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PARTISAN CYCLES IN OFFSHORE OUTSOURCING: EVIDENCE FROM U.S. IMPORTS

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The wage and employment effects of offshoring roil politics in the United States and around the world. Firms that offshore either outsource their activities to unaffiliated businesses, or internalize production by establishing subsidiaries from which they import intrafirm. We argue that the political environment in trade partner countries influences U.S. offshoring patterns in ways that have been ignored in the extant literature. Drawing on the political business cycle literature, we expect higher production costs and lower profits for firms in capital (labor) intensive sectors when the Left (Right) is in power. These partisan cycles, in turn, shape the sectoral composition of exports from the partner to the United States, and the degree to which trade is conducted intrafirm. Under a Left- (Right-) leaning government in a partner country, U.S. intrafirm imports of capital- (labor-) goods increase relative to total imports in these industries. Examining highly disaggregated U.S. import data, we find strong support for our argument. Our results indicate that the effect of partisan governments on offshore outsourcing depends on factor intensities of production, which vary across industries. The degree of internalization in global sourcing is shaped in part by the distributional objectives of partisan governments, and not by economic factors alone.

1. INTRODUCTION

Globalization has been described as a "great unbundling" (Baldwin, 2006), whereby firms dice production into stages conducted in different corners of the world. These offshoring activities allow firms to exploit differences in relative factor prices and input costs (Grossman and Rossi-Hansberg, 2008; Helpman, 1984). Firms that source from abroad sometimes conduct vertical foreign direct investment (FDI), which involves setting up a subsidiary for production purposes, and subsequently importing from that subsidiary. Alternatively, U.S. importers may choose to buy goods and production inputs from unaffiliated suppliers abroad. At present, U.S.-based multinational corporations (MNCs) account for more than 90% of U.S. imports, and nearly half of all U.S. imports are traded intrafirm.[1] A growing literature finds that offshoring influences a range of political outcomes, from voter sentiment (Margalit, 2011; Owen and Quinn, 2016) to international economic relations (Gawande et al., 2015; Jensen et al., 2015; Manger, 2012; Milner, 1988). Our paper analyzes an important determinant of offshoring activities that has been overlooked in the extant literature: political conditions in trade partner countries.

Specifically, we seek to explain how political conditions abroad influence the global sourcing strategies of U.S. firms, as reflected in the proportion of trade conducted "intrafirm."[2] We present a theoretical framework that integrates insights from studies of

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[1]See Bernard et al. (2009).

[2]Intrafirm, or related party, trade refers to export or import transactions between affiliated parties, such as a foreign subsidiary and the headquarters.

the political determinants of trade (Hiscox, 2001; Milner and Judkins, 2004; Milner and Kubota, 2005; Rogowski, 1987) and FDI (Jensen, 2003; Li and Resnick, 2003; Owen, 2015; Pinto, 2013; Pinto and Pinto, 2008), since the two phenomena are intimately linked. While enduring characteristics of the polity – such as democratic governance – should influence the establishment of vertical affiliates, we observe sharp variance in intrafirm trade shares over time that is unlikely to be explained by relatively stable institutions.

We propose that partisan cycles abroad influence the degree to which firms outsource to affiliates or to unaffiliated foreign suppliers. Distributive concerns motivate partisan governments – that is, governments with dominant allegiances to either labor or capital – in partner countries to pursue policies that expand economic activity, including trade, in sectors benefitting their core constituents. Left-leaning governments, drawing support from labor, will promote the expansion of activities that raise labor demand, resulting in higher relative costs for capital-intensive industries. Costs in labor-intensive industries, on the other hand, increase under Right-leaning governments (Milner and Judkins, 2004; Pinto, 2013; Pinto and Pinto, 2008; Quinn and Inclan, 1997; Rogowski, 1989). MNC trade will be less sensitive to these partisan business cycles: MNCs tend to be more productive than their local counterparts, and can employ a number of strategic options to absorb the policy-induced increases in the costs of production. As a result, we expect intrafirm trade to be more resilient to partisan cycles abroad than arms'-length trade. Hence changes in relative costs and prices of capital-intensive goods under the Left will lead to lower total exports in these industries – and more intrafirm trade relative to total trade. An observable implication of our argument is that partisan cycles abroad will help explain the share of U.S. imports conducted intrafirm, and the partisan effect will depend on the industry factor requirements ("intensities") of production. Our argument predicts increases in intrafirm imports in capital- (labor-) intensive industries when the Left (Right) is in power in the partner country.

We assess the empirical content of our argument about partisan trade cycles using highly disaggregated trade data from the U.S. Census Bureau. The Census data record for all U.S. merchandise trade whether the parties conducting trade transactions are related.[3] Using these data, we are able to examine variation in offshoring, differentiating between outsourcing to third parties and importing intrafirm.[4] This provides an advantage over much of the existing research on FDI. Whereas existing work relying on aggregate FDI flow data cannot explain changes in sourcing patterns (Kerner, 2014), our approach enables us to distinguish between horizontal and vertical FDI, and to examine interindustry variation in intrafirm trade over time. In particular, our data allow us to test the validity of our partisan hypothesis while controlling for the multitude of industry and country characteristics that may also be associated with FDI and intrafirm trade.

We find that the political environment in partner countries plays a central role in explaining the location and scope of offshoring activities. Our results indicate that firms are more likely to set up vertically integrated affiliates (i.e., to engage in vertical FDI) in more democratic countries. This finding is consistent with the extant literature on the political determinants of foreign investment (Jensen, 2003 2008), but has not

[3]The United States is one of the few countries that collects separate data on related-party and arm's length transactions. For applications in economics, see Bernard et al. (2010) and Nunn and Trefler (2013).

[4]See also Jensen et al. (2015).

previously been demonstrated with respect to firms' vertical FDI location decisions. However, democratic governance does not help explain the share of trade conducted intrafirm over time. Instead, the evidence supports our partisan hypothesis: the orientation of the government in partner countries – whether pro-labor or pro-capital – has a sizable effect on the proportion of trade that is conducted intrafirm between the U.S. firms and their global affiliates. Moreover, consistent with our argument, the direction of the partisan effect depends on the factor intensity of production in the industry. Examining within-country-industry variation in U.S. merchandise imports over time, we find that the share of trade conducted intrafirm increases (decreases) in capital- (labor-) intensive industries under a Left-leaning government in the partner country. Our paper provides evidence, for the first time, that political conditions influence sourcing choices as reflected in the relative size and intrafirm composition of trade flows across industries.

2. RELATED LITERATURE

Multinational corporations are the dominant participants in international trade, and their production strategies often involve a complex set of activities in multiple locations around the world. The literature assumes that firms seek to maximize profits, which implies that sourcing decisions will attempt to minimize costs. Technological developments have reduced transportation and communication costs, enabling more firms to source from abroad ("offshore") to exploit differences in relative factor prices and the costs of inputs. Offshoring can lower the costs of performing tasks, producing intermediate goods, or completing vertical production stages (Helpman, 1984). Unbundling the production process allows firms to gain the productivity benefits of specialization while also locating production in the most economically attractive locations (Grossman and Rossi-Hansberg, 2008).

When sourcing from abroad, a firm decides to import from a third party (offshore outsourcing) or from an affiliated supplier (intrafirm trade). For example, Apple has historically conducted research and marketing domestically and in-house, and has offshored the production of the components of its products to firms in a host of countries.[5] Intel Corporation for many years offshored part of its production of microprocessors to a wholly owned $300 million production facility in Costa Rica (Antràs and Rossi-Hansberg, 2009); imports into the United States from the plant were characterized as intrafirm. Nike also relies on offshore production, but it does so outside the boundaries of the firm, sourcing from subcontractors in a number of low-wage countries. Nike's imports from its subcontractors are interfirm, or arm's length. Apple, Intel, and Nike all engage in offshoring, but Intel does so within the boundaries of the firm while Apple and Nike do not.

What explains variation in firms' global sourcing strategies? The decision to internalize global production depends on the relative costs and benefits of establishing foreign subsidiaries abroad.[6] In a world of incomplete contracts, in which actors cannot

[5]Consider the Apple iPad: the touchscreen is made by Wintek in China, Taiwan, and India; the SIM card by Infineon and Qualcomm in Germany, Singapore, Malaysia, and the United States; and the battery pack by Dynapack in Taiwan. Parts for the main printed circuit board (PCB) alone are made by at least seven firms in manufacturing plants worldwide.

[6]The costs of transacting within markets as opposed to within the boundaries of the firm are explained by the inherent incompleteness of contracts and the specificity of investments (Grossman and Hart, 1986; Hart and Moore, 1990; Williamson, 1985).

specify the course of action in every possible contingency (Coase, 1937), firms must weigh the risk that their counter-party will exploit the relationship specificity of the investment to extract rents from them in the future (Grossman and Hart, 1986; Hart and Moore, 1990; Williamson, 1985), a problem commonly known as "holdup."[7] Vertical integration may reduce the risk of holdup or provide a source of power that strengthens the buyer's ex post bargaining position in the event that unforeseen contingencies arise (Grossman and Hart, 1986; Hart and Moore, 1990).[8]

The holdup problem may be particularly acute for firms that source intermediate inputs from abroad, due to the relatively long time lag between placing an order and receiving the product or service. Antràs (2003) argues that firms in capital-intensive industries are more likely to integrate their foreign suppliers, which is consistent with his motivating empirical observation that intrafirm trade shares appear higher in sectors that rely more heavily on capital-intensive inputs. Nunn and Trefler (2013) also find that intrafirm trade shares are higher in capital-intensive industries, while related research by Bernard et al. (2010) finds that firms making contract-intensive investments prefer to vertically integrate their global suppliers. This work largely neglects how political conditions in host countries may also influence production costs, and hence the composition of exports and imports.

The literature on the political economy of FDI helps explain how host country political conditions affect the costs associated with FDI. Much of this work highlights the political risks associated with investment abroad, and the ways in which strong institutions help secure those investments. Among the most salient risks, expropriations cause firms to withdraw or divert investments (Wellhausen, 2015), but participation in global production networks and certain characteristics of the host country institutional environment can mitigate this risk (Johns and Wellhausen, 2016). Among the institutional features that are conducive to investment, the extant literature focuses on democratic constraints on the executive and secure property rights in reducing investment risk (Jensen, 2003, 2008; Li and Resnick, 2003). Research in this area has not explicitly examined the institutional determinants of *vertical* FDI; but prior work suggests that democratic governance should provide a more secure environment for establishing production affiliates abroad.

Institutions may help explain the location of vertical affiliates, yet the effects of relatively stable institutions on intrafirm trade over time may be more ambiguous. Bernard et al. (2010) show that sourcing from unaffiliated parties abroad tends to be more secure in countries with better institutions – reducing intrafirm trade once foreign subsidiaries are present. Thus, while better quality institutions can reduce the costs of setting up an affiliate, they may lower transaction and enforcement costs, making arm's length trade more appealing. Moreover, offshoring decisions depend on *changes in* the relative costs of production: intrafirm trade shares will vary over time in industries where vertical affiliates are present. In sum, the effect of institutions, prominent in the extant literature, is

[7]Williamson (1985) argues that the risk of holdup is greater when the supplier and buyer make relationship-specific investments, defined as those for which the value of the assets is higher inside the relationship than outside it.

[8]In these models of the firm, holdup risks are endogenous, and both the supplier and the buyer need incentives to invest. Vertical integration does not eliminate opportunistic behavior, but it can increase efficiency by providing residual rights of control or power derived from the ownership of assets, which incentivizes investment from the final goods producer. Owners have stronger ex post bargaining positions when unforeseen contingencies arise.

likely to operate primarily on the costs of setting up vertically integrated affiliates, a prerequisite for intrafirm trade. Yet good-quality institutions may reduce the incentives to source from related parties, since arm's-length contracts become more enforceable, a natural corollary that the extant literature has overlooked.

In the next section, we develop an argument linking partisan cycles in partner countries to changing patterns of offshore-outsourcing. We extend research in international trade showing that country-level political factors in partner countries explain the intrafirm content of trade across different industries.[9] The central insight that we develop is that the partisan orientation of the partner government affects outsourcing patterns for different industries depending on the industry's factor intensity of production.

3. PARTISAN CYCLES IN OFFSHORE-OUTSOURCING

To help explain the sectoral and temporal variation in offshore-outsourcing over time, we propose an explanation that focuses on the partisan orientation of governments in partner countries. We argue that partisan foreign governments affect offshoring decisions, including whether to import intrafirm from foreign subsidiaries or from unaffiliated suppliers.

Variation in intrafirm trade over time depends on changing relative prices and costs, including the costs of complying with national regulations and policies. These costs can be attenuated or exacerbated by changes in the partisan orientation of governments in partner countries. While under general conditions increased trade and investment can create positive welfare gains, economic integration has distributional consequences, which may motivate partisan leaders to restrict or expand the flow of goods, capital, and other factors of production. As these cross-border flows have significant distributional implications, partisan motivations lead governments to choose policy instruments that affect these flows, and thus the economic well-being of their constituents (Pinto, 2013; Pinto and Pinto, 2008; Quinn and Inclan, 1997). Shifts in the partisan orientation of the governing coalition abroad profoundly affect the costs of offshore-outsourcing due to the distributional objectives of partisan leaders.

In what ways do partisan governments influence relative prices and production costs? Due to differences in their support coalitions, governments favor the expansion of economic activity in some sectors relative to others. Governments with different partisan motivations enact taxes, provide subsidies, and regulate economic activities – including trade – in starkly different ways. Depending on their support base, parties provide a more favorable policy and regulatory environment for firms operating in certain sectors of the economy, the expansion of which would result in higher demand for the services provided by their core constituents. Our assumptions about the partisan motivations of governments are drawn from the traditional accounts of political business cycles. In particular, we assume that Left-leaning governments are more likely to pursue policies that encourage the expansion of labor-intensive sectors and discourage capital-intensive activities through taxes, subsidies and regulation, while Right-leaning governments will target capital-intensive sectors for growth (Pinto, 2013;

[9]Consistent with Heckscher–Ohlin comparative advantage, for instance, Yeaple (2003) finds that firms in capital-intensive industries are more likely to set up vertical production affiliates in capital-abundant countries, where it is relatively cheaper to produce capital-intensive goods. Nunn (2007) finds a source of comparative advantage in the quality of institutions: countries with good contract enforcement tend to export more in industries characterized by high levels of relationship-specific ("contract-intensive") investments.

Quinn and Inclan, 1997). A large literature identifies partisan policy cycles consistent with these assumptions across a range of policy areas, including regulation (Iversen, 1999), trade and investment barriers (Brooks and Kurtz, 2007; Garrett, 1998), and fiscal policy (Esping-Andersen, 1990). These partisan policy cycles will shape the prices charged and the costs of doing business for domestic and foreign firms.

We expect firms' profits to depend on both the party in power and the characteristics of the industries in which they operate – since factor intensities of production vary by industry. Firms in capital-intensive industries will face higher costs under Left-leaning governments; conversely, firms in labor-intensive industries will face higher costs and lower profits under the Right.

We illustrate the logic of our argument using the example of capital intensive industries operating under a Left-leaning government. Assume that the policies pursued by Left-leaning governments are relatively less favorable to firms in capital intensive sectors. That is, suppose that the Left, through taxes and regulation (or more generally, through policies that change relative prices), reduces the relative demand for capital-intensive goods. Higher costs lead to weaker sales in the capital-intensive sector, in domestic and foreign (export) markets alike. We expect the relative contraction of the capital-intensive sector and relative expansion of the labor-intensive sector of the economy to lead to magnification effects along Stolper–Samuelson lines. In particular, as they forced to contract, capital intensive industries release more capital than labor, making labor relatively scarcer in both sectors. While this can lead to an increase in wages, wage increases are likely to be offset by the expansion of labor-intensive activities. Consistent with a Stolper–Samuelson framework, the gains primarily accrue to the labor-intensive sector, while producers of capital-intensive goods are harmed. These changes will be reflected in a drop in the foreign demand of capital-intensive goods, resulting in reduced trade volumes of capital-intensive goods.

Multinational corporations will be more resilient to partisan cycles as a result of the particular characteristics of MNCs that differentiate them from firms that trade only at arms length. Most importantly, MNCs and their affiliates tend to be larger and more productive than their local counterparts (Bernard et al., 2012). Continuing with our example, the relative increases in costs in capital-intensive sectors – induced by the policies enacted by Left-leaning governments – force a drop in the quantities of capital-intensive goods demanded and supplied, weeding out the less productive firms in capital intensive industries (Antràs and Helpman, 2004). Thus, part of the resilience of intrafirm trade is due to the higher productivity of MNCs relative to their local counterparts. More generally, MNCs – which can employ transfer pricing, export platform operations, and other cost-saving practices – should be better able to absorb the policy-induced increases in the costs of production than will unaffiliated domestic firms operating in the partner country.[10]

The logic of our argument implies that intrafirm trade shares in capital intensive goods should increase under the Left. We expect higher costs in capital intensive

[10]U.S. firms' ability to absorb the costs of higher taxation through transfer pricing is mitigated by tax laws, such as section 468 of the U.S. Tax Code, and international agreements, such as double taxation treaties, which dictate that intrafirm transactions should be valued as if they were conducted at arm's length. Yet identifying and enforcing the arm's-length price equivalent of related-party trade is problematic in the presence of capital-intensive, relationship-specific investments, which are at the center of our analysis. In any event, firms that are part of a global production network should be better able to absorb the costs associated with policy changes in partner countries.

activities to cause local, less productive firms in these disadvantaged sectors to be pushed out of the market. Imports from MNC affiliates are also likely to fall – but at a slower rate due to the advantages of MNC operations and the characteristics of these firms. Hence changes in relative costs and prices of capital-intensive goods under the Left will lead to lower total exports in these industries – and more intrafirm trade relative to total trade.[11] More generally, if changes in intrafirm exports exceed changes in total exports, then the share of exports conducted intrafirm will increase.

3.1 Empirical Implications

To recap our argument, we expect partisan cycles in partner countries to influence patterns of offshore outsourcing through changes in production costs. These partisan policy cycles will affect different sectors in starkly different ways, leading to variation in intrafirm trade as a share of total trade. Higher production costs will likely depress arms' length exports in the sector, but the greater productivity of MNCs – and the adaptability of their operations – results in more resilient intrafirm trade flows relative to arms' length flows. In sum, as relative prices change and variable costs rise in disadvantaged sectors, the net effect is higher intrafirm trade as a share of total trade. Our argument thus predicts higher (lower) intrafirm trade shares in capital- (labor-) intensive industries when the Left is in power. In the next section, we examine the following empirical implications of our argument.

Hypothesis. Intrafirm imports as a share of total U.S. imports will increase (decrease) in capital- (labor-) intensive industries when the Left is in power in the partner country.

Figure 1 presents anecdotal evidence that is consistent with our argument. We graph changes in U.S. intrafirm shares of imports of Basic Chemicals, a capital-intensive industry, from New Zealand and Australia, two countries with robust democratic institutions. Vertical affiliates of U.S. MNCs are present in both countries, as evidenced by the positive intrafirm trade. Yet the share of trade conducted intrafirm varies substantially over time. There is a sharp increase in the U.S. intrafirm import share from Australia after the Australian Labor Party gains power following the election in late 2007. The comparison with New Zealand is stark: the ascent of the Right-leaning National Party to power in late 2008 coincides with a *decline* in the share of U.S.-related party imports of Basic Chemicals from New Zealand. Figure A1 in the Appendix reinforces these results: the share of U.S. imports conducted intrafirm from both countries is higher under Left-leaning governments.

While suggestive, there are a number of potential threats to validity which can only be addressed through a more systematic analysis of the full sample of data. In the ensuing empirical section, we more rigorously examine the content of our argument using data from all U.S. manufacturing imports, while considering a number of alternative explanations and sources of bias.

For one, it may be the case that Left governments affect the costs of labor-intensive activities through offsetting channels. For instance, by seeking to increase the returns

[11]Similarly, higher production costs in labor-intensive sectors under the Right will increase the share of trade conducted intrafirm in labor-intensive sectors.

Figure 1. U.S. intrafirm import shares over time: basic chemicals.
Notes: The figure graphs the share of U.S. related party imports of Basic Chemicals in total U.S. imports of Basic Chemicals from Australia and New Zealand.

to labor (e.g., through improved labor rights, increased wages and unionization), Left-leaning governments may *increase* the costs of labor-intensive activities relative to capital-intensive activities. Such an argument could imply *higher* intrafirm trade shares in labor-intensive activities under the Left. This logic, however, contradicts the partisan trade and investment literature, which suggests that partisan parties seek to reduce trade and investment costs when such liberalization is expected to expand the activities of their core constituents (see, e.g., Milner and Judkins, 2004; Quinn and Inclan, 1997). Consistent with this literature, we expect an expansion of trade flows in favored sectors along the partisan lines we describe above. Our empirical analysis directly examines the validity of our argument relative to competing explanations.

We also attempt to isolate our causal mechanism against an alternative channel – the asset-specificity, rather than the factor-intensity, of investments. The concepts are similar: capital-intensive activities tend to exhibit high levels of asset specificity,[12] yet each points to a distinct causal mechanism through which partisan governments may influence intrafirm trade. An argument privileging the asset-specificity of investments may assert that partisan governments influence the perceived security of the contract environment differently across industries. The logic would imply higher intrafirm trade shares when that environment is viewed as less secure. If so, higher intrafirm trade in capital-intensive activities under the Left would reflect weaker perceived property rights, rather than higher (factor-induced) production costs. In the ensuing empirical section, we attempt to isolate this alternative causal mechanism from our own by employing distinct measures of factor and asset specificity.

4. EMPIRICAL ANALYSIS

To examine our hypothesis about the relationship between host country politics and offshoring activities, we follow the empirical literature on the boundaries of the multinational firm, which relies on highly disaggregated import data collected by the U.S. Census Bureau since 2002.[13] Importers are required by law to report the value of each shipment imported into the United States, and whether the shipment comes from a related party.[14] We rely on import data at the NAICS four-digit industry level. The sample consists of all industry-country pairs with positive imports.

The related-party trade data enable us to capture how partner country- and industry-level characteristics shape the quantity of U.S. imports, the location of vertical affiliates, and the share of intrafirm imports in total imports at the industry level. Following the literature, we begin by examining the *extensive margin* of vertical FDI. To capture vertical MNC presence in an industry, we follow Bernard et al. (2010) in assuming that positive intrafirm trade for a country-industry pair reflects the presence of a vertical affiliate of an MNC in the partner country. That is, to capture vertical affiliate presence in 2002, the first year available in our data, we construct an indicator variable that takes a value of 1 if we observe positive U.S. intrafirm imports in industry i from country j, and 0 otherwise. It is important to model the extensive margin since the determinants of vertical FDI may be very different from the share of trade conducted intrafirm (Bernard et al., 2010).

[12]For example, aircraft manufacturing is both capital-intensive and characterized by relationship-specific investments.

[13]The related party trade data are publicly available at: http://sasweb.ssd.census.gov/relatedparty/.

[14]Parties are related if one owns at least 6% of the other. See Section 402[e] of the Tariff Act of 1930.

After modeling the extensive margin of vertical activity, we turn to the analysis of our core proposition. In particular, we examine the share of trade conducted intrafirm in industries in which vertical affiliates are present (i.e., the *intensive margin*). We expect that partisan governments abroad will influence the share of trade conducted intrafirm, depending on the factor intensity of production.

Our main independent variables come from standard sources. For political partisanship we rely on data from the Database of Political Institutions (DPI) (Beck et al., 2001).[15] The economic data are from the World Development Indicators. For the analysis of the location of vertical affiliates we use the Polity score as the primary measure of democratic governance. Summary statistics appear in Table A1 in the Appendix.

4.1 Political Determinants of Vertical FDI

We have argued that politics abroad has the potential to affect imports into the United States – and whether the goods are procured intrafirm from a related party, or instead at arms'-length. Importing from a related party requires the establishment of an affiliate abroad, so we first examine the correlates of vertical affiliate presence at the country-industry level. The extant literature points to political institutions as fundamental determinants of multinational investment, a prerequisite for the existence of intrafirm trade. Institutions have the potential to constrain expropriation and reduce political risk, which in turn lowers the costs of establishing and operating an affiliate abroad. The literature finds that democratic governance in particular produces stronger property rights regimes and reduces the risk of expropriation (Jensen, 2003; Li and Resnick, 2003; Olson, 1993). Firms should be more confident in setting up vertical affiliates in democracies, because the institutions associated with democratic governance (checks on expropriation, rule of law, and contracting rights) result in lower costs of establishing an affiliate (Staats and Biglaiser, 2012). To present a complete picture of U.S. offshoring, we therefore first examine the effect of institutions on vertical FDI location decisions.

Table 1 reports coefficient estimates of the cross-sectional determinants of vertical affiliate presence in 2002. The models are estimated using logistic regression. The coefficient estimates reported in column 1 indicate that democracy is associated with a higher likelihood that vertical affiliates are present. A one-standard deviation increase in Polity score is associated with an increase of approximately 6 percentage points in the predicted probability of positive intrafirm trade (i.e., the probability that a vertically integrated affiliate is present). The substantive impact of democracy is second only to GDP in determining affiliate presence. The result holds to alternative measures of political institutions such as political rights (Freedom House), as reflected in column 2.

One way in which institutions may influence the costs of setting up an affiliate is by establishing strong checks on opportunistic behavior by the host government. Indeed, consistent with this argument, column 3 shows a strong correlation between the measure of political constraints developed by Henisz (2000) and the presence of vertical affiliates. A one-standard-deviation change in political constraints from the mean

[15]Following Dutt and Mitra (2005) and Weymouth and Broz (2013), we employ the DPI coding of the partisan orientation of the chief executive in presidential systems, that of the largest party in government in parliamentary systems, and the average of the two for countries coded as "mixed" (assembly-elected presidentialism).

Table 1 Cross-Sectional Determinants of Vertical Multinational Corporations Affiliates

	(1)	(2)	(3)	(4)
GDP	0.708***	0.731***	0.683***	0.529***
	(0.031)	(0.033)	(0.030)	(0.029)
GDP per capita	−0.066**	−0.130***	−0.042	−0.041
	(0.033)	(0.034)	(0.032)	(0.028)
English	0.369***	0.367***	0.539***	0.248***
	(0.084)	(0.083)	(0.084)	(0.072)
Distance	−0.197***	−0.248***	−0.351***	−0.128**
	(0.075)	(0.075)	(0.076)	(0.063)
OECD	0.400***	0.377***	0.544***	0.337***
	(0.126)	(0.126)	(0.128)	(0.112)
Polity	0.065***			0.002
	(0.006)			(0.019)
Political Rights (Freedom House)		0.208***		
		(0.021)		
Political Constaints			1.395***	
			(0.158)	
Contract Intensity				0.862*
				(0.457)
Polity × Contract Intensity				0.088***
				(0.033)
Observations	8,147	8,147	8,147	8,147
Pseudo R^2	0.291	0.290	0.285	0.194

Notes: The dependent variable is a dummy variable equal to 1 if there are Positive-related party imports at the four-digit NAICS industry for all country-industry pairs with positive imports; 0 otherwise. The related party trade data are from 2002. A constant is estimated but not reported. Models 1–3 include industry fixed effects. Robust standard errors, adjusted for clustering at the four-digit NAICS, are reported in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

results in an approximately 5-percentage-point increase in the probability of vertical affiliate presence; a movement from no political constraints (observed in countries with autocratic rule in the sample) to the highest observed levels of political constraints in 2002 (Belgium) results in roughly 16-percentage-point increase in the probability of vertical investment.

Next, we explore variation in the sensitivity of different industries to democratic institutions in order to better understand the casual channel linking democracy to vertical affiliate presence. Our motivation for this approach is that some industries will be more dependent on the set of institutions commonly associated with democracy due to the legal requirements of their operations. In column 4 of Table 1, we interact Nunn's (2007) measure of industry contract intensity with Polity scores.[16] We find that democratic governance appears to be more important for firms operating in activities in which contractual concerns loom large, due to the relationship specificity of these investments.

Figure 2 illustrates the average marginal effect of a one-point increase in Polity score on the probability that a vertical affiliate is present, along the full range of

[16]Nunn (2007) calculates, for individual goods, the share of inputs that is not transacted on "thick" markets (i.e., markets characterized by having many buyers and sellers, which implies that the value of the good outside the relationship is close to the value within the relationship). Thick markets foster less relationship specificity, since if the buyer (seller) attempts to renegotiate the price *ex post*, the good can be sold to (bought from) another firm. Markets for goods that have a referenced price in a trade publication or are sold on an exchange are considered thick markets.

contract intensity, based on the estimates reported in column 4 of Table 1. The marginal effect of democracy is positive and significant starting at very low levels of contract intensity, and increases with the industry requirement to enforce private contracts. The results demonstrate, to our knowledge for the first time, that democracies lower the fixed costs of entry for firms conducting vertical FDI in contract-intensive industries.

By showing that democracy is positively associated with vertical FDI presence for contract-intensive activities, our results suggest that institutions reduce the costs of setting up an affiliate through the establishment of a strong rule of law. Paradoxically, the stronger set of institutions associated with democracy, such as the rule of law, may lower transaction costs and make arm's length trade more appealing over time. That is, democratic institutions may lead to reductions in the intensity of intrafirm trade with affiliates over time because arm's length transactions tend to be more secure in better institutional environments. In contrast, our argument suggests that partisan policy cycles motivated by the distributional consequences of investment and trade will influence the share of intrafirm trade. We explore this hypothesis in the following section.

4.2 Partisan Cycles in Intrafirm Trade

We now examine our partisan explanation of variation in the composition of U.S. imports. Our empirical strategy attempts to identify more precisely the causal channels linking political conditions abroad with the global production activities of MNCs by

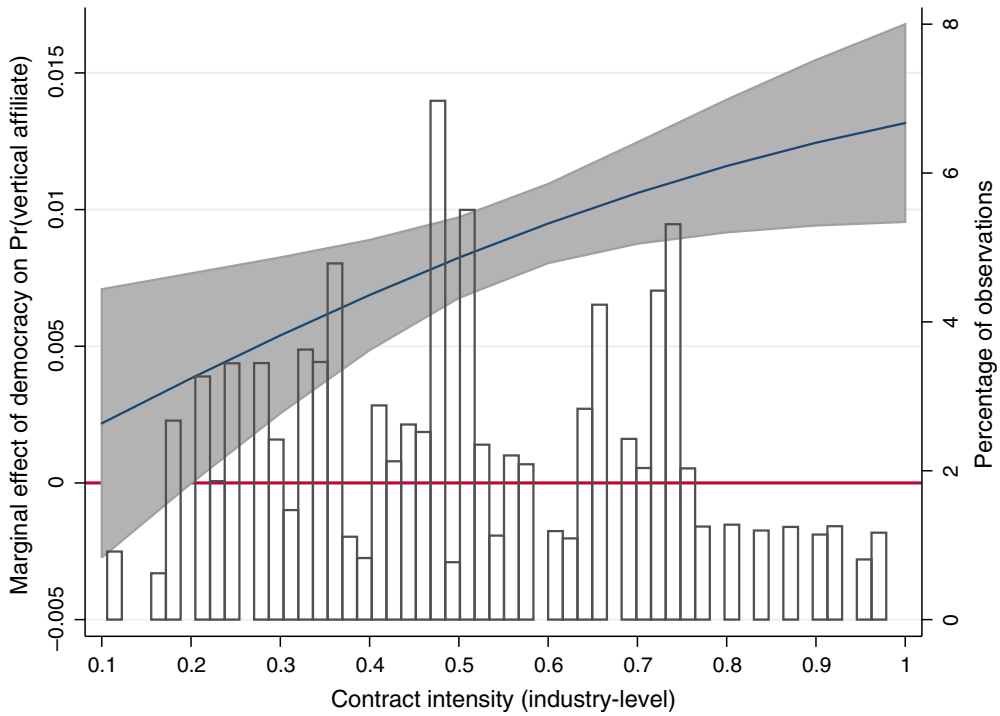

Figure 2. Marginal effect of the democracy on vertical affiliate presence (derived from estimates in Table 1, column 4).

examining variation in trade flows across sectors. The motivation behind our empirical strategy is that sourcing choices in certain industries will depend more on particular partisan alignments largely for reasons related to the industry-specific factor content of production.

Our empirical specification regresses measures of imports and intrafirm import shares from industry i originating in country j in year t on country-level characteristics X_j, industry-level factor intensities Z_i, and interactions between country and industry characteristics $X_j \times Z_i$:

$$Y_{ijt} = \varsigma_j + \tau_t + \alpha X_{jt} + \beta Z_{it} + \gamma(X_{jt} \times Z_{it}) + \epsilon_{ijt}. \quad (1)$$

To analyze the conditional effects of the political environment in the host country across different industries, we examine interactions between political factors X_j and industry factor intensities Z_i. The main coefficient of interest, γ, captures the differential influence of partner country partisanship X_j across industries with different characteristics.

We construct a measure of industry-level capital intensity using data from the 2002 U.S. Census Bureau's Census of Manufactures. We gather data on annual capital expenditures and employee wages to construct our measure.[17] Following Nunn and Trefler (2013), *Capital Intensity* is the log of total capital expenditures in industry i divided by total worker wages in that industry.[18]

First, we need to establish that partisan cycles in partner countries have a systematic effect on the sectoral composition of U.S. imports from those countries. The results reported in Table 2 demonstrate that the natural log of total imports from partner countries is negatively correlated with industry capital intensity when the Left is in power in those countries. This result, which we reproduce graphically in Figure 3, is consistent with our argument that partisan cycles in partner countries affect U.S. trade along Stolper–Samuelson lines: under Left-leaning governments in foreign countries, we observe decreasing (increasing) exports of capital- (labor-) intensive goods from those countries to the United States.

The remaining empirical analysis examines our main hypothesis concerning the effect of partisan cycles on intrafirm import shares. Following the literature, the dependent variable is the share of related-party imports in total imports, for each country-industry pair in which vertical affiliates are present.[19] The available window of data is 2002–2012. Our time-series models include country ς_j and year τ_t fixed effects, so we omit the time-invariant controls from the previous models. In additional models we include industry fixed effects φ_i. The industry dummies absorb numerous omitted sectoral features, such as factor intensities of production, average levels of competition, average size, and productivity.

[17]Consistent with prior literature, we observe that our measure of capital intensity correlates strongly with intrafirm trade. See Figure A2 in the Appendix.

[18]Along with the extant literature, we assume that capital intensities in the U.S. data correlate with those in the same industry in other countries. While country-specific factor intensities would be preferable, data are not available to generate these measures for a large sample of countries. Instead, analysts presume that industry characteristics are largely technologically determined, so that the intensity orderings do not vary from one country to another. That is, while capital-abundant countries may use more capital than capital-scarce countries, this is true across all industries in a way that keeps the capital-intensity ordering of different industries consistent across countries (see Nunn and Trefler, 2014).

[19]Similar results are obtained when conditioning for entry in a selection setup.

TABLE 2 DETERMINANTS OF TOTAL IMPORTS, 2002–2012

	(1)	(2)
Left	−0.785**	−0.568**
	(0.329)	(0.281)
Capital Intensity	0.226*	0.212*
	(0.129)	(0.122)
Left × Capital Intensity	−0.414**	−0.354**
	(0.183)	(0.164)
GDP per capita	0.154***	2.035***
	(0.053)	(0.640)
GDP	2.134***	−1.054*
	(0.037)	(0.585)
Polity	2.397***	0.172
	(0.158)	(0.197)
Observations	66,077	66,077
Groups	8,211	8,211
R^2	0.463	0.597
Country FE	No	Yes
Year FE	No	Yes

Notes: The dependent variable is the natural log of total U.S. imports. A constant is estimated but not reported. Robust standard errors, adjusted for clustering at the country-industry level, are reported in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

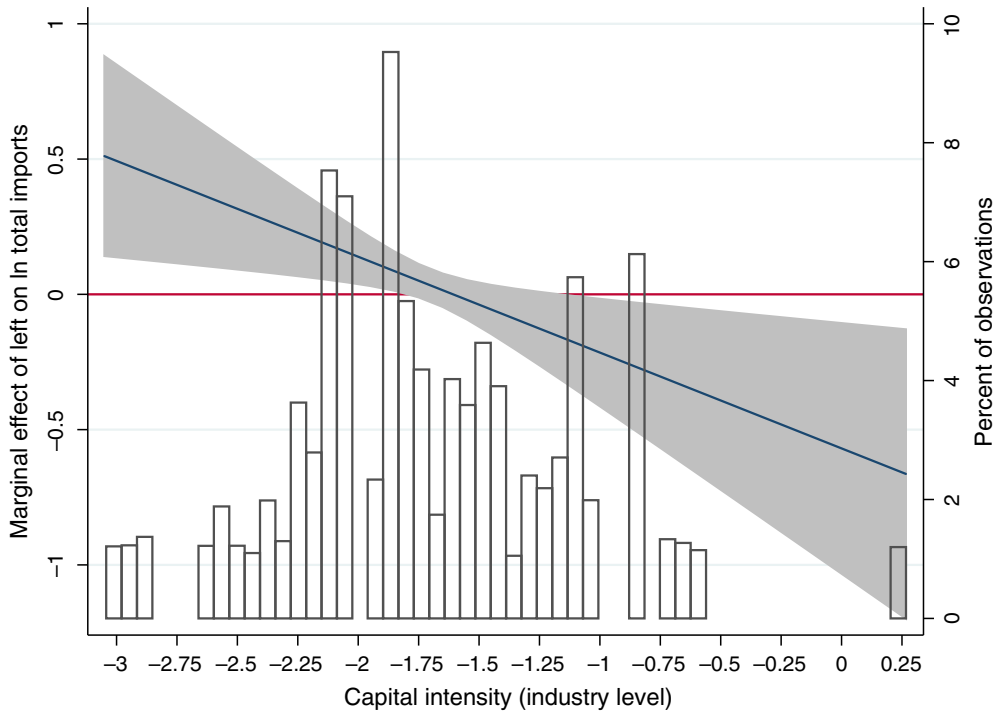

Figure 3. Marginal effect of left on log total imports (derived from column 2 in Table 2).

Table 3 Determinants of Intrafirm Trade, 2002–2012

	(1)	(2)	(3)	(4)	(5)	(6) Heckman First	(7) Heckman Second
GDP	−0.147	−0.151	−0.151	−0.151	−0.154	−0.277	−0.177
	(0.101)	(0.101)	(0.098)	(0.098)	(0.099)	(0.399)	(0.118)
GDP per capita	0.175	0.178*	0.178*	0.178*	0.177*	0.533	0.182
	(0.106)	(0.106)	(0.103)	(0.104)	(0.104)	(0.410)	(0.123)
Polity	−0.003	0.003	−0.003	−0.003	−0.003	−0.012	−0.003
	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.028)	(0.009)
Polity × Contract Intensity		−0.012**					
		(0.006)					
Left			0.001	0.038**	0.035**	−0.095*	0.035**
			(0.004)	(0.017)	(0.017)	(0.054)	(0.015)
Capital Intensity				0.025	–	−0.166***	0.050***
				(0.018)		(0.019)	(0.006)
Left × Capital Intensity				0.021**	0.019**	−0.071**	0.022***
				(0.009)	(0.009)	(0.028)	(0.008)
Capital Account Openness						0.005***	
						(0.002)	
Lambda						−0.405***	
						(0.066)	
Observations	37,067	37,067	37,067	37,067	37,067	39,892	39,892
R^2	0.142	0.151	0.142	0.148	0.257	–	–

Notes: The dependent variable is the share of related party imports in total imports for all country-industry pairs with positive related- party imports. A constant is estimated but not reported. All models include country and year fixed effects; Column 5 includes industry fixed effects. Robust standard errors, adjusted for clustering at the four-digit NAICS, reported in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

We report our estimates of the determinants of intrafirm trade shares in Table 3. The model reported in column 1 examines the relationship between democracy and intrafirm imports. We find that democracy is negatively associated with related-party imports, but the relationship is not statistically significant. Further, we find no evidence that democracy influences intrafirm trade shares among more contract-intensive industries (column 2). This result, along with our previous estimates of location decisions, are consistent with the conjecture that democratic institutions induce vertical FDI primarily through the fixed costs of establishing affiliates.

Next, we examine the effects of variation in partisanship in host country governments. The results in column 3 indicate that the Left has no independent effect on the share of intrafirm trade. Note that we expect the effect of partisanship to vary across sectors according to the factor requirements of production, and the results in column 4 are consistent with our argument. In particular, the results indicate that the share of intrafirm to total trade is higher for capital-intensive industries when the Left is in power. Column 5 shows that the results are robust to industry-specific dummy variables in addition to the country and year fixed effects.

Figure 4 demonstrates the conditional marginal effect of the Left at different levels of capital intensity based on the parameter estimates reported in column 4 of Table 3. A Left-leaning government coincides with higher intrafirm trade in capital-intensive industries, and with lower intrafirm trade in labor-intensive industries. The positive marginal effect of the Left becomes statistically significant where capital intensity equals −1.29 ("NAICS 3119–Other Food Manufacturing"); here the Left is

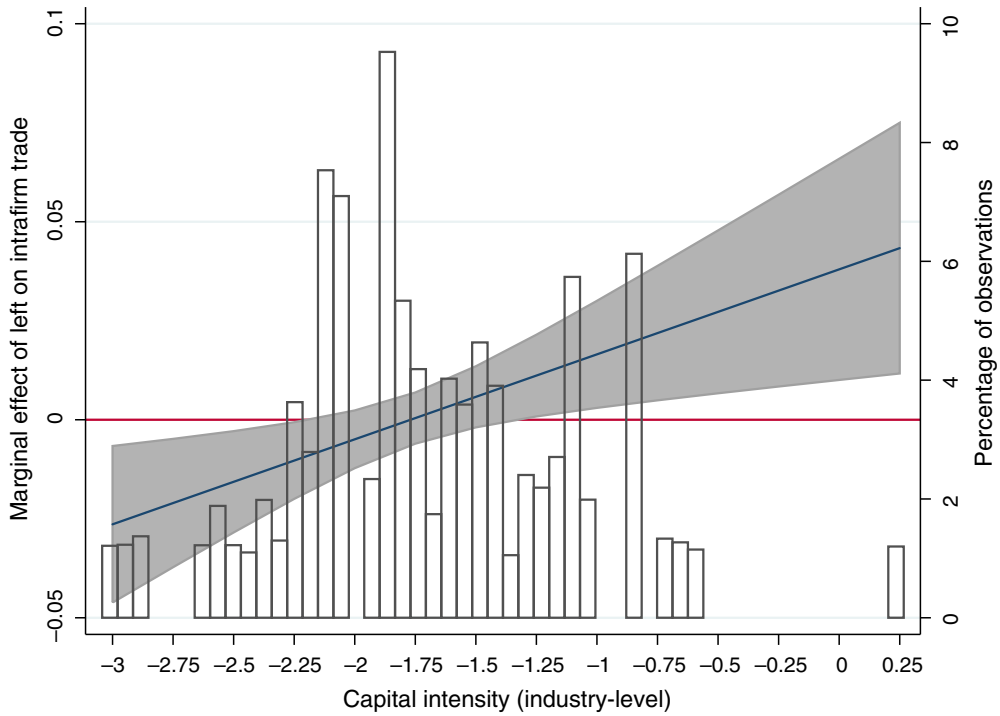

Figure 4. Marginal effect of the left on ratio of intrafirm to total trade (derived from estimates in Table 3, column 4).

associated with a 1% increase in the intrafirm import share. At capital intensity one standard deviation above the observed mean (to a level corresponding to "NAICS 3361–Motor Vehicles"), the marginal effect of the Left is equivalent to a 1.4% increase in intrafirm trade as a share of total trade. This estimated effect represents a substantial increase, equivalent to approximately $2.1 billion on average among the largest 10 exporters to the United States, and $133 million for the average U.S. trade partner.[20]

We address the potential selection bias of industries with a vertical affiliate presence using the well-known Heckman two-stage estimation procedure. For the excluded variable, we rely on Quinn's capital account openness index (Quinn et al., 2011) since capital account liberalization should correlate with affiliate presence but not with the share of intrafirm trade once subsidiaries are established. The results (reported in columns 6 and 7 of Table 3) remain robust to this specification.

In Table 4, we examine the robustness of our results to a number of additional specifications. In column 1 we introduce country-year dummy variables, which absorb all time-varying country characteristics (as well as those that are time invariant). These could include, but are not limited to economic factors such as growth and inflation. Country-year fixed effects also absorb the country- and U.S.-country time-varying factors that likely influence trade and investment such as bilateral investment treaties (Elkins et al., 2006; Kerner, 2009; Rose-Ackerman and Tobin, 2005; Tobin and Busch, 2010), along with economic conditions and shocks such as civil conflicts or financial crises. Column 2 includes a yearly time trend to account for increasing intrafirm trade over time; we then introduce country- and industry-specific time trends in columns 3 and 4. While our preferred model specifications we cluster standard errors at the industry level – following the recommendations of Bernard et al. (2010) and Nunn and Trefler (2013) – in columns 5 and 6 we allow the standard errors to cluster by country and by country-industry, respectively. Our results retain statistical significance in each of these additional specifications. We find higher intrafirm trade in capital intensive industries when the Left is in power.

Finally, to provide greater assurance that the mechanism operates through the factor intensity of production, and not through the contracting environment, we include an interaction term *Left* × *Contract Intensity* in column 7. This model has the property of a placebo test: while capital and contract intensity are correlated, the results from this model in combination with the previous results suggest that the association between the Left and increased intrafirm trade shares operates through factor intensities in production. We find no evidence that increases in intrafirm trade under the Left are explained through the contracting environment or the contractibility of the traded inputs.

4.3 Robustness to Subsamples

Our theoretical framework assumes that the headquarters is sourcing goods either at arm's length or from related parties in foreign countries. Our empirical analyses assume that the importing parent company is located in the United States, and that intrafirm imports originate from foreign subsidiaries. However, the data from the

[20]In 2012, the average value of total U.S. imports from the top 10 largest exporters to the United States was $152 billion; the average value of imports among all U.S. trade partners was $9.5 billion.

TABLE 4 ROBUSTNESS TESTS: INTRAFIRM TRADE, 2002–2012

	(1) Country-year FE	(2) Year trend	(3) Country-specific year trend	(4) Industry-specific year trend	(5) Cluster SE by country	(6) Cluster SE by industry-country pairs	(7) Contract-intensity placebo test
Left		0.039**	0.036**	0.035**	0.038*	0.038**	0.010
		(0.017)	(0.016)	(0.017)	(0.021)	(0.016)	(0.014)
Capital Intensity	0.025	0.025	0.025	−1.356	0.025**	0.025***	
	(0.019)	(0.018)	(0.018)	(2.910)	(0.011)	(0.007)	
Left × Capital Intensity	0.023**	0.021**	0.022**	0.019**	0.021*	0.021**	
	(0.009)	(0.009)	(0.009)	(0.009)	(0.012)	(0.009)	
GDP		−0.152	0.327	−0.155	−0.151	−0.151*	−0.153
		(0.098)	(0.318)	(0.098)	(0.099)	(0.083)	(0.099)
GDP per capita		0.179*	−0.188	0.177*	0.178*	0.178**	0.179*
		(0.101)	(0.328)	(0.101)	(0.103)	(0.088)	(0.104)
Polity		−0.003	0.007	−0.004	−0.003	−0.003	−0.003
		(0.004)	(0.007)	(0.004)	(0.006)	(0.005)	(0.004)
Contract Intensity							0.137**
							(0.057)
Left × Contract Intensity							−0.017
							(0.026)
Observations	37,067	37,067	37,067	37,067	37,067	37,067	37,067
R^2	0.165	0.147	0.151	0.257	0.148	0.148	0.150

Notes: The dependent variable is the share of related party imports in total imports for all country-industry pairs with positive related- party imports. A constant is estimated but not reported. Unless otherwise stated, robust standard errors, adjusted for clustering at the four-digit NAICS, are reported in parentheses.
***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

Census Bureau's related-party trade database do not allow us to distinguish between imports by U.S.-based parent firms from their affiliates abroad and imports by U.S.-based affiliates from foreign-based parent firms. As noted in Zeile (2003), the share of imports by U.S.-based affiliates from their foreign parents is non-trivial.

Since we seek to examine the factors leading MNCs with headquarters in the United States to trade with affiliates abroad, our next set of robustness tests exclude countries where intrafirm trade is more likely to involve U.S.-based affiliates of foreign MNCs. The subsamples are identified using firm-level data from Bureau van Djik's Orbis dataset, which provides detailed performance data for headquarters and subsidiaries of multinationals from around the world. Nunn and Trefler (2013) identify MNCs for which either the parent or the subsidiary is located in the United States. This information is used to calculate, for each partner country, the share of total MNCs with U.S. headquarters (see Nunn and Trefler, 2013, Table 4). For example, according to the Orbis data, Finland reports 231 firms with relationships with the United States. Of these, 89 are parent firms based in the United States with affiliates in Finland, and 142 are U.S. affiliates of parent firms based in Finland. Thus in Finland, just 39% of firms that have relationships with the United States involve a U.S.-based parent firm. The inference is that much of the related-party imports from Finland will likely be mediated by U.S.-based affiliates importing from their headquarters in Finland rather than by MNCs headquartered in the United States, as our theoretical model assumes.

Following Nunn and Trefler (2013), we first exclude countries for which U.S.-based parents account for less than 50% of the relationships in the Orbis data (Subsample 1).[21] We then pursue an even more cautious approach, purging all countries below the 75% threshold (Subsample 2).[22]

We also examine our main hypotheses in the subsample of non-Organization for Economic Cooperation and Development (OECD) countries. Our motivation for this sample restriction is twofold. First, U.S.-based affiliates of foreign parents are more likely to originate in OECD countries, and so excluding OECD countries provides an additional subsample of firms that are likely to represent the setup of our theoretical model. Second, we observe that the fragmentation of production increasingly occurs in developing countries. Figure A3 in the Appendix displays the growth in imports for two industries characterized by high degrees of fragmented production. The figure demonstrates that imports of computers, semiconductors, and other manufactured components increasingly originate in developing (non-OECD) countries, making the non-OECD nations a particularly appropriate environment in which to test our theory of the outsourcing decisions of firms engaged in global production.

Columns 1–3 of Table 5 report estimates of the relationship between democracy and vertical affiliate presence conditional on the contract intensity of the investment. The models include country fixed effects. As in the full sample results reported in Table 1, we find that democracy is associated with an increased likelihood of vertical affiliate presence, particularly in more contract-intensive industries.[23]

We examine our sectoral-partisanship hypothesis in the restricted samples in columns 4–6 of Table 5. The results indicate that Left-leaning governments are associated

[21]This excludes Finland, Iceland, Italy, Liechtenstein, and Switzerland.

[22]This excludes Finland, Iceland, Italy, Liechtenstein, Switzerland, Sweden, Taiwan, Belgium, Bermuda, Norway, Denmark, South Korea, Japan, Spain, Israel, Austria, France, and Germany.

[23]In models without interaction terms, we find that Polity enters positive and significant at the 99% level of confidence across the three subsamples.

Table 5 Determinants of Vertical Affiliates and Intrafirm Trade: Restricted Samples

Dependent Variable:	(1) Dummy for Intrafirm Trade in 2002	(2) Dummy for Intrafirm Trade in 2002	(3) Dummy for Intrafirm Trade in 2002	(4) Intrafirm Trade Share, 2002–2012	(5) Intrafirm Trade Share, 2002–2012	(6) Intrafirm Trade Share, 2002–2012
	Subsample 1	Subsample 2	Non-OECD countries	Subsample 1	Subsample 2	Non-OECD countries
Polity × Contract Intensity	0.100***	0.089***	0.075**			
	(0.034)	(0.032)	(0.031)			
Left				0.041**	0.064***	0.098***
				(0.016)	(0.017)	(0.019)
Left × Capital Intensity				0.022**	0.036***	0.058***
				(0.009)	(0.009)	(0.009)
GDP				−0.141	−0.157	−0.081
				(0.098)	(0.116)	(0.125)
GDP per capita				0.170	0.184	0.075
				(0.103)	(0.118)	(0.119)
Polity				−0.003	0.001	0.002
				(0.004)	(0.005)	(0.005)
Fixed Effects	Country	Country	Country	Country, year	Country, year	Country, year
Observations	7,759	6,690	5,520	35,191	25,718	16,413
Pseudo R^2	0.227	0.198	0.164	–	–	–
R^2	–	–	–	0.151	0.146	0.127

Notes: The dependent variable in columns 1–3 is a dummy variable equal to 1 if there are positive related-party imports at the four-digit NAICS industry in 2002 for all country-industry pairs with positive imports; 0 otherwise. In columns 4–6, the dependent variable is the share of related party imports in total imports for all country-industry pairs with positive-related party imports, 2002–2012. Subsample 1 excludes countries where U.S.-based parents account for less than 50% of the relationships in the Orbis data (see Nunn and Trefler, 2013); Subsample 2 excludes all countries below the 75% threshold. A constant is estimated but not reported. Robust standard errors, adjusted for clustering at the four-digit NAICS, are reported in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

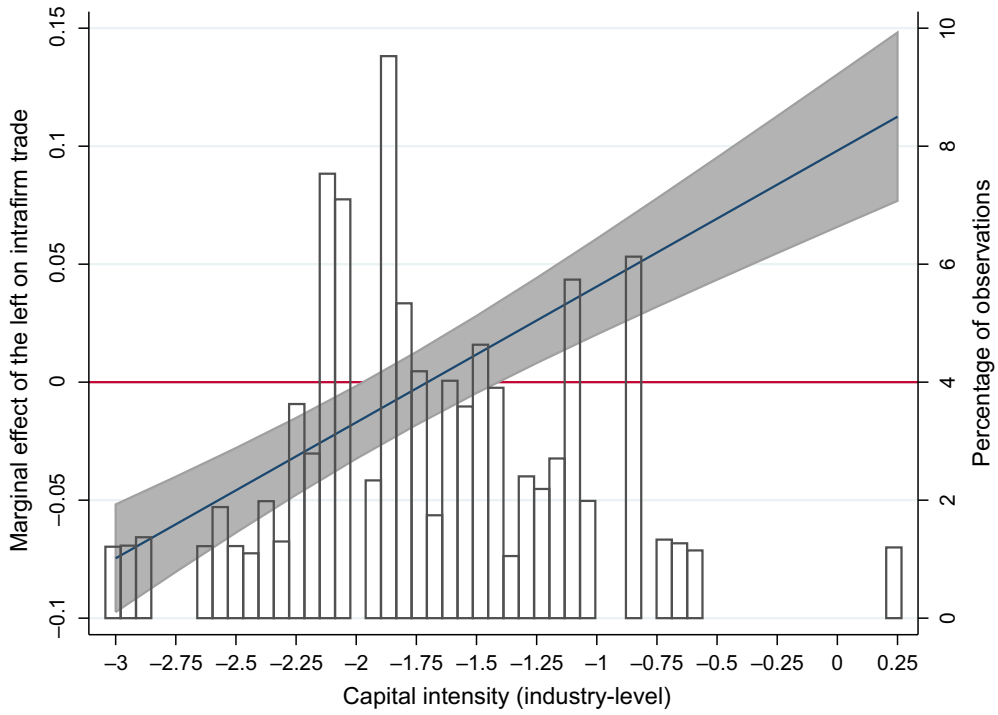

Figure 5. Effect of the left on intrafirm trade – non-OECD countries (derived from estimates in Table 5, column 6).

with higher intrafirm trade shares in capital-intensive industries, and that the relationship is particularly strong in non-OECD countries. Figure 5 illustrates the marginal effect of the Left across the range of capital intensity based on the results reported in column 6 of Table 5. Intrafirm trade shares in capital- (labor-) intensive industries increase (decrease) when the Left is in office. Since the data from this set of countries are highly likely to reflect the offshoring activities of firms headquartered in the United States, we interpret the results as strongly supportive of our argument.

5. CONCLUSION

Offshoring is central to big political battles over the distributional impact of globalization. Where production is located – and from which firm it is sourced – shapes employment and wages in the United States and abroad. While economic factors clearly influence offshoring, the distributional objectives of partisan government should also be central. Yet political explanations have been largely missing from the literature to date.

In this paper, we have attempted to fill the void by examining global offshoring patterns through detailed trade data. The analysis provides new insights into the politics of globalization by examining vertical FDI and trade in a unified framework. We argued that the costs and benefits that shape firms' offshoring decisions derive in part from the political environment abroad. First, we find that democratic institutions, which figure prominently in the extant literature, correlate with the establishment of vertical production subsidiaries. Our novel result is that democratic governance

appears to reduce the costs of setting up an affiliate abroad, particularly for firms that rely heavily on the enforcement of private contracts. However, democratic institutions do not explain offshoring decisions over time – the partisan interests of incumbent governments abroad do.

Host governments' allegiances to either labor or capital are associated with policy changes that affect the costs of producing and sourcing from abroad. Partisan cycles thus shape the costs of production differently across industries depending on industry factor intensity of production. Rising costs lead to an expansion of intrafirm exports as a share of total exports from capital (labor) intensive industries when the Left (Right) is in power in the partner country. We link host country distributional concerns associated with the consequences of economic integration (Gawande et al., 2009) to MNC production strategies and subsequent patterns of trade.

Our findings, based on novel industry-level data, conform to our theoretical expectations concerning the effect of partisan cycles on intrafirm trade flows. Examining detailed U.S. import data at the industry level, we find that labor-aligned (Left) governments are associated with a larger (smaller) share of intrafirm trade in capital- (labor-) intensive industries. Our paper demonstrates, to our knowledge for the first time, how traditional partisan alliances influence the intrafirm composition of trade flows.

Our paper complements and extends the literature on international trade and investment by examining the political forces that shape the location and scope of global production networks. We analyze how the economic incentives to internalize production and to trade with related parties, which prior research shows to vary by industry, interact with political conditions in the host country to determine whether firms offshore to related parties or outsource. Consistent with Bernard et al. (2010), we show that the decision to establish a production affiliate abroad differs from the choice of how much to source from that affiliate. Moreover, we demonstrate that the effect of partisan politics on investment and trade depends on production requirements that vary across industries. Our results validate previous research showing higher intrafirm trade in capital-intensive industries (Antràs, 2003; Bernard et al., 2010). We extend this work by demonstrating temporal variation in intrafirm trade in capital-intensive industries, which we explain through partisan political cycles in the host country.

The global production strategies of firms give rise to a number of new issues in the political economy of globalization, with important implications for politics and policy. Liberalization of investment should not be viewed in isolation from trade: where investment by MNCs occurs, trade will follow. Indeed, the emergence of global supply chains is the by-product of trade and investment liberalization, including the liberalization of communication, transportation and business services (Lanz and Miroudot, 2011). Recent trade agreements reflect this coupling of services, investment, and trade flows. New theories on the distributional impacts of liberalization should consider the consequences for domestic firms and foreign affiliates alike. Where MNCs have a large presence and are vertically integrated, trade liberalization may not lead to big increases in exports by domestic firms, as market shares may reallocate toward more productive MNCs (Baccini et al., 2016).

Despite the novelty of our contribution, there are numerous opportunities for improvement and extensions in future research. While we show that democratic institutions tend to attract vertical, resource-seeking forms of FDI, we do not explore whether these institutions are any more or less meaningful for firms making

horizontal, market-seeking investments.[24] The ways in which institutions and partisan governments may attract alternative forms of FDI merit further investigation, and firm-level data will likely be necessary to investigate these complexities.[25] Moreover, while our strategy has been to exploit industry characteristics to uncover which specific institutions shape vertical FDI, future work could provide new insights by more explicitly examining variation in the strength of contracting and other legal and political institutions. Another promising avenue could be to examine the set of policies most likely to shape variable production costs and intrafirm trade flows over time. Our results imply that firms view partisan governments in different ways, depending on their factor requirements of production. While our simplifying assumption has been that partisan distributional motivations generate broadly consistent partisan policy cycles across countries, policy variation could be exploited to better understand how governments' policy choices shape patterns of production in the global economy.

APPENDIX: SUPPLEMENTARY INFORMATION

TABLE A1 SUMMARY STATISTICS

Variable	Observations	Mean	SD	Min.	Max.
Country/sector/year covariates					
Ln Total U.S. Imports	66,077	11.193	7.181	0	24.921
Vertical Affiliate Dummy	39,892	0.790	0.408	0	1
Intrafirm Trade Share	37,067	0.369	0.299	0	1
Country/year covariates					
Polity	1,912	3.683	6.399	−10	10
GDP ($ billion constant)	2,238	193	564	0.022	4,860
GDP per capita ($)	2,231	11,207	18,033	136	158,803
Country level covariates					
Distance to U.S.	151	8,777	3,305	548	16,180
English	151	0.238	0.428	0	1
OECD	151	0.185	0.390	0	1
Sector-level covariates					
Contract Intensity	104	0.486	0.204	0.106	0.979
Capital Intensity	85	−1.699	0.583	−3.043	0.267

Note: The variable definitions and sources appear in the text.

[24]Recent research finds that MNCs often blend various forms of FDI: the average foreign affiliate of a U.S. MNC sells around 75% of its output in the host country, ships nearly 10% back to the United States, and exports the remaining output to third countries. Moreover, these shares vary within affiliates over time (Bilir et al., 2014).

[25]Data limitations present a formidable obstacle to this line of research. One potential source of data is the firm-level Surveys of U.S. Direct Investment Abroad, which are conducted by the U.S. Bureau of Economic Analysis (BEA). These data are confidential and only available to researchers selected by the BEA to work on site as unpaid special sworn employees. While these data can be used to examine horizontal FDI in specific countries at the firm level, they are not useful for examining intrafirm trade shares with particular countries, since data on trade flows between U.S. MNC parent firms and unaffiliated parties are not disaggregated by country.

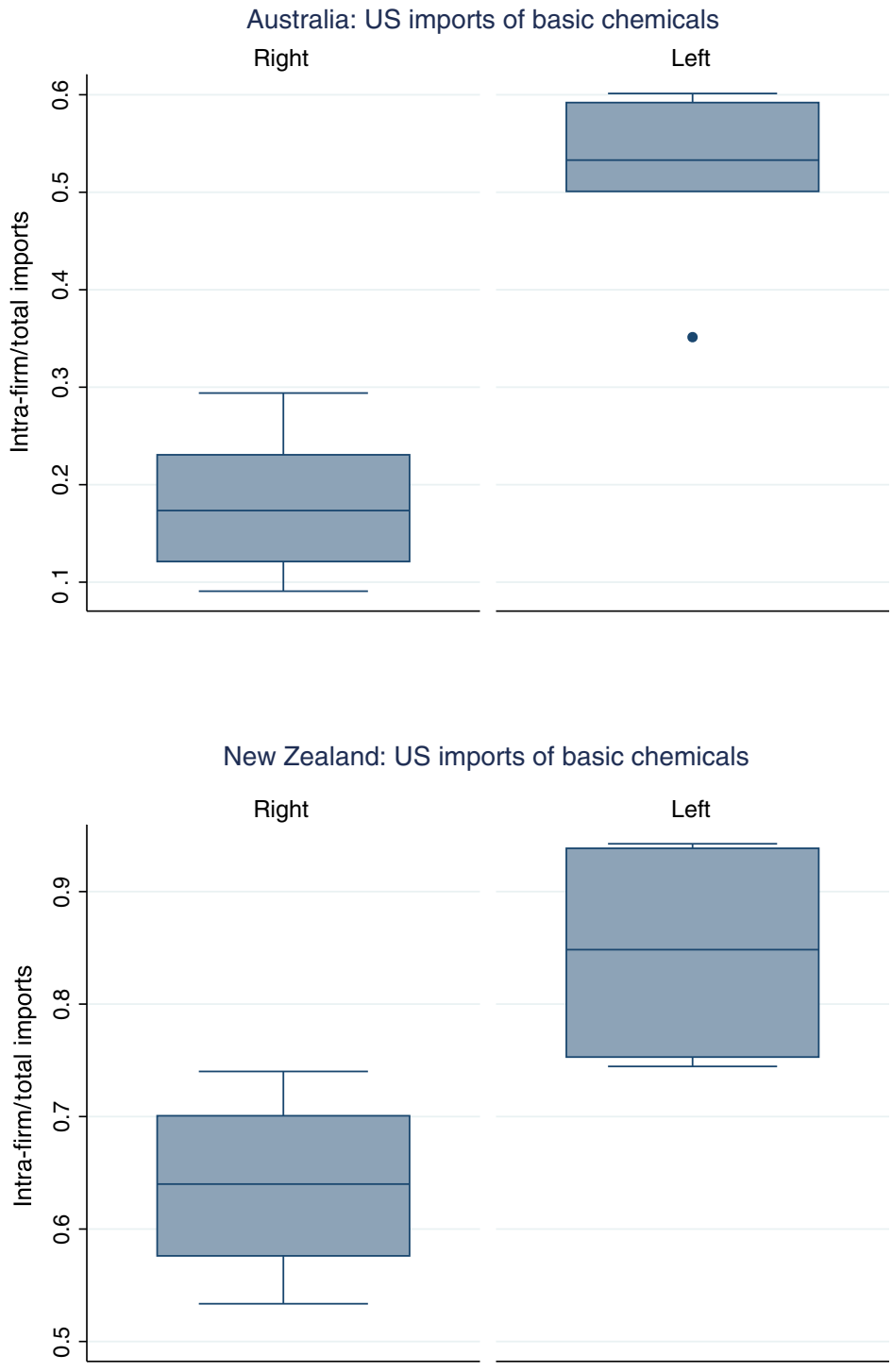

Figure A1. Intrafirm shares by incumbent partisanship: basic chemicals.

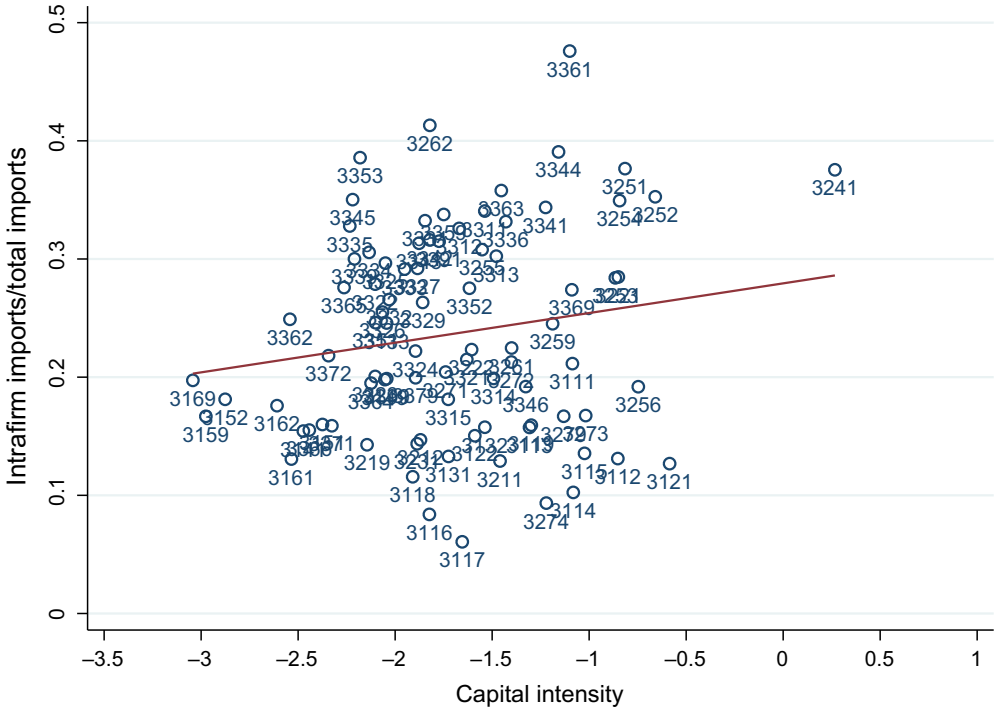

Figure A2. Capital intensity and intrafirm trade.

Notes: The figure displays the correlation between industry-level capital intensity and intrafirm trade shares. The data points correspond to NAICS four-digit industries. The data sources are provided in the text.

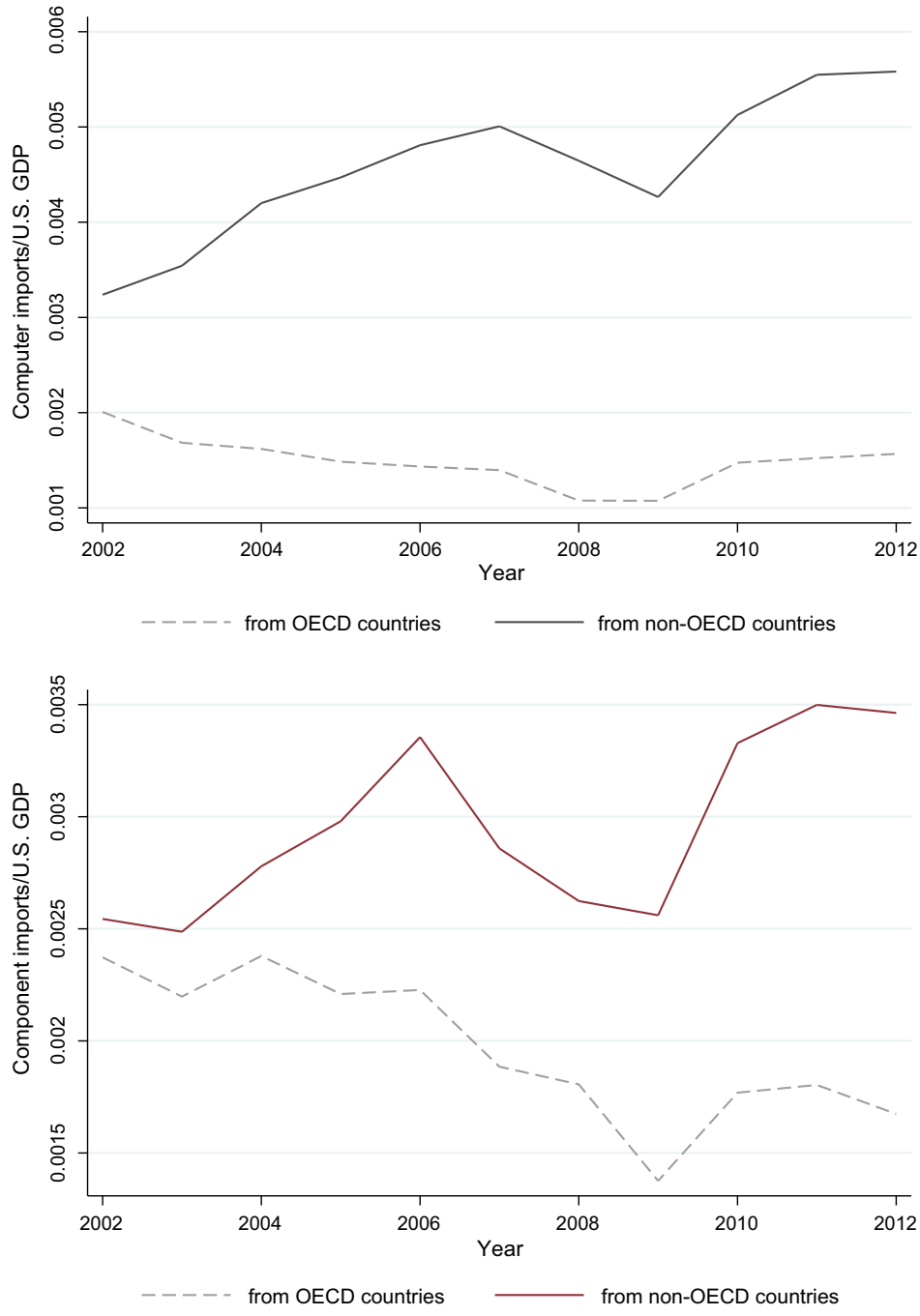

Figure A3. Growth in fragmented production in non-OECD countries.
Notes: The graphs show total U.S. imports as a share of GDP for two industries in which production is highly fragmented: Computer and Peripheral Equipment Manufacturing (NAICS 3341) and Semiconductor and Other Component Manufacturing (NAICS 3344).

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