

TRADE ATTITUDES IN THE WILD

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ABSTRACT: One of the central models in the study of international political economy holds that actors' preferences about economic issues like trade are a function of their economic interests as represented by their position in the global economy. Recent empirical work investigating the relationship between economic interests and trade attitudes, however, has found mixed results, leading to a new wave of experimental studies that point to the role of information in explaining why economic interests fail to predict economic preferences. But what kinds of information about trade are citizens exposed to in the real world, and what effect does it have on how they think about trade? This study combines survey data from an original 13 month national panel survey in the United States with individual-level behavioral measures of media consumption derived from web tracking data, to explore what news about trade Americans are exposed to in a naturalistic setting, and how it shapes their trade preferences. We find that most Americans are exposed to relatively little news about trade, but that the kind of trade news Americans are exposed to in the real world does not magnify the effects of economic interests; instead, we find some evidence that trade news affects trade preferences through sociotropic rather than pocketbook pathways, as Americans become more supportive of trade the more positive stories about trade they see.

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1 Introduction

One of the central principles in political economy is that actors' policy preferences are driven by their economic interests (Rogowski, 1987; Frieden, 1991; Hall, 1997; Lake, 2009). Policies will be supported by those who stand to gain from them, and opposed by those who stand to lose. One of the central puzzles in contemporary political science, then, is why these theories of economic interests seem to perform poorly at the individual-level, especially when it comes to preferences about trade (Herrmann, Tetlock and Diascro, 2001; Wolfe and Mendelsohn, 2005; Mansfield and Mutz, 2009; Naoi and Kume, 2011; Rathbun, 2016; Guisinger, 2017).

These lively debates about the limits of self-interest have led to a new wave of scholarship that seeks to explain *why* economic interests fail to predict economic preferences, frequently pointing to the role of information (Guisinger, 2017; Rho and Tomz, 2017; Schaffer and Spilker, 2019; Jamal and Milner, 2019). According to one strand of arguments, economic interests fail to predict support for trade because ordinary citizens simply don't know any better. Unburdened by information about trade's costs and benefits, and unacquainted with the teachings of Heckscher-Ohlin or the revelations of Ricardo-Viner, ordinary citizens end up structuring their trade preferences through a range of other factors, from demographic characteristics like race and gender (Guisinger, 2017) to psychological dispositions like ethnocentrism or isolationism (Mansfield and Mutz, 2009). Using carefully controlled experiments, political scientists have found that economic models of self-interest perform better when individuals are taught the precepts of economic theory (Rho and Tomz, 2017; Bearce and Moya, 2020).

In directing us to the role of information, these experiments perform an invaluable service. Yet they leave unexamined an important question: what kinds of information about trade are citizens exposed to in the real world? And, what effect does this information have on how individuals think about trade? In this study, we revisit the relationship between economic interests, psychological dispositions, trade preferences, and individuals' information environments, fielding a seven-wave panel survey on a national sample of Americans over a 13 month period. Rather than experimentally inject our respondents with information to see what effect it has on their trade preferences, our interest is in studying Americans' information environment about trade in the wild. To that end, each of the respondents in our nationally representative sample consented to installing software on their computers, phones and/or tablets that passively tracked their online activity in real-time during

the fielding of our study. In this manner, we are able to reconstruct each respondent's information environment at the individual-level, URL by URL, letting us determine both how much, and what kinds, of news about trade individuals are exposed to in their daily lives over a several month period, and enabling us to test what effect this more naturalistic form of information has on their trade preferences.

The discussion below has three parts. We begin by briefly reviewing debates about the limits of material interests in predicting trade attitudes, and show how some scholars have sought to rescue these models by pointing to the crucial role of information, while leaving unanswered questions about how to best study information in a naturalistic setting, and how the type of information subjects are often presented with in IPE experiments relates to the types of information about trade Americans receive in the wild. We then discuss the methods of our study, designed to overcome some of the obstacles that hinder the study of media effects and information exposure more generally, before presenting our results. We show just how far removed most Americans are from information about trade: even though our study was fielded during a period in 2018-19 when trade was all over the news, nearly 60% of our respondents never once accessed a news article mentioning trade. Yet we also show that the kind of information about trade the public is likely to receive in a naturalistic setting does not necessarily magnify the effects of economic interests. Instead, we find evidence that news about trade in the media affects trade preferences through sociotropic rather than pocketbook pathways: the more positive stories about trade in general that respondents encounter, the more supportive of trade they become.

2 Material interests and their discontents

The central organizing framework in the study of International Political Economy (IPE) in the United States is the Open Economy Politics (OEP) framework, which holds that where you stand on economic issues depends on where you sit in the global economy (Lake, 2009; Cohen, 2007). Actors have preferences over outcomes, based on their economic interests; these interests are then aggregated through domestic institutions to form national policy, and shape outcomes on the international stage through interactions (Milner, 1997; Lake, 2009). This framework has many virtues, but two are especially notable. First is its generalizability: it applies as much to individuals as to firms or sectors, as much to the movement of goods (Davis, 2003; Milner and Kubota, 2005) or money (Frieden, 1991;

Pandya, 2010) as to the movement of people (Peters, 2017; Bearce and Hart, 2017). Second is its specificity: because actors' interests can be derived from the predictions of economic theory, political scientists can motivate their models using theoretical frameworks like Stolper-Samuelson, Ricardo-Viner, or Heckscher-Ohlin, which make determinate predictions about actors' preferences (Rogowski, 1987; Hiscox, 2001). It thereby facilitates the linkage between economics and politics: the former explains what actors want, the latter what they get.

However, the track record of economic interests in predicting what individuals want, especially with regard to trade, is mixed (Kuo and Naoi, 2015). An earlier wave of work, often using education as a proxy for respondents' skill level, found a correlation between economic interests and trade attitudes, showing that the individuals who were the most supportive of free trade tended to be the ones who had the most to gain from it (Scheve and Slaughter, 2001; O'Rourke et al., 2001; Mayda and Rodrik, 2005). Yet as Hainmueller and Hiscox (2006) note, education is a somewhat blunt measure of economic interests, capturing a variety of other mechanisms, ranging from knowledge, to psychological traits, to cultural values (Delli Carpini and Keeter, 1996; Coenders and Scheepers, 2003; Cavaille and Marshall, Forthcoming). And, a subsequent wave of work has generally been much more pessimistic. Mansfield and Mutz (2009) find that trade attitudes are sociotropic rather than egocentric; Herrmann, Tetlock and Diascro (2001), Wolfe and Mendelsohn (2005) and Rathbun (2016) show that support for free trade has ideological roots rather than traditional economic ones; other scholars similarly point to the important role of social trust (Kaltenthaler and Miller, 2013), beliefs about the government's role in the economy (Wu, 2019), cognitive style and psychological needs (Johnston, 2013), prejudice and cultural factors (Margalit, 2012; Sabet, 2014), and so on. As Hafner-Burton et al. (2017, S2) note, "after more than a decade of careful empirical research, there is little evidence that voters actually define their interests in these rational, materialist ways."

The weakness of economic interests in predicting trade attitudes is consistent with the political behavior literature more broadly, which apart from a few notable examples (such as smokers opposing smoking bans) has traditionally found little evidence in favor of personal pocketbook-based explanations of political attitudes (Sears et al., 1980; Feldman, 1982; Kinder, Adams and Gronke, 1989; Mansbridge, 1990, though see Citrin et al., 1997; De Benedictis-Kessner and Hankinson, 2019). And, these questions have also taken on additional resonance given recent debates about whether to attribute the rise of populism and backlash against globalization to economic interests or cultural variables (Frieden, 2018; Mutz, 2018; Norris and Inglehart, 2019).

Defenders of OEP have responded to these critiques in at least three different ways. The first is methodological: if studies employ high-quality and extensive measures of psychological traits, but relatively low-quality and limited measures of economic interests, it perhaps should not be surprising that the former will outperform the latter (Fordham and Kleinberg, 2012; Kuo and Naoi, 2015; Owen and Walter, 2017). The second involves showing that cultural and psychological variables can have economic causes, echoing earlier Marxist arguments about the relationship between material base and ideational superstructure. Thus, for example, a series of articles have attributed the rise of economic nationalism, authoritarianism, and support for economic disintegration to import competition from China (Autor, Dorn and Hanson, 2013; Ballard-Rosa et al., 2017; Colantone and Stanig, 2018*b,a*). Rather than viewing economic and cultural variables as theoretical rivals, then, this literature encourages us to think of them as complements in a broader theoretical chain.

The third, and of particular importance here, points to the role of information. While foreign policy issues in general are typically understood to be further removed from most citizens' daily lives (Rosenau, 1965), this is especially true for foreign economic policy. Trade is a "hard" rather than an "easy" issue (Carmines and Stimson, 1980), a subject about which, at least a decade ago, few voters thought about (Guisinger, 2009), and even fewer understood (Hiscox, 2006, 758), as the public consistently displays high levels of "economic ignorance" (Caplan, 2011). A string of surveys in the mid-to-late twentieth century found that only 18% of Americans could define monetary policy, 39% could define free trade, and 51% could describe the effects of tariffs (Delli Carpini and Keeter, 1996, 70-71). As Guisinger (2017, 76) notes, "information is the foundation of policy preferences." If the public isn't necessarily aware of what free trade is, they presumably are hazy on the finer points of "new new" trade theory as well, and may be less equipped to connect their personal economic interests with complex economic policies.

As a result, a wave of important studies has appeared in the past several years seeking to examine what "fully informed" (Althaus, 1998) preferences about foreign economic policy might look like, frequently using experimental methods. Guisinger (2017) finds that support for trade increases once you correct misperceptions about who America's most important trade partner is, Bearce and Tuxhorn (2017) find that monetary policy preferences become more aligned with respondents' material interests when respondents are given more contextual information explaining how monetary policy works, Rho and Tomz (2017) find that respondents' trade preferences tend to align with Stolper-Samuelson when they are taught its precepts, and Jamal and Milner (2019) find similar effects with

Ricardo-Viner in Tunisia. [Herrmann, Tetlock and Diascro \(2001\)](#); [Hiscox \(2006\)](#); [Ardanaz, Murillo and Pinto \(2013\)](#) and [Guisinger \(2017\)](#) also experimentally manipulate respondents' information environments in different ways, finding that respondents presented with positive frames about trade typically espouse more pro-trade preferences than those presented with negative frames, although there is also important individual-level heterogeneity, including along race and gender.

In providing causal evidence that respondents' information environments shape their economic preferences, this wave of scholarship makes a crucially important contribution. It also highlights a crucial limitation of OEP frameworks that assume individuals think like complicated economic theoretical frameworks they may never have been directly exposed to; indeed, if respondents in the control conditions in these experiments were already familiar with Stolper-Samuelson or Ricardo-Viner, presumably these studies' treatments would be introducing no new information and should have little impact. Yet these studies also raise a broader question. These experiments tell us how respondents would respond to treatments *if* they were to receive them ([Barabas and Jerit, 2010](#)). In the real world, however, voters are rarely given crash courses in economic theory (though see [Hicks, Milner and Tingley, 2014](#)); elites may strategically employ frames, but in a naturalistic information environment these frames often cancel one another out ([Druckman, 2004](#)). If it is true that, as [Mansfield and Mutz \(2009, 453\)](#) argue, "a better understanding of trade preferences among the mass public requires that we account for the broader information environment", it is valuable for us to determine what respondents' information environments look like in a more naturalistic setting. What information about trade are ordinary citizens exposed to in the real world?

3 Information exposure in the wild

Political scientists interested in studying information exposure typically have three approaches to choose from. First, we can use group membership as a proxy for information exposure. In a clever series of studies, [Ahlquist, Clayton and Levi \(2014\)](#) and [Kim and Margalit \(2017\)](#) show the important role of labor unions in shaping their members' attitudes towards free trade, such that as union leaders changed positions on trade, union members did too. Second, we can study the supply side of the information environment, usually through painstaking content analyses of news coverage ([Hayes and Guardino, 2011](#); [Baum and Potter, 2015](#); [Krebs, 2015](#); [Guisinger, 2017](#)), which tell us both what stories the media covers, and what frames the media uses in its coverage. Third, we can study

the demand side of the information environment, either studying respondents' media consumption directly using self-report items, or employing related variables like education or political interest (Zaller, 1992; Gadarian, 2010; Berinsky, 2009)

Yet there are a number of challenges here. On the supply side, the challenge is one of “assumed transmission” (Althaus et al., 2011): media coverage is necessary, but not sufficient, to assume that citizens are “receiving the treatment” (Newman et al., 2015), especially if many individuals pay relatively little attention to foreign policy issues. And, because of the amount of time involved in coding media coverage, many supply-side analyses understandably typically focus on a small number of prominent outlets (e.g. Krebs, 2015), as in front page stories of the *New York Times*, or transcripts of nightly national newscasts on the “big three” networks. In an era in which nightly newscasts are seeing declining viewership rates and Americans are increasingly getting their news online through social media, we may wish to cast a wider net (Boukes, Forthcoming).

On the demand side, the challenge is that media consumption is extraordinarily difficult to measure. Just as participants in nutrition studies tend to overreport how many vegetables they eat, survey respondents in political science tend to significantly overreport how much news they consume. Prior (2009), for example, shows that whereas Nielsen data suggest between 30-35 million people watched the nightly news on an average weekday in the year 2000, ANES self-report data from that year would suggest that 85-110 million people watched a night. It is perhaps for these reasons that observational studies traditionally found minimal evidence of media effects, a finding that Bartels (1993, 267) colorfully characterized as “one of the most notable embarrassments of modern social science.”

In this study, we take a different approach, fielding a panel survey on a nationally representative sample of Americans, and integrating it with web tracking data that gives us behaviorally validated individual-level measures of their online media consumption, thereby avoiding the challenges both of assumed transmission and self-report biases.⁷ The closest existing work to ours is Pelc (2013), who uses monthly state-level Google search data as a behavioral measure of information-seeking to test theoretical assumptions in IPE; we obtain a similarly behavioral measure of information consumption to address questions in IPE, but at the individual-level, and in real-time. Our interests here are twofold: how much news about trade are ordinary citizens exposed to? And, how does it shape their trade preferences?

⁷See Appendix §1.1 for a discussion of YouGov's sampling and weighting procedure.

3.1 Information exposure and trade preferences

Most contemporary models of the effects of information exposure on citizens' policy preferences are based on some version of the expectancy value model of political attitudes (Ajzen and Fishbein, 1980), which represent attitudes towards a given policy as a weighted sum of evaluative beliefs $\sum(v_i \times w_i)$, where v_i represents the value the citizen assigns the policy on a given dimension (i), and w_i represents the weight the citizen places on it. Thus, persuasion involves changing what people think by providing information that alters evaluative belief v_i , whereas framing or priming involve changing w_i , how much they emphasize their existing beliefs about that particular dimension relative to others in their overall evaluation of the policy (Iyengar and Kinder, 1987; Nelson, Clawson and Oxley, 1997; Chong and Druckman, 2007). Even without invoking expectancy value models, all information experiments in IPE implicitly target one of these two variables, either seeking to change respondents' evaluative beliefs about a given policy issue (e.g. Rho and Tomz, 2017; Jamal and Milner, 2019), or to recalibrate how much respondents weight one consideration over others (e.g. Hiscox, 2006; Guisinger, 2017).⁸

In the context of preferences towards economic issues like trade, there are two ideal typical dimensions through which information can affect trade preferences, which following the economic voting literature (Kinder and Kiewiet, 1981; Feldman, 1982; Lewis-Beck, 1990), we refer to as *pocketbook* and *sociotropic* considerations, respectively.⁹ According to theories of economic attitudes that emphasize pocketbook considerations, individuals can be aware of their personal economic circumstances, but still be unable to attribute them to national-level economic policies (Gomez and Wilson, 2006); as Guisinger (2017, 38) shows, most Americans indicate that trade either has no effect on their own employment, or admit that they don't know what trade's personal effects are. Providing information about the distributional consequences of trade can therefore help people better connect their personal economic interests to their trade preferences, and thus change their evaluation of trade's pocketbook effects. This is one of the logics of trade preferences explored in Rho and Tomz (2017), who find that experimentally presenting respondents with information about trade's winners and losers enables respondents to express trade preferences more in line with Stolper-Samuelson,

⁸Of course, as Leeper and Slothuus (2015) note, it is often difficult to distinguish between framing and information provision in practice, such that in IPE, Naoi and Kume (2011) presents the two as interchangeable. Indeed, most framing experiments in IPE provide respondents with information (e.g. Herrmann, Tetlock and Diascro, 2001; Hiscox, 2006; Jensen and Shin, 2014; Guisinger, 2017; Chilton, Milner and Tingley, 2018).

⁹As we discuss below, scholars sometimes also examine community-level economic interests (e.g. Guisinger 2017; Autor et al. Forthcoming), which we discuss and investigate empirically in Appendix §2.2.

or [Jamal and Milner \(2019\)](#) and [Schaffer and Spilker \(2019\)](#), who find the same with regard to Ricardo-Viner. [Bearce and Hart \(2017\)](#) obtain a similar finding in regards to monetary policy: voters are more likely to express egocentric policy preferences when they are presented with contextual information helping them link macroeconomic policies to their personal circumstances.

The second dimension focuses not on the effects of trade on individuals' own economic circumstances, but rather, whether trade simply has positive effects in the aggregate, thereby benefiting the country as a whole. Economists often argue that the popularity of protectionism in the United States and other western democracies is due to voters' ignorance ([Caplan, 2011](#)), a claim echoed by political scientists as well (e.g. [Althaus, 1998](#)). [Hainmueller and Hiscox \(2006, 472\)](#) argue that college-educated individuals are more supportive of free trade not because of their economic interests, but because they "are likely to be far more informed than others about the aggregate efficiency gains associated with expanded trade", such that exposure to theories of comparative advantage change individuals' evaluative beliefs about trade's benefits for the country as a whole. [Burgoon and Hiscox \(2004\)](#) similarly argue that women are more protectionist than men because they are less likely to be exposed to economic ideas in college. While operating out of a framing rather than a persuasion tradition, [Guisinger \(2017\)](#) experimentally exposes respondents to positive arguments about trade's effects on the United States, and finds that individuals who receive positive arguments about trade are, on average, significantly more supportive of free trade than individuals who don't. Similarly, [Hiscox \(2006\)](#) experimentally shows that individuals presented with protrade arguments are more supportive of free trade than individuals presented with antitrade arguments.

If we move out of the experimental laboratory and into the wild, we argue that information conveyed by the media is more likely to shape trade preferences through sociotropic dimensions rather than pocketbook ones. The reason is less the limited power of self-interest on policy preferences, but rather, because i) individuals are more dependent on the media for information about aggregate phenomena than they are for information about their own personal situation ([Mutz, 1992](#)), and ii) the media is more likely to cover the latter than the former, rarely offering sufficiently granular stories parsing out trade's distributional effects. Indeed, one of the important virtues of experiments randomly providing members of the mass public with precepts of economic theory is that they allow us to estimate a counterfactual less frequently observed in a real world, where only a third of Americans over the age of 25 have a college degree, most of whom graduate without taking a class

in economics.¹⁰ In this sense, the effects of information exposure in a naturalistic setting will more closely resemble those in framing experiments (where respondents are presented with information about trade in the aggregate that varies in valence) than those in information provision experiments (where respondents are presented with information about trade’s effects on themselves personally).

Nonetheless, each pathway suggests a different set of testable observable implications. If the effect of information about trade in the media primarily operates by changing beliefs about the pocketbook effects of trade, information exposure should magnify the effects of economic interests: individuals exposed to more news about trade should be more likely to express trade preferences consistent with how much they stand to gain or lose from trade. Individuals with high skill levels, employed in industries dependent upon exports, or in jobs with low levels of routinization should become more pro-trade when exposed to more information about trade, while individuals with low skill levels, in industries facing high levels of import competition, or in jobs likely to be offshored should become less supportive of trade when exposed to more information. In contrast, if the effect of information about trade in the media primarily affects trade preferences by changing evaluative beliefs about the sociotropic effects of trade, trade preferences will be associated with information exposure: the more positive stories about trade respondents are exposed to, the more supportive of free trade they’ll be, whereas the more negative stories about trade respondents are exposed to, the less supportive of free trade they’ll be.

H1 (Pocketbook mechanism): Exposure to trade news moderates the effect of economic interests on trade preferences. Respondents exposed to more news about trade will display stronger relationships between their economic interests and their trade preferences.

H2 (Sociotropic mechanism): Exposure to positive trade news increases support for trade; exposure to negative trade news decreases support for trade.

4 Methods

To analyze the relationship between Americans’ information environments and their trade attitudes, we fielded a seven-wave panel survey on YouGov, each on a nationally representative sample of

¹⁰See <https://www.census.gov/data/tables/2018/demo/education-attainment/cps-detailed-tables.html>, Siegfried (2000).

American adults over a thirteen month period. The first wave was fielded beginning in the spring of 2018, from April 23 - July 22 ($N = 3224$), the second from August 28 - September 10 ($N = 1339$), the third from October 5-October 29 ($N = 1180$), the fourth from October 30 - November 6 ($N = 1289$), the fifth from December 20 - January 7, 2019 ($N = 1300$), the sixth from January 24 - February 5, 2019 ($N = 1324$), and the seventh from April 1-9 2019 ($N = 1232$).¹¹ To obtain behavioral measures of media exposure, we integrate the survey data above with web tracking data (that is, all URLs respondents visit, rather than just domains) passively collected from participants’ computers, tablets, and mobile devices through YouGov Pulse. All participants provided consent before installing passive metering software by Reality Mine, which tracks their complete web activity in real-time (apart from passwords and financial transactions, which are excluded from the data). As we show in Appendix §1.1, there is little evidence that respondents who consented to web tracking systematically differ from the population of American adults as a whole in terms of basic demographics, although as one might imagine, they appear to care slightly less about their data being collected on the internet than does the general population as a whole.

4.1 Dependent variables

The study has two measures of trade attitudes, based on question wording from [Mansfield and Mutz \(2009\)](#) and Pew Research Center. The first, ENCOURAGE INTERNATIONAL TRADE, asks respondents the extent to which they agree or disagree with the statement that “The United States government should try to encourage international trade with other countries”; the second, FREE TRADE, asks respondents how much they agree with the statement that “Free trade agreements like the North American Free Trade Agreement (NAFTA) have helped the U.S. economy”.¹² The two items are moderately intercorrelated ($r = 0.38 - 0.45$, depending on the wave), but because each measures a slightly different construct, we analyze them separately.

¹¹Between waves 3-4 of a survey, an experimental intervention was embedded to study the causal effects of partisan media exposure on political attitudes; it is the subject of a different paper. The large sample size for the first wave is due to a botched roll-out; the effective sample size for that wave is in line with those reported for subsequent waves.

¹²We include mention of NAFTA here to avoid concerns that Americans may not necessarily know what free trade is without providing a prominent example.

4.2 Independent variables

4.2.1 Economic interests

Since one of the critiques of research on trade attitudes has been overly blunt and imprecise measures of economic interests (Fordham and Kleinberg, 2012; Kuo and Naoi, 2015; Owen and Walter, 2017), we sought to obtain granular measures of economic interests consistent with best practices. In a series of open-ended responses similar to those from the General Social Survey (GSS), we asked survey respondents to describe, in their own words, what they did for their current job (or, if not currently employed, their most recent job instead), what their duties consisted of, what their employer is called, and what the industry they work in does. On the basis of these open-ended responses, we assigned an industry code using the 2017 North American Industry Classification System (NAICS) and an occupation code using the 2018 Standard Occupational Classification (SOC) system.¹³ Both are coded to the maximum six digits of specificity, or up to as many digits as we felt the level of detail provided in the respondent’s description allowed. For each observation, two independent coders assigned industry and occupation codes, and a third coder adjudicated disagreements.¹⁴ We then used these industry and occupation codes to calculate a variety of measures of economic interests from the existing literature.

AVERAGE WAGE BY INDUSTRY-OCCUPATION: Following Mansfield and Mutz (2009, 2013); Mansfield, Mutz and Silver (2015), and Mansfield, Mutz and Brackbill (2019), we calculate average wage by industry-occupation as a proxy measure of respondents’ skill level. We use 2017 annual wage data from the U.S. Bureau of Labor Statistics, which is disaggregated by occupation and then by industry within each occupation.¹⁵

ONE-YEAR CHANGE IN AVERAGE WAGE BY INDUSTRY-OCCUPATION: We calculate the percentage change in average wage by industry-occupation from 2016 to 2017 using annual wage data from the U.S. Bureau of Labor Statistics. We use only wave 1 industry and occupation codings, since the

¹³For information about the 2017 NAICS coding system, see <https://www.census.gov/eos/www/naics/index.html>; for the 2018 SOC coding system: https://www.bls.gov/soc/2018/soc_2018_manual.pdf

¹⁴Respondents not currently working (retired, studying, taking care of home or family, unemployed, temporarily laid off, permanently disabled, or other) received codes according to their *last* job, or received no codes if they did not provide any relevant information. Respondents received codes only for paid work; volunteering or pro-bono work was not coded. Self-employed respondents or respondents working as independent contractors received occupation codes according to the substance of their work rather than as “Chief Executives.”

¹⁵See <https://www.bls.gov/oes/special.requests/oesm17in4.zip>. We used a weighted iterative matching procedure to obtain the most granular industry-occupation codes possible; we assume correspondence between BLS industry code “999” for federal, state, and local government and U.S. Census Bureau industry code “92” for public administration, but do not assume correspondence at further levels of disaggregation within those industries. For observations missing occupation codes, we take the average annual wage for the NAICS industry code across all occupations.

data comes from before the survey period.¹⁶

IMPORT/EXPORT ORIENTATION: Following Mansfield and Mutz (2009) and Mansfield and Mutz (2013), we calculate import and export orientation for each NAICS industry. Since trade in goods and trade in services are measured differently, we create separate measures of import and export orientation for goods industries and service industries, though we also create a third variable that merges both measures. We define industry i 's import orientation as M_i/Y_i and export orientation as X_i/Y_i , where M_i and X_i respectively represent industry i 's annual general imports and annual total exports if i is a goods industry, or imports in services and exports in services if i is a service industry, and Y_i is i 's gross annual output. For trade in goods, we use 2017 import and export data by industry from the U.S. International Trade Commission, and for trade in services we use 2017 import and export data from the Bureau of Economic Analysis. We use 2017 gross annual output data from the Bureau of Economic Analysis for all industries.¹⁷

IMPORT DOMINANCE: Based on Mansfield, Mutz and Brackbill (2019), we include a dichotomous variable that takes value 1 if the industry's import orientation is greater than its export orientation and 0 otherwise. We calculate separate measures of import dominance in goods and services industries as well as a combined variable.

OFFSHORABILITY: Following Kaihovaara and Im (2018); Owen (2017); Owen and Johnston (2017), and Mansfield and Mutz (2013), we measure the offshorability of each SOC occupation using Blinder's (2009) offshorability index.¹⁸ Following Owen and Johnston (2017), we create a dichotomous offshorability variable that takes a value of 0 if the occupation has an offshorability measure of 50 or below, or 1 if the occupation has an offshorability measure of 51-100.¹⁹

ROUTINE TASK INTENSITY: Following Kaihovaara and Im (2018) and Owen and Walter (2017),

¹⁶See <https://www.bls.gov/oes/special.requests/oesm16in4.zip>. 2016 wage estimates are calculated for each industry according to the same procedure as described above for 2017 wage estimates.

¹⁷See <https://dataweb.usitc.gov/trade/search>, <https://apps.bea.gov/iTable/iTable.cfm?reqid=62&step=9&isuri=1&6210=4>, and <https://apps.bea.gov/iTable/iTable.cfm?ReqID=51&step=1>. Granularity of this measure for goods industries is limited to the level of detail available in BEA gross annual output data, which varies widely by industry category. For service industries, granularity is limited to three NAICS digits in accordance with the availability of trade in services data. In keeping with Mansfield and Mutz's procedure, we take the natural logarithm of each import and export orientation calculation to mitigate the skewness of its distribution, arbitrarily adding 0.01 to each ratio so that the logarithm is defined for non-traded industries (i.e. industries with 0 imports or exports in 2017). Following the existing literature, we assume that all NAICS industry codes omitted from USITC import and export data and from BEA trade in services data are considered non-tradable.

¹⁸ Since Blinder uses SOC codes from 2000 to construct his index, we crosswalk his codes to our 2018 SOC codes. Blinder defines occupations with an offshorability score below 25 (on a scale from 0 to 100) as unambiguously "non-offshorable" and does not specify numerical scores for them; we thus conservatively assign all non-offshorable occupations in our sample a score of 24, so as to fall within his lowest category.

¹⁹Blinder's full index can be found in the appendix of his paper (accessible at <http://www.world-economics-journal.com/Journal/DownloadPaper.aspx?AID=376>).

we create a measure of routine task intensity (RTI) for each SOC occupation code, replicating [Acemoglu and Autor \(2011\)](#)'s procedure using updated source data. The RTI measure compiles task-level data for each SOC occupation from O*NET to create a measure of the proportion of tasks in an occupation that are routine.²⁰ The O*NET task measures (current as of January 2019) are aggregated into six composite task measures, which are each standardized by standard deviation and centered at the mean; both parameters are weighted by total employment in each SOC occupation category as calculated via 2017 BLS data.²¹ We then subtract the standardized composite measures by their minimum values to re-scale the measures to take only positive values, and then combine them into measures of routineness, abstractness, and manualness. We calculate RTI using the formula $\ln(Routineness) - \ln(Abstractness) - \ln(Manualness)$.

UNION MEMBERSHIP: We match each respondent with estimates of the union membership rate in his or her occupation and industry. We use the 2018 edition of [Hirsch and Macpherson \(2003\)](#)'s database on union membership by industry and occupation, which is compiled from Current Population Survey microdata.²²

Two additional close-ended measures, UNEMPLOYED and LABOR FORCE, record whether the respondent is unemployed and participating in the labor force, respectively. UNEMPLOYED is a dichotomous variable indicating whether the respondent identifies as unemployed or temporarily laid off. LABOR FORCE is a dichotomous variable indicating whether the respondent is in the labor force, based on whether the respondent identifies as working full or part-time, being temporarily laid off, or unemployed.

4.3 Dispositional and attitudinal measures

Since trade attitudes have been found to have a number of ideological correlates ([Kaltenthaler and Miller, 2013](#); [Rathbun, 2016](#)) we also include a number of measures of respondents' political and foreign policy orientations. [Mansfield and Mutz \(2009\)](#) find that isolationism is an important predictor of support for trade, but since isolationism is usually understood as being one of three different dimensions of foreign policy attitudes ([Chittick, Billingsley and Travis, 1995](#); [Holsti, 2004](#); [Kertzer et al., 2014](#); [Rathbun et al., 2016](#); [Prather, 2016](#)), all of which are intercorrelated but capture

²⁰See <https://www.onetcenter.org/database.html#individual-files>). For a full description of the O*NET data used to calculate RTI, see [Acemoglu and Autor \(2011\)](#), p. 1163.

²¹See <https://www.bls.gov/oes/special.requests/oesm17in4.zip>.

²²See http://unionstats.gsu.edu/Ind_U_2018.xlsx and http://unionstats.gsu.edu/0cc_U_2018.xlsx. We used a weighted iterative matching procedure to obtain the most granular union membership estimates possible.

slightly different phenomena, we obtain measures of all three here, using standard Likert items from the existing literature. For ISOLATIONISM, respondents indicated the extent to which they agreed with the statements “The U.S. should mind its own business internationally and let other countries get along the best they can on their own.” and “We should not think so much in international terms but concentrate more on our own national problems.” For COOPERATIVE INTERNATIONALISM, or CI, respondents indicated the extent to which they agreed with “The United States needs to cooperate more with the United Nations”, and “It is essential for the United States to work with other nations to solve problems such as overpopulation, hunger, and pollution.” For MILITANT INTERNATIONALISM, or MI, respondents were administered the items “Going to war is unfortunate but sometimes the only solution to international problems”, and “The best way to ensure world peace is through American military strength.”

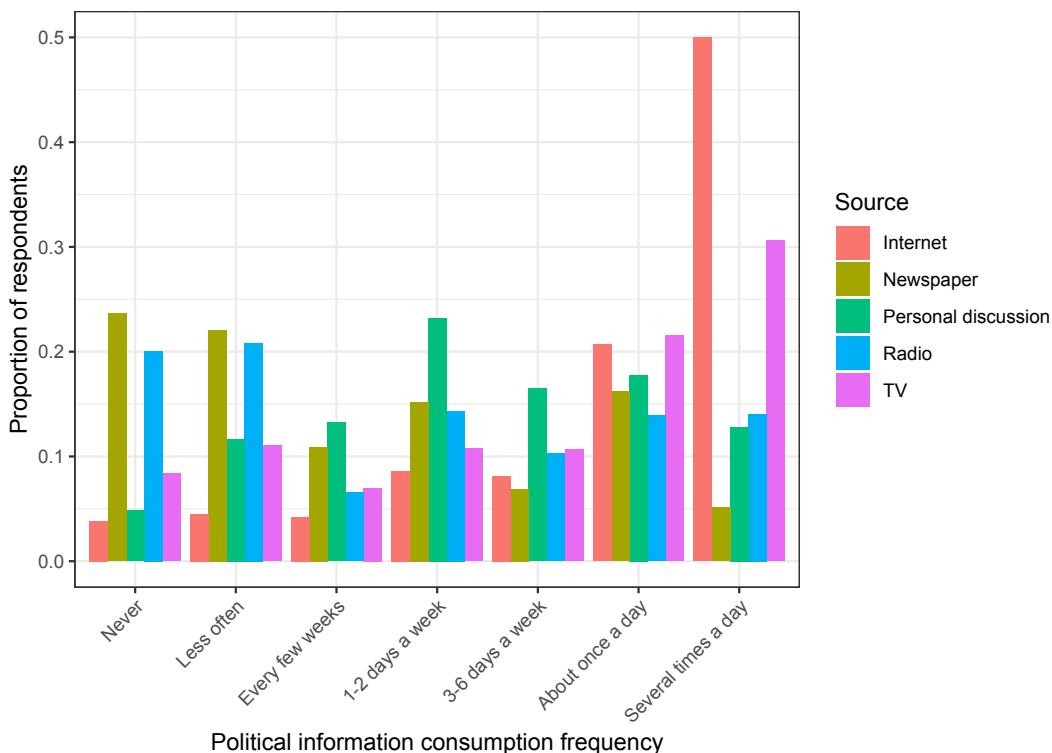
Because of the relationship between trade attitudes and intergroup relations (Mansfield and Mutz, 2013; Guisinger, 2017), we obtain two different types of measures of ingroup identification. IR scholars who have studied ingroup identification tend to distinguish between national attachment on the one hand, and national chauvinism on the other, the former implicating the extent to which your nation forms a crucial part of your identity, and the latter examining the tendency to view your nation as superior to others, which Mansfield and Mutz (2009) capture in their emphasis on ethnocentrism versus cosmopolitanism.²³ For NATIONAL ATTACHMENT, we borrow two items from Herrmann, Isernia and Segatti (2009): “When someone says something bad about American people, how strongly do you feel it is as if they said something bad about you?”, and “How much do you feel that what happens to America in general will be your fate?”, as we do for NATIONAL CHAUVINISM: “How superior is the United States compared to other nations?” and (reverse-coded) “How many things about America make you feel ashamed?”. We also include a number of different measures of political knowledge (Delli Carpini and Keeter, 1996), and basic demographic characteristics. Importantly, although our research design is ultimately non-experimental, the panel structure of the survey lets us address some of the questions about reverse causality raised by some of the trade literature (e.g. Fordham and Kleinberg, 2012): all of the dispositional and attitudinal measures discussed above were administered on wave 1 of the survey, whereas the dependent variables for most of the analyses were administered in subsequent waves.

²³Herrmann, Isernia and Segatti 2009. For a similar distinction, see Schatz, Staub and Lavine 1999 on “blind” versus “constructive” patriotism, and Nincic and Ramos 2012 on “uncritical” versus “critical” patriotism.

4.4 Behavioral measures

While the measures of economic interests and individual differences discussed above represent best practices in the existing literature, we also innovate by obtaining behavioral measure of media consumption, combining the survey data above with web tracking data passively collected (with respondents' consent) from their computers, tablets, and mobile devices. The internet is not the only means through which individuals can consume political news, but in the twenty-first century it is arguably one of the most important. Figure 1 shows that half of our respondents report consuming political news online several times a day, and 71% of respondents report doing so at least once a day, making it by far the most popular self-reported source of political news in our nationally representative sample, far more than through print media, radio, television, or in-person discussion.

Figure 1: 71% of respondents report accessing political news online at least once a day



As is often the case with “Big Data”, the challenge in using behavioral measures of online media consumption is both the volume of information respondents accessed (over the course of the survey, our respondents visited 12,102,415 URLs), and its sheer variety.²⁴ To obtain tractable measures of

²⁴This figure excludes sequentially duplicated URLs: we employ a de-duplication strategy, where duplicate visits

respondents’ news environments, we restrict our analysis to an updated list of domains identified as “hard news” by [Bakshy, Messing and Adamic \(2015\)](#), who train a classifier on a comprehensive dataset of links shared on Facebook to identify the 500 most shared news sites on the social network in the United States. Restricting the sample in this way not only makes the analysis that follows more tractable, but also provides us with estimates of each domain’s ideological alignment based on the ideological leanings of the Facebook users sharing each site. Because we have URL-level data rather than merely domain-level data, we are able to exclude sections of these websites that do not pertain to hard news (e.g. the crossword sections of news sites, the non-news sections of domains like Yahoo and AOL that provide both news and also web-searching and email services, and so on).

The web tracking data are used to produce two sets of behavioral measures of media consumption. The first set focuses on exposure to all hard news, regardless of content. NEWS COUNT records the total number of hard news URLs visited by each respondent, while CONSERVATIVE NEWS COUNT and LIBERAL NEWS COUNT record the total number of hard news URLs visited by each respondent from news sites that the classifier in [Bakshy, Messing and Adamic \(2015\)](#) determines to have conservative and liberal ideological slants, respectively. The second set focuses specifically on trade. After removing visits to news sites’ homepages to avoid data vintage errors ([Robertson and Tallman, 1998](#)), we scrape the content of each of the remaining 142,841 unique hard news URLs, and use a dictionary-based approach to identify which of these articles discuss trade.²⁵ TRADE NEWS COUNT merges this data at the respondent-level to record each respondent’s total number of visits to articles that mention trade. We use topic modeling and sentiment analysis to obtain more specific measures of the content of these articles, and discuss the setup of the model and the content of the topics it recovers later in the paper.

A series of caveats are worth emphasizing here. First, our respondents indicate that the internet is the most important way they receive political news, making studying individuals’ online information environments a highly important task. Yet the internet is obviously not the only way individuals can receive information.²⁶ Second, because we restrict our analysis in this paper to the

to the same URL in sequence are removed, to avoid overcounting when respondents reloaded their browser.

²⁵We successfully scraped 92.8% of the unique URLs (the remaining 7.2% either yielded errors, or redirected towards each site’s homepage. After an initial pilot with a more expansive set of keywords, we settled on a more parsimonious dictionary-based approach that retained any article that included the words “trade”, “tariff” or “tariffs” in the article text; articles that included other trade-related words (NAFTA, etc.) all included one of these three.

²⁶In Appendix §2 we show that respondents who indicate they’re less likely to consume news online also indicate they’re less likely to be consuming news offline as well. Our empirical strategy thus rests on the – in our view, plausible – assumption that individuals who aren’t exposed to trade news online are unlikely to be exposed to trade news through other means.

the 500 most popular hard news sites, we cover a wider range of news sources than is typically used in this type of research (e.g. news sites in the database include large outlets like CNN and the New York Times, but also include a broad array of smaller outlets, ranging from Electronic Intifada to Reagan Coalition, The Griot to The Federalist). However, these are obviously not the only political news sources available online. Respondents can also receive political information through soft rather than hard news (Baum, 2002), or even by skimming through their social media feeds (Anspach, Jennings and Arceneaux, 2019). Thus, while the analysis that follows reconstructs individuals' information environments to an extent not usually attempted in the study of international relations, it is inevitably a proxy measure rather than a complete reconstruction. Finally, the mobile data in the analysis below consists only of URLs visited through web browsers rather than through apps; a discussion of the app data, and comparison with browser consumption, is presented in Appendix §2.1.

5 Results

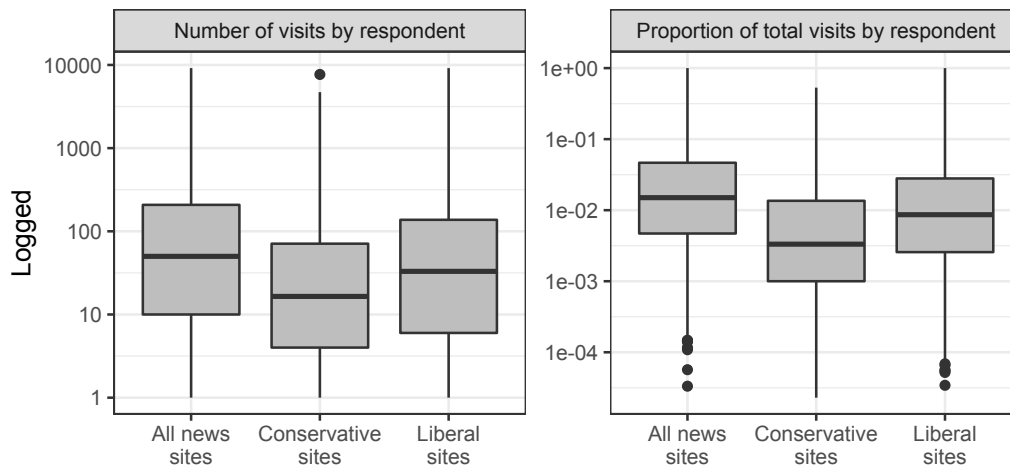
We structure the analysis below in three parts. First, we use our behavioral data to examine how much information about trade respondents are exposed to through online news sources. We show that even during a period when trade was highly salient in the news, most Americans' exposure to news about trade is extremely low, except for the most politically engaged. Second, we test whether exposure to trade news shapes trade preferences through the pocketbook dimension, estimating a series of regression models and finite mixture models to explore whether exposure to trade news magnifies the effect of economic interests. We find little evidence in support of this mechanism. Third, we test whether exposure to trade news shapes trade preferences through the sociotropic dimension, estimating a set of fixed effect models estimating the effect of exposure to trade news on within-subject variation in trade preferences, which also provides additional traction on questions of causal identification. We find some evidence in favor of this sociotropic mechanism: respondents who are exposed to more positive news about trade tend to display more positive trade preferences.

5.1 Reconstructing Americans' information environments

To address how much information about trade Americans are exposed to in the wild, we begin by presenting basic descriptives about our behavioral measures of media exposure. Figure 2

presents a series of boxplots depicting the total number of visits each respondent made to news sites (the left-hand panel), and the ratio of each respondent’s visits to news sites versus their total online activity (the right-hand panel), based on the [Bakshy, Messing and Adamic \(2015\)](#) domain list described above. The plots show that although half of Americans in our survey reported consuming news online several times a day, and 71% of respondents reported consuming news online at least once a day, our behavioral measure suggests actual news consumption may be lower than respondents claimed: according to our measure, the median respondent visited only 1.3 URLs from news sites per day. To put this in context, the right-hand panel of [Figure 2](#) shows that although a small minority of Americans are news junkies, most are not: for 26% of respondents, news URLs make up less than 1% of their total number of webpages visited during the first two waves of the survey; for 45% of respondents, it makes up between 1-5% of their site visits during this time period, and for 18% of respondents it makes up between 5-10% of their visits.²⁷

Figure 2: Distribution of news consumption across respondents



The boxplots show the total number of visits by each respondent to a variety of types of news sites during the first two waves of the survey, along with the proportion of news URLs visited by each respondent relative to the total number of URLs, both of which are displayed on a log scale. The plots show that although some Americans are news junkies, news makes up a relatively small proportion of most respondents’ online activity: for half of respondents, news makes up less than 1% of their total page visits, and for a third of respondents, it makes up between 1-5% of their page visits.

We then turn to the question of how much news about trade respondents accessed. Of the unique 142,841 articles respondents accessed from hard news sites for which we have data, roughly

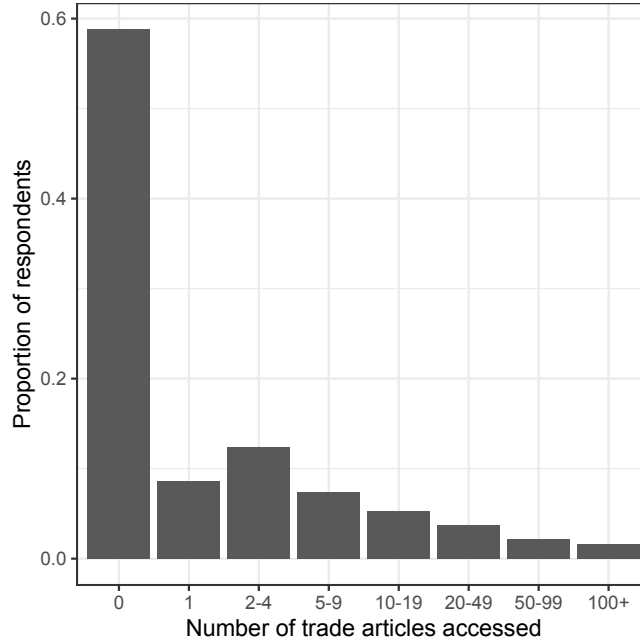
²⁷Note, however, that our measure of news consumption requires respondents to visit one of these 500 domains; respondents who encounter the headlines of news articles while scrolling through their Facebook or Twitter feed, for example, but who do not click on the links to actually access the articles themselves, will not be included here. See [Anspach, Jennings and Arceneaux \(2019\)](#).

Table 1: Exposure to trade news

	Binary (OLS)			Count (Negative Binomial)		
	(1)	(2)	(3)	(4)	(5)	(6)
Some college	0.059 (0.044)	0.023 (0.056)	0.020 (0.057)	-0.113 (0.232)	-0.146 (0.299)	-0.428 (0.306)
College/university	0.027 (0.040)	-0.006 (0.051)	-0.008 (0.052)	0.094 (0.209)	-0.053 (0.270)	-0.370 (0.277)
Postgraduate	0.057 (0.045)	0.010 (0.060)	0.010 (0.062)	-0.148 (0.238)	-0.258 (0.320)	-0.522 (0.330)
Male	0.094*** (0.028)	0.099*** (0.034)	0.097*** (0.035)	0.196 (0.144)	0.286 (0.181)	0.007 (0.187)
Age	-0.096 (0.065)	-0.150* (0.080)	-0.168** (0.082)	-1.442*** (0.347)	-1.895*** (0.430)	-2.193*** (0.440)
Party ID	-0.050 (0.038)	-0.062 (0.046)	-0.058 (0.064)	-0.683*** (0.197)	-0.766*** (0.247)	-1.203*** (0.343)
White	0.025 (0.036)	0.054 (0.045)	0.053 (0.045)	0.335* (0.191)	0.157 (0.241)	0.179 (0.242)
Political interest	0.232*** (0.054)	0.207*** (0.066)	0.199*** (0.070)	2.012*** (0.300)	1.803*** (0.369)	2.131*** (0.385)
Unemployed		0.070 (0.092)	0.070 (0.093)		0.546 (0.491)	0.504 (0.494)
log(Export Orientation)		0.015 (0.027)	0.015 (0.027)		0.058 (0.142)	0.053 (0.143)
log(Import Orientation)		-0.025 (0.027)	-0.026 (0.027)		-0.118 (0.142)	-0.150 (0.144)
Mean Wage		-0.00000 (0.00000)	0.00000 (0.00000)		0.00000 (0.00000)	0.00000 (0.00000)
Offshorability		-0.0001 (0.001)	-0.0001 (0.001)		0.002 (0.004)	-0.002 (0.004)
RTI		-0.030 (0.031)	-0.025 (0.032)		0.128 (0.165)	0.330* (0.168)
Isolationism			-0.014 (0.067)			-0.307 (0.361)
MI			-0.066 (0.077)			-0.984** (0.409)
CI			-0.032 (0.081)			-1.420*** (0.437)
Nat. Attach			0.007 (0.083)			-2.192*** (0.441)
Nat. Chauv			0.006 (0.095)			1.309*** (0.508)
Total URLs visited	0.00001*** (0.00000)	0.00001*** (0.00000)	0.00001*** (0.00000)	0.0001*** (0.00000)	0.0001*** (0.00000)	0.0001*** (0.00000)
Intercept	0.116 (0.073)	0.053 (0.126)	0.141 (0.175)	-0.823** (0.394)	-0.366 (0.680)	2.788*** (0.938)
N	1,214	818	804	1,214	818	804
Adjusted R ²	0.126	0.135	0.127			
AIC				4,843.547	3,240.223	3,247.936

*p < .1; **p < .05; ***p < .01

Figure 3: Distribution of trade news consumption across respondents



59% of respondents accessed no articles relating to trade during the entire seven waves of the survey; 80% of respondents accessed four articles or less during this period.

4.8% of them mentioned trade.²⁸ Figure 3 shows just how far removed news about trade is to most Americans; 59% of respondents accessed *zero* articles that made even a passing reference to trade during the entire study; eighty percent of respondents accessed four or fewer. This is true even though, as noted above, our initial definition of news relating to trade is relatively permissive, in that any article that includes the word “trade”, “tariff”, or “tariffs” in the text, which presumably includes false positives (articles about sports trades, for example).

Columns 1-3 of Table 1 present a series of linear probability models for whether respondents accessed any trade articles at all; columns 4-6 present a series of negative binomial models where the dependent variable is the number of trade articles each respondent accessed; since the predictors of trade news exposure may be confounded with those of online activity more generally, in both cases we also control for the total number of URLs respondents visited over the course of the study. In the LPMs in models 1-3, men are more likely to be exposed to articles about trade than women (consistent with [Burgoon and Hiscox, 2004](#)), and older respondents are less likely to be exposed than younger respondents. The substantively largest effect belongs to self-reported measures of political

²⁸ Respondents accessed 152,922 unique hard news URLs in total; we were able to successfully scrape 142,841 of them.

interest: the politically engaged are 20 - 23 percentage points more likely to be exposed to news about trade than those who aren't. In the negative binomial models in columns 4-6, we find older respondents tend to access fewer online trade news articles than older respondents, while party ID is also a consistently significant predictor, with Republicans consuming fewer trade articles than Democrats, even controlling for a range of demographic and dispositional covariates. As before, however, the substantively largest effects belong to self-reported political interest. Supplementary analysis in Appendix §2 shows that many of the results above hold for exposure to news online as a whole, and are not unique to news about trade (in particular, older respondents consume less news online than younger respondents do, and respondents higher in political interest consume more news than respondents who are less interested in politics). Interestingly, there's some evidence that unemployed individuals consume more news online, although they also display more online activity in general in our data.

Consistent with [Guisinger \(2017\)](#), then, these findings show that most Americans consume relatively little news about trade the way we measure it here. This is the case even though these seven survey waves coincide with NAFTA renegotiations, steel tariffs against Canada, Mexico, and the European Union, and an escalating trade war with China, and even our own respondents suggest that trade is one of the more important problems the country is facing, with nearly a third of respondents during the second wave selecting "international trade imbalances" from a list as something they consider to be particularly important in the United States.²⁹ This is also the case even though online news is often argued to increase the likelihood of incidental exposure, as individuals unintentionally encounter news surfing the web that they wouldn't intentionally seek out ([Tewksbury, Weaver and Maddex, 2001](#); [Barberá, 2014](#)).

5.2 What information about trade do individuals see?

To characterize what information about trade respondents are exposed to, we turn to topic modeling, an unsupervised machine learning technique for the automated content analysis of text ([Quinn et al., 2010](#); [Grimmer and Stewart, 2013](#)). We estimate a 100-topic Latent Dirichlet Allocation (LDA) model on the 6894 trade articles respondents accessed during the study.³⁰ 16 of the topics are

²⁹As Appendix §2 shows, respondents who see trade as an important issue tend to be Republicans, hawks, and nationalists.

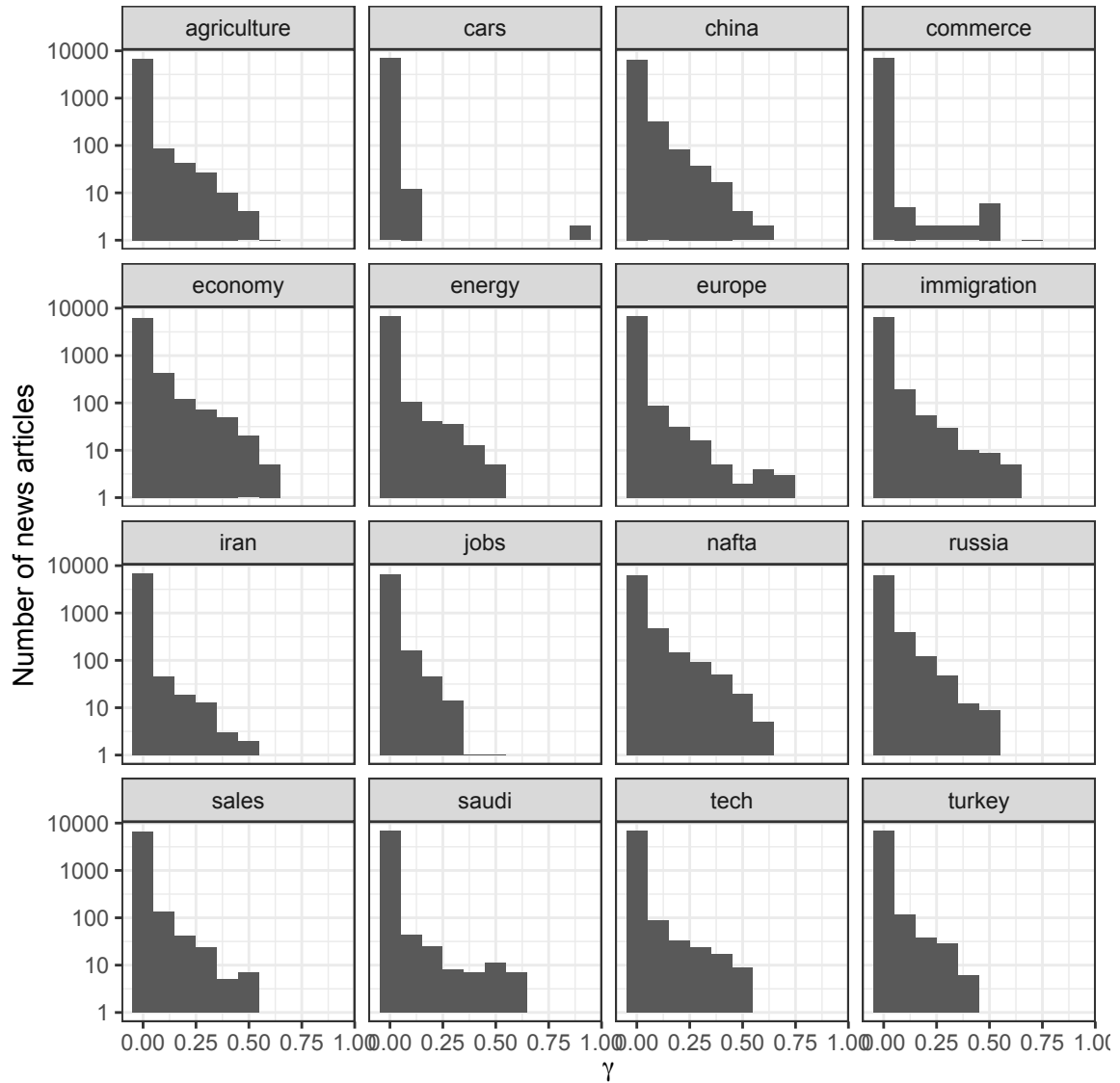
³⁰Structural topic models are topic models with covariates - see [Roberts et al. \(2014\)](#). See Appendix §2 for model fit statistics.

semantically interpretable and feature discussions of trade. Sample articles associated with each topic are excerpted in Appendix §2.1. Figure 4 presents the distribution of probabilities for each topic across all 6894 articles. Since these analyses are specifically on the 6894 articles respondents accessed that mention trade, rather than all 150,000 news articles respondents accessed, these plots can be interpreted as showcasing the wide variety of contexts in which respondents encountered information about trade: from articles about agricultural issues (such as trade disputes over US soybeans, for example), to NAFTA re-negotiations between the United States, Canada and Mexico, to the trade war with China more generally. Figure 5 depicts longitudinal trends in the topic attention over time, presenting month-level topic probabilities for each of the 16 topics. The spikes in the topic probabilities closely follow external events, such as the surge in attention to NAFTA with the USMCA negotiations at the end of August, or the spike in attention to articles that mention trade in the context of Europe, coinciding with the 100th anniversary of the end of the First World War.

We measure exposure to each of these topics in a variety of ways. The first is in terms of COUNTS. As Figure 4 shows, the topic model classifies the probability that each article is associated with each topic; to produce the count variables, we classify each article based upon its highest probability topic, and calculate the number of URLs visited by each respondent in each topic. The second is in terms of EXPOSURE. Rather than classify each article as belonging only to one topic, for our exposure measures we calculate the sum of probabilities that each article is classified as being in a given topic, for all trade articles visited by that respondent. The third is in terms of SENTIMENT. We use the Lexicoder sentiment dictionary (Young and Soroka, 2012) to calculate the average sentiment of each of these trade articles, computing sentiment based on an analysis of the 100 words before and after the mention of each of our three trade keywords, to capture whether trade is discussed in a positive or negative fashion. We also calculate sentiment scores at the topic level, classifying each article by the highest probability topic as in the COUNT measure described above. As Figure 6 shows, trade coverage of some topics (like sales) during this period skew more positive, whereas others (such as Turkey) skew more negative, and there is considerable variation in the sentiment expressed in trade coverage overall.³¹ Since our main trade exposure measure likely contains false positives, the analysis below also uses these topic model results as a robustness check,

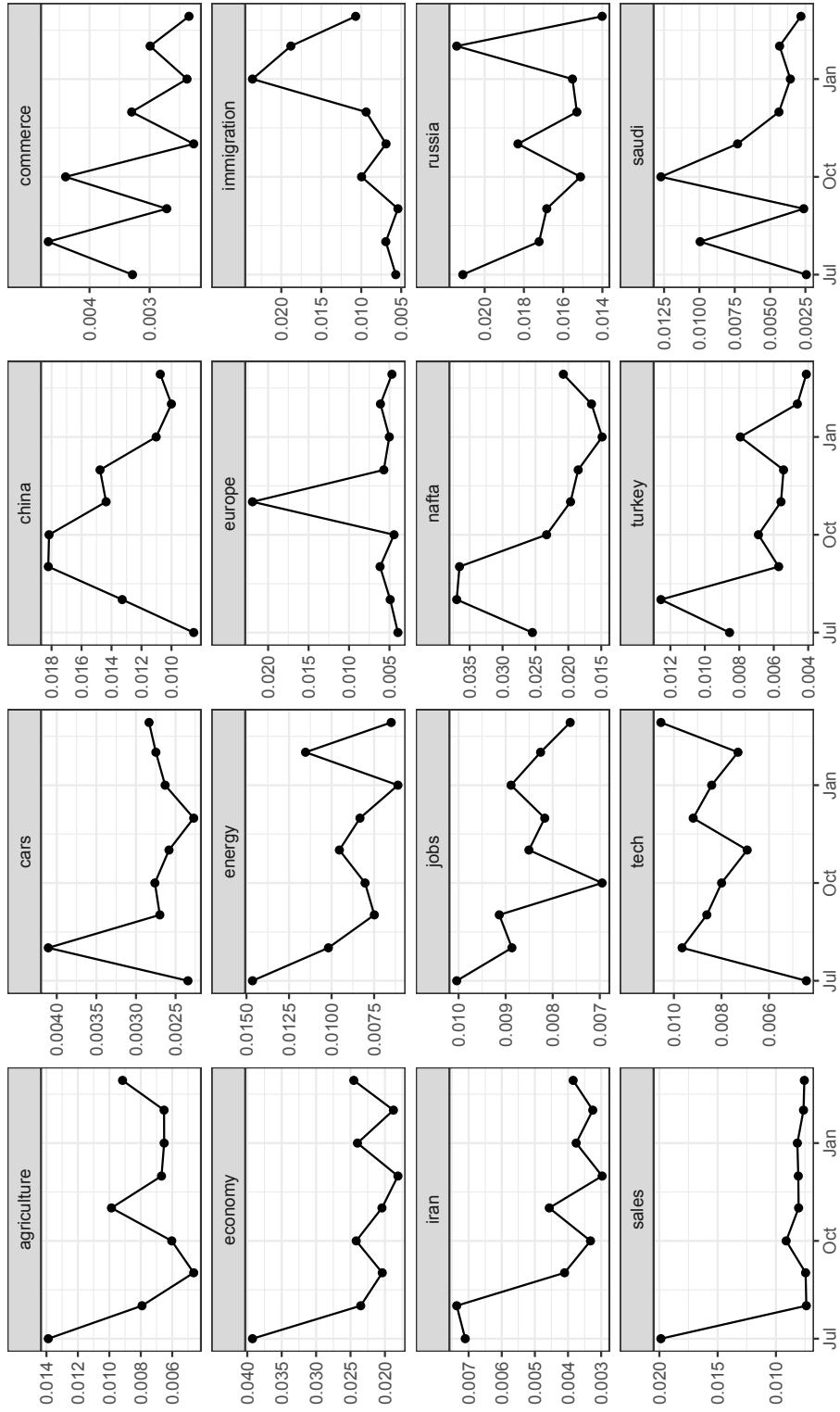
³¹Some caution should be taken in the interpretation of these topic-level results given the relatively small number of articles associated with certain topics (e.g. cars). As a result, the analysis below largely focuses on the effects of exposure at the aggregate level rather than the topic level.

Figure 4: Distribution of probabilities for each topic



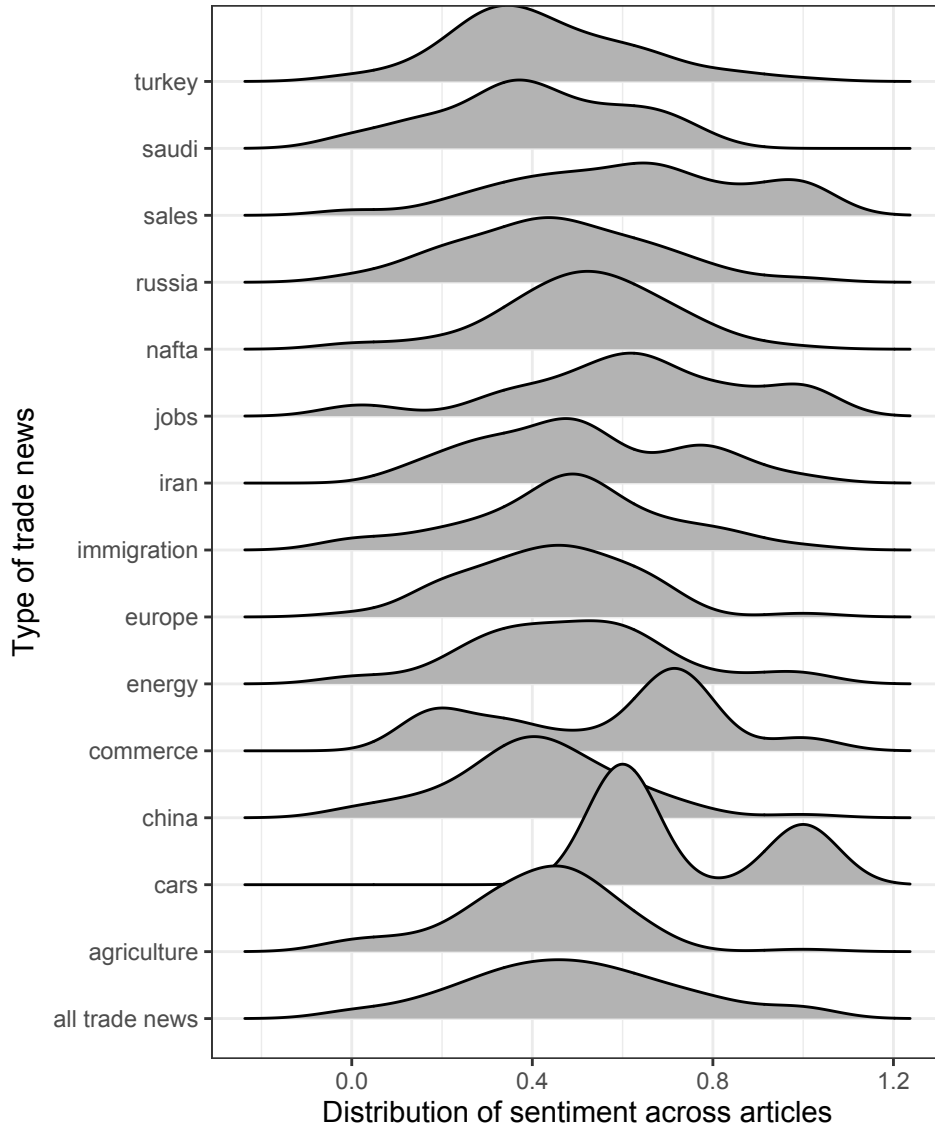
Higher values of γ indicate a higher probability that each article is associated with a given topic.

Figure 5: Evolution in topic attention over time



Month-level topic probabilities for each of the 16 topics track with external events (e.g. USMCA negotiations in August 2018 for the NAFTA topic).

Figure 6: Distribution of sentiment for each topic



Higher sentiment scores indicate more positive sentiment towards trade as measured by the Lexicoder sentiment dictionary, computing sentiment based on an analysis of the 100 words preceding and following the mention of each of our three trade keywords (trade, tariff, tariffs) in each article.

in which we restrict our measure of trade news to those articles where the highest probability topic is one of the topics presented in Figure 4.³²

5.3 Testing the pocketbook mechanism

If information about trade affects trade preferences by changing respondents' evaluative beliefs about trade's effects on pocketbook considerations, we should expect that respondents exposed to more news about trade will display trade preferences that better reflect their economic interests than respondents exposed to less news about trade. We test this hypothesis in two ways. First, we estimate a series of linear regression models, regressing respondents' trade attitudes in a given wave on their economic interests and basic demographic covariates, estimating separate models for individuals who were and were not exposed to news about trade during the preceding survey wave.³³ Figure 7 replicates previous work by Mansfield and Mutz (2009) and others in showing that individual-level economic interests generally fail to predict trade preferences, but importantly, it also shows that respondents who were exposed to news about trade did not tend to display stronger relationships between their economic interests and their trade preferences than respondents who were not exposed to news about trade. The one exception appears to be for unemployment, which displays a significant negative effect on encouraging trade (in wave 3) and on support for NAFTA (in wave 6), but the estimates are noisy due to the relatively low number of unemployed individuals in the data.³⁴ The analysis here defines exposure to trade news as accessing a single article about trade during the preceding survey wave, which would place respondents in the 81st-86th percentile of trade news consumption in our sample, depending on the wave, but Appendix §2 shows that similar results obtain when we use a higher threshold for what counts as exposure to trade news. Likewise, Appendix §2 shows that we continue to obtain null results when we use the topic model

³²We also went through each of the sixteen topics, and coded them based on their theoretical importance to theories of trade attitudes, grouping them into three tiers. The first tier consists of articles in the agriculture, China, NAFTA, commerce, economy, and jobs topics; the second tier consists of the cars, energy, immigration, Europe, sales, and tech topics; the third tier consists of articles that discuss trade in the context of other regional issues, as reflected by the Russia, Iran, Saudi, and Turkey topics. In Appendix §2 we use this topic classification to test how our estimates of exposure to trade news change with the restrictiveness of the trade news measure (i.e. just articles classified by the topic model as having one of these first tier topics as their highest probability topic, versus articles classified by the topic model as having any topic in the first three tiers as their highest probability topic).

³³Given the number of different ways economic interests can manifest themselves, subsetting the sample in this manner allows us to avoid a high-dimensional interactive model. The industry and occupation open-ended response items used to generate measures of economic interests were administered in the first two survey waves, but largely remained constant. In the analysis below, we use the measure of economic interests from the first wave as our covariates of interest, although the results remain the same when we use the measure from the second wave.

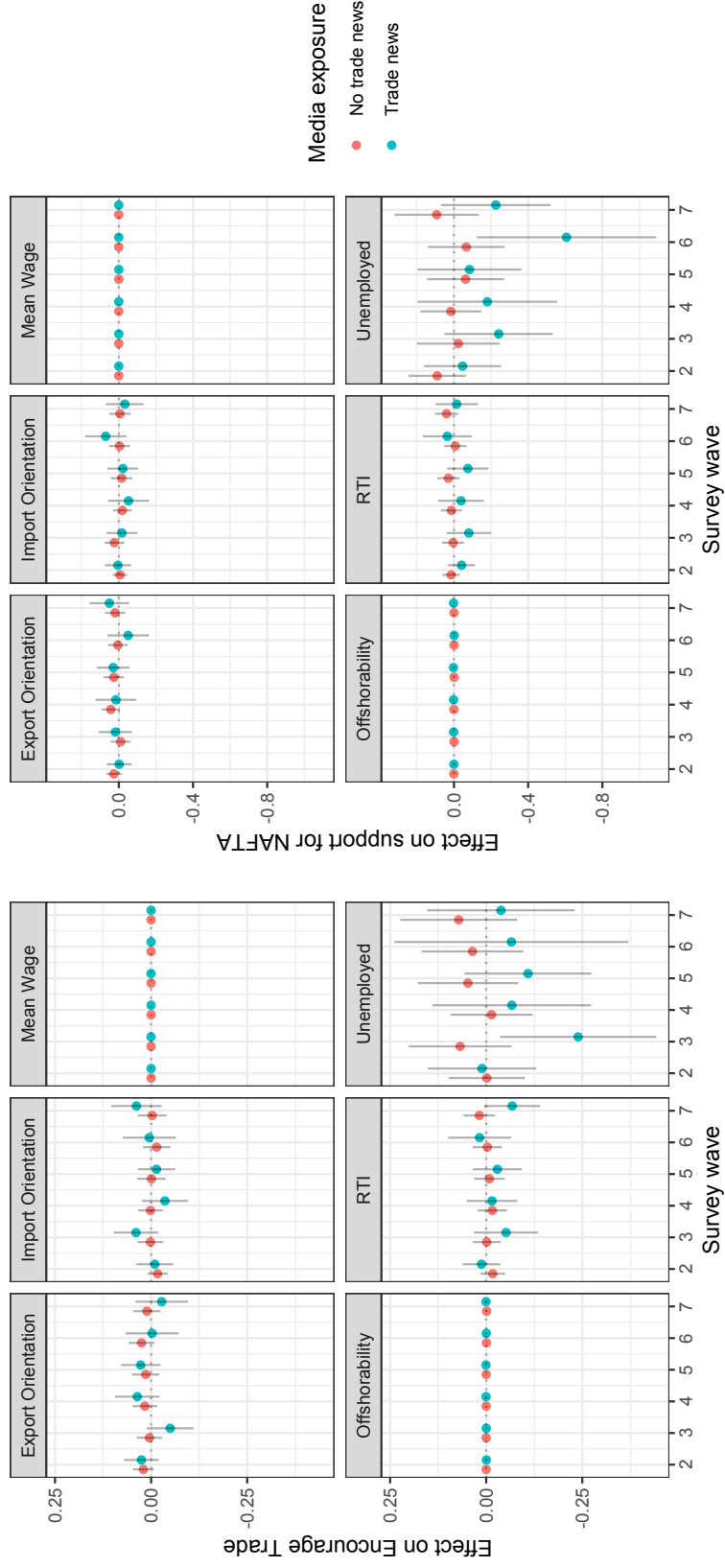
³⁴The highest level of unemployment reported in our data is in the first wave of the study, when 4% of respondents are unemployed.

to restrict our measure of trade news to those articles where the highest probability topic is one of the sixteen topics presented in Figure 4.

The second way we test the effect of information about trade on pocketbook considerations is with a set of finite mixture models, which are useful for testing the effects of competing hypotheses, testing the scope conditions in which one set of explanatory variables performs better than another (Imai and Tingley, 2012). Rather than assume that trade preferences are shaped either by material economic interests or by ideational variables, we can model trade preferences as a mixture of the two, estimating the probability that each respondent's trade preferences are consistent with the predictions of one set of variables rather than the other, and using observed covariates about each respondent to help model the conditions under which each set of explanatory variables should better predict trade attitudes. In our case, we model trade preferences as a function either of the economic interest variables presented in Figure 7, or the ideational variables (militant internationalism, cooperative internationalism, isolationism, national attachment and chauvinism, and party identification) discussed in section 4.3, modeling the mixing probability as a function of exposure to trade news.

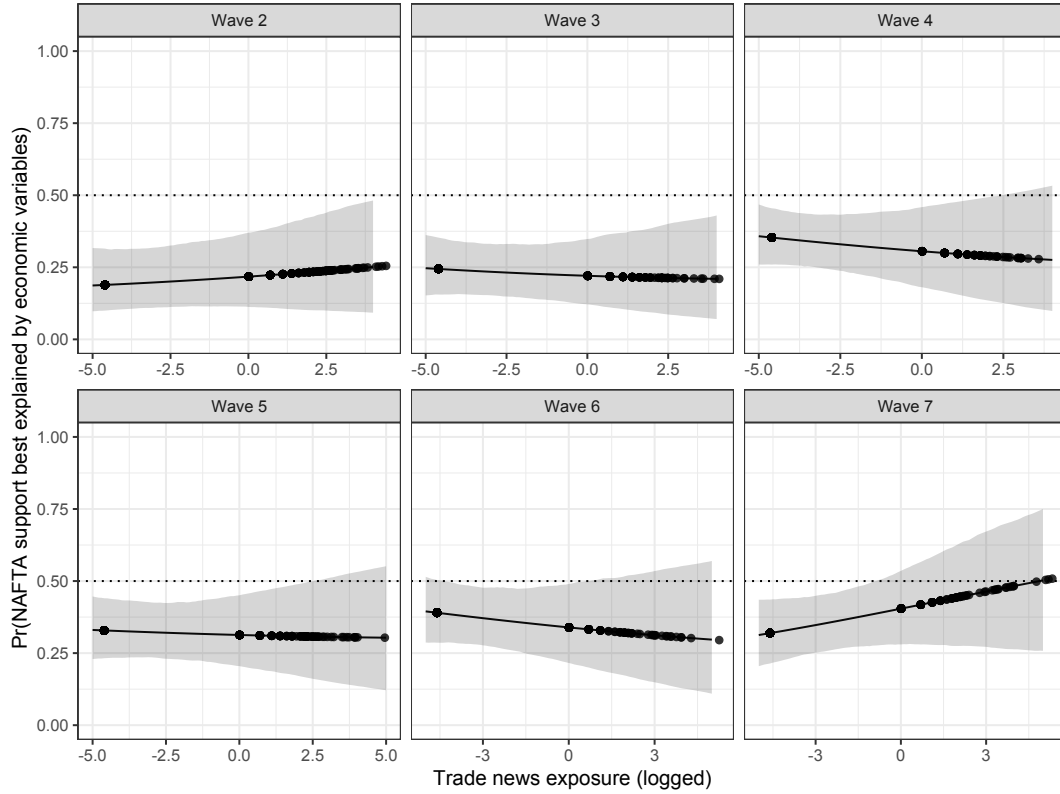
Figure 8 presents the estimated probability of NAFTA attitudes being shaped by economic interests, as a function of respondents' exposure to trade news. The slope of the line in each panel indicates whether the effect of economic interests are magnified or attenuated as respondents increase in exposure to trade news. On the whole, the plot offers little evidence that respondents who consume more news about trade are more likely to anchor their trade preferences on economic interests: apart from wave 7, the slope of the predicted values are flat or negative. Table 2 shows that the superior explanatory power of ideational variables in these models is not merely due to partisanship; when we re-estimate the models, but omit partisanship from the vector of ideational variables, between 64-82% of the observations (depending on the wave) are better explained by ideational variables than by economic interest variables. In Appendix §2.2 we replicate the above analyses, but including community-level measures of economic interests in addition to individual-level measures. We find once again that trade attitudes are better explained by ideational variables than by economic interest measures, and that exposure to news about trade does not moderate the effects of these community-level characteristics.

Figure 7: Are economic interests more likely to shape trade preferences when individuals are exposed to news about trade?



Respondents exposed to trade news (in turquoise) are no more likely to express trade preferences consistent with their economic interests than respondents who were not exposed to trade news (in red). The analysis here defines exposure to trade news as accessing a single article about trade during the preceding survey wave, which would place respondents in the 81st-86th percentile of trade news consumption in our sample, depending on the wave. See Appendix §2 for a supplementary analysis showing the results hold with a higher threshold for exposure to trade news.

Figure 8: Does exposure to trade news magnify the effect of economic interests?



The results from a series of finite mixture models, in which attitudes towards NAFTA are modeled as a function of either economic interests or ideational variables, with the mixing probability between the two as a function of exposure to trade news. The predicted values for Wave 7 displays a positive slope, suggesting that in our final survey wave, the explanatory power of economic increases as respondents increase in trade news exposure. For all other waves, however, the predicted values display a flat (or, for four out of the five waves, negative) slope. Across the study as a whole, then, there is relatively little evidence that exposure to trade news magnifies the effects of economic interests. See Table 2 for the population proportion estimates for each model.

Table 2: Proportion of observations consistent with each set of explanatory variables

Wave	(1)		(2)	
	All Ideational Variables	Economic Variables	Foreign Policy Orientations Only	Economic Variables
2	0.808	0.192	0.817	0.183
3	0.778	0.222	0.787	0.213
4	0.663	0.337	0.695	0.305
5	0.682	0.318	0.701	0.299
6	0.638	0.362	0.636	0.364
7	0.664	0.336	0.698	0.302

Results are π estimates from a set of finite mixture models, denoting the proportion of NAFTA attitudes in each survey wave consistent with either ideational variables or economic interest variables. Model 2 drops party ID from the model, suggesting the superior explanatory power of ideational variables isn't being driven by partisanship.

5.4 Testing the sociotropic mechanism

Although there appears to be little evidence that the effect of news about trade shapes trade preferences through pocketbook pathways, there is another potential mechanism, emphasizing sociotropic considerations instead. If information about trade affects trade preferences by changing respondents' evaluative beliefs about trade's effects on their broader community, trade preferences will be associated with the valence of information exposure more generally: the more positive stories about trade respondents are exposed to, the more supportive of trade they'll be, while the more negative stories about trade respondents are exposed to, the more negative towards trade they'll be. In this sociotropic pathway, news about trade is shaping trade preferences by conveying information about whether trade is good or bad more generally, rather than whether trade is good or bad for individuals specifically like themselves.

To test this mechanism, because our interest is in the effects of trade news exposure over time, rather than the role of variables like economic interests that are effectively static in our data, we can exploit the panel structure of our data to estimate a set of fixed effect regression models of the form $y_{i,t} = \alpha_i + \beta X_{i,t-1} + \epsilon_{i,t}$, where trade attitudes are modeled as a function of trade news exposure in the preceding period, controlling for time-invariant characteristics of respondents. We also estimate an interactive version of the model, $y_{i,t} = \alpha_i + \beta_1 X_{i,t-1} + \beta_2 Z_{i,t-1} + \beta_3 X Z_{i,t-1} + \epsilon_{i,t}$, in which the effect of trade news exposure is conditional on the sentiment about trade expressed in the trade news. This within-subject approach also gives us more leverage in terms of causal identification than the previous set of analyses.³⁵ Table 3 presents the results for each of our two trade dependent variables. Models 1-3 show that there is no significant main effect of exposure to trade news on subsequent trade preferences, but model 2 finds a significant positive interaction effect between trade news exposure and the average sentiment about trade expressed in the articles.³⁶ The conditional effect, depicted in Figure 9, shows that for those respondents who did access trade articles in the previous time period, support for free trade increases when respondents are exposed to more positive stories about trade. Supplementary analyses in Appendix §2, using more restrictive measures of trade news

³⁵The panel regressions are not susceptible to bias due to omitted time-invariant factors, although they too rely on assumptions in order to support a causal interpretation. The most important threat to inference in this setting is the possibility of trade news exposure affecting time-varying confounders (for example, news interest). Such pathways could bias estimates if not adequately specified, although the time span of our data presumably rules out large indirect effects of this kind.

³⁶Since the sentiment score captures the average sentiment about trade a respondent was exposed to in all of the articles they accessed, models 2 and 4 restrict the analysis only to those respondents who accessed trade articles. See Appendix §2 for analyses comparing respondents exposed to positive trade news, negative trade news, and no trade news.

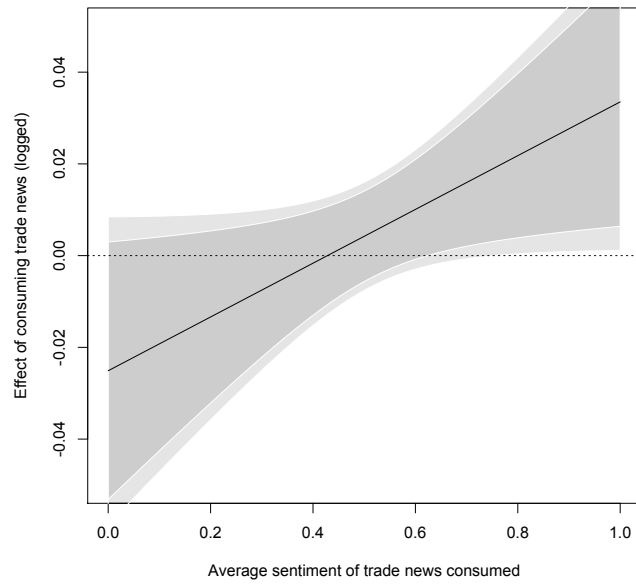
derived from topic models, similarly show that respondents exposed to positive news about trade are significantly more supportive of trade than respondents exposed to negative news about trade; the analysis in Table 5 in Appendix §2 suggest that the effect is driven by exposure to positive news about trade bolstering support for trade, rather than exposure to negative news about trade dampening support. However, there are two caveats worth mentioning. First, we do not find a similarly significant effect of trade news exposure on attitudes towards NAFTA. Second, as the low R^2 statistics suggest, it appears that trade news exposure generally does a poor job of explaining within-subject change in trade attitudes among our respondents.

Table 3: Does exposure to news about trade affect trade preferences?

	ENCOURAGE TRADE		NAFTA	
	(1)	(2)	(3)	(4)
Trade news exposure (logged)	0.00001 (0.001)	-0.025 (0.017)	-0.002 (0.002)	-0.004 (0.022)
Trade news sentiment		0.010 (0.036)		0.036 (0.045)
Trade news exposure x sentiment		0.059* (0.031)		0.010 (0.040)
Respondent FEs	✓	✓	✓	✓
N	4,819	1,206	4,617	1,168
R^2	0.000	0.010	0.001	0.002

*p < .1; **p < .05; ***p < .01

Figure 9: Consuming more positive news stories about trade increases support for encouraging trade



6 Conclusion

IPE scholars seeking to explain why economic interests fail to predict trade preferences have increasingly turned to the role of information, fielding innovative experimental designs that randomly present respondents with information about trade, and measure its effects on respondents' subsequent trade preferences (e.g. [Rho and Tomz, 2017](#); [Schaffer and Spilker, 2019](#); [Jamal and Milner, 2019](#)). In this paper, we seek to build on these important studies, while asking a slightly different question: what kind of information about trade are citizens exposed to in the real world? How does information shape trade preferences in the wild?

We investigate these questions by fielding a seven-wave panel survey on a nationally representative sample of Americans over a 13 month period, where we measure respondents' economic interests, track their trade preferences, and crucially, obtain unobtrusive behavioral measures of their media consumption during this time period. By reconstructing respondents' online information environments at the URL level, we are able to measure how much news about trade citizens are exposed to in a naturalistic setting, and test a variety of competing theories about how information shapes trade preferences. Consistent with theories of economic ignorance, we show how little news about trade most Americans consume. However, because the kind of information about trade respondents encounter in the real world differs from the types of information respondents are presented with in stylized survey experiments, we find little evidence that information about trade shapes trade preferences through pocketbook pathways, magnifying the effects of economic interests. Instead, we find some evidence in favor of information about trade shaping trade preferences through sociotropic pathways: the more positive news about trade respondents access, the more supportive of trade they become.

These findings have a number of important implications. For IPE scholars, they point to the continued importance of sociotropic rather than pocketbook pathways when understanding the origins of economic preferences, echoing previous work about the limitations of self-interest ([Mansbridge, 1990](#); [Mansfield and Mutz, 2009](#); [Hainmueller and Hiscox, 2010](#)). For public opinion and communications scholars, they show the value of obtaining behavioral rather than self-reported measures of media consumption. Echoing other work demonstrating the low salience of trade ([Guisinger, 2009](#)), they also show how little information most Americans receive about trade: even during a year of high stakes trade wars and highly salient NAFTA renegotiations, a majority of our respondents

appear to not have been exposed online to news mentioning trade. This raises questions for voter-driven models of IPE, as well as scholars seeking to explain why democracies conduct systematically different trade policies than non-democracies ([Mansfield, Milner and Rosendorff, 2000](#); [Kono, 2006](#)).

For political scientists more broadly, they suggest that understanding the origins of preferences may often require going outside of the lab and into the wild. Experimental methods are valuable because of their ability to identify causal effects, but they identify the effects of causes, rather than the causes of effects ([Mill, 1843](#)) — which makes their growing popularity in IPE for studying the origins of preferences not without its challenges. This is somewhat different from usual external validity-based critiques about experimental methods in political science ([McDermott, 2011](#)): the concern is not that treatments would display a different effect on other populations or outside the confines of the lab, but rather, that respondents in the real world may not receive the treatment ([Barabas and Jerit, 2010](#)), or receive a different type of treatment altogether. Our study therefore has implications for scholars fielding experiments more broadly, speaking to larger questions about how descriptive work can profitably guide experimental designs.

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