


RESEARCH ARTICLE

“Exit” vs. “Voice”: Global Sourcing, Multinational Production, and the China Trade Lobby

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Abstract

This paper examines the influence of three different forms of global economic engagement on the lobbying behavior of US businesses with regard to trade relations with China: (a) input sourcing; (b) downstream export; and (c) vertical foreign direct investment. It will be hypothesized that firms involved in all three forms of global economic activities should have incentives to lobby over China-related trade issues in order to maintain unimpeded access to sources of supply or markets and to ensure the smooth operation of the entire supply chain. Going further, drawing on the exit-voice framework developed by Albert Hirschman (1972), it will be argued that compared to firms in those industries mainly involved in input sourcing from China, American multinational corporations that have verticalized their production should have even stronger incentives to engage in lobbying activities and “voice” their policy preferences due to their greater “sunk costs” and hence the higher cost of “exit.” Statistical analysis of the China trade-related lobbying activities of US firms between 2006 and 2016 lends substantial support to these conjectures.

Introduction

The growing fragmentation of production across national borders in the past few decades has resulted in the substantial transformation of manufacturing supply chains and given rise to different forms of global economic engagement. While some firms have more frequently engaged in the import of intermediate products from foreign downstream producers or the supply of such goods to upstream producers for either domestic use or export, others have taken advantage of the reduction of transportation costs and trade barriers to undertake foreign direct investment (FDI). What are the political implications of the globalization of manufacturing supply chains? How do the increasingly diverse forms of firms’ global economic engagement affect business incentives to lobby the government over trade policy?

This paper approaches these questions through an examination of the pattern of American firms’ lobbying over trade relations between the United States and China. Specifically, it examines three increasingly important forms of supply chain integration between the United States and China that, at least until more recently with the move toward the decoupling of US-China relations under the Trump Administration,¹ have become key features of East Asian production networks centered around China—(a) input sourcing, or the sourcing of intermediate goods for production and export; (b) downstream export, or the export of intermediates that are then incorporated into Chinese production and export; (c) and multinational production through vertical FDI whereby firms offshore production and export the products they make in the foreign country back home. As the next section will describe in more detail, China’s increasing participation in buyer-driven and producer-driven production networks during the reform era has both accentuated the links between Chinese suppliers and their overseas buyers and stimulated the growth of FDI that sought to use China as a production platform for export to global markets and later the Chinese domestic market. The growth of the Chinese

¹Johnson and Gramer, 2020.

economy further resulted in increases in the import of intermediate products from US and other foreign suppliers that were incorporated into domestic production.

It will be hypothesized that all three forms of global economic engagement should be positively associated with lobbying frequency as firms involved in these activities have incentives to maintain unimpeded access to sources of supply or markets and to ensure the smooth operation of the entire supply chain. Going further, drawing on the exit-voice framework developed by Albert Hirschman,² it will be argued that compared to industries mainly involved in input sourcing from China, firms in industries with a high level of vertical FDI should have even stronger incentives to engage in lobbying activities and “voice” their policy preferences due to their greater “sunk costs,” or unrecoverable, specific assets dedicated to the Chinese market and hence the higher cost of “exit.” In contrast, while the ability to source inputs, resources, and components necessary for production from China remains important to a large number of US businesses, the greater flexibility associated with such arms-length transactions may have made it less imperative for these firms to engage in lobbying activities in order to address their trade policy concerns.

The paper tests these hypotheses through an examination of US firms’ lobbying activities over China-related trade issues between 2006 and 2016. Research findings lend support to the above theoretical conjectures, suggesting that compared to other types of firms, firms in industries with a high level of vertical FDI have been the most active in lobbying over China-related trade issues and seeking to influence US trade policy toward China.

This study contributes to not only the literature on the trade policy implications of global supply chains and trade lobbying, but also to our understanding of the role of domestic interest groups in influencing the US trade policy agenda toward China. First, a small but rapidly growing body of literature³ has examined the political economy implications of the globalization of production. While this literature has highlighted the political consequences of diverse forms of global economic engagement, so far little attention has been directed to the potential variation among these activities. This research goes beyond these studies by providing a more nuanced treatment of the lobbying behavior of globally engaged corporate actors.

Second, the literature on the role of interest groups in trade lobbying has focused on the competing influence of export-oriented vs. import-competing groups⁴ or of downstream vs. upstream producers in the domestic economy.⁵ Findings from this research show that growing supply chain integration is erasing the distinction between export-oriented and import-competing groups and has at the same time led the linkages between downstream and upstream producers to be extended across national borders. As a result, lobbying on China trade policy seems to be going beyond the traditional divide emphasized by the existing literature to more frequently involve businesses whose trade and production activities span national borders.

Finally, the findings speak to studies of the influence of domestic interests in China’s foreign trade relations. Eckhardt documents the role of import-competing and import-dependent groups in influencing trade relations between China and the European Union.⁶ Zhang highlights lobbying efforts by US multinationals to seek exemptions from the increased import tariffs on Chinese products during the recent trade war.⁷ Zeng suggests that US threats to impose trade restrictions on China enjoyed support only from the import-competing groups. Opposition to sanction threats from both export-oriented interests and import users highly dependent on the supply of labor-intensive products from China helped to offset such protectionist pressure, dampening the likelihood of a trade dispute escalating to a trade war in the years leading up to China’s accession to the World Trade Organization (WTO).⁸ This study extends this insight by showing that following China’s WTO accession, the concerns of import users may have taken a back seat to those of US multinational corporations (MNCs)

²Hirschman, 1972; 1980.

³Blanchard et al., 2017; Eckhardt, 2015; Eckhardt and Poletti, 2016; Kim et al., 2019; Meckling and Hughes, 2017; Osgood, 2017, 2018; Yildirim et al., 2018.

⁴Levy, 1999.

⁵Gawande et al., 2012; Gawande and Bandyopadhyay, 2000.

⁶Eckhardt, 2011; 2015.

⁷Zhang, 2019.

⁸Zeng, 2004.

with less flexibility in their trade and investment activities in shaping the US trade policy agenda with China. This may help to illuminate, at least in part, the conditions giving rise to Trump's trade war against China as well as the role of domestic politics in the United States in influencing recent and future developments in the bilateral economic relationship.

The multifaceted nature of US-China trade relations

China's participation in global production networks has taken two major organizational forms, specifically, buyer-driven and producer-driven production networks. The early expansion of China's manufacturing exports took place primarily within buyer-driven production networks, which involve production sharing between an international buyer that serves as the "lead firm" and various producers through arm's-length transactions, with global sourcing companies functioning as value-chain intermediaries linking the various parties together.⁹ As manufacturing firms from Hong Kong took advantage of the incentives offered by Beijing and relocated their production to mainland China, they have come to play a pivotal role in facilitating Chinese firms' expansion in global markets.¹⁰

The deepening of China's economic reform and sustained trade and investment liberalization throughout the 1990s and 2000s have since led China to gradually shift away from buyer-driven production networks to producer-driven production networks that feature production sharing coordinated by MNCs through their global networks or operational links with established contract manufacturers.¹¹ This process has been facilitated by the expansion of MNC production in China made possible by the gradual deregulation of control over FDI by the Chinese government.¹² According to the US Bureau of Economic Analysis (BEA), net US FDI flows to China has increased from \$5.42 billion in 2010 to \$7.59 billion in 2018, while total US FDI stock in China has grown from \$58.99 billion to \$116.52 billion during the same period. In 2016, China represented the third-largest overseas market for US-affiliated firms, after the United Kingdom and Canada.¹³ As a result of the rise of MNC activities in China and the improvement in China's domestic production capabilities, the share of China's exports generated through producer-driven networks in total global production network (GPN) product exports has increased rapidly, from 51.2 percent in 2000–2001 to 74.2 percent in 2014–15, with information technology products such as telecommunications, electrical machinery, and automated data-processing machines accounting for a particularly large share.¹⁴ Total US related-party imports from China have increased from \$63 billion in 2005 to \$126 billion in 2018.¹⁵

Notably, the growing importance of exports generated within producer-driven networks does not imply a corresponding decline of those produced within buyer-driven networks. Between 2000–2001 and 2014–15, China's world market share increased from 30.9 percent to 49.2 percent for apparel and 21.9 percent to 40.5 percent for footwear and travel goods. According to Athukorala, this pattern could be explained by the fact that China has expanded its domestic production base rather than lost its competitiveness in products traded in buyer-driven networks that tend to be more labor-intensive. As a result, China continues to be a major supplier of intermediates goods, such as raw materials, industrial inputs, and machine parts to US businesses.¹⁶ It is estimated that about 37 percent of US imports from China represent intermediate inputs to "Made in the U.S.A." goods, with the remaining 63 percent being imports of final consumption

⁹Buyer-driven production networks are most common in consumer goods industries (such as clothing, footwear, travel goods, and toys).

¹⁰Roach, 2014; Sung, 1995.

¹¹Producer-driven networks are more frequently seen in vertically integrated industries such as electronics, electric goods, and automobiles. For a more detailed discussion of the differences between buyer-driven and producer-driven production networks, see Gereffi (1999).

¹²Lardy, 2014.

¹³Schwarzenberg, 2019.

¹⁴To be sure, besides exporting from China, American multinational corporations also increasingly relocate production to China to serve the Chinese market. Athukorala, 2017.

¹⁵Related-party Trade Database, United States Census Bureau.

¹⁶Imports of intermediates goods and capital equipment account for about half of US global imports. Ikenson, 2018.

goods.¹⁷ In 2016, China was the second largest supplier of intermediate goods to the United States, after only Canada, reflecting its long-held advantages as a manufacturer of low-cost products.¹⁸

While participation in buyer-driven and producer-driven production networks represent the main forms of China's integration in global supply chains, growing supply chain linkages between the United States and China are also manifested in US exports to China that are then used by downstream producers in the production of other products that ultimately end up in the US or third-country markets.¹⁹ As a result of such linkages, domestic value added generated by US manufacturers embodied in China's final demand as a percentage of total US domestic value added in foreign final demand has increased from 4.39 percent in 2005 to 11.69 percent in 2015.²⁰ Overall, the increasingly diverse forms of commercial interactions between the two countries mean that, until more recently, American and Chinese producers have become inextricably linked to one another as a result of the fragmentation of production across national borders.

Global supply chains and business lobbying over US-China trade relations

What implications does the growing supply chain integration between the two countries laid out above have for the policy preferences and behavior of US corporate actors? How does it affect US businesses' incentive to lobby over US-China trade relations? This section turns to these questions and lays out the paper's main testable hypotheses.

Global input sourcing

It will be hypothesized that the emergence of China as an attractive sourcing destination has resulted in the rapid growth of the so-called backward global value chain (GVC) linkages between the two countries²¹ and generated enhanced incentives for US businesses to push for trade liberalization. Intuitively, when the US industry has a high level of backward GVC linkages to China, free trade will reduce the costs of inputs and therefore of its products. Because these inputs (e.g., raw materials or high-value components) are frequently an integrated part of the GVC and cannot be easily substituted by sourcing from domestic or other foreign markets at a competitive price, the gains from trade liberalization will be substantial. Indeed, a growing body of literature in both economics and political science²² have examined the trade policy implications of global sourcing, with most studies concluding that industries highly dependent on sourcing intermediates from abroad have stronger stakes in trade liberalization as the ability to maintain unimpeded access to cheap intermediate products in an open economy bears importantly on firm profitability and survival. The following study uses an industry's backward GVC linkages, calculated as the log of the value added from China in US domestic final demand, as a proxy of input sourcing.²³ In the context of US-China trade relations, it is expected that *firms in industries with extensive backward GVC linkages to China (i.e., those that source a large amount of intermediate products from China) should be more actively involved in lobbying over US-China trade relations. (Hypothesis 1)*

Downstream export

In addition to forging backward GVC linkages with upstream suppliers through input sourcing, firms may also develop forward GVC linkages with downstream producers when their products end up

¹⁷Hale et al., 2019.

¹⁸Torseka, 2017.

¹⁹A good example that can help illustrate this phenomenon concerns exports of chips and electronic integrated circuit by companies such as Intel, Broadcom, and PortalPlayer that are incorporated into the manufacturing of other products imported into the United States, such as Apple's iPods. Dedrick et al., 2010; Subhayu et al., 2018.

²⁰Trade in Value Added (TiVA) Database, Organisation for Economic Co-operation and Development (OECD).

²¹Banga, 2013.

²²E.g., Blanchard, 2015; Blanchard et al., 2015; Blanchard and Matschke, 2015; Eckhardt, 2013; Eckhardt and Lee, 2018; Eckhardt and Poletti, 2016; Gawande et al., 2012; Osgood, 2017, 2018.

²³Since sector-specific data on the share of foreign value added in exports are not available from the OECD TiVA dataset, this study instead uses the value of foreign value added in a sector's final domestic demand as a proxy.

embodied in foreign production and export of intermediate or final goods. In this case, producers in an input-producing industry that supply to foreign producers should be incentivized to lobby for trade liberalization as it will lower import tariffs in the destination countries, which will in turn reduce the costs of their products and therefore increase their competitiveness in foreign markets. They should additionally be motivated to lobby for good bilateral relations in order to avoid potential disruptions to their businesses that may arise as a result of rising tensions in the bilateral relationship. The development of forward GVC linkages should therefore expand support for trade, leading industries with a high level of their products incorporated in foreign exports to more actively lobby for trade liberalization with the partner country.

Meckling and Hughes' study of the solar photovoltaics industry lends some support to the above conjecture, suggesting that regardless of whether they have affiliates in China or not, upstream polysilicon and equipment manufacturers in both the United States and Europe oppose barriers to imports that may negatively affect Chinese solar photovoltaics module producers' demand for their products.²⁴ Blanchard et al. find an inverse relationship between final goods tariffs and the domestic content of foreign-produced final goods. They further attribute this pattern to the fact that import barriers may negatively impinge on the welfare of domestic input suppliers as import taxes "depress the value of foreign goods produced and hence revenue accruing to domestic input suppliers."²⁵ The above discussion leads us to expect that domestic suppliers of inputs that are used in foreign production and exports should have incentives to support trade liberalization. In the case of US-China trade relations, it is hypothesized that *firms in industries with extensive forward GVC linkages to China (i.e., those that supply a large amount of intermediate products to China) should be more likely to lobby over U.S.-China trade relations. (Hypothesis 2)*

Vertical foreign direct investment

It will be further posited that an industry's incentive to support free trade with China may be further influenced by the vertical FDI that American MNCs have increasingly undertaken in China. A large share of US investment in China takes the form of vertical FDI whereby American firms move production of either intermediate or final products to China and, by exploiting the labor and natural resource supplies and other locational advantages in the Chinese market, export their products primarily to the home market.²⁶

The trade policy implications of vertical FDI has received growing scholarly attention. Jensen et al. argue that FDI and intra-firm trade reduce the likelihood that firms will pursue protectionist trade policy by filing an antidumping suit against the foreign country.²⁷ Manger argues that by allowing for mutual specialization of production between developed-country MNCs and developing countries, vertical intra-industry trade increases the feasibility of North-South trade liberalization as it generates employment and foreign exchange earnings in developing countries and reduces the threat to industries previously protected under the import-substitution industrialization (ISI) scheme in many developing countries.²⁸

The above theoretical insights can be extended to explain trade lobbying patterns as well. In the case of US-China trade relations, American multinationals that directly own and operate production plants in China should have strong incentives to lobby both the partner and the home country to liberalize trade due to their established ties with the Chinese market "such as production facilities, supply relationships, sales relationships, or ownership by a party from the trading partner country."²⁹ Furthermore, trade liberalization may either generate opportunities for new trade or consolidate existing trade patterns that enhance these firms' ability to move goods and services across borders.³⁰ Firms

²⁴Meckling and Hughes, 2017.

²⁵Blanchard et al., 2017.

²⁶This is in contrast to horizontal FDI whereby a multinational corporation engages in FDI primarily to serve the host market. For the differences between horizontal and vertical FDI, see, for example, Helpman (1984), Yeaple (2003), and Keller and Yeaple (2009).

²⁷Jensen, Quinn, and Weymouth, 2015.

²⁸Manger, 2012.

²⁹Meckling and Hughes, 2017.

³⁰Mansfield and Reinhardt, 2008; Osgood 2018.

should also be incentivized to lobby for trade liberalization because “they pay tariffs on the import of intermediate or finished, but ‘unbranded’ goods.”³¹

It is possible, of course, that firms in industries with a high level of vertical FDI may have heterogeneous trade preferences. While firms that have multinationalized production should be more likely to support trade liberalization, those whose production remains primarily oriented toward the domestic market should be expected to be opposed as they face import competition in foreign and home-grown producers alike.³² Nevertheless, there has been little empirical evidence to date that domestically-oriented firms have publicly voiced their opposition to trade liberalization.³³ Furthermore, recent research on the politics of trade lobbying inspired by the new, new trade theory suggests that it is the largest firms, especially those that are more exposed to the international market, that are more likely to have the resources and incentive to influence trade policy.³⁴ It is therefore reasonable to expect that, on average, *firms in industries with a high level of vertical FDI should be more likely to be actively involved in lobbying over issues related to US-China trade relations. (Hypothesis 3)*

“Exit” vs. “voice”: Input sourcing vs. multinational production

While it is expected that firms involved in all three forms of global economic engagement should be likely to lobby over China-related trade issues, firms in industries with a high level of vertical FDI should be even more vocal than those involved in input sourcing in their lobbying activities. Drawing on the exit-voice framework developed by Albert Hirschman,³⁵ it will be argued that due to their larger “sunk costs” and greater difficulty of relocating production to third countries, firms in industries that have verticalized production to China may be more likely to pursue the “voice” strategy by actively lobbying the host government for greater market access, regulatory changes that lead to a more favorable business environment, or for resolving other contentious issues in the bilateral trade relationship.

A large body of literature in economics suggests that sunk costs, or nonrecoverable investments, may influence business actors’ ability to make rational decisions, resulting in the so-called sunk-cost effect.³⁶ It has also been shown that considerations of sunk costs, such as the development of distribution, sales, and servicing networks may influence firms’ export decisions and make it more difficult for them to alter trade patterns once a decision has been made to conduct business in a particular market.³⁷ Sunk costs may further increase the difficulties of shifting to alternative destinations in the case of FDI, especially intra-industry FDI, due to investments in existing production facilities that may not be easily duplicated at reasonable costs.³⁸

The following analysis focuses more specifically on the implications of sunk costs for input sourcing versus vertical FDI. In an age of growing GVC integration, firms may choose to source the intermediate products, resources, and other inputs necessary for production through either intra-firm transactions with firms related through ownership or control *or* market-based “arms-length” transactions with unaffiliated firms, a decision that is often influenced by the relative costs of performing the task through the market versus internal costs.³⁹ Firms are more likely to develop arm’s-length relationships with outside suppliers and take advantage of the latter’s greater ability to specialize and achieve economies of scale through input sourcing when inputs are highly standardized or do not involve dedicated assets. In contrast, vertical integration is more likely when there is considerable variation in consumer demand, the production and delivery of the product or service involve dedicated assets, the enforcement of incomplete contract incurs considerable costs, or when considerations of the need

³¹Manger, 2012.

³²Osgood, 2017.

³³*Ibid.*, 2018.

³⁴E.g., Bernard et al., 2007; Ciuriak et al., 2015; Melitz, 2003; Osgood et al., 2017.

³⁵Hirschman, 1972.

³⁶E.g. Arkes and Blumer, 1985; Garland, 1990; Karlsson et al., 2002; Thaler, 1980; Thaler and Johnson, 1990; Whyte, 1986.

³⁷Baldwin, 1988; Dixit, 1989.

³⁸Helpman, Melitz, and Yeaple, 2004.

³⁹Coase, 1937.

to protect propriety knowledge or technology are more prevalent.⁴⁰ In the latter case, relationship-specific sunk costs should be particularly likely to reduce the ease with which firms may be able to make fluid adjustments in response to changing political and economic conditions.⁴¹ This should in turn increase the costs of the “exit” option and generate greater incentive for businesses to engage in lobbying activities to maintain and expand the existing relationship or to address perceived market impediments.

To be sure, the above argument acknowledges that sunk costs underlie the activities of firms involved in either type of transactions. The expansion of regional production networks, in particular, underscores the importance for firms to have reliable access to the supply of parts, components, and other necessary components. What distinguishes businesses that are primarily involved in input sourcing from those that are mainly involved in vertical FDI, however, is that compared to the former who has greater flexibility with regard to sourcing decisions, MNCs engaged in vertical FDI may find it more difficult to change existing partnerships and business models by relocating production to third countries.

As mentioned above, it is certainly the case that firms can potentially relocate production to third countries. However, this seems to represent a “second best” strategy for firms heavily involved in global production networks. For one, firms with substantial existing “sunk costs” in the local market or more highly dependent on the economies of scale or specialized resources offered by the host country simply may not be able to effectively pursue such an exit strategy. For another, even if firms may be able to relocate to third countries, this still may not represent the optimal or most efficient outcome. For example, there are now reports that firms that moved to Vietnam and other southeast Asian countries in order to get around the tariffs in the ongoing trade war are regretting their decisions as they couldn’t match China in terms of the quality of labor, infrastructure, cost, and policy environment, at least in the short run.⁴² These lower-wage countries also often lack the capacity and human capital necessary for the production of more sophisticated products required by American companies, especially in areas such as automation and robotics.⁴³

In contrast, firms’ input sourcing decisions may be more likely to be influenced by other considerations such as cost, therefore potentially reducing the degree to which they are tied to the local market. For example, China’s advanced manufacturing capabilities and cost advantages in textiles and apparel mean that, for a long time, the US fashion industry has had few viable substitutes for the Chinese market. However, rising production costs in China in recent years have increasingly led American brands to search for alternative sourcing options. Not only have US fashion companies gradually reduced sourcing from China, they have also sought to diversify their sourcing strategy, with many companies utilizing multiple sourcing destinations to include other regions, such as Central America and the Caribbean Basin region, even as they retain China as the main destination.⁴⁴ This trend toward sourcing diversification has escalated even further amid the trade tensions generated by President Trump’s trade war against China.⁴⁵

It should be noted that Hirschman did not apply the exit-voice framework to lobbying in his original contribution. However, subsequent studies have extended his model to analyze a wider range of political and economic phenomena, including corporate lobbying to influence tax policy and government spending⁴⁶ or firm decision to offshore production,⁴⁷ highlighting in particular the incentives that sunk capital provides to their owners to engage in political activities in order to protect their profits. The above argument also does not assume that “voice” is costless. Instead, firms have to weigh the benefits of lobbying against its potential costs, including both direct financial costs and indirect ones,

⁴⁰Dunning and Lundan, 2008; Grossman and Hart, 1986; Lanz and Miroudot, 2011.

⁴¹Previous studies (e.g., Davis and Meunier, 2011) have examined how sunk costs may dampen the effect of political shocks on market transactions.

⁴²“New Hurdles Arise as Manufacturing Looks to Vietnam During U.S.-China Trade War,” 2019.

⁴³Maidment, 2018.

⁴⁴Lu, 2014.

⁴⁵Ibid., 2019.

⁴⁶See, for example, Coate and Morris (1999); Garfinkel and Lee (2000); Marceau and Smart (2003).

⁴⁷Feng, 2018.

such as investment distortion, that may arise from such activities. In the context of this study, this amounts mostly to an assessment of the benefits of continuing the firms' operations in China versus the financial resources they must expend to sustain the lobbying activities.

Given that it took decades for foreign companies to develop the extensive local supply chains that employ about 25 million Chinese workers, with a good portion of them being skilled engineers and managers,⁴⁸ it seems reasonable to argue that the benefits of preserving the firms' China operations may far outweigh the financial costs associated with lobbying activities. As Lardy suggests, nonfinancial FDI in China, which averages about \$140 billion in recent years, has grown by 3 percent a year since the trade war began in mid-2018, roughly the same rate as in the previous five years.⁴⁹ In a recent member survey conducted by the US-China Business Council, 97 percent of the firms indicated that their operations in China are running at a profit, and 87 percent responded that they either have not or do not have any plans to relocate their activities.⁵⁰ Commenting on the possibility that Foxconn might relocate its manufacturing of Apple products from China, Arthur Kroeber, the editor-in-chief of *China Economic Quarterly*, suggested that "it is fantasy to imagine that such an operation can be quickly replicated in Vietnam or India."⁵¹ Given that relocating production out of China "is easier said than done,"⁵² it does not seem too far-fetched to argue that the financial costs associated with lobbying may have paled in comparison to the broader interests in maintaining existing trade and investment relations for the majority of American MNCs with ties to the Chinese market.

Overall, the above analysis suggests that *compared to firms in industries highly dependent on input sourcing, those in industries with a high level of vertical FDI should be even more vocal in lobbying for issues related to US-China trade relations and in shaping the US trade policy agenda toward China.* (Hypothesis 4)

Research design

This section discusses the paper's research design, including the data and variables used for the empirical analysis.

Data

This paper draws on data on the lobbying activities of US companies over China-related trade issues between 2006 and 2016 available from the US Congress to test its hypotheses.⁵³ The lobbying data are compiled by the Center for Responsive Politics (CRP) based on the lobbying disclosure reports filed with the Secretary of the Senate's Office of Public Records (SOPR) and available from its website. During the period under consideration, a total of 15,617 firms have engaged in China-related lobbying. The estimation sample therefore consists of a total of 171,046 observations, with the unit of analysis being firm-year. Among the firms included in the analysis, 736 unique firms have lobbied over China-related trade issues.

The CRP reports lobbying activity under one of eighty issue areas (e.g., Trade, Taxes, or Energy). The analysis includes all lobbying activities falling under the Trade and Tariffs categories. Filters within each issue area allow identification of the lobbyists who worked on that issue as well as the agencies or chamber of Congress they contacted. They additionally provide a brief description of

⁴⁸Lardy, 2019.

⁴⁹Ibid.

⁵⁰USCBC, 2019.

⁵¹Kroeber, 2019.

⁵²Lardy, 2019.

⁵³The lobbying reports are maintained by the Congress in their original form and transformed by CRP into a more accessible format. For a more detailed discussion of the source of the data and the methodology used to compile them, see <https://www.opensecrets.org/federal-lobbying/methodology>. Although lobbying data is available from 2000 to 2017, the analysis is limited to the 2006–16 period as the key variables used to measure input sourcing and multinational production are only available for 2005–15.

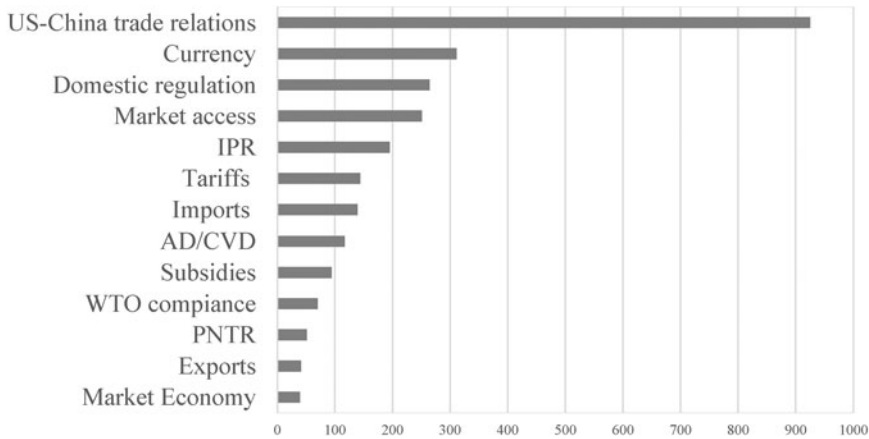


Figure 1. Major Issues in US-China Trade Relations the Companies Lobbied on Behalf
 Source: CRP lobbying data tabulated by author.

the specific issues lobbied such as “US-China trade relationship;” “issues pertaining to China market access;” “anti-dumping investigation of China before US International Trade Commission;” and “China currency policy, etc.” The filters make it possible for the researcher to identify the China-related bills and the specific topics the companies lobbied on behalf.⁵⁴ Most lobbying records indicate the specific bill(s) associated with the lobbying activity, but some simply list the specific issue(s) that the firm has lobbied over without mentioning any specific legislation.

Figure 1, which presents the breakdown of the specific issues lobbied, shows that companies have most frequently lobbied over general US-China trade relations, followed by more specific issues such as the Chinese currency, domestic regulation, market access, intellectual property rights (IPR) protection, tariffs, issues related to US exports to China, and antidumping and countervailing duties. Firms have additionally lobbied over issues related to agriculture, subsidies, or the negotiation of a bilateral investment treaty, etc. Firm lobbying over these issues does not necessarily imply support or opposition, but more generally provides an indication of an interest in getting an issue onto the legislative agenda or concern with specific issue(s) in the bilateral trade relationship and hence political activism over China-related trade issues.

Dependent variable

The main dependent variable for the following analysis is a count variable of the number of times a firm has engaged in China-related trade lobbying (*lobbying_count*). Since lobbying frequency varies among the firms analyzed, ranging from 1 to 12, such a count variable can better capture the intensity of firms’ political activities. Figure 2 presents the top ten industries with the most lobbying counts, while figure 3 shows the variation in lobbying frequency during the period examined in this study. As figure 3 suggests, lobbying activities have grown since 2006, reaching a peak in 2009, but has gradually declined since then.

Main independent variables

Backward GVC linkage

This study uses an industry’s backward GVC linkage to China, calculated by taking the logarithm of foreign value added in domestic final demand, as a proxy of the level of its inputs sourcing from the Chinese market. Such a measure captures the importance of Chinese-made inputs for US firms regardless of whether they are sold domestically in the United States or exported abroad and so better reflects

⁵⁴See Appendix 1 for sample lobbying records.

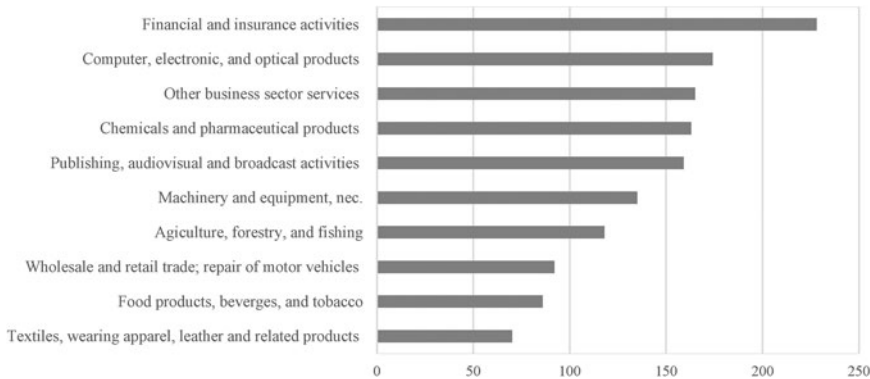


Figure 2. Top Ten Industries with the Most Lobbying Counts

Source: CRP lobbying data tabulated by author.

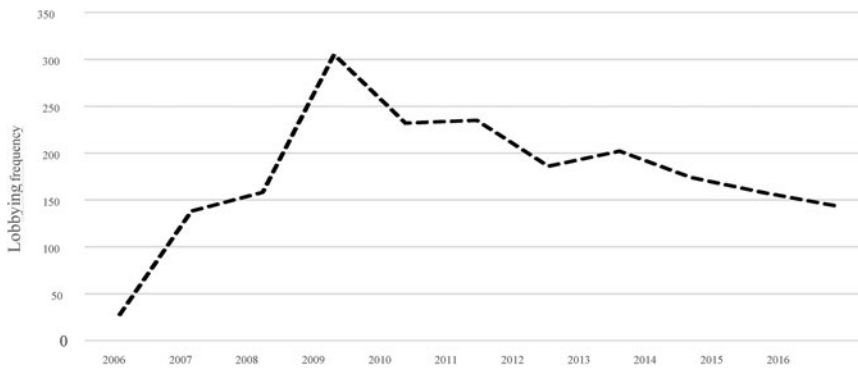


Figure 3. Lobbying Frequency by Year, 2006–16

Source: CRP lobbying data tabulated by author.

the full range of activities encompassed by backward GVC linkages compared to an alternative measure calculated as the share of foreign added in industry exports.⁵⁵ Data for this variable are drawn from the Trade in Value Added (TiVA) Database published by the Organisation for Economic Co-operation and Development (OECD) and are generated from the OECD's Inter-Country Input-Output (ICIO) system using the ISIC Rev. 4 classification.⁵⁶

Forward GVC linkage

The following analysis uses the logged value of US domestic value added in China's final demand as a proxy of forward GVC linkage. Data for this variable are also drawn from the TiVA dataset.

Related-party (RP) trade

The concept of vertical FDI outlined above captures FDI undertaken to produce parts, components, or services more efficiently from abroad. While multinational companies employ both intra-firm and arms-length transactions, intra-firm transactions take up a relatively large share of MNC activities, accounting for roughly one-third of global exports in 2015.⁵⁷ Since it is difficult to observe vertical FDI at the firm level, the analysis uses related-party trade at the industry level as a proxy. Data for this variable are drawn from the US Census Bureau. Studies have found that this data source is similar to the WorldBase database

⁵⁵For studies that employ similar measures, see Koopman et al. (2012); Upward et al. (2013); and Wang et al. (2018).

⁵⁶For a list of industries in the TiVA indicators, see OECD (2019), table A.3.

⁵⁷UNCTAD, 2016.

compiled by Dun and Bradstreet that contains data on over 43 million firms in more than 213 countries for 2015, as the total value of US imports from related parties reported by the Census Bureau is highly correlated with the aggregated sales of all US vertical affiliates in the WorldBase database.⁵⁸

Figures 4–6 present the top ten US industries with the highest levels of backward and forward GVC linkages and RP trade with China, respectively. As these figures indicate, even though these different forms of global economic engagement are treated separately in the theoretical discussion, in reality firm participation in these activities is not mutually exclusive. For example, the computers, electronic, and optical products industry ranks highly in not only its backward and forward GVC linkages but also in its RP trade with China. The following analysis should therefore be viewed as an attempt to identify general and stylized patterns across industries rather than an in-depth analysis of the particularities of a given industry. The results should provide an indication of the importance of each form of economic activities relative to the others while controlling for other factors that may also influence lobbying activities.

Other control variables

This study includes several variables that may potentially affect firms' lobbying activities. Given the difficulty of obtaining firm-level data on the main variables of interest, the analysis is limited to the use of industry-level data in testing its main hypothesis. Specifically, the main independent variables include the following:

Employment

Previous studies suggest that larger industries, typically measured by the number of employees, should not only have greater stakes in the policy process due to their more diverse and complex interests, but also more financial resources available to engage in lobbying activities.⁵⁹ The following analysis uses the logged value of the number of employees at the industry level drawn from the Bureau of Economic Analysis (BEA) to account for this possibility.⁶⁰

Export share and import share

Industries that trade more with China relative to other world markets should be more likely to lobby over China-related trade issues. To address this possibility, the following analysis controls for the share of industry exports to China in its total exports (*export_share*) and the share of industry imports from China in its total imports (*import_share*) using data from the TiVA database.

Exports and imports

The study further controls for ordinary exports and imports at the industry level that are traditionally believed to influence the demand for trade liberalization or protection. These variables are included to address the possibility that export-oriented industries are more likely to favor free trade as the reduction of trade barriers enables them to gain greater market access abroad, while import-competing ones are more likely to support protectionist policies that shield them from the effects of foreign competition.⁶¹ While the lobbying data does not allow one to make inferences about support for or opposition to trade liberalization, it is reasonable to expect that both should be incentivized to lobby the government in order to put main issues of concern to them onto the policy agenda. Following the lead of earlier studies,⁶² the following analysis measures *exports* and *imports* by taking the logarithm of the difference between an industry's RP exports (or imports) from its total exports to (or imports from) China, respectively. These measures are expected to capture exports to (or imports from) non-related

⁵⁸Alfaro, 2009.

⁵⁹Epstein, 1969; Drope and Hansen, 2006; Hansen, 1990.

⁶⁰Using assets or revenues as alternative measures of size does not change the interpretation of the main results reported below.

⁶¹Hillman, 1982; Milner, 1989.

⁶²Osgood, 2018.

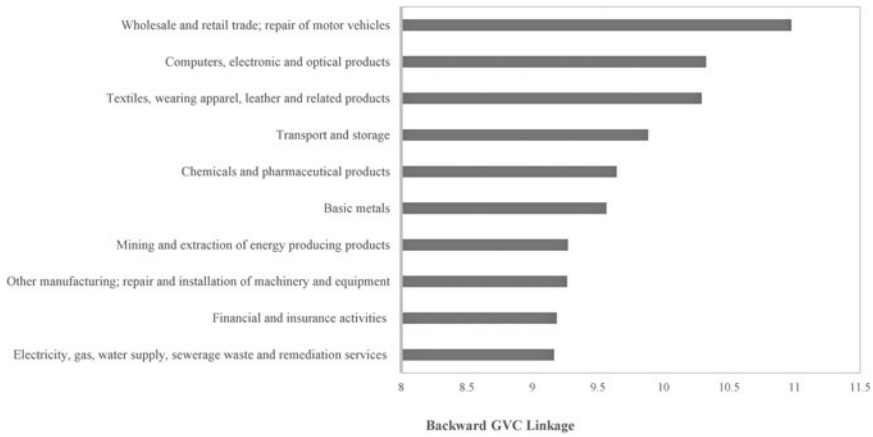


Figure 4. Top Ten US Industries with the Highest Levels of Backward GVC Linkages with China
Source: OECD TiVA Database.

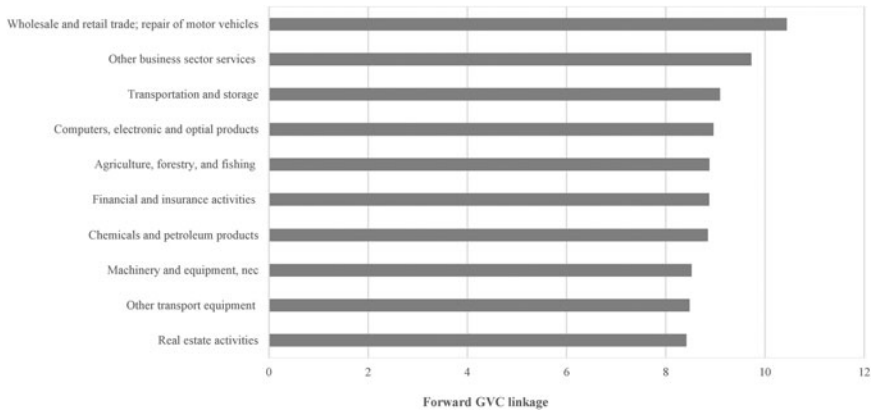


Figure 5. Top Ten US Industries with the Highest Levels of Forward GVC Linkages with China
Source: OECD TiVA Database.

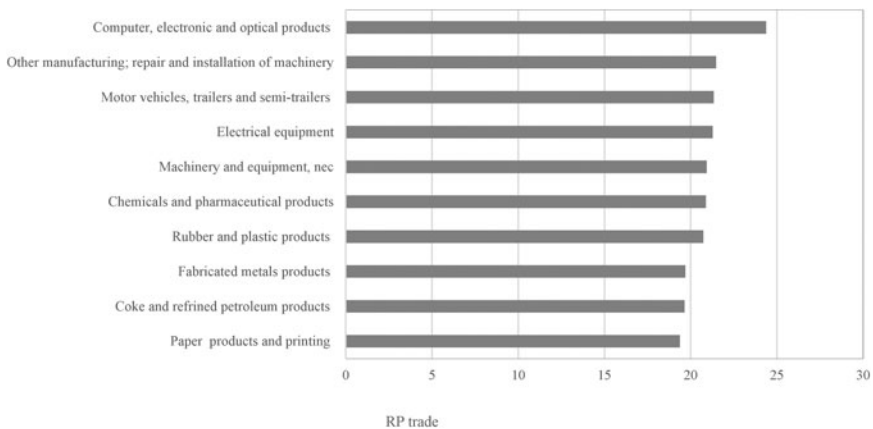


Figure 6. Top Ten US Industries with the Highest Levels of Related Party Trade with China
Source: OECD TiVA Database.

parties or those originating from foreign manufacturers rather than US multinationals. Data for these variables are drawn from the US Census Bureau.

Employment and trade data based on the North American Industry Classification System (NAICS) codes are merged with the rest of the trade data recorded using TiVA codes to derive the estimation sample. The regression models that include only backward and forward GVC linkages as key explanatory variables cover a total of thirty-five TiVA industries, while those incorporating RP trade as a main explanatory variable include a more limited nineteen TiVA industries for which RP data are available. All independent variables, including the trade variables, vary over time and are dyadic, so that the data specifically captures changes in US-China trade over time. Appendices 2 and 3 present the summary and correlation statistics of the estimation sample, respectively.

Models and results

This paper uses a cross-sectional, time-series design to test its main propositions. Since the main dependent variable, *lobbying_count*, is strongly skewed, with less than 1 percent of the observations taking on a value greater than 0, the following analysis uses the zero-inflated Poisson (or the ZIP) model to account for overdispersion and the existence of excess zeros in the data, assuming that the excess zeros are generated by a separate process from the count values which can be modeled independently.⁶³ All models include year and industry fixed effects. They additionally include robust standard errors clustered at the level of TiVA industries to account for potential correlation within the same industry. Table 2 reports results for the same models, but restricts the sample to only manufacturing industries.

Interestingly, in table 1, the key variable of interest, *RP trade* is positively signed and statistically significant in models 4, 6, and 7, pointing to the importance of vertical FDI for influencing China-related lobbying activities. In model 7 in table 1, for each unit increase of *RP trade*, the expected log count of lobbying frequency increases by 0.184 when all other variables are held at their mean. Contrary to expectations, *backward GVC linkage* and *forward GVC linkage* are largely insignificant. *Backward GVC linkage* has even demonstrated a negative and statistically significant relationship with lobbying frequency in models 1 and 2. The results for these main variables reported for manufacturing industries (table 2) are largely consistent with those reported above. In this set of tests, *RP trade* is positively associated with lobbying frequency and is statistically significant in models 3 to 5. As in the results reported for the full sample, the measures for both backward and forward GVC linkages are broadly insignificant.

Figure 7 shows the predicted lobbying count for each of the main independent variables while holding all other variables at their means based on model 6 in table 1. As we can see from figure 4, increasing the logged value of *RP trade* from its minimum of 7.84 to its maximum of 24.37 will lead the expected log of lobbying count to increase from 0.001 to 0.011. While an increase in the logged value of *backward GVC linkage* from its minimum of 4.11 to its maximum of 10.98 will lead to a somewhat similar increase in the expected lobbying count from 0.0001 to 0.010, an increase in the logged value of *forward GVC linkage* from its minimum of 3.199 to its maximum of 10.435 will lead the expected lobbying count to decrease from 0.019 to 0.003.

Overall, the evidence from this set of analysis is consistent with *Hypothesis 3*, that industries with a high level of vertical FDI should have strong incentives to lobby over China-related trade issues. These results also lend support to *Hypothesis 4*, that compared to industries that are highly

⁶³While the zero-inflated negative binomial (ZINB) model may also be appropriate for this type of data, test of the zero-inflated negative binomial versus the zero-inflated Poisson model leads to an insignificant likelihood ratio test for $\alpha = 0$, indicating that the latter is preferred over the former. Running the models with the ZINB command nevertheless yields similar results as those reported below. In addition, Vuong (1989) test of the ZIP versus Poisson model yields a positive and statistically significant z -score, suggesting that the ZIP model represents an improvement over the standard Poisson model. For studies that use similar approaches to address the excess zeros in trade lobbying or bilateral trade disputes data, see, for example, Jensen et al. (2015); Sattler and Bernauer (2011); Scott (2015).

Table 1. Zero-inflated Poisson Models of Lobbying over China-related Trade Issues (the Full Sample)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Employment</i>	0.0618 (0.54)	0.0640 (0.56)		-0.130 (-0.95)	-0.134 (-1.00)	-0.173 (-1.12)	-0.198 (-1.34)
<i>Export share</i>		-0.00837 (-0.49)		0.0188 (1.45)			0.0366 (1.43)
<i>Import share</i>		0.0153 (0.71)		0.00720 (0.37)			0.0115 (0.67)
<i>Backward GVC linkage</i>	-0.264** (-2.03)	-0.300** (-2.28)			0.328 (0.95)	0.393 (1.03)	0.761 (1.29)
<i>Forward GVC linkage</i>	-0.0263 (-0.16)	0.0654 (0.30)			0.114 (0.47)	0.0179 (0.07)	-0.260 (-0.63)
<i>Related-party trade</i>			0.145 (1.29)	0.165* (1.74)	0.162 (1.55)	0.191* (1.67)	0.184* (1.67)
<i>Export</i>						0.0403 (0.60)	0.0641 (0.96)
<i>Import</i>						-0.0436 (-0.71)	-0.0307 (-0.49)
<i>Inflate</i>							
<i>Export share</i>	-0.0436* (-1.85)	-0.0440* (-1.87)	-0.0253 (-1.08)	-0.0233 (-0.99)	-0.0238 (-1.01)	-0.0165 (-0.71)	-0.0154 (-0.66)
<i>Import share</i>	-0.00514 (-0.47)	-0.00494 (-0.46)	0.0204 (1.56)	0.0197 (1.51)	0.0196 (1.52)	0.0179 (1.41)	0.0179 (1.39)
<i>N</i>	127,123	127,123	35,275	35,275	35,275	35,197	35,197

Note: t statistics in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All models include year and industry fixed effects, with robust standard errors clustered on industry.

dependent on the sourcing of intermediate products from China for either domestic production or export, industries with a high level of vertical FDI should have stronger incentives to lobby over China-related trade issues. Somewhat surprisingly, the results yielded little empirical support for *Hypotheses 1* and *2* that firms in industries that are heavily involved in input sourcing or downstream export should be more likely to engage in lobbying activities. It is possible that as the GVC linkage variables rely heavily on modeled trade estimates employing input-output tables, this may have introduced noise or mismeasurement to the analysis. But it is also possible that GVC-linked firms may be motivated by a different set of concerns from those of vertical MNCs to more actively lobby over a different set of issues, a possibility that will be addressed in the next section on robustness checks.

In terms of the control variables, the results yielded little evidence that exposure to either the Chinese export or import market versus other world markets exerts a significant effect on the probability or the frequency of lobbying. Both *export share* and *import share* are largely insignificant. There is additionally some evidence supporting arguments about the importance of ordinary trade (*exports* and *imports*) in driving lobbying activities. Both *exports* and *imports* are positively signed and statistically significant in [table 2](#), suggesting that both industries with a high level of exports to China and those with a high level of imports from that country may be incentivized to engage in lobbying activities, albeit for different reasons. Counterintuitively, industry size is negatively associated with lobbying frequency.

Table 2. Zero-inflated Poisson Models of Lobbying over China-related Trade Issues in Manufacturing Industries

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Employment</i>	-0.0950	-0.0927		-0.172	-0.181	-0.369**	-0.380**
	(-0.83)	(-0.80)		(-1.18)	(-1.27)	(-2.38)	(-2.48)
<i>Export share</i>		0.0141		0.00350			0.0468
		(0.32)		(0.18)			(1.10)
<i>Import share</i>		0.0175		0.0154			0.0134
		(0.81)		(0.76)			(0.80)
<i>Backward GVC linkage</i>	0.457	0.631			1.054	0.581	1.127
	(0.98)	(0.82)			(1.55)	(0.85)	(1.27)
<i>Forward GVC linkage</i>	0.229	0.140			-0.218	-0.160	-0.490
	(0.77)	(0.26)			(-0.61)	(-0.43)	(-0.83)
<i>Related-party trade</i>			0.241**	0.267***	0.283***	0.153	0.157
			(2.09)	(3.08)	(2.88)	(1.42)	(1.37)
<i>Export</i>						0.156***	0.170***
						(2.68)	(2.88)
<i>Import</i>						0.239***	0.234***
						(3.28)	(2.76)
<i>Inflate</i>							
<i>Export share</i>	0.0159	0.0166	0.0157	0.0193	0.0189	0.0201	0.0221
	(0.57)	(0.59)	(0.56)	(0.71)	(0.71)	(0.76)	(0.84)
<i>Import share</i>	0.00726	0.00728	0.00654	0.00549	0.00505	0.00420	0.00416
	(0.64)	(0.63)	(0.54)	(0.46)	(0.44)	(0.35)	(0.35)
<i>N</i>	32,130	32,130	32,043	32,043	32,043	32,009	32,009

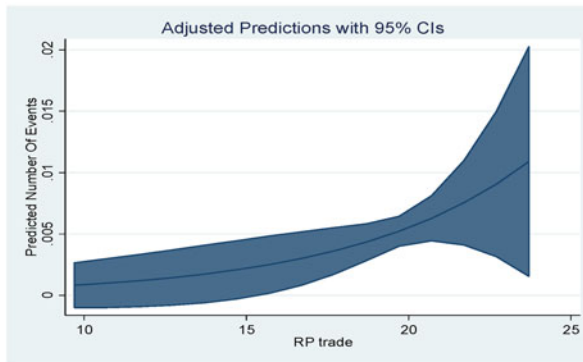
Note: t statistics in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All models include year and industry fixed effects, with robust standard errors clustered on industry.

Robustness checks

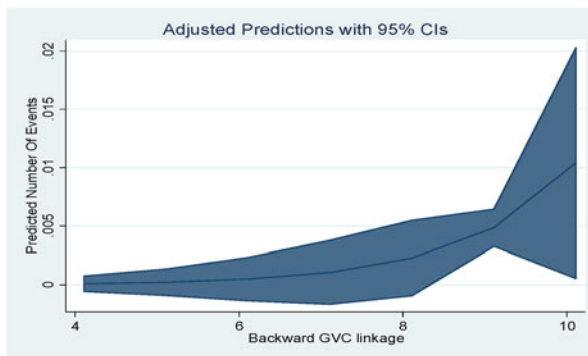
A few robustness checks are conducted to increase confidence in the validity of the results. First, as a robustness check, the main models are re-estimated using the negative binomial approach. In further analysis, the count measure of lobbying frequency is recoded into a dummy variable (*lobbying_dummy*), with “1” indicating that the firm has lobbied in a given year and “0” otherwise. The models are then re-estimated using the rare event logistic regressions proposed by King and Zeng, which have often been used to reduce estimation biases associated with rare events data.⁶⁴ The results for the negative binomial and rare event logistic regression models, shown in table 3 and table 4, respectively, once again lend substantial support to the paper’s main theoretical conjectures. Except for model 4 in table 4, *RP trade* has retained its positive and statistically significant relationship with lobbying frequency across model specifications. In this set of tests, *backward GVC linkage* demonstrates a positive sign with lobbying frequency, but the relationship is only statistically significant in models 5 and 7 in table 3 and model 2 in table 4. The variable measuring downstream export (*forward GVC linkage*) has demonstrated a negative relationship with lobbying frequency in most model specifications, a relationship that is also occasionally significant.

⁶⁴King and Zeng, 2001.

(a) *RP trade*



(b) *Backward GVC Linkage*



(c) *Forward GVC Linkage*

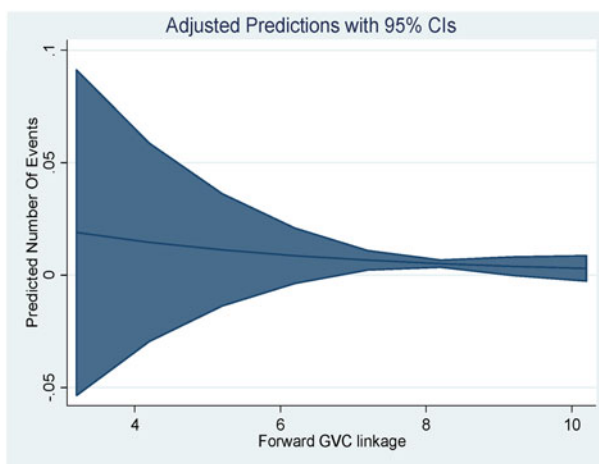


Figure 7. Predicted Lobbying Frequency

Second, the main models are re-run taking into consideration a couple of other control variables that may potentially influence lobbying frequency, including the tariff level and capital intensity of a given industry. Specifically, *Tariff_China_USA* is China’s applied tariffs against the United States

Table 3. Negative Binomial Models of Lobbying over China-related Trade Issues

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Employment	0.357*	0.354*		-0.339	-0.356	-0.638	-0.653
	(1.84)	(1.82)		(-0.79)	(-0.84)	(-1.33)	(-1.39)
Export share		-0.0655		0.0225			0.0907*
		(-1.38)		(0.51)			(1.73)
Import share		0.0496		0.0242			0.0310
		(0.88)		(0.55)			(0.81)
Backward GVC linkage	0.267	0.0285			1.424*	1.156	2.003**
	(0.69)	(0.07)			(1.67)	(1.37)	(2.05)
Forward GVC linkage	-0.425	0.0181			-0.277	-0.632	-1.199**
	(-1.01)	(0.04)			(-0.69)	(-1.46)	(-2.10)
Related-party trade			0.293*	0.363***	0.371***	0.346**	0.322**
			(1.93)	(2.78)	(2.75)	(2.22)	(2.04)
Export						0.298	0.325*
						(1.56)	(1.79)
Import						-0.115	-0.0948
						(-0.60)	(-0.50)
N	127,123	127,123	38,771	35,275	35,275	35,197	35,197

Note: t statistics in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All models include year and industry fixed effects, with robust standard errors clustered on industry.

Table 4. Rare Event Logit Models of the Likelihood of Lobbying over China-related Trade Issues

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Employment	-0.136***	-0.193***	-0.130***	-0.104	-0.0258	-0.111
	(-5.34)	(-7.56)	(-4.89)	(-1.61)	(-0.34)	(-1.36)
Export share	0.0384***		0.0361***		0.0727***	0.0665***
	(5.83)		(5.12)		(9.55)	(7.80)
Import share	0.0107***		0.0108***		-0.0345***	-0.0306***
	(3.29)		(2.78)		(-6.74)	(-5.71)
Backward GVC linkage		0.128***	0.0198		-0.0121	-0.0224
		(2.61)	(0.38)		(-0.15)	(-0.26)
Forward GVC linkage		-0.0184	0.0254		-0.479***	-0.549***
		(-0.52)	(0.67)		(-6.14)	(-6.79)
Related-party trade				-0.0493	0.0728***	0.0989**
				(-1.53)	(2.76)	(2.17)
Export				0.0962***		0.104***
				(2.95)		(2.90)
Import				-0.0408		-0.0563
				(-0.97)		(-1.11)
N	127,123	127,123	127,123	38,693	35,275	35,197

Note: t statistics in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All models include year and industry fixed effects, with robust standard errors clustered on industry.

at the industry level.⁶⁵ A positive relationship is expected between this variable and lobbying frequency because US industries that face higher tariff barriers in the Chinese market should have stronger incentives to engage in lobbying activities.⁶⁶

In addition, previous studies have shown that firms in capital intensive industries are more likely to delay exit.⁶⁷ This is because capital intensive industries often require a higher percentage of investment in fixed assets such as capital, machines, plant, or technology to produce the products. The more substantial initial investment in such industries also tends to generate greater sunk costs that increase the costs of exit. To see if capital intensity may complicate the paper's main theoretical argument, the zero-inflated Poisson models are re-run with the addition of a variable measuring the industry's capital intensity (*capital intensity*), calculated by dividing an industry's total assets by its sales.⁶⁸

Results of zero-inflated Poisson models incorporating the above variables, shown in Table 5, are once again consistent with the paper's main propositions. In this set of analysis, neither *tariff_chn_usa* nor *capital intensity* has achieved statistical significance. Importantly, the inclusion of neither of these variables altered the interpretation of the paper's main findings as *RP trade* has retained its positive and statistically significant relationship with the dependent variable in most model specifications. While *backward GVC linkage* demonstrates a positive and statistically significant relationship with lobbying frequency in models 2 and 8, *forward GVC linkage* did not achieve statistical significance. Taken together, these results lend substantial support to the argument about the importance of vertical FDI as a main determinant of China-related trade lobbying activities relative to other forms of global economic engagement.

Finally, the period under investigation follows on the heels of China's entry into the WTO which brought about significant liberalization of tariff and non-tariff measures that may have at least partly addressed the concerns of firms tied to the Chinese market through either backward or forward GVC linkages. Along with the fact that firms with strong backward GVC linkages to China stand to benefit from a depreciated Chinese currency, this may have reduced the incentive for these firms to lobby over China trade policy. In contrast, the persistence of market access barriers and unfair treatment of foreign investors following the country's WTO accession means that vertical MNCs may remain concerned about Chinese practices negatively affecting their operations in the Chinese market. As the existing trade policy literature (e.g., Dür, 2010; Schattschneider, 1935; Vernon, 1966) suggests, firms are more likely to mobilize politically when confronted with a (potential) loss of income such as trade diversion resulting from the signing of a preferential trade agreement or the imposition of trade restrictions. As firms dependent on Chinese imports may not have experienced the same market impediments as vertical MNCs, this may have explained their relative inactivity during the period of study.

To address the possibility that lobbying may be driven by the different concerns of firms with different forms of international economic engagement, with firms heavily involved in input sourcing or downstream export more likely to be concerned about policies that influence the level of trade barriers instead of Chinese policies negatively affecting market conditions compared to vertical MNCs, the analysis breaks up lobbying into issues that are more directly relevant for firms tied to the Chinese market through either backward or forward linkages (e.g., US-China trade relations generally, tariffs, AD/CVD, market economy status, and issues related to US exports to, imports from, or investment in China) and those that are of less immediate concern to such firms (e.g., currency, IPRs, Chinese domestic regulation, and market access). Two count variables, *GVC lobbying* and *non-GVC lobbying*, are created to measure the number of times that a firm has lobbied over each set of issues in a given year, respectively. Only the former is expected to correlate with backward and forward GVC linkages.

Columns 1–3 and 4–6 in table 6 present results of the ZIP and negative binomial estimates of the effect of backward and forward GVC linkages on GVC-related vs. non-GVC-related lobbying,

⁶⁵Tariff data, taken from the Tariff Download Facility of the WTO, are recorded using the Harmonized System (HS) codes and converted to NAICS codes using the appropriate concordance table.

⁶⁶Martina, 2019.

⁶⁷E.g., Sekkat, 2010.

⁶⁸Data for this variable are drawn from the US Census Bureau.

Table 5. Zero-inflated Poisson Models of Lobbying over China-related Trade Issues with Additional Control Variables

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Employment</i>	-0.135** (-1.98)	-0.118 (-1.38)	-0.297*** (-3.08)	0.118* (1.91)	-0.0108 (-0.09)	0.00368 (0.03)	-0.0389 (-0.42)	-0.0407 (-0.38)	0.247 (1.24)
<i>Export share</i>	0.0340 (1.63)	0.0492** (2.26)		0.0267 (1.43)	0.0486** (2.42)		0.0601* (1.91)		0.0653 (1.17)
<i>Import share</i>	0.00639 (0.35)	-0.00985 (-0.56)		0.0329* (1.75)	0.00645 (0.40)		0.00843 (0.37)		0.00163 (0.04)
<i>Backward GVC linkage</i>	-0.150 (-0.57)	1.228* (1.79)	0.0588 (0.08)	0.400 (1.09)	0.710 (1.16)	0.789 (1.39)	-0.000712 (-0.00)	1.184* (1.87)	1.683 (1.24)
<i>Forward GVC linkage</i>	0.0180 (0.07)	-0.280 (-0.80)	0.189 (0.52)	-0.329 (-1.21)	-0.430 (-1.48)	-0.289 (-1.43)	-0.172 (-0.47)	-0.280 (-0.96)	-0.0592 (-0.10)
<i>Related-party trade</i>		0.257*** (3.18)	0.119 (1.57)		0.155** (2.44)	0.211*** (2.75)		0.312*** (4.12)	0.248** (2.09)
<i>Export</i>			0.140*** (2.75)			0.0677 (1.57)			-0.0328 (-0.34)
<i>Import</i>			0.268*** (3.41)			-0.119*** (-3.30)			-0.119 (-0.72)
<i>Tariff_chn_usa</i>	0.00692 (0.74)	0.00509 (0.49)	0.00897 (0.82)				0.00835 (0.68)	-0.00134 (-0.14)	0.0104 (0.56)
<i>Capital intensity</i>				-6.208 (-1.31)	-7.469* (-1.95)	-2.226 (-0.61)	-5.289 (-0.95)	1.916 (0.58)	-7.327 (-0.66)
<i>Inflate</i>									
<i>Export share</i>	0.0584*** (2.68)	0.00210 (0.16)	0.00554 (0.42)	-0.0476*** (-6.04)	-0.0309*** (-3.32)	-0.0269*** (-2.58)	0.0440* (1.90)	-0.00890 (-0.73)	0.0144*** (3.75)
<i>Import share</i>	0.0359*** (5.13)	0.0113* (1.79)	0.00971 (1.54)	-0.00494 (-1.25)	0.0192*** (2.89)	0.0192** (2.38)	0.0337*** (3.70)	0.0103 (1.57)	-0.00439** (-2.51)
<i>N</i>	34,030	33,744	33,709	75,196	20,579	20,501	20,063	19,806	19,771

Note: t statistics in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01. All models include year and industry fixed effects, with robust standard errors clustered on industry.

Table 6. Effect of Backward and Forward GVC Linkages on GVC- vs. Non-GVC Lobbying

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Zero-inflated Poisson				Negative Binomial			
	GVC lobbying	Non-GVC lobbying	GVC lobbying	Non-GVC lobbying	GVC lobbying	Non-GVC lobbying	GVC lobbying	Non-GVC lobbying
<i>Employment</i>	-0.0627 (-0.66)	0.197 (1.60)	-0.091 (-0.32)	0.327 (1.15)	-0.604* (-1.69)	-0.295 (-1.02)	-0.662 (-1.24)	-0.0809 (-0.18)
<i>Export share</i>	-0.0125 (-0.90)	-0.021 (-1.24)	0.0305 (0.91)	0.042 (1.50)	0.154*** (2.58)	0.123* (1.76)	0.0790* (1.65)	0.0986 (1.17)
<i>Import share</i>	-0.00593 (-0.82)	-0.002 (-0.24)	-0.045 (-1.31)	0.004 (0.20)	-0.0396* (-1.92)	-0.0573** (-2.55)	0.0262 (0.33)	-0.119 (-1.41)
<i>Backward GVC linkage</i>	0.257*** (3.12)	0.0901 (0.63)	-0.803 (-0.67)	-1.145*** (-5.51)	0.087 (0.48)	0.104 (0.22)	0.276* (0.18)	-0.262 (-0.22)
<i>Forward GVC linkage</i>	-0.149 (-1.39)	-0.030 (-0.36)	-0.614 (-1.43)	-0.489 (-0.96)	-0.766** (-2.32)	-0.593** (-2.44)	-0.759 (-0.89)	-0.154 (-0.14)
<i>Export</i>	0.115* (1.73)	-0.123 (-1.48)	0.124 (0.98)	0.089 (1.36)	0.267 (1.44)	0.102 (0.73)	0.356 (1.49)	0.224 (1.42)
<i>Import</i>	-0.0628 (-0.78)	-0.038 (-0.96)	-0.049 (-0.36)	-0.117** (-2.36)	0.0507 (0.31)	-0.0221 (-0.10)	0.0623 (0.32)	-0.0675 (-0.37)
<i>Inflate</i>								
<i>Export share</i>	-0.0424*** (-2.94)	-0.0358* (-1.70)	-0.0204 (-1.39)	-0.0199 (-0.89)				
<i>Import share</i>	0.0186** (2.05)	0.0299*** (2.87)	0.0189* (1.79)	0.0388*** (3.56)				
<i>Year fixed effect?</i>	Y	Y	Y	Y	Y	Y	Y	Y
<i>Industry fixed effect?</i>	N	Y	N	Y	N	Y	N	Y

Note: t statistics in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01. Robust standard errors clustered on industry in parentheses.

respectively. The results show that *backward GVC linkage* has a positive and statistically significant relationship with *GVC lobbying* in models 1 and 7 and a negative and statistically significant relationship with *non-GVC lobbying* in model 4. *Forward GVC linkage* shows up as having a negative and statistically significant effect on lobbying activities in models 5 and 6. Overall, these results indicate that firms dependent on input sourcing are involved in lobbying activities, but only over issues that are more directly relevant to their interests in maintaining sound bilateral trade relations or in addressing barriers to the free movement of goods and services between the two countries.

Conclusion

While this study yielded some limited evidence that ordinary trade remains important for explaining lobbying patterns, lobbying over China-related trade issues seems to be increasingly dominated by American firms in industries with significant vertical FDI in China. Surprisingly, while in theory firms in industries with a high level of either input sourcing or downstream exports to China should favor free trade with that country and therefore engage in active lobbying activities, the empirical analysis yielded little evidence to this effect. Both *backward GVC linkage* and *forward GVC linkage* are insignificant in the main model estimates. In the robustness checks, *backward GVC linkage* is occasionally significant, while *forward GVC linkage* even shows up as having a negative and statistically significant relationship with lobbying activities in some of the model estimates. These results potentially lend support to *Hypothesis 4* that firms heavily involved in input sourcing from China should be less likely to voice their policy preferences in the policymaking process due to their greater “exit” options compared to those with a high level of vertical FDI in China. While these findings are based on a case study of US-China trade relations, they should also have implications for understanding the trade preferences of globally engaged corporate actors more broadly.

By highlighting the nuanced differences in the trade policy implications of input sourcing vs. vertical FDI, this study enriches the literature on trade lobbying and on the impact of globalized production on corporate political strategies. In view of rising US-China trade tensions, it should also contribute to a better understanding of the role of domestic interest groups in shaping US trade policy toward China, including their role in the recent trade war. While not definitive, the findings hint at the possibility that American MNCs with investments in China may have played the leading role in shaping the demand for China trade policy. Far from suggesting that these businesses actually support the retaliatory tariffs against China, the results indicate that American MNCs’ growing frustrations with the barriers to doing business in China may have provided the fodder for the Trump administration to pursue an aggressive market-opening approach vis-à-vis China. In other words, it is possible that the deepening of global supply chain integration may have tempered the protectionist impulse for a growing number of firms, but at the same time given rise to other concerns (such as market access concerns for firms engaged in vertical FDI) as the main sources of trade complaints. It is also not clear whether firms heavily involved in input sourcing have become more politically active since President Trump launched the trade war against China. Future studies could engage in more systematic analyses of the preferences of American companies toward the trade war to better understand the domestic political landscape in trade war conditions. In addition to examining firms’ pro-trade incentives, they could also direct greater attention to the sources of opposition to trade liberalization in the contemporary global economy.

A limitation of this study is that it focuses mainly on firms’ choice to voice their policy preferences through lobbying activities without examining in detail their exit decisions, a task that is made more difficult by the lack of systematic data on firms’ decisions to exit the Chinese market.⁶⁹ It is reasonable to expect, though, that the same argument may at least in part help to explain firm preferences and behavior regarding “exit.” If vertical MNCs are motivated by considerations of “sunk costs” in their trade lobbying activities, then it is possible that the same concerns may limit the extent to which the Trump’s administration’s policy to decouple the two economies may succeed in uprooting the

⁶⁹For one of the first studies that examines the determinants of firm exit from China, see Vortherms and Zhang (2020).

supply chain, with consequent damages to US-China trade relations. As the ongoing US-China trade war is threatening a significant restructuring of global supply chains, what influences firms' decisions to relocate production to third countries, bring production back to the United States, or remain in the Chinese market promises to be a fruitful avenue of research.

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Appendix 1: Sample Lobbying Records

Registrant	Client	Ultorg	Year	Issue	Specific Issue	Topic
Boston Scientific Corp	Boston Scientific Corp	Boston Scientific Corp	2006	Trade	HR 3283 United States Trade Enforcement Act, Market access, regulatory approvals and reimbursement for medical devices in Japan, EU, Korea, China, Brazil	market access; domestic regulation
Colling & Assoc	Newman & Co	Newman & Co	2006	Trade	Export of raw materials (fiber) to China	export
Exxon Mobil	Exxon Mobil	Exxon Mobil	2006	Trade	China Trade Issues, Capacity Building, WTO and Free Trade Agreements: HR 299, 555, 695, 3045, 4340, 4944, 5337, 5684	general trade
OB-C Group	Anheuser-Busch	Anheuser-Busch	2006	Trade	HR 1575 and S.295, to authorize appropriate action if the negotiations with the People's Republic of China regarding China's undervalued currency and currency manipulation are not successful, entire bill	currency
ArcelorMittal USA	ArcelorMittal USA	ArcelorMittal	2007	Trade	Granting of market economy treatment to Chinese companies in antidumping cases, oppose; China steel subsidies, oppose	market economy status; subsidies
Home Depot	Home Depot	Home Depot	2007	Trade	S 1607 - Currency Exchange Rate Oversight Reform Act of 2007 - General interest in levying tariffs on goods originating in China.	tariffs and other trade barriers
AEGON USA	AEGON USA	AEGON NV	2008	Trade	H.RES.552: Calling on the People's Republic of China to remove barriers to U.S. financial services firms doing business in China; all provisions of the bill	market access
Bridgestone Americas	Bridgestone Americas	Bridgestone Corp	2008	Trade	Miscellaneous Tariff Bill and other tariff legislation, all matters relating to antidumping and countervailing duty cases involving off-the-road tires manufactured in China.	tariffs and other trade barriers; AD/CVD
Cummins Inc	Cummins Inc	Cummins Inc	2008	Trade	China trade/export promotion, foreign trade barriers, Brazil trade - no bill; China currency and trade related legislation - multiple bills	currency; general trade; export
Eli Lilly & Co	Eli Lilly & Co	Eli Lilly & Co	2008	Trade	Market Access (China, Germany, Czech Republic, Italy, Norway, Poland, United Kingdom, Indonesia); Intellectual Property (Finland, Norway, China, Philippines)	market access; IPR
Milliken & Co	Milliken & Co	Milliken & Co	2008	Trade	H.R. 2942 China Currency	currency
Patton Boggs LLP	Venetian Casino Resort	Las Vegas Sands	2008	Trade	H.R. 3273: The U.S.- The China Market Engagement and Export Promotion Act Trade, Investment and Travel Policies of the People's Republic of China	general trade
Caterpillar Inc.	Caterpillar Inc.	Caterpillar Inc.	2009	Trade	China Currency (HR 2378, S1027)	currency

Hewlett-Packard	Hewlett-Packard	Hewlett-Packard	2009	Trade	H.Res.590, concerns over censorship, privacy and cybersecurity implications of China's Green Dam software	domestic regulation
McBee Strategic Consulting	Molycorp Minerals	Molycorp Minerals	2010	Trade	Issues related to future importation of products containing rare earth elements from China.	import
Nucor Corp	Nucor Corp	Nucor Corp	2010	Trade	Support of 301 petition filed at USTR alleging discriminatory practices by the Chinese government in the green technology sector.	domestic regulation
Universal Music Group	Universal Music Group	Vivendi	2011	Trade	Intellectual property protection issues in China	IPR
Emerson Electric	Emerson Electric	Emerson Electric	2012	Trade	US China Commercial Trade Relations, H.R. 639, S. 328	general trade
Akin, Gump et al	eHealth Inc	eHealth Inc	2013	Trade	Licensing and market access in China	domestic regulation; market access
Texas Instrument	Texas Instrument	Texas Instrument	2014	Trade	China trade issues – no bill	general trade
ZTE USA	ZTE USA	ZTE USA	2014	Trade	U.S.-China trade relations (H.Res. 643)	general trade
CEMEX Inc	CEMEX Inc	CEMEX SA de CV	2016	Trade	H. RES. 848, China Market Economy Status	market economy status
Wiley Rein LLP	Nucor Corp	Nucor Corp	2016	Trade	H.R. 4927, China Market Economy Status Congressional Review Act;	market economy status

Appendix 2: Summary Statistics of the Estimation Sample

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Lobbying_count</i>	171,782	0.012	0.215	0	12
<i>Lobbying_dummy</i>	171,782	0.004	0.066	0	1
<i>Employment</i>	149,075	9.071	1.193	3.638	12.261
<i>Export share</i>	127,193	6.145	5.093	0.320	52.170
<i>Import share</i>	127,193	6.680	11.451	0	54.140
<i>Backward GVC linkage</i>	127,193	8.551	1.541	4.108	10.975
<i>Forward GVC linkage</i>	127,193	7.853	1.895	3.199	10.435
<i>Related-party trade</i>	38,771	20.015	2.553	7.838	24.370
<i>Export</i>	39,061	19.792	1.884	11.061	23.430
<i>Import</i>	38,936	20.800	2.177	8.157	24.515

Appendix 3: Correlation Statistics of the Estimation Sample

Variable	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
<i>Lobbying_count (a)</i>	1.000									
<i>Lobbying_dummy (b)</i>	0.868	1.000								
<i>Employment (c)</i>	-0.010	-0.006	1.000							
<i>Export share (d)</i>	0.023	0.018	-0.051	1.000						
<i>Import share (e)</i>	-0.015	-0.018	-0.019	0.238	1.000					
<i>Backward GVC linkage (f)</i>	-0.016	-0.023	-0.115	0.296	0.438	1.000				
<i>Forward GVC linkage (g)</i>	-0.006	-0.015	0.079	0.509	-0.238	0.373	1.000			
<i>Related-party trade (h)</i>	-0.007	-0.011	0.241	0.230	0.484	0.505	0.256	1.000		
<i>Import (i)</i>	0.006	0.007	0.420	0.237	0.015	0.215	0.446	0.545	1.000	
<i>Export (j)</i>	-0.015	-0.015	0.200	0.156	0.618	0.502	0.028	0.837	0.347	1.000