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著者 (英)	Eric D. Ramstetter
journal or publication title	AGI Working Paper Series
volume	2018-04
page range	1-44
year	2018-06
URL	<a href="http://id.nii.ac.jp/1270/00000143/">http://id.nii.ac.jp/1270/00000143/</a>

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Working Paper Series Vol. 2018-04  
June 2018

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## **Foreign Multinationals and Vietnamese Firm Exports, 2010-2013**

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June 2018

### **Abstract**

This paper examines the role foreign multinational enterprises (MNEs) played in Vietnamese firm exports during 2010-2013. Consistent with patterns observed in commodity export data, MNEs are found to account for the majority of firm exports during this period. Wholly-foreign MNEs (WFs), which accounted for the vast majority of MNE production in Vietnam, accounted for most MNE exports. Both WFs and MNE joint ventures (JV) made larger direct contributions to exports than to production or employment, as observed in other Asian developing economies. There was a strong tendency for WFs to have the highest export propensities (export-turnover ratios) followed by JVs. Manufacturing firms exported over four-fifths of the total in most years. Tobit estimates that controlled for the effects of firm size, capital intensity, liquidity, location, and industry affiliation for manufacturers indicate WFs also had the highest conditional export propensities, followed by JVs, private firms, while export propensities tended to be similar in state-owned enterprises (SOEs) and private firms in most industries. Because Vietnam imposes few ownership restrictions on MNEs, these results imply that MNEs generally prefer to export from WFs rather than JVs, and are consistent with previous results for Thailand and Indonesia, for example.

**JEL Classification Codes:** F14, F23, L33, L60, L81, O53

**Keywords:** Multinational enterprises, state-owned enterprises, ownership, exports

**Acknowledgement:** This paper is one result of the Asian Growth Research Institute (AGI) project “Foreign Multinationals and Trade in Southeast Asian Manufacturing”. We thank AGI for financial and logistic support. A preliminary version of the paper was presented at the 13<sup>th</sup> Annual Meeting of Asia-Pacific Trade Seminars on 16-17 June 2017 in Hanoi, Vietnam. We are grateful for comments from Bin Ni and other session participants. However, the authors are solely responsible for the content of this paper, including all remaining errors and opinions expressed.

## 1. Introduction

Previous literature suggests that foreign multinational enterprises (MNEs) will tend to have relatively large amounts of generally intangible, firm-specific assets related to production technology, marketing, and management, among other aspects of firm performance compared to non-MNEs. These differences are often thought to lead relatively high productivity, wages, and export propensities in MNEs, for example. Previous research on other Southeast Asian economies (Indonesia, Malaysia, and Thailand) also indicates that MNE-local or MNE-(local) private differentials were often significant for wages and export propensities. For Vietnam, the evidence suggests that significant productivity differentials were more prevalent than for other Southeast Asian economies, but that significant wage differentials were more common than corresponding productivity differentials. However, we know of no previous, detailed comparisons of export values or export propensities in MNEs and local firms for Vietnam, largely because comprehensive data have only become available in enterprise surveys for 2010 forward, and because compilations quickly reveal important problems with these data.<sup>1</sup> Correspondingly, we believe this is one of the first attempts to examine the relationship of export propensities to ownership in Vietnam using more realistic, cleaned export data.

The analysis focuses on two questions emerging from the previous literature. First, do foreign MNEs have a relatively high probability of exporting large proportions of their turnover (sales) compared to local firms, which are predominantly non-MNEs? Second, do wholly-foreign MNEs (WFs) have a relatively high probability of having relatively high export propensities compared to MNE joint ventures (JVs)? The paper begins with a brief review of the relevant literature in Section 2 followed by analysis of descriptive statistics

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<sup>1</sup> Ramstetter and Nguyen (2016) provide preliminary evidence from these data showing that many firms report obviously unrealistic export values. Central Institute of Economic Management et al. (2015), pp. 31-38 provides some analysis of the relationship between export status and ownership from alternative Vietnam Technology and Competitiveness Surveys, but focuses on transfer from customers and provides no industry detail or information on export values or propensities. Phan and Ramstetter (2009) compare export propensities among projects of different MNE ownership groups, but their data have no information on local firms.

available from aggregate commodity export data and compilations of firm-level data in Section 3, including unconditional, ownership-related differentials in mean export propensities. They are then compared to conditional differentials, which account for the influences of firm size, capital intensity, and equity-asset ratios, as well as location, year, and industry using a tobit model described in Section 4 and econometric results summarized in Section 5. Because of large differences in slope coefficients among industries, the focus is on results for 13 relatively homogeneous industry groups. Because state-owned enterprises (SOEs) are important in several Vietnamese industries, and many economists think SOEs do not usually perform as well as private firms, our comparisons are also careful to distinguish SOEs and private firms. Finally Section 6 concludes, focusing on the future research agenda.

## **2. Literature Review**

MNEs are likely to possess relatively large amounts of knowledge-based, intangible, firm-specific assets related to production technology, marketing, and entrepreneurship. Thus, MNEs should be more productive than non-MNEs (Buckley and Casson 1992; Casson 1987; Caves 2007; Dunning 1993; Rugman 1980, 1985). Correspondingly, MNEs tend to be larger firm size and have higher factor productivity, factor returns, and/or higher capital or technology intensity. In contrast, economists generally assume that SOEs tend to be more inefficient than private firms because SOE managers have relatively weak incentives to minimize costs. The evidence suggests that both MNEs and SOEs have tended to have relatively high productivity in Vietnam, though ownership-related productivity differentials were often insignificant in industry-group samples (Ramstetter and Phan 2013).<sup>2</sup>

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<sup>2</sup> Evidence that MNEs pay significantly higher wages than local firms is more common in Vietnam (Nguyen and Ramstetter 2015, 2017) and other Southeast Asian economies, even when productivity differentials were not significant. For studies of Indonesia, see Takii (2004) on productivity and Lipsey and Sjöholm (2004) and Ramstetter and Narjoko (2013) on wages. For studies of Malaysia, see Haji Ahmad (2010) and Oguchi et al.

The theoretical literature often focuses on the tendency for MNEs to possess relatively large amounts of technology-related intangible assets such as the results of research and development (R&D) or patents, for example. Possession of these assets in relatively large amounts implies that MNEs tend to have relatively high productivity. Correspondingly, MNEs may tend to export more than non-MNEs because exporting firms first tend to be more productive than non-exporters and MNEs have relatively high productivity. However, it is very difficult to sort out the direction of causality. Does high productivity lead to exporting, or does exporting force firms to become more productive, or does causality run both directions (Bernard and Jensen 2004, Melitz 2003)?

On the other hand, it is clear MNEs also invest substantial resources in international marketing networks. These investments are sunk costs and accumulation of related assets is a key reason that some firms become able to export relatively cheaply (Roberts and Tybout 1997). Moreover, it seems equally clear that MNEs invest more in their international marketing networks than non-MNEs. Thus, even if ownership-related productivity differentials are not pervasive, it is highly possible that MNEs might have higher export propensities than non-MNEs because their investments in international marketing networks lead to lower exporting costs in MNEs. This is an important part of the story told by the previous studies of Indonesia (Ramstetter and Takii 2006; Sjöholm and Takii 2006) and Thailand (Ramstetter and Umemoto 2006), which indicate MNEs are more likely to export, and more likely to export large portions of their output than local plants.

The other potentially important part the story relates to evidence that export propensities tend to be highest in wholly-foreign MNEs or MNEs with very large foreign ownership shares of 90 percent or more, and that these ownership-related differences remain statistically significant after accounting for related firm- or plant-level characteristics (see studies cited in

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(2002) on productivity and Ramstetter (2014) on wages. For studies of Thailand, see Ramstetter (2006) on productivity and Movshuk and Matsuoka-Movshuk (2006) on wages.

footnote 1). This evidence is also related to an important policy-oriented study by Moran (2001), who argues that MNE affiliates that are well integrated into the parent's network are likely to be better equipped to contribute to host economies than are affiliates which are isolated from the parent-controlled network by ownership restrictions or local content requirements. Moran's argument also suggests that productivity should be higher in MNEs with relatively large foreign ownership shares, but empirical evidence is often inconsistent with this latter hypothesis in Indonesia (Takii 2004), Thailand (Ramstetter 2004), or Vietnam (Ramstetter and Phan 2013), for example.

Although the existing evidence for Southeast Asia suggests that the level of foreign ownership is not strongly related to productivity, other evidence indicates that WFs or MNEs with large foreign ownership shares (e.g., 90 percent or more) have higher export propensities than other MNEs in Indonesia (Ramstetter and Takii 2006), Thailand (Ramstetter and Umemoto 2006), and Vietnam (Phan and Ramstetter 2009). This in turn suggests that parent MNEs often restrict access of affiliates with smaller ownership shares to exporting networks, more than they restrict access to technology-related firm-specific assets. Part of the reason may be that most MNE affiliates in Vietnam and other developing economies utilize relatively simple technologies which are useful in labor-intensive assembly activities. Correspondingly, the risk of leaking sophisticated technologies through minority-owned affiliates in developing economies is likely to be relatively small. On the other hand, the risks of minority-owned affiliates oversupplying specific markets may be large. This risk is also reflected by the fact that MNEs sometimes force local partners in their minority-owned affiliates to sign agreements forbidding them from exporting the MNE's products.

In addition, several developing economies in Southeast Asia and elsewhere relaxed ownership restrictions and local content requirements for MNEs exporting large portions of their output. In these cases, which were relatively common during periods studied by previous

literature (e.g., the 1980s and 1990s in Indonesia and Thailand), strong correlations between foreign ownership shares and export propensities may also have resulted from policy biases, in addition to MNE strategies. On the other hand, in Vietnam foreign ownership restrictions have never been particularly strict after the promulgation of the first foreign investment law in 1988, soon after Doi Moi.<sup>3</sup> Moreover, informal biases against MNEs weakened substantially after the promulgation of the Enterprise Law in 2000, the Law's subsequent implementation (Van Arkadie and Mallon 2003), reforms related to the implementation of the Bilateral Trade Agreement between Vietnam and the United States in 2001, the implementation of the ASEAN Free Trade Agreement in 2005, and further reforms related to Vietnam's WTO accession in early 2007. Thus, previous evidence for MNE projects in 2000-2001 (Phan and Ramstetter 2009) and the evidence for 2010-2013 presented below probably reflects the influence of MNE strategy more than any remaining policy bias against WFs.

### **3. MNE Exports and Ownership-Related Differences in Export Propensities**

Economy-wide estimates from commodity trade data show that both MNE export values and the MNE shares of Vietnam's exports rose rapidly over the last two decades. MNE shares increased particularly rapidly from 27 percent in 1995 to 47 percent in 2000 and 57 percent in 2005 (Table 1). Shares remained at 57-58 percent in 2005-2007 and 2011, but fell to 53-55 percent in 2008-2010, suggesting the World Financial Crisis had a larger impact on MNE exports than non-MNE exports. In 2009, export values also shrunk by 12 percent for MNEs, but only 5.1 percent for non-MNEs. After the crisis, relatively rapid increases of MNE exports resumed, with MNE shares rising to 63-67 percent in 2012-2014 and 71 percent in 2015.

Compilations of monthly trade data reports show that oil accounted for 30-40 percent of

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<sup>3</sup> Nonetheless, implementation and formal policy often diverged in Vietnam, with government officials effectively limiting foreign ownership shares in a number of cases, especially before the promulgation of the Enterprise Law in 2000.



MNE exports in 2005-2008, but under 10 percent since 2013 and only 2 percent in 2015 (Table 1). Correspondingly, MNE shares of non-oil exports were substantially lower than shares of all exports in 2005-2006 (45-46 percent vs. 57-58 percent). However, this difference became much smaller in recent years, even in years when oil prices and oil export values were still relatively high (e.g., 60 vs. 63 percent in 2012, 65-66 vs. 67 percent in 2013 and 2014). Most non-oil exports are manufactures.

Because MNE shares of exports were much larger than corresponding shares of production, export propensities were much larger in MNEs than in non-MNEs (Table 1). For example, in 1995, the export-GDP ratio was 1.1 in MNEs, and increased to 2.1-2.2 in 2005-2007 and over 3.2 by 2015. On the other hand, there was a sharp decline in 2009, following a more modest decline the year previous, again reflecting the strong effects of the World Financial Crisis on MNE exports. Most importantly, export-GDP ratios were over 5 times larger in MNEs than in non-MNEs for 1995, 2000, and 2005-2015, and almost 11 by 2015. Although export-GDP ratios are not ideal measures of export propensities because exports include intermediate expenditures, while GDP does not, the data in Table 1 provides strong evidence that MNEs tend to export relatively large proportions of output than non-MNEs in Vietnam.

Manufactured exports have accounted for most of the growth in Vietnam's exports in recent years. Using a broad definition of manufacturing exports designed to be consistent with the 1993 revision of the Vietnam Standard Industrial Classification (VSIC), manufacturing exports increased from under \$9 billion in 2000 to over \$58 billion in 2010, and manufacturing's share of the total increased from 61 to 81 percent (Table 2).<sup>4</sup> Traditional, mainly resource- or labor-intensive manufactures (e.g., food products, apparel, textiles) were among the most important exports through 2010. For 2010-2013, compilations based on the

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<sup>4</sup> The VSIC is similar to the International Standard Industrial Classification (ISIC), but more detailed in some categories. The older, 1993 version (VSIC93) is similar to ISIC revision 3 while the newer, 2007 version (VSIC07) is similar to ISIC revision 4.

Standard International Trade Classification (SITC) indicate that apparel (13-14 percent of the total) and leather and footwear (7-8 percent) have remained relatively large. On the other hand, food and related exports have grown relatively slowly (the combined share falling from 19 to 14 percent). About one-fourth of the SITC food category was probably non-manufactured, primary products. On the other hand, the rapid growth of electronic and electric machinery exports was conspicuous. By 2012 and 2013 this was by far the largest category, accounting for 24 and 30 percent of total exports, respectively. Large and rapidly growing exports from Samsung were a major reason for this pattern.<sup>5</sup>

Vietnam has conducted relatively comprehensive enterprise surveys since 2000 and surveys from 2010 have included questions about export values which should allow more precise and detailed examination of ownership-related differences in export propensities than previously possible.<sup>6</sup> However, sums of direct export values reported by medium-large firms with 20 or more employees amounted to more than two-fold of the total reported in commodity trade data (e.g., totals in Tables 2, which are identical to totals used to calculate annual estimates of MNE shares in Table 1) for 2010 and 2014, and 7.5 times the total for 2013. Inspection of firm-level time series indicates that unrealistic values were recorded for several firms in some years.<sup>7</sup> The fact that export values often exceed reported sales values, which is theoretically impossible, is another indication of unrealistic reporting. We have thus adjusted reported export values to be less than or equal to sales. In addition, we restrict samples to medium-

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<sup>5</sup> In 2013, Samsung's exports were reported at US\$24 billion or 18 percent of the total in Table 2 ([http://english.thesaigontimes.vn/33443/Samsung-Vietnam%E2%80%99s-2013-exports-generate-US\\$24-billion.html](http://english.thesaigontimes.vn/33443/Samsung-Vietnam%E2%80%99s-2013-exports-generate-US$24-billion.html)). Intel's 2013 export revenue was reported to be another US\$2 billion (<http://www.vietnam-briefing.com/news/intel-builds-first-made-vietnam-cpu.html/>). And other MNEs such as Fujitsu probably continue to export substantial amounts as well (note that Fujitsu was the largest exporter in Vietnam, accounting for 3-4 percent of Vietnam's total in 2000-2001, Ramstetter and Phan 2009, p. 576).

<sup>6</sup> Enterprise surveys cover all non-household firms with over 10 employees in all industries, but exclude household firms and organizations other than firms, and collect limited information from firms with 10 or fewer employees (Jammal et al, 2006).

<sup>7</sup> For example some large exporters report exports that were 1000s of times larger in only one year than in other years. Although this is not impossible, reporting or input error is a more likely cause in many cases. Much more extensive inspection of firm-level data, including comparisons to trends of related indicators (e.g. sales, employment, fixed assets) is required before more definitive conclusions can be reached.

large firms with 20 or more workers, because we do not think it is meaningful to compare predominantly local, private, small firms with MNEs and SOEs, which are predominantly large. Removing smaller firms also eliminates many outliers and unrealistic values from the data. It was also necessary to eliminate other medium-large firms reporting non-positive values for fixed assets and/or sales.

These adjustments eliminate obvious over reporting of exports with the firm totals in Table 3 increasing from US\$41 billion in 2010 to US\$102 billion in 2013. However, sample coverage was uneven with ratios of firm sums to merchandise totals reported in Table 2 increasing from 56 percent in 2010 to 62 percent in 2011, 67 percent in 2012, and 77 percent in 2013. In other words, the coverage of the firm export data appears to have improved markedly in 2010-2013. Corresponding ratios of MNE (WF+JV) exports to estimates of MNE merchandise exports in Table 1 also increased and were somewhat larger (65 percent in 2010, 70-71 percent in 2011-2012 and 86 percent in 2013), indicating that our samples cover MNEs better than non-MNEs. As a result, MNE shares of firm exports were somewhat larger than corresponding shares of merchandise exports, 63-64 percent in 2010-2011, 67 percent in 2012, and 74 percent in 2013. The difference in the two measures of MNE shares was relatively small in 2012 (4 percentage points) but larger in other years (7-9 percentage points) This is not surprising because most MNEs are relatively large and conspicuous, making them more likely to report realistic information.<sup>8</sup>

There are several potentially important sources of discrepancies between compilations of firm exports and merchandise exports. Firm surveys explicitly ask firms to report direct merchandise exports only, but some firms may not realize their exports pass through other firms or may not distinguish direct and indirect exports in their accounting. Thus, some

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<sup>8</sup> Similarly, comparisons of our compilations with published totals in Appendix Table 1 indicates that ratios of employment in sample firms to total firm employment were very large for WFs (90-96 percent), but smaller for JVs (68-74 percent) and only about one half (49-51 percent) for SOEs and private firms.

exports passing through more than one firm are likely to be double counted, especially when wholesale traders are included in the total. Second, some firms may include export sales of both merchandise and services. Third, the timing of export reporting may differ in the firm surveys and the merchandise trade data. Fourth, some firms do not report information for some years.

If one looks at the industry detail in Table 3, some of the totals seem obviously unrealistic. The most conspicuous example is in the largest category of computers and electric machinery for 2012, when exports were US\$12 million, the same as in 2011. The sum of this category and electric machinery, which is composed of products similar to the electric and electronic machinery category in Table 2, was also the same in 2011-2012 at US\$15 billion. The merchandise trade data indicate relatively rapid increases in all years. The ratio of the sum of related categories in the firm data to the merchandise category was only 54 percent in 2012, compared to 94-98 percent in 2010-2011 and 2013. Because WFs dominate this industry group accounting for 93-97 percent of firm exports and differences between MNE shares of total firm exports and merchandise exports were relatively small in 2012 (only 4 percentage points compared to 7-9 percent points in other years, Tables 1 and 2), the firm data appear to omit at least a few large WF exporters in 2012.

Another important example of discrepancies is observed in textiles, apparel, leather, and footwear.<sup>9</sup> According to the firm data, the sum of these exports rose rather steadily from US\$9 billion in 2010 to US\$19 billion in 2013. However, ratios of the firm sum to the corresponding merchandise sums were only 47 percent in 2010 and 56-61 percent of it 2011-2014. One possibility is that exporters in these industries use wholesale traders as intermediaries, but exports of all wholesale traders were only US\$3-6 billion or 33-53 percent of the US\$10-12 billion difference between the sums from the firm and merchandise data.

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<sup>9</sup> Because several firms export multiple products in more than one of these categories, it is more meaningful to compare sums of these categories rather than the values for individual categories.

Thus, there is strong evidence that the firm data are omit important exports in these categories for all years. Ratios of firm exports to corresponding merchandise categories were also conspicuously low in non-metallic mineral products (3-5 percent) suggesting that firms in other industries were the source of the rapid growth of these exports and/or that these samples omit important exporters in this industry. The fact that firm-level data omit exports is not unusual, but it is important to recognize that these firm samples cover only a portion of Vietnam's exports, and that sample coverage varies greatly among industries and years.

On the other hand, samples were reasonably large, exceeding 100 firms in all years for all industries listed in Tables 3-4 except non-metallic mineral products, and exceeding 300 in all other industries except motor vehicles and other transportation machinery (Appendix Table 3). Thus, comparisons of export propensities among ownership groups in Table 4 and the following econometric analysis should be meaningful. As expected, these comparisons reveal that mean export propensities were by far the highest in WFs, 49-51 percent if all industries are included, second highest in JVs (21-26 percent), and much lower in SOEs (5-6 percent) and private firms (4-5 percent).

Propensities were somewhat higher in manufacturing firms and especially in the 15 sample manufacturing industries, 54-56 percent in WFs, 31-41 percent in JVs, 14-15 percent in JVs, and 11-13 percent in private firms (Table 4). We focus on these 15 manufacturing industries because they account for the vast majority of firm exports (71-79 percent of all firms and 88-92 percent of manufacturing firms, Table 3) and samples are usually large enough to facilitate meaningful, industry-level analysis. WFs had the highest export propensities in 12-13 of these 15 industries in all years, with JVs having the highest propensities in the remaining 2-3 industries (wood products in all years, leather and footwear in 2011-2013, paper products in 2012, and other transportation machinery in 2010). Moreover, differences between WFs and JVs were 10 percentage points or more in most (9-12) industries, while WF-SOE and WF-

private differentials were 30 percentage points or more in at least nine industries in every year. Export propensities were relatively high (60 percent or more) in at least 3 of the 4 years for WFs and JVs in apparel and leather and footwear and for WFs in food products and electric machinery, and JVs in wood products, but never reached similar levels for SOEs or private firms in any industry and year in the sample. In short, these data suggest a very strong tendency for WFs to have the highest export propensities followed by JVs, while SOEs and private firms exported much smaller portions of their sales.

#### 4. Firm Characteristics and Ownership-Related Differences in Export Propensities

The previous studies reviewed in Section 2 suggest that export propensities are influenced by firm characteristics such as size, factor intensity, location, and industry affiliation. In Vietnam's case we also investigate if firm's equity-asset ratio is related to the export propensity because it may reflect the extent to which a firm is constrained financially. In order to investigate whether significant ownership effects remain after accounting for these firm-characteristics, the following equation is estimated:

$$XS_{ijt} = a_0 + a_1(L_{ijt}) + a_2(KL_{ijt}) + a_3(EA_{ijt}) + a_4(DSOE_{ijt}) + a_5(DJV_{ijt}) + a_6(DWF_{ijt}) + a_7(DR_{ijt}) + \varepsilon_{ijt} \quad (1)$$

where

$XS_{ijt}$	Export propensity of firm $i$ in industry $j$ in year $t$ , defined as percent (0-100).
$L_{ijt}$	Natural log of the number of employees of firm $i$ in industry $j$ in year $t$ .
$KL_{ijt}$	Natural log of capital intensity (fixed asset-labor ratio) of firm $i$ in industry $j$ in year $t$ , where fixed assets are converted to 2010 prices national accounts' deflators for gross fixed capital formation from General Statistics Office (various years b).
$EA_{ijt}$	Equity-total asset ratio of firm $i$ in industry $j$ in year $t$
$DSOE_{ijt}$	A dummy variable =1 if a firm $i$ in industry $j$ in year $t$ is a SOE, =0 if not.
$DJV_{ijt}$	A dummy variable =1 if a firm $i$ in industry $j$ in year $t$ is a JV, =0 if not.

$DWF_{ijt}$	A dummy variable =1 if a firm $i$ in industry $j$ in year $t$ is a WF, =0 if not.
$DR_{ijt}$	A vector of 6 dummy variables identifying the region of firm $i$ in industry $j$ in year $t$ (Hanoi [the base region], Red River delta, Northern midlands, Central region, Southeast region, Ho Chi Minh City, and Mekong delta).
$\varepsilon_{ijt}$	A stochastic error term.

Because we are concerned about the possibility of simultaneity bias resulting from the influence the export propensity may have on firm size, capital intensity, or equity-asset ratios, we lag these variables one year in one specification. However, lagging these variables substantially reduces sample size, so we examine whether major results differ between the lagged specification in 2011-2013 and a contemporaneous specification for 2010-2014, finding that most major results are similar. Because the dependent variable is limited to the 0-100 range we use a pooled tobit estimator.<sup>10</sup> All estimates use robust standard errors to account for heteroscedasticity related to the scale variables (labor and capital intensity) and region dummies to account for the influence of geography on exporting.

When the equation is estimated in large, heterogeneous samples of 15 sample industries, 14 intercept dummy variables are used to account for industry effects. However, because results suggest large differences in slope coefficients among industries, we also estimate equations for 13 more homogeneously defined industry groups. Because two of these industry groups are combinations of 2-digit categories (electric and non-electric machinery and transportation machinery), a single intercept dummy is used in these cases.<sup>11</sup>

The sign of  $a_1$  is expected to be positive because larger firms generally have relatively high productivity and lower exporting costs than smaller ones. Results were consistent with

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<sup>10</sup> We plan to add panel, random effects tobit estimates in a future revision, because we are interested in investigating how alternative econometric assumptions affect the results. We do not know of an unbiased, fixed effects, tobit estimator and we are more interested in results from pooled tobit or the random effects, panel tobit estimates because they tell us more about how ownership types are related to export propensities, whereas fixed effects estimates would reveal how changes in ownership are related to export propensities.

<sup>11</sup> These industries have been combined because we had trouble obtaining results for non-electric machinery and other transportation machinery, probably because of collinearity among region and ownership dummies.

expectations with the coefficient being positive and highly significant at the 1 percent level in all samples and specifications examined (Table 5). Because capital-intensive firms are also characterized by high productivity and low export costs in many cases  $a_2$  is also likely to be positive in many samples. However, Vietnam has an abundance of labor which may make capital-intensive products be relatively costly with  $a_2$  becoming negative as a result. Results yielded positive and highly significant coefficients for both contemporaneous and lagged specification in all 15 sample industries and in eight of the 13 more homogenous, industry groups. In one industry (paper products) the coefficient was negative and highly significant and in the other four industries this coefficient was not consistently significant at the standard 5 percent level, but it was positive and significant in the lagged specification for basic metals.

We expected  $a_3$  to be positive because we thought higher equity-asset ratios reflected relatively loose financial constraints, which should make it easier for firms to cover export costs. However, when significant, this coefficient was negative (Table 5). One possibility is that high equity-asset ratios, or equivalently low loan-asset ratios, are prevalent in firms that are financially constrained. In other words, equity-asset ratios could be high because banks are reluctant to lend to the firms in question.

Table 5 also shows the pseudo R-squared which illustrates how well the model fits the data. The lowest values were 0.05 in food products, 0.06 in wood products, and 0.07-0.08 in textiles and highest ones were 0.12-0.14 in metal products, computers and electronic machinery, electric and non-electric machinery, and transportation machinery. Thus, the model doesn't fit the data particularly well, but this is not unusual in large, pooled samples of firm-level data. And the results clearly indicate that the three control variables are correlated with export propensities, making it of interest to investigate whether ownership is significantly correlated with export propensities after accounting for these influences.



Coefficients on the dummy variables identifying WFs were positive and highly significant in all estimates (Table 6). Coefficients on the JV dummy were positive and highly significant for all 15 sample industries combined and in 12 of the 13 industry-level samples, food products being the exception. Industry-level results reveal large variation in coefficients on these MNE dummies (and in other slope coefficients, Table 5). Correspondingly, we think the industry-level results provide more reliable estimates of ownership-related differentials than the aggregate results and focus on them. The largest coefficients on the WF dummy were in transportation machinery (122-124), electric followed by basic metals and non-electric machinery (89-95), while the smallest ones were in furniture (37-40). JV dummy coefficients were largest in wood products and paper products (105-111) and smallest in furniture (26), if the insignificant coefficient in food products is excluded. In short, there is a very strong tendency for WFs and JVs to have higher export propensities than private firms, but the extent of these differentials varies greatly among industries.

On the other hand, most industry-level coefficients on the SOE dummy were insignificant, and their signs were inconsistent when significant (Table 6). Coefficients were negative in wood products and basic metals, but positive in transportation machinery, and in the contemporaneous specification for metal products, but this coefficient was only weakly significant at the 10 percent level in the lagged specification. When all industries were combined, the coefficient was significantly negative, but here again the substantial variation of coefficients among industries makes the aggregate result of limited use. The industry-level results suggest SOE-private differentials in export propensities were generally insignificant, in marked contrast to highly significant WF-private and JV-private differentials. The patterns were more or less consistent with those observed in unconditional differences in Table 4.

Results are also consistent with patterns observed in Table 4 in indicating that conditional WF-private differentials were substantially larger than JV-private differentials in most

industries (Table 6). For example, the coefficient on the WF dummy was larger than the coefficient on the JV dummy by 30 percent or more in nine industries and by 90 percent or more in three industries (food products, textiles, and transportation machinery). On the other hand, the JV coefficient was larger in only two industries, wood products and paper products. Thus, even after accounting for the influences of firm size, capital intensity, and equity-asset ratios, as well as firm location, there is strong evidence that export propensities tended to be highest in WFs followed by JVs, and of similar magnitude among SOEs and private firms in most manufacturing industries.

## **5. Conclusion**

This paper has examined the role foreign multinational enterprises (MNEs) played in Vietnamese firm exports during 2010-2013. Consistent with patterns observed in commodity export data, MNEs are found to account for the majority of firm exports during this period. Wholly-foreign MNEs (WFs), which accounted for the vast majority of MNE production in Vietnam, accounted for most MNE exports. Both WFs and MNE joint ventures (JV) made larger direct contributions to exports than to production or employment, as observed in other Asian developing economies. There was a strong tendency for WFs to have the highest export propensities (export-turnover ratios) followed by JVs. Manufacturing firms exported over four-fifths of the total in most years, with WFs accounting for two-thirds to three-fourths of the manufacturing total. Tobit estimates that controlled for the effects of firm size, capital intensity, liquidity, location, and industry affiliation for sample manufacturers indicate WFs also had the highest conditional export propensities followed by JVs, while export propensities tended to be similar in state-owned enterprises (SOEs) and private firms in most industries. Because Vietnam imposes few ownership restrictions on MNEs, these results

imply that MNEs generally prefer to export from WFs rather than JVs, and are consistent with previous results for Thailand and Indonesia, for example.

Although these results are straightforward and probably reasonable, there are several important tasks remaining for future research. First, robustness should be checked by comparing results of alternative specifications and estimation techniques. In particular, it would be helpful to compare results of random effects tobit estimates. Comparisons to results from a two-step estimation procedure similar to that in Athukorala et al. (1995) are also potentially important. Second, it is also important to add years and further refine data cleaning procedures for firms reporting unrealistic values for exports and other key variables. In this respect, we hope to add data for 2014 and 2015 in the near future.

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Table 1: Commodity Exports of Foreign MNEs & MNE shares of Vietnam's exports and Export-GDP Ratios in MNEs and non-MNEs

Year	Annual estimates					Cumulative Monthly			
	Exports		Export/GDP ratio			Exports		Non-oil exports	
	US\$bil	% share	MNE	non-MNE	MNE/ nonMNE	US\$bil	% share	US\$bil	% share
1995	1.473	27.03	1.127	0.205	5.508	-	-	-	-
2000	6.810	47.02	1.646	0.284	5.799	-	-	-	-
2005	18.554	57.18	2.123	0.284	7.473	18.517	57.45	11.130	44.80
2006	23.061	57.90	2.162	0.301	7.184	22.865	57.73	14.542	46.49
2007	27.775	57.19	2.115	0.323	6.542	27.832	57.52	19.355	48.50
2008	34.523	55.07	1.999	0.344	5.809	34.905	55.49	24.455	46.62
2009	30.372	53.19	1.655	0.305	5.427	29.854	52.76	23.644	46.94
2010	39.152	54.20	2.229	0.336	6.627	38.828	54.21	33.884	50.81
2011	55.124	56.88	2.597	0.366	7.104	55.114	56.87	47.873	53.39
2012	72.252	63.09	2.892	0.323	8.949	72.274	63.08	64.045	60.22
2013	88.150	66.76	2.965	0.310	9.559	88.190	66.74	80.913	64.80
2014	101.180	67.36	3.038	0.321	9.472	101.218	67.40	93.989	65.75
2015	114.267	70.53	3.190	0.294	10.852	114.274	70.52	110.619	69.84

Notes and sources: Annual data from General Statistics Office (various years b); cumulative monthly estimates from General Statistics Office (various years c); MNE shares of crude exports were 100 percent in 2005-2015.

Table 2: Commodity Exports by SITC (US\$ millions)

Commodity or industry, code	2000	2010	2011	2012	2013
By SITC rev 3, total	14,483	72,237	96,906	114,529	132,033
Manufactures, excluding food, etc., 5-8	6,193	46,666	62,664	78,978	97,961
Textiles, 65	299	3,061	3,770	3,894	4,612
Apparel, 84	1,821	10,390	13,149	14,443	17,148
Leather & Footwear, 61, 85	1,481	5,489	6,987	7,793	9,025
Wood manufactures, 63	93	247	312	390	536
Paper manufactures, 64	59	372	418	503	537
Plastics & Rubber, 57-58, 62	46	1,214	1,456	1,893	1,753
Non-metallic mineral products, 66	172	936	1,247	1,816	2,305
Metals & metal products, 67-69	120	2,738	3,854	4,202	4,695
Electronic & electric machinery 75-77,87-88	1,064	9,309	15,857	27,795	40,009
Non-electric machinery, 71-74	135	1,698	2,352	2,871	2,894
Road vehicles, 78	74	721	969	1,304	1,586
Other transportation machinery, 79	26	531	808	1,082	877
Furniture, bedding, etc., 82	232	2,960	3,140	3,640	4,032
Miscellaneous manufactures, 89	281	4,636	4,793	2,930	3,112
Other manufactures	291	2,363	3,550	4,421	4,839
Food, beverages, tobacco, 0-1	3,554	13,729	17,701	19,173	18,787
Mineral fuels, 3	3,825	7,980	11,008	11,353	9,685
Others, 2, 4, 9	912	3,862	5,533	5,024	5,600
ADDENDUM: by VSIC93 ( $\approx$ ISIC rev 3), total	14,483	72,237	-	-	-
Manufactures, D	8,831	58,384	-	-	-
Food, beverages, tobacco, 15-16	2,391	10,029	-	-	-
Textiles, 17	409	5,249	-	-	-
Apparel, 18	1,696	7,941	-	-	-
Leather & footwear, 19	1,647	6,285	-	-	-
Plastics & rubber, 25	125	1,974	-	-	-
Metals & metal products, 27-28	120	2,846	-	-	-
Electronic & electric machinery, 30-33	1,101	10,014	-	-	-
Furniture, miscellaneous manufacturing, 36	400	6,452	-	-	-
Other manufacturing	943	7,594	-	-	-
Mining & quarrying, C	3,628	6,825	-	-	-

Sources: General Statistics Office (various years a), United Nations COMTRADE (2016).



Table 3: Exports of firms with 20 or more employees and positive output and capital (US\$ billions)

Industry (VSIC07≈ISIC rev 4)	All firms				WFs				JVs			
	2010	2011	2012	2013	2010	2011	2012	2013	2010	2011	2012	2013
All industries	40.766	60.315	76.621	102.06	23.809	36.418	42.114	67.963	1.789	2.232	9.070	7.680
Manufacturing	34.737	52.422	61.262	87.763	23.376	35.679	41.511	66.948	1.725	2.181	3.562	2.465
Sample manufacturing	30.679	46.938	54.285	80.729	20.878	32.663	37.503	62.824	1.517	1.941	3.356	2.217
Food products	3.881	5.963	6.691	6.675	0.283	0.493	0.801	0.654	0.041	0.085	0.077	0.043
Textiles	2.190	3.917	4.330	4.964	1.429	3.130	3.401	3.750	0.020	0.029	0.066	0.107
Apparel	3.093	4.763	5.504	6.649	1.957	2.787	3.328	4.003	0.083	0.139	0.158	0.125
Leather & footwear	3.544	4.675	5.677	7.018	2.904	3.922	4.819	5.867	0.177	0.203	0.220	0.265
Wood products	0.608	0.903	0.990	1.133	0.122	0.133	0.180	0.241	0.117	0.170	0.169	0.210
Paper products	0.373	0.489	0.640	0.754	0.239	0.373	0.419	0.477	0.002	0.011	0.026	0.021
Rubber & plastics	1.834	2.779	3.287	3.282	1.339	1.995	2.473	2.363	0.083	0.124	0.123	0.081
Basic metals	1.215	1.711	2.335	2.646	0.720	0.781	1.270	1.267	0.056	0.206	0.254	0.366
Metal products	0.146	0.415	0.654	0.693	0.107	0.213	0.311	0.253	0.013	0.006	0.005	0.004
Computers, electronic machinery	6.556	12.151	11.767	34.121	6.200	11.859	11.142	33.685	0.160	0.050	0.424	0.096
Electric machinery	2.590	2.831	3.339	4.022	2.272	2.496	3.056	3.482	0.237	0.250	0.206	0.364
Non-electric machinery	0.876	1.171	1.317	1.551	0.831	1.046	1.183	1.386	0.010	0.033	0.014	0.034
Motor vehicles	0.623	1.503	2.849	2.338	0.535	1.389	1.978	2.265	0.086	0.087	0.832	0.033
Other transportation machinery	0.436	0.602	1.063	0.407	0.037	0.041	0.528	0.279	0.296	0.362	0.466	0.007
Furniture	2.715	3.063	3.841	4.476	1.904	2.005	2.614	2.854	0.138	0.186	0.316	0.461
Excluded manufacturing	4.057	5.485	6.977	7.035	2.498	3.016	4.008	4.124	0.208	0.240	0.206	0.248
Agriculture	0.282	0.752	0.600	0.448	0.006	0.043	0.053	0.060	0.006	0.004	0.005	0.009
Mining	2.324	2.460	8.688	7.883	0.339	0.082	0.083	0.075	0.043	0.047	5.502	5.203
Wholesale trade	3.307	4.604	5.674	5.469	0.083	0.601	0.454	0.794	0.005	0.000	0.001	0.001
Other industries	0.115	0.076	0.396	0.500	0.005	0.014	0.013	0.086	0.011	0.000	0.001	0.002

Table 3 (continued)

Industry (VSIC07)	SOEs				Private firms			
	2010	2011	2012	2013	2010	2011	2012	2013
All industries	5.472	6.117	8.561	6.238	9.695	15.548	16.875	20.182
Manufacturing	1.406	1.847	1.868	2.105	8.230	12.716	14.322	16.245
Sample manufacturing	0.972	1.230	1.018	1.276	7.313	11.104	12.409	14.411
Food products	0.224	0.270	0.245	0.168	3.334	5.114	5.569	5.810
Textiles	0.155	0.185	0.192	0.191	0.587	0.573	0.671	0.916
Apparel	0.185	0.222	0.114	0.280	0.868	1.615	1.905	2.242
Leather & footwear	0.031	0.029	0.029	0.027	0.432	0.521	0.609	0.860
Wood products	0.032	0.030	0.022	0.014	0.337	0.570	0.618	0.668
Paper products	0.005	0.006	0.004	0.008	0.128	0.099	0.190	0.248
Rubber & plastics	0.065	0.095	0.088	0.105	0.347	0.565	0.604	0.734
Basic metals	0.057	0.085	0.119	0.181	0.383	0.639	0.693	0.832
Metal products	0.008	0.026	0.037	0.039	0.019	0.171	0.302	0.397
Computers, electronic machinery	0.040	0.017	0.019	0.019	0.156	0.225	0.182	0.322
Electric machinery	0.041	0.027	0.029	0.029	0.041	0.058	0.048	0.147
Non-electric machinery	0.011	0.015	0.016	0.032	0.024	0.078	0.104	0.099
Motor vehicles	0.002	0.002	0.003	0.032	0.000	0.026	0.037	0.009
Other transportation machinery	0.103	0.199	0.068	0.120	0.001	0.000	0.001	0.001
Furniture	0.014	0.022	0.035	0.033	0.659	0.850	0.876	1.128
Excluded manufacturing	0.435	0.617	0.850	0.829	0.917	1.612	1.913	1.834
Agriculture	0.265	0.691	0.529	0.345	0.005	0.014	0.014	0.034
Mining	1.913	2.241	3.003	2.508	0.030	0.090	0.100	0.097
Wholesale trade	1.842	1.305	2.871	1.241	1.378	2.698	2.348	3.432
Other industries	0.046	0.033	0.289	0.039	0.053	0.030	0.093	0.373

Note: For VSIC07 definitions see Appendix Table 1.

Sources: Authors' compilation of firm-level data supplied by General Statistics Office.

Table 4: Export propensities of firms with 20+ employees and positive turnover and fixed assets (percent)

Industry (VSIC07≈ISIC rev 4)	WFs				JVs				SOEs				Private firms			
	2010	2011	2012	2013	2010	2011	2012	2013	2010	2011	2012	2013	2010	2011	2012	2013
All industries	51	50	49	51	21	23	25	26	6	6	6	5	4	5	4	5
Manufacturing	53	52	52	54	26	31	34	36	12	11	10	11	9	10	10	12
Sample manufacturing	55	54	54	56	31	35	40	41	14	15	14	15	11	11	11	13
Food products	62	63	68	61	33	32	45	35	47	47	44	37	28	31	44	37
Textiles	47	45	48	47	23	26	29	30	23	21	20	22	10	9	20	22
Apparel	67	66	68	73	58	63	61	62	51	50	43	52	20	21	43	52
Leather & footwear	73	70	69	71	64	77	75	90	42	33	37	44	20	20	37	44
Wood products	57	53	48	54	69	60	69	73	17	12	13	10	13	14	13	10
Paper products	38	40	40	40	13	29	63	36	4	3	2	4	4	4	2	4
Rubber & plastics	51	53	50	50	32	36	49	50	8	12	10	10	6	7	10	10
Basic metals	36	37	38	34	12	25	19	25	2	2	2	2	4	3	2	2
Metal products	22	38	34	34	12	10	13	19	5	8	9	7	1	2	9	7
Computers, electronic machinery	52	51	52	51	16	22	37	34	10	8	17	8	3	3	17	8
Electric machinery	62	62	63	69	36	27	25	36	3	3	3	3	3	3	3	3
Non-electric machinery	50	41	44	44	27	30	25	27	3	3	4	17	4	4	4	17
Motor vehicles	36	42	42	47	8	10	14	3	0	0	1	8	0	1	1	8
Other transportation machinery	49	74	78	66	99	52	76	50	12	17	12	12	0	0	12	12
Furniture	59	57	54	57	32	43	43	50	11	15	31	27	19	21	31	27
Excluded manufacturing	42	42	41	43	13	18	18	21	6	5	6	5	4	5	6	5
Agriculture	21	26	22	23	31	26	16	46	2	3	3	3	0	0	35	0
Mining	68	60	41	35	19	10	33	31	5	5	7	6	2	2	48	2
Wholesale trade	12	14	10	14	11	2	7	3	12	12	13	9	3	4	46	4
Other industries	3	2	1	2	0	0	0	0	0	0	0	0	0	0	21	0

Note: For VSIC07 definitions see Appendix Table 1.

Sources: Authors' compilation of firm-level data supplied by General Statistics Office.

Table 5: Coefficients on main control variables and pseudo R-squared from tobit estimates of conditional ownership-related differences in export propensities using equation (1)

Industry	Labor (Size)		Capital intensity		Equity-asset ratio		Pseudo R-squared	
	contem- poraneous	lagged	contem- poraneous	lagged	contem- poraneous	lagged	contem- poran- eous	lagged
15 sample industries combined	27.187***	24.704***	4.229***	5.101***	-5.196***	-7.466***	0.1029	0.1011
Food products	27.609***	25.097***	10.681***	9.164***	-21.578***	-28.879***	0.0514	0.0505
Textiles	23.847***	21.721***	-0.017	1.117	-9.899***	-11.629**	0.0758	0.0725
Apparel	40.497***	35.490***	6.640***	9.765***	-10.012***	-9.005***	0.0848	0.0806
Leather & footwear	26.263***	24.158***	3.538***	5.847***	-2.217	-6.612**	0.0907	0.0875
Wood products	37.294***	33.434***	9.419***	8.048***	-20.905***	-16.025**	0.0622	0.0598
Paper products	26.404***	24.786***	-4.836***	-5.309***	-8.844	-4.371	0.1080	0.1066
Rubber & plastics	21.316***	19.855***	1.381*	1.792*	-4.608	-5.535*	0.0922	0.0876
Basic metals	25.905***	22.968***	1.057	3.389***	1.691	0.112	0.0911	0.0855
Metal products	24.476***	24.508***	8.990***	8.614***	-16.894**	-16.038*	0.1382	0.1394
Computers, electronic machinery	21.489***	21.367***	6.915***	8.718***	-7.650**	-9.090**	0.1367	0.1347
Electric & non-electronic machinery	20.040***	18.197***	3.025***	3.372***	3.257	-3.177	0.1345	0.1307
Transportation machinery	19.640***	16.360***	0.491	1.262	-8.978	1.691	0.1357	0.1231
Furniture	27.564***	24.653***	2.637***	3.597***	-16.239***	-17.579***	0.0926	0.0865

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10; in the lagged specification L, KL, and EA are lagged one year; estimates also include year dummies and 6 region dummies (Hanoi is the base region), the result for all sample industries includes 14 industry dummies (food products is the base industry); results for electric and non-electric machinery and for transportation machinery include one 2-digit industry dummy each (using non-electric machinery and other transportation machinery as base industries); full results with other slope coefficients, the constant, coefficients on year, region, and industry dummies, and sample size information are in Appendix Tables 4 and 5a-5m.

Table 6: Coefficients on ownership dummies from tobit estimates of conditional ownership-related differences in export propensities using equation (1)

Industry	WF dummy		JV dummy		SOE dummy	
	contem- poraneous	lagged	contem- poraneous	lagged	contem- poraneous	lagged
15 sample industries combined	73.290***	71.214***	54.012***	51.802***	-6.722***	-7.228***
Food products	49.415***	50.445***	1.140	5.491	-9.959	-13.857
Textiles	70.693***	68.555***	37.036***	33.406***	7.895	5.737
Apparel	52.560***	52.272***	46.165***	44.429***	2.652	2.157
Leather & footwear	77.773***	72.535***	58.595***	61.227***	27.253*	24.766
Wood products	64.651***	57.872***	111.703***	104.969***	-31.968***	-35.525***
Paper products	91.634***	93.028***	109.090***	109.847***	-11.124	-11.335
Rubber & plastics	77.117***	75.488***	66.060***	64.174***	-4.854	-0.645
Basic metals	95.768***	89.118***	72.328***	67.853***	-18.409***	-18.062***
Metal products	81.706***	83.099***	63.857***	56.923***	19.220**	18.094*
Computers, electronic machinery	87.595***	84.454***	63.397***	61.651***	-1.502	-2.743
Electric & non-electronic machinery	90.604***	92.416***	62.537***	62.655***	-2.997	0.784
Transportation machinery	123.982***	122.312***	65.098***	62.455***	23.246***	25.042***
Furniture	40.221***	37.229***	25.860***	26.199***	0.939	5.913

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10; in the lagged specification L, KL, and EA are lagged one year; estimates also include year dummies and 6 region dummies (Hanoi is the base region), the result for all sample industries includes 14 industry dummies (food products is the base industry); results for electric and non-electric machinery and for transportation machinery include one 2-digit industry dummy each (using non-electric machinery and other transportation machinery as base industries); full results with other slope coefficients, the constant, coefficients on year, region, and industry dummies, and sample size information are in Appendix Tables 4 and 5a-5m.

Appendix Table 1: Vietnam Standard Industrial Classification Codes, 2007 revision

Industry	VSIC07 codes
Manufacturing	
Sample manufacturing	
Food products	10
Textiles	13
Apparel	14
Leather & footwear	15
Wood products	16
Paper products	17
Rubber & plastics	22
Basic metals	24
Metal products	25
Computers, electronic machinery	26
Electric machinery	27
Non-electric machinery	28
Motor vehicles	29
Other transportation machinery	30
Furniture	31
Excluded manufacturing	
Beverages	11
Tobacco	12
Printing and publishing	18
Oil & coal products	19
Chemicals	20
Pharmaceuticals	21
Non-metallic mineral products	23
Non-manufacturing	
Agriculture	1-3
Mining	5-9
Wholesale trade	45-46
Other industries	

Note: The VSIC 2007 revision is almost identical to revision 4 of the ISIC at this level of aggregation.

Appendix Table 2: Employees of firms with 20 or more employees and positive output and capital (thousands)

Industry (VSIC07)	WFs				JVs				SOEs				Private firms			
	2010	2011	2012	2013	2010	2011	2012	2013	2010	2011	2012	2013	2010	2011	2012	2013
All industries	1,821	2,137	2,334	2,517	182	189	181	183	871	845	863	818	3,297	3,679	3,779	3,598
all firms, published totals	1,902	2,289	2,476	2,783	254	262	244	268	1,692	1,664	1,606	1,660	5,983	6,681	6,759	6,855
Manufacturing	1,789	2,100	2,297	2,474	155	163	149	149	319	294	282	277	1,739	1,898	1,929	1,897
Sample manufacturing	1,630	1,918	2,103	2,268	126	136	128	125	240	213	196	191	1,504	1,635	1,649	1,630
Food products	16	17	17	19	5	8	8	6	18	21	21	16	213	234	225	223
Textiles	60	74	72	75	4	5	5	6	21	16	13	17	76	83	85	83
Apparel	429	483	534	584	22	22	22	18	44	32	26	26	307	367	387	403
Leather & footwear	492	582	623	689	25	28	23	25	9	14	6	5	159	161	172	175
Wood products	11	14	15	16	2	2	2	2	8	5	6	5	74	77	76	76
Paper products	19	23	23	23	0	0	1	1	7	6	6	5	54	59	61	60
Rubber & plastics	83	83	89	95	6	7	5	5	10	11	11	11	82	85	89	89
Basic metals	23	27	31	31	13	11	12	10	56	50	50	51	229	241	232	214
Metal products	9	8	10	10	2	2	1	1	10	8	8	9	35	46	47	46
Computers, electronic machinery	205	277	328	345	5	4	5	4	9	5	5	5	53	59	56	56
Electric machinery	81	88	101	100	5	6	6	7	6	6	6	5	30	26	26	26
Non-electric machinery	29	34	35	38	1	2	2	2	5	5	4	4	32	34	33	31
Motor vehicles	27	51	62	70	5	6	4	5	8	8	8	7	13	12	13	12
Other transportation machinery	2	2	4	5	3	4	3	3	25	22	23	19	12	8	7	5
Furniture	142	155	160	168	27	31	30	30	7	5	4	5	135	143	139	132
Excluded manufacturing	160	182	194	207	29	27	21	24	79	82	86	86	235	262	280	268
Agriculture	9	7	8	8	1	1	1	1	171	168	188	172	91	89	91	85
Mining	1	1	1	1	9	3	10	12	111	120	130	114	59	64	62	50
Wholesale trade	7	11	10	14	1	2	1	1	26	27	27	26	219	206	221	213
Other industries	14	19	19	20	16	21	20	19	243	235	235	228	1,189	1,423	1,476	1,353

Note: For VSIC07 definitions see Appendix Table 1

Sources: Authors' compilation of firm-level data supplied by General Statistics Office.

Appendix Table 3: Number of firms with 20 or more employees and positive output and capital

Industry (VSIC07)	WFs				JVs				SOEs				Private firms			
	2010	2011	2012	2013	2010	2011	2012	2013	2010	2011	2012	2013	2010	2011	2012	2013
All industries	3,624	4,088	4,311	4,163	517	553	552	530	1,715	1,738	1,750	1,672	31,386	37,612	39,267	36,333
all firms, published totals	5,989	7,516	7,523	8,632	1,259	1,494	1,453	1,588	3,281	3,265	3,239	3,199	268,831	312,416	334,562	359,794
Manufacturing	3,432	3,824	4,029	3,899	382	396	392	366	611	599	612	585	12,780	14,776	15,353	14,315
Sample manufacturing	2,801	3,146	3,311	3,214	282	295	291	272	401	372	371	357	10,451	12,026	12,426	11,585
Food products	64	73	74	79	15	21	24	18	27	26	24	21	789	915	992	929
Textiles	216	267	259	247	17	17	19	19	27	26	27	26	609	697	705	653
Apparel	506	553	571	553	35	34	36	32	32	29	27	28	1,298	1,616	1,741	1,588
Leather & footwear	198	236	259	254	9	9	10	10	10	12	7	6	372	435	457	440
Wood products	67	75	83	77	20	19	17	20	20	19	17	15	964	1,066	1,115	1,011
Paper products	102	117	118	114	2	4	4	4	16	14	15	12	696	762	776	727
Rubber & plastics	370	398	408	395	24	26	23	22	19	22	22	23	850	968	996	940
Basic metals	102	124	152	142	45	45	48	42	108	91	95	93	1,856	2,155	2,185	2,033
Metal products	44	45	62	54	13	12	11	10	22	26	27	25	529	714	702	671
Computers, electronic machinery	493	549	578	574	39	34	36	32	25	17	18	17	835	905	939	884
Electric machinery	112	141	153	146	10	11	10	11	13	15	15	13	169	208	217	206
Non-electric machinery	109	123	141	143	12	17	16	12	13	16	17	17	372	412	403	406
Motor vehicles	110	129	134	131	12	15	10	13	17	18	16	14	67	71	86	77
Other transportation machinery	6	4	9	9	1	2	2	2	37	31	35	37	123	87	85	65
Furniture	302	312	310	296	28	29	25	25	15	10	9	10	922	1,015	1,027	955
Excluded manufacturing	631	678	718	685	100	101	101	94	210	227	241	228	2,329	2,750	2,927	2,730
Agriculture	44	52	52	49	7	8	7	6	362	372	366	354	2,120	2,112	2,129	2,004
Mining	11	8	8	9	13	14	13	11	68	71	77	68	816	907	851	748
Wholesale trade	33	61	67	68	12	12	11	13	122	132	137	132	2,888	3,811	4,186	3,990
Other industries	104	143	155	138	103	123	129	134	552	564	558	533	12,782	16,006	16,748	15,276

Note: For VSIC07 definitions see Appendix Table 1.

Sources: Authors' compilation of firm-level data supplied by General Statistics Office; published totals from General Statistics Office (2016).



Appendix Table 4: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), all sample manufacturing industries combined

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	27.187***	0.346	24.704***	0.384
<i>KL</i> =capital intensity	4.229***	0.298	5.101***	0.344
<i>EA</i> =equity-asset ratio	-5.196***	1.845	-7.466***	1.200
<i>DSOE</i> =SOE dummy	-6.722***	2.274	-7.228***	2.568
<i>DJV</i> =JV dummy	54.012***	2.497	51.802***	2.909
<i>DWF</i> =WF dummy	73.290***	1.067	71.214***	1.220
Year dummies				
2011	6.346***	1.133	-	-
2012	4.616***	1.137	0.215	1.111
2013	9.382***	1.151	2.040*	1.116
Region dummies (Hanoi is the base)				
2=Red River delta	13.586***	1.614	15.235***	1.841
3=Northern midlands	7.926***	2.419	9.371***	2.731
4=Central region	17.043***	1.783	16.990***	2.036
5=Southeast region	29.615***	1.557	28.307***	1.790
6=Ho Chi Minh City	24.249***	1.572	27.058***	1.809
7=Mekong delta	17.657***	2.064	21.212***	2.357
Industry dummies (VSIC10=food products is base; see Appendix Table 6 for definitions)				
VSIC07=13	-37.077***	2.109	-37.951***	2.425
VSIC07=14	-13.383***	1.864	-8.156***	2.164
VSIC07=15	-28.942***	2.368	-23.679***	2.715
VSIC07=16	-16.973***	2.118	-15.838***	2.456
VSIC07=17	-59.505***	2.323	-61.677***	2.666
VSIC07=22	-35.142***	1.872	-34.615***	2.148
VSIC07=24	-77.262***	1.955	-78.346***	2.244
VSIC07=25	-78.056***	2.736	-77.161***	3.134
VSIC07=26	-45.137***	1.915	-44.384***	2.212
VSIC07=27	-37.779***	2.519	-38.099***	2.881
VSIC07=28	-48.194***	2.464	-50.032***	2.816
VSIC07=29	-60.170***	3.000	-56.826***	3.441
VSIC07=30	-86.823***	5.599	-85.593***	6.635
VSIC07=31	-20.599***	1.875	-19.873***	2.171
Constant	-173.217***	3.078	-154.396***	3.352
Pseudo-R-squared	0.1029		0.1011	
Observations	61,528		43,127	
Observations, XS=0	40,790		27,668	
Observations, XS=100	3,671		2,812	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 5a: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), food products

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	27.609***	1.039	25.097***	1.178
<i>KL</i> =capital intensity	10.681***	1.012	9.164***	1.176
<i>EA</i> =equity-asset ratio	-21.578***	3.124	-28.879***	4.544
<i>DSOE</i> =SOE dummy	-9.959	7.782	-13.857	9.359
<i>DJV</i> =JV dummy	1.140	10.319	5.491	12.220
<i>DWF</i> =WF dummy	49.415***	4.186	50.445***	5.082
Year dummies				
2011	9.292***	3.568	-	-
2012	4.433	3.509	-3.051	3.484
2013	1.135	3.628	-9.182***	3.561
Region dummies (Hanoi is the base)				
2=Red River delta	53.039***	13.050	47.182***	14.584
3=Northern midlands	83.173***	15.127	78.171***	16.882
4=Central region	53.994***	12.457	45.031***	13.806
5=Southeast region	32.027**	12.528	24.133*	13.898
6=Ho Chi Minh City	61.173***	12.690	54.589***	14.102
7=Mekong delta	38.910***	12.406	33.577**	13.763
Constant	-209.841***	14.033	-168.927***	15.663
Pseudo-R-squared	0.0514		0.0505	
Observations	4,082		2,893	
Observations, XS=0	2,086		1,420	
Observations, XS=100	219		172	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 5b: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), textiles

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	23.847***	1.162	21.721***	1.311
<i>KL</i> =capital intensity	-0.017	0.942	1.117	1.110
<i>EA</i> =equity-asset ratio	-9.899***	3.558	-11.629**	4.660
<i>DSOE</i> =SOE dummy	7.895	6.510	5.737	7.576
<i>DJV</i> =JV dummy	37.036***	8.610	33.406***	10.034
<i>DWF</i> =WF dummy	70.693***	3.736	68.555***	4.283
Year dummies				
2011	-2.794	3.826	-	-
2012	4.880	3.857	4.208	3.765
2013	6.600*	3.873	6.888*	3.764
Region dummies (Hanoi is the base)				
2=Red River delta	17.000***	5.244	15.166**	6.091
3=Northern midlands	-61.820***	13.917	-52.671***	15.101
4=Central region	18.746***	6.847	20.982***	7.902
5=Southeast region	11.719**	5.553	9.933	6.405
6=Ho Chi Minh City	-2.592	5.410	2.504	6.253
7=Mekong delta	20.409**	8.065	32.475***	9.551
Constant	-156.027***	7.857	-147.365***	8.864
Pseudo-R-squared	0.0758		0.0725	
Observations	3,822		2,708	
Observations, XS=0	2,415		1,660	
Observations, XS=100	163		117	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 5c: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), apparel

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	40.497***	1.137	35.490***	1.252
<i>KL</i> =capital intensity	6.640***	0.927	9.765***	1.051
<i>EA</i> =equity-asset ratio	-10.012***	1.983	-9.005***	2.466
<i>DSOE</i> =SOE dummy	2.652	10.662	2.157	11.971
<i>DJV</i> =JV dummy	46.165***	8.821	44.429***	10.383
<i>DWF</i> =WF dummy	52.560***	3.316	52.272***	3.750
Year dummies				
2011	10.938***	3.692	-	-
2012	4.698	3.635	0.093	3.568
2013	17.910***	3.689	5.012	3.593
Region dummies (Hanoi is the base)				
2=Red River delta	-3.388	5.023	1.313	5.718
3=Northern midlands	16.882**	7.615	20.687**	8.606
4=Central region	-26.592***	6.136	-26.794***	6.905
5=Southeast region	-4.980	5.463	-3.656	6.307
6=Ho Chi Minh City	-6.424	4.691	0.001	5.392
7=Mekong delta	-34.114***	7.484	-29.014***	8.428
Constant	-240.682***	7.946	-207.750***	8.571
Pseudo-R-squared	0.0848		0.0806	
Observations	8,663		5,985	
Observations, XS=0	4,805		3,102	
Observations, XS=100	1,326		1,019	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 5d: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), leather & footwear

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	26.263***	1.339	24.158***	1.476
<i>KL</i> =capital intensity	3.538***	1.179	5.847***	1.297
<i>EA</i> =equity-asset ratio	-2.217	1.872	-6.612**	2.972
<i>DSOE</i> =SOE dummy	27.253*	15.615	24.766	17.878
<i>DJV</i> =JV dummy	58.595***	12.269	61.227***	13.329
<i>DWF</i> =WF dummy	77.773***	4.752	72.535***	5.309
Year dummies				
2011	5.803	5.360	-	-
2012	8.548	5.366	5.666	5.249
2013	4.950	5.360	-4.131	5.143
Region dummies (Hanoi is the base)				
2=Red River delta	5.034	10.315	13.811	12.031
3=Northern midlands	-30.018	31.376	-5.658	33.848
4=Central region	-54.841***	14.880	-40.910**	16.547
5=Southeast region	-14.795	9.666	-7.107	11.182
6=Ho Chi Minh City	0.681	9.463	10.356	11.083
7=Mekong delta	-38.856***	11.125	-22.926*	12.848
Constant	-167.685***	12.497	-155.188***	14.202
Pseudo-R-squared	0.0907		0.0875	
Observations	2,722		1,914	
Observations, XS=0	1,370		901	
Observations, XS=100	415		317	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 5e: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), wood products

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	37.294***	2.014	33.434***	2.247
<i>KL</i> =capital intensity	9.419***	1.283	8.048***	1.473
<i>EA</i> =equity-asset ratio	-20.905***	6.451	-16.025**	7.443
<i>DSOE</i> =SOE dummy	-31.968***	11.304	-35.525***	13.179
<i>DJV</i> =JV dummy	111.703***	9.071	104.969***	11.438
<i>DWF</i> =WF dummy	64.651***	6.041	57.872***	6.913
Year dummies				
2011	7.150	4.977	-	-
2012	-5.303	5.068	-10.136**	5.044
2013	4.813	5.011	-1.460	4.950
Region dummies (Hanoi is the base)				
2=Red River delta	-34.525***	7.447	-35.674***	8.766
3=Northern midlands	-16.507**	8.076	-9.010	9.367
4=Central region	-25.972***	6.416	-26.374***	7.543
5=Southeast region	-13.406**	6.305	-10.467	7.360
6=Ho Chi Minh City	13.156	8.509	25.771**	10.061
7=Mekong delta	62.248***	7.976	60.940***	9.223
Constant	-222.952***	12.035	-190.741***	13.365
Pseudo-R-squared	0.0622		0.0598	
Observations	4,598		3,126	
Observations, XS=0	3,333		2,201	
Observations, XS=100	168		122	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 5f: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), paper products

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	26.404***	1.892	24.786***	2.165
<i>KL</i> =capital intensity	-4.836***	1.449	-5.309***	1.628
<i>EA</i> =equity-asset ratio	-8.844	5.724	-4.371	7.059
<i>DSOE</i> =SOE dummy	-11.124	10.021	-11.335	12.143
<i>DJV</i> =JV dummy	109.090***	18.525	109.847***	23.244
<i>DWF</i> =WF dummy	91.634***	5.201	93.028***	5.901
Year dummies				
2011	0.167	4.857	-	-
2012	7.863	4.877	2.364	4.734
2013	11.020**	5.042	10.277**	4.906
Region dummies (Hanoi is the base)				
2=Red River delta	38.925***	6.744	40.134***	8.171
3=Northern midlands	59.427***	8.819	53.998***	10.521
4=Central region	3.730	7.977	4.732	9.447
5=Southeast region	25.886***	7.059	17.308**	8.486
6=Ho Chi Minh City	19.026***	6.832	20.349**	8.341
7=Mekong delta	34.097***	8.869	32.136***	10.530
Constant	-194.103***	12.244	-181.130***	14.225
Pseudo-R-squared	0.1080		0.1066	
Observations	3,481		2,475	
Observations, XS=0	2,768		1,946	
Observations, XS=100	78		59	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 5g: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), rubber & plastics

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	21.316***	0.970	19.855***	1.080
<i>KL</i> =capital intensity	1.381*	0.839	1.792*	0.968
<i>EA</i> =equity-asset ratio	-4.608	2.915	-5.535*	3.221
<i>DSOE</i> =SOE dummy	-4.854	6.096	-0.645	6.689
<i>DJV</i> =JV dummy	66.060***	6.947	64.174***	8.317
<i>DWF</i> =WF dummy	77.117***	2.593	75.488***	3.003
Year dummies				
2011	9.622***	2.862	-	-
2012	8.634***	2.904	1.730	2.833
2013	14.051***	2.930	5.109*	2.862
Region dummies (Hanoi is the base)				
2=Red River delta	16.922***	4.264	18.970***	4.889
3=Northern midlands	20.119***	5.691	20.490***	6.408
4=Central region	15.813***	5.617	16.704***	6.467
5=Southeast region	27.538***	4.094	24.021***	4.721
6=Ho Chi Minh City	29.247***	3.789	28.757***	4.383
7=Mekong delta	17.037***	5.233	20.810***	5.879
Constant	-168.282***	6.757	-150.931***	7.471
Pseudo-R-squared	0.0922		0.0876	
Observations	5,503		3,909	
Observations, XS=0	3,324		2,263	
Observations, XS=100	236		194	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10



Appendix Table 5h: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), basic metals

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	25.905***	1.289	22.968***	1.397
<i>KL</i> =capital intensity	1.057	1.027	3.389***	1.161
<i>EA</i> =equity-asset ratio	1.691	3.272	0.112	4.018
<i>DSOE</i> =SOE dummy	-18.409***	5.540	-18.062***	5.987
<i>DJV</i> =JV dummy	72.328***	7.430	67.853***	8.642
<i>DWF</i> =WF dummy	95.768***	4.826	89.118***	5.251
Year dummies				
2011	7.302*	3.993	-	-
2012	9.080**	3.986	-0.954	3.677
2013	13.315***	4.030	2.045	3.713
Region dummies (Hanoi is the base)				
2=Red River delta	-9.787*	5.530	-6.728	6.068
3=Northern midlands	-10.818	6.603	-11.701	7.201
4=Central region	17.230***	5.674	19.438***	6.224
5=Southeast region	50.712***	5.730	50.828***	6.436
6=Ho Chi Minh City	41.801***	6.681	41.811***	7.725
7=Mekong delta	14.441**	7.244	22.047***	7.955
Constant	-241.270***	9.646	-223.117***	10.356
Pseudo-R-squared	0.0911		0.0855	
Observations	9,310		6,552	
Observations, XS=0	8,059		5,609	
Observations, XS=100	111		76	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 5i: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), metal products

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	24.476***	2.262	24.508***	2.533
<i>KL</i> =capital intensity	8.990***	1.908	8.614***	2.155
<i>EA</i> =equity-asset ratio	-16.894**	7.273	-16.038*	8.816
<i>DSOE</i> =SOE dummy	19.220**	9.032	18.094*	9.743
<i>DJV</i> =JV dummy	63.857***	10.729	56.923***	12.539
<i>DWF</i> =WF dummy	81.706***	8.008	83.099***	9.490
Year dummies				
2011	17.545**	7.099	-	-
2012	8.661	6.849	1.172	6.420
2013	16.575**	7.118	4.930	6.527
Region dummies (Hanoi is the base)				
2=Red River delta	15.860**	6.852	9.784	7.466
3=Northern midlands	-18.471	15.161	-13.560	15.600
4=Central region	-0.759	8.829	5.170	9.236
5=Southeast region	39.281***	8.530	32.265***	10.035
6=Ho Chi Minh City	48.246***	7.052	53.109***	8.045
7=Mekong delta	43.588***	10.811	39.082***	12.901
Constant	-260.287***	18.117	-240.853***	19.891
Pseudo-R-squared	0.1382		0.1394	
Observations	2,963		2,071	
Observations, XS=0	2,462		1,829	
Observations, XS=100	28		21	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 5j: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), computers & electronic machinery

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	21.489***	0.956	21.367***	1.107
<i>KL</i> =capital intensity	6.915***	0.888	8.718***	1.114
<i>EA</i> =equity-asset ratio	-7.650**	2.973	-9.090**	3.754
<i>DSOE</i> =SOE dummy	-1.502	11.115	-2.743	13.850
<i>DJV</i> =JV dummy	63.397***	5.680	61.651***	6.915
<i>DWF</i> =WF dummy	87.595***	2.892	84.454***	3.471
Year dummies				
2011	5.026	3.064	-	-
2012	2.633	3.090	2.465	3.208
2013	3.586	3.134	-1.340	3.199
Region dummies (Hanoi is the base)				
2=Red River delta	12.504***	3.952	16.333***	4.678
3=Northern midlands	-15.937**	6.902	-15.161*	7.911
4=Central region	11.025	6.827	15.197*	8.120
5=Southeast region	37.283***	3.834	36.689***	4.561
6=Ho Chi Minh City	31.954***	3.786	34.163***	4.526
7=Mekong delta	28.205***	7.869	31.335***	9.274
Constant	-206.158***	7.183	-205.549***	8.469
Pseudo-R-squared	0.1367		0.1347	
Observations	5,966		4,127	
Observations, XS=0	3,799		2,544	
Observations, XS=100	370		301	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 5k: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), electric & non-electronic machinery

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	20.040***	1.049	18.197***	1.205
<i>KL</i> =capital intensity	3.025***	1.080	3.372***	1.240
<i>EA</i> =equity-asset ratio	3.257	4.716	-3.177	5.387
<i>DSOE</i> =SOE dummy	-2.997	5.549	0.784	6.395
<i>DJV</i> =JV dummy	62.537***	6.608	62.655***	7.344
<i>DWF</i> =WF dummy	90.604***	3.276	92.416***	3.835
Year dummies				
2011	0.259	3.586	-	-
2012	1.915	3.565	1.558	3.596
2013	7.260**	3.566	6.934*	3.558
Region dummies (Hanoi is the base)				
2=Red River delta	19.101***	3.893	18.387***	4.475
3=Northern midlands	-54.373***	15.016	-44.108***	16.534
4=Central region	13.300	8.983	18.732*	9.983
5=Southeast region	23.343***	4.059	18.740***	4.748
6=Ho Chi Minh City	28.162***	3.659	29.008***	4.267
7=Mekong delta	0.210	7.085	7.617	7.972
Industry dummy				
VSIC07=28	-6.620***	2.539	-8.533***	2.952
Constant	-171.871***	8.103	-158.648***	9.398
Pseudo-R-squared	0.1345		0.1307	
Observations	3,750		2,645	
Observations, XS=0	2,436		1,669	
Observations, XS=100	190		140	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 51: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), transportation machinery

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	19.640***	1.821	16.360***	2.075
<i>KL</i> =capital intensity	0.491	1.725	1.262	1.945
<i>EA</i> =equity-asset ratio	-8.978	6.199	1.691	7.677
<i>DSOE</i> =SOE dummy	23.246***	7.711	25.042***	8.521
<i>DJV</i> =JV dummy	65.098***	10.618	62.455***	12.565
<i>DWF</i> =WF dummy	123.982***	7.543	122.312***	8.684
Year dummies				
2011	8.692	6.102	-	-
2012	15.211**	6.187	5.551	6.156
2013	19.358***	6.239	9.129	6.091
Region dummies (Hanoi is the base)				
2=Red River delta	3.623	7.593	13.026	8.588
3=Northern midlands	2.347	11.203	5.476	13.417
4=Central region	4.580	9.619	10.797	11.232
5=Southeast region	4.758	7.889	3.393	9.211
6=Ho Chi Minh City	10.843	9.796	11.126	11.322
7=Mekong delta	13.767	12.390	10.920	13.103
Industry dummy				
VSIC07=30	0.554	6.817	-1.828	7.746
Constant	-199.196***	15.646	-180.459***	18.100
Pseudo-R-squared	0.1357		0.1231	
Observations	1,481		1,001	
Observations, XS=0	949		598	
Observations, XS=100	89		70	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10

Appendix Table 5m: Tobit estimates of conditional ownership-related differences in export propensities from equation (1), furniture

Independent variable, indicator	Contemporaneous specification, 2010-2013		Lagged specification, 2011-2013	
	Coefficient	Robust standard error	Coefficient	Robust standard error
<i>L</i> =labor	27.564***	0.918	24.653***	1.033
<i>KL</i> =capital intensity	2.637***	0.851	3.597***	0.981
<i>EA</i> =equity-asset ratio	-16.239***	4.177	-17.579***	4.185
<i>DSOE</i> =SOE dummy	0.939	7.839	5.913	8.642
<i>DJV</i> =JV dummy	25.860***	6.411	26.199***	6.624
<i>DWF</i> =WF dummy	40.221***	2.662	37.229***	3.022
Year dummies				
2011	4.504	2.868	-	-
2012	0.009	2.931	-1.441	2.863
2013	4.657	2.993	-0.192	2.925
Region dummies (Hanoi is the base)				
2=Red River delta	13.073**	5.274	12.504**	5.828
3=Northern midlands	-13.518	22.087	-3.436	24.622
4=Central region	69.194***	4.162	65.497***	4.689
5=Southeast region	79.297***	3.674	78.245***	4.048
6=Ho Chi Minh City	64.355***	4.484	67.508***	5.075
7=Mekong delta	33.546***	10.330	38.058***	12.472
Constant	-206.396***	7.032	-186.569***	7.573
Pseudo-R-squared	0.0926		0.0865	
Observations	5,287		3,722	
Observations, XS=0	2,879		1,927	
Observations, XS=100	283		204	

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10