conservative Union (out of 100)	46.7
AFL-CIO Rating	1993–94 Rating by the AFL-CIO (out of 100)	58.7
NSI Rating	1993–94 National security index rating by American Security Council	60.2
COC Rating	1993–94 Rating by the Chamber of Commerce (out of 100)	59.5
LCV Rating	1993–94 Rating by League of Conservation Voters (out of 100)	51.4
Democrat	=1 if Democrat	0.59
Agriculture	Thousands of persons employed in agriculture, 1992	7.18
Food	1993 Employment in SIC 20 / total employment	0.017
Tobacco	1993 Employment in SIC 21 / total employment	0.000

Table 1. Continued

Variable	Description	Mean
Textiles	1993 Employment in SIC 22 / total employment	0.001
Apparel	1993 Employment in SIC 23 / total employment	0.011
Lumber	1993 Employment in SIC 24 / total employment	0.008
Furniture	1993 Employment in SIC 25 / total employment	0.005
Paper	1993 Employment in SIC 26 / total employment	0.007
Printing	1993 Employment in SIC 27 / total employment	0.015
Chemicals	1993 Employment in SIC 28 / total employment	0.009
Petroleum	1993 Employment in SIC 29 / total employment	0.001
Rubber products	1993 Employment in SIC 30 / total employment	0.001
Leather	1993 Employment in SIC 31 / total employment	0.001
Stone, clay, glass	1993 Employment in SIC 32 / total employment	0.005
Primary metals	1993 Employment in SIC 33 / total employment	0.007
Fabricated metals	1993 Employment in SIC 34 / total employment	0.015
Machinery, except electrical	1993 Employment in SIC 35 / total employment	0.018
Electronic equipment	1993 Employment in SIC 36 / total employment	0.015
Transportation equipment	1993 Employment in SIC 37 / total employment	0.017
Instruments	1993 Employment in SIC 38 / total employment	0.009
Miscellaneous	1993 Employment in SIC 39 / total employment	0.004

the 1990s (1993). The industry results reported in this paper are based only on 2-digit SIC industries. We have also examined 3-digit SIC industries when studies predicted that they would be strongly affected by either the GATT agreement or NAFTA, but we found that 3-digit industry variables rarely had sizable impacts on voting decisions.[8] Employment data for the agricultural sector comes from the *1992 Census of Agriculture.*

Specific industries predicted to be significantly harmed by NAFTA include apparel, ceramic tiles, household appliances, sugar, citrus fruit, and vegetables. The computing sector is usually cited as the main employment gainer. The sectors expected to be harmed by the GATT agreement, according to industry representative or studies by economists, are dairy, textiles, apparel, lumber and wood products, paper, footwear, steel, and motor vehicles. Sectors expected to gain and thus support the Uruguay Round agreements include most agricultural industries, chemicals, nonelectrical machinery, computing equipment, and instruments. Little formal analysis of the sectoral impact of withdrawing MFN for China exists but we expect labor-intensive sectors

such as apparel and footwear to favor withdrawal and skill-intensive, high technology industries to support the continuation of China's MFN status.

To investigate the influence of a district's trade with other countries on members' voting behavior, we create a variable (Export ratio) indicating the dependence of the district on export relative to import-competing jobs. We divide manufacturing industries (at the 4-digit SIC level) into net importing and net exporting sectors and then sum up total district employment in exporting and in importing industries. Because trade liberalization tends to lower the domestic prices of import-competing goods and raise the domestic prices of export goods, the Ricardo-Viner trade model suggests representatives will be more likely to support trade liberalization the greater the number of workers in export industries relative to import industries. Since the proportion of capital relative to unskilled labor tends to be greater in export industries than import-competing sectors, the Heckscher-Ohlin model provides a similar prediction.

Information about representatives' ideology and other characteristics comes from a variety of sources. Interest groups rate representatives on the percentage of times the legislator voted in the group's interest. We combined the two yearly ratings for the 103rd Congress (1993–94) into one variable for each interest group and interpret these ratings as indicators of the broad policy views of a majority of a legislator's constituents. The American Federation of Labor, Congress of Industrial Organization (AFL-CIO) ratings measures how closely each politician is aligned with labor interests, while the Chamber of Commerce (COC) ratings indicates how closely he or she is tied to business interests. The American Conservative Union (ACU) rating measures the conservative leanings of each member of Congress, the League of Conservation Voters (LCV) ranks members on environmental votes, and the American Security Council provides a national security index (NSI) measuring how consistently the representatives vote in favor of strong national defense. Since the AFL-CIO, COC and the ACU included how the members voted on one or both of the NAFTA and GATT trade bills in their ratings, we recalculated the ideological ratings excluding those two bills. A dummy variable (Democrat) is used to indicate the legislator's political party, where a one signifies that he or she is a Democrat. Data on the number of terms in office and membership in House committees are from Duncan (1994).

6. Empirical results

Table 2 presents the results of estimating the five equation empirical model simultaneously by the method of full information maximum likelihood.[9] The first part of Table 2 shows the coefficient estimates for the labor and business

contribution equations while the second part presents the estimates of the equations for the House votes on NAFTA, GATT, and MFN for China in 1993. Because the equations are nonlinear, the coefficients are adjusted to show the effect of a unit increase in the variable (above its mean) on the probability of a favorable vote or on the expected campaign contributions received ($\frac{\partial Y}{\partial X}$, where Y is the dependent variable and X the right-hand side variable). There were 417 observations in the estimation, and the model predicts about 79–82% of the votes correctly on each bill.

The contribution equation estimates are consistent with both an electoral and a policy-influencing motivation for campaign contributions. If political action committees attempt to improve the election chances of like-minded candidates, labor groups will contribute mostly to candidates highly rated by the AFL-CIO while business groups will contribute to those rated highly by the Chamber of Commerce. Table 2 indicates that these predictions are true for the 1992 elections. If PAC's try to affect policy decisions directly by their campaign funds, they will target contributions at influential legislators. Our estimates show that labor contributions are higher for members of the House Committee on Education and Labor while business contributions are higher for members of the House Ways and Means Committee. Both business and labor groups, *ceteris paribus*, gave greater campaign contributions to Democrats, the majority party in 1993–94, while business groups gave more to representatives with longer tenure in the House.

The voting equation estimates in Table 2 show that labor and business contributions significantly affected legislators' decisions on both the NAFTA and GATT bills. The labor contributions coefficient is statistically significant at the 1% level in both equations while the coefficient on business contributions are significant at the 5% and 10% levels, respectively, in the two equations. In the NAFTA vote, a $1,000 increase in a member's contributions from labor groups beyond the mean level reduced the probability of voting for the agreement by 0.52 percentage points, whereas a $1,000 addition to contributions from business PAC's increased the probability of voting to approve the agreement by 0.12 percentage points. The comparable marginal effects of $1,000 on the probability of voting for GATT were 0.27 and 0.05 percentage points. These are rather large impacts on voting probabilities considering that the standard deviation of labor contributions is $61,000 and that of business contributions is $123,000 in our data set. Consistent with the fact that China's most-favored nation status was unlikely to have a large impact on interest group welfare, neither labor nor business contributions had a statistically significant effect on voting on the MFN bill. The coefficients on the two contribution variables are jointly significant (measured by the likelihood

Table 2. Coefficient estimates of empirical model

Labor contributions equation Variables	Adjusted coefficients		
Constant	–56.6434		
AFL-CIO rating	1.1438***		
Labor committee	32.0348***		
Terms in office	–0.8721		
Democrat	17.5141		
Sigma (scale parameter	38.4257		
Business contributions equation **Variables**	**Adjusted** **coefficients**		
Constant	–4.9062		
COC rating	1.2419***		
Ways and means committee	83.9211***		
Terms in office	9.4320***		
Democrat	47.0700		
Voting equations variables	Adjusted coefficients NAFTA	Adjusted coefficients GATT	Adjusted coefficients MFN93
Constant	5.0047**	8.7638**	1.2114
Labor contributions	–0.0052***	–0.0027***	0.0002
Business contributions	0.0012**	0.0005*	0.0001
ACU rating	–0.0290***	–0.0285***	–0.0119***
AFL-CIO rating	–0.0174***	–0.0114***	–0.0060***
NSI rating	0.0071***	0.0093***	0.0017*
COC rating	0.0047	0.0040**	0.0021
LCV rating	–0.0016	–0.0009	–0.0048***
Percent hispanic	0.0093***		
Union	–3.0821***	–0.1409	0.0562
Democrat	–0.1438	–0.1375	0.1695*
Export ratio	0.2771***	0.1524***	0.0482**
No high school degree	–2.3108***	0.7321	0.2300
HS, no college degree	0.1755	–0.2236	0.6019
Unemployment rate	0.0423	–0.0288**	0.0328**
Per-capita income	–0.0121	0.0039	0.0082

Table 2. Continued

Voting equations variables	Adjusted coefficients NAFTA	Adjusted coefficients GATT	Adjusted coefficients MFN93
Agriculture	–0.0041	0.0015	–0.0038
Food	1.1442	–2.1937*	5.0206**
Tobacco	16.0501	11.2703	–4.6853
Textiles	0.7690	–4.2681***	–2.6220**
Apparel	2.6896	2.2154	–1.2546
Lumber	1.8370	3.1938*	–0.9865
Furniture	7.7908	1.7984	1.0480
Paper	1.9281	–3.3008	2.4059
Printing	7.6666	1.2000	–2.0042
Chemicals	–9.8419***	–1.7165	–0.4784
Petroleum	–12.1218	1.5548	–0.0889
Rubber products	3.7262	–2.8579	–3.2974
Leather	1.5563	0.0024	–1.1740
Stone, clay, glass	4.5491	0.6880	–1.4141
Primary metals	–4.8087	0.6024	–1.2935
Fabricated metals	8.0815*	2.4093	3.4824
Machinery, except electrical	–5.8261	2.4228	–1.0788
Electronic equipment	5.1445	–3.6337**	1.0421
Transportation equipment	2.1863	2.2588**	–0.4670
Instruments	–3.1073	0.7116	0.3154
Miscellaneous	8.4961	6.9679	6.4391
% predicted correctly	79.3%	81.8%	81.5%
Number of observations	417		
Log likelihood	–5212.68		

*indicates that the coefficient estimates are statistically significant at the 10% level
**indicates that the coefficient estimates are statistically significant at the 5% level
***indicates that the coefficient estimates are statistically significant at the 1% level

ratio test) at the 1% level in the NAFTA and GATT voting equations, but they insignificant in the MFN equation.

Organized labor groups' stronger opposition to NAFTA than to GATT is revealed most clearly in the coefficients on union representation and the presence of low-skilled workers. Increased unionism and a less-educated

workforce greatly reduced the likelihood of a vote in favor of NAFTA but had no significant effect on the probability of a vote for GATT. Thus, where labor's anti-NAFTA campaign seems to have paid off in the House is through lobbying pressures exerted on representatives by union members and less educated workers.

The negative impact of union strength and lower-skilled workers on support for trade liberalization is consistent with the predictions of the Heckscher-Ohlin model. Consistent with both the Heckscher-Ohlin and Ricardo-Viner models, a favorable vote on NAFTA, GATT and MFN was more likely for a higher ratio of workers involved in export-oriented to import-competing industries. A high unemployment rate in a member's district reduced the probability of a vote for the GATT agreement but raised the probability of voting for MFN for China. In addition, an affirmative vote for NAFTA was more likely the larger the proportion of Hispanics in a member's district. The coefficients on the general economic characteristics of the district (education variables, export employment relative to import employment, unemployment rates, and per-capita incomes) are jointly significant at the 1% level for GATT and NAFTA and at the 5% level for MFN for China in likelihood-ratio tests.

A district's employment in most industries had little impact on legislators' voting. Large employment in the textiles industry significantly reduced the likelihood of voting for the GATT and MFN bills, but (consistent with the fact that the industry did not oppose NAFTA) did not affect the NAFTA vote. Few of the other industries predicted by various studies either to gain or lose appreciably from NAFTA or GATT, however, had coefficient estimates that are statistically significant with the expected sign.[10] Despite the relatively few significant coefficients among the industry variables, it would be a mistake to omit them. Likelihood-ratio tests show that the coefficients on the industry variables are jointly significant at the 1% level in the three voting equations. This result suggests that previous estimates from voting studies, which often exclude industry characteristics, are flawed because of omitted variable bias if industry employment is correlated with the variables such as contributions, per-capita income, union strength, or ideological ratings included in the study.

Ideological variables, as measured by legislators' past voting records, were particularly important determinants of congressional voting. Congress members ranked highly by the AFL-CIO tended to oppose NAFTA, GATT and MFN for China, while those ranked highly on the National Security Index tended to favor these measures. A high Chamber of Commerce rating was positively correlated with approval of GATT, but not significantly correlated with the probabilities of voting for NAFTA or MFN for China. Environmental concerns did not play a major role in legislators' voting decisions on NAFTA

or GATT, but "green" legislators were less likely to approve of MFN for China. Surprisingly, a higher rating by the American Conservative Union indicates that a legislator was more likely to vote against each of the three bills despite the traditional view of conservatives as free traders. Perhaps, given the various other variables in the equation measuring free-trade leanings, this ideological rating is picking up the concerns on the part of conservatives about a loss of sovereignty with such agreements as NAFTA and GATT.

In order to investigate the economic significance of the impact of campaign contributions on voting probabilities, we perform a number of counterfactual simulations. First, we used the coefficient estimates from our model and the values of the variables for each representative to predict his or her probability of voting in favor of the bill. The sum of all representatives' probabilities of voting for each bill yields the predicted number of favorable votes. We then recalculate each representative's probability of voting for the bills under three counterfactuals. First, we held all other variables at their actual levels but set contributions from labor groups to each representative equal to zero. For the second simulation, we set business contributions to each representative equal to zero, and finally we set both business and labor contributions to zero. The sum of all representatives' probabilities of voting for each bill in the three cases reveals the model's predicted number of votes if no labor contributions were made, if no business contributions were made, and if no campaign contributions of either kind were made.

The results of these simulations, shown in Table 3, reveal the large effects that labor and business contributions had on the total predicted number of votes for NAFTA and the GATT agreement. First, without labor contributions, the model predicts that 67 more representatives would have voted in favor of NAFTA while 57 more would have voted in favor of the GATT agreement. In the absence of business contributions, about 41 fewer representatives would have voted for NAFTA and 35 fewer for GATT. Since NAFTA passed the House by only 17 votes, the model predicts that the agreement would not have been approved had there been no campaign contributions from business PAC's. The net effect of contributions as a whole was to reduce the number of votes for NAFTA by 25 votes and to reduce the number of votes for the GATT agreement by about 32 votes.

The large impact of contributions on predicted votes in our estimates suggests that either trade policy is for sale or that money buys access, which interest groups are able to use effectively to influence legislators' decisions. What is the price an interest group must pay to sway one vote in the House of Representatives? Our definition of the price of one extra vote is the increase in money spent by the interest group (divided equally among all representatives) necessary to raise or lower the expected number of votes on each trade

Table 3. Counterfactual predictions of the model

	NAFTA	GATT	MFN93
Number of votes we can predict	426	424	419
Total number of favorable votes	229	283	313
Predicted number of favorable votes	227	285	317
Predicted favorable votes with no labor contributions	294	342	313
Predicted favorable votes with no business contributions	186	250	307
Predicted favorable votes with no contributions	252	317	302
Predicted effect of labor contributions on number of votes	–67	–57	4
Predicted effect of business contributions on number of votes	41	35	10
Predicted effect of total contributions on number of votes	–25	–32	15

bill by one. We have sufficient data to predict the probability of a positive vote on NAFTA for 426 representatives. Our model predicts that 227 of these will vote in favor of the bill. In order to reduce the expected votes to 226, labor groups would have had to spend $825 more per representative, or about $352,00 more. Business groups would have needed to increase their contributions by $3,717 per representative, or about $1,583,000. The price for labor to sway one expected vote against the GATT Uruguay Round bill was $738 per representative, or about $313,000. The comparable price for business groups on the GATT bill was $4,412 per representative, or about $1,871,000. Interest groups could, of course, influence the voting outcome at a lower cost than these numbers indicate by targeting their contributions at representatives where money has a large marginal effect on the probability of voting for each bill. Since we are examining contributions that were given at least one to two years before the bills were voted on, however, successful targeting of this kind would require exceptional foresight. The higher price business groups needed to pay to sway one vote is likely due to the fact that some industries opposed the trade bills, while others supported them. Labor unions were much more united in their opposition to the trade liberalization measures.

Political action committees were not the only groups lobbying representatives to secure votes on the trade bills. President Clinton also used the power of the oval office to ensure NAFTA's passage. Based on interviews and various public records, Grayson (1995, ch. 9, Table 10) provides a list of 47 representatives who allegedly obtained special benefits from the Administration in return for supporting NAFTA. Using the model in Table 1, we estimated the predicted probability of a vote for NAFTA by these members in the absence

Table 4. Correlations between residuals

	ε_{nafta}	ε_{gatt}	ε_{mfn93}	ε_{labcon}	ε_{buscon}
ε_{nafta}	1				
ε_{gatt}	0.3720	1			
	(0.0000)				
ε_{mfn93}	0.0946	0.1833	1		
	(0.0529)	(0.0002)			
ε_{labcon}	0.0671	0.1950	–0.0935	1	
	(0.1671)	(0.0001)	(0.0558)		
ε_{buscon}	–0.0224	0.0026	0.0023	0.36171	
	(0.6447)	(0.9579)	(0.9628)	(0.0000)	

of any special favors. Of the 46 representatives for which we have sufficient data to make a prediction, we estimate that 35 would have voted for NAFTA without any special consideration. Thus President Clinton appears to have garnered 11 extra votes through the concessions he made to representatives. Those votes were an important gain considering NAFTA's margin of victory was only 17 votes. Three representatives were particularly shrewd. We estimate that J.J. Pickle of Texas, Clay Shaw of Florida, and Jennifer Dunn of Washington, all of whom received concessions, had a greater than 99% probability of voting for NAFTA without the favors granted by the President.

Table 4 reports the correlations between the residuals in our system of equations as well as the p-values for the hypothesis that the correlations equal zero (in parentheses). A p-value below 0.05 indicates the correlation is significantly different from zero at the 5% level. Except for the residuals in the labor contribution and GATT voting equations, there is not strong evidence that the residuals in the voting equations are significantly correlated with those in the contribution equations. This result suggests that interest groups were not giving more money to candidates who, for unobserved reasons, were likely to vote in the group's favored manner on the trade bills.

The residuals in all three voting equations are strongly correlated with each other, however, indicating that legislators have a propensity to vote for or against free trade that is not captured in any of the five ideological ratings we include in the regression. With correlated residuals, simultaneous estimation of the voting equations is preferable to running the regressions separately because it reduces the variance of the estimated coefficients. Labor and business contributions are also positively correlated. This result is consistent with the

hypothesis that both types of interest groups are trying to curry favor with a few influential representatives.

7. Conclusions

The major conclusion of this study is that political contributions to legislators by organized labor and business groups significantly affected the voting outcome on two (NAFTA and GATT) of the three trade bills analyzed. We estimate that labor contributions or access to legislators gained through these contributions resulted in 67 extra votes against NAFTA and 57 extra votes against the GATT Uruguay Round bill. Contributions from business groups resulted in 41 extra votes in favor of NAFTA and 35 extra votes for the GATT bill. This last result is particularly interesting because it suggests that NAFTA would have failed if business groups had made no contributions to representatives. We estimate the price for labor groups to sway one vote against NAFTA and GATT to be about $352,000 and $313,000 respectively.

Private interest groups were not the only parties attempting to influence representatives by providing them with special benefits. We estimate that President Clinton secured about 11 House votes in favor of NAFTA by granting concessions to individual legislators. While campaign contributions and presidential favors were important, they were not the only significant factors determining how representatives voted on the trade bills. Factor-status variables that are suggested by the Heckscher-Ohlin model such as the proportion of less educated workers and the degree of unionization significantly affected the votes on NAFTA. A district's employment in export-oriented versus import-competing industries also played a large role in whether or not a representative voted for trade liberalization in each case. Few of the variables indicating the proportion of employment in specific industries had large impacts on congressional voting. The broad policy views of legislators, as measured by their ratings by interest groups, however, were very important determinants of representatives' decisions on all three votes. We interpret these various results as evidence that legislators are responding on trade legislation to the economic and social concerns of their constituencies as well as to the wishes of their major contributors.

Notes

1. Quoted in the *New York Times*, October 23, 1997.
2. For a systematic review of the political economy models of economists, see Rodrik (1995).

3. See Morton and Cameron (1992), Smith (1995), and Bender and Lott (1996) for recent surveys of this literature.
4. A USA-NAFTA poll of the House of Representatives on September 20, 1993 found that 190 representatives opposed approving NAFTA while 161 supported it. (Destler, 1995: 225)
5. See Preeg (1995) for an excellent discussion of the Uruguay Round negotiations.
6. Kaempfer and Marks ((1993) find that Heckscher-Ohlin factor variables are strongly correlated with voting on the 1991 fast-track bill but that Ricardo-Viner sector-specific variables are only weakly and inconsistently linked with voting by members of Congress.
7. Assuming that labor and business contributions are exogenous and running single-equation estimates on each voting bill yields qualitatively similar results.
8. The main studies from which we take predictions about the impact of the NAFTA and GATT agreements are USITC (May 1992), USITC (January 1993), and USITC (June 1994).
9. We have also estimated the determinants of Senate voting behavior. The results were qualitatively similar to the House of Representatives, although the smaller number of observations limited the variables we could include in the system of equations.
10. Omitting the ratio of the number of workers employed in export industries in each congressional district to the number of workers employed in import-competing industries (Export ratio) does not change this finding.

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