

The Limits of Liberalization: WTO Entry and Chinese State-Owned Firms

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Does state ownership limit the liberalizing effects of the WTO? We examine the case of China, which is not only the largest exporting state but also lends active support to state-owned enterprises (SOEs) that could distort global trade. Using data on import purchases disaggregated by ownership from 1993 to 2012, we analyze how WTO entry affects the commercial orientation of state-owned and private imports. We demonstrate that after WTO entry, tariff cuts have a larger effect on private compared to SOE trade. We then show that state ownership alone does not block the WTO's liberalizing effects. For most industries, SOEs and private firms are alike in their commercial orientation. However, where strategic goods targeted by industrial policy hold a large share of bilateral trade, lowering tariffs has no impact on SOE trade. These findings highlight the tensions between state-led economic models and global trade law premised upon market principles.

¿Limita la propiedad por parte del Estado los efectos liberalizadores de la OMC? Estudiamos el caso de China, que no solo es el mayor Estado exportador, sino que también presta un apoyo activo a las empresas públicas estatales, lo cual podría llegar a distorsionar el comercio mundial. Analizamos, utilizando datos sobre importaciones desglosadas por tipo de titularidad de entre 1993 y 2012, cómo la entrada en la OMC afecta la orientación comercial de las importaciones tanto estatales como privadas. Demostramos que después de la entrada en la OMC, los recortes arancelarios tienen un efecto mayor en el comercio privado en comparación con el comercio de las empresas públicas estatales. A continuación, demostramos que la titularidad estatal por sí sola no bloquea los efectos liberalizadores de la OMC. En la mayoría de las industrias, tanto las empresas públicas estatales como las empresas privadas tienen una orientación comercial similar. Sin embargo, cuando los bienes estratégicos de mayor relevancia para la política industrial representan una gran parte del comercio bilateral, la reducción de los aranceles no tiene ningún impacto en el comercio de las empresas públicas estatales. Estas conclusiones resaltan las tensiones existentes entre los modelos económicos dirigidos por el Estado y el derecho comercial global basado en principios de mercado.

Les entreprises publiques limitent-elles les effets libéralisant de l'OMS ? Nous nous intéressons au cas de la Chine : plus grand État exportateur au monde, il soutient aussi activement les entreprises publiques, ce qui a une incidence sur le commerce mondial. À l'aide de données sur les achats à l'importation ventilées par propriétaire entre 1993 et 2012, nous analysons l'influence de l'entrée à l'OMS sur l'orientation commerciale des importations publiques et privées. Nous montrons qu'à la suite d'une entrée à l'OMS, la baisse des droits de douane a un effet plus notable pour les entreprises privées que publiques. Ensuite, nous démontrons que la détention par l'État n'est pas le seul facteur qui entrave les effets libéralisant de l'OMS. Dans la majorité des secteurs, les entreprises publiques et privées partagent la même orientation commerciale. Néanmoins, quand les biens stratégiques ciblés par des politiques industrielles détiennent une plus grande part du marché bilatéral, la baisse des droits de douane n'a aucun effet sur les échanges commerciaux des entreprises publiques. Ces conclusions mettent en évidence les tensions entre les modèles économiques étatiques et le droit commercial international fondé sur les principes de marché.

Introduction

Could the WTO transform state planning into a market-based economy? China's WTO entry in 2001 was accompanied by strong expectations of liberalization among govern-

ments and scholars (Clinton 2000; Lardy 2004). Partners expected that WTO membership would support economic reforms as part of a transition toward a market-oriented economy. Few share this optimism today. One study contrasts the "worldwide euphoria when China entered the WTO" with "dysphoria that is gaining pace across the industrialized world" (Mavroidis and Sapir 2021, 7). A key complaint is the continued significance of state-owned enterprises (SOEs) in China's economy and the perception that these firms engage in unfair trade. The United States government declared in 2017 that the WTO had "proven to be ineffective in securing China's embrace of an open, market-oriented trade regime" (United States Trade Representative 2017). Unilateral tariffs on Chinese imports levied in 2018 under a Republican president have been upheld by his Democratic

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successor. Trade officials point to distortions arising from China's "model of state-directed economics" (Shea 2018). The scholarship also emphasizes the growing role of the state in China's economy (Naughton and Tsai 2015; Lardy 2019). Legal scholars contend that Chinese state capitalism counters the liberal understanding central to the trade regime (Wu 2016; Mavroidis and Sapir 2021). These developments raise the question of whether international economic rules can promote the convergence of economic models or support cooperation between countries of different economic structures. The postwar trade regime has been credited with promoting a wide expansion of trade, but further research is necessary about the limits of liberalization—and the sources of these limits.

We take on the question of when and how the WTO led China to liberalize imports. By looking at state control through the prism of state ownership and industrial policy, we explain a pattern of partial opening. To the extent that WTO entry has been blamed for letting China export to WTO members without opening its own markets, we offer a correction. Lowering Chinese tariffs at WTO entry did increase imports, including trade by SOEs. However, state guidance over SOE importing behavior in strategic goods blocked liberalization in ways that were not fully anticipated by members. To solve the "China problem" wracking the trade system, negotiators will have to address the longstanding challenge of statist industrial policy rather than casting the blame entirely on state ownership of firms.

We focus on the ability of the WTO to liberalize trade conducted by SOEs. Examining the case of China, we bring new evidence to evaluate whether WTO entry can increase the commercial orientation of SOE trade flows. SOEs make up an increasingly important component of the global economy. These firms are not only consequential in size, comprising almost a quarter of Fortune 500 companies in 2014 (PricewaterhouseCoopers 2015), they have also become influential global actors engaged in sectors that are internationally traded and contested. Apart from China, many other large emerging economies retain significant state ownership; the eight countries with the largest shares of SOEs in their economies make up a fifth of world trade (Kowalski, Buāge, Sztajerowska et al. 2013).¹ Concerns over the WTO's ability to govern SOE trade, therefore, extend beyond the Chinese case.

Does state ownership conflict with trade liberalization? One perspective places the ownership question as the fundamental problem contradicting free trade rules. By nature, SOEs hold non-market objectives ranging from national security to the pursuit of development. This suggests that only the elimination of state ownership could resolve tensions in the WTO. Another perspective contends that SOEs aggregate capital through state support but otherwise can conduct themselves as commercial actors. This latter view underlies trade rules today. The WTO does not prohibit SOEs, but admonishes that SOEs must operate on the basis of commercial considerations without discriminating against other enterprises or imposing measures that would nullify tariff concessions.² These rules, designed when SOEs consisted of Amtrak or the Australian and Canadian wheat boards, now confront new SOEs that represent major trade players.

In principle, there are two channels through which WTO membership could discipline SOE trading behavior. The first is a price effect, where tariff cuts incentivize all firms,

including SOEs, to switch to cheaper imports. The second is an institutional effect, where the WTO prohibition on discrimination places SOE trade on a level playing field with private firms. To the extent these forces succeed, SOE and private trade should be indistinguishable in their responses to price signals. Despite the practical and theoretical significance of this issue, there has been little scholarship about the effect of the WTO on SOE trade.

We argue that the combination of industrial policy and state ownership blocks the liberalizing effects of WTO membership. Governments join the trade regime to expose all firms, including SOEs, to stronger market signals. Simultaneously, they use SOEs to shield strategic sectors from import competition. These strategic sectors reflect the government's desire to promote development and defend national security. They span numerous industries, including high-tech and defense, economic "life-line" industries such as telecommunications, as well as sectors important to basic food and raw material security. SOEs, therefore, face competing pressures to improve their market orientation and uphold state priorities. In a bifurcated response, SOEs respond to WTO entry similarly to private firms when importing ordinary (or "non-strategic") goods, but behave differently when importing strategic products that compete with domestic sectors targeted by industrial policy. This introduces heterogeneity in the WTO's effectiveness in shifting different types of import flows toward market behavior. While private trade behaves on commercial terms in all types of products regardless of strategic status, WTO entry only shifts SOE trade toward a commercial orientation for non-strategic products.

We focus on China as a critical case. China's entry into the WTO in 2001 was a turning point in the world trading system. Not only is China now the world's largest exporting state, it represents a different economic model with SOEs active throughout the economy. From 2001 to 2019, the number of Chinese SOEs among the Fortune 500 grew from 10 to 89, and their total revenue at \$6.39 trillion now exceeds the GDP of either Japan or Germany.³

The trading behavior of Chinese SOEs could therefore impact the international economy systemically. Friction over China's economic governance has emerged across multiple fronts as the United States has imposed tariffs and joined other countries to bring legal cases to the WTO that affect global SOE regulation.⁴ Regional economic initiatives display a heightened focus on SOEs, driven implicitly by concerns over Chinese state-owned firms.⁵

Recent scholarship and public discourse on China's WTO entry spotlights the impact of surging exports from China. While important, a focus on exports ignores the core WTO concessions made by China in its accession protocol to lower import tariffs and simplify licensing procedures, among other domestic reforms. These commitments indirectly contributed to China's export competitiveness but were more directly aimed at opening up China's domestic market. A full evaluation of the WTO's impact, therefore, lies in whether WTO members gained access to the Chinese market. This requires an analysis of imports.

We investigate the effects of WTO membership on import purchases by China's state-owned and private firms from

³Firms listed at <https://fortune.com/global500/2019/search/> (accessed 1 June 2020).

⁴See, e.g., the WTO dispute on China's anti-dumping and countervailing duties involving the definition of a "public body".

⁵See, e.g., the chapter on SOEs in the Comprehensive and Progressive Agreement on Trans-Pacific Partnership (CPTPP), and emerging EU regulations on foreign SOEs.

¹China, Malaysia, Indonesia, India, Russia, Brazil, Saudi Arabia, and the United Arab Emirates.

²Article XVII of GATT 1994.

1993 to 2012. Using a dataset of bilateral trade disaggregated by ownership status, we compare the impact of tariff rates on purchasing decisions before and after China's 2001 WTO entry. We evaluate our argument about industrial policy by testing whether the responsiveness of imports to tariff cuts varies by both ownership and strategic sectors. We validate the main findings using product-level data for the 2003–2008 period. This finer-grained analysis allows us to leverage the varying degrees of strategic value across products and account for domestic sectoral adjustments to tariff liberalization.

In contrast to the academic and public commentary that blames Chinese state capitalism for closing its markets and lowering its compliance with WTO rules, we find surprising evidence of liberalization in SOE trade. Where the share of strategic products in imports is low, there is no statistical difference between the commercial orientation displayed by SOE and private import flows: In both types of trade, lower tariffs in the WTO period brought an increase in imports. The interaction between ownership and industrial policy, however, limits SOE liberalization. We find that as the share of strategic products in bilateral imports increases, the tariff-responsiveness of SOE import flows declines. In contrast, private imports remain responsive to lower tariffs regardless of the share of strategic products. State ownership alone, therefore, does not blunt the liberalizing effects of the WTO. Rather it is when the state combines the levers of state ownership with industrial policy, that WTO liberalization is blocked.

Our study makes several contributions to scholarship on international trade and political economy. First, this research brings new insights into state ownership and the effectiveness of trade rules. A large body of research has investigated the trade-creating potential of WTO membership at the aggregate level (e.g., Gowa and Kim 2004; Rose 2004; Goldstein, Rivers, and Tomz 2007; Allee and Scalera 2012; Carnegie 2014). Some point to variation in WTO compliance by type of government (Mansfield, Milner, and Rosendorff 2000; Peritz 2020). We add a new dimension by giving attention to variation within countries and investigating the ability of the WTO to liberalize the trading behavior of SOEs. By explaining how industrial policy combines with state ownership to blunt the liberalization of state-owned trade, we show that sectoral characteristics moderate the effectiveness of WTO rules (Davis and Shirato 2007; Johns and Pelc 2018). Finally, we identify a new path by which non-tariff barriers substitute for protection by tariffs. Democracies have been shown to erode the impact of tariff liberalization through opaque regulation (Kono 2006). Our research reveals that economies with a large share of state ownership can deploy SOE purchasing behavior to shield strategic industries from import competition. Our findings highlight an important channel through which China challenges the functioning of the WTO and hold implications for the global regulation of SOEs across a wide range of economies.

Section "The WTO's Liberalizing Effect on Chinese SOEs" discusses how the WTO exerts pressures for liberalization and Section "Explaining Patterns of State-Led Liberalization" presents our argument about how state ownership and industrial policy interact to moderate the impact of the WTO. We introduce our data on trade flows disaggregated by firm ownership and measurement of industrial policy in Section "Data for Testing Firm Ownership Impact on Trade" and present our analysis in Section "Empirical Analysis of Chinese Imports before and after WTO Entry".

The WTO's Liberalizing Effect On Chinese SOEs

WTO rules aspire to enforce a level playing field that will facilitate cooperation between countries with different economic structures. Supporting research shows that the WTO generates trade gains through membership (Goldstein, Rivers, and Tomz 2007; Chang and Lee 2011) and rule enforcement (Bechtel and Sattler 2015; Chaudoin, Kucik, and Pelc 2016). Related research examines when these gains vary by country characteristics. For example, regime type might affect the likelihood of trade between country pairs (Mansfield, Milner, and Rosendorff 2000). Other studies, such as Gowa and Kim (2004), examine how state power shapes the distribution of trade gains. Notably, research suggests that WTO trade gains would be greater for countries such as China, given that a rigorous accession process subjected its policies to close scrutiny and led to more requirements for liberalization (Allee and Scalera 2012). In the same vein, Carnegie (2014) finds that the WTO facilitates cooperation by solving a hold-up problem that is more acute between dissimilar pairs. These gains should accrue to countries such as China, given the large political and economic differences between it and developed market economies. Yet the emergence of the US–China "trade war" as well as broader frictions between China and Western market economies would suggest that there are limits to the liberalizing gains from China's WTO membership.

We investigate state ownership as one potential barrier to WTO liberalization. Specifically, we focus on the WTO's ability to discipline the trading behavior of SOEs, a topic that remains relatively under-researched. Scholarship on the WTO's effects on China's international behavior has tended to focus on the state's conduct within WTO bodies (Li 2012). Analysis of the WTO's impact on sub-state actors such as SOEs has primarily been from the legal and economic perspectives (Mavroidis and Sapir 2021), while political science research has predominantly focused on SOE activity in outward investment (Norris 2016; Stone, Wang, and Yu 2021).

A broader set of literature investigates the effects of WTO rules on Chinese domestic economic governance, with mixed conclusions. Some, such as Qin (2004), point to the commitments in China's accession protocol that went beyond the obligations of existing WTO members. In meeting these demands, government and private sector stakeholders engaged with international economic law in a way that embedded transnational law as a new construct in Chinese economic policy (Shaffer and Gao 2020). Others, such as Levy (2017) and Wu (2016), argue that these terms were not strong enough to alter the entrenched form of state-led capitalism in China. Scholars further suggest the WTO's domestic effects might vary based on sectoral characteristics (Harwit 2001; Hsueh 2011) as well as bureaucratic structure (Tan 2020). Yet less is known about what these dynamics might mean for the international trading behavior of SOEs, despite the substantial impact of WTO entry on the rules and incentives facing these firms.

Even after two decades of reforms, China's accession negotiations in the 1990s confronted a state that relied heavily on administrative intervention and which supported a large state-owned sector. China's pre-WTO trading system was split between a liberalized export promotion regime dominated by foreign firms invested in special economic zones, and an insulated import substitution regime dominated by SOEs. The authority to trade was controlled by a licensing scheme that allocated trading rights to SOEs. Even as this system was expanded, it protected SOEs from

competition and assured that their trading decisions were influenced by administrative guidance rather than price signals, since the licenses restricted their trading to specific products and regions (Naughton 1999). With WTO entry, China pledged to liberalize trading rights to *all* firms, thereby extending the ability to trade to many private firms for the first time and offering SOEs more autonomy over their trading decisions.

WTO rules are ownership-neutral insofar as they apply equally to all actors engaged in trade. SOEs are regulated through GATT Article XVII on State Trading (and indirectly through the agreement on Subsidies and Countervailing Measures (SCM)). Article XVII, which governs both state-owned and private enterprises granted exclusive trading rights, specifies that (a) SOEs granted state trading rights act in a non-discriminatory manner in their trade-related purchases or sales; and (b) that they “make any such purchases or sales solely in accordance with commercial considerations.”⁶ In its accession protocol, China reserved state trading rights for a subset of goods and commodities.⁷ Nevertheless, state trading in these products would also be governed by Article XVII as well as by commitments in China’s accession protocol that its SOEs must act on a commercial basis free from government interference. Specifically, China agreed to (a) phase out subsidies to certain loss-making SOEs; (b) subject SOE subsidies to WTO disciplines as laid out in the SCM agreement; (c) ensure that SOEs operate only on commercial considerations; (d) *not* influence the commercial decisions of SOEs; and (e) to notify the WTO on the pricing and purchasing behavior of SOEs (Qin 2004; Levy 2017). Due partly to a lack of precision in the accession protocol, these commitments have not been actively used by WTO members to discipline China’s SOE policies. (Levy 2017).⁸ When challenged in WTO disputes, ambiguity over the definition of public bodies contributed to decisions that many members find unsatisfactory (Mavroidis and Sapir 2021).

Our paper investigates whether WTO entry shifts the trading behavior of private and state-owned firms toward a more commercial basis. The WTO does not mandate a fixed level of market share or trade balance. Instead, its market-oriented rules operate under an assumption that lowering tariffs will alter firm behavior by shifting prices. Therefore, the most direct evidence of a “WTO effect” to promote the commercial orientation of private/SOE trade would appear in the form of imports increasing in response to tariff reductions.⁹ However, government intervention through industrial policy might nullify any tariff impact of WTO accession. In that case, we would observe a lack of response in trade flows to tariff reductions, suggesting that firms are responding to government—rather than market—signals.

Explaining Patterns of State-Led Liberalization

Our theory of state-led liberalization explains how SOE trading behavior fits into government efforts to direct and

contain market competition within an era of trade expansion. Current scholarship points to the Chinese government’s dualistic goals. On one hand, the Chinese leadership sought to use external pressure as a credible commitment to advance market reform. Lowering trade barriers would enhance market efficiency by weeding out uncompetitive firms. On the other hand, the state simultaneously sought to promote strategic sectors important to national security and industrial upgrading by imposing domestic re-regulation and restrictions on foreign investment (Hsueh 2011; Pearson 2015).

These dual goals are part of a more general problem confronted by many governments to pursue market rationality emphasizing efficiency, and plan rationality emphasizing effectiveness. Where Johnson (1982, 21) in his classic formulation of the developmental state contrasts the trade-offs between the two approaches as pursued by the United States and Japan, states hope to maximize growth and pursue policy goals. The challenge is how to balance the tensions between letting markets rule versus guiding firm behavior. This governance dilemma permeates China’s bureaucracy, where the government seeks to improve efficiency by managing for results based on outcomes while also aligning behavior with political priorities (Mei and Pearson 2017). When it comes to governing the state sector, the “core goal of moulding SOEs that are both market competitive and obedient to the Party has remained consistent” across different leaderships (Leutert and Eaton 2021, 215). China’s deepening external engagement brings a new international dimension to this bureaucratic dilemma.

WTO entry locked in the transformation of the Chinese economy by expanding the role of the private sector. However, China’s tariff commitments posed a challenge to its dualistic strategy since all sectors, including strategic ones, would be exposed to more price competition as cheaper imports became available. By refocusing its SOE trade policy to restrict import competition in strategic products, China opted for limited liberalization. The ambiguity over the definition of “commercial considerations” in GATT Article XVII permits a wide range of behavior, creating gaps akin to the escape clauses and other mechanisms designed to provide flexibility in trade rules (Rosendorff and Milner 2001). Simultaneously, internal incentives to discipline SOEs and external demands by other member states set bounds on the breadth of government control, allowing SOEs to enjoy trade gains in goods not targeted by industrial policy. If the government placed restrictions on all aspects of SOE importing behavior, then it would not reap any efficiency gains—either for the state-owned sector or for the broader economy. Governance of SOE trade must meet a Goldilocks principle of liberalization—not too much and not too little.

Official policy developments signaled these competing goals. Premier Zhu Rongji noted in 1999 that “(WTO) concessions might bring about a very huge impact ... on some state-owned enterprises ... (but) the competition arising from such impact will also promote a more rapid and more healthy development of China’s national economy” (The White House 1999). This reflected the leadership’s desire to use WTO entry to advance politically difficult domestic reforms (Pearson 2001). That same year, however, the government reasserted the role of SOEs as vehicles for industrial policy by affirming state ownership as the “principal component” of the economy (CCP Central Committee 1999). In December 2001, the same month of China’s WTO accession, China announced a policy to foster 50 large, internationally competitive SOEs, emphasizing that it was “an im-

⁶The legal provisions have been clarified through WTO case law (Mastromatteo 2017).

⁷Wheat, corn, rice, soybean oil, palm and other vegetable oils, sugar, tobacco, crude oil, processed oil, chemical fertilizer, and cotton.

⁸For a legal analysis of China’s SOEs in the WTO, see Mavroidis and Janow (2017).

⁹We define commercial orientation here as firms being sensitive to price changes and responding to maximize profits. The *legal* interpretation of commercial orientation may well deviate from this layman’s definition. Indeed, WTO dispute settlement rulings have adopted a broad interpretation of what constitutes commercial orientation (Mastromatteo 2017).

portant strategy to cope with the impacts brought about by the country's accession to the WTO" (Fu 2001).

We argue that the government adopts a bifurcated strategy in SOE trade policy in order to calibrate which domestic sectors are more exposed to import competition. Tariff liberalization induces firms to take advantage of cheaper imports. The government can blunt the impact of this competitive channel on strategic industries by directing SOE purchasing behavior away from imports of goods that compete directly with these prized sectors. It achieves this through multiple tools, often disproportionately focused on the state-owned sector where the government can more readily influence decisions. While industrial policies apply to both private firms and SOEs, Party-appointed executives, preferential licensing, direct subsidies, indirect taxes, and preferential credit offer multiple points of leverage to influence SOE decisions and enforce industrial policies (e.g., Hsieh and Song 2015). At the same time, it allows the full force of trade liberalization to operate in SOE imports of non-strategic products, spurring SOEs to behave like profit-maximizing firms in shifting to cheaper imports. These dualistic policies determine when SOEs follow commercial incentives or ignore market signals in their international trade.

While tariff cuts are transparent and easily observable, their economic impact can be eroded through the substitution of opaque regulation. Democracies, for example, engage in "optimal obfuscation" by using product standards to replace protection lost from tariff cuts (Kono 2006). Similarly, SOE purchasing behavior provides a non-transparent lever for governments to achieve their policy goals under liberalized conditions. Countries with a large share of state ownership can therefore deploy SOE trade as a non-tariff barrier to shield strategic sectors from import competition. In this way, industrial policy paired with state ownership manages liberalization. Therefore, we expect that:

1. WTO entry strengthens the commercial behavior of private firms. Following WTO entry, lower (higher) tariff levels will increase (reduce) private imports.
2. The degree to which WTO entry shifts SOEs towards a commercial orientation depends on industrial policy. Following WTO entry, lower (higher) tariff levels will increase (reduce) SOE imports only when the share of strategic products in bilateral imports is low. As the share of strategic imports increases, the relationship between tariff levels and SOE imports weakens.

Figure 1 summarizes the predicted outcomes implied by our two hypotheses, in terms of the expected tariff responsiveness of SOE and private imports before and after WTO entry.

Data For Testing Firm Ownership Impact on Trade

Our main outcomes of interest are the import purchases of China's state-owned and private sectors. Bilateral trade data on the annual value of Chinese imports by partner country and ownership status were obtained from the General Administration of Customs.¹⁰ We exclude the trade flows of the foreign and joint venture sectors because (as explained in

Section "The WTO's Liberalizing Effect on Chinese SOEs") these enterprises operated under a separate, highly liberalized trade regime in China's pre-WTO period. Most analysis of Chinese trade combines SOE, private, and MNC trade. Our innovation is to focus on domestic firms while differentiating between ownership. The data is available from 1993 to 2012, allowing us to compare import patterns before and after China's 2001 WTO entry.

This structure of our data (partner import flows disaggregated by ownership type) allows us to account for external factors that might also distort SOE trade. For example, SOEs might serve not just as instruments of industrial policy, but also as agents in China's economic statecraft (Davis, Fuchs, and Johnson 2017). We are therefore able to control for the possibility that SOE trade flows might be politicized by China's bilateral trading relationships. Our focus on bilateral imports by ownership also mitigates other concerns. Since efforts within China to counteract liberalization through either exchange rate intervention or domestic import-competing firm price adjustment would apply across trade partners and affect import decisions by SOE and private firms equally, they are unlikely to bias our findings.

Figure 2 shows the average value of SOE and private imports measured at the bilateral level across China's trade partners from 1993 to 2012. The impact of WTO entry, which liberalized trading rights to all firms—including domestic private firms—is readily evident. While private trade is negligible in pre-WTO years, imports expanded rapidly after 2001. In contrast, the impact of WTO entry on SOE imports is less discernible from this inspection of average trends. Although there is no noticeable shift in 2001, SOE imports steadily increase and remain higher than those of private firms at the end of our period of analysis.

The tariff liberalization that accompanied China's WTO entry provides an important test of whether or not WTO membership has shifted SOE trading behavior toward a greater commercial orientation. China's accession negotiations were focused on reducing its import tariffs. Few changes were made to WTO member tariffs on Chinese exports, which were already low.¹¹ Figure 3 shows the average change in China's Most-Favored Nation (MFN) import tariffs over time, with a distinct drop in the years following 2001. While tariffs were declining in the 1990s, these early reductions took place in the context of stalled WTO negotiations, and a dualistic trading regime described in Section "The WTO's Liberalizing Effect on Chinese SOEs". Foreign firms enjoyed low tariff rates in a liberalized regime while domestic firms (primarily SOEs) operated under administrative guidance that superseded tariffs. Only with WTO entry would all firms come under a common set of international rules guiding behavior.

The distribution of tariff cuts across industries was largely shaped by US-China leadership dynamics rather than domestic industry interests. Existing research finds no relationship between the size of China's WTO tariff cuts and industry characteristics (Tan 2020). This relationship is largely due to the power dynamics of China's WTO accession: In the 1990s, a bottom-up consultative process in China greatly impeded negotiations. Progress was made only in 1999 onward through a top-down approach, where China's new Premier overrode domestic industry pressures to push forward domestic reforms (Pearson 2001). Moreover, the decision to

¹⁰Data were purchased from Customs Info, a government-owned company licensed to distribute official customs data. Although some report discrepancies with Chinese export data (Feenstra, Hai, Woo et al. 1999), import data has been found to be reliable and consistent with mirror statistics from partner countries. Following the official classification, SOE imports are defined as purchases by enterprises with 50 percent or more government equity stake. While the data do not allow us to distinguish between central versus subnational SOEs, we indirectly

assess the potential influence of these differences in a product-level analysis in Section "Empirical Analysis of Chinese Imports before and after WTO Entry".

¹¹Nearly all WTO members, including the United States, applied MFN tariffs to Chinese exports. The key change with accession was to guarantee this access.

		Time Period	
		Pre-WTO	WTO
Type of Import Flow	SOE	No commercial response to tariffs	Commercial behavior <i>only</i> in non-strategic imports
	Private	No commercial response to tariffs	Commercial behavior in <i>all</i> types of imports

Figure 1. Predicted responsiveness of SOE and private imports to changes in tariff levels, comparing how the share of strategic goods conditions commercial behavior.

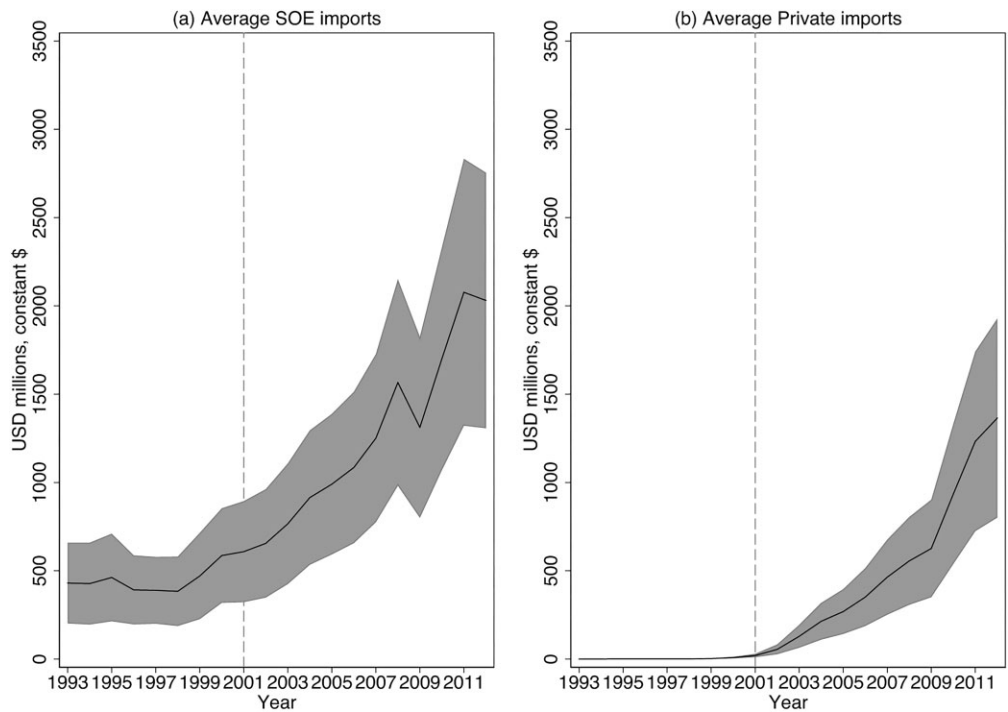


Figure 2. Comparing the impact of WTO entry on bilateral SOE versus private imports, 1993–2012). The shaded area indicates 95 percent confidence intervals. The vertical line indicates entry into the WTO in 2001.

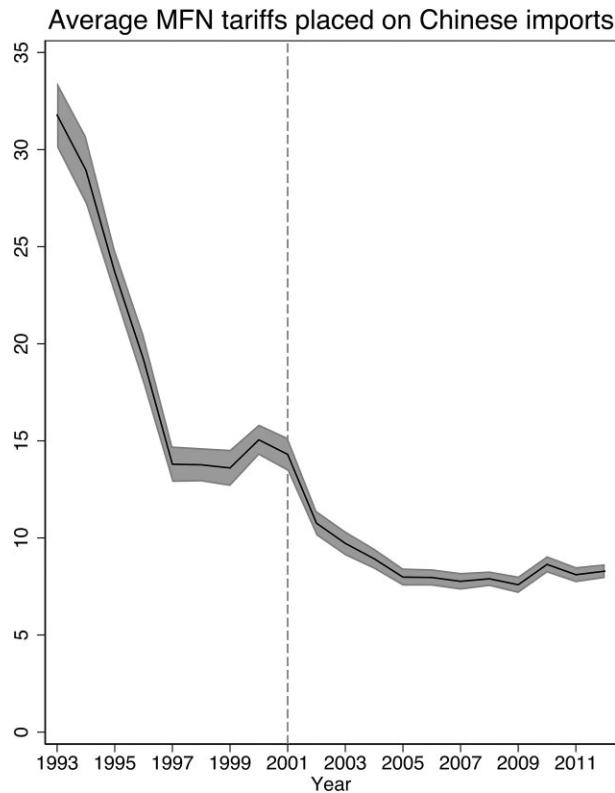


Figure 3. Over-time change in MFN import tariffs. The shaded area indicates 95 percent confidence intervals. The vertical line indicates China's WTO entry in 2001.

admit China into the WTO lay with existing members. The terms of entry, therefore, reflected the interests of powerful countries such as the United States and Europe, rather than domestic Chinese interest groups. This is more generally true as well—[Pelc \(2011\)](#) explains that under the asymmetric bargaining conditions of WTO accession, the entrance terms are driven by the export interests of the members rather than the applicant.

We examine the impact of tariff cuts on SOE and private sector trading behavior in China's imports from other countries. As our main explanatory variable, we use the weighted average of bilateral MFN tariffs imposed by China on its imports from each of its trading partners. For each bilateral trading relationship, the product-level tariff was first multiplied by the value of that product's share of overall imports on an annual basis. Each trade-weighted product-level tariff was then summed to produce an average weighted tariff value by year and trading partner.¹² Our analysis focuses on import responses to tariff cuts, comparing SOE and private trade flows before and after WTO entry. We examine the aggregate response of private and SOE imports to bilateral tariff cuts in the main analysis, rather than firm-level dynamics, as we are not focused on the distributional question of which firms benefit or lose from tariff liberalization (on which a rich literature already exists). As a robustness check, product-level analysis in [Section "Empirical Analysis of Chinese Imports before and after WTO Entry"](#) includes

¹²Tariff and import data were obtained from www.wits.worldbank.org. The weighted average tariff measure gives more weight to tariff cuts for products that comprise a larger share of a given import relationship. It, therefore, captures different information compared to a simple average tariff measure, which by construction gives greater weight to outlier values.

industry controls to account for domestic adjustments to tariff cuts.

Measuring Industrial Policy

We assess the response of Chinese private and SOE trade to economic liberalization in the context of strategic industrial policy. Contrary to conventional wisdom, state ownership is not synonymous with industrial policy. The distribution of SOE trade ranges across both strategic and non-strategic products. This variation allows us to test whether the responsiveness of imports to tariff cuts depends on the share of strategic products in bilateral trade flows.¹³ We define such "strategic trade" based on the Chinese government's desire to promote high-tech industries such as aviation and automobiles while also defending national security interests. These include armaments, economic "life-line" industries such as telecommunications, coal and power generation, and the security of basic food and raw materials such as grain and oil.

In order to measure the presence of strategic products in dyadic trade flows, we rely on Chinese policy documents specifying such strategic industries. First, products reserved for state trading are listed by HS code in China's accession protocol.¹⁴ Second, the government has specified several strategic sectors over which the state needed to maintain "absolute control": Armaments, power generation and distribution, petrochemicals and oil, telecommunications, and coal and public transportation. Additionally, nine "pillar" industries have been identified, in which "backbone" enterprises would maintain controlling power: Equipment manufacturing, automotive, electronic information, construction, steel, non-ferrous metals, chemicals, surveying and design, and high-tech industries. These are sectors where the state desires strong SOEs but allows private sector participation. Our definition of strategic industries, therefore, includes goods for which state trading rights have been reserved and those identified as important for the national interest.¹⁵ We then generate dyadic country-year measures of the share of strategic products in China's imports with each of its trading partners. The unit of analysis is therefore the country-year dyad (and not product-level trade flows). Examining national industrial policies and Five-Year Plans (FYP)s from 1989, 1991, 1994, 1996, 2001, 2005, 2006 and 2011, we find that the industries which the Chinese government has designated as strategic has stayed fairly consistent over time. This coding of strategic industries is similar to the approach taken in [Huang, Li, Ma et al. \(2017\)](#).¹⁶

The share of strategic products in China's imports has remained relatively steady when averaged across trading part-

¹³We focus on the share of strategic trade rather than absolute values as we are interested in the composition of import flows.

¹⁴The ownership status of firms assigned state trading rights varies over time and industry. As of 2020, only 55 percent of the state-trading firms are registered as SOEs.

¹⁵HS codes for these strategic industries were identified by searching for products containing words related to each industry at <https://www.foreign-trade.com/reference/hscod.htm>.

¹⁶For example, a 1994 policy listed very similar industries as requiring state support: transport, telecommunications, construction, electronics, machine-building, petrochemicals, automobile, energy (including oil and petroleum) and power generation ([State Council 1994](#)). High-tech industries such as biotechnology and pharmaceuticals have been emphasized as a priority as far back as 1989. We adopt a time-invariant definition of the industries constituting strategic trade because the strategic trade variable is interacted with the time-varying tariff variable in some of the specifications. A time-invariant definition allows for a clearer identification of whether changes in trade flows are being driven by changes in tariff levels or in industrial policy. (The measure of strategic trade is time-invariant, but the share of strategic trade in bilateral trade is time-varying.)

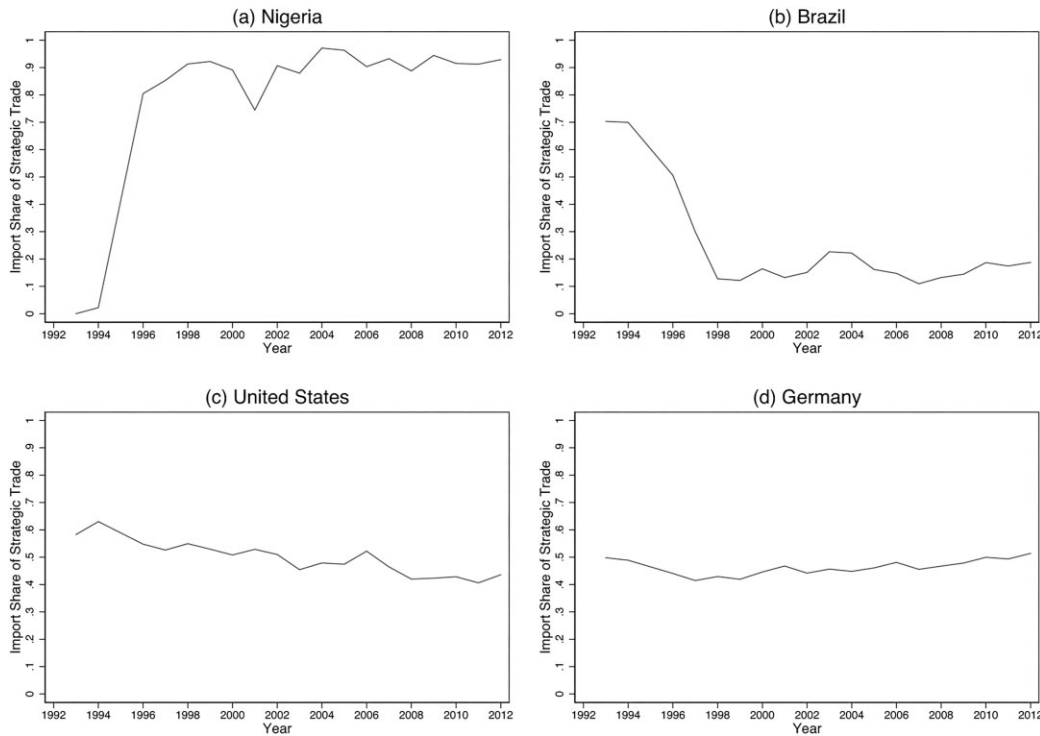


Figure 4. Cross-country trends in strategic import shares.

ners. The average strategic trade share from 1993 to 2012 is 0.45 with a standard deviation of 0.37. The maximum value is 0.52 (in 1998) and the minimum is 0.36 (in 2001). Yet across partners, there have been larger changes in strategic trade import trends. Figure 4 shows variation across select countries in the share of strategic trade in imports. The share of strategic goods in China's imports from Nigeria increased sharply in the mid to late 1990s from a low level and since then has stayed fairly constant at high levels. In contrast, the share of strategic trade in imports from the United States has steadily declined and that of Brazil has fallen substantially.

The share of SOE imports varies across strategic and non-strategic products, as well as over time. Examining product-level data that is available from 2003 to 2012, we find that SOE import shares have fallen across all industries. For state-controlled monopolies such as tobacco, these shares have declined by only small amounts, from 99 percent in 2003 to 94 percent in 2012. In other strategic industries such as aviation, the decline has been more substantial, from 73 percent in 2003 to 49 percent in 2012. Even in some non-strategic goods, SOE imports remain significant. For example, SOE import shares in furniture and bedding declined from 48 percent in 2003 to 17 percent in 2012. Our main analysis examines national dyadic trade flows before and after WTO entry, while a later analysis hones in on product-level trade from 2003 to 2008.

Model Specification

In order to focus our analysis on the conditional effect of strategic trade share on imports, we include country-fixed effects for China's trade partners. This means we hold China as the importer fixed, and leverage within-country variation in strategic trade share by its trade partners. There are po-

tential endogeneity concerns with the strategic trade variable, as the dominance of SOE imports of goods from a particular industry is not randomly assigned. However, our data is structured as bilateral trade flows, thereby mitigating endogeneity issues as the share of strategic imports in a particular trading relationship is more likely to be driven by partner factor endowments and shifts in global demand and supply exogenous to the underlying political and economic conditions that drive the distribution of SOE imports across industries. One may also be concerned that tariff policies vary for strategic industries, but we find that there is no statistically significant difference between the size of the average WTO tariff cut imposed on strategic versus non-strategic industries.¹⁷

We employ the basic gravity model commonly used in trade literature to test our hypotheses regarding private versus SOE trade responses to changes in tariff levels. Seemingly unrelated estimations are used to model private and SOE imports.¹⁸ This specification allows us to test whether the coefficients on our key explanatory variables differ between SOE and private trade (see Davis, Fuchs, and Johnson [2017] for a similar approach). WTO entry brought multi-dimensional changes to China's economic and trading system, ranging from the elimination of non-trade barriers such as quotas and licensing to the strengthening of the rule of law and disclosure of economic information.

¹⁷The size of the average WTO tariff cut was calculated as the difference between average tariff levels in 2001 less average tariff levels in 2012, the end of our period of analysis. Strategic industries experienced an average 5.4 percent reduction relative to a 6 percent average tariff cut in non-strategic industries. The difference is not statistically significant in a comparison of the means test (p -value = 0.48).

¹⁸Since Zellner (1962), the seemingly unrelated regressions estimator has been applied to estimate two equations where responses are expected to be correlated. We use seemingly unrelated estimations, which employ a similar approach but allow for standard errors to be clustered.

Table 1. Sub-sample analysis of imports: Pre-WTO period

	(1)	(2)	(3)
SOE			
Weighted MFN tariff	-0.056** (0.028)	-0.043 (0.028)	-0.042 (0.041)
Import share of strategic trade		1.638*** (0.547)	1.681* (0.964)
Weighted MFN tariff × import share of strategic trade			-0.003 (0.065)
Controls	✓	✓	✓
Private			
Weighted MFN tariff	0.010 (0.024)	0.028 (0.028)	0.098*** (0.030)
Import share of strategic trade		1.430* (0.864)	3.456*** (1.038)
Weighted MFN tariff × import share of strategic trade			-0.157*** (0.040)
Controls	✓	✓	✓
<i>N</i>	1181	1057	1057
Wald test <i>p</i> -value (tariffs)	0.034	0.031	0.003
Wald test <i>p</i> -value (strategic trade)		0.847	0.198

Note: Results of seemingly unrelated estimations of logged SOE and private imports from 1993 to 2001, including country and year-fixed effects and standard errors clustered by country. * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

Given the extensive nature of WTO-related reforms, we assess differences in private and SOE trading behavior in the pre-WTO and WTO periods by employing sub-sample analysis, splitting the data into pre-WTO (1993–2001, number of partner countries = 150) and WTO years (2002–2012, number of partner countries = 157). In our baseline model, we estimate a system of equations as follows:

$$imports_{SOE,it} = \beta_0 + \beta_1 tariff_{it} + \beta'_2 X_{it} + \eta_i + \tau_t + c_{it}, \quad (1)$$

$$imports_{private,it} = \tilde{\beta}_0 + \tilde{\beta}_1 tariff_{it} + \tilde{\beta}'_2 X_{it} + \tilde{\eta}_i + \tilde{\tau}_t + \tilde{c}_{it}, \quad (2)$$

where i represents a partner country and t a year in the 1993–2012 period. X represents the following vector of control variables: a partner country's (logged) GDP and (logged) population using data from the World Development Indicators, which measures a country's economic and potential market size respectively; a Polity2 variable from the Polity IV Project that measures the country's level of democracy; and a UN ideal point distance variable that measures the foreign policy distance between China and its partner countries based on their voting record in the UN General Assembly roll call votes (Bailey, Strezhnev, and Voeten 2017), which has been used to evaluate the effects of political relations on SOE versus private trade (Davis, Fuchs, and Johnson 2017). Since the regressors for the two equations are identical, our specification is the same as an ordinary least squares estimation. The seemingly unrelated estimations combine the results from the two equations to test for differences in the coefficients across models. In our case, this allows us to assess if the coefficients on the tariff variable differ significantly between SOE and private imports.

Building on the baseline specification of model 1, we then incorporate industrial policy in two additional specifications. Model 2 adds the share of strategic products in overall imports from a country as a covariate, while model 3 adds an interaction term between tariffs and the strategic import

share variable.¹⁹ All specifications include partner country-fixed effects (η_i) and year-fixed effects (τ_t), with standard errors clustered by country.²⁰

A comparison of the estimation results from the pre-WTO and WTO subsamples provides us with an indication of whether or not WTO entry had the effect to shift SOE and private import flows toward a commercial orientation. We use *z*-tests to evaluate if the differences in regression coefficients between the pre-WTO and WTO periods are statistically significant. We estimate a product-level analysis for a shorter time period in the WTO years (2003–2008) to validate our findings at a more granular level.

Empirical Analysis of Chinese Imports before and after WTO Entry

Tables 1 and 2 present the results for Chinese private and SOE imports in the pre-WTO period (1993–2001) and WTO period (2002–2012), respectively. Column (1) shows the results for the baseline analysis with tariffs as the main explanatory variable. Column (2) adds the share of strategic products in bilateral imports as an explanatory variable, and Column (3) adds an interaction term between tariffs and the import share of strategic products.²¹

We find an inconsistent relationship between tariffs and imports in the pre-WTO period when trade was heavily influenced by administrative guidance. SOE imports have a negative relationship with tariffs in the first model, but the result is not robust to the inclusion of the strategic trade variable. Private imports exhibit little correlation with tariffs in the first two models, and the positive coefficient for the

¹⁹We use a subset analysis rather than including a WTO dummy because we test our main hypothesis using the interaction term between tariffs and strategic import share in model 3. Using a WTO dummy would require a triple interaction term, which would make the interpretation of results more difficult.

²⁰Summary statistics of the explanatory and control variables can be found in Online Appendix Table A1.

²¹Full regression output is in Online Appendix Table A2.

Table 2. Sub-sample analysis of imports: WTO period

	(1)	(2)	(3)
SOE			
Weighted MFN tariff	0.000 (0.017)	− 0.016 (0.014)	− 0.182*** (0.047)
Import share of strategic trade		2.660*** (0.763)	1.274 (0.806)
Weighted MFN tariff × import share of strategic trade			0.214*** (0.055)
Controls	✓	✓	✓
Private			
Weighted MFN tariff	− 0.073*** (0.023)	− 0.075*** (0.023)	− 0.184*** (0.070)
Import share of strategic trade		0.418 (0.700)	− 0.484 (0.854)
Weighted MFN tariff × import share of strategic trade			0.140 (0.087)
Controls <i>N</i>	✓ 1650	✓ 1650	✓ 1650
Wald test <i>p</i> -value (tariffs)	0.001	0.006	0.984
Wald test <i>p</i> -value (strategic trade)		0.004	0.076

Note: Results of seemingly unrelated estimations of logged SOE and private imports from 2002 to 2012, including country and year-fixed effects and standard errors clustered by country. * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

weighted MFN tariff measure in model 3 indicates that private imports increased with *higher* tariff levels. Prior to WTO accession, only a handful of private firms held trading rights, and these appear to have followed administrative guidance over profit maximization.

Table 2 reveals a stark difference in the trading behavior of private and SOE imports in the WTO period. We find a strong negative relationship between tariffs and private imports, where lower tariffs are associated with higher private imports in columns (1)–(3). As for SOE imports, it appears initially in columns (1) and (2) that SOE import flows are not sensitive to tariffs in the WTO period. However, column (3) shows that once we take the interactive effects of strategic trade into account, that SOE imports *do* respond in a commercial manner to tariff levels. It further shows that the sensitivity of SOE imports to changes in tariff levels is conditional on the presence of trade in strategic products. When the share of strategic imports in a bilateral trading relationship is 0, SOE imports exhibit a commercial orientation in that they are higher at lower tariffs levels, similar to private imports.²²

Figure 5 summarizes the average marginal effects of the interaction term for private and SOE imports in the pre-WTO and WTO periods. The top right-hand figure shows that the more SOE imports contain products in strategic sectors, the less they respond commercially to tariffs. Where strategic trade comprises about 70 percent or more of bilateral imports, these import flows fail to exhibit any responsiveness to tariff cuts. These non-commercially oriented flows represent about 32 percent of China's total imports over our period of analysis. In contrast, the WTO period is associated with a negative relationship between tariffs and private imports regardless of the share of strategic products in imports. The pattern matches our expectation for the government to apply market disciplines on SOE imports

Table 3. Testing pre-WTO and WTO differences

Coefficient	Z-score	p-value
SOE: tariff	2.236	0.013
SOE: strategic trade	0.323	0.373
SOE: tariff x strategic trade	-2.560	0.005
Private: tariff	3.684	0.000
Private: strategic trade	2.932	0.002
Private: tariff x strategic trade	-3.084	0.001

Results of significance tests comparing the coefficients estimated in the pre- and post-WTO entry subsamples, from column (3) of Tables 1 and 2.

of non-strategic goods even as it exerts guidance over SOE imports of strategic goods to shield sectors targeted by industrial policy.

Our argument contends that the relationship between tariff levels and imports changed after entry into the WTO, as seen from the different findings for the two periods. Table 3 presents the results of z-tests on the coefficients of the tariff and strategic import share variables in column (3) across the pre-WTO and WTO analyses. This assesses whether the differences in import trends between the two periods are statistically significant. The table shows a significant difference in the relationship between tariffs and imports after WTO entry for both private and SOE imports. The difference in the interactive relationship between tariffs and strategic trade is also significant for both private and SOE imports.

Product-Level Analysis

Important literature examines how WTO functions affect product-level trade flows (Bown and Reynolds 2015; Peritz 2020). Building on this literature, we test if our argument holds up using product-level data from 2003 to 2008. The product-level data allows us to leverage variation in the strategic importance of imports from different sectors and

²²Indeed, the Wald *p*-value for the comparison of the *Tariff* coefficient for SOE and private trade moves from being highly significant in columns (1) and (2) to insignificant in column (3).

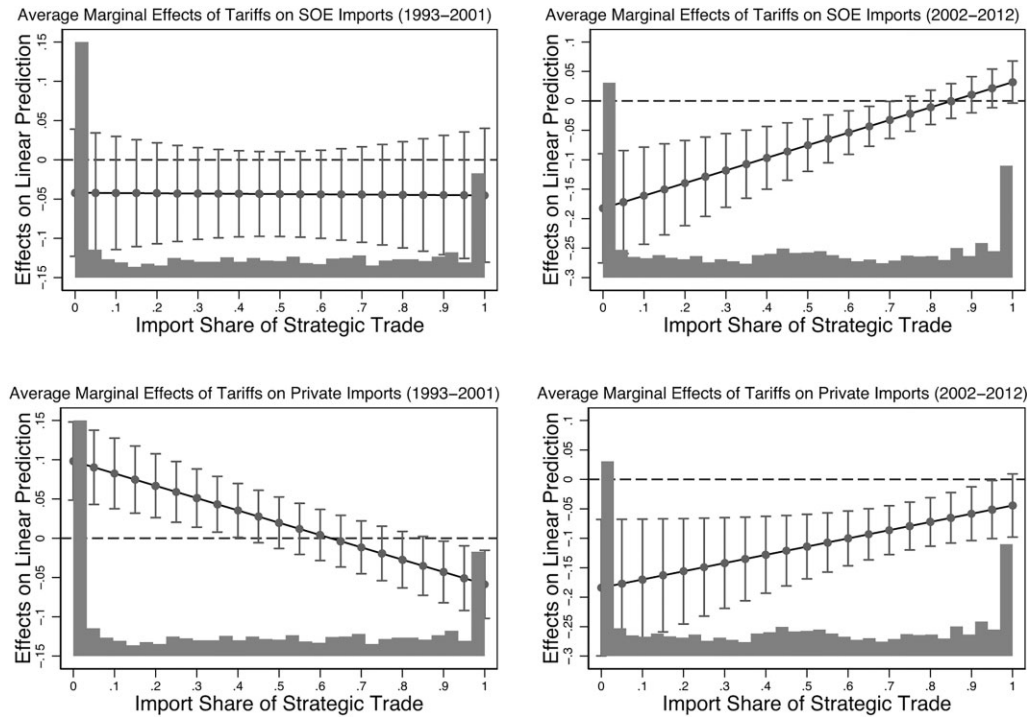


Figure 5. Marginal effects of tariffs as import share of strategic trade increases. Bars show 95 percent confidence intervals. Histograms show the distribution of the strategic trade variable.

product groups. This analysis enables a closer assessment of the interactive effects between firm ownership and targeted industrial policy in shaping WTO liberalization. While the time period assessed lies in the WTO period, the tariff cuts that China negotiated were introduced across a number of years from 2001 onward. Our data therefore still captures the most important period of WTO-induced change where tariffs were being systematically liberalized according to China's accession schedule.²³ This data is comprised of country-dyad ownership-specific import flows (as with the dataset utilized in the main analysis), but it is further disaggregated into product-level imports at the HS four-digit level. We assess whether the same heterogeneity in SOE importing behavior shows up at the product level in two ways. First, we test if SOE import patterns in low-value-added raw materials vary from those in high-value-added final consumer goods. Second, we examine variations in SOE import flows within specific strategic industries targeted by industrial policy.

We expect industrial policies to prioritize higher value-added products. We test this proposition by splitting the product-level data into two sub-samples according to UNCTAD's stage-of-production classification: low-value-added raw material imports that are easily substitutable; and high-value-added final consumer goods. We add the following controls to capture industry characteristics: the sectoral share of total output; the SOE share of sectoral output; and the subsidy share of sectoral output.²⁴ These measures take into account both industry market conditions and government intervention that could affect firm incentives. All re-

gressions include year, country, and product fixed effects, with standard errors clustered by country. As with the main analysis, our explanatory variable of interest is the interaction term between tariffs and the share of strategic trade.

We find that for consumer goods, the interaction term is positive and significant for SOE imports ($p < 0.01$) and not private imports. This result resonates with our main finding that the tariff-responsiveness of SOE imports is attenuated by the presence of strategic products, while that for private imports is not. Substantively, a 1 percentage point reduction in tariffs on consumer goods is associated with a 15.3 percent increase in imports if the product is non-strategic, while the magnitude of the tariff response is almost halved if the product is strategic (8 percent). In contrast for raw materials, the interaction terms for both SOE and private imports are not statistically significant (full results are in Online Appendix Table B1). The evidence highlights the focus of industrial policy in distorting SOE import flows in goods of greater strategic value—such as consumer products. This analysis reinforces our argument that it is the combination of state ownership and industrial policy that blunts the liberalizing effects of the WTO.

Next, we explore whether state targeting occurs *within* strategic industries if policy goals make some products more important to protect. We select cases from two ends of the spectrum of industries covered by Chinese industrial policy. At one end are the commodities reserved for state trading due to concerns ranging from food security to taxation, and at the other end lies industries deemed strategic for their technology content and national security implications.²⁵ The model specification is similar to the country-level analysis, except that we use a linear year trend rather than year-fixed effects, due to the fact that the data is more

²³Based on checks with China Customs, detailed product-level classification is not available prior to 2003. This does not affect the higher-level data used in our analysis, which is accurate and matches Comtrade data.

²⁴Industry control variables were generated from a firm-level dataset from the National Bureau of Statistics.

²⁵The list of products analyzed is shown in Online Appendix Table B5.

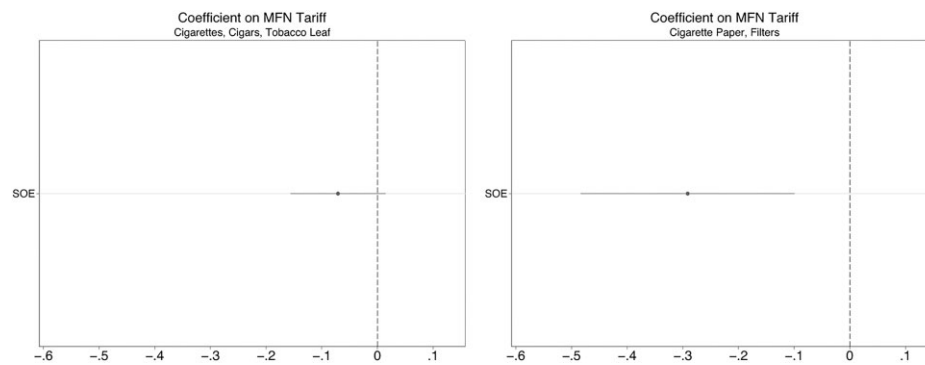


Figure 6. Comparing tariff responses in state-traded tobacco imports versus imports of non-strategic tobacco inputs. Dots show coefficients for the estimated effect of the tariff variable on SOE imports for state-traded imports (cigarettes, cigars, and tobacco leaf) versus imports for non-strategic inputs (cigarette paper and filters). Bars show 95 percent confidence intervals.

sparse at the product level.²⁶ We additionally control for industry output share, SOE share of industry output and subsidy share of industry output. Given that we subset to strategic products, there is no need for an interaction term with strategic industry and our key explanatory variable is the tariff itself.

Conditioning on state ownership, how does state trading as one form of industrial policy moderate the impact of tariffs on import flows? We examine trading flows in the tobacco industry, a state-controlled monopoly. The industry's national value derives from the government's reliance on tobacco taxes as a source of revenue and the importance of supporting agricultural incomes. As a result, trade in tobacco products is highly dominated by SOEs and there are almost zero private imports over our period of analysis. Focusing on these SOE imports, we compare patterns among different tobacco products: China reserved its state-trading rights over cigarettes, cigars, and tobacco leaf in its WTO accession protocol, but these reservations did not extend to other inputs such as cigarette paper and filters. Figure 6 shows the tariff coefficient estimates for SOE imports of these two groups of products: While import flows in state-traded tobacco are insensitive to changes in tariff levels, both SOE imports for freely-traded cigarette paper and filters are sensitive to tariffs.²⁷ Even in an industry entirely dominated by state ownership, SOE importing behavior is not uniform. State trading insulates tobacco from commercial pressures, while SOEs engaged in trading cigarette paper adjust their sourcing to expand imports as tariffs decline.

Next, we examine the automotive sector to assess the pattern for high-tech industries. This sector's strategic importance dates back to the Mao era and continued into China's reform period, with automotive development stressed as a national priority in the 8th FYP (1991–1995). The industry was given “pillar” status in a 1994 State Council policy, and priority placed on developing a set of highly capable SOE groups. The focus on SOEs continued into the WTO period, with the 2006 11th FYP emphasizing the need to raise the competitiveness of automotive SOEs. We hypoth-

esize that the state places higher strategic importance on finished passenger vehicles relative to intermediate goods such as automotive parts. Indeed, official policy restricts foreign investment in passenger vehicles to joint ventures with Chinese SOEs, while no such restriction is placed on automotive parts (State Planning Commission 1997).²⁸ Our findings, summarized in Figure 7, show that SOE imports are not sensitive to tariffs for finished motor vehicles but sensitive for intermediate auto parts, while the private sector is tariff-sensitive for both products.²⁹

Finally, we examine shipping as an industry considered strategic for its national defense importance. The development of China's shipbuilding capabilities has been a national priority since the 1950s as emphasized in the 1st FYP (1953–1957) and has remained “a mainstay of the socialist economy” into the post-Mao reform years (quoted in Moore 2002, 186). Shipping industry development has continued to be emphasized in China's WTO era, as seen in the 2006 11th FYP. Here, we compare the tariff responses in highly strategic shipping products with potential military dual-use applications, such as cruise and cargo ships, to tariff responses in low-end shipping products such as tugs and row boats. As with the automotive industry, we find (as shown in Figure 8) that SOE imports are insensitive to tariff levels for cruise ships and cargo ships but sensitive to tariffs for tugs and row boats. In contrast, private imports are sensitive to tariff levels for both products.³⁰

This section leverages variation within different strategic industries to test our hypotheses while controlling for industry characteristics. Consistent with the main analysis, we find that SOE trading behavior diverges along strategic value considerations while private sector imports are sensitive to tariff cuts regardless of the strategic importance of a product. This reduces the likelihood that our findings are skewed by domestic market adjustments such as shifts in industry competitiveness induced by tariff cuts on downstream or upstream products.

²⁸A WTO case (DS342) tackled Chinese policies aimed at preventing tariff evasion through the import of auto parts to substitute for complete vehicles.

²⁹We exclude automotive engines from the analysis as this product is a highly strategic input. The values of SOE and private imports of passenger vehicles are about equal during our period of analysis. The overall value of passenger vehicle imports is about 48 percent of the combined value of passenger vehicle and auto parts imports.

³⁰Full regression output for these analyses is in Online Appendix Tables B2–B4.

²⁶Results are robust to the exclusion of the linear year trend.

²⁷For example, while tariffs on state-traded tobacco fell from 16 percent in 2003 to 10 percent in 2004, imports for this product actually fell by about 10.4 percent. In contrast, tariffs on freely-traded cigarette paper fell from 20 percent in 2003 to 13.8 percent in 2004, and these cuts were met by a 10.2 percent increase in imports.

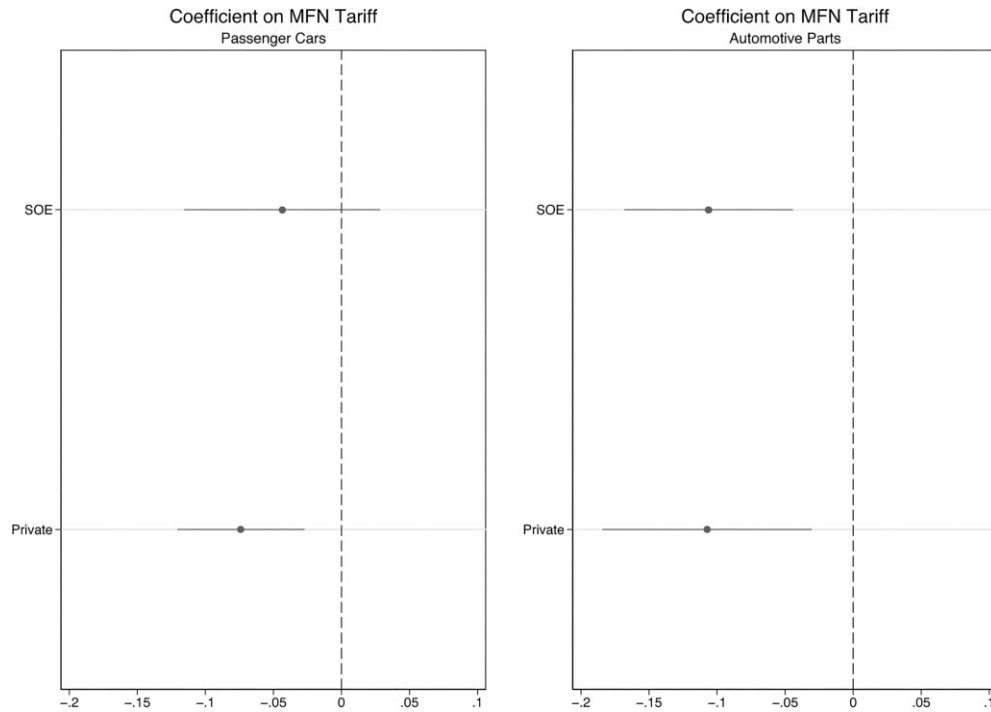


Figure 7. Comparing tariff responses in final versus intermediate product imports in automotives. Dots show coefficients for the estimated effect of the tariff variable on SOE and private imports of passenger cars (left panel) versus imports of automotive parts (right panel). Bars show 95 percent confidence intervals.

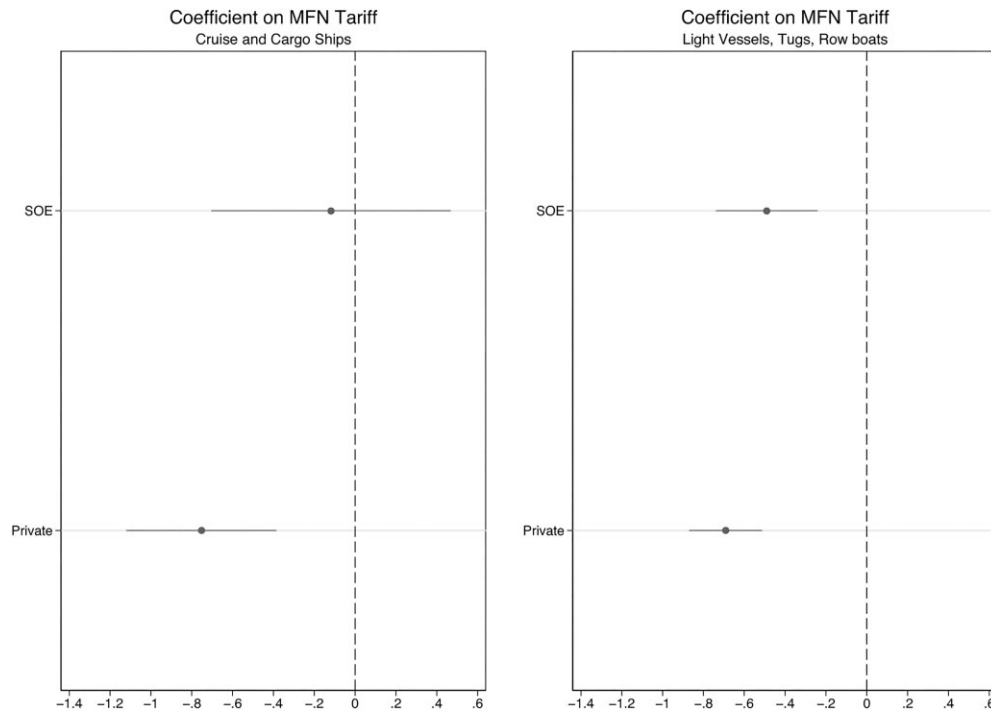


Figure 8. Comparing tariff responses in strategic versus non-strategic imports in shipping. Dots show coefficients for the estimated effect of the tariff variable on SOE and private imports of cruise and cargo ships (left panel) versus imports of light vessels, tugs and rowboats (right panel). Bars show 95 percent confidence intervals.

In some cases, state ownership of firms in China is held subnationally. We can assess whether this distinction matters in the product analysis because the three industries examined vary greatly in the share of central versus

subnationally-owned SOEs. About 80 percent of tobacco SOEs are centrally owned in our period of analysis, while the central share of SOEs in automotives is about 20 percent. The share of central SOEs in shipping lies at around 50 per-

cent. Despite differences in the form of state ownership, our findings show the same pattern of sensitivity to tariff changes in non-strategic rather than strategic products. While not a conclusive test, this suggests that strategic state intervention operates through both local and central government levels.

Robustness Checks

We use placebo tests to assess the alternative explanation that domestic SOE reforms in the mid-1990s drove the shift toward commercial behavior, rather than WTO entry in 2001. To do this, we repeat our main analysis while varying the cut-off year for splitting the sample. While the main analysis divided the sample into pre-treatment (1993–2001) and treatment years (2002–2012) using 2001 as the cut-off, the placebo tests run through all alternative cut-off years (e.g., using 1997 as the cut-off to create an alternate “treatment” sample for 1998–2012). If SOE reform drove a shift toward commercial behavior, then tariffs would have a significant effect on sub-samples that move forward the cut-off year to include the late 1990s. Online Appendix Figure C1 shows that the tariff coefficient estimate shifts only in WTO years (2001–2012 and later). This underscores that WTO entry, rather than earlier SOE reforms, are more likely to have driven SOE trade toward commercial behavior.

We explore the sensitivity of our results to particular trading partners to assure that the results are not driven by the disproportionate influence of a major economy such as the United States, or customs territories such as Hong Kong. We re-estimate all of the models on a sample that sequentially drops each of the major exporters to China across different geographies: United States, Germany, Japan, Hong Kong, Australia, Brazil, and all EU members. The results are consistent with the full sample (see Online Appendix Table D1 for non-US results). Due to the unique politics surrounding the Organization of the Petroleum Exporting Countries (OPEC) countries and oil trade, we estimate the same models on a sample omitting major oil exporters (see Online Appendix Table E1).³¹ Our conclusions remain consistent, which provides assurance that the findings are not driven by any single large economy or the special nature of oil dependence.

Another analytical concern is that the interactive effect between tariffs and the strategic import share might be driven by the high share of country-year observations for which the share of strategic trade in imports is 0. As another robustness check, we re-run the imports analysis by controlling for observations where the import share of strategic trade is 0 (adding a dummy variable that takes the value 1 if the share of strategic imports is 0). The results can be found in Online Appendix Table F1, showing that the results are not affected by the skewed distribution of strategic imports.

We use weighted tariffs so that tariff cuts for a product with a greater share of overall imports are weighted more than similar cuts for a product that is hardly traded. In order to address any endogeneity concerns, we re-run the analysis using unweighted effectively applied tariffs. The results, shown in Online Appendix Table G1, offer assurance that the main findings are not being driven by tariff weighting.

Conclusion and Implications

China's WTO entry tested the promise of international rules to integrate diverse economies. While contemporary de-

bates suggest that state-led models are incompatible with the global trading system, our analysis shows that Chinese firms adopted a greater commercial orientation after WTO entry. Private firms are highly responsive to WTO tariff reductions. In contrast, the WTO's impact on SOE trading behavior is more nuanced as these firms face the state's dualistic goals. Where the government sought external pressure to expand market liberalization, even SOEs show sensitivity to tariff movements. However, the state limited liberalization by guiding SOE trade on non-commercial terms to shield a narrower set of strategic industries from import competition. Our findings bring a broader perspective to policy suggestions that China's WTO entry was a mistake. Our analysis highlights that in the counterfactual scenario where China had not joined the WTO, the liberalizing gains for China's private sector trade, as well as for a portion of SOE trade, would likely have been lost.

The WTO's market discipline confronted the countervailing force of industrial policy. Using a dataset of trade flows disaggregated by ownership status, our analysis demonstrates how tariff levels interact with the share of strategic products in bilateral trade. When imports from a trading partner largely comprise non-strategic products, SOE imports decline with higher tariffs and increase with lower tariffs, consistent with profit maximization. This market orientation weakens with the share of strategic products in imports. As a conduit for industrial policy, SOEs facilitate “getting prices wrong” in pursuit of non-market objectives ranging from national security to industrial promotion.

China's mobilization of SOEs on behalf of industrial policy eroded the expected liberalization from WTO accession. China gained certainty for its trade from the constant threat of political hold-up and transformed into a major trading state (Carnegie 2014), but members have found it difficult to restrain Chinese policies given the wide latitude allowed by WTO rules on subsidies and competition (Mavroidis and Sapir 2021). This gap accounts for the discontent with China as a challenge to the system.

These findings contribute to understanding the ability of the WTO to integrate vastly different economies and regulate SOEs, which have become increasingly important global actors. Our analysis offers new insights into how and why WTO membership can encourage commercial behavior in SOEs—and the limits of such liberalization. Our study further adds to literature on how sectoral characteristics affect WTO functions. Existing research emphasizes that WTO enforcement is affected by factors such as the velocity of an industry's business environment (Davis and Shirato 2007) or barriers to collective action (Johns and Pelc 2018). We highlight the bifurcated nature of SOE trade: The strategic status of traded goods affects whether SOEs behave as profit maximizers or agents of state policy. Finally, we expand on studies examining the non-tariff barriers that different societies adopt to substitute for protection lost through tariff liberalization. While democracies use opaque domestic regulations such as product standards (Kono 2006), economies with a large share of state ownership (spanning regime types) can direct SOE purchasing behavior as a form of protectionism.

Our study raises important implications for debates around the future of global trade governance. Trade policies have always tried to balance liberalization and protection. From one perspective, Chinese state capitalism resembles embedded liberalism, compromising between market reform and flexibility to pursue social goals. Where the United States and Europe carved out exceptions in the trade regime for textiles and agriculture and use safeguards to shelter influential industries, China's WTO-era policies

³¹Oil exporters are measured as those countries whose gross oil export revenues are larger than 10 percent of GDP (Colgan 2010).

strengthen the market orientation of its SOEs while retaining the use of SOE purchasing power to shield strategic industries from import competition. This places Chinese SOE trade within a broader continuum of industrial policy strategies, where governments pursue goals not restricted to market efficiency. In this regard, China resembles governments like Japan and Korea in pursuing a mixed strategy of liberalization and protection to manage global markets.

Our conclusions about state ownership and the WTO apply beyond China. Like China, managed economies can control SOE trade to narrow the effect of liberalization. Initial evidence suggests that other emerging economies with a significant share of state ownership, such as Vietnam and Malaysia, have pursued similar strategies. Some analysis indicates that Vietnam's WTO entry had a positive impact on SOE productivity (Le, Pieri, and Zaninotto 2019). However, research also notes that industrial policy has blunted the WTO's liberalizing impact on Vietnam's state sector (Vu-Thanh 2017). Malaysia reduced tariffs and changed its industrial policies to comply with WTO rules, yet also established new measures to support national champion firms (Natsuda and Thoburn 2014). Future research could examine SOE trade in other emerging economies to more broadly test the effectiveness of the WTO.

The multilateral trading system allows state trading enterprises to engage in trade, so long as they abide by the principle of non-discrimination and operate on a commercial basis. Recent trade agreements such as the CPTPP retain the emphasis on SOE commercial behavior (Cimino-Isaacs 2016). Alongside concern with state intervention in the economy, states support the possibility for SOEs to operate within a liberal trade regime. Nor have they given up industrial policy goals. This combination turns SOEs into an important buffer between markets and domestic priorities for many emerging economies. To the extent that SOEs respond to market incentives at the behest of their masters, trade negotiations should hone in on industrial policy rather than state ownership. For example, negotiating efforts could focus on strengthening subsidy rules, which affect the range of measures that governments can adopt to alter the purchasing behavior of SOEs. States could also clarify the treatment of SOEs within the Government Procurement Agreement, which would reduce the amount of state discretion over SOE activities in procurement markets. Improvements to the clarity and enforceability of WTO rules on state trading and definitions of state ownership could narrow the scope for non-commercial behavior. These strengthened measures, applied to all WTO members, could improve the sustainability of the multilateral trading order—and the operation of state-owned firms within it.

Supplementary Information

Supplementary information is available in the *International Studies Quarterly* data archive.

References

- ALLEE, TODD, AND JAMIE SCALERA. 2012. "The Divergent Effects of Joining International Organizations." *International Organization* 66(2): 243–76.
- BAILEY, MICHAEL, ANTON STREZHNEV, AND ERIK VOETEN. 2017. "Estimating Dynamic State Preferences from United Nations Voting Data." *Journal of Conflict Resolution* 61(2): 430–56.
- BECHTEL, MICHAEL, AND THOMAS SATTLER. 2015. "What Is Litigation in the World Trade Organization Worth?" *International Organization* 69(2): 375–403.
- BOWN, CHAD, AND KARA REYNOLDS. 2015. "Trade Flows and Trade Disputes." *The Review of International Organizations* 10(2): 145–77.
- CARNEGIE, ALLISON. 2014. "States Held Hostage: Political Hold-Up Problems and the Effects of International Institutions." *American Political Science Review* 108(1): 54–70.
- CCP CENTRAL COMMITTEE. 1999. "Decision on Major Issues Concerning the Reform and Development of State-Owned Enterprises." *Central Committee of the Communist Party of China*. September 22, 1999.
- CHANG, PAO-LI, AND MYOUNG-JAE LEE. 2011. "The WTO Trade Effect." *Journal of International Economics* 85(1): 53–71.
- CHAUDON, STEPHEN, JEFFREY KUCIK, AND KRZYSZTOF PELC. 2016. "Do WTO Disputes Actually Increase Trade?" *International Studies Quarterly* 60(2): 294–306.
- CIMINO-ISAACS, CATHLEEN. 2016. *Assessing the Trans-Pacific Partnership, Volume 2: Innovations in Trading Rules*. Washington D.C: Peterson Institute for International Economics.
- CLINTON, WILLIAM. 2000. "Full Text of Clinton's Speech on China Trade Bill." *The New York Times*. <https://partners.nytimes.com/library/world/asia/030900clinton-china-text.html>. (last accessed June 12, 2020).
- COLGAN, JEFF. 2010. "Oil and Revolutionary Governments: Fuel for International Conflict." *International Organization* 64(4): 661–94.
- DAVIS, CHRISTINA, ANDREAS FUCHS, AND KRISTINA JOHNSON. 2017. "State Control and the Effects of Foreign Relations on Bilateral Trade." *Journal of Conflict Resolution* 63(2): 405–38.
- DAVIS, CHRISTINA, AND YUKI SHIRATO. 2007. "Firms, governments, and WTO adjudication: Japan's Selection of WTO Disputes." *World Politics* 59(2): 274–313.
- FEENSTRA, ROBERT, WEN HAI, WING HYE WOO, AND SHUNLI YAO. 1999. "Discrepancies in International Data." *American Economic Review* 89(2): 338–43.
- FU, JING. 2001. "Colossal SOEs to Advance WTO Role." *China Daily*. <http://www.chinadaily.com.cn/epaper/html/cd/2001/200112/20011208/200112080011.html>. (Last accessed May 26, 2020).
- GOLDSTEIN, JUDITH, RIVERS DOUGLAS, AND MICHAEL TOMZ. 2007. "Institutions in International Relations: Understanding the Effects of the GATT and the WTO on World Trade." *International Organization* 61(1): 37–67.
- GOWA, JOANNE, AND SOO YEON KIM. 2004. "An Exclusive Country Club." *World Politics* 57(4): 453–78.
- HARWIT, ERIC. 2001. "The Impact of WTO Membership on the Automobile Industry in China." *The China Quarterly* 167: 655–70.
- HSIEH, CHANG-TAI, AND MICHAEL ZHENG SONG. 2015. "Grasp the Large, Let Go of the Small: The Transformation of the State Sector in China." *Brookings Papers on Economic Activity* 2015 (1): 295–346.
- HSUEH, ROSELYN. 2011. *China's Regulatory State*. Cornell Studies in Political Economy. Ithaca, NY: Cornell University Press.
- HUANG, ZHANGKAI, LIXING LI, GUANGRONG MA, AND LIXIN XU. 2017. "Hayek, Local Information, and Commanding Heights." *American Economic Review* 107(8): 2455–78.
- JOHNS, LESLIE, AND KRZYSZTOF PELC. 2018. "Free Riding on Enforcement in the World Trade Organization." *The Journal of Politics* 80(3): 873–89.
- JOHNSON, CHALMERS. 1982. *MITI and the Japanese Miracle*. Stanford, CA: Stanford University Press.
- KONO, DANIEL. 2006. "Optimal Obfuscation: Democracy and Trade Policy Transparency." *American Political Science Review* 100(3): 369–84.
- KOWALSKI, PRZEMYSŁAW, MAX BÜGE, MONIKA SZTAJEROWSKA, AND MATIAS EGELAND. 2013. "State-Owned Enterprises: Trade Effects and Policy Implications." *OECD Trade Policy Papers* No. 147.
- LARDY, NICHOLAS. 2004. *Integrating China into the Global Economy*. Washington D.C: Brookings Institution Press.
- . 2019. *The State Strikes Back: The End of Economic Reform in China?* Washington, D.C.: Peterson Institute for International Economics.
- LE, MANH-DUC, FABIO PIERI, AND ENRICO ZANINOTTO. 2019. "From Central Planning towards a Market Economy." *Journal of Comparative Economics* 47(3): 693–716.
- LEUTERT, WENDY, AND SARAH EATON. 2021. "Xi Jinping's Governance of China's State-owned Economy." *The China Quarterly* 248(S1): 200–21.
- LEVY, PHILIP. 2017. "The Treatment of Chinese SOEs in China's WTO Protocol of Accession." *World Trade Review* 16(4): 635–53.
- LI, XIAOJUN. 2012. "Understanding China's Behavioral Change in the WTO Dispute Settlement System." *Asian Survey* 52(6): 1111–37.
- MANSFIELD, EDWARD, HELEN MILNER, AND PETER ROSENDORFF. 2000. "Free to Trade: Democracies, Autocracies, and International Trade." *American*

- Political Science Review* 94(2): 305–21.
- MASTROMATTEO, ANDREA. 2017. “WTO and SOEs: Article XVII and Related Provisions of the GATT 1994.” *World Trade Review* 16(4): 601–18.
- MAVROIDIS, PETROS, AND MERIT JANOW. 2017. “Free Markets, State Involvement, and the WTO.” *World Trade Review* 16(4): 571–81.
- MAVROIDIS, PETROS, AND ANDRE SAPIR. 2021. *China and the WTO: Why Multilateralism Still Matters*. Princeton, NJ: Princeton University Press.
- MEI, CIOJI, AND MARGARET M. PEARSON. 2017. “The Dilemma of ‘Managing for Results’ in China.” *Public Administration and Development* 37(3): 203–16.
- MOORE, THOMAS. 2002. *China in the World Market*. Cambridge: Cambridge University Press.
- NATSUDA, KAORU, AND JOHN THOBURN. 2014. “How Much Policy Space Still Exists Under the WTO?” *Review of International Political Economy* 21(6): 1346–77.
- NAUGHTON, BARRY. 1999. “China’s Dual Trading Regimes: Implications for Growth and Reform.” In *International Trade Policy and the Pacific Rim*. London: Palgrave Macmillan. 30–58.
- NAUGHTON, BARRY, AND KELLE TSHAI. 2015. *State Capitalism, Institutional Adaptation, and the Chinese Miracle*. New York: Cambridge University Press.
- NORRIS, WILLIAM. 2016. *Chinese Economic Statecraft: Commercial Actors, Grand Strategy, and State Control*. Ithaca, NY: Cornell University Press.
- PEARSON, MARGARET. 2001. “The Case of China’s Accession to GATT/WTO.” In *The Making of Chinese Foreign and Security Policy in the Era of Reform*, edited by David Lampton, 337–70. Stanford, CA: Stanford University Press.
- . 2015. “State-owned Business and Party-State Regulation in China’s Modern Political Economy.” In *State Capitalism, Institutional Adaptation, and the Chinese Miracle*, edited by Barry Naughton and Kelle Tshai, chap. 2, 27–45. New York, NY: Cambridge University Press.
- PELC, KRZYSZTOF. 2011. “Why Do Some Countries Get Better WTO Accession Terms than Others?” *International Organization* 65(4): 639–72.
- PERITZ, LAUREN. 2020. “When Are International Institutions Effective? The Impact of Domestic Veto Players on Compliance with WTO Rulings.” *International Studies Quarterly* 64(1): 220–34.
- PRICEWATERHOUSECOOPERS. 2015. “State-Owned Enterprises—Catalysts for Public Value Creation?” <https://www.pwc.com/sg/en/industries/government-public-services/state-owned-enterprises.html>. (Last accessed August 13, 2020).
- QIN, JULIA YA. 2004. “WTO Regulation of Subsidies to State-Owned Enterprises (SOEs)—A Critical Appraisal of the China Accession Protocol.” *Journal of International Economic Law* 7(4): 863–919.
- ROSE, ANDREW. 2004. “Do We Really Know that the WTO Increases Trade?” *American Economic Review* 94(1): 98–114.
- ROSENDORFF, PETER, AND HELEN MILNER. 2001. “The Optimal Design of International Trade Institutions: Uncertainty and Escape.” *International Organization* 55(4): 829–57.
- SHAFFER, GREGORY, AND HENRY GAO. 2020. “Changing Internally to Engage Externally.” In *Landscapes of Law Practicing Sovereignty in Transnational Terrain*, edited by Carol Greenhouse and Christina Davis. Philadelphia, PA: University of Pennsylvania Press.
- SHEA, DENNIS. 2018. “China’s Trade-Disruptive Economic Model and Implications for the WTO.” <https://geneva.usmission.gov/2018/07/27/55299/>. (Last accessed December 12, 2021).
- STATE COUNCIL. 1994. “Outline of State Industrial Policies for the 1990s.” Promulgated by the State Council of the People’s Republic of China on March 25, 1994. <http://www.asianlii.org/cn/legis/cen/laws/oosipfts449/> (Last accessed July 20, 2023).
- STATE PLANNING COMMISSION. 1997. “Catalogue for the Guidance of Foreign Investment Industries.” Promulgated by the State Planning Commission, the State Economy and Trade Commission and the Ministry of Foreign Trade and Economic Cooperation on December 31, 1997. <http://www.asianlii.org/cn/legis/cen/laws/cftgofii543/> (Last accessed July 20, 2023).
- STONE, RANDALL, YU WANG, AND SHU YU. 2021. “Chinese Power and the State-Owned Enterprise.” *International Organization* 76(1): 229–50.
- TAN, YELING. 2020. “Disaggregating ‘China, Inc.’: The Hierarchical Politics of WTO Entry.” *Comparative Political Studies* 53(13): 2118–52.
- THE WHITE HOUSE. 1999. “Joint Press Conference with President Clinton and Premier Zhu Rongji of the People’s Republic of China.” Accessed 15 June, 2016. <https://clintonwhitehouse4.archives.gov/textonly/WH/new/html/19990408-1109.html>.
- UNITED STATES TRADE REPRESENTATIVE. 2017. “2017 Report to Congress on China’s WTO Compliance.” <https://ustr.gov/sites/default/files/files/Press/Reports/China%202017%20WTO%20Report.pdf>. (Last accessed December 12, 2021).
- VU-THANH, TU-ANH. 2017. “Does WTO Accession Help Domestic Reform? The Political Economy of SOE Reform Backsliding in Vietnam.” *World Trade Review* 16(1): 85–110.
- WU, MARK. 2016. “The ‘China, Inc.’ Challenge to Global Trade Governance.” *Harvard International Law Journal* 57(2): 261–324.
- ZELLNER, ARNOLD. 1962. “An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests for Aggregation Bias.” *Journal of the American Statistical Association* 57(298): 348–68.