

Online Appendix for “Trade Liberalization and Embedded Institutional Reform: Evidence from Chinese Exporters” (Amit K. Khandelwal, Peter K. Schott and Shang-Jin Wei)

This appendix provides further detail about our model and numerical solutions as well as additional empirical results.

A Model and Numerical Solutions

We consider a single industry and two countries (China and UEC, an aggregation of the United States, E.U. and Canada) in the spirit of Melitz (2003) and Chaney (2008). Embedding a quantitative restriction on exports in this model is akin to including a specific tariff (Irarrazabal, Moxnes and Opromolla 2010). A representative consumer in the export market c maximizes a CES utility function

$$U = \left(\int_{\zeta \in \Omega} [q_c(\zeta)]^{(\sigma-1)/\sigma} d\zeta \right)^{\sigma/(\sigma-1)}, \quad (\text{A.1})$$

where $\sigma > 1$ is the constant elasticity of substitution across varieties and ζ indexes varieties.

Firm productivity φ is drawn from distribution $G(\varphi)$ with density $g(\varphi)$.

Given the fee, the price of variety φ in export market c is given by

$$p_{oc}(\varphi, a_{oc}) = \frac{\sigma}{\sigma - 1} \omega_o \left(\frac{\tau_{oc}}{\varphi} + a_{oc} \right), \quad (\text{A.2})$$

and export quantity is given by

$$q_{oc}(\varphi, a_{oc}) = \left(\frac{\sigma}{\sigma - 1} \omega_o \right)^{-\sigma} \left(\frac{\tau_{oc}}{\varphi} + a_{oc} \right)^{-\sigma} P_c^{\sigma-1} Y_c, \quad (\text{A.3})$$

where P_c and Y_c are the price index and expenditure in the destination market, respectively. Here, a_{oc} is license price that equates the aggregate demand for exports with the size of the quota. We assume it is determined (endogenously) by a Walrasian auctioneer.

The model assumes that the total mass of potential entrants in each country is proportional to a country's income. Since there is no free entry, net profits are pooled and redistributed to consumers in country o who own ω_o of a diversified global fund. Total income in each country is $Y_r = \omega_r L_r (1 + \pi)$ for $r = \{o, c\}$, where π is the dividend per share of the global fund. The profits for country o 's active firms (n_{oc}) selling to market c are $\pi_{oc} = \frac{p_{oc} q_{oc}}{\sigma} - n_{oc} f_{oc}$, so

$$\pi = \frac{\sum_o \sum_c \pi_{oc}}{\omega_o L_o + \omega_c L_c}. \quad (\text{A.4})$$

Firms maximize profits separately to each destination, paying a fixed cost of production in the home profit equation (f_{oo}) and a fixed cost to export abroad (f_{od}) in the exporting profit equation. The marginal exporter earns zero profits and is identified as

$$\varphi_{oc}^* = \left[\left(\frac{\sigma - 1}{\sigma} \right) \sigma^{\frac{1}{1-\sigma}} \left(\frac{\omega_o f_{oc}}{Y_d} \right)^{\frac{1}{1-\sigma}} \frac{P_c}{\omega_o \tau_{oc}} - \frac{a_{oc}}{\tau_{oc}} \right]^{-1}, \quad (\text{A.5})$$

Given φ_{oc}^* , we can express the price index in destination c as

$$P_c^{1-\sigma} = \sum_r \omega_r L_r \int_{\varphi_{rc}^*}^{\infty} p_{rc}(\varphi, a_{rc})^{1-\sigma} dG(\varphi) \varphi. \quad (\text{A.6})$$

Since we assume that only the origin country faces quotas in the export market, we set $a_{cc} = a_{oo} = a_{co} = 0$. Because there is no closed form solution to the price index when $a_{oc} > 0$, the model cannot be solved analytically.

Our numerical solution modifies the algorithm described in Irarrazabal, Moxnes and Opromolla (2010) to account for an endogenous license price. Given the particular parameters noted in the main text (also described in the next paragraph), we solve for all endogenous variables of the model: $\varphi^* = \{\varphi_{Chn,Chn}^*, \varphi_{Chn,UEC}^*, \varphi_{UEC,Chn}^*, \varphi_{UEC,UEC}^*\}$, $P = \{P_{Chn}, P_{UEC}\}$, $Y = \{Y_{Chn}, Y_{UEC}\}$, π and $a_{Chn,UEC}$. For our solution to the no quota scenario, we set $a_{Chn,UEC} = 0$. For the auction-allocation scenario, we solve for the license price given the observed quota restrictiveness.

The parameters of the model are: σ , $L = L_{Chn}, L_{UEC}$, $G(\varphi) \sim \ln \mathbb{N}(\mu, \vartheta)$, $\tau = \{\tau_{Chn,Chn}, \tau_{Chn,UEC}, \tau_{UEC,Chn}, \tau_{UEC,UEC}\}$, $f = \{f_{Chn,Chn}, f_{Chn,UEC}, f_{UEC,Chn}, f_{UEC,UEC}\}$, $\omega = \{\omega_{Chn}, \omega_{UEC}\}$. We jointly choose the mean and standard deviation of the log normal firm productivity distribution, the two iceberg trade costs ($\tau_{Chn,UEC}$ and $\tau_{UEC,Chn}$) and the ratios of exporting to domestic fixed costs ($f_{Chn,UEC}$ and $f_{UEC,Chn}$) to match the following features of the data: a) the 75th, 90th, 95th, 99th and 99.9th percentiles of the distribution of export shares among Chinese textile and clothing exporters, b) the share of Chinese textile and clothing producers that export, c) the share of U.S. textile and clothing producers that export and, d) the Chinese and U.S. market shares of U.S. and Chinese textile and clothing consumption in 2005. China's NBS production data reports that 44 percent of Chinese firms in the textile and clothing sectors (Chinese Industrial Classifications 17 and 18) exported in 2005. These share of exports accounted for by the {75th,90th,95th,99th,99.9th} percentiles of these exporters is {0.26,0.46,0.59,0.80,0.93}. Bernard et al. (2007) report that 8 percent of U.S. firms in the textile and clothing sectors (NAICS 315) exported in 2002. According to textile and clothing production and trade data in the Chinese production and customs data, the U.S. market share of Chinese textile and clothing consumption is 1.2 percent. According to the NBER Productivity Database, the Chinese market share of U.S. apparel and textile consumption (NAICS codes 313, 314 and 315) is 13.1 percent. With the exception of the

share of U.S. textile firms that export, all data are from 2005 because that is the first post-quota year. The model matches the moments we target well: The share exports accounted for by the {75th,90th,95th,99th,99.9th} percentiles is {0.32,0.52,0.65,0.84,1}; 44 percent of the simulated Chinese firms export and they have a 13.5 percent market share in the United States; and 8 percent of the simulated U.S. firms export and have a 1.2 percent market share in China. The sum of the squared deviations between model and data in percentage terms is 0.43.

The Matlab code used to generate our solutions is a modified version of the code used in Irarrazabal, Moxnes and Opromolla (2010), graciously provided by Andreas Moxnes. It is posted along with this electronic appendix. It contains the following algorithm, where superscripts denote the iteration round. Given a draw of one million firm productivities from the log normal distribution described in the main text:

1. Choose a starting value for the license price a_{oc}^0 . (In the “no quota” equilibrium, we set $a_{oc}^0 = 0$.)
2. Choose a starting value for the price indexes, P^0 .
3. Simultaneously solve for the dividend per share in equation (A.4) and the cutoffs φ^* in equation (A.5). This involves solving five unknowns with five equations. First choose a candidate π and then compute the cutoffs in (A.5). Given the candidate φ^* , compute π and re-compute the cutoffs, iterating until convergence is achieved. This process determines the cutoffs φ^{0*} given the candidate P^0 in step 2.
4. Compute the price indexes in (A.6).
5. Iterate over steps 3 and 4. The equilibrium values of $\{\varphi^*, P\}$ are found when $\|P^b - P^{b-1}\|$ is minimized. The values of Y and π are determined once $\{\varphi^*, P\}$ are known. In the “no quota” equilibrium, stop here and compute aggregate exports from China to UEC. In the “auction allocation” equilibrium, continue to step 6.
6. In order to match the data, aggregate exports from China to UEC under “no quota” should be 161 percent higher than aggregate exports under

the “auction allocation.” Iterate on steps 1-5 until this ratio is achieved.

B Additional Empirical Results

A Regressions

Tables A.1, A.2 and A.3 contain the underlying regression output for the results summarized in Tables 2, 4 and 5.

B Additional Figures

B.1 Labor Productivity

Figure A.1 reports the distribution of labor productivity of textile and clothing exporters in 2005, by ownership, from the NBS production data. Labor productivity is defined as value added per worker. The low productivity of SOEs relative to their non-state counterparts is consistent with the TFP measures in the text.

B.2 Changes in Incumbent Market Share

Under the auction-allocation scenario presented in Section I, export growth following quota removal should be concentrated among the largest incumbents due to their (presumed) greater productivity. Instead, we find the opposite. Figure A.2 plots the locally weighted least squares relationship between incumbents market share within their product-country pair in 2004 and their change in this market share between 2004 and 2005. Separate relationships are plotted for each ownership type, by group. The negative relationships across ownership-group pairs likely reflects mean reversion. However, this decline is more pronounced in quota-bound exports than quota-free exports, and most severe for SOEs within quota-bound. This result provides further indication that SOEs received excessive allocations under quotas.

B.3 Changes in Average Prices

Figure A.3 displays the mean of $\Delta \bar{P}_{hct}$ across all product-country pairs in quota-bound and quota-free exports for 2003-04 and 2004-05. Between 2004 and 2005, quota-bound export prices fall an average of 0.212 log points across product-country pairs. The analogous change for quota-free exports is an increase of 0.015 log points. Average prices for quota-bound and quota-free exports increased 0.070 and 0.097 log points between 2003 and 2004, respectively.

B.4 Changes in Quality

Table A.4 decomposes quality changes by margin of adjustment and ownership type using the same format as previous decompositions (Table A.5 contains the underlying regression output). The difference-in-differences results in the top panel indicate an average relative decline in quality among quota-bound exports of 4.1 percent. These declines, however, are not statistically significant. Subtracting the quality changes in Table A.4 from their corresponding price changes in Table 4 yields the quality-adjusted price changes reported in Table 5.

C Subcontracting

A Subcontracting by Producing Firms

Our estimates are sensitive to unobserved subcontracting. More precisely, if the quota-holding firm and the ultimate producer of the export are different, and if customs documents list the name of the former rather than the latter, then our estimates of extensive-margin activity following quota removal will be biased upwards if subcontractors officially replace quota holders on trade documents starting in 2005. Furthermore, assignment of subcontracts on the basis of efficiency (for example, via a black-market auction) would complicate our ability to identify a reallocation of exports towards more efficient firms

when the MFA ended.

In principle, subcontracting's influence on our results should be minimal given its illegality. Unfortunately, as noted in Section 3, we have been unable to determine via interviews or secondary sources the extent to which it might have occurred. Nevertheless, five trends in the data suggest that subcontracting exerts a limited effect on our results.

First, if quota holders were subcontracting to efficient non-quota holders, one might expect these subcontractors to be dominated by a relatively small number of large (i.e., efficient) producers, and that these producers would dominate entry once quotas are removed. Instead, as noted in footnote 17 in Section A, we find that *new* quota-bound entrants in 2005 are relatively numerous and relatively small.

Second, if subcontracting were the only way a firm with a quota could fulfill it, the firms relying on subcontractors in 2004 would exit or shrink substantially once quotas were removed. In fact, we find that few incumbents' exports actually decline from 2004 to 2005, and that quota-bound exit rates are relatively low compared with quota-free exit rates across all ownership types (Table 3).²⁹

Third, we find that 86 percent of the quota-holding exporters in 2004 are also active in similar products destined for other markets. Given that these firms are present in these other markets, they likely have the ability to produce for quota-bound markets as well. (Subcontracting exports of textile and apparel goods to other markets makes little sense given that they were not constrained by quotas). It is therefore not obvious why a quota-holder would subcontract production of quota-bound goods but self-produce output of similar goods for exports to other destinations.³⁰

Fourth, we find little evidence in the NBS production data that textile and clothing producers' exports exceeded their production, as might be expected

²⁹While it is true that SOEs' market shares decline substantially, this reallocation is driven by faster growth among privately owned firms than SOEs, i.e., almost all incumbents experienced growth in export quantity between 2004 and 2005.

³⁰As discussed in Section II, virtually all MFA products had full trading rights so all firms could directly export an MFA product to the rest of the world if they so chose.

if they were on-exporting subcontractors' output. In both 2004 and 2005, the production-to-export ratio is greater than one for 95 percent of firms that report textile and apparel as their main line of business. One caveat here is that information revealed by the production-to-exports ratio depends on the relative importance of the export market; firms selling large quantities domestically might nevertheless export a relatively small amount of subcontracted production.

Finally, we find a relatively strong contribution by the extensive margin in “processing” versus “ordinary” exports, where the former refers to exports that are assembled in an export processing zone with a disproportionate share of raw materials that are imported at reduced or often zero tariff rates. Subcontracting of processed exports is more difficult, especially for subcontractors that lie outside the processing zone, given that the rules governing this class of exports must be obeyed by the subcontractor.³¹ Table A.6 compares the relative contribution of the extensive margin in quota-bound versus quota-free exports for processed versus all exports. We find that quota-bound incumbents lose *more* relative market share in processing exports (-21.7 percent) than in all exports (-16.7 percent), and a similar reallocation away from SOEs.

B Subcontracting by Intermediaries

Unobserved subcontracting by intermediaries (i.e., non-producing “trading” firms) presents a different challenge to identification than subcontracting by producers: while the latter had no reason to continue once the quota institution ended, there is no reason for the former to disappear. Furthermore, even if the number of intermediaries remained constant between 2004 and 2005, the number of producing firms with which they contracted – and, therefore, their influence on the “true” adjustment of China’s extensive and intensive margins – would be unknown because we do not observe the set of producers from which an intermediary sources.

One might expect trading firms to be replaced by producers in 2005 if

³¹We identify processed exports via a flag in the customs data. Processed exports account for 19 and 20 percent of MFA exports in 2004 and 2005, respectively.

quota-rich trading firms were an important conduit for quota-poor producers' goods. In fact, we find relatively strong entry by "trading firms", defined as in Ahn, Khandelwal and Wei (2011) as firms with the words "importer", "exporter" or "trader" in their title, in quota-bound versus quota-free between 2004 and 2005. One reason for this growth that is consistent with our conclusions above but which contributes to an *under-estimation* of the influence of the extensive margin, is that intermediaries helped a new set of low-productivity entrants overcome the fixed costs of exporting once quotas were removed (Ahn, Khandelwal and Wei, 2011). One caveat associated with this conclusion is that our classification of firms as trading companies is imperfect, and, in particular, might result in firms that have both production and trading arms being classified as traders. A large fraction of the textile and clothing apparel SOEs that export, for example, are classified as traders, which is at odds with the evidence presented above that virtually all SOEs in the NBS production data have higher production output than exports. Indeed, according to our classification, trading companies account for 48 and 46 percent of quota-free and quota-bound exports in 2004, which is quite large relative to the 24 percent share of intermediaries in China's overall exports. We suspect that state-owned manufacturers may export through trading arms of their production facilities under a name that contains the phrases "importer", "exporter" or "trader". This may be why we are only able to match 9 percent of state-owned textile and clothing exporters in the customs and production data by name even though the production data contains a census of SOEs.

Given our concern of classifying these state-owned clothing and apparel exporters as intermediaries, we investigate the effects of treating all SOEs as producers. We find that as a result of this reclassification, the export share of the remaining firms classified as traders falls to 13 and 11 percent, respectively. This result suggests that although intermediaries help facilitate trade in this industry, their role is relatively small, perhaps because the U.S., E.U. and Canada are relatively large markets which makes direct exports profitable.

Online Appendix References

1. Ahn, JaeBin, Amit K. Khandelwal and Shang-Jin Wei (2011). “The Role of Intermediaries in Facilitating Trade”, *Journal of International Economics*, 84(1), 73-85.
2. Chaney, Thomas (2008). “Distorted Gravity: The Intensive and Extensive Margins of International Trade”, *American Economic Review*, 98(4), 1707-1721.
3. Irarrazabal, Alfonso, Andreas Moxnes and Luca David Opromolla (2010), “The Tip of the Iceberg: Modeling Trade Costs and Implications for Intra-Industry Reallocation”, mimeo, Dartmouth College.
4. Melitz, Marc J. (2003). “The Impact of Trade on Intra-Industry Reallocation and Aggregate Industry Productivity”, *Econometrica*, 71(6), 1695-1724.

Online Appendix Tables and Figures

Table A.1: Regression Output for Table 3

	Incumbent			Exit			Adder			New Exporter		
	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic
1{2005} _t	-0.052	-0.029	-0.012	0.030	0.060	-0.026	-0.003	-0.041	0.066	0.021	-0.007	-0.018
1{Quota-Bound} _{t, ch}	0.017	0.014	0.008	0.016	0.017	0.012	0.010	0.013	0.012	0.010	0.008	0.007
x 1{2005} _t	0.006	0.011	0.001	-0.038	-0.059	0.010	0.011	0.049	0.051	0.003	-0.018	0.002
Constant	0.015	0.013	0.007	0.019	0.019	0.013	0.009	0.018	0.017	0.010	0.008	0.008
Observations	-0.122	-0.106	-0.013	-0.031	-0.027	-0.001	-0.003	0.116	-0.011	0.056	0.037	-0.003
R-squared	0.024	0.021	0.011	0.023	0.024	0.018	0.013	0.020	0.021	0.013	0.010	0.010
	-0.040	-0.037	-0.005	-0.458	-0.282	-0.118	-0.058	0.418	0.235	0.122	0.080	0.010
	0.010	0.009	0.005	0.016	0.014	0.009	0.007	0.015	0.013	0.009	0.006	0.005
	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830
	0.07	0.05	0.01	0.01	0.02	0.00	0.00	0.06	0.02	0.07	0.01	0.01

	Incumbent			Exit			Adder			New Exporter		
	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic
1{2005} _t	-0.056	-0.031	-0.013	0.043	0.068	-0.025	0.000	-0.046	0.064	0.023	-0.029	-0.023
1{Quota-Bound} _{t, ch}	0.024	0.020	0.012	0.022	0.023	0.017	0.014	0.021	0.019	0.014	0.011	0.009
x 1{2005} _t	-0.124	-0.107	-0.014	-0.030	-0.021	0.000	-0.009	0.116	-0.010	0.073	0.038	-0.003
Constant	0.035	0.030	0.016	0.031	0.033	0.025	0.018	0.028	0.028	0.025	0.015	0.006
Observations	-0.035	-0.031	-0.004	-0.483	-0.316	-0.114	-0.053	0.445	0.262	0.121	0.073	0.011
R-squared	0.010	0.008	0.004	0.009	0.009	0.006	0.004	0.009	0.008	0.007	0.004	0.001
	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830
	0.51	0.49	0.44	0.75	0.65	0.59	0.56	0.76	0.67	0.63	0.60	0.50

	Incumbent			Exit			Adder			New Exporter		
	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic
1{2004} _t	0.037	0.027	-0.007	-0.018	0.024	-0.039	-0.003	-0.043	-0.048	0.012	-0.006	-0.001
1{Quota-Bound} _{t, ch}	0.016	0.014	0.007	0.016	0.016	0.012	0.009	0.015	0.015	0.011	0.010	0.006
x 1{2004} _t	0.023	0.012	-0.005	-0.061	-0.083	-0.005	0.026	0.032	0.049	0.001	-0.018	0.007
Constant	0.017	0.016	0.006	0.021	0.020	0.011	0.008	0.021	0.019	0.013	0.010	0.004
Observations	-0.016	-0.001	0.006	0.024	0.024	0.015	-0.015	0.017	0.002	-0.005	0.020	-0.010
R-squared	0.025	0.022	0.009	0.022	0.024	0.016	0.012	0.022	0.022	0.015	0.014	0.006
	-0.077	-0.064	0.002	-0.441	-0.306	-0.079	-0.055	0.461	0.283	0.111	0.068	0.056
	0.011	0.010	0.005	0.016	0.014	0.008	0.007	0.015	0.013	0.008	0.008	0.001
	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786
	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.01	0.01	0.00	0.01	0.01

Notes: This table displays the full regressions of equation (3) for Table 3, which reports the difference-in-differences coefficient on 1{Quota-Bound}_{t, ch} × 1{2005}_t for the changes in market shares. All regressions are run on the restricted sample of HS codes defined in Section 4.2. The top panel is the baseline specification that corresponds to the left panel of Table 3. The middle panel includes country-product pair fixed effects in the estimation. The bottom panel is run on the pre-reform years (2002-2004). Standard errors are adjusted for clustering at the eight-digit HS level.

Table A.2: Regression Output for Table 4

	Incumbent - Within			Incumbent - Across			Entrant			Exit			Total Change							
	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic					
1(2005) _t	-0.001	-0.004	0.004	-0.001	-0.010	0.002	0.008	-0.038	-0.013	-0.012	-0.013	0.033	0.031	-0.006	0.009	-0.073	-0.058	0.000	-0.014	
	0.008	0.005	0.006	0.010	0.009	0.003	0.004	0.018	0.013	0.008	0.006	-0.016	-0.012	-0.008	-0.005	0.039	0.028	0.017	0.010	
1(Quota-Bound) _{it}	-0.006	-0.004	-0.002	-0.002	-0.004	0.002	0.000	-0.011	-0.002	0.007	-0.016	0.004	0.015	-0.006	-0.005	-0.023	-0.026	0.012	-0.010	
	0.010	0.007	0.005	0.010	0.009	0.003	0.004	0.017	0.015	0.009	0.007	-0.016	-0.013	-0.008	-0.006	0.037	0.029	0.014	0.012	
x1(2005) _t	-0.037	-0.023	-0.009	-0.005	-0.049	-0.028	-0.012	-0.069	-0.021	-0.050	0.002	0.051	0.022	0.028	0.000	-0.206	-0.095	-0.100	-0.012	
	0.013	0.009	0.007	0.004	0.014	0.012	0.005	0.026	0.018	0.015	0.010	-0.025	-0.019	-0.013	-0.009	0.057	0.041	0.026	0.018	
Constant	0.024	0.016	0.004	0.000	0.004	-0.001	-0.003	0.004	0.005	-0.011	0.010	-0.063	-0.086	-0.022	-0.005	0.091	0.062	0.014	0.015	
	0.006	0.003	0.004	0.002	0.007	0.002	0.002	0.012	0.010	0.006	0.005	-0.011	-0.008	-0.006	-0.004	0.025	0.019	0.010	0.007	
Observations	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830
R-squared	0.02	0.02	0.00	0.02	0.02	0.01	0.00	0.03	0.01	0.03	0.01	0.02	0.02	0.00	0.00	0.04	0.04	0.01	0.01	

	Incumbent - Within			Incumbent - Across			Entrant			Exit			Total Change						
	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic				
1(2005) _t	0.000	-0.004	0.005	-0.001	-0.011	0.002	0.008	-0.037	-0.012	-0.017	-0.009	0.031	0.030	-0.007	0.008	-0.070	-0.056	-0.004	-0.010
	0.012	0.007	0.008	0.014	0.012	0.005	0.006	0.025	0.019	0.012	0.008	-0.023	-0.017	-0.011	-0.008	0.056	0.040	0.024	0.015
1(Quota-Bound) _{it} x 1(2005) _t	-0.041	-0.026	-0.010	-0.005	-0.049	-0.028	-0.012	-0.075	-0.024	-0.046	-0.005	0.055	0.027	0.028	-0.001	-0.221	-0.106	-0.096	-0.019
	0.019	0.014	0.010	0.006	0.020	0.017	0.007	0.037	0.027	0.021	0.013	-0.035	-0.028	-0.018	-0.013	0.082	0.060	0.037	0.025
Constant	0.022	0.015	0.002	0.005	-0.001	0.003	0.000	0.000	0.004	-0.006	0.002	-0.061	-0.030	-0.025	-0.007	0.082	0.051	0.021	0.010
	0.005	0.004	0.003	0.002	0.005	0.005	0.002	0.011	0.007	0.005	0.004	-0.009	-0.007	-0.004	-0.003	0.022	0.015	0.009	0.007
Observations	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830
R-squared	0.46	0.51	0.32	0.49	0.45	0.46	0.44	0.40	0.42	0.52	0.53	0.45	0.47	0.36	0.46	0.37	0.34	0.41	0.36

	Incumbent - Within			Incumbent - Across			Entrant			Exit			Total Change						
	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic	All	SOE	Domestic				
1(2004) _t	0.019	0.013	0.003	0.002	0.009	-0.005	-0.001	0.022	0.006	0.006	0.010	-0.033	-0.026	-0.008	0.001	0.077	0.054	0.013	0.011
	0.008	0.006	0.004	0.009	0.009	0.003	0.003	0.017	0.013	0.008	0.007	-0.015	-0.012	-0.007	-0.005	0.035	0.026	0.015	0.011
1(Quota-Bound) _{it}	0.012	0.009	0.002	0.001	-0.009	-0.011	-0.001	0.008	0.001	0.002	0.005	-0.023	-0.033	0.007	0.003	0.034	0.032	-0.005	0.007
	0.009	0.007	0.002	0.004	0.010	0.008	0.002	0.019	0.014	0.010	0.008	-0.018	-0.015	-0.007	-0.004	0.038	0.027	0.014	0.011
x1(2004) _t	-0.018	-0.014	-0.004	0.000	0.007	0.007	0.003	-0.019	-0.003	0.005	-0.021	0.027	0.048	-0.013	-0.008	-0.058	-0.058	0.017	-0.017
	0.013	0.010	0.005	0.005	0.014	0.012	0.004	0.028	0.021	0.013	0.011	-0.027	-0.022	-0.011	-0.008	0.059	0.044	0.022	0.019
Constant	0.005	0.003	0.000	0.001	-0.003	-0.004	0.004	-0.018	-0.001	-0.017	0.000	-0.030	-0.010	-0.014	-0.005	0.014	0.008	0.001	0.005
	0.006	0.005	0.002	0.002	0.006	0.005	0.002	0.010	0.008	0.005	0.004	-0.009	-0.007	-0.004	-0.004	0.020	0.015	0.008	0.007
Observations	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786
R-squared	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes: This table displays the full regressions of equation (3) for Table 4, which reports the difference-in-differences coefficient on 1(Quota-Bound)_{it} x 1(2005)_t for the changes in prices defined in equation (6). All regressions are run on the restricted sample of HS codes defined in Section 4.2. The top panel is the baseline specification that corresponds to the left panel of Table 4. The middle panel includes country-product pair fixed effects in the estimation. The bottom panel is run on the pre-reform years (2002-2004). Standard errors are adjusted for clustering at the eight-digit HS level.

Table A.3: Regression Output for Table 5

	Incumbent - Within			Incumbent - Across			Entrant			Exit			Total Change						
	All	SOE	Foreign	All	SOE	Foreign	All	SOE	Foreign	All	SOE	Foreign	All	SOE	Foreign				
1(2005) _t	-0.078	-0.050	-0.019	0.000	0.004	-0.001	-0.003	-0.043	-0.021	-0.013	-0.008	0.036	0.017	0.015	0.004	-0.156	-0.084	-0.024	
1(Quota-Bound) _{it}	0.010	0.008	0.004	0.006	0.005	0.002	0.003	0.012	0.006	0.007	0.005	-0.012	-0.008	-0.005	-0.004	0.028	0.016	0.010	
x1(2005) _t	0.011	0.001	0.002	-0.013	-0.003	-0.003	-0.007	-0.016	-0.007	-0.011	0.003	-0.009	-0.005	-0.008	0.004	-0.009	-0.004	-0.005	0.000
Constant	0.012	0.008	0.006	0.007	0.005	0.002	0.004	0.011	0.008	0.006	0.003	-0.011	-0.008	-0.004	-0.004	0.025	0.018	0.010	0.008
Observations	-0.055	-0.026	-0.011	0.001	-0.005	-0.002	0.007	-0.072	-0.026	-0.029	-0.018	0.040	0.032	0.007	0.000	-0.166	-0.088	-0.049	-0.028
R-squared	0.016	0.012	0.007	0.009	0.007	0.003	0.005	0.019	0.012	0.011	0.006	-0.017	-0.013	-0.007	-0.005	0.042	0.029	0.017	0.012
	0.032	0.028	0.005	-0.003	-0.007	0.001	0.004	0.057	0.029	0.026	0.003	0.048	0.026	0.018	0.005	0.038	0.024	0.014	0.000
	0.007	0.005	0.003	0.004	0.003	0.001	0.002	0.007	0.004	0.004	0.003	-0.007	-0.005	-0.003	-0.004	0.016	0.010	0.007	0.007
	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830
	0.09	0.06	0.03	0.00	0.00	0.00	0.00	0.07	0.03	0.03	0.02	0.03	0.02	0.01	0.00	0.09	0.06	0.03	0.01

	Incumbent - Within			Incumbent - Across			Entrant			Exit			Total Change						
	All	SOE	Foreign	All	SOE	Foreign	All	SOE	Foreign	All	SOE	Foreign	All	SOE	Foreign				
1(2005) _t	-0.078	-0.049	-0.020	0.001	0.004	-0.001	-0.003	-0.036	-0.020	-0.008	-0.008	0.031	0.011	0.015	0.005	-0.144	-0.076	-0.044	-0.025
1(Quota-Bound) _{it}	0.015	0.011	0.006	0.009	0.007	0.003	0.004	0.018	0.009	0.010	0.007	-0.017	-0.011	-0.007	-0.006	0.041	0.023	0.018	0.015
x1(2005) _t	-0.054	-0.025	-0.011	0.001	-0.004	-0.002	0.007	-0.080	-0.027	-0.031	-0.022	0.048	0.036	0.009	0.003	-0.182	-0.093	-0.054	-0.036
Constant	0.023	0.017	0.010	0.014	0.011	0.005	0.007	0.027	0.017	0.015	0.009	-0.024	-0.019	-0.010	-0.007	0.060	0.042	0.025	0.017
Observations	0.037	0.028	0.006	-0.009	-0.009	-0.001	0.000	0.048	0.025	0.018	0.005	0.044	0.025	0.013	0.005	0.031	0.019	0.010	0.002
R-squared	0.006	0.005	0.003	0.004	0.003	0.001	0.002	0.007	0.004	0.004	0.003	-0.006	-0.004	-0.003	-0.002	0.016	0.009	0.007	0.005
	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830	1.830
	0.57	0.55	0.50	0.48	0.48	0.48	0.45	0.48	0.47	0.58	0.54	0.54	0.50	0.49	0.54	0.44	0.39	0.47	0.47

	Incumbent - Within			Incumbent - Across			Entrant			Exit			Total Change						
	All	SOE	Foreign	All	SOE	Foreign	All	SOE	Foreign	All	SOE	Foreign	All	SOE	Foreign				
1(2004) _t	0.032	0.019	0.013	0.000	0.003	0.001	0.004	0.021	0.012	0.010	-0.001	-0.005	-0.015	0.007	0.003	0.066	0.049	0.016	0.001
1(Quota-Bound) _{it}	0.010	0.008	0.004	0.006	0.005	0.002	0.003	0.012	0.007	0.006	0.006	-0.011	-0.008	-0.004	-0.004	0.026	0.016	0.009	0.010
x1(2004) _t	-0.007	-0.012	0.007	0.004	0.008	-0.002	-0.001	-0.020	-0.012	-0.006	-0.001	-0.002	-0.001	-0.005	0.005	-0.021	-0.016	0.003	-0.009
Constant	0.010	0.009	0.003	0.006	0.005	0.002	0.002	0.012	0.008	0.006	0.005	-0.012	-0.010	-0.004	-0.003	0.026	0.019	0.008	0.008
Observations	0.018	0.013	-0.005	0.010	-0.010	-0.001	-0.006	0.004	0.005	-0.005	0.004	-0.007	-0.004	-0.002	-0.001	0.012	0.012	-0.008	0.009
R-squared	0.016	0.013	0.007	0.008	0.010	0.008	0.003	0.018	0.012	0.009	0.007	-0.018	-0.014	-0.006	-0.006	0.041	0.029	0.014	0.013
	0.000	0.009	-0.008	-0.002	-0.011	-0.010	0.000	0.036	0.016	0.016	0.004	0.053	0.040	0.010	0.002	-0.028	-0.025	-0.003	0.000
	0.007	0.006	0.002	0.003	0.004	0.003	0.001	0.008	0.005	0.004	0.004	-0.007	-0.007	-0.002	-0.002	0.017	0.012	0.006	0.005
	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786	1.786
	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00

Notes: This table displays the full regressions of equation (3) for Table 5, which reports the difference-in-differences coefficient on 1(Quota-Bound)_{it} x 1(2005)_t for the changes in quality-adjusted prices defined in Section 5.3. All regressions are run on the restricted sample of HS codes defined in Section 4.2. The top panel is the baseline specification that corresponds to the left panel of Table 5. The middle panel includes country-product pair fixed effects in the estimation. The bottom panel is run on the pre-reform years (2002-2004). Standard errors are adjusted for clustering at the eight-digit HS level.

Table A.4: Decomposition of Absolute and Relative Changes in MFA Quality

Difference-in-Differences (Quota-Bound vs Quota-Free, 2004-05 vs 2003-04)				
Margin	All	SOE	Domestic	Foreign
Incumbents (I)				
Within	0.017	0.003	0.002	0.012
Across	-0.050	-0.024	-0.010	-0.016
Entrant (N)	0.003	0.004	-0.021	0.020
Exiter (X)	0.011	-0.010	0.021	-0.001
Net Entry (N-X)	-0.008	0.014	-0.042	0.020
Total	-0.041	-0.007	-0.051	0.017
Extensive Share	0.199	-2.085	0.834	1.198
Difference-in-Differences, Country-Product FEs (Quota-Bound vs Quota-Free, 2004-05 vs 2003-04)				
Margin	All	SOE	Domestic	Foreign
Incumbents (I)				
Within	0.013	-0.002	0.001	0.013
Across	-0.050	-0.024	-0.010	-0.016
Entrant (N)	0.005	0.003	-0.015	0.017
Exiter (X)	0.006	-0.009	0.019	-0.003
Net Entry (N-X)	-0.001	0.012	-0.033	0.020
Total	-0.039	-0.013	-0.042	0.017
Extensive Share	0.029	-0.928	0.793	1.207
Pre-Reform Difference-in-Differences (Quota-Bound vs Quota-Free, 2003-04 vs 2002-03)				
Margin	All	SOE	Domestic	Foreign
Incumbents (I)				
Within	-0.037	-0.027	0.001	-0.010
Across	0.024	0.017	0.004	0.004
Entrant (N)	-0.024	-0.008	0.010	-0.025
Exiter (X)	0.034	0.051	-0.011	-0.007
Net Entry (N-X)	-0.058	-0.060	0.021	-0.018
Total	-0.070	-0.070	0.025	-0.025
Extensive Share	0.824	0.860	0.827	0.728

Notes: Table reports the coefficient α_3 in equation (3), where the dependent variable in each regression is the change in quality for each margin-firm ownership type. Section 5.3 describes how quality is measured and equation (6) explains how each margin is computed, using quality instead of prices. The regression is run on the restricted sample of HS codes defined in Section 4.2. The top panel reports the relative change in 2004 to 2005 vs 2003 to 2004 between Quota-Bound versus Quota-Free exports, by margin of adjustment and firm ownership type. The middle panel is analogous to the left panel, but includes country-product pair fixed effects. The bottom panel runs the regression on the pre-reform sample from 2003 to 2004 versus 2002 to 2003. In all panels, rows 2 to 4 sum to row 5, rows 1 and 5 sum to row 6, and the first column is sum of the remaining columns. Standard errors are clustered by HS product. Estimated coefficients are bold if they are statistically significant at the 10 percent level or better.

Table A.5: Regression Output for Table A.4

	Incumbent - Within				Incumbent - Across				Entrant				Exiters				Total Change			
	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign
1{2005}	0.076	0.045	0.023	0.008	-0.001	-0.014	0.002	0.011	0.005	0.009	0.001	-0.004	-0.003	0.014	-0.021	0.004	0.083	0.026	0.048	0.009
1{Quota-Bound} _{it}	-0.017	-0.005	-0.004	-0.007	0.011	-0.002	0.005	0.008	0.005	0.005	0.018	-0.019	0.013	0.020	0.002	-0.008	-0.014	-0.022	0.017	-0.010
x 1{2005}	0.017	0.003	0.002	0.012	-0.050	-0.024	-0.010	-0.016	0.003	0.004	-0.021	0.020	0.011	-0.010	0.021	-0.001	-0.041	-0.007	-0.051	0.017
Constant	-0.007	-0.012	-0.002	0.006	0.002	0.012	-0.002	-0.007	-0.053	-0.024	-0.036	0.007	-0.111	-0.062	-0.040	-0.009	0.053	0.038	0.000	0.015
Observations	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830
R-squared	0.04	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.01

	Incumbent - Within				Incumbent - Across				Entrant				Exiters				Total Change			
	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign
1{2005}	0.078	0.045	0.024	0.008	-0.002	-0.015	0.002	0.011	-0.002	0.008	-0.008	-0.011	0.000	0.018	-0.022	0.003	0.074	0.020	0.040	0.015
1{Quota-Bound} _{it} x 1{2005}	0.019	0.012	0.010	0.010	0.019	0.016	0.006	0.008	0.034	0.021	0.018	0.011	-0.030	-0.019	-0.015	-0.012	0.075	0.047	0.033	0.024
Constant	-0.015	-0.013	-0.004	0.002	0.009	0.011	0.000	-0.003	-0.048	-0.021	-0.024	-0.003	-0.105	-0.055	-0.038	-0.012	0.051	0.033	0.010	0.008
Observations	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830	1,830
R-squared	0.53	0.56	0.43	0.49	0.45	0.46	0.50	0.43	0.41	0.44	0.52	0.52	0.46	0.46	0.43	0.46	0.35	0.33	0.37	0.36

	Incumbent - Within				Incumbent - Across				Entrant				Exiters				Total Change			
	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign
1{2004}	-0.013	-0.006	-0.009	0.003	-0.006	0.006	-0.006	-0.005	0.001	-0.006	-0.003	0.011	-0.029	-0.011	-0.016	-0.002	0.011	0.005	-0.004	0.010
1{Quota-Bound} _{it}	0.020	0.021	-0.005	0.003	-0.013	-0.019	0.001	0.004	0.028	0.014	0.008	0.007	-0.021	-0.032	0.013	-0.002	0.056	0.048	-0.008	0.015
x 1{2004}	-0.037	-0.027	0.001	-0.010	0.024	0.017	0.004	0.004	-0.024	-0.008	0.010	-0.025	0.034	0.051	-0.011	-0.007	-0.070	-0.070	0.025	-0.025
Constant	0.005	-0.006	0.008	0.003	0.008	0.005	0.004	-0.002	-0.054	-0.017	-0.033	-0.004	-0.083	-0.051	-0.024	-0.008	0.042	0.033	0.004	0.005
Observations	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786
R-squared	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00

Notes: This table displays the full regressions of equation (3) for Table A.4, which reports the difference-in-differences coefficient on 1{Quota-Bound}_{it} x 1{2005} for the changes in quality defined in Section 5.3 All regressions are run on the restricted sample of HS codes defined in Section 4.2. The top panel is the baseline specification that corresponds to the left panel of Table A.4. The middle panel includes country-product pair fixed effects in the estimation. The bottom panel is run on the pre-reform years (2002-2004). Standard errors are adjusted for clustering at the eight-digit HS level.

Table A.6: Market Share Decompositions, Processing Exports

Margin	Difference-in-Differences (Quota-Bound vs Quota-Free, 2004-05 vs 2003-04)				Difference-in-Differences, Processing (Quota-Bound vs Quota-Free, 2004-05 vs 2003-04)			
	All	SOE	Domestic	Foreign	All	SOE	Domestic	Foreign
Incumbents	-0.122	-0.106	-0.013	-0.003	-0.144	-0.106	-0.019	-0.019
Net Entry								
Adders	0.116	-0.011	0.071	0.056	0.097	-0.021	-0.015	0.133
New Exporters	0.037	-0.003	0.035	0.005	0.017	0.001	0.004	0.012
Exiters	-0.031	-0.027	-0.001	-0.003	0.029	-0.044	0.035	0.039
Total Net Entry	0.122	-0.041	0.105	0.058	0.144	-0.064	0.024	0.184
Total	0.000	-0.147	0.092	0.055	0.000	-0.170	0.006	0.164

Notes: The left panel replicates the left panel of Table 3, which reports the relative change in 2004 to 2005 vs 2003 to 2004 quantity-based market share between Quota-Bound versus Quota-Free exports, by margin of adjustment and firm ownership type. The right panel reports the analogous regression coefficients from a restricted sample covering processing exports only. In all panels, rows 2 to 4 sum to row 5, rows 1 and 5 sum to row 6, and the first column is sum of the remaining columns. Standard errors are clustered by HS product. Estimated coefficients are bold if they are statistically significant at the 10 percent level or better.

Figure A.1: Textile and Apparel Producers' Value Added per Worker, 2005



Figure A.2: MFA Incumbents's 2004-5 Change in Market Share vs Initial 2004 Level

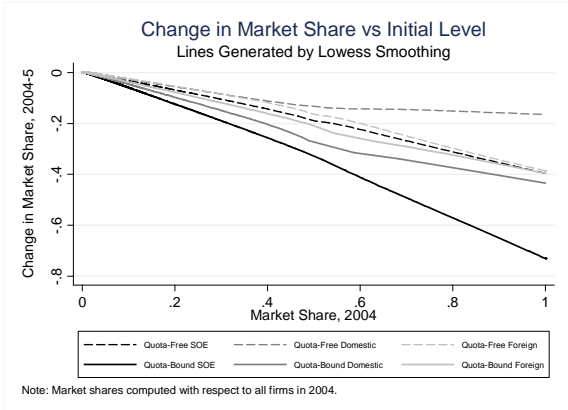


Figure A.3: Average Export Price Growth

