Exposure to Offshoring and the Politics of Trade Liberalization: Debate and Votes on Free Trade Agreements in the U.S. House of Representatives, 2001-2006

Supplementary Information

Erica Owen*

List of Tables

1 Summary statistics for independent variables 6
2 Cross-correlation table 7
3 Summary of labor speech by agreement 8
4 Alternative measures of industry interests 11
5 Controlling for population for Table 2 of main text 12
6 Analysis of non-FTA votes 14
7 Additional interactions 16
8 Logit regression analysis of votes on free trade in 103rd Congress 19
9 Offshorability and task routineness 21
10 Additional analysis of offshorability by skill 23

*Assistant Professor, Department of Political Science, Texas A&M University. Part of this work was done while a visiting researcher in the Department of Political Science, the University of Zurich. Email: ericaowen@tamu.edu.

DATA APPENDIX

Data sources and measurement

Offshorability. Blinder (2007) codes 817 occupations from the Census Standard Occupation Classification (SOC), based on the degree to which they require face-to-face delivery of tasks and work at a specific location. The index ranges from 0 (completely non-offshorable) to 100 (highly offshorable), though because it is ordinal Blinder recommends examining four broad groups:

Group 1 (76-100): Highly offshorable (e.g. computer programmer)
Group 2 (51-75): Offshorable (e.g. accountant)
Group 3 (25-50): Non-offshorable (e.g. radio operator)
Group 4 (0-25): Highly non-offshorable (e.g. child care provider)

For each individual in the I apply this classification to individuals' occupations for a five percent sample of the 2000 Census. Offshorability is equal to the number of individuals in Groups 1 and 2 as a percent of the labor force, calculated using individual sampling weights. The concordance between Public Use Microdata Areas and congressional districts is available from the Missouri Census Data Center Geographic Correspondence Engine (`http://mcdc2.missouri.edu/websas/geocorr2k.html`).

Offshorability by skill. Using individual level codings for offshorable, routine, and skill level, I calculate the shares of workers in a district that are: (1) low skill (less than BA) and offshorable, and (2) high skill (BA or higher) and offshorable.

- *Votes.* Data for all votes are taken from Poole and Rosenthal (1997). A vote in favor of free trade is coded as one and a vote against is coded as zero. The main analysis focuses on votes on FTAs. But in robustness checks, I include all trade bills (as identified by the Cato Institute).[1] There are 24 trade bills across the three congresses. The included

[1]Cato identifies trade and immigration bills. I thus restrict my analysis to explicit trade bills and therefore drop 11 bills (107: (2) 254; 108: (1) 483, 484 (2) 533; 109: (1) 345, 351, 353 (2) 43, 283, 363) that pertain to immigration, travel bans or FDI. The results are robust to the full set and are available upon request `http://www.cato.org/research/trade-immigration/congress`.

roll calls are as follows:

107: (1) 193, 335, 370, 432, 447 481, (2) 329, 331, 333, 370

108: (1) 45, 219, 256, 361, 436, 432, (2) 371, 413,

109: (1) 239, 348, 443, 616, (2) 392, 519, 539

- *Percent support for free trade.* For each representative, by session, I calculated the percent of votes cast on trade bills that were in support of free trade. This is equal to the total number of 'yes' votes in favor of free trade, divided by the total number of trade votes cast by the member.

- *District skill level.* The percent of district with a college education. Data for the 107th-109th Congresses obtained from NHGIS.[2]

- *Member partisanship.* A dummy variable coded one for members of the Republican party and zero otherwise (includes Democrats and Independents). For the 107th and 108th Congresses, data were obtained from Milner and Tingley (2011) replication data.[3] Data for the 109th were made available by Christopher Magee.[4]

- *Export-oriented and import-competing employment shares.* To calculate interests based on industry, I combine data on trade flows and industry employment shares. The two main measures of industry cleavages are the share of the workers employed in export-oriented and share in import-competing manufacturing industries. Import-competing industries are defined as those for which imports exceed exports and export-oriented industries are those for which exports exceed imports. Trade data obtained from the website of Peter Schott for the years 2000, 2002 and 2004 for the 107th, 108th and 109th Congresses respectively.[5] For each legislator, data on district industry employment shares are available from the 2000, 2002 and 2004 County Business Patterns Report at the county level for the 107th, 108th, and 109th Congresses respec-

[2]Minnesota Population Center 2011.
[3]Available at `https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/14325`.
[4]Replication data for Magee 2010.
[5]Schott 2008. Obtained from `http://faculty.som.yale.edu/peterschott/sub_international.htm`.

tively.[6] County employment levels were matched to congressional districts using a concordance (weighted by population) provided by the Missouri Census Data Center (`http://mcdc.missouri.edu/websas/geocorr2k.html`).

- *Sectoral coalitions.* Using the same data on trade and county business patterns, I calculate a measure of sectoral coalitions equal to the share of district employment times industry trade orientation plus the number of establishments in the industry times the industry trade orientation, where industry trade orientation is equal to exports plus imports divided by exports plus imports (Choi 2015). Larger (lower) values of this measure are likely to indicate more (less) support for free trade.

- *Manufacturing and agriculture employment shares.* As a final measure of industry interests, I calculate total district employment in manufacturing and agriculture.[7] Employment levels calculated at the district level through the same procedure aggregating county data to the district level using the data and procedure described above.

- *Unemployment.* The unemployment rate at the district level was obtained from NHGIS.[8]

- *Campaign contributions.* Data on campaign contributions in the previous session were obtained from Milner and Tingley (2011).[9] Thus I lag campaign contributions by one session (i.e. the analysis of the 107th uses values from the 106th, etc.). Contributions are measures as the percent of contributions from labor PACs and the percent of total contributions from corporate PACs. Labor PAC contributions are logged to account for skewness.

- *Representative demographics.* In the selection model, I control for representatives' gender and race. I include a dummy variable equal to one for women and zero for

[6] In cases where cell numbers were suppressed due to disclosure concerns, the minimum value provided was chosen.

[7] Note that Hiscox (2002) uses manufacturing employment as a measure of factor endowments.

[8] Minnesota Population Center 2011.

[9] For access, see `https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/14325`.

men. I also include indicators for black and hispanic representatives. These data are available from the CQ Congress Collection.[10]

- *Ideology.* I use the Americans for Democratic Action measure of ideology based on annual voting records. The measure is based on votes from the 20 votes deemed most important during the session (including both social and economic issues). Higher values indicate greater liberalism (maximum of 100) and lower values indicate more conservatism (minimum of zero). These data are available from the CQ Congress Collection.[11]

- *Party-leader.* Coded one for representatives that are either the speaker, majority and minority leaders, whips and caucus chairmen. Data taken from the website of the Office of the Historian of the House of Representatives.[12]

- *Committee-leader.* Coded one for representatives that are the ranking majority or minority member of the following committees and subcommittees: the House Ways and Means Committee and its Trade subcommittee; the Financial Services Committee and its subcommittee on Domestic and International Monetary Policy, Trade, and Technology; and the Judiciary Committee. Data taken from the "Official List of Standing Committees and Subcommittees for the 10[x]th Congress."[13]

[10]Data downloaded from `http://library.cqpress.com/congress/static.php?page=export`. *CQ Congress Collection Online* 2015.

[11]Data downloaded from `http://library.cqpress.com/congress/static.php?page=export`. *CQ Congress Collection Online* 2015.

[12]`http://history.house.gov/Congressional-Overview/Profiles/108th/`

[13]Available from the website of the Office of the Historian of the House of Representatives at `http://history.house.gov/Congressional-Overview/Profiles/108th/`.

Descriptive statistics

Table 1 presents summary statistics for the independent variables. Table 2 presents a correlation matrix and Figure 1 presents the correlations for various dimensions of labor interests.

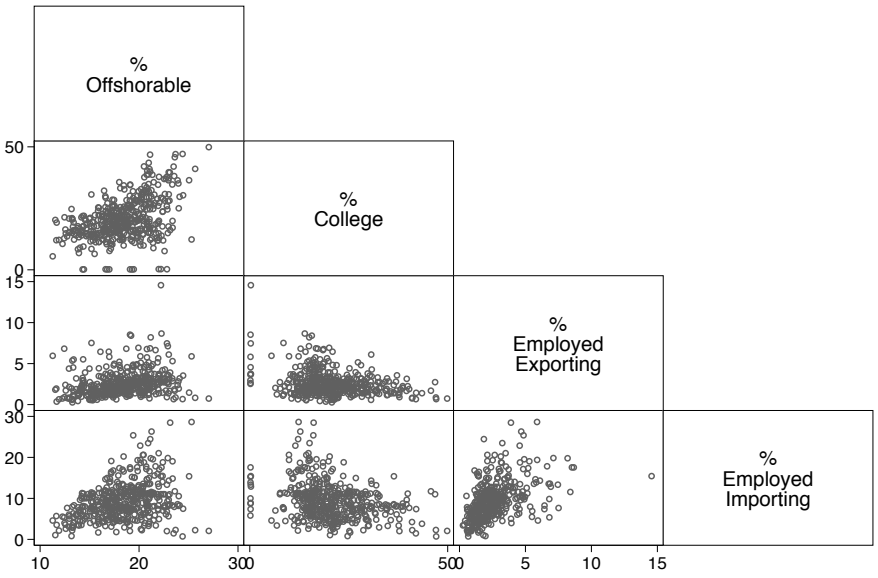
Table 1: Summary statistics for independent variables

Variable	Mean	Std. Dev.	Min.	Max.	N
% Offshorable	18.421	2.939	11.136	27.728	3407
% College	21.097	11.586	0.061	56.914	3407
Mfg. exports share (log)	0.861	0.675	-1.32	2.914	3407
Mfg. imports share (log)	2.103	0.543	-0.402	3.411	3407
Republican	0.524	0.499	0	1	3407
Unemployment	2.257	3.18	0.022	20.31	3407
West	0.219	0.414	0	1	3407
Midwest	0.235	0.424	0	1	3407
South	0.353	0.478	0	1	3407
Previous bank contributions (%)	0.011	0.027	0	0.659	2987
Previous corporate contributions (%)	0.354	0.169	-0.364	1.138	2991
Previous labor contributions (%)	0.224	0.23	-1.026	1.818	2991

Table 2: Cross-correlation table

	1	2	3	4	5	6	7	8	9	10	11	12	
FTA votes (1)	1.00												
Labor speech (2)	-0.33	1.00											
	(0.00)												
% Offshorable (3)	-0.06	0.08	1.00										
	(0.00)	(0.03)											
% College (3)	0.14	-0.17	0.35	1.00									
	(0.00)	(0.00)	(0.00)										
Mfg. exports share (log) (4)	-0.01	0.01	0.13	-0.43	1.00								
	(0.54)	(0.76)	(0.00)	(0.00)									
Mfg. imports share (log) (5)	-0.01	0.12	0.29	-0.18	0.44	1.00							
	(0.56)	(0.00)	(0.00)	(0.00)	(0.00)								
Republican (6)	0.57	-0.22	-0.05	0.03	0.09	0.13	1.00						
	(0.00)	(0.00)	(0.01)	(0.05)	(0.00)	(0.00)							
Unemployment (7)	-0.14	0.09	-0.11	0.07	-0.36	-0.02	-0.11	1.00					
	(0.00)	(0.02)	(0.00)	(0.00)	(0.00)	(0.37)	(0.00)						
West (8)	0.01	-0.04	-0.14	0.08	-0.18	-0.11	-0.08	0.05	1.00				
	(0.41)	(0.30)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)					
Midwest (9)	0.00	0.12	0.19	-0.06	0.28	0.29	0.09	-0.05	-0.29	1.00			
	(0.78)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)				
South (10)	0.11	-0.06	-0.18	-0.10	-0.04	-0.11	0.10	-0.01	-0.39	-0.41	1.00		
	(0.00)	(0.09)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.62)	(0.00)	(0.00)			
Previous bank contributions (%) (11)	0.04	-0.13	0.08	0.00	0.06	0.05	0.06	-0.06	-0.09	0.08	0.05	1.00	
	(0.04)	(0.00)	(0.00)	(1.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)		
Previous corporate contributions (%) (12)	0.46	-0.32	-0.02	0.04	0.02	0.09	0.56	-0.07	-0.07	-0.02	0.25	0.05	1.00
	(0.00)	(0.00)	(0.20)	(0.05)	(0.24)	(0.00)	(0.00)	(0.00)	(0.00)	(0.37)	(0.00)	(0.00)	
Previous labor contributions (%) (13)	-0.54	0.36	0.07	-0.04	-0.08	-0.12	-0.75	0.09	0.08	-0.06	-0.24	-0.10	-0.76
	(0.00)	(0.00)	(0.00)	(0.05)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	

Figure 1: Scatter plot matrix for measures of labor interests



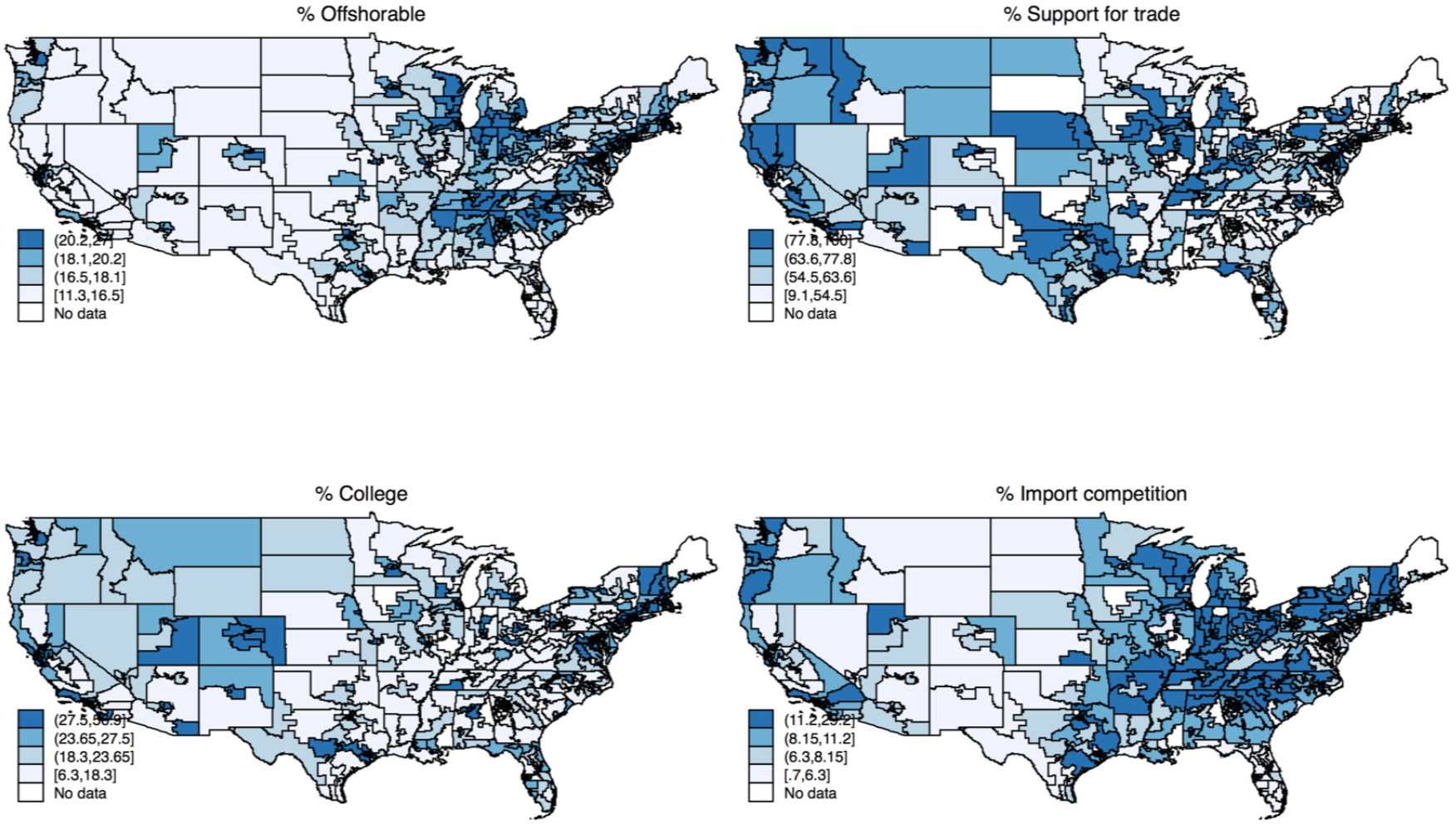
In Table 3, I present descriptive statistics for the rate of labor speech for each vote.

Table 3: Summary of labor speech by agreement

Vote	Mean	Std. Dev.	Min.	Max.
TPA	1.768	1.734	0	7.843
Chile	1.886	1.922	0	6.897
Singapore	1.301	1.768	0	7.95
Australia	0.917	0.949	0	3.791
Morocco	1.158	1.192	0	3.55
DR- CAFTA	1.769	1.722	0	8.800
Bahrain	1.028	1.624	0	7.345
Oman	1.299	1.454	0	6.154

Finally, I present the distribution of key variables geographically. In the interest of space, I present maps only for the 108th Congress. See figure attached separately. As the maps show, offshorability captures a different aspect of trade competition geographically than does skill or import competition.

Figure 2: Geographic distribution of key variables for 108th Congress



ROBUSTNESS ANALYSIS OF 107TH-109TH CONGRESS

Additional measures of industry interests

In Model 1 of Table 4, I examine the robustness of the findings when industry interests are measured using a measure of sectoral coalitions, where sectoral pressures are a weighted combination of industry orientation multiplied by industry employment share and the number of manufacturing establishments. This measure follows the work of Choi (2015), in which industry orientation equals exports minus imports divided by exports plus imports. The coefficient on offshorability is again negative and statistically significant, and the coefficient on sectoral coalitions is positive and statistically significant.[14] In Model 2, I control for employment in manufacturing and agriculture as alternative measures of sectoral exposure to trade. The coefficient on offshorability is negative and statistically significant, and of a greater magnitude when compared to previous specifications. The coefficient on the log of manufacturing employment is not statistically different from zero, however the coefficient on log of agricultural employment is negative and statistically significant.

Controls for population

Table 5 presents the results of the main analysis, controlling for population. This is to address the concern that the percent vulnerable to offshoring could be high due to a large numerator or small denominator, and vice versa. The coefficient on offshorability remains negative and statistically significant, and of a similar magnitude to the results presented in Table 3 of the main text.

Individual vote analyses

I also examine the robustness of the findings when each agreement is considered individually. I estimate separate regressions for each of the eight votes included in the pooled analysis in the main text. For each vote, I present two estimates of offshorability: the first is for the model specification including offshorability and percent college as measures of diffuse labor interests based on the non-nested model tests reported in the main appendix. I then present the results when industry cleavages are added to the model (based on the main specifica-

[14]This is consistent with the analysis of the influence of sectoral interests on votes on the U.S.-Korea FTA by (Choi 2015).

Table 4: Alternative measures of industry interests

	1	2
% Offshorable	-0.074***	-0.102***
	(0.021)	(0.026)
% College	0.041***	0.044***
	(0.007)	(0.007)
Sectoral coalitions	6.843**	
	(3.451)	
Manufacturing emp. (log)		-0.119
		(0.121)
Agricultural emp. (log)		-0.121***
		(0.034)
Republican	3.091***	3.134***
	(0.120)	(0.121)
Unemployment	-0.085**	-0.102***
	(0.037)	(0.037)
West	0.838***	0.962***
	(0.140)	(0.145)
Midwest	0.401***	0.458***
	(0.132)	(0.135)
South	0.840***	0.943***
	(0.132)	(0.134)
Observations	3407	3407
Log likelihood	-1445.7	-1439.2
Chi^2	775.6	781.9
AIC	2923.3	2912.4

Robust standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Controlling for population for Table 2 of main text

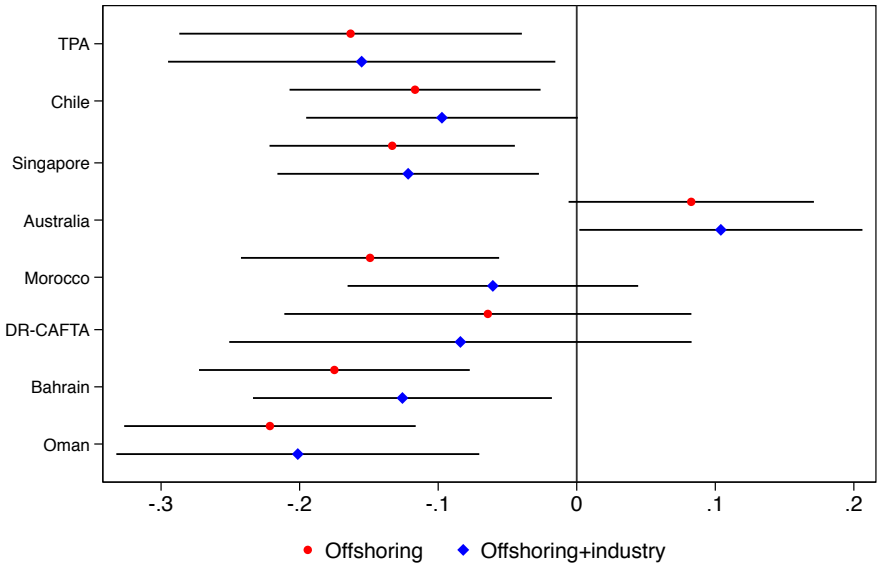
	1	2	3	4	5
	FTAs+TPA		No TPA	All bills	% Free trade
% Offshorable	-0.071***	-0.084***	-0.076***	-0.046***	-0.830***
	(0.021)	(0.023)	(0.023)	(0.010)	(0.249)
% College	0.038***	0.034***	0.037***	0.034***	0.575***
	(0.007)	(0.008)	(0.008)	(0.005)	(0.101)
Log share employment in exports	-0.071	0.027	-0.099	0.048	1.295
	(0.102)	(0.114)	(0.105)	(0.053)	(1.176)
Log share employment in imports	-0.233**	-0.335***	-0.207*	-0.202***	-3.021**
	(0.111)	(0.123)	(0.120)	(0.059)	(1.385)
Population (1000s)	0.004**	0.004**	0.004	0.001**	0.030***
	(0.002)	(0.002)	(0.003)	(0.001)	(0.011)
Republican	3.096***	2.466***	2.897***	1.308***	22.762***
	(0.121)	(0.189)	(0.127)	(0.052)	(1.251)
Unemployment	-0.093**	-0.147***	-0.112***	0.016	0.077
	(0.037)	(0.040)	(0.037)	(0.021)	(0.423)
West	0.791***	0.809***	0.771***	0.402***	6.453***
	(0.140)	(0.158)	(0.149)	(0.078)	(1.816)
Midwest	0.452***	0.261*	0.368***	0.411***	6.540***
	(0.135)	(0.150)	(0.143)	(0.073)	(1.731)
South	0.779***	0.318**	0.765***	0.227***	3.847**
	(0.135)	(0.157)	(0.140)	(0.069)	(1.646)
% contributions from corporate interests in previous Congress		3.960***			
		(0.443)			
Log of % of contributions from labor in previous Congress		-0.017			
		(0.037)			
108					4.259
					(2.903)
109					-7.731*
					(4.566)
Observations	3407	2985	2978	10536	1317
χ^2	788.0	702.3	648.4	1826.6	
AIC	2916.0	2473.4	2619.2	10479.4	11683.9

Models 1-4 are logit models; Model 5 is OLS. Robust standard errors in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

tion in the main text). The coefficient estimates are presented in Figure 3 with 90 percent confidence intervals.[15] For the more parsimonious model (excluding industry cleavages), the coefficient on offshorability is negative and statistically significant in 6 out of 8 votes. The coefficient is negative and statistically significant in 4 votes for the model including industry cleavages, and close to statistically significant in the case of the Chilean FTA ($p = 0.103$).

Figure 3: Coefficient estimates on offshorability



Non-FTA votes

In Table 6, I examine the effect of offshorability on non-FTA votes to address the concern that votes on FTAs may be multidimensional, particularly with respect to investment disputes. The coefficients on offshorability in Models 1 and 2 remain negative and statistically significant, although of a somewhat smaller magnitude than those presented in the main text.

Interaction of offshorability with partisanship and unemployment

Next I consider whether the impact of offshorability on votes is a conditional on partisanship and unemployment in turn. In Model 2 of Table 7, I include an interaction between

[15]The full results are available upon request.

Table 6: Analysis of non-FTA votes

	1	2
% Offshorable	-0.039***	-0.040***
	(0.012)	(0.013)
% College	0.040***	0.038***
	(0.007)	(0.007)
Mfg. exports share (log)	0.102	0.135*
	(0.065)	(0.069)
Mfg. imports share (log)	-0.240***	-0.279***
	(0.072)	(0.075)
Republican	0.569***	0.105
	(0.061)	(0.097)
Unemployment	0.097***	0.107***
	(0.029)	(0.031)
West	0.316***	0.180*
	(0.094)	(0.100)
Midwest	0.414***	0.287***
	(0.091)	(0.096)
South	0.063	-0.135
	(0.083)	(0.092)
Previous corporate contributions (%)		1.206***
		(0.238)
Log previous labor contributions (%)		-0.069***
		(0.018)
Observations	7129	6284
χ^2	1054.1	939.7
BIC	7134.3	6353.5

Robust standard errors in parentheses. Vote fixed effects suppressed.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Republican party membership and the percent offshorable. This is consistent with the work of Feigenbaum and Hall (e.g. 2015) who suggest more nuanced determinants of votes. It is possible that Democrats are more responsive to offshorability because labor interests are a more important component of Democrats' constituencies.. In Figure 4, I present the marginal effect of offshorability for Democrats and Republicans. Offshorability has a negative and significant effect on the probability of voting in favor of free trade for Democrats, but is not statistically different from zero for Republicans.

Finally, in Model 3, I consider whether the impact of offshorability on support for free trade depends on unemployment. At higher levels of unemployment, legislators may be more responsive to constituents' offshorability. The coefficient on the interaction is negative and statistically significant as expected. Figure 5 presents the marginal effects of offshorability and unemployment. The marginal effect of offshorability is increasingly negative as unemployment increases.

Figure 4: Conditional marginal effects plots for offshorability × partisanship

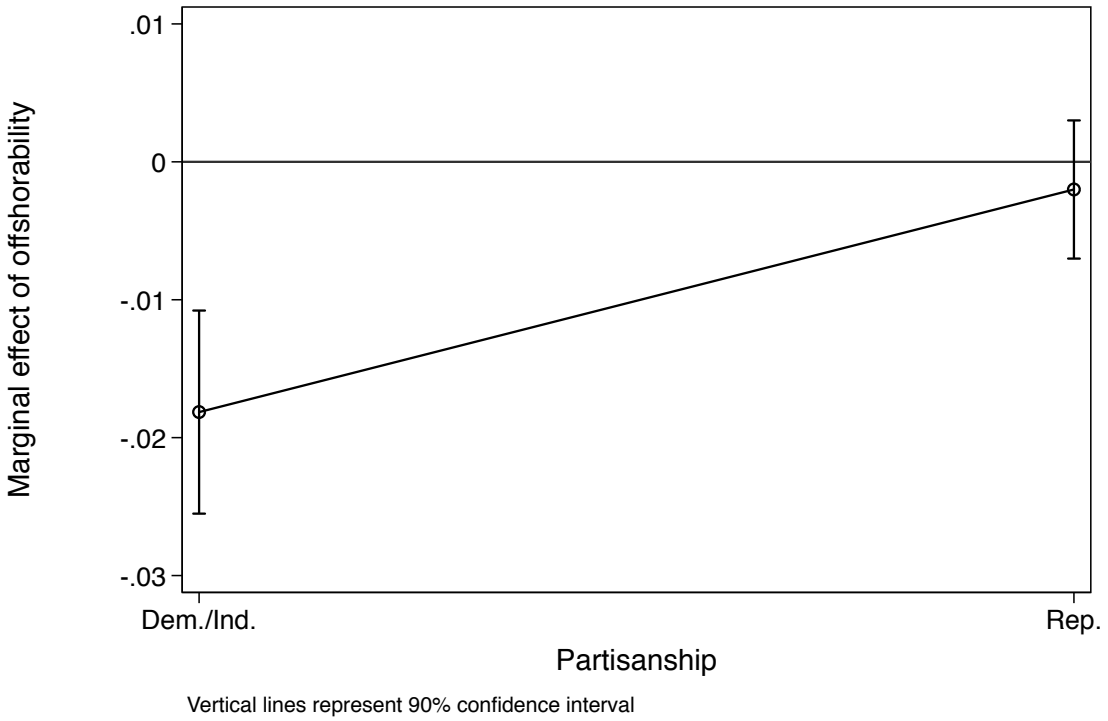


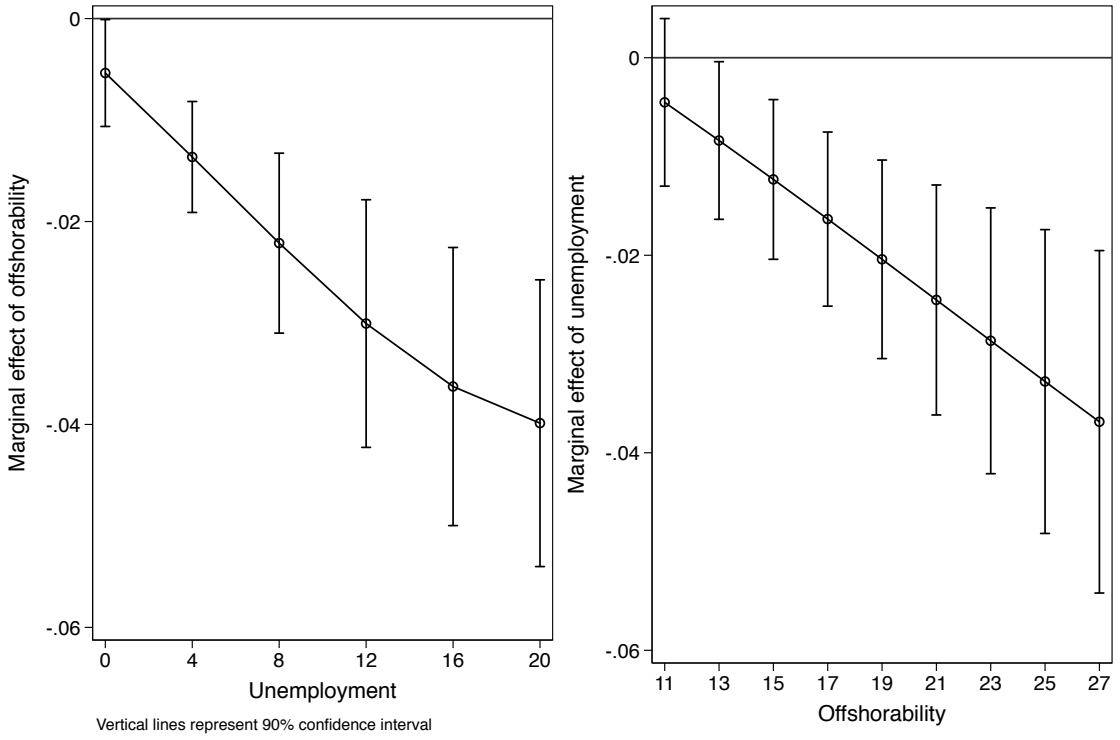
Table 7: Additional interactions

	1	2
% Offshorable	-0.095***	-0.040*
	(0.024)	(0.024)
% College	0.040***	0.036***
	(0.008)	(0.007)
Mfg. exports share (log)	-0.093	-0.097
	(0.102)	(0.103)
Mfg. imports share (log)	-0.234**	-0.212*
	(0.111)	(0.111)
Republican	1.771***	3.080***
	(0.674)	(0.121)
Republican × % Offshorable	0.073**	
	(0.036)	
Unemployment	-0.083**	0.124
	(0.036)	(0.820)
% Offshorable × Unemployment		-0.014***
		(0.005)
West	0.823***	0.808***
	(0.140)	(0.140)
Midwest	0.438***	0.447***
	(0.136)	(0.134)
South	0.795***	0.813***
	(0.133)	(0.133)
Constant	0.220	-0.807*
	(0.463)	(0.474)
Observations	3407	3407
χ^2	797.5	796.3
BIC	3030.0	3027.2

Robust standard errors in parentheses. Vote fixed effects suppressed.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Figure 5: Conditional marginal effects plots for offshorability × unemployment



ADDITIONAL IMPLICATIONS: OFFSHORABILITY IN A PRE-OFFSHORING PERIOD

In this section, I offer suggestive evidence that offshorability does not explain legislators support for free trade in an earlier pre-offshoring period. Specifically, I examine votes in the 103rd Congress (1993-1994). This includes the roll call vote on the North American Free Trade Agreement, the Uruguay round agreement and the GATT Uruguay Round Bill (essentially fast track). I use the replication data provided by Milner and Tingley (2011) for the vote data and certain district characteristic controls. I limit this early analysis to the 103rd Congress for two reasons: 1) this period predates widespread and cheap access to information and communication technology that have made services offshoring increasingly feasible and 2) codes to concord Census data to congressional districts for the 105th session are not available. The 104th Congress did not vote on any trade bills according to Milner and Tingley's classification and data.

To compute occupation measures of exposure to offshoring for the 103rd Congress, I use data from the 1990 US Census and concord to occupation based measures. It is important to note that the measure of offshorability (i.e. the Blinder measure) is based on technology

existing in 2000. Thus this estimate would overstate the degree of offshorability in 1993 when information and communication technology (ICT) is less advanced (shortly before the dot com boom and spread of internet access more broadly during the late 1990s). This period also predates the salience of services offshoring, which occurs in the early 2000s (Mankiw and Swagel 2006; Margalit 2012).

Thus, we should not expect constituency offshorability to reduce legislators support for free trade during the 103rd Congress because the scope for offshoring is significantly reduced. The results are presented in Table 8. Model 1 presents the results for three free trade votes identified by Milner and Tingley (2011), controlling for industry interests using the shares of workers in exporting and import-competing manufacturing industries and district skill level. The coefficient on offshorability is positive and statistically significant at the 90 percent level. Crucially, there is no protectionist effect of offshoring, lending support to the argument in the paper. As expected the coefficient on industry import competition is negative and statistically significant.

Model 2 uses an alternative measure of industry interests: the number of workers employed in the manufacturing sector. The coefficient of offshorability is not statistically different from zero.

These findings present support for my argument because offshorability should not have a protectionist effect on legislators' votes in an era during which technology does not allow for much offshoring. The analysis suggests that the concept of offshorability emerges as an important driver of protectionist sentiment only after technology permits.

However, I stress that these results should be viewed as suggestive as there are two points of caution with respect to the calculation of occupation offshorability measures. First, the Blinder of measure of offshorability is based on technology from 2000 and onwards, and I apply the method backwards to 1990. Second, there was a major revision of the Census occupation codes between 1990 and 2000, which makes concordance between Blinders measure to the 1990 Census data more difficult, and subject to measurement error (in terms of allocation of occupations categories in 2000 back to 1990).

Table 8: Logit regression analysis of votes on free trade in 103rd Congress

	1	2
% Offshorable	0.049*	0.006
	(0.028)	(0.028)
% College	0.902	2.286**
	(1.116)	(1.008)
Mfg. imports share	-0.034***	
	(0.013)	
Mfg. exports share	0.032	
	(0.026)	
Manufacturing employment (log)		0.063
		(0.202)
Republican	0.857***	0.844***
	(0.142)	(0.139)
Unemployment	-11.735***	-10.149***
	(3.338)	(3.320)
West	0.632***	0.569***
	(0.197)	(0.195)
Midwest	0.149	0.143
	(0.173)	(0.178)
South	0.538***	0.346*
	(0.190)	(0.178)
NAFTA	-0.751***	-0.747***
	(0.147)	(0.146)
GATT	-0.167	-0.167
	(0.156)	(0.156)
Constant	0.007	-0.327
	(0.570)	(1.900)
Observations	1288	1288
Log likelihood	-770.1	-774.7
χ^2	130.8	122.3
AIC	1564.2	1571.3

Robust standard errors in parentheses. Vote fixed effects suppressed in Model 1.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

ADDITIONAL IMPLICATIONS: TASK ROUTINENESS AND OFFSHORABILITY

I next examine whether the effect of offshorability is robust when controlling for task routineness, another occupation characteristic suggested by the literature in labor economics that affects the welfare consequences of trade for individuals (e.g. Acemoglu and Autor 2011). Routine tasks are those which follow a script or set of rule-based procedures,[16] and as such they are more readily taught to foreign workers, which negative distributional consequences for those in routine task intensive occupations.

To calculate the percent of workers in routine-task intensive occupations, I code individuals in the Census sample as "routine" workers by drawing on measures of task routineness developed by Acemoglu and Autor (2011). Acemoglu and Autor (2011) create continuous measures of task characteristics across a number of dimension. I code individuals' occupation as routine if the occupation routineness score (cognitive or manual) is greater than the score for non-routine activities (cognitive or manual). I then calculate the share of workers in routine occupations using the concordance procedure described above.

Building on Blonigen and McGrew (2014), who find that routineness is a key determinant of trade preferences in the United States, I include a measure of the percent of workers in a district that are in routine-task intensive occupations in Model 1 of Table 9. I use a measure of routineness is developed by Acemoglu and Autor (2011).[17] The coefficients on offshorability and routineness are both negative and statistically significant.

Following up on the results presented in the main text, I next consider whether the impact of offshorability differs between those in routine and non-routine task intensive occupations. This is motivated by the above research on how those in routine-offshorable occupations are likely to be hurt by trade. See also Owen and Johnston (2015), who test this argument at the individual level, and argue that individuals in routine, offshorable tasks are likely harmed by trade, while those in non-routine offshorable tasks benefit from trade in tasks. Thus, this

[16]Routine tasks can include both service and production activities. In contrast, non-routine tasks may include manual tasks such as truck driving or food preparation, as well as cognitive tasks associated with professional and technical occupations.

[17]The measure and computation of district level routineness is discussed further in the supplemental appendix.

Table 9: Offshorability and task routineness

	1	2
% Offshorable	-0.063***	
	(0.021)	
% Routine	-0.058***	
	(0.020)	
% Offshorable & routine		-0.177***
		(0.039)
% Offshorable, non-routine		0.022
		(0.030)
% College	0.017*	0.011
	(0.010)	(0.010)
Republican	3.086***	3.123***
	(0.121)	(0.120)
Unemployment	-0.071*	-0.091**
	(0.038)	(0.037)
West	0.854***	0.788***
	(0.141)	(0.142)
Midwest	0.504***	0.456***
	(0.137)	(0.135)
South	0.821***	0.814***
	(0.133)	(0.133)
Observations	3407	3407
Log likelihood	-1440.4	-1437.6
BIC	3027.2	3021.7

Robust standard errors in parentheses. Vote fixed effects suppressed.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

is a different way of separating those in offshorable occupations into winners and losers. If routineness is a key determinant of winners and losers, then higher levels of offshorability among routine workers should lead to greater protectionist sentiment. Therefore, in Model 2, I calculate the percent of workers in routine, offshorable jobs and find that the coefficient is negative and statistically significant. These findings suggest, as consistent with Owen and Johnston (2015) that the distributional consequences of offshorability depend on task routineness, and furthermore, that the losers are again more salient than winners.

ADDITIONAL IMPLICATIONS: SKILL AND OFFSHORABILITY, REVISITED

In the main text, motivated by the findings of Walter (2016), I examine how the impact of constituent offshorability differs across skill levels by using the Census data to calculate the percent of workers in a district with low skill (less than a bachelor's degree) that are in offshorable occupations, as well the percent of high skill workers in offshorable occupations. This is a test of the underlying premise of the theory, which is that the losers from offshoring are more politically influential than the winners.

This, however, does not tell us whether the effect of skill depends upon offshoring. To evaluate the fully interactive relationship between skill and offshorability, we must either use an interaction or measure all of the relevant groups (high skill offshorable, high skill non-offshorable, low skill offshorable, low skill non-offshorable). I do both of these in the following analysis.

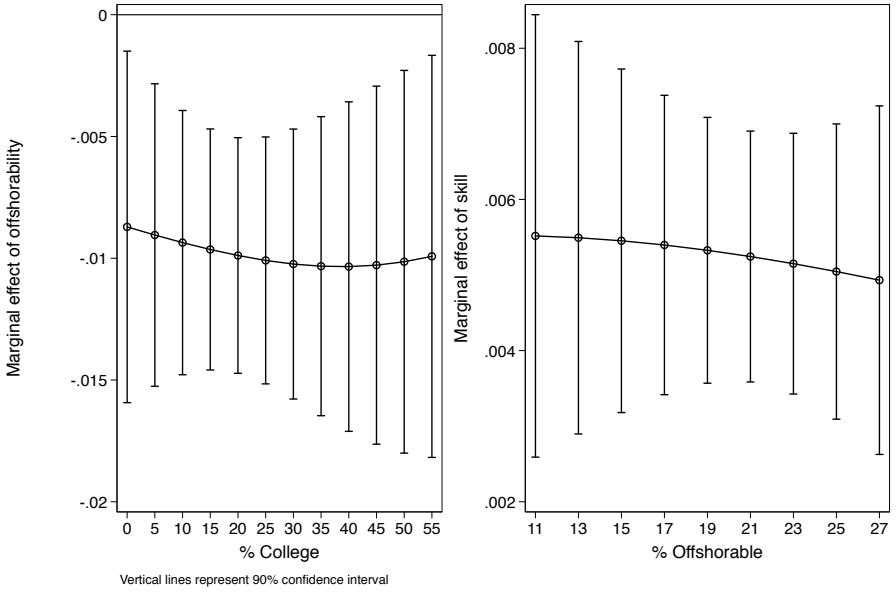
First I include an interaction between offshorability and the percent of the district with a college degree. I present the results of this estimation in Table 10, and as the results show, the coefficient on the interaction is not statistically significant and there is no improvement in explanatory power. Additionally, a graph of the marginal effects plot also suggests the effect of offshorability does not depend on skill. However, a nuance of logistic regression models is that the estimated marginal effects depend on values of all other variables. Moreover, the data used in the main text to calculate offshorability by skill level differ from the percent college (five percent sample of 2000 Census vs. NHGIS), and thus marginals from an interaction will differ from the measures calculated in the main text.

Table 10: Additional analysis of offshorability by skill

	1	2
% Offshorable	-0.061**	
	(0.031)	
% College	0.049*	
	(0.028)	
% Offshorable × % College	-0.001	
	(0.001)	
Low skill, offshorable (log)		-2.316***
		(0.521)
Low skill, non-off. (log)		1.897***
		(0.570)
High skill, offshorable (log)		0.960**
		(0.389)
High skill, non-off. (log)		-0.601
		(0.514)
Mfg. exports share (log)	-0.072	0.095
	(0.102)	(0.111)
Mfg. imports share (log)	-0.235**	0.016
	(0.111)	(0.135)
Republican	3.093***	3.183***
	(0.120)	(0.122)
Unemployment	-0.092**	-0.128***
	(0.037)	(0.037)
West	0.788***	0.803***
	(0.140)	(0.142)
Midwest	0.455***	0.473***
	(0.135)	(0.138)
South	0.783***	0.817***
	(0.135)	(0.137)
Observations	3407	3407
Log likelihood	-1439.9	-1437.6
BIC	3034.4	3037.8

Robust standard errors in parentheses. Vote fixed effects suppressed.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

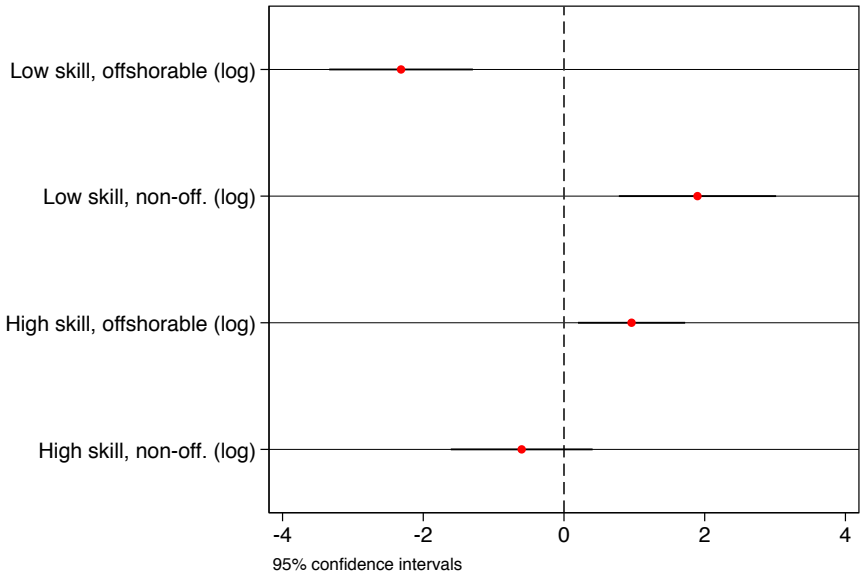
Figure 6: Conditional marginal effects plots for offshorability/skill interaction



Therefore, I also measure the size of each of four groups outlined above (e.g. the number of workers in a district that are both low skill and offshorable). If there are differences among high (or low) skill workers based on offshorability, this suggests a difference in the results with those anticipated by Heckscher-Ohlin. These results are presented in Model 2 of Table 10. Figure 7 presents the coefficient estimates for key variables.

There are two key points to take away. First, the results continue to support the findings in the main text that the losers from offshoring are more politically influential. Second, the coefficient on the level of low skill and offshorable is negative and statistically significant, while the coefficient on low skill and non-offshorable is actually positive and statistically significant. Thus, legislators are more likely to support free trade as the number of low skill non-offshorable workers increases, and less likely to support free trade as the number of low skill offshorable workers increases. This suggests a divergence from Heckscher-Ohlin, which predicts the same interests among workers of the same factor, regardless of offshorability. The two coefficients are statistically different from one another at the 99 percent based on a Wald test. Similarly, the coefficient on high skill, offshorable is positive and statistically different from zero, while the coefficient on high skill non-offshorable is not statistically different from zero. The former suggests that as the number of constituents in high skill,

Figure 7: Coefficient plots for levels of skill-offshorability groups



offshorable occupations, increases, legislators are more likely to support free trade. A Wald test rejects the null hypothesis of no difference between the two coefficients at the 90 percent level.

Thus the results presented in Model 2 suggest (1) that the findings of the offshoring model differ from the predictions of HO, and (2) that losers are more politically salient than winners.

References

Acemoglu, Daron and David Autor (2011). Handbook of Labor Economics. In: ed. by Orley Ashenfelter and David Card. Vol. 4. Elsevier. Chap. Skills, Tasks and Technologies: Implications for Employment and Earnings.

Blinder, Alan (2007). How Many U.S. Jobs Might Be Offshorable? CEPS Working Paper No. 142.

Blonigen, Bruce and Jacob McGrew (2014). Task Routineness and Trade Policy Preferences. *Economics and Politics* 26(3):505–518.

Choi, Youngmi (2015). Constituency, Ideology, and Economic Interests in U.S. Congressional Voting: The Case of the U.S.-Korea Free Trade Agreement. *Political Research Quarterly*:1–15.

CQ Congress Collection Online (2015). Washington, D.C.: CQ Press.

Feigenbaum, James and Andrew Hall (2015). How Legislators Respond to Localized Economic Shocks: Evidence from Chinese Import Competition. *Journal of Politics* 77(4):1012–1030.

Hiscox, Michael (2002). *International Trade and Political Conflict: Commerce, Coalitions and Mobility*. Princeton: Princeton University Press.

Magee, Christopher Sean Patrick (2010). Would NAFTA have been approved by the house of representatives under President Bush? Presidents, parties, and trade policy. *Review of International Economics* 18(2):382–395.

Mankiw, N. Gregory and Phillip Swagel (2006). The Politics and Economics of Offshore Outsourcing. *Journal of Monetary Economics* 53(5):1027–1056.

Margalit, Yotam (2012). Lost in globalization: International economic integration and the sources of popular discontent. *International Studies Quarterly* 56(3):484–500.

Milner, Helen and Dustin Tingley (2011). Who Supports Global Economic Engagement? The Sources of Preferences in American Foreign Economic Policy. *International Organization* 65(1):37–68.

Minnesota Population Center (2011). *National Historical Geographic Information System: Version 2.0*. Minneapolis, MN: University of Minnesota.

Owen, Erica and Noel Johnston (2015). *Occupation and the Political Economy of Trade: Job routineness, offshorability and protectionist sentiment*. Working Paper.

Poole, Keith and Howard Rosenthal (1997). *A political-economic history of roll call voting*. New York: Oxford University Press.

Schott, Peter K (2008). US manufacturing exports and imports by SIC or NAICS category and partner country, 1972 to 2005. *Notes* 1(1,396,164):765–906.

Walter, Stefanie (2016). Globalization and the Demand-Side of Politics. How globalization shapes labor-market risk perceptions and policy preferences. *Political Science Research Methods*.