A Data Appendix

In this appendix we provide additional details on the enterprise data. Specifically, we describe (1) the sampling framework, (2) consistency of our key variables over time, (3) creation of consistent ownership codes over time, (4) steps taken to clean and prepare the data for analysis, (5) and corrections made to the panel of firms, particularly between 2000 and 2001, but also for other years. One of the contributions of our analysis is that we devoted significant effort working with the GSO to verify the matching of enterprises over time in the data.[52]

A.1 Sampling framework

We use annual data on enterprises collected by the General Statistics Office (GSO) of Vietnam for the years 2000 through 2017. The survey covers all businesses registered as an enterprise under Vietnam's Enterprise Law.[53] All state-owned, foreign-invested, and collective businesses must legally register as an enterprise, but private businesses may legally operate either as an enterprise or as a household business.[54] Private businesses must register as an enterprise if they have more than ten workers or operate in more than one location.[55] Thus, although registration as an enterprise is not required for small, private businesses, some of those businesses nonetheless register as enterprises and are included in the sample.

Starting with the survey covering the 2003 calendar year, the GSO split the population of enterprises into two groups: those that receive the full length questionnaire and those that receive a shorter questionnaire. All state enterprises, foreign enterprises, collectives and large private enterprises continued to receive the full length questionnaire. A subset of small private enterprises received the complete questionnaire and the remaining small private enterprises received the short questionnaire. The short questionnaire consistently collected information on ownership, industry, employment, and unique firm identifiers, the most important variables in our analysis.

[52] We are very thankful to Hanh Nguyen for careful translation of the Enterprise Survey Plans for surveys used in our analysis.

[53] See law No. 13-1999-QH10.

[54] Household businesses operate under a different legal framework than enterprises. For example, they are not required to follow formal accounting rules nor to provide social insurance contributions on behalf of their workers. Thus, they are usually considered as informal businesses relative to enterprises. See Malesky and Taussig (2009), McCaig and Pavcnik (2018), and McCaig and Pavcnik (2021) for further discussion on differences between enterprises and household businesses.

[55] See decrees No. 02/2000/ND-CP of 3 February 2000 and No. 109/2004/ND-CP of 2 April, which describe household business and enterprise registration requirements during our study period for private businesses.

A.2 Consistency of main variables over time

The most important variables for our analysis are employment, industry, and ownership. All questionnaires, both the full length and the short versions for listed enterprises, consistently ask about end of year employment in the enterprise. Hence, this variable is consistently asked of all enterprises in all years.

Industry: The industry of affiliation is reported using two different industry classifications, which we concord at a 4-digit level to obtain a consistent industry classification over time. For years 2000 through 2010 it is reported according to the 1993 version of the Vietnam Standard Industrial Classification (VSIC). The classification is closely based on revision 3 of the International Standard Industrial Classification (ISIC). Within manufacturing, they are identical. We use the 4-digit codes. In some surveys, it appears as though some ad hoc refinement was introduced in the codes. For example, according to both VSIC 1993 and ISIC revision 3, code 1810 is for "wearing apparel, except for fur apparel," with no disaggregation at the 4-digit level relative to the 3-digit level code 181. However, sometimes we observe disaggregation such as 1811 and 1819. In cases like these we replace the invalid codes with the correct associated 4-digit code.

From 2007 through 2017, the industry codes are based on the 2007 version of VSIC, which is based on revision 4 of ISIC. Again, within manufacturing they are identical. We convert the 4-digit 2007 VSIC codes to 4-digit 1993 VSIC codes in two steps. First, we use the official concordance from ISIC revision 4 to revision 3. Second, in instances in which one 4-digit VSIC 2007 code matches with more than one 4-digit VSIC 1993 code, we make use of the years 2007 through 2010 in which both codes are reported. We match the 4-digit VSIC 2007 code with the most commonly matched 4-digit VSIC 1993 code in these overlapping years.

Ownership: Firm ownership is described using 12 to 14 detailed ownership codes. We group these ownership codes into three broad ownership categories: state, private domestic, and foreign. The detailed ownership codes have changed slightly over time, but can consistently be aggregated into the three broad categories.[56] We consistently define *state* as encompassing central SOEs, local SOEs, state limited liability companies, and joint stock and limited liability companies with >50% state capital. We define *private domestic* as encompassing private limited liability companies, collectives, private enterprises, partnerships, joint stock companies without state capital, and joint stock and limited liability companies with ≤50% state capital. We define *foreign* as encompassing

[56] The data we received from the GSO for 2000 and 2001 reported the detailed ownership codes according to the codes and descriptions for 2000 and 2001 respectively as well as according to the codes and descriptions for 2002. We use the 2002 detailed codes and descriptions.

100% foreign owned and joint ventures with either state or domestic private firms.

A.3 Removing 2002 entrants from the 2001 data

The 2002 survey, which collected data about firm performance in 2001, also included questions about performance in the first six months of 2002. As such, the survey includes some firms that did not operate as an enterprise in 2001, but only began operating as an enterprise in the first six months of 2002.

There were originally 56,551 firms in this survey. Of these, 5,438 report 0 or missing employment at both the start and end of 2001. Most of these firms reported being established in 2002 (84.3%) or 2001 (14.1%). Note that the year of establishment is not necessarily the same as the year that the firm registered as an enterprise or began operations. We drop these firms from the 2001 dataset.

A.4 Verifying the panel

The data allows us to track enterprises over time using a unique identifier (the variable *madn*).[57] Annually, an exiting firm is defined as a firm that operated in t, but not in $t+1$. An entering firm is defined as a firm that operated in $t+1$, but did not operate in t. A continuing firm is a firm that operated in t and $t+1$. In this section, we discuss various checks we performed on the panel, further validating our definition of firm entry and exit.

Non-unique enterprise identifiers: Between 2000 and 2010, the number of non-unique enterprise identifiers within a year was small. We visually inspected all of these instances and manually changed the identifier to either a completely new identifier value or to match the value of another enterprise if applicable. From 2011 onward, the number of non-unique enterprise identifiers grew significantly and we implemented the following procedure to identify unique enterprises. First, a significant number of non-unique identifiers were due to a data entry error, whereby an entire observation was entered more than once in a given year. In these instances, we drop all but one observation per enterprise per year. Second, many of the non-unique identifiers occur in enterprises that have different taxcode ids. We therefore use the enterprise taxcode id and location information to assign a unique identifier if the enterprise is an entrant or to match the

[57] We can alternatively match enterprises using their reported taxcode (*ma_thue*), as was done in Baccini, Impullitti and Malesky (2019). We prefer *madn* because the raw variable includes fewer observations with non-unique or missing values for most years. From 2014 onward, the taxcode includes fewer observations with non-unique values and we at times use this information to improve the matching of enterprises over time. See detailed description below.

enterprise over time and thus assign the enterprise identifier used for the same enterprise in previous years. After these procedures, enterprises accounting for no more than 2 percent of manufacturing employment in any year have non-unique identifiers. We drop these observations.

2000-01 panel: We use additional confidential data from the GSO to validate the year-to-year firm matches. This only made a significant difference in the definition of entry and exit in 2000-01 panel. Initially, 67.2% of enterprises from 2000 could be matched with enterprises in 2001. In the subsequent years, the year-to-year matches increased substantially to between 81.8% and 85.4%. Before coding firm entry and exit, we used additional confidential data made available to us by the GSO to look for additional potential matches between 2000 and 2001. With this information, an additional 6,557 enterprises are matched between 2000 and 2001 using a matching algorithm based on restrictive criteria described below. This increases the percentage of 2000 enterprises matched with 2001 enterprises from 67.2 to 82.9. The importance of this procedure for the 2000-01 panel is potentially not surprising given that the GSO started collecting this data in 2000. We employed the following matching algorithm, with the number of additionally matched enterprises at each step listed in parentheses:

1. Perfectly matched based on province, district, ward, start year, ownership, and tax code (2,032),

2. Perfectly matched based on province, district, ward, start year, ownership, phone number, and owner's name (1,358),

3. Perfectly matched based on province, district, ward, ownership, phone number, and owner's name (908),

4. Perfectly matched based on province, district, ward, and phone number (957),

5. Perfectly matched based on province, district, ownership, phone number, and owner's name (217),

6. Perfectly matched based on province, district, ward, ownership, and owner's name matches within one character (1,085).

We performed this check for all enterprises, regardless of whether they are in manufacturing.

Visual inspection of entry and exit of all large manufacturing enterprises: We define enterprise entry and exit based on our ability to track an enterprise over time. However,

it is possible that an enterprise was incorrectly assigned a new identifier between two successive years even though it is a continuing enterprise. If so, this would lead to both a false instance of exit and entry. We begin with two examples.

Example #1: A centrally owned SOE in the printing industry (VSIC1993 code 2221) appears to exit after 2000. Another centrally owned SOE in the printing industry appears to enter in 2001. The firms have the same tax code (other than the additional digit all tax codes have in 2000 relative to 2001), are both located in province 101, district 9, ward 29, and have the same address and fax number. The exiting firm has 107 employees and 6138 million VND in capital at the end of 2000. The entering firm has 107 employees and 6131 million VND in capital at the start of 2001. Together, we take these similarities as strong evidence that this is the same firm and give it the same firm identifier.

Example #2: A locally owned SOE manufacturing footwear (VSIC1993 code 1920) appears to exit after 2001. A locally owned SOE in wholesale (VSIC1993 code 5190) appears to enter in 2002. The entering firm's secondary industry is footwear manufacturing, while the exiting firm's secondary industry is wholesale (VSIC1993 code 5149). The firms are both located in province 101, district 1, ward 3, and have the same listed start year, address, fax number, phone number, director, and email address. The exiting firm has 563 employees and 13282 million VND in capital at the end of 2001. The entering firm has 570 employees and 13382 million VND in capital at the start of 2002. Together, we take these similarities as strong evidence that this is the same firm and give it the same firm identifier.

We used a combination of visual inspection and algorithms to look for instances of false exit and entry as in the examples above. This procedure also ensures that SOEs that are privatized, including partial privatization, are not coded as an exit nor as an entry during the process of (partial) privatization. The following example is typical of SOEs that appear to exit due to privatization.

Example #3: A centrally owned SOE operating in industry 2912 appears to exit after 2003. A joint stock company with state capital share ¿50% in industry 2912 appears to enter in 2004. Both firms are in the same ward, have the same address, report the same start year, and report the same value of capital for end of year in 2003 and start of year in 2004. Together, these similarities suggest that this is the same firm that underwent partial privatization and give it the same firm identifier.

All manufacturing state enterprises that exited or entered between 2000 and 2010 were visu-

ally inspected. Due to the larger number of foreign and private enterprises, we prioritized visual inspection based on the largest enterprises in terms of employment. All foreign and private manufacturing enterprises with at least 1000 employees at exit were visually examined. In addition, we developed an algorithm for identifying instances of false exit and entry among smaller foreign and private enterprises using combinations of information on location, taxcode, phone number, and ownership.

Confirming existing panel enterprises: We also reviewed existing matches of enterprises over time. In particular, we visually inspected instances where the taxcode changed over time, but the identifier did not. We did this for all enterprises in manufacturing.

Summary of changes to enterprise identifiers: In conclusion, we provide a summary in Table A1 of the changes to enterprise identifiers by year, based on all the procedures discussed above. The table focuses on enterprises with manufacturing as their initial industry. We categorize observations by initial ownership as in our main sample used for analysis. In our main analysis, we drop all observations for which the identifier was non-unique after all the data cleaning steps taken. The share of enterprises with a changed firm identifier is higher among state than either private or foreign. This is due to a number of reasons. First, as there was much less entry of state enterprises, any changes due to initial matching mistakes between 2000 and 2001 will persist for a greater share of state enterprises. 32.3% of changes for state enterprises are due to initial mismatches between 2000 and 2001. Second, 21.7% of the state firm identifier changes happend when there was a change in ownership, for example due to (partial) privatization or due to change in ownership within the state sector, such as from 100% central SOE to a state limited liability company. A further 14.5% of changes were due to instances in which the taxcode of the state enterprise changed without any change in ownership. Fourth, 19.2% of the changes occurred when the enterprise was absent in the dataset for a year or more and then reappeared with a new firm identifier despite being observably the same enterprise. Lastly, 12.4% of the changes were due to other reasons.

A.5 Entry or formalization of informal private domestic firms?

In this section we provide further discussion of an important issue related to entry in our dataset, namely whether private entry is being driven by previously informal firms registering as an enterprise. It is possible that some of the private domestic entrants are simply entrants into the enterprise sector and had previously been operating not as an enterprise, but as an individual

Table A1: Share of enterprises with a changed identifier

	All owners		State		Private		Foreign	
Year	N. obs.	Changed	N. obs.	Changed	N. obs.	Changed	N. Obs.	Changed
2000	10,112	0.097	1,497	0.124	7,596	0.097	1,019	0.057
2001	11,598	0.015	1,444	0.102	8,850	0.002	1,304	0.005
2002	14,172	0.019	1,445	0.154	11,090	0.003	1,637	0.007
2003	16,153	0.022	1,391	0.206	12,835	0.004	1,927	0.010
2004	19,417	0.024	1,396	0.271	15,764	0.004	2,257	0.010
2005	22,809	0.021	1,376	0.280	18,851	0.004	2,582	0.011
2006	25,408	0.020	1,380	0.285	21,074	0.004	2,954	0.013
2007	29,265	0.019	1,412	0.286	24,427	0.004	3,426	0.015
2008	36,284	0.017	1,405	0.301	31,029	0.004	3,850	0.018
2009	42,627	0.015	1,436	0.304	36,984	0.004	4,207	0.020
2010	45,943	0.015	1,417	0.299	40,098	0.004	4,428	0.021
2011	52,438	0.014	1,426	0.307	46,096	0.004	4,916	0.022
2012	54,711	0.014	1,422	0.306	48,285	0.004	5,004	0.022
2013	56,813	0.013	1,375	0.300	50,077	0.004	5,361	0.023
2014	60,626	0.055	1,344	0.298	53,446	0.051	5,836	0.042
2015	64,846	0.055	1,349	0.300	57,175	0.050	6,322	0.044
2016	71,431	0.043	1,281	0.295	63,120	0.039	7,030	0.040
2017	79,565	0.037	1,311	0.281	70,511	0.033	7,743	0.035
Total	714,221	0.029	25,107	0.260	617,310	0.020	71,804	0.026

Notes: The sample of enterprises is those operating in manufacturing in their first year in the dataset. Ownership is based on the enterprise's reported ownership in its first year in the dataset.

business (we refer to these as informal household businesses). As discussed in section 3, not all private domestic firms are required to register to operate. Consequently, some of the entry into the enterprise sector could reflect formalization.

How much is this an issue in our data? Importantly, this does not influence the definition of entry for FDIs and SOEs because all FDIs and SOEs are required to register as an enterprise. Formalization among informal businesses in Vietnam, like in other countries, is rare. Using a panel dataset on informal businesses, McCaig and Pavcnik (2021) find only 1.5 to 2% of informal businesses formalized in the period 2006-08 to 2016-18 conditional on survival between successive surveys (two years apart). Using the same dataset, formalization among manufacturing businesses varied between 0.8 and 1.5%. To the extent that some of the private entry is driven by formalization of previously informal firms, this changes the interpretation of entry to entail newly created domestic enterprises and newly registered firms that previously operated as a non-registered (i.e. informal) business. Both of these concepts are of interest as there is a large literature in development economics that examines the determinants of formalization or creation of formal jobs.

The annual enterprise data does not provide information on whether a private domestic business previously operated as an informal business. We rely on other evidence to evaluate this option for interpretation of entry for private domestic firms.

First, Malesky and Taussig (2009) find that most newly registered private enterprises spent very little time in the informal sector. They examine the likelihood of a registered private domestic enterprise having started as an informal business using a survey conducted as part of the 2007 Provincial Competitiveness Index survey.[58] 40% of the firms report starting directly in the registered sector. While they find that around 60% of the surveyed private enterprises started as an informal business, most newly registered private enterprises that started as informal spend very little time in informality. In particular, firms established in 2000 spend on average 3 months in informality between establishment and registration, while the firms established in 2001 through 2006, spend 1 month or less.[59] Hence, this potentially reflects that these firms always planned to register, but that the process takes some time. This is not the pattern one would expect if most entry into the registered sector would reflect formalization of established informal businesses. Additional estimates are available from the 2009 and 2015 World Bank Enterprise Surveys for Vietnam. Among private manufacturing firms that registered in 2001 or later, 16% reported starting as an informal business.

Second, we examine whether the entry date for a private domestic entrant (as defined above) corresponds to the date at which a firm started operating. This gives us another indication of what share of private domestic firms start directly in the enterprise sector, as the overlap or proximity of those dates suggest that the firm started operating as a registered firm. For some of the years in the annual enterprise survey, we can compare the entry year (as computed above) to a reported start year of the firm.[60] We find that 58% of private domestic entrants report starting the same start year as the year of entry. Data inspection suggests that the GSO may in some cases miss the entry year by one year due to delays in the GSO updating its list of enterprises through communication with the tax office (i.e. the newly established firm is first being surveyed during its first full calendar year of operation instead of during the first calendar year in which it operates). One potential correction is to address entrants that report positive start of year employment in the first year that they appear in the enterprise dataset and simultaneously report starting prior to the year of entry. This data pattern may be consistent with the enterprise beginning operations

[58] This survey uses registered firms as the sampling framework.

[59] Note that this is for businesses in all sectors, not just manufacturing.

[60] Information on the start year is available in 2002, 2005, 2007-10, 2012-13, and 2017.

in the previous year. In these instances, we can take start of year employment in entry year t as an estimate of end of year employment in year $t-1$ and define year $t-1$ as the enterprise's start year. With this adjustment, 70% of private domestic enterprises report the same starting year of operation as the adjusted entry year.

Overall, this discussion suggests that most of the private domestic firms in the enterprise sector did not start as informal firms and that some of those that did were only shortly in the informal sector (1 to 3 months). This is not the pattern one would expect if most entry into the registered sector would reflect formalization of established informal businesses.

A.6 Mean and median employment entry size

In this section, we provide further details on employment entry size by ownership and make comparisons to entry employment sizes of private domestic firms from other datasets within Vietnam and from other countries.

Median entry size of private domestic enterprises was 15 in 2001 and dropped to about 5 later in the sample. Mean entry size was 45 at the start of the sample, dropping to 15 by the end. Note that these sizes are substantially smaller than entry size of FDI and SOE entrants, with median entry size of around 200 and 50, respectively.

Based on the discussion in section A.5, the private entrants may be influenced by businesses that are registering as an enterprise after initially spending time as an informal business. We check how much this might influence employment size at entry by restricting the sample of entrants to those that report the exact same start year as the first year that the enterprise first appears in the enterprise data. The mean and median employment for private entrants restricted to those that report starting in the same year as they first appear in the enterprise data is very similar.

We also provide evidence on employment at entry in private enterprises for Vietnam and Bangladesh, Cambodia, China, and Indonesia using data from the World Bank Enterprise Surveys in Table A2. The estimates show two things. First, the estimates for Vietnam are comparable to our estimates derived from the Vietnamese enterprise data, albeit larger in the WBES data. Second, the WBES estimates for Vietnam are similar to those for other nearby countries that similarly have a large number of export-oriented firms in manufacturing.

Lastly, for comparison purposes, we provide estimates of employment at entry for China and Indonesia from their firm data for private domestic firms. Estimates provided by Krisztina Kis-Katos suggest that the average employment at entry for private entrants in Indonesia's formal

Table A2: Employment at entry for private firms

Country	No. obs.	Mean	Median
Bangladesh	739	106	20
Cambodia	173	40	5
China	1255	34	11
Indonesia	687	26	8
Vietnam	1003	44	14

Note: The estimates are from various World Bank Enterprise Surveys: 2013 for Bangladesh, 2007, 2013 and 2016 for Cambodia, 2012 for China, 2015 for Indonesia, and for 2009 and 2015 for Vietnam.

manufacturing sectored varied over the period 2002 to 2014 from a low of 54 to a high of 271 workers on average. Note that the Indonesian manufacturing survey has an employment cutoff of 20 workers for inclusion in the survey. Estimates using Chinese data provided by Feicheng Wang suggest private sector manufacturing entrants had 32 workers on average (median 16) in the 2004 entry cohort covered by the 2004 economic census. Estimates from the industrial survey, which has a minimum capital threshold of 5 million RMB for inclusion, suggest mean employment at entry varied from 96 to 198 workers across the 1998 through 2007 entry cohorts.

B Appendix

B.1 Additional Background

We provide further background information including (i) Vietnam's major export markets and industries, (ii) the importance of foreign firms for exports and the intensity of exporting among exporting foreign firms, (iii) other trade policy changes during the same period as the BTA, (iv) and the Vietnamese government's reform policy on state-owned firms.

B.1.1 Overall patterns of exports

This section overviews Vietnam's major export markets and industries, in addition to further highlighting the quick ascent of the US as a key destination for Vietnam's manufacturing exports in the aftermath of the BTA. This discussion informs our choices of the falsification and specification checks to rule out spurious correlation between industry-specific BTA tariff cuts and industry-specific demand or supply shocks.

Figure B1a reports the share of Vietnam's manufacturing exports by major markets, which in total account for 74 to 84% of Vietnam's manufacturing exports from 2000 to 2017. Several interesting facts emerge. First, prior to the BTA in 2000, Vietnam's most important export markets for manufacturing were the EU, Japan, and ASEAN, accounting for 28%, 21%, and 15% of total manufacturing exports respectively.[61] The US accounted for only 5% of Vietnam's manufacturing exports in 2000. Second, after the implementation of the BTA in 2001, the US rapidly increased in importance to 24% of Vietnam's manufacturing exports by 2003, overcoming the EU in 2005 to became the leading export market for the rest of the sample period. This rise in relative importance of the US as an export destination occurred during a period of overall export expansion, as indicated in Figures B1b and B1c. Figure B1b highlights the disproportionate expansion of exports to the US in the short to medium run aftermath of the BTA, in comparison to other high-income export markets such as the EU or countries that are major source of FDI (Japan, South Korea). Figure B1c, which reports absolute exports by major destinations from 2000 to 2017, highlights the key role of the US as an export destination throughout our sample period. Third, for most of our sample period, China is substantially smaller export destination than the US, EU and Japan, especially from 2000 to 2010. China only accounted for less than 5%

[61] We use the EU15 for a consistent definition of EU countries before and after the BTA. ASEAN consists of Brunei, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Singapore, and Thailand.

of Vietnamese exports until 2010, passing 10% share in 2016, then quickly increasing its presence to the third largest export destination between 2016 and 2017.

The information on major trading partners, along with the information on the sources of FDI, informs our falsification and robustness analysis discussed in Section 4.[62] Those results show that first-order effects of the BTA on Vietnam's exports to the US are not driven by spurious correlation of industry-specific BTA tariff cuts and potential contemporaneous supply and demand shocks affecting Vietnamese industries in world markets. As we discuss in detail in section 4.2, we find no statistically significant correlation of industry-specific BTA-tariff cuts with trade flows to the EU, nor major export markets in East Asia that also serve as sources of FDI to Vietnam (Japan, South Korea, Hong Kong, and China) prior to the implementation of the agreement, nor in the immediate aftermath of the agreement (Figures 7a and 7b).[63] These results provide further evidence that our results are not driven by spurious correlation of industry-specific supply and demand shocks with BTA-induced tariff changes prior to or right after the agreement's implementation.

Our main findings on the effects of BTA-induced tariff cuts on U.S. exports are not driven by a particular industry. Figure B2 reports the share of Vietnam's manufacturing exports by two-digit industry. To begin with, in 2000, Vietnam's manufacturing exports were concentrated in food and beverages (27.0%), garments (19.2%), and footwear (18.6%). The composition of exports by industry changed between 2000 and 2017. By 2017, each of these three industries had become less important (7.7, 10.0, and 9.4% respectively) while communications equipment (e.g., smartphones), 23.5%, and machinery and equipment, 10.2%, became relatively more important. Hence, the growth in manufacturing exports during this period is not simply a story of textiles, garments, and footwear. In addition, we conduct further specification checks to rule out that our results are not driven by industry-specific demand or supply shocks in industries that accounted for a large share of employment or exports in early 2000. In particular, our estimates of the effects of the BTA on U.S. trade flow in Figure 6 are not sensitive to one-by-one exclusion of 3-digit industries. We estimate equation (1), excluding a 3-digit industry one by one and reporting the coefficients on tariff change $\beta_{t'}$ for 2006 and 2016 in Panels (a) and (b) of Figure C7 (the omitted industries on the x-axis are ordered by total Vietnam exports to the world in 2000). The reported coefficients always include the overall baseline estimate within its confidence intervals and are similar in magnitude. Same applies for our findings on the effect of BTA on FDI entry

[62] There is only limited availability of industry-level Vietnam-ASEAN bilateral trade flows prior to 2001.

[63] Taiwan, while a major source of FDI capital to Vietnam is not an important export destination. According to Vietnam Customs Handbook (2017), it accounts for 1.2% percent of exports in 2017).

(and employment share). In addition, we show that the effects of BTA-induced tariffs on exports to the U.S. are robust to industry aggregation to two-digit ISIC and disaggregation to four-digit ISIC. We estimate equation (1), at the two-digit and four-digit industry level and report the the coefficients on tariff change $\beta_{t'}$ in Panels (a) and (b) respectively in Figure C6. Tariff cuts are associated with increased exports after the implementation of the BTA at the 2- and 4-digit ISIC level, confirming the main results at the 3-digit level in Figure 6.

(a) Share

(b) Value, 2000 to 2007

(c) Value, 2000 to 2017

Figure B1: Vietnam's manufacturing exports by major market

Note: The data is from UN Comtrade and is based on Vietnam's reported exports at the 6-digit HS level. The HS data was converted to 4-digit ISIC industries using concordances from World Integrated Trade Solutions (WITS) and manufacturing is based on ISIC nomenclature.

Figure B2: Share of Vietnam's manufacturing exports by industry

Note: The data is from UN Comtrade and is based on Vietnam's reported exports at the 6-digit HS level. The HS data was converted to 4-digit ISIC industries using concordances from World Integrated Trade Solutions (WITS) and manufacturing is based on ISIC nomenclature. The reported industries are based on 2-digit ISIC revision 3. Industries are sorted by total employment in 2000 (largest on the left and smallest on the right).

B.1.2 Firm-level exports: Importance of foreign firms for exports

In this section, we provide further evidence on the importance of foreign firms for manufacturing exports in Vietnam. Foreign-invested firms have been important producers of exports and their importance has grown during our sample. According to Vietnam Customs Handbook (2017), foreign enterprises accounted for 22.9% of total exports in 2000, their share grew rapidly to 33.3% in 2004, three years after the BTA, and continued to grow to 70.9% by 2017. Our analysis below, which focuses on manufacturing exporting, consistently finds that foreign firms tend to be more engaged in exporting than SOEs and private firms, that conditional on exporting foreign firms are more intensive in exporting, and that foreign entrants are more likely to start exporting within a year of the start of their operation than private domestic firms. We also provide further evidence that the U.S. is a key export destination for foreign and private domestic firms alike.

First, foreign firms are more likely to export than SOEs or private domestic firms. Figure B3 reports the share of firms that export (by ownership category) using firm-level information from the annual enterprise surveys.[64] 65-75% of foreign firms are involved in exporting, as compared to 30% of state firms and 5-20% of private firms. The importance of export participation among foreign firms is even more pronounced when taking into account the larger size of exporters than non-exporters. In 2002, 93.3% of workers in foreign firms were in exporting firms as compared to 62.6% in private and 60.8% in state. By 2013, this had remained relative unchanged for foreign (89.7%) and state (62.3%) but had fallen considerably to 41.0% for private.

Second, conditional on exporting, foreign firms tend to be more export intensive as measured by exports as a share of firm sales. This analysis is based on the information from the 2009 Vietnam Technology and Competitiveness Survey (VTCS), which surveyed a subsample of about 7,600 firms from the annual enterprise survey.[65] Consistent with the data from the enterprise survey foreign firms are more likely to export, with 72% of foreign enterprises reported exporting, as compared to 20% of private domestic firms. Figure B4 shows that conditional on exporting, many enterprises are intensive exporters. 66% of foreign firm exporters export at least 80% of their sales, as compared to 58% of private domestic firms. When weighted by employment these

[64] The annual enterprise surveys include information on exporting in 2000, 2002, 2004, and 2010-2015. However, non-response is not uncommon. The years with the lowest non-response rates were 2002 (1.0% for foreign, 5.1% for private, and 7.6% for state) and 2013 (8.2% for foreign, 1.6% for private, and 9.6% for state).

[65] In addition to the regular enterprise questionnaire, we rely on additional questions from the VTCSs given in this additional questionnaire related to exporting and importing. The survey included 5,925 private and 1,714 foreign enterprises in manufacturing. These enterprises employed about 43% of all workers in private domestic manufacturing and 48% of all workers in foreign manufacturing. The enterprises included in the VTCS were larger on average than those that were not.

Figure B3: Share of firms that export

Note: We assume that firms that do not respond to the question about exporting are non-exporters. This may lead to an underestimate of the number of firms engaged in exporting. The years with the highest share of firms responding to the export participation questions are 2002, 2004, 2013, and 2015.

increase to 80% and 67% for foreign and private domestic enterprises respectively.

(a) Unweighted (b) Employment weighted

Figure B4: Share of enterprises by export to sales ratio, 2009

Note: The data is from the 2010 Vietnam Technology and Competitiveness Survey which was done in conjunction with the 2010 Vietnam enterprise survey and collected information for the 2009 calendar year. The category 80% or more includes firms in the other two categories and the category 90% or more includes firms in the 95% or more category.

Third, foreign exporters are much more likely to start exporting in the first year of their operation (and within one year of starting) than private domestic firms. To the extent that firms entered a market with the goal of exporting, one would expect them to start exporting soon after they start operating. The VTCS asks when did the enterprise begin exporting to its current top three export destinations. Hence, if the enterprise originally started exporting to a different

country than is in its current top three markets, we will not observe that start year. To overcome this issue, we focus on enterprises that reported starting operations in 2001 or later and report the share of exporters that starting exporting in the same year as their start year, within one year, and within two years. Figure B5 shows the results. Among foreign exporters, almost 60% were exporting in their first year of operation. This increases to 66% when weighting by employment. For private exporters, in contrast, a much lower share of enterprises were born with exporting, only 35 and 39% without and with weighting. Within one year of starting, over 85% of foreign exporters were exporting or 91% when weighted by employment. Hence, a very large share of these exporting enterprises, particularly foreign, began exporting very quickly.

(a) Unweighted (b) Employment weighted

Figure B5: Year that exporting starts relative to start year

Note: The data is from the 2010 Vietnam Technology and Competitiveness Survey which was done in conjunction with the 2010 Vietnam enterprise survey and collected information for the 2009 calendar year. The category within 2 years includes firms in the other two categories and the category within 1 year includes firms in the same year category.

Finally, the survey confirms that the U.S. is a key export destination for foreign and private domestic firms. The VTCS asked exporters about their primary and secondary export market. 23% of foreign firms that export and 24% of private domestic firms that export list the US as either their primary or secondary export market. The importance of the U.S. as an export destination increases when weighted by employment, with 41% of workers in foreign firms and 38% of workers in private domestic firms that export working in a firm that reports the U.S. as a primary or second export market.

In summary, this analysis highlights that while the U.S. is a key export destination for foreign and private domestic exporters, foreign firms are more likely to export than private firms and foreign firms are exporting more intensively and begin exporting more immediately upon the start of the operations than private domestic firms. This highlights the importance of foreign firms for

exporting in Vietnam.

B.1.3 Other significant changes in trade policy

In Section 4, we establish that industry-specific BTA tariff reductions are not correlated with pre-existing trends in trade flows and likely do not reflect spurious correlation with other industry demand or supply factors. Given the long period covered in our analysis after the implementation of the BTA, we briefly discuss some of the other changes in trade policy that occurred after the implementation of the BTA. We focus on episodes of export liberalization involving Vietnam's most important trading partners and Vietnam's import tariff changes. The analysis and discussion below highlights that the U.S. specific BTA tariff changes are substantially larger than tariff changes in other agreements (i.e. averaging a 30 percentage point drop in tariffs in a key export destination in one year relative to at most a 17 percentage point average import tariff decline in these trade agreements). Most importantly, while factors such as "future" trade policy changes can influence outcomes of interest, they would only potentially affect our results if they are spuriously correlated with industry-specific BTA tariff changes. The analysis below shows that industry-specific BTA changes are not correlated with "future" tariff changes with other trade partners. Importantly, our empirical work examines the cumulative annual effects of the U.S. tariff cuts with annual data covering a long period rather than simply relying on data at the start and end of our period, a period during which multiple agreements take place. To the extent that these agreements would be driving our results, we would expect them to influence the estimated coefficients at the time that these agreements come into effect. However, the magnitude of the effects of the BTA on U.S. exports is relatively large in the short to medium run aftermath of the BTA implementation, levels off thereafter, and we do not observe discrete increases in the magnitude of the coefficients when the other agreements are implemented.

Changes in foreign market access: Figure B6 displays the average manufacturing tariffs faced by Vietnamese exports to the EU, Japan, and China, three of its other (potential) major export markets during this period. The tariffs applied by the EU and Japan were low throughout this period. In contrast, China's tariffs applied against Vietnam fell due to a combination of reductions in its MFN tariffs following WTO accession and reductions negotiated as part of the ASEAN-China trade agreement.[66] As discussed in B.1.1, China's share accounted for less than 5% of Vietnam's exports up to 2010. Most importantly, Figure B7 demonstrates that Chinese tariff

[66]The agreement came into force in July 2005.

reductions on Vietnam's exports between 2000 and 2011 are not significantly correlated with the US BTA tariff reductions, with a partial correlation of 0.060 (standard error 0.079).

Figure B6: Average manufacturing tariff applied against Vietnam

Note: The average is a simple average over industry tariffs reported by 4-digit ISIC revision 3 industries. The industry tariffs were sourced from the World Integrated Trade Solution database and are themselves simple averages of the effectively applied HS product tariffs.

Figure B7: Reductions in Chinese tariffs against Vietnam versus US tariff reductions

Note: The data for Chinese tariffs is from World Integrated Trade Solutions. They were converted from 6-digit HS to 4-digit ISIC revision 3 industries using concordances from WITS. Each 4-digit industry tariff is a weighted average of 6-digit HS tariffs where the weights are total Chinese imports by 6-digit HS product. The change in Chinese tariffs applied against Vietnam is calculated as China's MFN tariff in 2000 minus China's tariffs applied against ASEAN members in 2011. The US tariff reduction is calculated as the Column 2 tariff minus the MFN tariff in 2001.

As Figure B6 shows, there was no significant change in the overall trade policy structure that Vietnam faced when exporting to the EU during this period. However, Vietnam's two largest export industries to the EU, footwear and clothing, faced anti-dumping duties and quantitative

quotas, respectively. From 2006 through 2011, the EU applied a 10% anti-dumping duty on footwear with leather uppers. For clothing and textiles, from 1 January 1993 through to 31 December 2004, Vietnamese exports to the EU were subject to quantitative restrictions. These quantitative restrictions were removed as of 1 January 2005 due to the 2004 bilateral agreement between Vietnam and the EU as part of Vietnam's WTO accession negotiations.[67] As discussed and indicated in Panels (a) and (b) of Figure C7 our main findings are quantitatively similar when we exclude the industries most heavily affected by changes in EU trade policy.

Domestic import tariff liberalization: Figure B8 shows the average manufacturing import tariff applied by Vietnam to ASEAN members, China, Japan, and the overall MFN tariff rate. To begin with, these are tariffs that influence imports arriving to Vietnam rather than export market access. With the exception of import tariff reductions against ASEAN members, import tariff declines occur after 2006, several years after negotiation and implementation of the BTA. For example, WTO mandated import tariff reductions begin in 2007 and are largely completed by 2013. Liberalization with China begins in 2007 and extends to about 2015. Tariffs on imports from Japan start to fall relative to MFN rates in 2012.[68]

These additional agreements would potentially confound the effect of the BTA only if they were correlated with BTA-induced industry tariff cuts. This is not the case. Figure B9 shows Vietnam's various import tariff reductions against the BTA-mandated US tariff reductions. The US tariff reductions are not correlated with the changes in Vietnam's import tariffs during this time. The partial correlations are small in magnitude and statistically insignificant. They are 0.04 for Vietnam's MFN import tariff changes between 2013 and 2006, 0.05 for changes in import tariffs with ASEAN (2006-2001), 0.17 for import tariff changes against China as part of ASEAN (2015-2006), and 0.07 for import tariff changes facing Japan (2017-2012).

[67] The product categories covered by the export restrictions included yarns; woven fabrics; knitted or crocheted fabrics; knitted or crocheted clothing and clothing accessories; clothing and clothing accessories, not knitted or crocheted; and other made-up textile goods.

[68] Vietnam became a member of ASEAN in July 1995. As part of ASEAN's Common Effective Preferential Tariff scheme for the ASEAN Free Trade Area, Vietnam began reducing tariffs applied to ASEAN members. As a member of ASEAN, Vietnam became a member of two subsequent trade agreements between ASEAN and China and ASEAN and Japan. ASEAN also signed important trade agreements with India and South Korea. However, we focus the discussion on Vietnam's most important trading partners.

Figure B8: Vietnam's average manufacturing tariff

Note: The average is a simple average over industry tariffs reported by 4-digit ISIC revision 3 industries. The industry tariffs were sourced from World Integrated Trade Solution database and are themselves simple averages of the effectively applied HS product tariffs.

(a) MFN

(b) ASEAN

(c) China

(d) Japan

Figure B9: Vietnam's tariff reductions for various trade partners versus BTA-mandated US tariff reductions

Note: The data for Vietnam's tariffs is from World Integrated Trade Solutions. They are effectively applied rates by trading partner by 4-digit ISIC revision 3 industry. The change in Vietnam's tariffs applied against each trading partner is calculated as the tariff in the earlier year minus the tariff in the later year. The US tariff reduction is calculated as the Column 2 tariff minus the MFN tariff in 2001.

B.1.4 State-owned enterprises prior to the BTA

This section briefly summarizes reforms of SOEs prior to the BTA. It highlights that these reforms were not systematically industry-specific and thus unlikely spuriously correlated with the industry-specific BTA induced tariff cuts, which occurred by a move of Vietnam between two pre-existing U.S. tariff schedules.

The SOE reforms were initiated by *Doi Moi* in 1986 and their pace has been gradual. Reforms throughout the late 1980s and 1990s were centred around improving the incentives faced by SOEs. These included the introduction of a profit-based accounting system, shifting from a quantity to profit targets, providing managers with greater autonomy over inputs and prices, the elimination of direct subsidies, allowing SOEs to form joint ventures, and removing restrictions on importing and exporting rights (Van Arkadie and Mallon, 2004). In addition, in the early 1990s, many locally owned, small SOEs were rapidly liquidated or merged, followed by little such activity for the rest of the 1990s. Despite the reforms, liquidations, and mergers in the 1990s, remaining SOEs were less efficient than non-state enterprises and a process of equitization, divestment, and mergers and acquisitions picked up paced in the early 2000s (Mishra, 2011).

Table B1 reports the number of manufacturing SOEs operating in Vietnam in several years prior to the BTA.[69] The number of SOEs within manufacturing fell slowly, with the decline largely due to a reduction in the number of local SOEs and the number of central SOEs remained essentially unchanged.[70]

Our empirical analysis, which examines the effects of trade policy on the SOEs, takes place in a setting that starts off with a larger SOE share of manufacturing employment than in related work on international trade and politically connected firms (see Khandelwal, Schott and Wei (2013), Brandt et al. (2017), Baccini, Impullitti and Malesky (2019)). The SOEs account for 45% of formal manufacturing employment at the start of our sample, as compared to 12.5 to 24% in related work. At that time, SOEs operated across almost all 4-digit industries, as shown in panel (b) of Figure C4, which depicts the share of SOE employment in an industry against the industry-specific BTA tariff cut. Importantly, as discussed in section 2.1, we find no statistically significant relationship between pre-BTA industry employment share of SOEs and industry-specific tariff cuts. The lack

[69] The data reported in Table B1 comes from a series of annual statistical yearbooks published by the General Statistical Office of Vietnam. The yearbooks contain some outcomes of interest at the 2-digit industry level , which we have digitized and use in pre-BTA analysis.

[70] Vietnam has two broad categories of SOEs, those owned by the national or central government and those owned by local (typically provincial) governments.

of correlation is not surprising given that, while military leaders, a strong force in Vietnamese politics, were opposed to the BTA, fearing the consequences for the military's commercial interests in telecommunications and other sectors largely outside manufacturing (Manyin, 2001), they could not have influenced industry-specific tariff cuts within manufacturing. The tariff cuts reflect tariff changes due to the U.S. moving Vietnam from one pre-existing tariff schedule to another.

Table B1: Number of manufacturing enterprises, 1997 to 2001

Ownership	1997	1998	1999	2000	2001
Foreign	654	865	940	1048	1425
SOEs	1645	1619	1581	1429	1340
Central SOEs	506	520	523	483	505
Local SOEs	1139	1099	1058	916	835

Source: Various annual statistical yearbooks produced by the General Statistical Office of Vietnam

B.2 Pre-BTA Industry Trends and BTA tariff cuts

In this section we examine whether BTA-tariff cuts are spuriously correlated with industry trends prior to the implementation of the BTA. The annual enterprise surveys, which we use in our main analysis, become available in 2000. Consequently, our pre-trend analysis relies on industry-level (and industry-firm ownership) data at the 2-digit industry level collected from a series of annual statistical yearbooks published by the General Statistics Office of Vietnam (2006) and summary tables from the 1998 Industrial Census provided by the GSO.[71] Our analysis consistently shows that industry-level trends and industry-ownership trends leading up to the implementation of the BTA were not correlated with the subsequent US tariff reductions.

B.2.1 Industry employment changes prior to the BTA and BTA tariff cuts

We first examine whether changes in industry employment prior to the BTA are related to the subsequent US tariff reductions. Information on employment by 2-digit manufacturing industry is available starting in 1995 from a series of annual statistical yearbooks published by the GSO which we digitized. In Figure B10 we plot the change in ln employment within an industry (calculated as ln employment in 2000 - ln employment in year t) versus the U.S. tariff reduction (calculated the same way as in the main text). We provide a line of best fit and weight the line of best fit using industry employment in 2000, as we do in our main specifications. The bubble size represents the

[71] The micro data from the 1998 Industrial Census is not available.

relative weight of the industry. All five scatterplots demonstrate that the U.S. tariff reductions explain little of the variation in change in industry employment prior to the BTA and that the partial correlation is very close to 0.

For comparison purposes, we perform the same analysis at the two-digit industry level between 2000 and year t for years 2001 through 2004. Figure B11 shows that after the BTA, bigger tariff cuts are positively associated with changes in industry employment and the US tariff reductions becoming increasingly positively related as time passes. These results at the 2-digit level are consistent with the evidence on the relationship between tariffs and industry employment at the 4-digit level in the main text in panel (b) of Figure 8.

(a) 1995 to 2000

(b) 1996 to 2000

(c) 1997 to 2000

(d) 1998 to 2000

(e) 1999 to 2000

Figure B10: Change in industry employment prior to the BTA and BTA tariff cuts

Note: The data on industry employment comes from various statistical yearbooks produced by the GSO and are available by 2-digit industry. The change in ln employment is calculated as ln employment in 2000 minus ln employment in the indicated year. The U.S. tariff reduction is calculated as ln(1+Column 2) - ln(1+MFN). The line of best fit is weighted by industry employment in 2000.

(a) 2000 to 2001

(b) 2000 to 2002

(c) 2000 to 2003

(d) 2000 to 2004

Figure B11: Change in industry employment immediately after the BTA and BTA tariff cuts

Note: The data on industry employment comes from various statistical yearbooks produced by the GSO and are available by 2-digit industry. The change in ln employment is calculated as ln employment in the indicated year minus ln employment in 2000. The U.S. tariff reduction is calculated as ln(1+Column 2) - ln(1+MFN). The line of best fit is weighted by industry employment in 2000.

B.2.2 Industry employment changes by ownership prior to the BTA

We next examine whether changes in industry employment by ownership prior to the BTA are related to the subsequent US tariff reductions. Industry level employment data disaggregated by firm ownership types is only available in 1998. This data is based on tables published from the 1998 Industrial Census and provided to us by the GSO. The ownership data is reported by three broad categories: state, private, and foreign.[72] We combine this data from 1998 with industry employment estimates from the firm data in 2000.

We begin the analysis by looking at changes in ln employment between 1998 and 2000 for each ownership. Figure B12 shows the results for state, private, and foreign. We see little evidence that the changes in ln employment between 1998 and 2000 are related to subsequent BTA tariff reductions for state and private. For employment in foreign, we find a statistically significant but negative relationship—the opposite direction of our results report post-BTA in section 4. This suggests that our post-BTA results for growth in employment in foreign may be an underestimate given the negative relationship between 1998 and 2000.

We also examine the changes in employment shares within industry by ownership, as in section 5. We plot the change in the within-industry employment share between 1998 and 2000 relative to the subsequent US tariff reduction. The within-industry employment share is calculated as employment in ownership o divided by total employment in the industry. The change is calculated as the 2000 share minus the 1998 share. The results, shown in Figure B13, consistently show no relationship between the US tariff reductions and changes in the within-industry ownership employment shares.

[72] These definitions match up very well with the ownership definitions from the annual enterprise survey we use in our main analysis. The only difference is that all joint stock companies, regardless of the state's ownership share, were defined as private for the purposes of these tables. Employment in joint stock companies represented only 2% of total employment in formal manufacturing in 1998. Hence, our in inability to disaggregate joint stock companies by the state's ownership share is not likely to be very important. To be consistent in the definition of ownership across the two data sources, we employment the same broad ownership categories as in the 1998 Industrial Census.

(a) State

(b) Private

(c) Foreign

Figure B12: Change in industry employment by ownership prior to the BTA and BTA tariff reductions

Note: The data on industry employment by ownership in 1998 comes from tables produced by the GSO from the 1998 Industrial Census and are available by 2-digit industry. Industry employment in 2000 is calculated from the 2000 enterprise survey. The vertical axis displays the change in ln employment for the indicated ownership which is calculated as ln employment in 2000 minus ln employment in 1998. The U.S. tariff reduction is calculated as ln(1+Column 2) - ln(1+MFN). The line of best fit is weighted by industry employment in 2000.

(a) State

(b) Private

(c) Foreign

Figure B13: Change in within-industry employment shares by ownership prior to the BTA (2000-1998) and BTA tariff reductions

Note: The data on industry employment by ownership in 1998 comes from tables produced by the GSO from the 1998 Industrial Census and are available by 2-digit industry. Industry employment in 2000 is calculated from the 2000 enterprise survey. The vertical axis displays the change in the within-industry employment share of the indicated ownership which is calculated as the ratio of employment in ownership o in industry j to total employment in industry j in 2000 minus the similar ratio for 1998. The U.S. tariff reduction is calculated as ln(1+Column 2) - ln(1+MFN). The line of best fit is weighted by industry employment in 2000.

B.3 Robustness to alternative firm entry year

Our main definition of entry is consistent with the usual definition of entry in firm-level data sets (i.e. based on the panel nature of the data rather than a reported start date, which is less commonly available).

For some years of our data, the survey also reports the start of operations for a firm. As noted in Section A.5, there are some discrepancies in the reported start year and the first year the enterprise appears in the data. The discrepancy may be due to a number of issues. First, as discussed previously, for private enterprises it may be due to starting in the informal sector and then subsequently transitioning to the enterprise sector. However, this explanation is unique to private enterprise as both state and foreign firms are required to be registered as an enterprise. Hence, this explanation cannot explain why foreign and, in particular, state enterprises report a start year prior to appearing in the dataset. Second, it may be due to delays in the GSO updating its list of enterprises through communication with the tax office. Third, it may be due to confusion over how to respond to the question. This could apply in instances where an establishment decision or registration certificate was obtained prior to starting operations. Or it could be due to changes in ownership, most commonly privatization, within the enterprise over time.

Given that we are examining the cumulative effects of a policy that occurred at one point in time, it is unlikely that our results would be particularly sensitive to small changes in entry year. In addition, the above measurement error would need to be industry-specific and correlated with the tariff cuts. Nonetheless, we consider robustness of our main results reported in Figures 14, 15a, and 15b in section 5 to two alternative definitions of entry.

First, we use an adjusted year of entry in the following way. For some entrants, they report both positive start of year employment in the first year they appear in the dataset and they report a start year prior to the first year they appear in the dataset. For these enterprises that first appear in the dataset in year t we redefine their entry year as $t-1$ and use start of year employment in year t as an estimate of end of year employment in year $t-1$. We then replicate the main results from section 5 using this dataset with adjusted years of entry and estimated end of year employment in the adjusted entry year. The results are shown in Figure B14 and are extremely similar to our main results.

(a) Foreign

(b) State

(c) Private

Figure B14: Change in within-industry employment shares by ownership post BTA using adjusted year of entry

Note: Each point reflects an individual regression coefficient, β_{ost}, following equation (2). The base year is 2000 and the observations are weighted by 2000 employment. Controls include the change in Vietnam's MFN tariffs due to WTO accession, the change in ln Chinese exports to the US in year t relative to 2000, and industry measures of US import quotas applied to Vietnamese and Chinese exports of textiles and clothing. For entrants that report positive employment at the start of the year in the first year we observe them in the dataset, we assign their start year as being one year earlier and their end of year employment in that year as equal to their start of year employment in the following year.

A second approach is to take the minimum reported start year as the actual entry year (i.e., assume there is no reporting error in the minimum reported start year). Since we do not observe employment for the enterprise prior to the year it enters the dataset, we use end of year employment in its first year in the dataset as an estimate for end of year employment for all years between measured entry and assumed entry based on the minimum reported start year. The results are shown in Figure B15 and they again are very similar to our main results.

(a) Foreign

(b) State

(c) Private

Figure B15: Change in within-industry employment shares by ownership post BTA using adjusted year of entry based on minimum reported start year

Note: Each point reflects an individual regression coefficient, β_{ost}, following equation (2). The base year is 2000 and the observations are weighted by 2000 employment. Controls include the change in Vietnam's MFN tariffs due to WTO accession, the change in ln Chinese exports to the US in year t relative to 2000, and industry measures of US import quotas applied to Vietnamese and Chinese exports of textiles and clothing. We record each firm's start year as the minimum reported start year across all years that the firm appears in the dataset.

B.4 Pooled Regression Results

All specifications in the main text estimate year-by-year cumulative effects of the tariff declines, allowing the coefficients on tariffs to differ every year. In this subsection, we investigate the relationship between the U.S. tariff reductions and industry-level outcomes with specifications that pool some of the regression coefficients. In particular, we begin by estimating the following pooled regression model:

$$Y_{jt} = \Phi_1 \Delta BTA_j \mathbb{1}_{t=[2001,2008]} + \Phi_2 \Delta BTA_j \mathbb{1}_{t=[2009,2017]} + \lambda_j + \theta_t + \alpha_t C_{jt} + \varepsilon_{jt} \tag{3}$$

where Y_{jt} is industry j's outcome in year t (e.g., ln firm count, ln employment, and ln revenue), ΔBTA_j is the decrease in log US tariff applied to imports from Vietnam in industry j before and after the BTA, indicator $\mathbb{1}_{t=(2001,2008)}$ equals one for years 2001-2008, indicator $\mathbb{1}_{t=(2009,2017)}$ equals one for years 2009-2017, λ_j is industry fixed effects, and θ_t is year fixed effects. C_{jt} are industry-specific controls for other trade policy changes and include US import quotas applied to clothing and textile imports from Vietnam and China respectively, Vietnam's MFN tariffs due to its WTO accession, and China-US exports in year t. BTA implementation year is 2001 and pre-BTA years 1999-2000 are the base years for the outcome changes. As such, the parameters of interest, Φ_1 and Φ_2, estimate the impact of U.S. tariff reductions on the outcome variable for years 2001-2008 and 2009-2017, respectively, relative to the base years.

We begin by examining ln firm count, ln employment, and ln revenue for all ownership types, as reported in Table B2. We follow our analysis in the main text and conduct this analysis at the 4-digit industry level and all standard errors are clustered at the 4-digit industry level. First, we find that U.S. tariff reductions are associated with an increase in industry firm counts, employment, and revenue in years 2001-2008 relative to the base years. Second, the magnitude of these increases grows in the longer term from 2009-2017. This growth is consistent with our year-by-year results as well as traditional theories of international trade that predict the expansion of industry size in response to new exporting opportunities.

As is the case in the main analysis in Section 4, we find important differences in the response of industry outcomes when we focus on different ownership types. We estimate a version of equation (3) for each of the three ownership types o where $o \in \{FDI, SOE, PRI\}$:

$$Y_{jot} = \Phi_{1o} \Delta BTA_j \mathbb{1}_{t=(2001,2008)} + \Phi_{2o} \Delta BTA_j \mathbb{1}_{t=(2009,2017)} + \lambda_{jo} + \theta_{ot} + \alpha_{ot} C_{jt} + \varepsilon_{jot} \tag{4}$$

here Y_{jot} is the outcome for ownership type o in industry j at year t, ΔBTA_j is the change in

Table B2: Pooled regression at the industry level, 1999-2017

	(1) Firm Count	(2) Employment	(3) Revenue
Tariff Cuts × 2001-2008	1.299**	1.079***	1.271***
	(0.548)	(0.304)	(0.339)
Tariff Cuts × 2009-2017	2.401***	2.327***	1.967***
	(0.910)	(0.544)	(0.559)
Observations	2087	2087	2087
R-squared	0.97	0.98	0.98

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Following equation (3), the first row reflects the regression coefficient $\hat{\Phi}_1$ while the second row reflects the regression coefficient $\hat{\Phi}_2$. All regressions include year fixed effects and industry fixed effects. Standard errors clustered at the 4-digit industry level. Weighted by year 2000 employment.

log US tariff applied to imports from Vietnam in industry j before and after the BTA, indicator $\mathbb{1}_{t=(2001,2008)}$ equals one for years 2001-2008, indicator $\mathbb{1}_{t=(2009,2017)}$ equals one years 2009-2017, λ_{jo} is industry and ownership fixed effects, and θ_{ot} is year and ownership fixed effects. The inclusion of ownership-year fixed effects controls for any firm-type-specific secular trends or government policies that might also contribute to the declining presence of SOEs and increases in PRI and FDIs. C_{jt} are industry-specific controls for other trade policy changes and include US import quotas applied to clothing and textile imports from Vietnam and China respectively, Vietnam's MFN tariffs due to its WTO accession, and China-US exports in year t. Similar to the previous specification, BTA implementation year is 2001 and pre-BTA years 1999-2000 are the base years for outcome changes. Hence, the coefficients $\Phi_{1o'}$ and $\Phi_{2o'}$ capture the BTA impact on outcomes for ownership o' during years 2001-2008 and 2009-2017 respectively relative to base years.

In Table B3 we report estimates of differential effects of the BTA across ownership types. Similar to the previous specification, in the years immediately after the BTA, foreign firms are significantly expanding in firm count and employment relative to the base year, 2000 (first and second panels, Column (1), Table B3). Foreign revenue is positively increasing but is noisy (third panel, Column (1), Table B3). In the subsequent period, FDI firms numbers, employment, and revenue continue to increase and are larger in magnitude. In the years immediately after the BTA, State firms experience a small but insignificant decline in numbers with increases in employment and revenue (Column (3) across all three panels, Table B3). In subsequent years, SOE firms count, employment, and revenue experience positive growth but the coefficients are insignificant. PRI firms numbers are expanding in response to the U.S. tariff reductions initially and experiences a larger and statistically significant increase subsequently. However, its employment growth is noisy

as is its revenue outcomes.

Table B3: Pooled regression by ownership-type, 1999-2017

Firm Count	(1) Foreign	(2) Private	(3) State
Tariff Cuts × 2001-2008	1.171***	1.431*	0.00447
	(0.390)	(0.795)	(0.134)
Tariff Cuts × 2009-2017	2.033***	2.469**	0.307
	(0.570)	(1.171)	(0.272)
Observations	1953	2062	1850
R-squared	0.98	0.97	0.99

Employment	(1) Foreign	(2) Private	(3) State
Tariff Cuts × 2001-2008	1.295**	0.212	0.331
	(0.546)	(0.569)	(0.259)
Tariff Cuts × 2009-2017	2.353***	0.755	1.024*
	(0.827)	(0.916)	(0.550)
Observations	1953	2062	1850
R-squared	0.98	0.98	0.98

Revenue	(1) Foreign	(2) Private	(3) State
Tariff Cuts × 2001-2008	0.625	0.273	0.955**
	(0.984)	(0.581)	(0.428)
Tariff Cuts × 2009-2017	1.669	-0.206	1.443**
	(1.149)	(0.916)	(0.688)
Observations	1951	2059	1850
R-squared	0.96	0.96	0.94

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Following equation (4), the first row reflects the regression coefficient $\hat{\Phi}_{1o}$ while the second row reflects the regression coefficient $\hat{\Phi}_{2o}$ for each ownership type o labelled in each column (Foreign, Private, and State). All regressions include year and ownership fixed effects, and industry and ownership fixed effects. Standard errors clustered at the 4-digit industry level. Weighted by year 2000 employment.

Finally, we estimate the pooled impact of the U.S. tariff reductions on changes in within-industry reallocation based on regression model (2). We pool all employment share changes relative to 2000 and interact the U.S. tariff reductions with two time periods, 2001 to 2008 and 2009 to 2017. Table B4 estimates the reallocation of employment in response to the BTA across continuers, exiters, and entrants relative to year 2000. In the years immediately after the BTA, we find that industries with higher cuts in U.S. tariffs experience a significant increase in the the employment share of entering firms relative to lower tariff cut industries. The employment shares

of continuing and exiting firms decline instead but are noisy. In subsequent years, the employment share of entrants continue to increase significantly while the shares of continuers and exiters also decrease but are noisy.

Table B4: Pooled employment share decomposition regressions, all owners

	(1) Continuers	(2) Entrants	(3) Exiters
Tariff Cuts × 2001-08	-0.289**	0.312**	-0.0227
	(0.116)	(0.146)	(0.0776)
Tariff Cuts × 2009-17	-0.357**	0.422**	-0.0645
	(0.168)	(0.208)	(0.126)
Observations	1954	1954	1954

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. We estimate a pooled version of equation (2) where we interact the US tariff reductions with two time periods, 2001 to 2008 and 2009 to 2017. All regressions include year fixed effects, the change in Vietnam's MFN tariffs due to WTO accession interacted with year fixed effects, the change in ln Chinese exports to the US in year t relative to 2000, and industry measures of US import quotas applied to Vietnamese and Chinese exports of textiles and clothing interacted with year fixed effects. Standard errors are clustered at the 4-digit industry level. Weighted by year 2000 employment.

Table B5 examines the tariff-induced employment share for foreign firms. Column (1) shows increases in the employment share of all foreign firms in industries with higher tariff cuts, initially and in subsequent years although the estimates are noisy. Columns (2) to (4) examine the responses of the employment share of foreign continuers, entrants, and exiters respectively to the BTA tariff cuts. We find that this overall increase in the foreign employment share is driven by a significant increase in foreign entrant employment share, initially and subsequently after the BTA (Column (3)). Foreign exiters are also significantly decreasing in employment share initially and subsequently (Column (4)). The employment share shift away from continuers was initially after the BTA, but subsequent decreases are statistically significant (Column (2)).

We further decompose the post-entry growth of foreign entrants into the change in employment share due to initial employment at entry and due to subsequent changes to employment after entry. Initially after the BTA, initial entry is more important than subsequent growth (columns (5) and (6) respectively, Table B5). However in subsequent years, more than half of the effect is driven by subsequent growth from foreign entrants (Column (6)).

Table B6 examines the tariff-induced employment share change for state firms. Column (1) shows a relative increase in the employment share of all state firms in higher tariff cut industries initially and in subsequent years although the estimate is noisy. Columns (2) to (4) examine the tariff cut responses of the employment share of SOE continuers, entrants, and exiters respectively. Immediately after the policy, we find a significant decrease in the employment share of entrants and increase in share of exiters in higher cut industries. Continuer shares increase but is noisy.

Table B5: Pooled employment share decomposition regressions, foreign

	(1) All	(2) Continuers	(3) Entrants	(4) Exiters	(5) Entr-Init	(6) Entr-Chan
Tariff Cuts × 2001-08	0.171**	-0.139**	0.320***	-0.0111	0.191***	0.129***
	(0.0855)	(0.0544)	(0.0861)	(0.0191)	(0.0479)	(0.0471)
Tariff Cuts × 2009-17	0.303*	-0.324***	0.693***	-0.0673	0.339***	0.358***
	(0.160)	(0.0798)	(0.197)	(0.0535)	(0.0913)	(0.119)
Observations	1954	1954	1954	1954	1954	1954

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. We estimate a pooled version of equation (2) where we interact the US tariff reductions with two time periods, 2001 to 2008 and 2009 to 2017. All regressions include year fixed effects, the change in Vietnam's MFN tariffs due to WTO accession interacted with year fixed effects, the change in ln Chinese exports to the US in year t relative to 2000, and industry measures of US import quotas applied to Vietnamese and Chinese exports of textiles and clothing interacted with year fixed effects. Standard errors are clustered at the 4-digit industry level. Weighted by year 2000 employment.

In subsequent years, exiters continue to see a significant share increase in higher cut industries. Entrant shares continue to decrease while continuer share increases but are noisy. Given that SOE dynamics are driven by firm exit (state firm employment is decreasing over this period), we find delayed state employment share responses in industries with higher tariff cuts. SOE entrants are entering slower in higher cut industries relative to less affected industries, while SOE exits are increasing in the opposite industries—with lower tariff cuts.

Table B7 examines the tariff-induced employment share for private firms. Column (1) shows significant decreases in the employment share of all private firms in industries with higher tariff cut, initially and in subsequent years. Columns (2) to (4) examine the responses of the employment share of private continuers, entrants, and exiters respectively to the BTA tariff cuts. The overall decrease in private employment shares is driven by a significant decrease in continuers, initially after the BTA and subsequently (Column (2)). The employment share of private exiters is also significantly decreasing immediately after the BTA while its subsequent decrease is noisy. The private entrant share is imprecisely estimated.

Table B6: Pooled employment share decomposition regressions, state

	(1) All	(2) Continuers	(3) Entrants	(4) Exiters
Tariff Cuts × 2001-08	0.0550	0.0339	-0.0705*	0.0916**
	(0.0868)	(0.0785)	(0.0369)	(0.0370)
Tariff Cuts × 2009-17	0.269	0.172	-0.111**	0.208***
	(0.164)	(0.140)	(0.0464)	(0.0727)
Observations	1954	1954	1954	1954

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. We estimate a pooled version of equation (2) where we interact the US tariff reductions with two time periods, 2001 to 2008 and 2009 to 2017. All regressions include year fixed effects, the change in Vietnam's MFN tariffs due to WTO accession interacted with year fixed effects, the change in ln Chinese exports to the US in year t relative to 2000, and industry measures of US import quotas applied to Vietnamese and Chinese exports of textiles and clothing interacted with year fixed effects. Standard errors are clustered at the 4-digit industry level. Weighted by year 2000 employment.

Table B7: Pooled employment share decomposition regressions, private

	(1) All	(2) Continuers	(3) Entrants	(4) Exiters
Tariff Cuts × 2001-08	-0.226*	-0.184***	0.0617	-0.103
	(0.122)	(0.0645)	(0.167)	(0.0723)
Tariff Cuts × 2009-17	-0.572**	-0.206**	-0.161	-0.205*
	(0.238)	(0.0829)	(0.289)	(0.113)
Observations	1954	1954	1954	1954

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. We estimate a pooled version of equation (2) where we interact the US tariff reductions with two time periods, 2001 to 2008 and 2009 to 2017. All regressions include year fixed effects, the change in Vietnam's MFN tariffs due to WTO accession interacted with year fixed effects, the change in ln Chinese exports to the US in year t relative to 2000, and industry measures of US import quotas applied to Vietnamese and Chinese exports of textiles and clothing interacted with year fixed effects. Standard errors are clustered at the 4-digit industry level. Weighted by year 2000 employment.

C Supplementary Tables and Figures

Figure C1: Vietnamese Manufacturing Employment by Initial Ownership Type, 1999 to 2017

Figure C2: Growth of Vietnamese manufacturing exports to the U.S. 2000 to 2006 BTA tariff reductions

Note: Each point represents a 3-digit ISIC revision 3 industry.

(a) Level of initial employment (b) Ln of initial employment

Figure C3: Initial industry employment and US tariff reductions

Note: Both figures show the relationship between 4-digit industry employment in 2000 and the US tariff reductions. Panel (a) uses the level of employment and the partial correlation is -10.6 (31.3). Panel (b) uses the ln of employment and the partial correlation is -1.50 (1.33).

(a) Foreign (b) State (c) Private

Figure C4: Correlation between the initial within industry employment shares for each ownership type and their corresponding industry-level BTA tariff cuts

(a) Controls: US import quotas (b) Controls: US import quotas and Vietnam's MFN tariffs (c) Full controls: US import quotas, Vietnam's MFN tariffs, and Chinese-US exports

Figure C5: Vietnam exports to the US and BTA tariffs, 1996-2018: Robustness to Controls

Note: The BTA was implemented in 2001 (indicated by the gray line) and the base year is 2000. All Panels are estimated at the 3-digit ISIC industry-level with industry-level FEs and year FEs. Panel (a) controls for US import quotas on textiles and clothing applied to Vietnam and China respectively. Panel (b) controls for US import quotas on textiles and clothing applied to Vietnam and China respectively as well as the change in Vietnam's MFN tariffs due to WTO accession. Panel (c) reproduces Figure 6 for Vietnam exports to the US which controls US import quotas on textiles and clothing applied to Vietnam and China respectively, the change in Vietnam's MFN tariffs due to WTO accession, and Chinese exports to the US in each year. Dashed lines show 95 percent confidence intervals. Standard errors clustered at the industry level. Weighted by year 2000 Vietnam exports to the world.

(a) 2-digit ISIC Industries

(b) 4-digit ISIC Industries

Figure C6: Vietnam exports to the US and BTA tariffs at 2- and 4-digit ISIC Industries, 1996-2018

Note: Each point reflects an individual regression coefficient, $\hat{\beta}_{t'}$, following equation (1). The BTA was implemented in 2001 (indicated by the gray line) and the base year is 2000. Panel (A) is estimated at the 2-digit ISIC industry-level while Panel (B) is estimated at the 4-digit level. Correspondingly, this applies to the industry-level controls and clustering of standard error as well. Controls include industry-level FEs, year FEs, the change in Vietnam's MFN tariffs due to WTO accession, Chinese exports to the US in year t, and US import quotas on textiles and clothing applied to Vietnam and China respectively. Dashed lines show 95 percent confidence intervals. Standard errors clustered at the industry level. Weighted by year 2000 Vietnam exports to the world.

(a) Year 2006 Coefficient Estimate

(b) Year 2016 Coefficient Estimate

Figure C7: Estimate of Vietnam exports to the US and BTA tariffs with each industry omitted

Note: Each point reflects an individual regression coefficient, $\hat{\beta}_{t'}$, following equation (1), for year 2006 (Panel (a)) and year 2016 (Panel (b)), where each 3-digit industry on the x-axis is removed respectively. The 3-digit industries are sorted by total Vietnamese exports to the world in year 2000 (largest on the left and smallest on the right). Controls include industry-level FEs, year FEs, the change in Vietnam's MFN tariffs due to WTO accession, Chinese exports to the US in year t, and US import quotas on textiles and clothing applied to Vietnam and China respectively. Dashed lines show 95 percent confidence intervals. Standard errors clustered at the industry level. Weighted by year 2000 Vietnam exports to the world.

(a) VN Exports to the US, without controls

(b) VN Exports to the EU, without controls

(c) VN Exports to East Asia, without controls

Figure C8: Vietnam exports to key trading partners and BTA tariffs without controls, 1996-2018

Note: Each point reflects an individual regression coefficient, $\hat{\beta}_{t'}$, following equation (1). Figure C8a reproduces Figure 6 for Vietnam exports to the US but without controls (detailed below). The dependent variable in Figure C8b is Vietnamese exports to the European Union (EU15 excluding Belgium and Luxembourg due to lack of data consistency). Figure C8c is the same estimation as in Figure 7b but without controls. The dependent variable in Figure C8c is Vietnamese exports to 4 East Asian countries (South Korea, Japan, China, and Hong Kong). Taiwan is excluded due to lack of data consistency. Figure C8b is the same estimation as in Figure 7a but without controls. The BTA was implemented in 2001 (indicated by the gray line) and the base year is 2000. Controls include 3-digit industry FEs, year FEs, the change in Vietnam's MFN tariffs due to WTO accession, Chinese exports to the US in year t, and US import quotas on textiles and clothing applied to Vietnam and China respectively. Dashed lines show 95 percent confidence intervals. Standard errors clustered at the 3-digit industry level. Weighted by year 2000 Vietnam exports to the world.

(a) Number of Entrants (b) Number of Foreign Entrants (c) Number of Private Entrants

Figure C9: Number of entrants by contemporary ownership and BTA tariffs, 2000-2017

Notes: In Panel (a), the regression coefficient is $\hat{\beta}_{t'}$ following equation (1) and the dependent variable is the log annual number of entrants overall in an industry. We define entry by the first year the firm appears in the dataset after year 2000. In Panels (b) and (c), the regression coefficient is $\hat{\beta}_{ot'}$ following equation (1) for each ownership type (see footnote 34) and the Panel (b) dependent variable is the log annual number of FDI entrants in an industry while the Panel (c) dependent variable is the log annual number of private entrants in an industry. The BTA was implemented in 2001 and the base year is 2001 due to our definition of entry (indicated by the gray line). In Panel (a) and in separate ownership regressions for Panels (b) and (c), controls include 4-digit industry FEs, year FEs, the change in Vietnam's MFN tariffs due to WTO accession, Chinese exports to the U.S. in year t, and U.S. import quotas on textiles and clothing applied to Vietnam and China respectively. Since we estimate equation (1) for each ownership type, this is equivalent to including ownership-year and ownership-industry FEs and allowing for ownership-specific coefficients on tariffs and industry-specific controls. Dashed lines show 95 percent confidence intervals. Standard errors clustered at the 4-digit industry level. Weighted by year 2000 employment.

(a) Foreign Firms (b) State Firms (c) Private Firms

Figure C10: Revenue by ownership and BTA tariffs, 2000-2017

Note: Each point reflects an individual regression coefficient, $\hat{\beta}_{ot'}$, following equation (1) for each ownership type (see footnote 34). The dependent variable is the log revenue in an industry for foreign (Panel (a)), state (Panel (b)), and private (Panel (c)), respectively. BTA was implemented in 2001 (indicated by gray line) and the base year is 2000. In separate ownership regressions for each panel, controls include 4-digit industry-ownership FEs, ownership-year FEs, the change in Vietnam's MFN tariffs due to WTO accession, Chinese exports to the US in year t, and US import quotas on textiles and clothing applied to Vietnam and China respectively. Since we estimate equation (1) for each ownership type, this is equivalent to including ownership-year and ownership-industry FEs and allowing for ownership-specific coefficients on tariffs and industry-specific controls. Dashed lines show 95 percent confidence intervals. Standard errors clustered at the 4-digit industry level. Weighted by year 2000 employment.

(a) Foreign Firms (b) State Firms (c) Private Firms

Figure C11: Firm count by contemporary ownership and BTA tariffs, 2000-2017

Note: Firm-types are contemporary, as opposed to what was reported when the firms were initially observed. Each point reflects an individual regression coefficient, $\hat{\beta}_{ot'}$, following equation (1) for each ownership type (see footnote 34). The dependent variable is the log number of firms in an industry for foreign (Panel (a)), state (Panel (b)), and private (Panel (c)), respectively. The BTA was implemented in 2001 (indicated by gray line) and the base year is 2000. In separate ownership regressions for each panel, controls include 4-digit industry FEs, year FEs, the change in Vietnam's MFN tariffs due to WTO accession, Chinese exports to the U.S. in year t, and U.S. import quotas on textiles and clothing applied to Vietnam and China respectively. Since we estimate equation (1) for each ownership type, this is equivalent to including ownership-year and ownership-industry FEs and allowing for ownership-specific coefficients on tariffs and industry-specific controls. Dashed lines show 95 percent confidence intervals. Standard errors clustered at the 4-digit industry level. Weighted by year 2000 employment.

(a) Foreign Firms (b) State Firms (c) Private Firms

Figure C12: Employment by contemporary ownership and BTA tariffs, 1999-2017

Note: Firm-types are contemporary, as opposed to what was reported when the firms were initially observed. Each point reflects an individual regression coefficient, $\hat{\beta}_{ot'}$, following equation (1) for each ownership type (see footnote 34). The dependent variable is the log employment of firms in an industry for foreign (Panel (a)), state (Panel (b)), and private (Panel (c)), respectively. The BTA was implemented in 2001 (indicated by gray line) and the base year is 2000. In separate ownership regressions for each panel, controls include 4-digit industry FEs, year FEs, the change in Vietnam's MFN tariffs due to WTO accession, Chinese exports to the U.S. in year t, and U.S. import quotas on textiles and clothing applied to Vietnam and China respectively. Since we estimate equation (1) for each ownership type, this is equivalent to including ownership-year and ownership-industry FEs and allowing for ownership-specific coefficients on tariffs and industry-specific controls. Dashed lines show 95 percent confidence intervals. Standard errors clustered at the 4-digit industry level. Weighted by year 2000 employment.

(a) Foreign Firms (b) State Firms (c) Private Firms

Figure C13: Revenue by contemporary ownership and BTA tariffs, 2000-2017

Note: Firm-types are contemporary, as opposed to what was reported when the firms were initially observed. Each point reflects an individual regression coefficient, $\hat{\beta}_{ot'}$, following equation (1) for each ownership type (see footnote 34). The dependent variable is the log annual revenue in an industry for foreign (Panel (a)), state (Panel (b)), and private (Panel (c)), respectively. The BTA was implemented in 2001 (indicated by gray line) and the base year is 2000. In separate ownership regressions for each panel, controls include 4-digit industry FEs, year FEs, the change in Vietnam's MFN tariffs due to WTO accession, Chinese exports to the U.S. in year t, and U.S. import quotas on textiles and clothing applied to Vietnam and China respectively. Since we estimate equation (1) for each ownership type, this is equivalent to including ownership-year and ownership-industry FEs and allowing for ownership-specific coefficients on tariffs and industry-specific controls. Dashed lines show 95 percent confidence intervals. Standard errors clustered at the 4-digit industry level. Weighted by year 2000 employment.

(a) No controls (b) Controls: US import quotas (c) Controls: US import quotas and Vietnam's MFN tariffs

Figure C14: Changes in within-industry employment shares for foreign continuers, entrants, and exiters and BTA tariff cuts: Robustness to Controls

Note: The figures show the coefficients from estimating equation (2). The base year is 2000 and the observations are weighted by 2000 employment. All regressions are estimated at the 4-digit ISIC industry level with industry FEs and year FEs. Panel (a) includes no additional controls. Panel (b) controls for US import quotas on textiles and clothing applied to Vietnam and China respectively. Panel (c) controls for US import quotas on textiles and clothing applied to Vietnam and China respectively as well as the change in Vietnam's MFN tariffs due to WTO accession. Dashed lines show 95 percent confidence intervals. Standard errors clustered at the industry level.

(a) Year 2006 Coefficient Estimate

(b) Year 2016 Coefficient Estimate

Figure C15: Estimate of change in employment share of foreign entrants and BTA tariffs with each industry omitted

Note: Each point reflects an individual regression coefficient, β_{ost}, following equation (2), for year 2006 (Panel (a)) and year 2016 (Panel (b)), where each 3-digit industry on the x-axis is removed respectively. The 3-digit industries are sorted by total employment in year 2000 (largest on the left and smallest on the right). The base year is 2000 and the observations are weighted by 2000 employment. Controls include the change in Vietnam's MFN tariffs due to WTO accession, the change in ln Chinese exports to the US in year t relative to 2000, and industry measures of US import quotas applied to Vietnamese and Chinese exports of textiles and clothing.

Figure C16: Employment growth for 2001 foreign entry cohort by export status

Note: The figure shows contemporary employment and initial employment among foreign firms that enter in 2001 and that have survived to each year t. The entry cohort is split based on export status in 2002. We use export status in 2002 since this information is not available in 2001.

(a) 2001 Entrants by 2004 Export Status

(b) 2001 Entrants by 2010 Export Status

(c) 2005 Entrants by 2010 Export Status

Figure C17: Employment growth for foreign entry cohort by export status, multiple years

Note: Panel (A) shows contemporary employment and initial employment among foreign firms that enter in 2001 and that have survived to each year t. The entry cohort is split based on export status in 2004. Panel (B) shows contemporary employment and initial employment among foreign firms that enter in 2001 and that have survived to each year t. The entry cohort is split based on export status in 2010. Panel (C) shows contemporary employment and initial employment among foreign firms that enter in 2005 and that have survived to each year t. The entry cohort is split based on export status in 2010.

Figure C18: Changes in foreign entrant employment shares for Japan, South Korea, Taiwan, and other FDI source countries and BTA tariff cuts, 2000-2017

Note: Each point reflects an individual regression coefficient, β_{ost}, following equation (2). Foreign entry is split based on the FDI source country. The base year is 2000 and the observations are weighted by 2000 employment. Controls include the change in Vietnam's MFN tariffs due to WTO accession, the change in ln Chinese exports to the US in year t relative to 2000, and industry measures of US import quotas applied to Vietnamese and Chinese exports of textiles and clothing.

(a) Shares

(b) Levels (Billions of USD)

Figure C19: Vietnam-US Exports from US and non-US Affiliates, 2000-2011

Note: Panel (a) reports the share of Vietnamese exports to the US by US and non-US affiliates. Exports by US affiliates are also known as Related Party Trade. These are transactions which includes any person directly or indirectly owning, controlling, or holding with power to vote, $\geq 5\%$ of the outstanding voting stock or shares of any organization and such organization (US Census Bureau). Panel (b) reports the levels of these exports.