

Supplemental Appendix for “Growing into Export Markets: The Impact of Exporting on Firm-Level Investment in Indonesia” (NOT FOR PUBLICATION)

This appendix provides a variety of details related to data construction, estimation and robustness. Appendix A briefly discusses the construction of our capital measure. Appendix B reports the balancing check from the first stage probit. Appendix C documents bootstrap confidence intervals for the main results. Appendix D reports full results for all of our robustness checks. Appendix E documents the full results for the regressions testing the differences in investment behavior across foreign and domestic firms. Appendix F provides additional discussion of the model presented in main text along side simulated investment rates based on the model. Additional references are listed at the end of this document.

A Measuring Capital

Our measure of capital has several advantages which, for brevity, we do not discuss at length in the main text. First, by using a market value of capital, our measure accounts for variation in depreciation and changes in the productivity of the current capital stock across firms. We observe that, like other data sets that provide direct estimates of depreciation (e.g. Schündeln, 2011), this value varies substantially in the cross-section, particularly in developing countries. Second, we observe that across industries there is large cross-sectional variation in the degree to which firms invest in physical capital that is not classified in one of the four main classes of capital. To the extent that the nature of this capital varies across firms we might expect that the temporal variation in its productivity, market value and depreciation to be an additional source of variation over time not otherwise captured. Third, the data has excellent coverage across firms. It is often difficult to get reliable estimates of firm-level capital holdings in developing countries, particularly in cases where small firms do not have an accurate recording of the book value of capital. Alternatively, we also construct a capital series for each firm using perpetual inventory methods. This results in a distribution of capital across firms which is nearly identical to that from our preferred measure of capital. We do, however, have to drop numerous firms from the data set because of missing investment data from year to year. As such, we present results from the first measure of capital in the main text. We have checked our results using the measure of capital constructed by perpetual inventory and find very similar estimates.

The investment rate and frequency documented in Table 1 are somewhat lower than those reported in the US (Cooper and Haltiwanger, 2006), Norway (Nilsen and Schiantarelli, 2003) and Columbia (Huggett and Ospina, 2001). This can be attributed to the fact that in each of the above papers, the authors study a balanced panel of manufacturing firms, whereas we keep all of the firms in our sample. Balancing our panel of manufacturing firms results in significant data loss during the 1997-1998 Asian crisis. If we examine comparable moments for a balanced sample in the pre-crisis period (1990-1995) we find an average investment rate of 10.9 percent, an inaction frequency of 63.9, and a positive investment frequency of 34.9 percent. These figures are closer to those found elsewhere, but continue to reflect the relatively restrictive investment environment in Indonesia.

B Balancing Check

This section presents a simple exercise to verify the similarity of the underlying characteristics among firms with similar propensity scores. In general, if we observe large and significant differences across firms with similar propensity scores we would be concerned that our matching exercise may not be comparing similar firms. To examine this possibility we first group firms according to their estimated propensity score. Within each propensity score grouping we examine the average value of key firm-level characteristics for both treated and control firms. Fortunately, in no case do we observe any significant differences across treated and control firms.

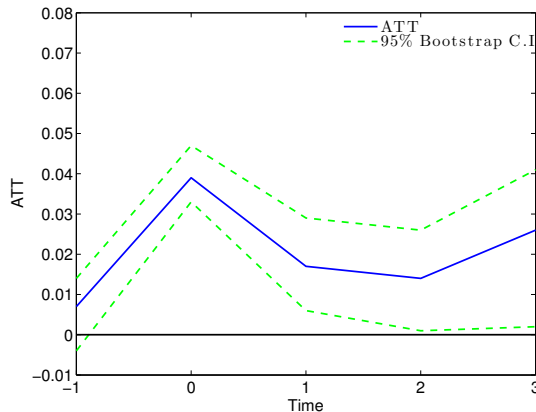
Table B1: Balancing Check

Propensity Score		Explanatory Variables (lagged 1 period)						Obs	
		Productivity	Age	Capital	Average Wage	Skill Intensity	Foreign Ownership		Investment Ratio
0-0.025	T	-0.106	15.694	6.173	1.460	0.223	0.005	0.050	386
	C	-0.137	17.520	6.352	1.490	0.250	0.002	0.035	
	D	0.032 (0.039) [0.082]	-1.827 (1.298) [-1.408]	-0.179 (0.113) [-1.584]	-0.029 (0.052) [-0.560]	-0.027 (0.035) [-0.770]	0.002 (0.006) [0.333]	0.015 (0.011) [1.364]	
0.025-0.05	T	-0.016	15.635	7.415	1.828	0.364	0.033	0.058	390
	C	-0.020	15.353	7.449	1.848	0.332	0.007	0.055	
	D	0.004 (0.042) [0.095]	0.282 (1.102) [0.256]	-0.034 (0.113) [-0.301]	-0.021 (0.054) [-0.389]	0.032 (0.058) [0.552]	0.027 (0.018) [1.500]	0.003 (0.013) [0.231]	
0.05-0.15	T	0.056	13.436	8.141	2.075	0.338	0.073	0.094	1,328
	C	0.039	12.822	8.064	2.037	0.347	0.060	0.086	
	D	0.017 (0.026) [0.654]	0.613 (0.695) [0.882]	0.077 (0.061) [1.262]	0.038 (0.030) [1.267]	-0.009 (0.030) [-0.300]	0.013 (0.010) [1.300]	0.008 (0.007) [1.011]	
0.15-0.25	T	0.074	11.821	8.587	2.108	0.341	0.117	0.110	922
	C	0.108	12.230	8.579	2.109	0.313	0.098	0.107	
	D	-0.034 (0.031) [-1.097]	-0.498 (0.790) [-0.630]	0.007 (0.068) [0.103]	-0.001 (0.035) [-0.029]	0.028 (0.038) [0.737]	0.019 (0.018) [1.056]	0.002 (0.013) [0.154]	
0.25-0.35	T	0.118	10.520	8.994	2.216	0.418	0.206	0.120	597
	C	0.107	12.455	9.236	2.209	0.300	0.160	0.137	
	D	0.011 (0.037) [0.297]	-1.935 (1.217) [-1.590]	-0.242 (0.126) [-1.921]	0.007 (0.052) [0.134]	0.118 (0.110) [1.073]	0.045 (0.025) [1.800]	-0.017 (0.018) [-0.944]	
0.35-0.45	T	0.192	10.224	9.335	2.215	0.387	0.217	0.170	391
	C	0.251	12.436	9.590	2.296	0.363	0.271	0.120	
	D	-0.059 (0.068) [-0.868]	-2.212 (1.700) [-1.301]	-0.254 (0.172) [-1.477]	-0.081 (0.064) [-1.266]	0.024 (0.143) [-0.167]	-0.054 (0.039) [-1.385]	0.050 (0.027) [1.852]	
0.45-0.60	T	0.320	9.166	9.977	2.358	0.222	0.332	0.210	308
	C	0.246	10.897	10.249	2.267	0.266	0.360	0.190	
	D	0.073 (0.079) [0.924]	-1.731 (1.711) [-1.012]	-0.271 (0.211) [-1.284]	0.092 (0.086) [1.070]	-0.045 (0.047) [-0.957]	-0.027 (0.044) [-0.614]	0.020 (0.032) [0.625]	
0.60-1.00	T	0.464	9.780	10.864	2.534	0.283	0.550	0.280	93
	C	0.333	10.500	11.158	2.459	0.220	0.590	0.258	
	D	0.132 (0.219) [0.603]	-0.720 (2.126) [-0.339]	-0.294 (0.317) [-0.927]	0.106 (0.147) [0.721]	0.063 (0.150) [0.420]	-0.040 (0.094) [-0.425]	0.022 (0.058) [0.379]	

This table presents the mean differences in observed variables between treated and control groups across. We make these comparisons within seven different propensity score bins. Standard errors are presented in parentheses. Wald statistics are reported in square brackets.

C Main Results

This section documents the average treatment effect of exporting on investment and the associated 95 percent bootstrap confidence intervals for each year. We observe that for the main sample the lower bound is always above 0 indicating that in each year after entry the impact of exporting on investment is highly significant.



Notes: The solid line plots the average treated effect on the treated (ATT), while the dashed line plots the 95 percent bootstrap confidence interval.

D Additional Robustness Checks

This section reports the full results for all of robustness checks. It includes both those summarized in the main text and additional checks which were omitted from the main text for brevity.

D.1 Small vs. Large Firms

In this section we investigate differences across firm size. On one hand, by virtue of being small, small firms may have a greater need to increase capacity as they enter export markets. On the other hand, large firms may be able to secure cheaper financing and, as such, expand more rapidly into export markets.

Our model does not provide a clear distinction between what constitutes a “large” rather than a “small” firm. We begin by calculating the median capital stock in each 4-digit industry. Then we define a large firm as any firm which has at least as much capital as the median firm in the industry one year prior to initial entry into export markets. We choose to use capital stock as our metric for firm size since existing capital is most closely linked to a firm’s ability to secure further financing. The results are presented in Table D1. We find that both small and large firms increase capital holdings upon entry into export markets, though the expansion among small firms is moderately larger. This suggests that smaller firms are likely to have a particularly strong incentive to increase capacity upon entry into export markets.

Table D1: Investment Rate Across Large and Small Firms (Capital)

Large Firms ($K \geq \bar{K}$)					
	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: \bar{T}	0.119	0.103	0.087	0.097	0.104
Control Group: \bar{C}	0.117	0.070	0.076	0.082	0.077
ATT	0.002 (0.007)	0.033*** (0.005)	0.011 (0.007)	0.014 (0.010)	0.026*** (0.008)
ATT/ \bar{T}		0.320	0.126	0.144	0.250
No. of matched pairs	3,353	3,353	2,443	1,171	1,197
Mean difference in propensity score	0.009	0.009	0.009	0.009	0.010
Small Firms ($K < \bar{K}$)					
	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: \bar{T}	0.114	0.112	0.090	0.076	0.062
Control Group: \bar{C}	0.093	0.062	0.060	0.057	0.049
ATT	0.021 (0.013)	0.050*** (0.011)	0.030*** (0.011)	0.019 (0.014)	0.013 (0.012)
ATT/ \bar{T}		0.446	0.333	0.250	0.194
No. of matched pairs	1,022	1,022	737	401	374
Mean difference in propensity score	0.008	0.008	0.009	0.008	0.006

Notes: The first two lines present the outcomes observed in the given time period. The average treatment effect on the treated (ATT) is presented in the third row along with bootstrapped standard errors in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

$$\begin{aligned}
 \text{(a) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)^{treated}_{entry\ year+0} - \left(\frac{i}{k} \right)^{control}_{entry\ year+0} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)^{treated}_{entry\ year-1} - \left(\frac{i}{k} \right)^{control}_{entry\ year-1} \right] \\
 \text{(b) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)^{treated}_{entry\ year+1} - \left(\frac{i}{k} \right)^{control}_{entry\ year+1} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)^{treated}_{entry\ year-1} - \left(\frac{i}{k} \right)^{control}_{entry\ year-1} \right] \\
 \text{(c) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)^{treated}_{entry\ year+2} - \left(\frac{i}{k} \right)^{control}_{entry\ year+2} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)^{treated}_{entry\ year-1} - \left(\frac{i}{k} \right)^{control}_{entry\ year-1} \right] \\
 \text{(d) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)^{treated}_{entry\ year+3} - \left(\frac{i}{k} \right)^{control}_{entry\ year+3} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)^{treated}_{entry\ year-1} - \left(\frac{i}{k} \right)^{control}_{entry\ year-1} \right]
 \end{aligned}$$

D.2 Foreign and Domestic Ownership

Here we reconsider our matching exercise to investigate whether there are systematic differences in the investment behavior of foreign and domestic firms upon entry into export markets. We begin by noting that we need to be careful in our definition of what constitutes a foreign firm. As noted above, we first consider any firm where at least 10 percent of firm equity is owned by foreign investors to be foreign owned. Second, in order not to misinterpret the impact of becoming foreign with that from exporting, we define a new foreign exporter as a firm which has been held by foreign investors for at least one year prior to starting to export. We choose this definition of foreign firms so that our findings cannot be attributed to MNCs choosing to purchase Indonesian firms with larger capital holdings, better access to credit markets or superior export potential. We likewise capture our domestic sample in a similar fashion; we define a new domestic exporter as a firm which has been held by domestic owners for at least one year prior to entry into export markets. Finally, note that foreign firms are matched to similar foreign non-exporting firms, while domestic firms are matched to similar domestic non-exporting firms. In this fashion, we are comparing firms which operate with similar access to credit markets.

The results from this exercise are presented in Table D2. The estimated average treatment effects on the treated are strongly significant among foreign firms in the year of entry. In the year of entry, the ATT implies a 5.8 percentage point increase in the investment rate among foreign exporters. When we compare the ATT in the year of entry relative to the average investment rate among foreign exporters we find that it explains 42% of total firm-level investment. However, during the following years the ATTs are very small, often negative and never significantly different from zero. This pattern suggests a degree of lumpiness in investment consistent with non-convex adjustment costs among foreign firms.

Domestic firms contrast sharply to their foreign counterparts. First, we begin to observe significant differences between treated and control firms in the year of initial entry and these continue during the three years after entry. This result is consistent with the idea that domestic firms may be constrained by financial frictions and, as such, can only adjust capital holdings slowly over time. We find that the investment rate among domestic exporters is 3.3 percentage points higher in the year of entry and 2.0-2.8 percentage points higher in the years following entry. Collectively, these explain approximately 23-34% of overall investment in each year.

The results from Table 9 are suggestive of financial frictions affecting firm-level entry into export markets. In particular, they suggest that foreign firms invest more over a shorter period of time when entering export markets, while domestic exporters increase investment more modestly over a longer time period. However, our results require some caution. In particular, the control firms are likely to differ substantially across subsamples and, as such, it would be incorrect to draw conclusions by comparing the estimated differences between treated and control groups across experiments.

D.3 Asian Crisis

One of the features of our sample is that it covers the period in which Indonesia was subject to the Asian financial crisis. The Asian financial crisis began in the fall of 1997 and continued well into 1998. There are two features of the Asian crisis which are of particular interest in our study. First, the onset of the financial crisis caused a sharp contraction in Indonesian GDP. This, in turn, affected the return to exporting relative to producing for domestic consumption.

Table D2: Investment Rate and Exporting, Foreign vs. Domestic Firms

Foreign Firms					
	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: \bar{T}	0.154	0.139	0.108	0.122	0.158
Control Group: \bar{C}	0.167	0.081	0.111	0.107	0.159
ATT	-0.013 (0.021)	0.058*** (0.017)	-0.003 (0.022)	0.015 (0.037)	-0.001 (0.035)
ATT/ \bar{T}		0.417	-0.028	0.123	-0.006
No. of matched pairs	512	512	353	129	129
Mean difference in propensity score	0.026	0.026	0.028	0.033	0.033
Domestic Firms					
	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: \bar{T}	0.112	0.096	0.081	0.086	0.086
Control Group: \bar{C}	0.103	0.064	0.061	0.066	0.059
ATT	0.009 (0.007)	0.033*** (0.005)	0.020*** (0.006)	0.020*** (0.007)	0.028*** (0.007)
ATT/ \bar{T}		0.343	0.247	0.233	0.326
No. of matched pairs	3,610	3,610	2,654	1,359	1,339
Mean difference in propensity score	0.001	0.001	0.001	0.001	0.001

Notes: The first two lines present the outcomes observed in the given time period. The average treatment effect on the treated (ATT) is presented in the third row along with bootstrapped standard errors in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

$$\begin{aligned}
 \text{(a) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+0}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+0}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right] \\
 \text{(b) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+1}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right] \\
 \text{(c) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+2}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+2}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right] \\
 \text{(d) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+3}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+3}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right]
 \end{aligned}$$

Table D3: Investment Rate and Exporting, Asian Financial Crisis

Pre-Crisis (1991-1995)					
	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: \bar{T}	0.145	0.117	0.105	0.100	0.096
Control Group: \bar{C}	0.140	0.098	0.086	0.083	0.082
ATT	0.005 (0.007)	0.019*** (0.007)	0.019** (0.009)	0.017* (0.010)	0.015 (0.011)
ATT/ \bar{T}		0.162	0.181	0.170	0.156
No. of matched pairs	2,264	2,264	1,726	1,197	815
Mean difference in propensity score	0.007	0.007	0.007	0.007	0.009
Crisis and Post-Crisis (1997-2000)					
	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: \bar{T}	0.091	0.093	0.067	0.067	0.091
Control Group: \bar{C}	0.082	0.032	0.053	0.063	0.053
ATT	0.009 (0.009)	0.061*** (0.006)	0.015* (0.008)	0.004 (0.017)	0.038*** (0.011)
ATT/ \bar{T}		0.620	0.344	0.500	0.444
No. of matched pairs	2,151	2,151	1,487	384	762
Mean difference in propensity score	0.007	0.007	0.008	0.006	0.007

Notes: The first two lines present the outcomes observed in the given time period. The average treatment effect on the treated (ATT) is presented in the third row along with bootstrapped standard errors in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

$$\begin{aligned}
 \text{(a) } ATT &= \frac{1}{n} \sum_1^n \left[\binom{i}{k}^{\text{treated}}_{\text{entry year}+0} - \binom{i}{k}^{\text{control}}_{\text{entry year}+0} \right] - \frac{1}{n} \sum_1^n \left[\binom{i}{k}^{\text{treated}}_{\text{entry year}-1} - \binom{i}{k}^{\text{control}}_{\text{entry year}-1} \right] \\
 \text{(b) } ATT &= \frac{1}{n} \sum_1^n \left[\binom{i}{k}^{\text{treated}}_{\text{entry year}+1} - \binom{i}{k}^{\text{control}}_{\text{entry year}+1} \right] - \frac{1}{n} \sum_1^n \left[\binom{i}{k}^{\text{treated}}_{\text{entry year}-1} - \binom{i}{k}^{\text{control}}_{\text{entry year}-1} \right] \\
 \text{(c) } ATT &= \frac{1}{n} \sum_1^n \left[\binom{i}{k}^{\text{treated}}_{\text{entry year}+2} - \binom{i}{k}^{\text{control}}_{\text{entry year}+2} \right] - \frac{1}{n} \sum_1^n \left[\binom{i}{k}^{\text{treated}}_{\text{entry year}-1} - \binom{i}{k}^{\text{control}}_{\text{entry year}-1} \right] \\
 \text{(d) } ATT &= \frac{1}{n} \sum_1^n \left[\binom{i}{k}^{\text{treated}}_{\text{entry year}+3} - \binom{i}{k}^{\text{control}}_{\text{entry year}+3} \right] - \frac{1}{n} \sum_1^n \left[\binom{i}{k}^{\text{treated}}_{\text{entry year}-1} - \binom{i}{k}^{\text{control}}_{\text{entry year}-1} \right]
 \end{aligned}$$

Second, the Asian crisis was reported to have further restricted access to credit during the crisis years (Ito and Sato, 2006).

To the extent that the Asian crisis may have affected firm-level exporting and investment rates, we may expect that our estimates will be biased. What is less clear, however, is the direction of the bias. On one hand, tighter investment regulation is likely to reduce investment and discourage large entries into export markets. As such, we might expect that our estimates in the full sample could be biased towards zero if the Asian crisis is not adequately controlled for in the full sample. On the other hand, if only the strongest firms are able to export during the Asian crisis we might expect that these exporting firms are very productive and have a particularly strong incentive to invest.

We investigate this possibility by repeating our exercise before the Asian crisis period (1990-1995) and on the period during and after the Asian crisis (1997-2000). The mean investment rates among both treated and control firms are much higher before the crisis relative to the subsequent crisis period. We also observe that during the crisis period exporting appears to have a stronger impact on investment rates after entry. Consider the year of initial entry. The

contribution of exporting to total investment is almost four times larger during the crisis period relative to the pre-crisis period. For example, the $ATT/\bar{T} \times 100 \approx 16\%$ in year of entry during the pre-crisis period, while this same calculation jumps to 61% during the crisis period. Our results strongly suggest that as the domestic market contracted sharply during the Asian crisis, export markets were particularly important in determining investment behavior among exporting firms.

D.4 Disaggregated Investment

Our data allows us to disaggregate each firm’s capital stock and investment into a number of sub-categories. To get a sense of the nature of firm-level capital expansion during entry into export markets we repeat our matching exercise for three groups of capital holdings: machinery and equipment, buildings and land, and vehicles. Among total capital holdings in our data machinery and equipment, buildings and land, and vehicles account for nearly 19, 41, and 8 percent of recorded holdings, respectively. Likewise, among investing firms machinery and equipment, buildings and land, and vehicles account for nearly 40, 26, and 18 percent of new investment, respectively.¹ Our expectation is that the increase in the firm’s productive capacity is most closely associated with the firm’s physical machinery and equipment necessary for production. As such, we expect that exporting will have the largest impact on increasing the rate of investment in machinery and equipment.

The results for machinery and equipment, buildings and land, and vehicles are presented in Table D4. As expected we observe highly significant results for investment in machinery and equipment both in the year of initial entry and in the first two years after entry. The point estimates suggest that exporting causes the investment rate for machinery and equipment to increase by 3.6 percentage points in the year of entry and 1.4-3.2 percentage points in the three years after entry. Relative to the average investment rate across firms, these estimates imply a 13-25 percent annual increase in machinery investment over those 3 years. Somewhat surprisingly, we observe similar, significant increases in vehicles, both in the year of entry and the three years after entry into export markets. In contrast, investment in new land and buildings only increases moderately during the year of entry (1.9 percentage points) among exporting plants and there is no significant difference in any other year.

D.5 Perennial Exporters

A potential concern in our context is that new exporters which exit export markets shortly after initial entry may have a smaller incentive to invest and, as such, bias our main estimates.² We examine this issue by repeating our experiment on subsamples of firms which have different export histories. Specifically, we restrict the treated sample to new exporting firms which export for at least 4 consecutive years.

¹The remaining investment, capital sales or capital stock is classified as “other investment not classified elsewhere.”

²See Eaton et al. (2009), Arkolakis (2010), Blum et al. (2013) and Rho and Rodrigue (2014) for examples.

Table D4: Investment Rate and Exporting, Disaggregated Investment

Machinery and Equipment					
	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: \bar{T}	0.152	0.133	0.112	0.123	0.126
Control Group: \bar{C}	0.157	0.102	0.098	0.103	0.095
ATT	-0.005 (0.008)	0.031*** (0.008)	0.014* (0.008)	0.020** (0.010)	0.032*** (0.011)
ATT/ \bar{T}		0.233	0.125	0.163	0.254
No. of matched pairs	3,255	3,413	2,604	1,324	1,238
Mean difference in propensity score	0.008	0.009	0.010	0.008	0.010
Vehicles					
	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: \bar{T}	0.166	0.149	0.131	0.155	0.138
Control Group: \bar{C}	0.157	0.119	0.116	0.118	0.100
ATT	0.009 (0.010)	0.030*** (0.008)	0.013 (0.009)	0.037*** (0.013)	0.038*** (0.013)
ATT/ \bar{T}		0.201	0.099	0.239	0.275
No. of matched pairs	3,010	3,123	2,418	1,236	1,173
Mean difference in propensity score	0.009	0.010	0.010	0.009	0.010
Buildings and Land					
	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: \bar{T}	0.101	0.080	0.066	0.072	0.064
Control Group: \bar{C}	0.099	0.062	0.065	0.059	0.058
ATT	0.002 (0.008)	0.019*** (0.006)	0.001 (0.006)	0.013 (0.008)	0.006 (0.008)
ATT/ \bar{T}		0.238	0.015	0.181	0.094
No. of matched pairs	3,179	3,299	2,542	1,325	1,232
Mean difference in propensity score	0.008	0.009	0.010	0.008	0.009

Notes: The first two lines present the outcomes observed in the given time period. The average treatment effect on the treated (ATT) is presented in the third row along with bootstrapped standard errors in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

$$\begin{aligned}
 \text{(a) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+0}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+0}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right] \\
 \text{(b) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+1}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right] \\
 \text{(c) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+2}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+2}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right] \\
 \text{(d) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+3}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+3}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right]
 \end{aligned}$$

Table D5: Investment Rate and Exporting, ≥ 3 Years of Consecutive Exporting

	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group	0.172	0.128	0.119	0.111	0.108
Control Group	0.150	0.093	0.083	0.073	0.089
ATT	0.023	0.035**	0.036**	0.038***	0.019
	(0.018)	(0.014)	(0.015)	(0.013)	(0.016)
ATT/ \bar{T}		0.273	0.303	0.342	0.176
No. of matched pairs	541	541	541	541	356
Mean difference in propensity score	0.010	0.010	0.010	0.010	0.010

Notes: The first two lines present the outcomes observed in the given time period. The average treatment effect on the treated (ATT) is presented in the third row along with bootstrapped standard errors in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

$$\begin{aligned}
\text{(a) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+0}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+0}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right] \\
\text{(b) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+1}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right] \\
\text{(c) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+2}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+2}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right] \\
\text{(d) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}+3}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}+3}^{\text{control}} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{treated}} - \left(\frac{i}{k} \right)_{\text{entry year}-1}^{\text{control}} \right]
\end{aligned}$$

As expected our restriction results in a substantial reduction in sample size. However, as reported in Table D5, we again observe nearly identical results. The average treatment effect on the treated estimates suggest that the investment rate is 2-4 percentage points higher in the year of entry and the two following years.

D.6 Definition of a New Exporter

A concern related to that discussed in the above section is that our definition of new exporters may include firms which were recent exporters. To address this issue we repeat our first stage probit exercise to estimate a model of export entry where we only include firms which have not exported for at least two years. We then reconsider our matching experiment on a restricted sample where we define new exporter as firm a which exports in year t but has not exported in year $t-1$ and $t-2$. Likewise, we ensure that their matched control firms are also non-exporters throughout the entire period.

Table D6: Investment Rate and Exporting, Alternative Definition of a New Exporter

	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group	0.094	0.094	0.075	0.078	0.086
Control Group	0.097	0.055	0.042	0.065	0.058
ATT	-0.003 (0.008)	0.040*** (0.005)	0.036*** (0.007)	0.013* (0.008)	0.028*** (0.008)
ATT/ \bar{T}		0.425	0.480	0.167	0.326
No. of matched pairs	3,657	3,657	2,541	993	993
Mean difference in propensity score	0.007	0.007	0.007	0.008	0.008

Notes: The first two lines present the outcomes observed in the given time period. The average treatment effect on the treated (ATT) is presented in the third row along with bootstrapped standard errors in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

$$\begin{aligned}
 \text{(a) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year+0}^{treated} - \left(\frac{i}{k} \right)_{entry\ year+0}^{control} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year-1}^{treated} - \left(\frac{i}{k} \right)_{entry\ year-1}^{control} \right] \\
 \text{(b) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year+1}^{treated} - \left(\frac{i}{k} \right)_{entry\ year+1}^{control} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year-1}^{treated} - \left(\frac{i}{k} \right)_{entry\ year-1}^{control} \right] \\
 \text{(c) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year+2}^{treated} - \left(\frac{i}{k} \right)_{entry\ year+2}^{control} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year-1}^{treated} - \left(\frac{i}{k} \right)_{entry\ year-1}^{control} \right] \\
 \text{(d) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year+3}^{treated} - \left(\frac{i}{k} \right)_{entry\ year+3}^{control} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year-1}^{treated} - \left(\frac{i}{k} \right)_{entry\ year-1}^{control} \right]
 \end{aligned}$$

We find that exporting has a similar impact on entry to that reported in the full sample, if not slightly larger. Exporting is found to increase the investment rate by 4.0 percentage points in the first year which represents 43 percent of total investment among new exporters in their first year of exporting. We similarly observe statistically significant differences in the subsequent three years after entry where exporting is found to increase investment rates by 1.3-3.6 percentage points in each year.

D.7 Sample Selection

A potential concern is that our main estimates will be broadly affected by sample attrition. We examine this issue by studying samples of firms which are in our sample for at least three years. Specifically, the treated sample includes firms which exist for at least one year before entering export markets and one year after entry. In this fashion, none of the new exporters exit the sample immediately after entry into export markets. Likewise, the group of control firms include firms which exist 3 consecutive years but never export. The results from the matching exercise are presented in Table D7.

Naturally, as we impose stronger requirements on the length of time a firm must be present, our overall sample size falls. Despite the reduction in sample size in all cases we find very similar results to those found in the full sample both in size and significance. Specifically, we find average treatment effects on the treated of 2-4 percentage points, all of which are significant.

D.8 Small vs. Large Firms Revisited

In this section we revisit our investigation of differences across firm size. Here we consider a second, common metric of firm size: employment. We define a large firm in the Indonesian manufacturing sector as one with more than the average number of employees in the year before initial entry into export markets. We observe that exporting again appears to have an impact

Table D7: Investment Rate and Exporting, ≥ 3 Years of Consecutive Production

	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: \bar{T}	0.132	0.110	0.088	0.100	0.093
Control Group: \bar{C}	0.120	0.070	0.071	0.083	0.073
ATT	0.012	0.040***	0.017***	0.017*	0.020**
	(0.008)	(0.006)	(0.005)	(0.009)	(0.009)
ATT/ \bar{T}		0.363	0.193	0.170	0.215
No. of matched pairs	3,213	3,213	3,213	1,185	1,199
Mean difference in propensity score	0.007	0.007	0.007	0.007	0.008

Notes: The first two lines present the outcomes observed in the given time period. The average treatment effect on the treated (ATT) is presented in the third row along with bootstrapped standard errors in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

$$\begin{aligned}
 \text{(a) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year+0}^{treated} - \left(\frac{i}{k} \right)_{entry\ year+0}^{control} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year-1}^{treated} - \left(\frac{i}{k} \right)_{entry\ year-1}^{control} \right] \\
 \text{(b) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year+1}^{treated} - \left(\frac{i}{k} \right)_{entry\ year+1}^{control} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year-1}^{treated} - \left(\frac{i}{k} \right)_{entry\ year-1}^{control} \right] \\
 \text{(c) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year+2}^{treated} - \left(\frac{i}{k} \right)_{entry\ year+2}^{control} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year-1}^{treated} - \left(\frac{i}{k} \right)_{entry\ year-1}^{control} \right] \\
 \text{(d) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year+3}^{treated} - \left(\frac{i}{k} \right)_{entry\ year+3}^{control} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{entry\ year-1}^{treated} - \left(\frac{i}{k} \right)_{entry\ year-1}^{control} \right]
 \end{aligned}$$

on investment among both groups of firms, though the ATT suggests that it may be moderately stronger among larger firms.

Table D8: Investment Rate Across Large and Small Firms (Employment)

Large Firms (Employment)					
	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: \bar{T}	0.134	0.119	0.095	0.118	0.120
Control Group: \bar{C}	0.123	0.076	0.084	0.092	0.096
ATT	0.010 (0.007)	0.043*** (0.007)	0.012 (0.009)	0.026*** (0.010)	0.024* (0.013)
ATT/ \bar{T}		0.361	0.126	0.220	0.200
No. of matched pairs	2,070	2,070	1,521	703	739
Mean difference in propensity score	0.013	0.013	0.013	0.013	0.015
Small Firms (Employment)					
	One Year Before Entry	Year of Entry ^(a)	One Year Later ^(b)	Two Years Later ^(c)	Three Years Later ^(d)
Treatment Group: T	0.102	0.092	0.078	0.068	0.070
Control Group: C	0.092	0.062	0.063	0.068	0.060
ATT	0.010 (0.007)	0.029*** (0.007)	0.020*** (0.007)	0.0004 (0.009)	0.010 (0.009)
ATT/ \bar{T}		0.315	0.256	0.006	0.143
No. of matched pairs	2,251	2,251	1,616	837	792
Mean difference in propensity score	0.007	0.007	0.007	0.006	0.007

Notes: The first two lines present the outcomes observed in the given time period. The average treatment effect on the treated (ATT) is presented in the third row along with bootstrapped standard errors in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

$$\begin{aligned}
 \text{(a) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{treated}}^{\text{entry year}+0} - \left(\frac{i}{k} \right)_{\text{control}}^{\text{entry year}+0} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{treated}}^{\text{entry year}-1} - \left(\frac{i}{k} \right)_{\text{control}}^{\text{entry year}-1} \right] \\
 \text{(b) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{treated}}^{\text{entry year}+1} - \left(\frac{i}{k} \right)_{\text{control}}^{\text{entry year}+1} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{treated}}^{\text{entry year}-1} - \left(\frac{i}{k} \right)_{\text{control}}^{\text{entry year}-1} \right] \\
 \text{(c) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{treated}}^{\text{entry year}+2} - \left(\frac{i}{k} \right)_{\text{control}}^{\text{entry year}+2} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{treated}}^{\text{entry year}-1} - \left(\frac{i}{k} \right)_{\text{control}}^{\text{entry year}-1} \right] \\
 \text{(d) } ATT &= \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{treated}}^{\text{entry year}+3} - \left(\frac{i}{k} \right)_{\text{control}}^{\text{entry year}+3} \right] - \frac{1}{n} \sum_1^n \left[\left(\frac{i}{k} \right)_{\text{treated}}^{\text{entry year}-1} - \left(\frac{i}{k} \right)_{\text{control}}^{\text{entry year}-1} \right]
 \end{aligned}$$

E Foreign vs. Domestic Firms, Full Tables

This section documents the full tables for the results presented in Tables 6, 7 and 8 of the main text.

Table E1: Foreign vs. Domestic Firms Revisited

Dependent Variable: Investment Rate				
Matched Sample, 1991-2000				
Export Premium	Year of Entry	One Year Later	Two Years Later	Three Years Later
Dom. Exp. Status (α_d)	0.030*** (0.005)	0.015*** (0.006)	0.018** (0.007)	0.020*** (0.007)
For. Exp. Status (α_f)	0.074*** (0.011)	0.025 (0.016)	0.008 (0.021)	0.025 (0.021)
Foreign Ownership	-0.012 (0.009)	0.027* (0.017)	0.038* (0.022)	0.039** (0.018)
TFP	0.021*** (0.006)	0.027*** (0.008)	0.017** (0.009)	0.007 (0.009)
TFP ²	-0.004* (0.002)	-0.001 (0.003)	-0.004 (0.004)	-0.004 (0.004)
Age	-0.0004 (0.0004)	0.0002 (0.0005)	0.0005 (0.0007)	0.001 (0.001)
Age ²	3.1e-06 (4.5e-06)	-3.3e-06 (5.3e-06)	-8.3e-06 (8.4e-06)	-0.00001 (8.8e-06)
Capital	0.0003 (0.007)	0.012 (0.008)	0.005 (0.009)	0.019** (0.009)
Capital ²	0.0001 (0.0004)	-0.0004 (0.0004)	-0.00004 (0.0005)	-0.001 (0.001)
Avg. Wage	-0.004 (0.009)	-0.014 (0.009)	-0.014 (0.013)	-0.0003 (0.011)
Avg. Wage ²	-0.0002 (0.0018)	0.0004 (0.0019)	0.002 (0.003)	0.003 (0.003)
Skill Intensity	0.001 (0.009)	0.006 (0.010)	0.005 (0.017)	-0.004 (0.018)
Skill Intensity ²	0.0001 (0.002)	-0.001 (0.001)	-0.001 (0.003)	0.002 (0.004)
Investment Ratio	0.244 (0.016)	0.123 (0.019)	0.121 (0.021)	0.076 (0.016)
$\alpha_f - \alpha_d$	0.042***	0.010	-0.011	0.005
Wald Stat	13.44	0.33	0.22	0.05
p-value	0.0002	0.567	0.636	0.815
R^2	0.149	0.097	0.110	0.105
Obs.	8,244	6,014	2,976	2,936

Notes: Four-digit industry dummies, province dummies and year dummies are included but not reported. Robust standard errors, clustered by firm, are reported in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. Investment data is not collected in 1996.

F Additional Model Discussion

This section provides greater characterization of the simple model of investment and exporting with heterogeneous firms. Specifically, the discussion below provides further insight into the model predicted investment patterns across export status, productivity and existing capital stock. Further, we simulate the model over time to generate simulated differences across exporting and non-exporting firms which are consistent with the data. The computed model, the simulation exercise and parameter choices are all taken from our companion paper Rho and Rodrigue (2014). Since the technical details of this exercise are explained at length in this companion paper we omit further discussion here.

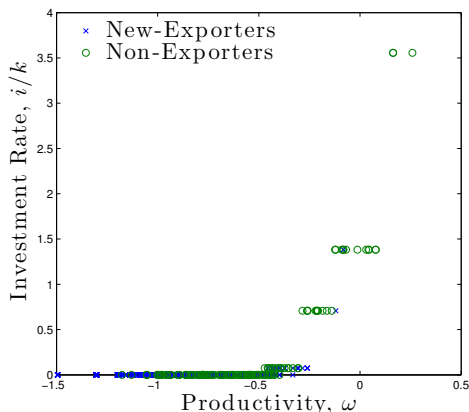


Figure F1: Simulated Investment and Productivity

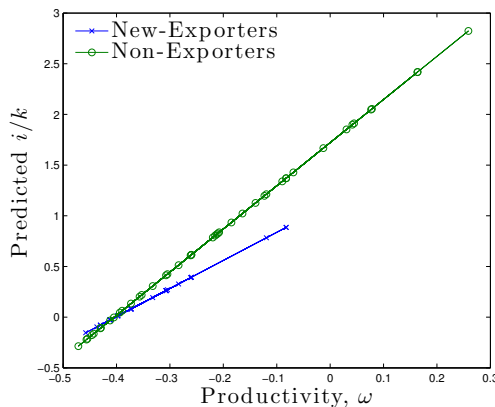


Figure F2: Expected Investment across Productivity among Investors

In our first exercise we simulate the investment rate of a set of firms all with the average holding of capital stock, but different productivity levels. We then collect the simulated investment rates across new exporters and non-exporting firms and plot them in Figure F1. First, as in the actual data, it is clear that the most common simulated investment rate is zero, capturing the fact that firms face non-convex investment costs. Second, investment is increasing with productivity as highly productive firms are more likely to invest. Third, and less apparent in Figure F1, new exporters tend to invest more than comparable non-exporters in the first year of exporting. To highlight the difference in investment rates across firms we estimate a linear regression using the simulated investment rates among investing firms on their productivity levels and plot the predicted investment rates across exporting and non-exporting firms in Figure F2. For any given productivity level (the only difference across firms in this exercise) new exporters are consistently predicted to invest more than non-exporters.

Next, we consider a similar exercise where we hold productivity fixed at the average level in the data and allow existing capital stock to vary across producers. The simulated investment rates are plotted in Figure F3. It is clear that new firms with more capital have less incentive to invest in new capital as we would expect. However, it is also clear that exporting firms are investing at a substantially higher rate. Figure F4 considers the fitted values from a linear regression of the investment rates among simulated investing firms on their existing capital stock. It is clear that among investors, new exporters are investing at a higher rate than non-exporters,

Table E2: Foreign vs. Domestic Firms Revisited, 1991-1995 and 1997-2000

Export Premium	Dependent Variable: Investment Rate											
	Matched Sample: 1991-1995 or 1997-2000						Asian Crisis and Post-Crisis: 1997-2000					
	Year of Entry	One Year Later	Two Years Later	Three Years Later	Year of Entry	One Year Later	Two Years Later	Three Years Later	Year of Entry	One Year Later	Two Years Later	Three Years Later
Dom. Exp. Status (α_d)	0.011* (0.007)	0.018** (0.007)	0.023*** (0.009)	0.011 (0.010)	0.050*** (0.006)	0.011 (0.008)	-0.00001 (0.014)	0.030*** (0.010)	0.050*** (0.006)	0.011 (0.008)	-0.00001 (0.014)	0.030*** (0.010)
For. Exp. Status (α_f)	0.053*** (0.020)	0.028 (0.028)	0.007 (0.027)	0.018 (0.031)	0.092*** (0.012)	0.021 (0.017)	0.030 (0.035)	0.036 (0.028)	0.092*** (0.012)	0.021 (0.017)	0.030 (0.035)	0.036 (0.028)
Foreign Ownership	0.013 (0.017)	0.068** (0.028)	0.043 (0.029)	0.041 (0.025)	-0.023** (0.010)	0.010 (0.017)	0.022 (0.036)	0.046* (0.024)	-0.023** (0.010)	0.010 (0.017)	0.022 (0.036)	0.046* (0.024)
TFP	0.031*** (0.008)	0.032*** (0.010)	0.019* (0.010)	0.007 (0.011)	0.012* (0.007)	0.025** (0.011)	0.018 (0.016)	0.013 (0.014)	0.012* (0.007)	0.025** (0.011)	0.018 (0.016)	0.013 (0.014)
TFP ²	-0.009*** (0.003)	0.0001 (0.005)	-0.004 (0.004)	-0.004 (0.008)	-0.001 (0.003)	-0.001 (0.003)	-0.007 (0.006)	-0.003 (0.005)	-0.001 (0.003)	-0.001 (0.003)	-0.007 (0.006)	-0.003 (0.005)
Age	-0.0004 (0.0006)	-0.001 (0.001)	0.0004 (0.001)	0.001 (0.001)	-0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	-0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Age ²	0.0001 (0.0001)	0.0001 (0.0001)	-0.0001 (0.0001)	-0.00002 (0.00001)	0.00001 (0.00001)	-0.00001* (6.7e-06)	-0.00001 (0.00002)	-0.00001 (0.00001)	0.00001 (0.00001)	-0.00001* (6.7e-06)	-0.00001 (0.00002)	-0.00001 (0.00001)
Capital	0.001 (0.010)	0.004 (0.010)	0.005 (0.012)	0.017 (0.012)	-0.003 (0.011)	0.025* (0.015)	0.009 (0.014)	0.024* (0.013)	-0.003 (0.011)	0.025* (0.015)	0.009 (0.014)	0.024* (0.013)
Capital ²	0.0003 (0.0005)	0.0001 (0.001)	-0.0001 (0.001)	-0.001 (0.001)	0.0001 (0.001)	-0.001 (0.001)	-0.00003 (0.001)	-0.001 (0.001)	0.0001 (0.001)	-0.001 (0.001)	-0.00003 (0.001)	-0.001 (0.001)
Avg. Wage	-0.034*** (0.013)	-0.009 (0.014)	-0.008 (0.014)	0.007 (0.012)	0.019** (0.008)	-0.019 (0.014)	-0.034 (0.033)	-0.031 (0.027)	0.019** (0.008)	-0.019 (0.014)	-0.034 (0.033)	-0.031 (0.027)
Avg. Wage ²	0.004 (0.002)	0.001 (0.003)	0.003 (0.003)	0.002 (0.003)	-0.003* (0.002)	0.001 (0.002)	-0.001 (0.002)	0.007 (0.006)	-0.003* (0.002)	0.001 (0.002)	-0.001 (0.002)	0.007 (0.006)
Skill Intensity	0.007 (0.014)	0.012 (0.018)	-0.002 (0.022)	-0.001 (0.028)	-0.008 (0.011)	-0.007 (0.013)	0.020 (0.028)	-0.010 (0.026)	-0.008 (0.011)	-0.007 (0.013)	0.020 (0.028)	-0.010 (0.026)
Skill Intensity ²	0.0001 (0.003)	-0.001 (0.004)	-0.002 (0.005)	0.002 (0.003)	-0.002 (0.005)	-0.002 (0.005)	0.002 (0.005)	0.002 (0.006)	-0.002 (0.002)	-0.002 (0.005)	0.002 (0.005)	0.002 (0.006)
Investment Ratio	0.281*** (0.021)	0.118*** (0.020)	0.109*** (0.021)	0.074*** (0.020)	0.180*** (0.023)	0.131*** (0.033)	0.191*** (0.053)	0.093*** (0.027)	0.180*** (0.023)	0.131*** (0.033)	0.191*** (0.053)	0.093*** (0.027)
$\alpha_f - \alpha_d$	0.041** (0.010)	0.010 (0.010)	-0.016 (0.016)	0.007 (0.007)	0.042*** (0.010)	0.010 (0.010)	0.030 (0.030)	0.006 (0.006)	0.041** (0.010)	0.010 (0.010)	0.030 (0.030)	0.006 (0.006)
Wald Stat	3.98	0.15	0.35	0.05	8.98	0.31	0.61	0.04	8.98	0.31	0.61	0.04
p-value	0.046	0.699	0.555	0.829	0.003	0.578	0.436	0.846	0.003	0.578	0.436	0.846
R ²	0.184	0.130	0.187	0.155	0.133	0.116	0.211	0.142	0.133	0.116	0.211	0.142
Obs.	4,230	3,220	2,266	1,520	4,014	2,794	710	1,416	4,014	2,794	710	1,416

Notes: Four-digit industry dummies, province dummies and year dummies are included but not reported. Robust standard errors, clustered by firm, are reported in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. Investment data is not collected in 1996.

Table E3: Foreign vs. Domestic Firms Revisited, High and Low Intensity Exporters

Export Premium	Dependent Variable: Investment Rate											
	Matched Sample: High-Intensity or Low-Intensity Exporters						Low-Intensity Exporters					
	Year of Entry	One Year Later	Two Years Later	Three Years Later	Year of Entry	One Year Later	Two Years Later	Three Years Later	Year of Entry	One Year Later	Two Years Later	Three Years Later
Dom. Exp. Status (α_d)	0.025*** (0.006)	0.008 (0.007)	0.010 (0.009)	0.004 (0.010)	0.024*** (0.006)	0.013* (0.007)	0.019** (0.009)	0.008 (0.010)	0.024*** (0.006)	0.013* (0.007)	0.019** (0.009)	0.008 (0.010)
For. Exp. Status (α_f)	0.056*** (0.014)	0.009 (0.020)	-0.006 (0.029)	-0.030 (0.029)	0.054*** (0.018)	-0.022 (0.025)	-0.022 (0.032)	0.060 (0.037)	0.054*** (0.018)	-0.022 (0.025)	-0.022 (0.032)	0.060 (0.037)
Foreign Ownership	0.022 (0.014)	0.050** (0.022)	0.044 (0.033)	0.072** (0.031)	-0.011 (0.034)	0.023 (0.023)	0.058* (0.034)	0.006 (0.028)	-0.011 (0.014)	0.023 (0.023)	0.058* (0.034)	0.006 (0.028)
TFP	0.016** (0.007)	0.026*** (0.009)	0.007 (0.012)	0.002 (0.011)	0.032*** (0.007)	0.037*** (0.008)	0.031** (0.012)	0.015 (0.013)	0.032*** (0.007)	0.037*** (0.008)	0.031** (0.012)	0.015 (0.013)
TFP ²	-0.001 (0.003)	-0.002 (0.003)	0.005 (0.008)	-0.001 (0.005)	-0.007* (0.004)	-0.005 (0.005)	0.002 (0.006)	0.004 (0.005)	-0.007* (0.004)	-0.005 (0.005)	0.002 (0.006)	0.004 (0.005)
Age	0.002 (0.005)	0.004 (0.007)	-0.013 (0.009)	-0.011 (0.009)	0.0004 (0.005)	0.001 (0.007)	0.0001 (0.008)	0.023** (0.010)	0.0004 (0.005)	0.001 (0.007)	0.0001 (0.008)	0.023** (0.010)
Age ²	-0.0005 (0.0006)	-0.0009 (0.0006)	0.0009 (0.0010)	0.0010 (0.0010)	-0.0003 (0.0005)	-0.0003 (0.0008)	-0.0003 (0.001)	-0.0034*** (0.0012)	-0.0003 (0.0005)	-0.0003 (0.0008)	-0.0003 (0.001)	-0.0034*** (0.0012)
Capital	0.003 (0.008)	0.003 (0.009)	0.002 (0.014)	0.013 (0.010)	0.010 (0.009)	0.020** (0.009)	0.029*** (0.010)	0.037*** (0.012)	0.010 (0.009)	0.020** (0.009)	0.029*** (0.010)	0.037*** (0.012)
Capital ²	-0.00004 (0.0005)	0.0001 (0.001)	0.0001 (0.0008)	-0.0002 (0.0006)	-0.0002 (0.0005)	-0.0007 (0.0005)	-0.0012** (0.0005)	-0.0015** (0.0007)	-0.0002 (0.0005)	-0.0007 (0.0005)	-0.0012** (0.0005)	-0.0015** (0.0007)
Avg. Wage	0.008 (0.005)	-0.002 (0.008)	-0.007 (0.006)	0.012 (0.009)	-0.023* (0.012)	-0.024 (0.018)	-0.005 (0.015)	-0.019 (0.021)	0.008 (0.012)	-0.007 (0.018)	-0.005 (0.015)	-0.019 (0.021)
Avg. Wage ²	-0.003*** (0.001)	-0.004** (0.002)	0.0040 (0.0025)	0.002 (0.003)	0.004* (0.002)	0.007* (0.004)	0.002 (0.003)	0.005 (0.003)	-0.004** (0.002)	0.007* (0.004)	0.002 (0.003)	0.005 (0.003)
Skill Intensity	0.013 (0.010)	0.024** (0.011)	0.019 (0.013)	0.002 (0.015)	-0.008* (0.004)	-0.011** (0.005)**	0.003 (0.016)	-0.007 (0.019)	0.019 (0.011)	-0.011** (0.005)**	0.003 (0.016)	-0.007 (0.019)
Skill Intensity ²	-0.0006 (0.0007)	-0.0014** (0.0005)	-0.0004 (0.0008)	-0.0001 (0.001)	0.0005** (0.0002)	0.005** (0.0002)	-0.00003 (0.0002)	0.001 (0.002)	-0.0006 (0.0005)**	0.005** (0.0002)	-0.00003 (0.0002)	0.001 (0.002)
Investment Ratio	0.212*** (0.020)	0.123*** (0.025)	0.087*** (0.030)	0.050** (0.019)	0.239*** (0.021)	0.130*** (0.021)	0.114*** (0.025)	0.089*** (0.022)	0.239*** (0.021)	0.130*** (0.021)	0.114*** (0.025)	0.089*** (0.022)
$\alpha_f - \alpha_d$	0.031** (0.044)	0.007 (0.963)	-0.016 (0.564)	-0.034 (0.252)	0.030 (0.112)	-0.015 (0.568)	-0.041 (0.208)	0.052 (0.167)	0.030 (0.112)	-0.015 (0.568)	-0.041 (0.208)	0.052 (0.167)
p-value	0.132	0.121	0.133	0.142	0.162	0.115	0.137	0.0126	0.162	0.115	0.137	0.0126
R ²	4,584	3,376	1,452	1,428	3,578	2,578	1,494	1,478	3,578	2,578	1,494	1,478
Obs.												

Notes: Four-digit industry dummies, province dummies and year dummies are included but not reported. Robust standard errors, clustered by firm, are reported in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. Investment data is not collected in 1996.

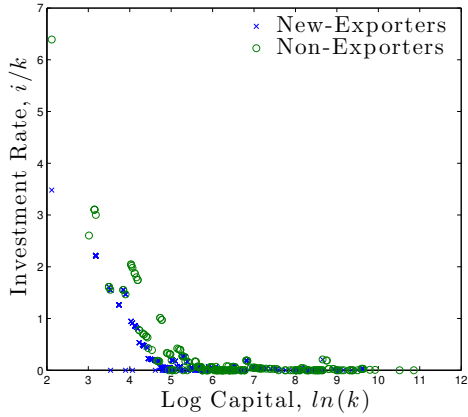


Figure F3: Simulated Investment and Existing Capital Stock

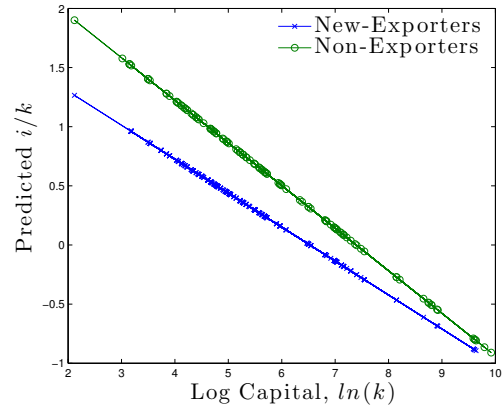


Figure F4: Expected Investment across Existing Capital Stock among Investors

but investment is declining in capital for both groups of firms.

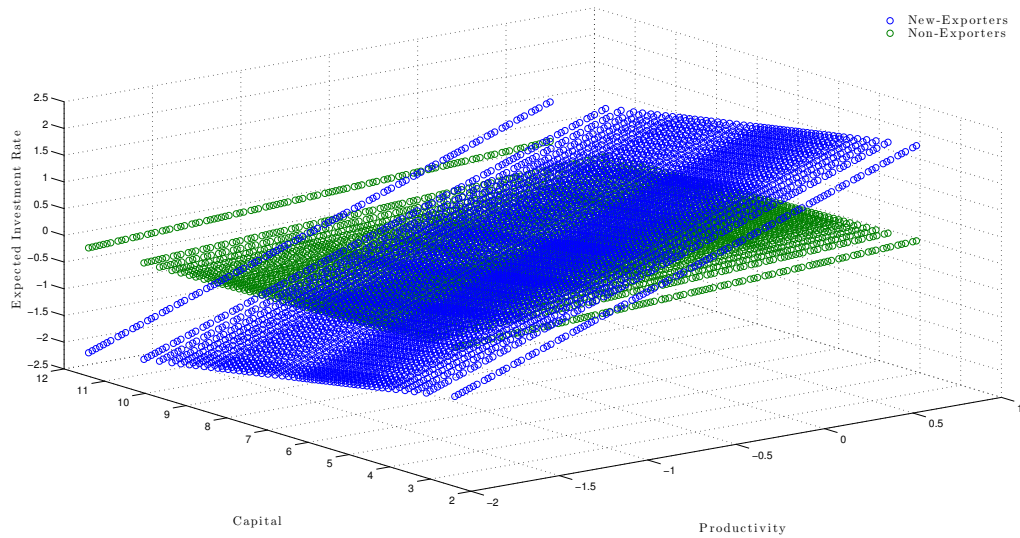


Figure F5: Expected Investment Rate Differences Across New-Exporters and Non-Exporters

Figure F5 combines the exercises above to capture the expected investment rate across both the distribution of productivity and capital stock. As above, we observe that current investment is increasing in productivity and decreasing in capital holdings. Further, new exporters are will generally export more than non-exporters almost everywhere, though the differences are largest among highly productive firms with small capital holdings.

Finally, we simulate the model over time and plot the average investment rates across new exporters and non-exporters. For new exporters we plot the investment rates relative to the year of entry. Thus, $t = -1$ captures the average investment rate in the year prior to entry, $t = 0$

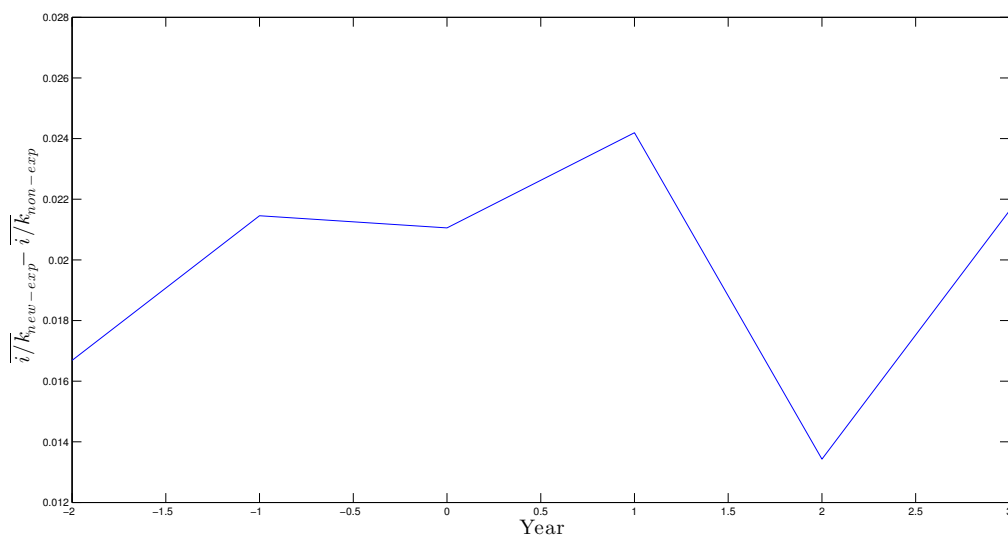


Figure F6: Simulated Average Investment Rate Differences Across Exporters and Non-Exporters Over Time

captures the average investment rate in the year of entry, $t = 1$ captures the average investment rate in the first year after entry and so on. Moreover, for simplicity we focus on firms which enter export markets once and remain active in them thereafter. Similarly, non-exporters, in this instance, are simulated firms which consistently remain out of the export market. We then plot the difference in average investment rates between new exporters and non-exporters in the year leading up to entry into export markets in Figure F6. We observe that new exporters consistently invest more than non-exporters, including the years prior to entry. For this reason in our empirical exercise, it is particularly important that we control for the lagged investment rate in the year prior to entry into export markets. Further, we note that the largest difference in investment rates occurs in the year of entry as new exporters are particularly constrained. Last, as in our empirical the investment rates become closer after entry again reflecting the non-convex investment costs.

References

- [1] Arkolakis, Costas. 2010. “Market Penetration Costs and the New Consumers Margin in International Trade,” *Journal of Political Economy*, 118(6): 1151-1199.
- [2] Eaton, Jonathan, Marcela Eslava, C. J. Krizan, Maurice Kugler and James R. Tybout. 2009. “A Search and Learning Model of Export Dynamics,” Mimeo, Pennsylvania State University.
- [3] Huggett, Mark and Sandra Ospina. 2001. “Does productivity growth fall after the adoption of new technology?” *Journal of Monetary Economics*, 48(1): 173-195.
- [4] Nilsen, Øivind Anti and Fabio Schiantarelli. 2003. “Zeros and Lumps in Investment: Empirical Evidence on Irreversibilities and Nonconvexities,” *The Review of Economics and Statistics*, 85(4):1021-1037.

- [5] Rho, Youngwoo and Joel Rodrigue. 2014. "Firm-Level Investment and Export Dynamics," Vanderbilt University.
- [6] Schüdeln, Matthias. 2011. "Appreciating Depreciation: A Note on Physical Capital Depreciation in a Developing Country," Mimeo, Harvard University.