
A Referendum on Trade Theory: Voting on Free Trade in Costa Rica

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Abstract Research on mass opinion in international political economy overwhelmingly relies on survey data. This poses problems of external validity, especially for a frequently low-salience issue such as trade policy. To examine whether survey findings about attitudes toward economic openness apply outside of surveys, this note considers patterns of voting in the 2007 Costa Rican plebiscite about joining the Central American Free Trade Area. Several extant theories appear to explain voting patterns, but the results are less in line with traditional economic models based on locally important economic sectors.

A vibrant literature has recently blossomed on public attitudes toward international economic integration. Most frequently, this research involves survey evidence,¹ sometimes with an experimental component.² While these methods can test many theories, they face nagging questions of external validity.³ This problem is especially acute for low-salience issues, which international economic flows, like many issues in international relations, often are: questions about trade or international investment frequently require respondents to formulate an off-the-cuff view about measures that they have not previously contemplated and about which they do not have much information.⁴ Alongside the broader problems of surveys—the artificiality of the setting, the low stakes and hence low credibility of response, and potential reluctance to share politically sensitive views honestly with a stranger—this leaves uncertainty about how well survey-based findings apply to circumstances where people really do act on their beliefs about the international economy.⁵ Complementing these studies with an examination of behavior from less self-conscious, more salient settings is consequently of intense theoretical and practical interest.

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1. See, for example, Hoffman 2009; and Pandya 2010.

2. See, for example, Hiscox 2006; and Naoi and Kume 2011.

3. See Webb et al. 2000; and Barabas and Jerit 2010.

4. Lavine et al. 1996.

5. See Groves, Presser, and Dipko 2004; and Guisinger 2009. Some techniques can reduce self-consciousness about particular survey questions (Janus 2010), but the overall survey setting still remains unusual, low-stakes, and likely to demand responses about issues that respondents have not consciously considered.

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Unfortunately, opportunities to observe meaningful mass (as opposed to legislative or activist) reactions specific to international economic policy are rare.⁶ Fortunately, there are exceptions. This research note considers one such exception: the 2007 Costa Rican plebiscite on accession to the agreement between the United States and the Central American Free Trade Area (CAFTA). While referendum outcomes have the disadvantage of producing ecological rather than individual results, thus only indirectly testing models of individual preference formation,⁷ many studies have successfully exploited referendum results to study questions of public opinion and individual behavior.⁸ Especially where referendum votes are uncommon, issue-specific plebiscites helpfully prime the public to think about issues—even issues typically having low salience—and greatly reduce participants' cost of obtaining information relevant to decision making.⁹ Moreover, aggregated data's drawbacks diminish when considering attitudes toward international integration, where opinions may reflect aggregate, not directly personal, expectations¹⁰ and outcomes.¹¹

After briefly outlining previous analyses of policy preferences over the international economy, I compare those earlier theories with voting patterns in the 2007 Costa Rican plebiscite. Some outcomes, especially those highlighting the importance of education and culture, recur in the aggregate voting results. Other theories, though, particularly economic predictions such as those based on the locally dominant sector, prove less predictive in this instance. Economic variables' lack of effect echoes many recent findings,¹² suggesting that the empirical weakness of traditional economic explanations may not be an artifact of the survey context. Instead, it provides further, albeit suggestive, evidence that public attitudes toward international economic policy primarily stem from factors other than real returns.

The Costa Rican Plebiscite

On 7 October 2007, Costa Ricans voted on CAFTA, a trade treaty that would incorporate the United States, Guatemala, El Salvador, Honduras, Nicaragua, and the Dominican Republic.¹³ Economically, the potential agreement was highly important for Costa Rica as a regional arrangement that would enhance market access.¹⁴ While the country had pursued customs unions with its Central American neighbors for decades, the United States represented Costa Rica's most important part-

6. Irwin 1994, 76.

7. Seligson 2002.

8. See, for example, Stratmann 2006; and Bochsler 2010.

9. See Leduc 2002; and Jupille and Leblang 2007.

10. Mansfield and Mutz 2009.

11. See Scheve and Slaughter 2001; and Cutler 2007.

12. Blonigen 2011.

13. For a cultural account of the referendum, see Cupples and Larios 2010.

14. Baccini and Dür 2011.

ner for imports, exports, foreign tourism, and international investment, accounting for a third to a half of Costa Rica's international exchange. (The treaty also promised to expand the trade agreement with Panama, a far smaller player but still among Costa Rica's ten largest trading partners.) At the same time, the plebiscite came after years of increasing reliance on trade. Imports and exports as a share of gross domestic product had risen from 86 percent in 2001 to 104 percent in 2006, while anticipation of a trade deal had also helped raise net foreign direct investment inflow from 2.8 to 6.5 percent of the country's gross domestic product (GDP) over the same period. At the same time as this economic interconnectedness increased, the country as a whole prospered. Income per capita had risen by more than 6 percent in 2006 and was on pace nearly to match that figure in 2007. Unemployment was also at historically low figures, with the overall unemployment rate falling below 6 percent for the first time in years—and for 2007 as a whole, the figure would be a mere 4.6 percent.¹⁵ Accession to the agreement therefore had potential effects for a substantial share of the Costa Rican economy, and voters were asked to make their decisions in a relatively friendly macroeconomic climate.

The only topic formally under consideration in the vote was international economic policy. Though the agreement had chapters concerning labor and environmental protections—and provisions in its transparency chapter relating to uprooting corruption—these were explicitly tied to how such policies could affect cross-border flows of goods, services, and investment. Meanwhile, no other major vote took place at the time of the referendum: neither further referendum measures nor general election races were on the ballot to bring citizens to the polls.¹⁶

The vote on CAFTA garnered public and media attention as the first referendum in Costa Rican history, and the free trade agreement was itself politically contentious. The opposition had forced the government to submit the treaty to popular vote after months of constitutional maneuvering and street protests.¹⁷ Moreover, polling showed a close and tightening contest throughout the months leading up to the vote. In the event, the referendum passed with 51.6 percent of the vote; 59.2 percent of the electorate cast ballots. This compares with 65.4 percent turnout in the closely contested 2006 presidential election, typically the biggest event in the Costa Rican electoral cycle.

15. The trade and macroeconomic figures come from the World Bank's World Development Indicators. Available at (<http://data.worldbank.org/data-catalog/world-development-indicators>). Accessed 4 July 2012.

16. Citizens might use an issue-specific vote to register general protest at the government by voting against a government-promoted referendum, but this is merely a specific instance of domestic politics determining policy opinion. Hobolt, Spoon, and Tilley 2009. Views on trade, that is, may always partially reflect attitudes to the national government, so the potential presence of government effects in Costa Rica represents a general process.

17. For coverage of some of the larger protests, see editions of *La Nación* for 26 February, 2 May, and 30 September 2007.

Hence the 2007 Costa Rican vote was, unusually, a vote focused squarely on high-salience international economic policy issues.¹⁸ It occurred, helpfully, in Latin America, an especially fruitful area for research in mass attitudes toward markets and international cooperation.¹⁹ Moreover, unlike in popular votes on the European Union, the question at issue had few confounding issues of political unification or regulatory change. The referendum accordingly offers rare insight into the willingness of the public to accept or reject international economic liberalization in a practical setting. The very rarity of this sort of vote of course raises questions about generalizability: the circumstances that allowed such a vote are not likely to have been random, and the results obviously do not speak to how trade policy arises in most circumstances. The referendum nevertheless provides an internally consistent way of looking at economic preferences. Where its results correspond to or diverge from prior findings, it can help to establish their robustness to non-survey methodologies.

Using the Referendum to Test Theories of Trade-Policy Preference

Ballot secrecy precludes individual-level data on voting behavior for the Costa Rican referendum. However, information is available at relatively low levels of aggregation. The unit of analysis here is generally the administrative district (*distrito*), the third-order administrative division of Costa Rica. There were 470 of these at the time of the referendum, with a mean population of about 8,300 people according to the 2000 census (making for an average eligible electorate of about 5,600 voters). Even the most populous district had a population of about 80,000. Election and referendum results, along with a small number of control variables, are also available at the smaller electoral-district level, where the average population size is roughly one quarter that of an administrative district. This alternative unit of analysis will be explored in the next section.

For each administrative district, various statistics about the referendum are available. The dependent variable for the reported analyses is the fraction of valid ballots cast that were in favor of the free trade agreement.²⁰ Alternative measures using the fraction of all ballots cast (including blank or spoiled ballots) produce very similar results.

18. Salience, again, that came from not only its political contentiousness but also its economic significance, including trading partners involved in half of all Costa Rica's imports and exports.

19. See Beaulieu, Yatawara, and Wang 2005; Kingstone and Young 2009; Pandya 2010; and Baker and Greene 2011.

20. The actual question text was “¿Aprueba usted el Tratado de Libre Comercio República Dominicana, Centroamérica-Estados Unidos?” This roughly translates to “Do you approve the Free Trade Treaty Between the Dominican Republic, Central America, and the United States?”

The foremost causal mechanisms among models of trade policy preferences have been economic affiliations, typified by the Heckscher-Ohlin (factoral) and Ricardo-Viner (sectoral) models. A wealth of theory argues that trade's effects on individuals' material welfare and job security will strongly influence attitudes toward international economic exchange: those whose livelihoods are threatened by imports have incentive to resist openness and favor protectionism. Conversely, efficient producers see increased profits with openness, as export markets expand and importing necessary inputs to production becomes cheaper. In the long run, these potential costs and benefits may accrue to all suppliers of a particular factor of production, such as capital or labor. Over shorter time horizons, however, laborers and capitalists tend to have their assets invested in specific sectors/industries from which it is costly to change.²¹ This association with a sector may arise indirectly, as among service workers in a region heavily dominated by a particular industry: even if the service workers face no immediate threats from foreign competition, they may still be sensitive to trade-induced downturns in the local economy. If their neighbors suffer layoffs, their own prospects deteriorate as well.

To measure these potential sectoral dependencies, the models below use the fraction of the labor force in the administrative district that works in a sector. Data are available for several sectors, but reported results here include only sectors that employ at least 5 percent of the average district's labor force. These are agriculture (representing 19 percent of employment nationwide), manufacturing (17 percent), and three service sectors: commerce (that is, wholesale and retail trade: 17 percent of employment), construction (6 percent), and education (6 percent).²² Costa Rica was and is a net exporter of agricultural goods but a net importer of manufactures, particularly machinery. Hence, Costa Rica appears to have a comparative advantage in agriculture but a disadvantage in manufacturing. The standard sectoral framework then suggests that more agricultural districts should see more support for the treaty and its attendant trade liberalization, while manufacturing-oriented districts should generally be less supportive. Trade in services (with the important exception of tourism) was a relatively small part of the Costa Rican economy, although the World Trade Organization suggests that the country was a net exporter of nontravel services (and with net service exports growing at more than 10 percent a year). This suggests that Costa Rican districts specializing in services should, all else equal, be neutral or in favor of the treaty.

Other economic factors also are conventionally thought to correlate with preferences over trade policy. High unemployment rates generally increase demands for government intervention in the economy, including protection of domestic jobs

21. For more on the ways sectors shape trade policy, see Gilbert and Oladi 2012.

22. The excluded sectors are, in increasing order of association with voting for the referendum in a model including all sectors: health and social care; public administration; in-home domestic servants; hotels and restaurants; mining and quarrying; fisheries; real estate; electricity, gas, and water provision; community service; transportation and communication; finance; and international organizations. The all-sector model produces very similar results to those reported, except as noted in the text.

from foreign export competition.²³ However, the potential for export jobs in a free trade area may reverse this effect: lower foreign tariffs can create constituencies that reap concentrated benefits from exporting and thereby have a positive interest in trade. This may be of especially keen interest when unemployment is widespread. To consider these possibilities, the models below include measures of the fraction of adults in the workforce that were out of work at the 2000 census, the temporally closest available source of district-level economic statistics.

Alongside its consequences for factor markets, trade-barrier reduction also affects product markets. In particular, free trade tends to reduce prices and allow more consumption. Those who are not active labor market participants thereby have cause to prefer free trade. Accordingly, those districts with a higher proportion of their population that are pensioners, or with a higher dependency ratio (the number of young, old, or otherwise out-of-the-workforce persons per member of the labor force), would have more widespread impetus to vote in favor of CAFTA.

Voting patterns are also likely to reflect partisan preferences, especially on an issue as contentious as the free trade agreement was in Costa Rica. This is both because positions on specific issues may derive from general ideological proclivities and because political leaders' guidance can serve as an important heuristic source of information about controversial issues.²⁴ There are three main political parties to consider. (No other party received as much as 5 percent of the vote nationally in votes around the time of the referendum; including smaller parties' vote shares does not noticeably enhance the predictive power of the models.) Two of the major parties, the *Partido Liberación Nacional* (PLN; National Liberation Party) and *Partido Acción Ciudadana* (PAC; Citizens' Action Party), are generally left-leaning. Yet they diverged in their attitudes toward the referendum. The social-democratic PLN, the traditional party of the Costa Rican left, supported approval of CAFTA, while the newer PAC led the opposition.²⁵ The third major party, the *Movimiento Libertario* (ML; Libertarian Movement), followed its classically liberal roots and joined the PLN in support of the free trade area. Thus, if leadership by political elites drives political preferences, communities that vote for and are presumably influenced by the PAC should vote more heavily against the referendum, while those with more PLN or ML supporters would be more likely to cast ballots in support of the free trade agreement.

For each of these parties, the vote share in the district from the valid votes cast in the 2006 presidential election measures local support. These variables are of special interest in this case because the 2006 election was largely, though not exclusively, fought over the free trade agreement. Hence divergences between votes in

23. See Takacs 1981; and Kahler 1985.

24. Moreover, partisanship takes a central role in explaining élites' votes for protectionist measures; see Hiscox 1999; and Weller 2009.

25. Because the goal here concerns generalized patterns of mass policy opinion, the sources of parties' positions are taken as exogenous. Naturally, the source of these positions holds a great deal of interest and would be endogenous to other political economy models.

the two elections offer a rough approximation of the limits of international economic affairs' effect on vote choice in general elections: if foreign affairs indeed are a low-salience issue that voters do not engage with, then the association between preferences over trade and votes in the election will be weak despite the seeming centrality of CAFTA to the presidential campaign. These partisan variables also speak to the idea that support for free trade may be contingent: free trade may be attractive only in the presence of a left-leaning government that will provide for trade-affected workers through a strong welfare state.²⁶ Yet voters who support the PLN may not be confident that future governments would maintain the commitment to the welfare state, especially in light of the extremely narrow victory that the PLN won in the 2006 election.²⁷ Thus it is quite likely that even voters who were willing to support free trade under the auspices of the PLN government would hesitate when faced with a more permanent commitment codified in a treaty.²⁸

A final political variable of note is district turnout. Higher levels of participation may reflect a local culture that is more engaged with (or informed about)²⁹ political issues, which might influence opinions about trade. Greater interest in the referendum may lead to a larger number of conversations about the potential consequences of the free trade area, for example, which might alleviate fears that CAFTA threatened the jobs and livelihoods of many acquaintances and increase the perceived benefits of trade for the nation at large. Or, equally, it could increase the perceived cost of trade if any acquaintances are leery of their employment prospects in the free trade area. Turnout also matters as an indicator of the comparability of populations across the units of analysis. If, like most protectionist barriers, Costa Rican trade policy features concentrated benefits and diffuse costs (or if voters perceive policy to feature such an asymmetrical incidence),³⁰ then random events such as rain that reduce electoral participation in a locale may also be likely to lead to disproportionately large shares of voters opposing the referendum in places with low turnout.³¹ This would suggest that the referendum results might represent not differences in actual opinion toward CAFTA, but only differences in expression of those preferences.

Recent studies of policy preference have considered cultural and sociological influences beyond those of economic return and political party. Education, for instance, may not simply involve an increase of human capital, but also a greater exposure to ideas and various forms of cosmopolitanism that may make people

26. Walter 2010.

27. In addition to winning the presidency in the 2006 election, the PLN's twenty-five seats in the national parliament were more than any two rival parties combined, though still a minority of the total fifty-seven seats. (The PLN and ML together did have more than half of the seats, allowing for a majority coalition in favor of CAFTA.)

28. Co-partisans of the incumbents may nevertheless have been more likely to trust government in general and, perhaps, support international engagement. Keele 2005.

29. Lassen 2005.

30. Lohmann and O'Halloran 1994, 601.

31. Hansford and Gomez 2010.

more willing to accept the costs of trade exposure.³² This is an especially interesting possibility in a developing-world context such as Costa Rica. Here, the society is likely to be relatively scarce in human capital and skilled labor, and so the classic factor-model prediction is for those with higher skills (along with their families and neighbors) to be more protectionist.³³ But the cosmopolitanism argument suggests the opposite: educated populations—along with those who interact with the educated and are exposed to their ideas—will be more likely to embrace free trade, especially at the top end of the education spectrum. To capture these possibilities, the models below include two measures of education: the proportion of the district population with a university degree, along with the proportion of the population that is illiterate. Insofar as the Heckscher-Ohlin factoral model holds, voters in districts with university-educated populations would be expected to favor protectionist policies, while areas with more illiteracy would gain more from trade and hence favor the agreement. To the extent that the cosmopolitanism model applies, however, lower levels of illiteracy and (especially) higher levels of university education should associate with votes supporting the referendum.

Other sociological factors may also relate to acceptance of trade. Those living in the diversity of an urban environment, for example, may know more people and hence be more likely to be exposed to some whose job is at risk from foreign competition. (In addition, urban areas may provide a denser network of local job options and wider consumption options, thus changing the relative costs and benefits that imports or job displacement might have.) Thus the models control for the (natural logarithm of) population density in a district.³⁴ Acquaintance with the foreign-born may also change views on the value of international exchange. Although exposure to immigrants and their attendant job competition can under some circumstances reduce contentment with open economic policies,³⁵ it simultaneously exposes people to the benefits of international openness and to natural cheerleaders for international engagement. Living near foreigners may also affect nationalist sentiments, another frequently observed predictor of economic protectionism.³⁶ To look for these effects, the models include the proportion of each district's population that was born abroad.³⁷ Another cultural group that may have distinctive attitudes to transnational exchange is the indigenous community, whose

32. Hainmueller and Hiscox 2006.

33. About 10 percent of the Costa Rican adult population has a college education, compared with approximately 30 percent of the population of the United States, the overwhelmingly dominant economic power in CAFTA (and, as noted earlier, Costa Rica's largest trading partner even before the trade agreement).

34. Alternatively, the Costa Rican census authority classifies the proportion of district populations that live in "urban centers," "suburban areas," "rural concentrations," or "dispersed rural areas." Using this measure produces similar results.

35. Hopkins 2011.

36. See O'Rourke and Sinnott 2001; and Mayda and Rodrik 2005. Note, however, that Kaltenthaler, Gelleny, and Ceccoli 2004 find a relatively weak effect of nationalism.

37. There may also be some reverse causation, if immigrants gravitate toward communities that are relatively tolerant of international flows.

ancestors experienced the invasion of foreign cultures in past centuries. To account for this possibility, the models include an indicator of districts that, according to the electoral authority, include indigenous zones. Table 1 provides summary information about these variables, dependent and independent, for Costa Rica's administrative districts.

TABLE 1. *Administrative-district summary statistics*

<i>Variables</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Minimum</i>	<i>Maximum</i>
<i>Share of voters favoring CAFTA (%)</i>	49.1	11.8	12.1	80.4
<i>Agriculture workers (%)</i>	34.0	27.3	0.48	95.0
<i>Manufacturing workers (%)</i>	13.5	9.08	0.21	52.6
<i>Commerce workers (%)</i>	12.3	6.38	0.48	31.2
<i>Construction workers (%)</i>	5.86	3.49	0	23.3
<i>Education workers (%)</i>	4.93	3.28	0.39	34.2
<i>Unemployment rate (%)</i>	4.30	2.66	0.34	24.5
<i>Pensioners (%)</i>	3.97	2.05	0.41	17.2
<i>Dependency ratio</i>	63.6	9.91	35.4	97.4
<i>Presidential election turnout (%)</i>	65.3	7.69	39.1	88.5
<i>Acción Ciudadana (%)</i>	36.9	10.2	7.47	61.1
<i>Liberación Nacional (%)</i>	44.5	8.82	27.2	72.6
<i>Movimiento Libertario (%)</i>	7.55	3.90	0.80	27.0
<i>University educated (%)</i>	7.38	7.60	0.17	46.9
<i>Illiteracy rate (%)</i>	6.36	3.88	0.72	26.6
<i>Log population density</i>	4.35	2.12	0	9.25
<i>Born outside Costa Rica (%)</i>	6.78	6.03	0	33.9
<i>Contains indigenous zones</i>	0.05	0.21	0	1

Finally, to account for simple sectional differences in opinion, there is also a battery of cantonal fixed effects. Cantons (*cantones*) are the second-order administrative unit of Costa Rica, one level in the hierarchy above administrative districts. The eighty-one cantons generally class the districts into small regional groupings with historical and bureaucratic ties to one another and thereby account for many unobserved factors.

Results

Table 2 presents the results of the regression using the above variables with and without cantonal dummy variables. For comparison, columns (1) through (4) present regressions using only subsets of the independent variables, very loosely grouped into economic, political, and sociological theories of trade policy preference for-

mation. These groupings are certainly not definitive, as many variables here are open to multiple interpretations, but they provide an organizational structure for considering the various causal factors. Columns (5) and (6) give the full models, with column (6) including cantonal dummies.

TABLE 2. OLS models of percent of Costa Rican voters favoring free trade, by administrative district

Variables	1	2	3	4	5	6
Agriculture workers (%)	-0.286 (0.048)	-0.141 (0.053)			0.027 (0.043)	-0.083 (0.048)
Manufacturing workers (%)	0.198 (0.073)	0.195 (0.073)			0.279 (0.070)	0.202 (0.082)
Commerce workers (%)	-0.648 (0.126)	-0.501 (0.138)			0.105 (0.133)	0.071 (0.136)
Construction workers (%)	-0.404 (0.185)	-0.165 (0.179)			0.007 (0.144)	-0.156 (0.178)
Education workers (%)	-0.589 (0.240)	-0.898 (0.298)			-0.454 (0.165)	-0.706 (0.158)
Unemployment rate (%)		0.577 (0.235)			0.212 (0.204)	0.100 (0.178)
Pensioners (%)		1.27 (0.355)			0.658 (0.294)	0.622 (0.315)
Dependency ratio		-0.278 (0.095)			-0.265 (0.093)	-0.210 (0.081)
Presidential election turnout (%)			0.552 (0.077)		0.176 (0.074)	-0.000 (0.107)
Acción Ciudadana (%)			-0.336 (0.164)		-0.647 (0.129)	-0.540 (0.151)
Liberación Nacional (%)			0.236 (0.173)		0.090 (0.127)	0.041 (0.146)
Movimiento Libertario (%)			1.28 (0.242)		0.476 (0.206)	-0.012 (0.248)
University educated (%)				0.109 (0.091)	0.323 (0.117)	0.323 (0.123)
Illiteracy rate (%)				-0.314 (0.295)	-0.263 (0.262)	-0.195 (0.210)
Log population density				0.426 (0.424)	-0.374 (0.454)	-0.723 (0.565)
Born outside Costa Rica (%)				0.278 (0.105)	0.209 (0.080)	0.251 (0.086)
Contains indigenous zones				-6.57 (3.07)	-2.53 (2.10)	-2.66 (2.46)
Constant	69.6 (4.55)	73.1 (8.16)	5.19 (14.1)	46.9 (3.52)	63.1 (13.7)	
Canton fixed effects	No	No	No	No	No	Yes
N	459	454	470	458	453	453
Adjusted R ²	0.16	0.23	0.32	0.09	0.53	0.73

Note: Robust standard errors in parentheses. OLS = ordinary least squares.

Both with and without the cantonal dummies, the sectoral distribution of a district's labor force has consistent effects on the local referendum vote. The greater

the share of workers in the manufacturing sector, the more supportive a district was of the referendum. By contrast, more workers in the education sector consistently reduced the support for the referendum. The result for education may partially stem from data anomalies: one district (Mercedes, in Guácimo canton) has about 34 percent of its workforce in education (likely because of the district's proximity to EARTH University), almost twice the proportion of the next-most education-centric district. Still, dropping this observation preserves a negative relationship between districts' education workers and referendum support: the coefficient in column (5) becomes -0.47 (standard error of 0.25) and that in column (6) -0.62 (standard error of 0.23). Regardless, this does not support the standard idea that employees in nontraded sectors should tend to be most concerned with the price effects of international economic integration.³⁸ The effect of manufacturing employment may fit better with traditional models of sectoral effects on policy preferences, although Costa Rica's net imports of manufactures raise questions about whether the preferences reflect sectoral comparative advantage. Other sectors—agriculture, commerce, construction—prove not to have substantial effects one way or the other when other variables are taken into account, at least compared to the baseline represented by the sectors excluded from the model. Table 2's models suggest that each 5-percentage-point increase in the share of workers in manufacturing resulted in around a 1-point increase in the share of votes for the referendum. The estimated effect of education-sector employment was larger but more variable in size, with estimated effects ranging from somewhat under 0.5 (implying that having 2 percentage points more workers in education resulted in a percentage-point fall in the share of pro-CAFTA votes) to 0.9 (so that there was nearly a one-to-one relationship between more education workers and lower shares of voters favoring the plebiscite).

Other variables relating to real consumption also offer mixed support for traditional models of policy preferences. As would be expected from populations that tend to have a fixed income and so are price-sensitive, districts dominated by pensioners tend to have higher proportions of voters supporting CAFTA; in the fuller models of columns (5) and (6), a 1-percentage-point increase in citizens on pensions translates into an increase of just under two-thirds of a percentage point in the share of voters supporting the referendum. However, once this effect of pensioners is taken into account, higher district dependency ratios tend to associate with lower local support for free trade. This may suggest that having to provide for dependents (other than pensioned retirees) increases aversion to risk of job or income loss, which a shift in trade rules could change in unforeseeable ways. This is especially plausible given the link between protectionist sentiment and risk aversion.³⁹

Several of the political variables have significant effects. Support for the PAC, the only major party to actively campaign against the referendum, has a strong

38. For example, Broz, Frieden, and Weymouth 2008.

39. Ehrlich and Maestas 2010.

correlation with protectionist voting on the CAFTA referendum, with a 3-point increase in PAC support associating with a 1- to 2-point decline in CAFTA support. The other political variables show somewhat less consistent results. Higher levels of general political engagement, as proxied by presidential election turnout rates, associate with greater district-level support for the free trade agreement—but this effect vanishes when the cantonal indicator variables are included. A similar pattern occurs with the vote for the libertarian ML party: ML-supporting districts also tend to be pro-CAFTA in their votes until the canton effects enter the model.⁴⁰ Support for the PLN, the largest party of all, has much weaker association with the referendum results, although it consistently takes a positive coefficient in line with the party's supportive stance on CAFTA. The weakness of this association may stem from the big-tent nature of the party, or from the ideological tension between the party's general left-wing beliefs and its embrace of international markets in this instance (although leftists who rejected CAFTA could have shifted their support to the PAC).

In line with past results linking education to support for trade, prevalence of university education in a district associates with greater referendum support,⁴¹ while illiteracy, though associated with reduced support for market openness, has a substantively smaller, statistically insignificant effect. Other cultural factors also appear to matter for district votes just as past, survey-based results have suggested they matter for individuals. Areas with higher levels of immigration, which may suggest a more cosmopolitan local culture, tend to see greater support for the free trade area: a 10-percentage-point increase in the share of residents that are foreign born associates with a 2- to 3-percentage-point increase in referendum support. Conversely, districts containing indigenous zones see rates of support for the referendum a few percentage points below those of districts without indigenous zones, albeit at substandard levels of statistical significance.

The independent variables measuring urbanness and—except in column (2)—unemployment do not show statistically significant effects at standard levels. This is perhaps most interesting in the case of unemployment, given the traditional association between periods of unemployment and increased protectionism. Of course, the dynamics of effects across time such as those seen comparing recessions and booms need not carry over to cross-jurisdiction or cross-individual comparisons. It is nonetheless noteworthy that Costa Rican districts with higher unemployment rates show greater levels of support for the free trade area in every regression. While statistically insignificant effects are indicative at best, a positive point estimate certainly does not match prior findings that the unemployed are significantly

40. Geographical context variables' atheoretical nature renders the precise interpretation of their effect on other coefficients debatable. King 1996.

41. This result depends on the set of sectoral variables included in the model. A full battery of industry-of-employment variables reduces the predicted effect of district education by about one third while increasing the standard error, causing the prediction to fall well below traditional thresholds of statistical significance.

more protectionist.⁴² The finding could be a function of ecological inference, or it may result from Costa Rica being a relatively labor-rich, capital-poor society, where international flows are likely to benefit laborers.

Electoral District Results

As noted, the privacy of the ballot box typically forces the use of aggregate levels of analysis when considering referendum results, with the risks of ecological inference that poses. Aggregated results also pose another trade-off, in that larger geographic areas tend to have a broader range of available statistics but smaller geographic areas produce finer-grained results and a larger sample size. Considering results at smaller areas allows for a check of the robustness of the results in a context closer to the theoretically optimal level of individual response.

Along these lines, for some variables—including the essential dependent variable of share voting in favor of the free trade area in the plebiscite—information is available at the level of the electoral district (*distrito electoral*). These units are subdivisions of the (administrative) districts used in Table 2, and accordingly allow for observations of patterns within somewhat smaller populations. Whereas the average administrative district had about 5,600 eligible voters at the time of the plebiscite, the average electoral district had slightly fewer than 1,400. While this still does not allow for individual-level inference, it focuses on communities closer to the size of typical social networks (if further from the breadth of local economic interactions).⁴³

As the name “electoral districts” suggests, these units’ primary purpose relates to tabulation of votes, and most available data for these districts relates to politics and elections. In particular, figures are available for vote shares for each of the political parties in the 2010 presidential elections, as well as the presence or absence of indigenous zones. Direct controls are not obtainable for the other measures used in Table 2. However, it is possible to control for the administrative district and thereby take into account all of the previously controlled-for factors at this higher level of aggregation, observing the effect of the political and indigenoussness variables within those districts. Table 3 presents regression results both with and without these controls for administrative district.

The electoral-district models generally parallel those of the administrative-district models of Table 2. The only party whose support correlates in a statistically significant way with plebiscite votes is that of the anti-CAFTA PAC; greater support for that party consistently associates with lower CAFTA support. Even when taking administrative-district level fixed effects into account, each percentage-point increase in support for the PAC predicts slightly more than a one-half

42. For example, Ehrlich and Maestas 2010.

43. McCarty et al. 2001.

percentage-point fall in the proportion of voters supporting the referendum. The association with district vote shares for other parties is smaller, though it is notable that votes for the pro-CAFTA ML may associate with slightly lower support for the referendum.

TABLE 3. *OLS models of percent of Costa Rican voters favoring free trade, by electoral district*

Variables	1	2
<i>Presidential election turnout percent</i>	0.117 (0.041)	-0.002 (0.059)
<i>Percent supporting Acción Ciudadana</i>	-0.806 (0.079)	-0.559 (0.112)
<i>Percent supporting Liberación Nacional</i>	-0.049 (0.082)	0.141 (0.108)
<i>Percent supporting Movimiento Libertario</i>	-0.144 (0.088)	-0.108 (0.120)
<i>Indigenous zones</i>	-17.2 (2.11)	-14.2 (3.40)
<i>Constant</i>	62.7 (7.69)	55.2 (10.3)
<i>Administrative district fixed effects</i>	No	Yes
<i>Adjusted R²</i>	0.31	0.56

Note: Robust standard errors in parentheses. N = 1944. OLS = ordinary least squares.

The indigenous zones produce even more striking results. Areas associated with native populations tend to see support for joining the free trade area more than 10 percentage points lower than do otherwise equivalent nonindigenous areas, even when controlling for the electoral district population. This effect is highly statistically significant, and indeed far larger (14 to 18 percentage points rather than 2 to 7) and more precisely estimated than are the corresponding figures in Table 2.⁴⁴ This enhanced precision and larger effect could stem from the electoral districts' actually aligning perfectly with the definition of indigenous zones used.

Conclusion

Survey-based studies have done an excellent job establishing patterns of trade policy preferences. Less obtrusive measures, even at aggregated levels, can however

44. This may partly reflect differences in turnout: indigenous-zone electoral districts had lower turnout rates than did other electoral districts. Even if every citizen in such zones who was dissuaded from voting by indigenous-zone specific cultural or economic factors would have voted "yes" on the plebiscite, though, the indigenous zones would still have exhibited unusually low rates of support for CAFTA.

usefully complement surveys by providing a more direct picture of actual political behavior. The 2007 Costa Rica referendum offers one source with which to compare survey results. These referendum-based data have weaknesses of their own—they typically rule out the causal claims of experimental designs, or even the individual-level correlations of survey studies—but they do provide a sense of how people react to questions of trade when they have given the matter some thought, as befits the higher stakes of a binding policy vote.⁴⁵

The plebiscite results are consistent with several of the major theories of attitudes toward the international economy. As predicted by consumption-based models, communities with more pensioners (who are likely to have a fixed income and so be sensitive to trade's price effects) have higher rates of voting in favor of the free trade agreement, while higher dependency ratios have a negative association with support for CAFTA. Socialization- and culture-based arguments also fit easily with the results here: more highly educated communities tend to show more support for trade liberalization in most models, while districts with fewer immigrants or more associations with indigenous groups tend to be less receptive to trade. (Education, of course, can also affect real returns to trade, though a factor-based view of education might not predict reduced protectionism among the educated in a developing country.) All these results accord with prior findings.

Also interesting are cases where the Costa Rican vote does not wholly confirm prior results. The results for partisanship, for example, belie simple left-right dynamics, hinting at a rich relationship between party and protectionism. Only one party's support showed a consistent connection to the plebiscite results, and, perhaps significantly, that was the PAC, the only major party that opposed the referendum. Other parties' votes had relatively weak relationships with votes on the free trade area, even though the 2006 presidential election used as a baseline measure of partisan support is generally framed as CAFTA-focused. While differences in national institutions and partisan structures make it hard to directly generalize this finding cross-nationally, it does suggest that careful consideration of those structures and institutions may yield insights about trade-policy preferences. The weak relationship with most parties' support further raises the possibility that the occasional attempts to interpret other general elections⁴⁶ as being essentially about trade or international economic policies may rest on shaky premises.

Another suggestive finding is the generally poor showing of traditional economic theories of protectionism. While sectors of employment still very much correlate with vote choices—districts with more manufacturing tended to be more support-

45. If voting is purely instrumental, a referendum may also be a low-stakes situation, since the chance that any individual's vote is pivotal is vanishingly small. However, there is little evidence that that sort of calculus of voting actually describes the bulk of voting behavior; people are, for example, often willing to vote in referendums where they fully expect to be in the minority. See Bendor, Diermeier, and Ting 2003; and Aguiar-Conraria and Magalhães 2010.

46. Most commonly, the 1988 Canadian general election (see, for example, Carty and Eagles 1999; and Dobrzynska and Blais 2008), but others as well (Irwin 1994).

ive of the free trade area, districts with larger proportions of the workforce in education and (usually) agriculture were less supportive—these alignments do not correspond neatly to the predictions of standard sectoral theories such as the Ricardo-Viner model. This is especially true of the connection between education-sector workers and protectionist sentiment, even if education is becoming more tradable. Nor do economically depressed circumstances, as measured here, appear to decrease willingness to open to the world economy, as often argued: the vote share in favor of CAFTA in districts with higher unemployment rates was either indistinguishable from or (in less complete models) higher than the vote share in districts with lower unemployment. Naturally, these findings do not rule out any effect of real returns or economic climate on attitudes toward trade, just as the lack of statistical significance does not conclusively indicate the absence of a relevant causal effect. Yet the indifferent influence of sectoral and unemployment variables⁴⁷ observed here, using a novel methodology not based on surveys, matches a growing body of literature. Although some studies have found that those in more comparatively disadvantaged sectors are more likely to be protectionist,⁴⁸ many others have not.⁴⁹

Dependent on the Costa Rican context as all these results are, they open up another window on mass political attitudes—and, with turnout, behaviors—concerning international economic policy. The plebiscite provides further evidence in line with recent alternatives to the atomistic, materialistic traditional models of political economy. Subsequent analyses of this vote could more deeply explore how the various observable factors interact in their effects on trade preferences. More generally, further theoretical development may focus more on influences other than the direct sources of real income, which appear in this data set to be important in determining community attitudes toward trade. Furthermore, because attitudes toward other economic flows generally seem to have the same precursors as those concerning trade,⁵⁰ these ideas, and a referendum-based approach to studying public opinion, may extend to other issue areas throughout political economy.

References

- Aguiar-Conraria, Luís, and Pedro C. Magalhães. 2010. Referendum Design, Quorum Rules and Turnout. *Public Choice* 144 (1):63–81.
- Baccini, Leonardo, and Andreas Dür. 2011. The New Regionalism and Policy Interdependence. *British Journal of Political Science* 42 (1):57–79.
- Baker, Andy. 2005. Who Wants to Globalize? Consumer Tastes and Labor Markets in a Theory of Trade Policy Beliefs. *American Journal of Political Science* 49 (4):924–38.

47. Education, as noted above, also traditionally proxies for skilled labor; its significant coefficients could have an economic, return-based interpretation.

48. See Baker 2005; Magee, Davidson, and Matusz 2005; and Mayda and Rodrik 2005.

49. See Mansfield and Mutz 2009; Milner and Tingley 2011, 46; and Blonigen 2011. Scheve and Slaughter 2001 also fail to find a significant effect of sectoral trade position, though they nonetheless find an effect based on neighbors' sectors of employment.

50. See Mayda 2008; and Crisp et al. 2010.

- Baker, Andy, and Kenneth F. Greene. 2011. The Latin American Left's Mandate: Free-Market Policies and Issue Voting in New Democracies. *World Politics* 63 (1):43–77.
- Barabas, Jason, and Jennifer Jerit. 2010. Are Survey Experiments Externally Valid? *American Political Science Review* 104 (2):226–42.
- Beaulieu, Eugene, Ravindra A. Yatawara, and Wei Guo Wang. 2005. Who Supports Free Trade in Latin America? *World Economy* 28 (7):941–58.
- Bendor, Jonathan, Daniel Diermeier, and Michael Ting. 2003. A Behavioral Model of Turnout. *American Political Science Review* 97 (2):261–80.
- Blonigen, Bruce A. 2011. Revisiting the Evidence on Trade Policy Preferences. *Journal of International Economics* 85 (1):129–35.
- Bochsler, Daniel. 2010. The Marquis de Condorcet Goes to Bern. *Public Choice* 144 (1):119–31.
- Broz, J. Lawrence, Jeffry Frieden, and Stephen Weymouth. 2008. Exchange Rate Policy Attitudes: Direct Evidence from Survey Data. *IMF Economic Review* 55 (3):417–44.
- Carty, R. Kenneth, and Munroe Eagles. 1999. Do Local Campaigns Matter? Campaign Spending, the Local Canvass and Party Support in Canada. *Electoral Studies* 18 (1):69–87.
- Crisp, Brian F., Nathan M. Jensen, Guillermo Rosas, and Thomas Zeitzoff. 2010. Vote-Seeking Incentives and Investment Environments: The Need for Credit Claiming and the Provision of Protectionism. *Electoral Studies* 29 (2):221–26.
- Cupples, Julie, and Irving Larios. 2010. A Functional Anarchy: Love, Patriotism, and Resistance to Free Trade in Costa Rica. *Latin American Perspectives* 37 (6):93–108.
- Cutler, Fred. 2007. Context and Attitude Formation: Social Interaction, Default Information, or Local Interests? *Political Geography* 26 (5):575–600.
- Dobrzynska, Agnieszka, and André Blais. 2008. Testing Zaller's Reception and Acceptance Model in an Intense Election Campaign. *Political Behavior* 30 (2):259–76.
- Ehrlich, Sean, and Cherie Maestas. 2010. Risk Orientation, Risk Exposure, and Policy Opinions: The Case of Free Trade. *Political Psychology* 31 (5):657–84.
- Gilbert, John, and Reza Oladi. 2012. Net Campaign Contributions, Agricultural Interests, and Votes on Liberalizing Trade with China. *Public Choice* 150 (3):745–69.
- Groves, Robert M., Stanley Presser, and Sarah Dipko. 2004. The Role of Topic Interest in Survey Participation Decisions. *Public Opinion Quarterly* 68 (1):2–31.
- Guisinger, Alexandra. 2009. Determining Trade Policy: Do Voters Hold Politicians Accountable? *International Organization* 63 (3):533–57.
- Hainmueller, Jens, and Michael J. Hiscox. 2006. Learning to Love Globalization: Education and Individual Attitudes Toward International Trade. *International Organization* 60 (2):469–98.
- Hansford, Thomas G., and Brad T. Gomez. 2010. Estimating the Electoral Effects of Voter Turnout. *American Political Science Review* 104 (2):268–88.
- Hiscox, Michael J. 1999. The Magic Bullet? The RTAA, Institutional Reform, and Trade Liberalization. *International Organization* 53 (4):669–98.
- . 2006. Through a Glass and Darkly: Attitudes Toward International Trade and the Curious Effects of Issue Framing. *International Organization* 60 (3):755–80.
- Hobolt, Sara B., Jae-Jae Spoon, and James Tilley. 2009. A Vote Against Europe? Explaining Defection at the 1999 and 2004 European Parliament Elections. *British Journal of Political Science* 39 (1):93–115.
- Hoffman, Michael E.S. 2009. What Explains Attitudes Across U.S. Trade Policies? *Public Choice* 138 (3):447–60.
- Hopkins, Daniel J. 2011. National Debates, Local Responses: The Origins of Local Concern About Immigration in Britain and the United States. *British Journal of Political Science* 41 (3):499–524.
- Irwin, Douglas A. 1994. The Political Economy of Free Trade: Voting in the British General Election of 1906. *Journal of Law and Economics* 37 (1):75–108.
- Janus, Alexander L. 2010. The Influence of Social Desirability Pressures on Expressed Immigration Attitudes. *Social Science Quarterly* 91 (4):928–46.
- Jupille, Joseph, and David Leblang. 2007. Voting for Change: Calculation, Community, and Euro Referendums. *International Organization* 61 (4):763–82.

- Kahler, Miles. 1985. European Protectionism in Theory and Practice. *World Politics* 37 (4):475–502.
- Kaltenthaler, Karl C., Ronald D. Gellensy, and Stephen J. Ceccoli. 2004. Explaining Citizen Support for Trade Liberalization. *International Studies Quarterly* 48 (4):829–52.
- Keele, Luke. 2005. The Authorities Really Do Matter: Party Control and Trust in Government. *Journal of Politics* 67 (3):873–86.
- King, Gary. 1996. Why Context Should Not Count. *Political Geography* 15 (2):159–64.
- Kingstone, Peter, and Joseph Young. 2009. Partisanship and Policy Choice: What's Left for the Left in Latin America? *Political Research Quarterly* 62 (1):29–41.
- Lassen, David Dreyer. 2005. The Effect of Information on Voter Turnout: Evidence from a Natural Experiment. *American Journal of Political Science* 49 (1):103–18.
- Lavine, Howard, Eugene Borgida, John L. Sullivan, and Cynthia J. Thomsen. 1996. The Relationship of National and Personal Issue Salience to Attitude Accessibility on Foreign and Domestic Policy Issues. *Political Psychology* 17 (2):293–316.
- Leduc, Lawrence. 2002. Opinion Change and Voting Behaviour in Referendums. *European Journal of Political Research* 41 (6):711–32.
- Lohmann, Susanne, and Sharyn O'Halloran. 1994. Divided Government and U.S. Trade Policy: Theory and Evidence. *International Organization* 48 (4):595–632.
- Magee, Christopher S.P., Carl Davidson, and Steven J. Matusz. 2005. Trade, Turnover, and Tithing. *Journal of International Economics* 66 (1):157–76.
- Mansfield, Edward D., and Diana C. Mutz. 2009. Support for Free Trade: Self-Interest, Sociotropic Politics, and Out-Group Anxiety. *International Organization* 63 (3):425–57.
- Mayda, Anna Maria. 2008. Why Are People More Pro-Trade Than Pro-Migration? *Economics Letters* 101 (3):160–63.
- Mayda, Anna Maria, and Dani Rodrik. 2005. Why Are Some People (and Countries) More Protectionist Than Others? *European Economic Review* 49 (6):1393–430.
- McCarty, Christopher, Peter D. Killworth, H. Russell Bernard, Eugene C. Johnsen, and Gene A. Shelly. 2001. Comparing Two Methods for Estimating Network Size. *Human Organization* 60 (1):28–39.
- Milner, Helen V., and Dustin H. Tingley. 2011. Who Supports Global Economic Engagement? The Sources of Preferences in American Foreign Economic Policy. *International Organization* 65 (1):37–68.
- Naoi, Megumi, and Ikuo Kume. 2011. Explaining Mass Support for Agricultural Protectionism: Evidence from a Survey Experiment During the Global Recession. *International Organization* 65 (4):771–95.
- O'Rourke, Kevin H., and Richard Sinnott. 2001. The Determinants of Individual Trade Policy Preferences: International Survey Evidence. In *Brookings Trade Forum: 2001*, edited by Susan M. Collins and Dani Rodrik, 157–206. Washington, D.C.: Brookings Institution.
- Pandya, Sonal S. 2010. Labor Markets and the Demand for Foreign Direct Investment. *International Organization* 64 (3):389–409.
- Scheve, Kenneth F., and Matthew J. Slaughter. 2001. What Determines Individual Trade-Policy Preferences? *Journal of International Economics* 54 (2):267–92.
- Seligson, Mitchell A. 2002. The Renaissance of Political Culture or the Renaissance of the Ecological Fallacy? *Comparative Politics* 34 (3):273–92.
- Stratmann, Thomas. 2006. Is Spending More Potent For or Against a Proposition? Evidence from Ballot Measures. *American Journal of Political Science* 50 (3):788–801.
- Takacs, Wendy E. 1981. Pressures for Protectionism: An Empirical Analysis. *Economic Inquiry* 19 (4):687–93.
- Walter, Stefanie. 2010. Globalization and the Welfare State: Testing the Microfoundations of the Compensation Hypothesis. *International Studies Quarterly* 54 (2):403–26.
- Webb, Eugene J., Donald T. Campbell, Richard D. Schwartz, and Lee Sechrest. 2000. *Unobtrusive Measures*. Rev. ed. Thousand Oaks, Calif.: Sage.
- Weller, Nicholas. 2009. Trading Policy: Constituents and Party in U.S. Trade Policy. *Public Choice* 141 (1):87–101.