

Exposure to Chinese Imports and Media Slant: Evidence from 147 U.S. Local Newspapers over 1998-2012

Yi Lu *

National University of Singapore

Xiang Shao †

University of Hong Kong

Zhigang Tao ‡

University of Hong Kong

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Abstract

Does recent surge in Chinese imports affect media slant in the U.S.? The paper uses a data set of 147 U.S. local newspapers over 1998-2012, and shows that newspapers whose circulation counties face greater exposure to Chinese imports report more negative news about China, and are more likely to endorse Democrats. The results hold with two identification strategies and three measures of media slant. The paper further shows that, in U.S. House and Senate elections between 2000 and 2012, media slant is associated with increased voting shares for Democrats, who are traditionally champions for the poor and critical of globalization.

Keywords: Chinese import competition, media slant, U.S. daily newspapers, election

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*justinly6@gmail.com

†xshao1@hku.hk

‡ztao@hku.hk

1 Introduction

Trade liberalization in general and U.S. trade relations with China in particular have become a contentious issue in the United States. Imports from China have been shown to cast various adverse effects on American society; for example, a surge in the manufacturing unemployment (e.g., Autor et al., 2013; Acemoglu et al., 2016; Pierce and Schott, 2016) and deterioration in public health (e.g., Autor et al., 2016; McManus and Schaur, 2016; Pierce and Schott, 2016). On top of affecting people’s material interests, Chinese imports might also change American society’s perception of China, possibly reflected in and further amplified by the U.S. media coverage of China. Anecdotal evidence shows that substantial exposure to imports from China is associated with a deteriorating image of China in the U.S. media, with “China-bashing” becoming increasingly popular in U.S. election campaigns.¹ However, there is scarce systematic analysis of whether Chinese imports have caused a media slant against China. Using a data set of 147 U.S. local daily newspapers over 1998-2012, this paper investigates how exposure to Chinese imports influences newspapers’ attitudes toward China, and their party endorsements in presidential elections. To capture the significance of the changes in media behavior, the paper further studies whether the media slant against China in turn influences U.S. election results.

A newspaper, subject to space limitation, commonly expresses its attitudes through the selection of topics to be covered (or so-called agenda-setting behavior). By increasing the coverage of an issue, a newspaper can make readers believe in the importance of that issue and the image projected (McCombs and Shaw, 1972). An example is the case of *The New York Times*’s articles on the 2008 Summer Olympic Games held in Beijing. Of 49 articles published in August 2008 about the Beijing Olympics, 17 articles devoted some space to discussing issues (such as Tibet, human rights and censorship, authoritarianism, and pollution) in China that were likely to project a negative image of China, whereas the rest of the articles focused almost exclusively on athletes, Chinese culture, and tourism.

To measure a newspaper’s slant against China, we use the proportion of articles devoted to negative issues about China in the newspaper’s total articles on China. Specifically, we develop a list of negative keywords about China after analyzing all the articles on China published in *The New York Times* and *The Washington Post* from 1995 to 2012, and then use the list of keywords to identify articles on negative issues about China

¹Examples include CNN’s Jack Cafferty stating that products manufactured in China are “junk” (<http://edition.cnn.com/2008/WORLD/asiapcf/04/15/cnn.china/> accessed October 19, 2016); The Economist’s coverage of bipartisan hostility toward China in the 2012 presidential election (<http://www.economist.com/node/21558581> accessed October 19, 2016); and 2016 Republican presidential candidate Marco Rubio proposing to strike hard on China, in an op-ed in *the Wall Street Journal* (<http://www.wsj.com/articles/how-my-presidency-would-deal-with-china-1440717685> accessed October 19, 2016).

in U.S. local newspapers.² For robustness tests, we use the Harvard IV-4 psychosocial dictionary to come up with a list of negative keywords for constructing our measure of media slant. We also use the natural language processing technique to analyze the negative sentiment of the newspaper content, and use it as an alternative measure of media slant. Our regressor of interest is the Chinese import competition at the newspaper level. To this end, we first calculate each county's exposure to Chinese imports, following Autor et al. (2013), and then aggregate county-level import exposure to the newspaper level by weighting each newspaper's circulation market share in each county.

Our identification explores variations across newspapers over 1998-2012. The cross-newspaper variation helps to control for trends over the sample period that were common to all the newspapers, such as the possible deterioration of the social, cultural, and political situation in China. The cross-time differencing helps eliminate intrinsic features of newspapers that were stable over the decade, such as the location of the editorial office. To address the potential endogeneity of the growth of Chinese imports in the United States, we adopt two estimation strategies. First, we follow Autor et al. (2013) in using the growth of Chinese imports in eight other developed countries as an instrumental variable for the growth of Chinese imports in the United States. Second, following Pierce and Schott (2016), we employ a difference-in-differences method to explore the granting of Permanent Normal Trading Relations (PNTR) to China by the United States in 2001, which generated largely exogenous variations of Chinese import competition across industries.

We find that newspapers with circulation in counties that face greater exposure to Chinese imports report more negative news about China. The results hold with three different measures of media slant, as well as two identification strategies (Autor et al. 2013; Pierce and Schott, 2016). We also find that the increase in negative reports about China comes mostly from non-trade-related news as opposed to trade-related news. We test the results based on a supposedly neutral news topic, 2008 Summer Olympic Games held in Beijing, and find that newspapers whose circulating counties faced greater exposure to Chinese imports reported on the Beijing Olympics more negatively.

Further, we study the effect of Chinese import competition on newspapers' endorsement of a party in the presidential elections. We find that newspapers whose circulation counties faced greater exposure to Chinese imports were more likely to endorse Democrats, who are traditionally against trade and for economic redistribution.³

In the second part of the study, we test the effect of media slant on voting shares

²We use the same automated keyword search method as in Larcinese et al. (2011) and Puglisi and Snyder (2011).

³Che et al. (2016) find that Democrats are more likely than Republicans to support legislation against foreign import competition and for economic assistance. Surveys by Gallup from 2000 to 2011 show that a higher percentage of Republicans see trade as an opportunity than that of Democrats (<http://www.gallup.com/poll/181886/majority-opportunity-foreign-trade.aspx> accessed October 19, 2016).

for Democrats in the House, Senate, and presidential elections at the county level. To calculate the media slant against China at the county level, we sum the media slant ratios of the local newspapers with circulation in that county, weighting the newspapers' county circulation divided by the county population. We find that media slant against China is associated with increased voting shares for Democrats in House and Senate elections.⁴

This study is related to a growing literature examining the sources of media slant; Stromberg (2015) provides a review of the literature. Mullainathan and Shleifer (2005) show theoretically that when there is significant reader heterogeneity, media outlets might slant their reports toward the prior beliefs of some segments of the readership. Gentzkow and Shapiro (2006) show that media slant toward readers' prior beliefs is more likely when there is a lack of competition in the newspaper market. Our work contributes to the literature by providing one of the few empirical studies on the sources of media slant. We show that newspapers in regions facing greater competition from Chinese imports have become more slanted against China. This finding is consistent with the demand-side determinants of media slant highlighted by Mullainathan and Shleifer (2005) and Gentzkow and Shapiro (2006). Presumably, readers in regions that are more affected by Chinese imports are more heterogeneous, on the one hand, and have stronger prior (negative) beliefs about China, on the other hand. The paper also complements Gentzkow and Shapiro (2010) and Larcinese et al. (2011), by providing an economic determinant of media slant as opposed to media slant being caused by difference in partisanship or ideology.

This study is also part of an emerging literature highlighting the adverse effects of the latest wave of globalization initiated by China joining the World Trade Organization, and the country's massive growth in exports to the world. Our finding that Chinese imports have caused a media slant against China is consistent with some of the negative impacts of Chinese imports on the American society documented in the literature, such as rising unemployment and mortality (e.g., Autor et. al., 2013; McManus and Schaur, 2016; Pierce and Schott, 2016). We find that such media slant in turn has had an impact on U.S. elections. The media slant has increased support for Democrats, who traditionally are champions for the poor and critical of globalization, implying a limit of globalization if redistribution mechanisms are not put in place to help the victims of globalization.

The most closely related work to this paper is Ramirez and Rong (2012), who find that the total number of "bad" news reports about China in U.S. newspaper and website contents from *Factiva* database increases sharply 3-4 months after unexpected increases in the U.S. trade deficit with China. Although their study uses the keyword search method exclusively for measuring media slant, we provide alternatives. Different from Ramirez

⁴Abundant research studies the effect of the media on political issues such as public spending (Stormberg, 2004; Snyder and Stormberg, 2010), voter turnout (Gentzkow, 2006), party voting share (Dellavigna and Kaplan, 2007), and witness appearance in Congressional hearings (Snyder and Stormberg, 2010).

and Rong (2012)’s times series analysis, this study explores variations across individual local newspapers over 1998-2012, which allows better identification of the effect of U.S. regions’ exposure to Chinese imports on media slant in their local newspapers.

The paper is structured as follows. The data, variable construction, and empirical estimation framework are discussed in Section 2, and the empirical results are presented in Section 3. The paper concludes in Section 4.

2 Data, Key Variables, and Estimation Framework

2.1 Data

We focus on U.S daily newspapers with both county-level circulation data and electronic archives of newspaper articles available from 1998 to 2012. We choose 1998 as the starting year because it is the earliest year for which county-level circulation data are available. We choose 2012 as the ending year for reasons of data availability.⁵

Newspaper county-level circulation data are obtained from the *Alliance of Audited Media* (formerly Audit Bureau of Circulation) – the largest media circulation data provider in the United States.⁶ Data on newspaper content are from *Newslibrary* and *Factiva* database.⁷ We first check each newspaper for its consistency over the sample period; specifically, data of newspapers that have been merged or under joint operating agreement are combined. We then match the newspaper county-level circulation data with the newspaper content data. Following Gentzkow and Shapiro (2010), we exclude four national newspapers from our sample – *The New York Times*, *The Wall Street Journal*, *The Washington Post*, and *USA Today*.⁸ – as our focus is to explore the impact of regional variations in Chinese import completion on the media slant of regional newspapers. Overall, we collect data on newspaper content for 145 newspapers from *Newslibrary* and two newspapers (The Boston Globe and The New York Post) from *Factiva* database. This leaves us with a sample of 147 daily newspapers, covering 49 states in the U.S. (see a list of the newspapers in Appendix Table A1).⁹

⁵First, because of the copyright issue, some newspaper articles are not archived until a few years after publication. Second, according to the American Press Institute’s report, 2012 was a pivotal year for digital subscriptions, with the majority of the 98 newspapers with total circulation of 50,000 or more starting to offer digital subscriptions. As we do not have data on digital subscriptions, we focus on the pre-2012 period.

⁶As the Alliance of Audited Media provides circulation data on select weekdays and weekends, we follow Goh et al. (2011) and aggregate the circulation data for each newspaper to the weekly level.

⁷Neither *Newslibrary* nor *Factiva* database covers the contents of articles published in *The Chicago Tribune* and *The Los Angeles Times*. While newspaper archives of *The Chicago Tribune* and *The Los Angeles Times* are available on their own websites, unfortunately, their website search engines do not support our keyword search method which will be introduced in the next section. Hence these two newspapers are not in our sample.

⁸National newspaper *Christian Science Monitor* is not in the sample due to lack of circulation data.

⁹We verify these newspapers’ information, such as publication period and frequency, from the website

We obtain international trade data from the United Nations’ Comtrade database; data on county-level industry structure (by employment) from County Business Patterns of the U.S. Census Bureau; and census data for various control variables.

2.2 Key Variables

2.2.1 Media Slant

The study is concerned with media slant, which is caused by selective coverage of negative topics and issues that would project a negative image of China. This definition is commonly used in the literature (see, for example, Groseclose and Milyo, 2005; Gentzkow and Shapiro, 2010; Puglisi and Snyder, 2014).

In the main analysis, to measure media slant in coverage of China, we first construct a list of negative keywords, and then use it to identify negative reports about China, following Larcinese et al. (2011) and Puglisi and Snyder (2011).¹⁰

The list of negative keywords is constructed specifically for China-related news content, as a context-based dictionary is essential for improving the accuracy of identifying negative articles about China. We first search and analyze all the articles with titles containing the words “China or Chinese” in *The New York Times* and *The Washington Post* from 1995 to 2012, and count the frequency of all single words, two-word phrases, and three-word phrases each year. We keep those single words that appeared at least 10 times in a given year of the sample period, and those two-word and three-word phrases that appeared at least five times in a given year of the sample period. For each of these words/phrases, we judge whether it is associated with a negative image of China, and combine all the those words with negative images to construct a list of negative keywords. These negative keywords mainly cover five issues: environment, health, and safety (with keywords such as air pollution and recall), law and governance (e.g., bribery, intellectual property), human rights (e.g., censorship, human rights), international relations (e.g., sanction, hacker), and trade and other economics issues (e.g., trade deficit, dumping). The complete list of negative keywords is reported in Appendix Table A2. Similar to Larcinese et al. (2011), we test the keywords in different random samples of articles to minimize false positive results as much as possible.¹¹

of the Library of Congress (<http://chroniclingamerica.loc.gov/search/titles/>) and Ansolabehere et al. (2011).

¹⁰There are two other ways to measure media slant: i) comparing the contents of media outlets with text by other sources that have clear patterns of preference (e.g., Groseclose and Milyo, 2005; Gentzkow and Shapiro, 2010); and ii) directly using media endorsements in elections and ballot propositions. For this study, we choose the approach of Larcinese et al. (2011) and Puglisi and Snyder (2011), because of the lack of third-party sources as a benchmark preference on China and the lack of explicit newspaper endorsements for or against China.

¹¹We ran a number of sampling strategies to extract newspaper articles randomly based on this list of negative keywords, and read those articles to exclude the possibility of false positives. For example, in one trial, we randomly chose 10 newspapers in a random year. We obtained 152 results of which 88.8 percent

Next, we use the *Newslibrary* database to search newspaper articles, and supplement it with the *Factiva* database for searching articles in one of the newspapers (*The Boston Globe* and *The New York Post*). First, we find all the China-related articles by locating those with headlines that contain “China” or “Chinese,” and obtain the total number of reports about China by newspaper m in year t (denoted $China_{m,t}$). Then, within these China-related articles, we search for those reports containing the words or phrases in the list of negative keywords, and obtain the number of articles with negative reporting about China (denoted $Neg_{m,t}$). We use the proportion of negative reports about China in the total number of China-related articles as a measure of media slant against China:

$$NegRatio_{m,t} = \frac{Neg_{m,t}}{China_{m,t}}. \quad (1)$$

Table 1, panel A, shows the summary statistics for media slant. The average change in media slant from 1998 to 2012 ($\Delta NegRatio_m$) is -0.126, with standard deviation 0.257

[Insert Table 1 Here]

We further divide our negative keywords into trade-related and non-trade-related ones, and construct two additional measures for media slant against China; that is, one for trade-related ($NegRatio_{m,t}^{trade} = \frac{Neg_{m,t}^{trade}}{China_{m,t}}$) and the other for non-trade-related ($NegRatio_{m,t}^{nontrade} = \frac{Neg_{m,t}^{nontrade}}{China_{m,t}}$).¹²

The aforementioned measure of media slant has the potential shortcoming of subjectivity in constructing the list of negative keywords. Therefore, in robustness checks, we use two alternative measures. First, we utilize the well-established sentiment dictionary from linguistics (Harvard IV-4 dictionary) to construct the negative keyword list. Second, we use natural language processing techniques from computer science to analyze the exact tone of newspaper content, instead of the negative keywords, to identify negative reports about China. Section 3.3 provides details on these measurements.

2.2.2 Trade Exposure to China at the Newspaper Level

Because the outcome variables concern the reporting behavior of newspapers, we need to measure the regressor of interest, import exposure to China, at the newspaper level.

We use two measures of the change in each newspaper’s exposure to Chinese imports from 1998 to 2012, corresponding to two identification frameworks, which are elaborated

of hits were good and the rest were false positives. Of those "good" hits, 4.6 percent are about trade; 3.9 percent are about environment, health, and safety; 65.1 percent are about human rights; 2.0 percent are about law and governance; and 13.0 percent are about international relations. False positive hits are mainly about cultural events, tourist advice, reports about natural disasters, or incidents involving ethnic Chinese in foreign countries. All the trials delivered similar patterns.

¹²For articles with both trade- and non-trade-related keywords, we classify them as trade-related articles.

in the next subsection. The first measure follows Autor et al. (2013) in two steps. We first construct county-level changes in Chinese import competition using industry-level import data from the United Nations' Comtrade database,¹³ and county employment structure data from the U.S. Census Bureau's County Business Patterns database. Next, using the newspaper's market share across its circulation counties as weights (Figure 1 shows the market share distribution of *The Boston Globe* across various counties as an example), we sum the changes in Chinese import competition calculated in the first step to get a newspaper-level measure of Chinese import competition (scaled by 1,000). The measure is given by:

$$\Delta Import_m^C = \sum_c \frac{w_{c,m}^{1998}}{w_m^{1998}} \sum_j \frac{1}{1000} \frac{L_{cj}^{1998}}{L_c^{1998}} \frac{\Delta M_j^C}{L_j^{1998}} \quad (2)$$

where ΔM_j^C is the change in U.S. imports from China between 1998 and 2012 in industry j ; L_{cj}^{1998} is employment in industry j in county c in 1998; L_c^{1998} is employment in county c in 1998; L_j^{1998} is employment in industry j in the United States in 1998; $w_{c,m}^{1998}$ is the weekly circulation of newspaper m in county c in 1998; and w_m^{1998} is the total circulation of newspaper m in 1998.

[Insert Figure 1 Here]

The second measure of newspapers' exposure to Chinese imports follows Pierce and Schott (2016) in using a policy shock (i.e., the U.S. granting Permanent Normal Trade Relations (PNTR) status to China in October 2000). Imports from China had enjoyed normal trade relations (NTR) tariff rates even before the granting of PNTR, but this status had to be reviewed every year. Hence, there was always the possibility that non-NTR rates could be applied to Chinese imports. The non-NTR rates averaged 37 percent, whereas the NTR rates were around 4 percent in 1999. Therefore, the granting of PNTR removed this uncertainty and largely boosted U.S. imports from China (for more discussions on these points, see Pierce and Schott, 2016).¹⁴ Following Pierce and Schott (2016), we obtain an alternative measure of the change in newspaper m 's readership exposure to Chinese imports (in percentage points):

¹³We extract 6-digit HS (Harmonized System code 1996) level trade data from the Comtrade website. We then convert HS level trade data to the 4-digit SIC industry level using the concordance from Autor et.al (2013). Finally, we adjust all the trade values to 2007 U.S. dollars using the Personal Consumption Expenditure Deflator from the Federal Reserve Bank of St. Louis.

¹⁴The narrowing of the NTR gap may encourage American corporations to offshore operations to China and become more capital-intensive if they remain operating in the United States, both of which may lead to further unemployment in the United States and more media slant against China. Therefore, compared with the first measure, the second measure, which uses the NTR gap, may encompass more comprehensive consequences of Chinese import competition.

$$PNTR_m = \sum_c \frac{w_{c,m}^{1998}}{w_m^{1998}} \sum_j \frac{L_{cj}^{1998}}{L_c^{1998}} \frac{100 * NTRGap_j}{L_j^{1998}}, \quad (3)$$

where $NTRGap_j \equiv NonNTRRate_j - NTRRate_j$ in 1999.¹⁵

Table 1, panel B, shows the summary statistics of the change in Chinese imports from 1998 to 2012. The average change in Chinese imports using Autor et al. (2013) method is 2.297, with standard deviation 1.872, and the average change in Chinese import competition using Pierce and Schott (2016) method is 0.000137, with standard deviation 6.47×10^{-5} .

2.3 Identification Framework

Figure 2 shows the change in Chinese import competition calculated Autor et al. (2013) method from 1998 to 2012 across U.S. counties, with darker color indicating greater increase in Chinese import competition. Figure 3 plots the headquarters of 147 newspapers and the change in media slant from 1998 to 2012 ($\Delta NegRatio_m$), with darker color indicating greater increase in media slant. Figure 2 and Figure 3 show a similar geographic distribution, indicating strong correlation between the increase in Chinese import competition and the increase in media slant against China.

[Insert Figure 2 Here]

[Insert Figure 3 Here]

To investigate the effect of exposure to Chinese imports on media slant, we use two prevailing identification strategies in the literature. The first one follows the strategy of Autor et al. (2013), who use variations in local exposure to Chinese imports. The estimation specification is

$$\Delta NegRatio_m = \alpha + \beta_1 \Delta Import_m^C + \mathbf{X}_m^0 \boldsymbol{\theta} + \Delta \varepsilon_m, \quad (4)$$

where $\Delta NegRatio_m \equiv NegRatio_{m,2012} - NegRatio_{m,1998}$ captures the change in media slant against China by newspaper m from 1998 to 2012; $\Delta Import_m^C$ measures the change in newspaper m 's exposure to Chinese imports from 1998 to 2012; and ε_m is the error term.

The first difference operation helps eliminate newspaper fixed effects; in other words, the analysis controls for all time-invariant differences across newspapers. Meanwhile, the identification in equation (4) comes from the cross-newspaper variations in the same

¹⁵We use ad valorem equivalent NTR and non-NTR tariff rates from Feenstra et al. (2002), and convert the 8-digit Harmonized System (HS) code to sic87dd code as in Autor et al. (2013) with concordances from the U.S. Bureau of Economic Analysis and Autor et al. (2013).

sample period, which helps control for time effects that are common to all newspapers, such as the possible deterioration of the social, cultural, or political situation in China. The remaining estimation biases of $\Delta Import_m^C$ could be caused by the endogenous change in Chinese imports from 1998 to 2012 (i.e., ΔM_j^C), and the nonrandom distributions of industrial structure and newspaper circulation across counties (i.e., $\frac{L_{cj}^{1998}}{L_c^{1998}}$ and $\frac{w_{c,m}^{1998}}{w_m^{1998}}$), which generate time-varying effects on $NegRatio_{m,t}$.

To address the first potential endogeneity issue, we follow Autor et al. (2013) in using an instrumental variable estimation strategy. They use eight other developed countries' (Australia, Denmark, Finland, Germany, Japan, New Zealand, Spain, and Switzerland) imports from China, denoted ΔM_j^{Other8} , to construct $\Delta Import_m^{Other8}$ as an instrument for $\Delta Import_m^C$. The instrumental variable is constructed as:

$$\Delta Import_m^{Other8} = \sum_c \frac{w_{c,m}^{1998}}{w_m^{1998}} \sum_j \frac{L_{cj}^{1990}}{L_c^{1990}} \frac{\Delta M_j^{Other8}}{L_j^{1990}}. \quad (5)$$

Autor et al. (2013) discuss in detail the validity of this instrumental variable, and we follow closely their strategy in conducting several robustness checks on the instrument (see Appendix B for details).

To mitigate the possible relationship between the outcome variable and counties' industrial and newspaper circulation structures, we measure all the weights in the early periods for which we have data (i.e., circulation distribution across counties in 1998, and employment structure distribution in 1990). We also include a vector of determinants of counties' industrial and newspaper circulation structures in the initial periods, aggregated to the newspaper level. Specifically, we have the circulation-weighted shares of the readership attributes: Asian population, population with a bachelor's degree, population with graduate or professional degree, unemployed population, female population, and median income level. Panel C in Table 1 summarizes the readership attributes in 1998. Hopefully, with these deterministic factors controlled for, newspapers are much balanced in the initial characteristics.

For the second estimation strategy, we follow the difference-in-differences (DD) framework used by Pierce and Schott (2016). The estimation specification is as follows:

$$\Delta NegRatio_m = \alpha + \beta_2 PNTR_m + \mathbf{X}_m^0 \boldsymbol{\theta} + \Delta v_m. \quad (6)$$

Pierce and Schott (2016) show that most variations of $NTRGap_j$ across industries are caused by the non-NTR tariff rates that were set 70 years prior to the granting of PNTR, thereby minimizing the concern of endogeneity problem associated with $NTRGap_j$. The first differencing operation, measures in the early periods, and the inclusion of \mathbf{X}_m^0 largely control for potential estimation biases caused by the nonrandom distribution of industrial structure and newspaper circulation across counties.

3 Empirical Findings

3.1 Baseline Results

The estimation results using the instrumental variable framework of Autor et al. (2013) are reported in columns 1 and 2 in Table 2, without and with additional controls \mathbf{X}_m^0 , respectively. We find positive and statistically significant coefficients of the change in Chinese import competition, suggesting that exposure to Chinese imports causes newspapers in the United States to report more negative news about China.

[Insert Table 2 Here]

In column 3, we report the estimation results obtained from the DD framework following Pierce and Schott (2016). Consistently, we also find a positive and statistically significant coefficient of change in Chinese import competition (measured by the NTR gap), indicating that trade liberalization with China leads to more negative newspaper reports about China.

In terms of the economic magnitude of the impact, using the IV result with control variables in column 2, we find that a one standard deviation increase in Chinese import competition at the newspaper level (1.872) leads to an increase in the change in media slant of 0.078 points - which is 30.6 percent of the standard deviation of media slant change.

Robustness checks. To check whether our results are biased due to omitted variables, we conduct a placebo test, using the pre-2000 sample when the surge in Chinese imports had not taken place. The estimation results are reported in Appendix Table A3. We do not obtain any significant results, lending support to our identification.

We also examine the potential concern about sample selection bias, that is, the effect of Chinese import exposure on the coverage of China-related reports (i.e., the proportion of China-related reports in total reports). The estimation results are reported in Appendix Table A4. We find insignificant results, suggesting that there is no extensive margin effect of the exposure to Chinese imports, and our aforementioned results are not biased due to the sample selection issue.

Another potential concern is that the media slant is driven by editorials rather than newspapers' agenda-setting behavior. To address this concern, we focus on a subsample of newspaper articles that excludes opinion pieces. Specifically, we follow Gentzkwo and Shapiro (2010) and exclude articles whose headlines contain the words "editor," "editorial," "opinion," "op-ed," and "letter." (See Appendix Table A5.) The results are still as strong as the baseline results in Table 2.

3.2 Event Study of the 2008 Beijing Olympics Games

Our measure of media slant in the baseline results covers various types of issues during the sample period. As a result, the measure could be influenced by possible changes in the newspapers' focus on these issues over time. Therefore, in this section, we measure media slant focusing on newspaper coverage of one single event, the 2008 Summer Olympic Games held in Beijing. We repeat the same analyses as in the baseline results. The Olympics is a supposedly politically neutral event, so the coverage should minimize the degree of media slant and make it more difficult to identify the impact of Chinese import competition. Surprisingly, there was some "China-bashing" in newspaper reporting throughout the year of the Beijing Olympic Games, linking the Beijing Olympics to "Genocide Olympics,"¹⁶ "Smog Olympics,"¹⁷ "Human Rights Olympics,"¹⁸ and etc. It would be interesting to identify which local newspapers reported more negative news about the Beijing Olympic Games.

To construct the measure of media slant against China, we restrict the analysis to the sample of articles that were published in 2008 and contained the keyword "Olympics." We classify the articles as negative or not, depending on whether some of the negative keywords were included in the articles.¹⁹ The refined media slant measure ($NegRatio_m^{Olympics08}$) is:

$$NegRatio_m^{Olympics08} = \frac{Neg_m^{Olympics08}}{China_m^{Olympics08}} \quad (7)$$

where $China_m^{Olympics08}$ is the number of reports on the Beijing Olympics in newspaper m in 2008; $Neg_m^{Olympics08}$ is the number of reports on the Beijing Olympics that contained negative keywords in newspaper m in year 2008; and $NegRatio_m^{Olympics08}$ is the proportion of negative reports on the Beijing Olympics in total reports on the Beijing Olympics in newspaper m in 2008.²⁰ As shown in Panel A in Table 1, on average, 15.3 percent of the newspaper coverage of the Beijing Olympics is associated with negative issues about China, which is lower than the mean media slant (39.6 percent) in 1998 and 2012 used in our baseline analysis.

As in our main analysis, we use Autor et al.'s (2013) IV method and Pierce and Schott's (2016) DD method. The estimation results are reported in Table 3. We find that, consistent with our baseline findings, the coefficient of the change in Chinese import competition is positive under both specifications, albeit it is statistically insignificant in

¹⁶China's Genocide Olympics, the New York Times, January 24, 2008.

¹⁷Beijing's Olympic War on Smog, Times, 15 April, 2008.

¹⁸Violence in Nepal as Tibetans Protest Olympics, the Independent, March 31, 2008.

¹⁹We exclude some keywords, such as "abuse," "violation," and "illegal" from the original keyword list in this test, as they are likely to generate false positive hits about sports scandals.

²⁰There were no reports about the 2008 Beijing Olympics in 1998. Hence, our outcome in this exercise, $\Delta NegRatio_m^{Olympics08} \equiv NegRatio_m^{Olympics08} - NegRatio_{m,1998}^{Olympics08}$, collapses to $NegRatio_{m,2008}^{Olympics08}$.

the DD estimation. These results further confirm that the increase in Chinese imports causes newspapers in the United States to be more negative toward China.

[Insert Table 3 Here]

3.3 Alternative Measurement of Media Slant

The aforementioned measure of media slant may have potential measurement error caused by the subjectivity in constructing the list of negative keywords. For robustness tests, we use a well-known dictionary to construct a list of negative keywords for constructing the measure of media slant. We also use sentiment analysis of the newspaper content to measure the degree of media slant.

3.3.1 Matching Sentiment Dictionary

We rank the frequency of single words compiled from all the China-related articles in *the New York Times* and *the Washington Post* over 1995-2012, as previously discussed. We then select the 500 most often used single words and match them with the words from the Harvard IV-4 psychosocial dictionary (the list of matched single words is provided in Appendix Table A6).²¹ Next, based on the Harvard IV-4 psychosocial dictionary, we classify the matched words into two categories: positive, negative.²² We search the articles in U.S. local newspapers from 1998 to 2012, using the list of the negative words obtained through this process, and calculate the media slant ratio as the share of hits of China-related articles containing the negative words in the total number of China-related articles $\frac{Negative_m^{top500}}{China_m}$, where $Negative_m^{top500}$ and $China_m$ are the number of reports containing the negative words and the total number of reports about China, respectively. As shown in Table 1, panel A, the average change in $\frac{Negative_m^{top500}}{China_m}$ in all 147 newspapers from 1998 to 2012 is -0.064 , with standard deviation 0.212 .

With the ratio of media slant constructed above, we run the same estimations as in the baseline analysis, and summarize the regression results in Table 4. Columns 1 and 2 present with the IV estimation results and the DD estimation results, respectively. Consistent with the baseline analysis, we find that with both the IV and DD estimations, the change in import exposure to China has a positive and statistically significant impact on the change in newspapers' media slant against China.

[Insert Table 4 Here]

²¹Harvard IV-4 psychosocial dictionary is a common sentiment dictionary used to study the sentiment of newspaper articles (e.g., Tetlock (2007)).

²²“Human” is excluded in the positive list as it is associated with a number of reports about human rights issues, which are mostly negative in China-related news.

An additional advantage of using the Harvard IV-4 psychosocial dictionary is that we have both the list of negative keywords and the list of positive keywords. By taking into account the usage of positive as well as negative words, we can come up with a more refined measure of media slant. Specifically, we first calculate the difference between the number of reports containing negative words and the number of reports containing positive words, and then divide it by the sum of the two, namely, $\frac{Negative_m^{top500} - Positive_m^{top500}}{Negative_m^{top500} + Positive_m^{top500}}$, where $Negative_m^{top500}$ and $Positive_m^{top500}$ are the number of reports containing negative words and the number of reports containing positive words, respectively. We also experiment with using 1,000 most often used words instead of 500 most often used words in constructing the measure of media slant. As shown in Appendix Table A7, these additional robustness checks yield qualitatively the same results as those in Table 4.

3.3.2 Sentiment Analysis

In addition to using the keyword search method, which counts the usage frequency of a certain group of (negative) keywords in articles, we directly measure the tone of newspaper articles with sentiment analysis.²³ *Newslibrary* allows us to view the first 500 characters (around 90 words) of each article. Those words usually form the leading paragraph where writers commonly express their opinions. We apply the sentiment analysis method to do a textual-analysis on those first 500 characters (leading paragraph, thereafter) of each newspaper article about China.²⁴

Specifically, we use the Python Natural Language Toolkit package to tokenize the first 500 characters of each newspaper article into a list of single words. Next, for each word in the document, we search for the word in a sentiment dictionary called SentiWordNet 3.0 and find its negativity score.²⁵ We measure the negativity of each article by calculating the total negative score of words in the leading paragraph divided by the total number of words in that paragraph, and use the average negativity score of all China-related documents in one newspaper as the measure of media slant of that newspaper. As shown in panel A in Table 1, for all 147 newspapers, the average change in negativity score from 1998 to 2012 is -0.0757.

Table 5 reports the regression results for the media slant measure constructed by sentiment analysis. We find a positive and statistically significant impact of Chinese import competition on media slant with both the Autor et al. (2013) (column 1) and

²³Natural language processing techniques have been vastly developed in the field of computer science and adopted by researchers in other fields. For example, Thomas et al. (2006) analyze the congressional floor debate transcripts to determine the attitudes of speeches. Tumasjan et al. (2010) analyze the twitter sentiment to predict election results.

²⁴The procedure we implement is a rather simple version compared with the recent developments in this field. Issues such as score weighting and negation are not addressed. However, our random sample check shows that the technique delivers quite reliable results.

²⁵SentiWordNet is one of the major lexical resources for sentiment analysis. Currently there are about 1,100 published papers using SentiWordNet 3.0, according to Google Scholar.

Pierce and Schott (2016) method (column 2).

[Insert Table 5 Here]

3.4 Trade-Related versus Non-Trade-Related Reporting

We have shown that exposure to Chinese imports increased negative reporting on China by U.S. local newspapers. It would be interesting to know the source of these negative reports about China. To this end, we divide all negative reports about China into two parts (trade-related and non-trade-related), and construct two subcomponents of media slant measure accordingly. One subcomponent is the percentage of negative trade-related reports in all China-related reports ($NegRatio_{m,t}^{trade} = \frac{Neg_{m,t}^{trade}}{China_{m,t}}$) and the other is the percentage of the negative non-trade-related reports in all China-related reports ($NegRatio_{m,t}^{nontrade} = \frac{Neg_{m,t}^{nontrade}}{China_{m,t}}$). Next we use the methods in Autor et al. (2013) and Pierce and Schott (2016) to investigate the impact of Chinese import competition on each of the two subcomponents of media slant.

As shown in Table 6, we find that the change in the exposure of newspaper readership to Chinese imports has a positive impact on both the change in the percentage of negative trade-related reporting on China (columns 1-2) and the change of the percentage of negative non-trade-related reporting on China (columns 3-4). However, the effect of trade-related news is smaller than non-trade-related news. These results suggest that most of the increased negative reports about China are on non-trade-related news, such as human rights, the political regime, and so forth. These results are consistent with those from Larcinese et al. (2011), who find partisan bias in newspaper coverage to be less biased for trade issues than other economic issues.

[Insert Table 6 Here]

One possible explanation for the results is that, compared with trade-related reports, it is less direct and easier for newspapers to express negative attitudes against China on some ideological topics, such as human rights and the political regime. Another explanation for the results is that newspaper coverage of trade issues is driven by special interest groups. It has been found that groups such as labor unions and environmentalists were under-represented in newspaper coverage during the passage of North American Free Trade Agreement (Summa and Greanville, 1993), and instead coverage at the time largely relied on the interviews with business representatives, who were by and large pro-trade (Baker, 1994).

3.5 Newspaper Endorsements in Presidential Elections

Newspaper endorsements are often studied in the media economics literature, because an endorsement is a statement of a newspaper's position on some important issues, and generally reflects the newspaper's ideological/partisan positions. In other words, newspaper endorsements could be used to measure the degree of media slant. Ideally, we would like to have endorsements on China-related issues, but the lack of frequent endorsements on China-related issues limits their use in research. Instead, we look at newspaper endorsements for U.S. presidential elections as a proxy for newspapers' attitudes toward China. To the extent that the media slant against China comes from U.S. imports exposure to China, endorsements for Democrats, who are generally more anti-trade than Republicans, may indicate a negative attitude towards China. In this section, we study the effect of Chinese import competition on newspaper endorsements in presidential elections.

We collect data on newspaper endorsements in 2000 and 2012 presidential elections from different sources, including Ansolabehere et al. (2011), Democracy in Action,²⁶ and the American Presidency Project.²⁷ We also search endorsements in newspaper archives by ourselves. We find 115 newspapers in our sample with explicit expressions of endorsements (for Republicans, Democrats, or no endorsement) in both 2000 and 2012. We construct a variable, called change in newspaper endorsement in presidential elections between 2000 and 2012, which takes a value of 2 if the newspaper directly switched from Republicans to Democrats, a value of 1 if there was a pro-Democrat change (such as switching from Republicans to no-endorsement, or from no-endorsement to Democrats), a value of 0 if there was no change in endorsement, a value of -1 if there was a pro-Republican change (such as switching from no-endorsement to Republicans, or from Democrats to no-endorsement), and finally, a value of -2 if the newspaper directly switched from Democrats to Republicans.

As in our main analysis, we use Autor et al.'s (2013) IV method and Pierce and Schott's (2016) DD method with the same set of independent variables and control variables of newspaper readership attributes. We further include newspapers' initial party endorsements in 2000 and circulation-weighted voting share for Democrats in 2000 presidential election to control for newspaper and its readerships' initial partisan preference.²⁸ The results are shown in columns 1 and 3 in Table 7. Given the ordinal nature of the dependent variable, we also use ordered probit regressions with the IV and DD methods in columns 2 and 4, respectively. The coefficients for the Chinese import competition variables are all positive, albeit less precise estimates are obtained using Autor et al.'s IV method. The results provide some evidence that Chinese import competition increases

²⁶<https://www2.gwu.edu/~action>.

²⁷<http://www.presidency.ucsb.edu/data.php>.

²⁸Voting share data are from Dave Leip's Atlas of U.S. Elections

the likelihood of a newspaper becoming more pro-Democrats.

[Insert Table 7 Here]

3.6 Impact of Media Slant Against China on Voting

Our aforementioned analyses show that newspapers whose circulation counties face greater exposure to Chinese imports have greater media slant against China. Indeed, “China bashing” has become popular in today’s U.S. elections. Candidates from the Republican and Democratic parties try to capitalize on the public’s negative views on China to court more votes. In this subsection, we further examine the economic significance of Chinese import competition by anchoring the possible role of media slant against China in voting outcomes in various U.S. elections.²⁹

Specifically, we examine the effect of the change in media slant against China on the change in voting shares for Democrats in the House, Senate, and presidential elections between 2000 and 2012. Because of the substantial changes in the borders of Congressional districts between 2000 and 2012 (as a result of redistricting after the 2000 and 2010 Censuses), we study the voting outcomes at the county level, the boundary of which does not change over time. This approach allows us to track changes in constant geographic areas over time.

Our estimation model is stated as

$$\Delta VoteShare_c = \beta \Delta media_c + \mathbf{X}_c^0 \boldsymbol{\eta} + \varepsilon_c, \quad (8)$$

where $\Delta VoteShare_c$ is the change in voting share for candidates of the Democratic Party in county c between 2000 and 2012,³⁰ and ε_c is the error term. Standard errors are clustered at the state level.

$\Delta media_c$ measures the change in media slant against China in county c between 2000 and 2012, which is defined as

$$\Delta media_c = \sum \left(\frac{circulation_{cm}^{2000}}{population_c^{2000}} * \Delta NegativeRatio_m \right) \quad (9)$$

where $circulation_{cm}^{2000}$ is the weekly circulation in newspaper m in county c in 2000; $population_c^{2000}$ is the population of county c in 2000; and $\Delta NegativeRatio_m$ is the change in media slant of newspaper m from 2000 to 2012 constructed in the same way as in the baseline analysis of section 3.1. It is a summation of the media slant ratios of all

²⁹Previous studies have documented a significant impact of media on voting outcomes. For example, Enikolopov et al. (2011) find that the independent TV network has a positive effect on the voting share of major opposition parties in Russia.

³⁰We obtain county-level data on voting shares for Democrats in these elections from *Dave Leip’s Atlas of U.S. Elections*.

the newspapers that have circulation in county c , with the ratio between circulation and county population being the weight.

A concern about the identification of β in equation (8) is that $\Delta media_c$ may respond to changes in local economic conditions, resulting in a biased estimate. Specifically, the bias can arise because of the nonrandom distribution of newspaper circulation across counties (i.e., the weight in the calculation of $\Delta media_c$) and/or because of the response of attitude changes at the newspaper level to the locality ($cov(\Delta NegativeRatio_m, \varepsilon_c) \neq 0$). To address the first endogeneity concern, we first measure the circulation ratio in the initial period, and then include a vector of initial county characteristics in \mathbf{X}_c^0 (such as share of Asian population, share of population with a bachelor's degree, share of population with a postgraduate degree, share of unemployed population, share of female population, and median income level).

For the second endogeneity concern, a newspaper's contents are the same across all its circulation markets, and the attitude at the newspaper level ($NegativeRatio_m$) is determined by weighting and aggregating changes over its all circulation markets, making its value less susceptible to a particular locality. To restrict local influence on the overall content of a newspaper, we exclude the newspaper-county cell where circulation of newspaper m in county c is more than 20 percent of newspaper m 's total circulation.³¹ Our final regression sample covers 1,943 counties across the United States. Table 8 presents the summary statistics for variables at the county level.

[Insert Table 8 Here]

Table 9 presents the regression results of equation (8). We find a positive and statistically significant relationship between media slant against China and voting share for Democrats in House and Senate elections, albeit a positive and statistically insignificant relationship in presidential election. In terms of the magnitude of the impact, we find that a one-standard-deviation increase in the change in media slant (0.124) is associated with an increase of 1.7 percent (7.8 percent of the standard deviation) in the change in voting shares for Democrats in House elections, 1.3 percent (10.9 percent of the standard deviation) increase in the change of voting shares for Democrats in Senate election. These results demonstrate the impact of media slant triggered by the increasing Chinese imports.

[Insert Table 9 Here]

³¹We also test the results with different thresholds (5 to 90 percent), and find the results to be qualitatively the same.

4 Conclusion

Globalization, the latest wave of which was unleashed by China’s joining the World Trade Organization in 2001, has received a rude awakening in the latest votes in the United Kingdom in its break from the European Union and the almost unanimous critique of international trade by candidates in the 2016 U.S. presidential elections. There is increasing evidence suggesting that imports from China, despite all the benefits associated with them, cast various adverse effects on U.S. society; for example, a surge in the manufacturing unemployment (e.g., Autor et al., 2013; Acemoglu et al., 2016; Pierce and Schott, 2016) and deterioration in public health (e.g., Autor et al., 2016; McManus and Schaur, 2016; Pierce and Schott, 2016). Anecdotal evidence suggests that there has been a rise of “China bashing,” or media slant against China.

This paper uses a data set of 147 U.S. local newspapers over 1998-2012 to examine whether exposure to Chinese imports influences newspaper attitudes toward China, and if the media slant against China in turn influences American election results. Using the instrumental variable approach of Autor et al. (2013) and the difference-in-difference approach of Pierce and Schott (2016) (which utilizes the granting of Permanent Normal Trading Relations upon China’s entry to the World Trade Organization in 2001), we find that newspapers whose circulation counties face greater exposure to Chinese imports report more negative news about China, and are more likely to endorse Democrats in presidential elections.

The results hold with three different measures of media slant as well as two identification strategies (Autor et al. 2013; Pierce and Schott, 2016). Among others, we test our results based on a neutral news topic – the 2008 Summer Olympic Games held in Beijing, and find that newspapers whose readership faces more Chinese import competition report on the Beijing Olympics more negatively. Finally, we study the effect of media slant against China on election outcomes between 2000 and 2012 at the county level, and find that in both the House and Senate elections, media slant is associated with increased voting shares for Democrats. As Democrats traditionally are champions for the poor and critical of globalization, our results imply a limit of globalization if redistribution mechanisms are not put in place to address the victims of globalization.

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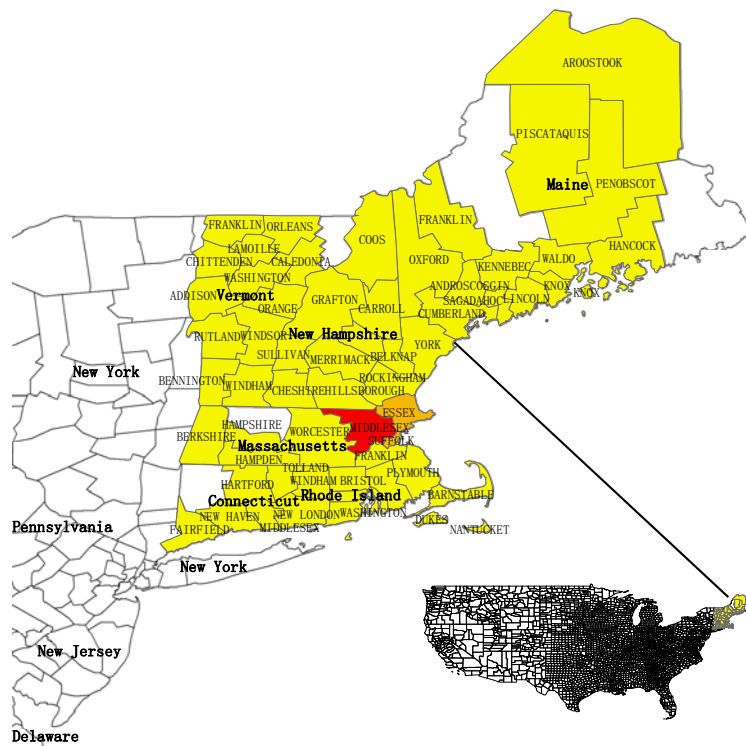


FIGURE 1. CIRCULATION MAP OF THE BOSTON GLOBE IN 2012

Note: Figure 1 shows the market share distribution of *The Boston Globe* across various counties in 2012 as an example of a local newspaper’s circulation market. The darker the area is, the higher market share the newspaper enjoys in the county. Counties under 25 copies are not identified.

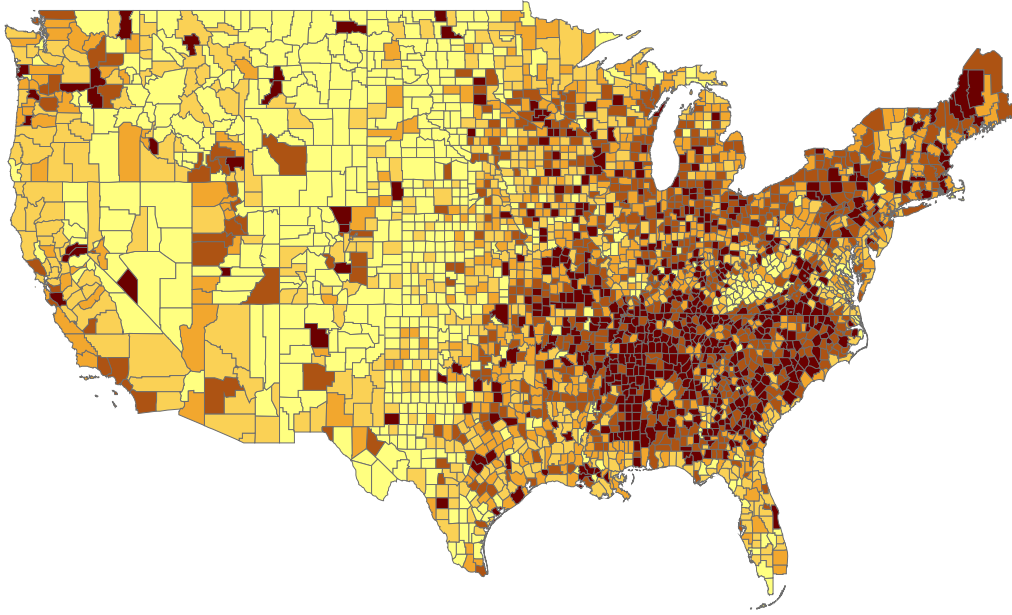


FIGURE 2. U.S. EXPOSURE TO CHINESE IMPORTS ACROSS COUNTIES FROM 1998 TO 2012

Note: Figure 2 plots the U.S. county-level import exposure to Chinese imports from 1998 to 2012 calculated according to Auto et al. (2013). Darker color indicates greater increase in Chinese import competition from 1998 to 2012.



FIGURE 3. LOCATION OF NEWSPAPER'S HEADQUARTER AND CHANGE IN NEGATIVE RATIO FROM 1998 TO 2012

Note: Figure 3 plots the headquarters of the 147 newspapers in the sample and their changes in media slant from 1998 to 2012. Each balloon represents the headquarters of one of the 147 newspapers. Darker color indicates greater increase in media slant against China from 1998 to 2012.

TABLE 1--- SUMMARY STATISTICS FOR VARIABLES AT THE NEWSPAPER LEVEL

	(1)	(2)	(3)	(4)	(5)
	N	Mean	S.D.	Min	Max
<i>Panel A: Change of Newspaper Media Slant (1998-2012)</i>					
ΔNegative Ratio	147	-0.126	0.257	-0.667	0.588
ΔNegative Ratio-Trade	147	0.0207	0.0880	-0.333	0.415
ΔNegative Ratio-Non-Trade	147	-0.0761	0.205	-0.500	0.700
Negative Ratio-Olympics	147	0.153	0.0762	0	0.4
Δ(NgtvTop500/China)	147	-0.0635	0.212	-0.706	0.5
ΔNegativity Score SentiAnalysis	147	-0.0757	0.423	-1.872	2.969
<i>Panel B: Change in Import Exposure at the Newspaper Level</i>					
Newspaper Exposure to Chinese Imports (U.S) 1998-2012 (in 1000 pts)	147	2.297	1.872	0.151	12.606
Newspaper Exposure to Chinese Imports (Other Eight Economies) 1998-2012 (in 1000 pts)	147	2.955	1.684	0.494	12.378
Newspaper PNTR Exposure (% pts)	147	0.000137	6.47e-05	1.78e-05	0.000333
<i>Panel C: Newspaper Level Controls (in 1998)</i>					
Population Share of Ethnic Asian (%)	147	1.884	2.344	0.131	15.884
Population Share of Bachelor's Degree (%)	147	13.026	3.262	4.236	23.419
Population Share of Graduate or Professional Degree (%)	147	7.019	2.223	2.194	13.972
Population Share of Unemployment (%)	147	5.971	1.623	1.758	10.613
Population Share of Female (%)	147	50.866	3.376	17.415	52.990
Median Income (in U.S. dollars)	147	39,486	7,463	13,404	6,224

TABLE 2— BASELINE RESULTS

	Δ Negative Ratio		
	(1)	(2)	(3)
Newspaper Exposure to Chinese Imports 1998-2012 (in 1000 pts)	0.038** (0.018)	0.042*** (0.015)	
Newspaper PNTR Exposure (% pts)			989.187*** (365.535)
Control Variables	No	Yes	Yes
Method	IV	IV	DD
Observations	147	147	147
Weak identification	56.28	80.37	

Note: Robust standard errors are in parentheses. The table reports the results of the impact of Chinese import competition on media slant against China. The dependent variable is the change in percentage of newspaper's negative reports in total China-related reports from 1998 and 2012. Columns (1) and (2) report the estimation results using the instrumental variable framework of Autor et al. (2013) without and with control variables, respectively. Column (3) reports the estimation results obtained from the DD framework as in Pierce and Schott (2016). Control variables for newspaper and its readership attributes are the circulation-weighted shares of the following attributes at the county-level as a proxy for newspaper's readership attributes: Asian population, population with a bachelor's degree, population with graduate or professional degree, unemployed population, female population, and median income level. Weak identification tests represent the wald version of the Kleibergen-Paap (2006) rk statistics. Estimates for the constant term and control variables are suppressed for space.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

TABLE 3— 2008 BEIJING OLYMPICS NEWS REPORTS

	Δ Negative Ratio (2008 Beijing Olympics)	
	(1)	(2)
Newspaper Exposure to Chinese Imports 1998-2008 (in 1000 pts)	0.013* (0.007)	
Newspaper PNTR Exposure (% pts)		90.236 (112.072)
Control Variables	Yes	Yes
Method	IV	DD
Observations	147	147
Weak identification	112.3	

Note: Robust standard errors are in parentheses. The dependent variable in this table is the percentage of newspaper's negative reports in total 2008 Beijing Olympics reports in 2008. Column (1) reports the estimation results using the instrumental variable framework of Autor et al. (2013) with control variables. Column (2) reports the estimation results obtained from the DD framework as in Pierce and Schott (2016). Estimates for constant term and control variables are suppressed.

*Significant at the 10 percent level.

TABLE 4— RESULTS WITH NEGATIVE KEYWORD LIST BY HARVARD IV-4

	$\Delta(\text{NgtvTop500/China})$	
	(1)	(2)
Newspaper Exposure to Chinese Imports 1998-2012 (in 1000 pts)	0.045*** (0.015)	
Newspaper PNTR Exposure (% pts)		994.741*** (316.452)
Control Variables	Yes	Yes
Method	IV	DD
Observations	147	147
Weak identification	80.37	

Note: Robust standard errors are in parentheses. The dependent variable is the change of percentage of newspaper's negative reports in total China-related reports from 1998 to 2012. Negative articles are identified with a negative keyword list constructed according to the Harvard IV-4 and 500 most-often-used single words from all the China-related articles in *The New York Times* and *The Washington Post* (1995-2012). Column (1) reports the estimation results using the instrumental variable framework of Autor et al. (2013) with control variables. Column (2) reports the estimation results obtained from the DD framework as in Pierce and Schott (2016). Estimates for constant term and control variables are suppressed.

***Significant at the 1 percent level.

TABLE 5— NEGATIVITY SCORE FROM SENTIMENT ANALYSIS

	Δ Negativity Score SentiAnalysis	
	(1)	(2)
Newspaper Exposure to Chinese Imports 1998-2012 (in 1000 pts)	0.0490* (0.030)	
Newspaper PNTR Exposure (% pts)		900.065* (526.452)
Control Variables	Yes	Yes
Method	IV	DD
Observations	147	147
Weak identification	80.37	

Note: Robust standard errors are in parentheses. The dependent variable is the change in newspaper’s negativity score derived from sentiment analysis between 1998 and 2012. Column (1) reports the estimation results using the instrumental variable framework of Autor et al. (2013) with control variables. Column (2) reports the estimation results obtained from the DD framework as in Pierce and Schott (2016). Estimates for the constant term and control variables are suppressed.

*Significant at the 10 percent level.

TABLE 6— TRADE VERSUS NON-TRADE RELATED NEWS

	Δ Trade Related Negative Ratio		Δ Non-Trade Related Negative Ratio	
	(1)	(2)	(3)	(4)
Newspaper Exposure to Chinese Imports 1998-2012 (in 1000 pts)	0.009* (0.005)		0.029** (0.011)	
Newspaper PNTR Exposure (% pts)		41.710 (141.474)		829.452*** (289.590)
Control Variables	Yes	Yes	Yes	Yes
Method	IV	DD	IV	DD
Observations	147	147	147	147
Weak identification	80.37		80.37	

Note: Robust standard errors are in parentheses. The dependent variables in columns (1)-(2) are the change in percentage of negative reporting about trade-related news in total China-related reports from 1998 to 2012. The dependent variable in columns (3)-(4) are the change of percentage of negative reporting about non-trade-related news in total China-related reports from 1998 to 2012. Columns (1) and (3) report the estimation results using the instrumental variable framework of Autor et al. (2013) with control variables. Columns (2) and (4) report the estimation results obtained from the DD framework as in Pierce and Schott (2016). Estimates for the constant term and control variables are suppressed.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

TABLE 7--- CHANGE IN NEWSPAPER ENDORSEMENTS IN THE PRESIDENTIAL ELECTIONS (2000-2012)

		Endorsement Change (2000-2012)			
		(1)	(2)	(3)	(4)
Newspaper Exposure to Chinese Imports 2000-2012 (in 1000 pts)		0.0497 (0.0482)	0.0648 (0.0751)		
Newspaper PNTR Exposure (% pts)				2,452* (1,311)	4,318* (2,341)
Control Variables		Yes	Yes	Yes	Yes
Method		IV	Ordered Probit with IV	DD	Ordered Probit with DD
Observations		115	115	115	115

Note: Robust standard errors are in parentheses. The dependent variable is the change in the newspaper's endorsement in presidential elections between 2000 and 2012, which takes the value 2 if the newspaper directly switched from Republicans to Democrats, the value 1 if there was a pro-Democrat change (such as switching from Republicans to no-endorsement, or from no-endorsement to Democrats), the value zero if there was no change in endorsement, the value -1 if there was a pro-Republican change (such as switching from no-endorsement to Republicans, or from Democrats to no-endorsement), finally the value -2 if the newspaper directly switched from Democrats to Republican. Columns (1) and (3) present the results of ordered probit model. For comparison, column (2) reports the estimation results using the instrumental variable framework of Autor et al. (2013), and column (4) reports the estimation results obtained from the DD framework as in Pierce and Schott (2016). Control variables are the same as in the baseline results, plus newspapers' initial party endorsements in 2000 and circulation-weighted voting share for Democrats in 2000 presidential election. Estimates for the constant term and control variables are suppressed.

*Significant at the 10 percent level.

TABLE 8— SUMMARY STATISTICS AT THE COUNTY LEVEL

	N	mean	S.D.	min	max
	(1)	(2)	(3)	(4)	(5)
Δ House Democrat Share (2000-2012)	1,925	-0.040	0.213	-0.869	0.711
Δ Senate Democrat Share (2000-2012)	1,204	0.015	0.123	-0.325	0.699
Δ Presidential Democrat Share (2000-2012)	1,943	-0.013	0.081	-0.424	0.242
Δ County Media Bias (2000-2012)	1,943	-0.064	0.124	-1.008	0.385
Population Share of Ethnic Asian (%) in 2000	1,943	0.893	1.723	0.000	30.900
Population Share of Bachelor's Degree (%) in 2000	1,943	10.913	4.767	2.600	32.800
Population Share of Graduate or Professional Degree (%) in 2000	1,943	5.754	3.450	0.900	36.000
Population Share of Unemployment (%) in 2000	1,943	5.875	2.568	1.400	41.700
Population Share of Female (%) in 2000	1,943	50.562	1.839	34.500	57.400
Median Income in 2000 (in U.S. dollars)	1,943	36,325	9,075	15,805	81,050

Note: Voting share data are from Dave Leip's Atlas of U.S. Elections. Voting share data for House and Senate elections are missing in some counties.

TABLE 9— THE IMPACT OF MEDIA SLANT AGAINST CHINA ON DEMOCRATS VOTING SHARE (2000-2012)

	Δ House Democrats Share	Δ Senate Democrats Share	Δ Presidential Democrats Share
	(1)	(2)	(3)
Δ County Media Slant	0.134*** (0.0461)	0.108* (0.0544)	0.0196 (0.0310)
Control Variables	Yes	Yes	Yes
Observations	1,925	1,204	1,943
R-squared	0.519	0.265	0.257

Note: Robust standard errors clustered at state level are in parentheses. The dependent variables in columns (1)-(3) are the changes of Democrats voting share at the county level in House, Senate, and presidential elections respectively. Control variables at the county level include Asian population, population with a bachelor's degree, population with graduate or professional degree, unemployed population, female population, and median income level in 2000. Estimates for the constant term and control variables are suppressed.

***Significant at the 1 percent level.

*Significant at the 10 percent level.

Appendix A:

TABLE A1 --- NEWSPAPER LIST

Newspaper Name	State	Newspaper Name	State
The Birmingham News	AL	Daily Herald	IL
The Huntsville Times	AL	Herald & Review	IL
Mobile Register	AL	Lake County News-Sun	IL
Arkansas Democrat-Gazette	AR	The News-Gazette	IL
Arizona Daily Star	AZ	The Pantagraph	IL
Daily News	CA	Journal Star	IL
The Fresno Bee	CA	Southern Illinoisan	IL
The Modesto Bee	CA	The State Journal-Register	IL
The Orange County Register	CA	The Beacon News	IL
The Press Democrat	CA	Evansville Courier & Press	IN
The Press-Enterprise	CA	The Journal Gazette	IN
Record Searchlight	CA	The News-Sentinel	IN
The Sacramento Bee	CA	South Bend Tribune	IN
San Jose Mercury News	CA	Post-Tribune	IN
Ventura County Star	CA	The Wichita Eagle	KS
The San Diego Union-Tribune	CA	Lexington Herald-Leader	KY
The Reporter	CA	The Advocate	LA
Press-Telegram	CA	The Times-Picayune	LA
The Denver Post	CO	The Berkshire Eagle	MA
The Hartford Courant	CT	The Boston Globe	MA
New Haven Register	CT	Boston Herald	MA
The Washington Times	DC	Cape Cod Times	MA
Daytona Beach News-Journal	FL	Union-News	MA
The Florida Times-Union	FL	Telegram & Gazette	MA
The Gainesville Sun	FL	The Morning Herald	MD
The Miami Herald	FL	The Sun	MD
Naples Daily News	FL	Bangor Daily News	ME
The Palm Beach Post	FL	Portland Press Herald	ME
Sarasota Herald-Tribune	FL	The Flint Journal	MI
St. Petersburg Times	FL	St. Paul Pioneer Press	MN
The Tampa Tribune	FL	Star Tribune	MN
Bradenton Herald	FL	Duluth News-Tribune	MN
Constitution	GA	St. Louis Post-Dispatch	MO
The Augusta Chronicle	GA	The Kansas City Star	MO
Columbus Ledger-Enquirer	GA	Sun Herald	MS
The Macon Telegraph	GA	The Charlotte Observer	NC
Sioux City Journal	IA	The Fayetteville Observer	NC
Telegraph Herald	IA	The News & Observer	NC
The Gazette	IA	Salisbury Post	NC
Chicago Sun-Times	IL	Winston-Salem Journal	NC

(Newspaper List Continued)

Newspaper Name	State	Newspaper Name	State
News & Record	NC	York Daily Record	PA
The Bismarck Tribune	ND	The Times Leader	PA
Lincoln Journal Star	NE	Centre Daily Times	PA
Omaha World-Herald	NE	The Philadelphia Daily News	PA
The Union Leader	NH	The Providence Journal	RI
The Press of Atlantic City	NJ	Herald-Journal	SC
The Star-Ledger	NJ	The Post and Courier	SC
Albuquerque Journal	NM	The State	SC
The Santa Fe New Mexican	NM	Chattanooga Times/Chattanooga Free Press	TN
Las Vegas Review-Journal	NV	The Commercial Appeal	TN
The Buffalo News	NY	The Knoxville News-Sentinel	TN
The Daily Gazette	NY	Austin American-Statesman	TX
New York Daily News	NY	Corpus Christi Caller-Times	TX
The Post-Standard	NY	The Dallas Morning News	TX
Staten Island Advance	NY	Fort Worth Star-Telegram	TX
Times Union	NY	Houston Chronicle	TX
Watertown Daily Times	NY	San Antonio Express-News	TX
Newsday	NY	The Salt Lake Tribune	UT
New York Post	NY	Daily News-Record	VA
Akron Beacon Journal	OH	Richmond Times-Dispatch	VA
The Blade	OH	The Roanoke Times	VA
The Columbus Dispatch	OH	The Virginian-Pilot	VA
Dayton Daily News	OH	The Columbian	WA
The Plain Dealer	OH	The Seattle Times	WA
The Daily Oklahoman	OK	The Spokesman-Review	WA
Tulsa World	OK	Yakima Herald-Republic	WA
The Oregonian	OR	Seattle Post-Intelligencer	WA
Delaware County Daily Times	PA	The News Tribune	WA
Erie Daily Times	PA	La Crosse Tribune	WI
The Express-Times	PA	Milwaukee Journal Sentinel	WI
The Morning Call	PA	Wisconsin State Journal/The Capital Times	WI
The Patriot-News	PA	Charleston Daily Mail	WV
The Philadelphia Inquirer	PA	Charleston Gazette	WV
Pittsburgh Post-Gazette	PA		

Table A2— Negative Keyword List

Trade & Economics Related	gregge bergersen
trade war	military hacker
fix* exchange rate	espionage
china currency policy	Human Rights
manipulate currency	liu xiaobo
currency manipulat*	<i>abuse</i>
trade deficit	suppress*
*dumping	freedom of (expression or speech)
tariff	demonstrator*
bad loan	riot*
crackdown	surveillance
Environment, Health & Safety	activist*
global warming	Harry Wu
greenhouse gas emission*	panchen lama
diethylene glycol	falun gong
contaminat* wheat gluten	spiritu movement
brick kiln	political asylum
tainted pet food	chen guangcheng
melamine	Hu Jia
highspeed train crash	rebiya kadeer
bird flu	editor*
coal mine	ai weiwei
recall	Ilham Tohti
toxic	wang jinbo
air pollut*	asylum seeker*
Law & Governance	Chen Guangcheng
brib*	death toll
<i>illegal</i>	dalai lama
<i>violat*</i>	uighur
piracy	expel
intellectual property right*	human right*
corrupt*	gao zhisheng
International Relations	xinjiang
disput*	wei jingsheng
sanction	tibet*
Wen Ho Lee	wang dan
los alamo	dissident*

Note: 1. Asterisk (*) is the wildcard character in search, which can represent multiple letters. For example, violat* indicates that words such as “violation”, “violations”, “violate” and “violates” will all be searched. 2. Words in italics are not used in the Beijing Olympics analysis as they could be related to sports scandals.

TABLE A3— PLACEBO TEST: PRE 2000

	Δ Negative Ratio 1998-2000	
	(1)	(2)
Newspaper Exposure to Chinese Imports 1998-2010 (in 1000 pts)	0.249 (0.175)	
Newspaper PNTR Exposure(% pts)		232.221 (335.772)
Control Variables	Yes	Yes
Method	IV	DD
Observations	145	145
Weak identification	75.63	

Note: Robust standard errors are in parentheses. The dependent variable is the change of percentage of newspaper's negative reports in total China-related reports from 1998 and 2000. Two newspapers are excluded (*The Herald Mail* and *Centre Daily Time*) from the sample, because they have no China-related news articles in 2000.

TABLE A4— COVERAGE OF CHINA-RELATED ARTICLES IN ALL ARTICLES

	$\Delta(\text{China}/\text{All} \times 100)$ 1998-2012	
	(1)	(2)
Newspaper Exposure to Chinese Imports 1998-2012 (in 1000 pts)	-0.012 (0.011)	
Newspaper PNTR Exposure (% pts)		-387.691 (287.864)
Control Variables	Yes	Yes
Method	IV	DD
Observations	147	147
Weak identification	80.366	

Note: Robust standard errors are in parentheses. The dependent variable in the table is the percentage of China-related articles in the total number of articles in each newspaper.

TABLE A5— Excluding Editorials

	Δ Negative Ratio 1998-2012	
	(1)	(2)
Newspaper Exposure to Chinese Imports 1998-2012 (in 1000 pts)	0.042*** (0.015)	
Newspaper PNTR Exposure (% pts)		999.486*** (351.085)
Observations	147	147
Control Variables	Yes	Yes
Method	IV	DD
Weak identification	80.37	

Note: Robust standard errors are in parentheses. We exclude opinion pieces by excluding articles with headline containing "editor," "editorial," "opinion," "op-ed," and "letter."

***Significant at the 1 percent level.

TABLE A6— MATCHED KEYWORDS IN HARVARD IV-4

Word	Rank	Count	Sentiment	Word	Rank	Count	Sentiment
law	110	9,535	Positive	avoid	884	2,293	Negative
home	129	8,785	Positive	sensitive	906	2,234	Positive
war	199	6,718	Negative	competition	911	2,209	Negative
important	213	6,519	Positive	opposition	913	2,205	Negative
defense	240	6,205	Positive	pollution	930	2,168	Negative
legal	301	5,140	Positive	ability	937	2,157	Positive
agreement	307	5,052	Positive	success	955	2,136	Positive
problem	311	5,021	Negative	premier	972	2,095	Positive
death	324	4,860	Negative	willing	975	2,092	Positive
health	329	4,828	Positive				
prime	350	4,564	Positive				
crisis	364	4,495	Negative				
corruption	370	4,467	Negative				
council	396	4,248	Positive				
freedom	467	3,772	Positive				
serious	481	3,696	Positive				
best	497	3,620	Positive				
able	506	3,554	Positive				
threat	538	3,406	Negative				
popular	550	3,333	Positive				
commission	558	3,307	Positive				
difficult	567	3,280	Negative				
illegal	665	2,935	Negative				
intelligence	682	2,861	Positive				
inflation	697	2,821	Negative				
sought	713	2,766	Positive				
significant	717	2,752	Positive				
revolution	727	2,738	Negative				
education	736	2,704	Positive				
stability	754	2,631	Positive				
special	781	2,562	Positive				
independence	789	2,547	Positive				
create	811	2,486	Positive				
bad	824	2,440	Negative				
traditional	844	2,389	Positive				
protect	850	2,376	Positive				
violence	858	2,347	Negative				
prominent	880	2,307	Positive				
community	883	2,295	Positive				

Note: This table shows matched keywords in Harvard IV-4, and their word frequency and rankings in *The New York Times* and *The Washington Post* (1995-2012)

TABLE A7— HARVARD IV-4 KEYWORD SEARCH

	$\Delta(\text{NgtvTop1000/China})$			$\Delta\text{NgPsTop500}$			$\Delta\text{NgPsTop1000}$		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Newspaper Exposure to Chinese Imports 1998-2012 (in 1000 pts)	0.039*	0.040**		0.030*	0.025*		0.024*	0.018	
	(0.021)	(0.020)		(0.017)	(0.015)		(0.015)	(0.012)	
Newspaper PNTR Exposure (% pts)			631.339*			750.095*			196.536
			(330.937)			(407.865)			(262.464)
Control Variables	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Method	IV	IV	DD	IV	IV	DD	IV	IV	DD
Observations	146	146	146	147	147	147	147	147	147
Weak identification	55.49	79.11		56.28	80.37		56.03	79.67	

Note:

1. “Human” is excluded in the positive list as it is associated with a number of reports about human rights issues, which are mostly negative in China-related news.
2. $\text{NgPsTop500} = (\text{NegativeTop500} - \text{PositiveTop500}) / (\text{NegativeTop500} + \text{PositiveTop500})$.
3. $\text{NgPsTop1000} = (\text{NegativeTop1000} - \text{PositiveTop1000}) / (\text{NegativeTop1000} + \text{PositiveTop1000})$.
4. For 2012, Daytona Beach News-Journal has no search results for both the top 500 positive and negative keywords in China-related news, therefore the newspaper is dropped from the sample

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Appendix B: Robustness Checks on Autor et al.'s (2013) IV

In this appendix, we conduct a series of robustness checks following Autor et al. (2013), to address the potential endogeneity problems associated with our measure of trade exposure. More specifically, while we use the Chinese imports of eight other developed countries as an instrumental variable for our key variable of U.S. imports from China, one may argue that there could be some common industry shocks (such as booming demand for real estate construction or the rising importance of IT technology) that drive the demand in both the United States and eight other developed countries. Therefore, following Autor et al. (2013), we construct two subsamples: 1) dropping the construction-related industries: the steel, flat glass and cement industries, and 2) dropping the computer industry, and repeat the analysis. As shown in columns 1-6 in Appendix Table B1, our results are generally robust to these two subsamples, although the effect of trade exposure on media bias for the subsample excluding the computer industry is weakened slightly once the control variables are included into Autor et al.'s method. In addition, we also focus on a third subsample: 3) excluding apparel, footwear, and textiles industries for which China is the world's dominant exporter, and find our main results robust to this subsample (columns (7)-(9) in Appendix Table B1).

We also incorporate export data to construct the net trade exposure as

$$\sum_c \frac{w_{c,m}^{1998}}{w_m^{1998}} \sum_j \frac{L_{cj}^{1998}}{L_j^{1998}} \frac{\Delta \hat{M}_j^{US}}{L_c^{1998}} - \sum_c \frac{w_{c,m}^{1998}}{w_m^{1998}} \sum_j \frac{L_{cj}^{1998}}{L_j^{1998}} \frac{\Delta \hat{X}_j^{US}}{L_c^{1998}}$$

Where ΔX_j^{US} is U.S. exports to China in industry j . We instrument the net import measure using import exposure and export exposure constructed similar as equation (2), using trade data from other eight developed countries. The result still holds as shown in Appendix Table B2.

TABLE B1-- SELECTED INDUSTRIES

	Exclude Construction-Related Industries			Exclude Computer Industries			Exclude China's Dominant Exports		
	Δ Negative Ratio			Δ Negative Ratio			Δ Negative Ratio		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Newspaper Exposure to Chinese Imports 1998-2012 (in 1000 pts)	0.0405*** (0.0135)	0.0435*** (0.0135)		0.0405*** (0.0135)	0.0435*** (0.0135)		0.0339*** (0.0108)	0.0435*** (0.0101)	
Newspaper NTRGap Exposure (% pts)			976.884*** (362.973)			975.997*** (367.958)			969.943** (376.7)
Control Variables	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Method	IV	IV	DD	IV	IV	DD	IV	IV	DD
Observations	147	147	147	147	147	147	147	147	147
Weak identification	294.1	256		294.1	256		796	705.4	

Note: Robust standard errors in parentheses.

***Significant at the 1 percent level.

TABLE B2: NET TRADE EXPOSURE

	Δ Negative Ratio 1998-2012	
	(1)	(2)
Newspaper Net Trade Exposure (in 1000 pts)	0.0433** (0.0208)	0.0486*** (0.0179)
Control Variables	NO	Yes
Method	IV	IV
Observations	147	147
Weak identification	26.74	28.75

Note: Robust standard errors in parentheses.

***Significant at the 1 percent level.

**Significant at the 5 percent level.