

Online Appendix for “Outward FDI and Domestic Input Distortions: Evidence from Chinese Firms”

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Abstract. We follow the order of the main text to construct the online appendix. First, detailed descriptions of our data sets and the stylized facts can be found in Section A. Next, we elaborate on the propensity score matching we use for the productivity comparison between state-owned firms and private firms in Section B. Then, we state the proofs for Propositions 1-3 in Section C. Fourth, we present two extensions of our main model in Section D. Finally, we show results for the robustness checks using a longer sample from 2000 to 2013 in Section E. All the tables are presented in Section F.

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1 Online Appendix A: Data and Stylized Facts

1.1 Data Sets and Data Merge

Annual Survey of Industrial Firms Data. Our first data set is a production data set of Chinese manufacturing firms from 2000 to 2013, which comes from the Annual Survey of Industrial Firms (ASIF) compiled by the National Bureau of Statistics (NBS) of China. All SOEs and “above-scale” non-SOEs (i.e., private firms) are included in the data set.¹ This data set contains more than 100 variables, such as the number of employees, value of capital stock, total sales, and export value. Firms included in this data set contribute to 95 percent of China’s total sales in all manufacturing sectors. This data set is particularly useful for identifying the ownership type of the firm (i.e., SOE or not) and other key firm-level characteristics, such as firm size and total factor productivity (TFP).

FDI Decision Data. The nationwide data set of Chinese firms’ FDI decisions was obtained from the Ministry of Commerce of China (MOC). MOC requires every Chinese MNC to report its investment activity abroad since 1980, if it is above USD 10 million. To invest abroad, every Chinese firm is required by the government to apply to the MOC for approval, or for registration if no approval is needed.² MOC requires such firms to provide the following information: the firm’s name, the names of the firm’s foreign subsidiaries, the type of ownership (i.e., state-owned enterprise or private firm), the investment mode (e.g., trading-oriented affiliates, mining-oriented affiliates), and the amount of foreign investment (in U.S. dollars). In addition, the nationwide FDI decision data report FDI starters by year. All such information is available and released to the public except the amount of the firm’s investment, which is considered to be confidential information.

The database even reports specific modes of investment: trading office, wholesale center, production affiliate, foreign resource utilization, processing trade, consulting service, real estate, research and development center, and other unspecified types. Here trading offices and wholesale centers are classified as distribution FDI, whereas the rest are referred to as non-distribution FDI.³

Firm Land Price Data. To explicitly show the price discrimination against private firms in input factor markets, we use a comprehensive and novel firm-level data set of land price which is collected from the official website of China’s land transaction monitoring system operated and maintained by the Ministry of Land and Resources. This monitoring system contains detailed information of land

¹The “above-scale” firms are defined as firms with annual sales of RMB 5 million (or equivalently, about US\$830,000) or more before 2010 and with RMB 10 million afterward.

²Note that the SOEs directly controlled by central government are also required to report their FDI deals. This is why our data samples include such firms like CNPC(China national petroleum corporation), CPCC(China petroleum chemical corporation), and China resource corporation.

³According to Chen and Tang (2014), the horizontal FDI is the most important FDI mode in China, which further justifies the use of HMY model in the current paper.

transactions, including land area, deal price, assigner and assignee.⁴ According to Chen et al. (2017), there are 61,805 firms that had acquired 214,388 cases of land with an average price of 252.5 RMB per square meters during 2000-13. A firm could make several deals in a given year but no deals in some other years. Only 3,686 firms acquired 16,469 cases of land before 2009 whereas 58,119 firms acquired 198,085 cases of land after the global financial crisis. These land deals include firms from 349 prefectures of 31 provinces in China.

Orbis Data. Finally, we use the Orbis data from Bureau Van Dijk from 2005 to 2014, since they contain detailed financial information on foreign affiliates of Chinese MNCs. For the data before 2011, we merge our ASIF data with the Orbis data by matching the names in Chinese. For the data after 2011, we merge our ASIF data with the Orbis data using (Chinese) parent firms' trade registration number which is contained in both data sets after 2011. We use the merged data set to study how Chinese MNCs allocate their sales across border.

Matching Quality. We show the matching quality of our data in Table 1 in the paper. In rows (1) and (2), we report the total number of manufacturing firms and the number of matched FDI manufacturing parent firms covered by our sample. It is clear that although the share of MNCs among manufacturing firms had increased substantially between 2000 and 2012, MNCs still constitute a small fraction of manufacturing firms overall, as shown by row (3). Row (4) of Table 1 presents the number of FDI manufacturing parent firms reported in the Statistical Bulletin of China's Outward Foreign Direct Investment year by year.⁵ As row (5) of Table 1 shows, we are able to match 21% – 42% of manufacturing MNCs reported in the statistical bulletin to our ASIF data between 2006 and 2010. Importantly, the matching quality has improved substantially after 2010, and 82% of manufacturing MNCs reported in the bulletin are matched to our ASIF data in 2012. Regarding the number of state-owned MNCs, our matched sample exhibits the same trend as in the bulletin: The proportion of state-owned MNCs is decreasing over years.⁶

Although our firm-level data set covers 2000-13, we use data for 2000-08 to conduct our main empirical analysis, as the data after 2008 lack information on (parent) firm's value-added and use of materials, which dis-enables us to estimate firm productivity (a key variable in our empirical analysis). We instead use data after 2008 for robustness checks in the Online Appendix. As highlighted by Feenstra, Li and Yu (2014), some observations in this firm-level production data set are noisy and misleading, largely be-

⁴Data can be accessed from <http://www.landchina.com/>. According to the administrative order, all the local branches should make sure this system was "fully operated" before June 2004 (Notification on Establishing the Land Market Dynamic Monitoring System, http://www.mlr.gov.cn/zwgk/flfg/tdglflfg/200406/t20040625_584195.htm, Jan. 2nd, 2004).

⁵The bulletin does not report the number of manufacturing FDI projects before 2006.

⁶Ideally, we should compare the percentage share of state-owned manufacturing MNCs in our matched sample to the one reported in the bulletin. However, the bulletin does *not* report the the percentage share of state-owned manufacturing MNCs among China's manufacturing MNCs.

cause of mis-reporting by some firms. To guarantee that our estimation sample is reliable and accurate, we screen the sample and omit outliers by adopting the criteria a la Feenstra, Li and Yu (2014).⁷

Two observations in Table 1 in the paper merit special attention. First, as shown in row (3), FDI share is tiny. In 2012, only 1.94% of manufacturing firms were engaged in outward FDI, indicating that FDI is a rare event indeed though its share (among all manufacturing firms) is increasing. Second, by way of comparisons, the share of state-owned MNCs (out of all MNCs) is declining over the years, from 20% in 2000 to around 1.8% in 2012.

1.2 SOE Measures

We define SOEs using two methods. The first one is to adopt the official definition of SOEs, as reported in the *China City Statistical Yearbook* (2006), by using information on firm's legal registration. A firm is classified as an SOE if its legal registration identification number belongs to the following categories: state-owned sole enterprises (code in the firm data set: 110), state-owned joint venture enterprises (141), and state-owned and collective joint venture enterprises (143). State-owned limited corporations (151) are excluded from SOEs by this measure. As this is the conventional measure widely used in the literature, we thus adopt such a measure as the default measure to conduct our empirical analysis. Appendix Table 1 provides summary statistics for the SOE dummy used in this study.

Recently, Hsieh and Song (2015) introduce a broader definition of SOEs and observe that some foreign firms and public listed companies have a controlling stake held by a state-controlled holding company. Thus, they suggest defining a firm as an SOE when its state-owned equity share is greater than or equal to 50 percent. Along this line, we introduce an alternative way to define SOEs. As a result, a firm is defined as an SOE if either (1) it is classified as a SOE using the conventional measure; or (2) its state-owned equity share is greater than or equal to 50 percent. We use such a broadly defined SOE dummy in our robustness checks.

1.3 Stylized Fact One

1.3.1 Productivity Regressions

In order to validate our finding further, we run simple OLS regressions. Specifically, we first regress the estimated TFP on the SOE indicator, the interaction term between SOE indicator and MNC indicator, and

⁷First, we eliminate a firm if its number of employees is less than eight workers, since otherwise such an entity would be identified as self-employed. Second, a firm is included only if its key financial variables (e.g., gross value of industrial output, sales, total assets, and net value of fixed assets) are present. Third, we include firms based on the requirements of the Generally Accepted Accounting Principles. In particular, an observation is included in the sample only if the following conditions are met: (1) total assets are greater than liquid assets; (2) total assets are greater than the total fixed assets and the net value of fixed assets; (3) the established time is valid (i.e., the opening month should be between January and December); and (4) the firm's sales must be greater than the required threshold of RMB 5 million.

the firm fixed effects. Columns (1), (3), (5) and (7) of Appendix Table 7 show that the selection reversal holds as the own coefficient of the SOE indicator and its interaction term with MNC indicator are negatively (and positively) significant, respectively. Although we have controlled for (parent) firm-specific fixed effects (and hence industry-specific fixed effects), it is possible that a manufacturing producer in China can invest in different types of services abroad to facilitate exporters, without any actual manufacturing production. Such export-promoting facilitation effects may also differ in destination countries. We thus also control for *affiliate's* industry fixed effects (i.e., investment modes) and the destination country fixed effects of FDI (i.e., developing or developed) in the regressions. The even columns of Appendix Table 7 show that the inclusion of these factors do not affect our finding of selection reversal.⁸

[Insert Appendix Table 7 Here]

1.3.2 Productivity Distribution

To verify that input distortion plays an essential role in interpreting the productivity premium of state-own MNCs (compared to private MNCs), we need to make sure that both SOEs and private firms have similar productivity dispersions (also implied by our model in the next section). Admittedly, the productivity distribution of SOEs might have a different level of dispersion compared to that of private firms, and the productivity distribution may change during the era of SOE reforms (see, e.g., Lardy, 2004; Hsieh and Song, 2015). However, we will show that the productivity distribution of state-own MNCs first-order stochastically dominates that of private MNCs (i.e., state-owned MNCs are more productive than private MNCs at each percentile of the distribution).

Appendix Table 8 takes a step further to check whether the selection reversal holds in the distributional sense for the default TFP measures we use (i.e., $RTFP_{soe}^{distort}$). The table shows that at each percentile, state-owned MNCs have higher relative TFP compared with private MNCs (i.e., first order stochastic dominance), which substantiates the existence of a productivity premium for state-owned MNCs in terms of the distribution of productivity. In particular, we find that the estimated productivity at 1% (and 5%) percentile is higher for state-owned MNCs than for private MNCs, which suggests that the entry cutoff (on productivity) is higher for SOEs than for private firms among MNCs. Moreover, the first order stochastic dominance finding also exists for MNCs operating in capital-intensive sectors. The empirical findings on productivity distribution confirm our previous findings on the average productivity difference between state-owned MNCs and private MNCs.

[Insert Appendix Table 8 Here]

⁸Columns (2), (4), (6) and (8) also control for some other important firm-level characteristics such as log employment, export indicator, foreign-invested indicators.

2 Online Appendix B: Propensity Score Matching for Productivity Comparison

Regarding the matching of MNCs, since there are not enough observations to match based on destination economy-industry-investment mode pairs, we group MNCs into: (i) developed and developing destination economies according to the World Bank's classification; (ii) capital-intensive and labor-intensive sectors; (iii) three types of investment motives: horizontal, vertical, and R&D seeking. Moreover, since a firm could switch from SOE to non-SOE, we also include dummy variables for each year as covariates in the PSM matching. Thus, we have four covariates in our new PSM for the MNC sample: capital-intensive indicator, year dummies, destination country indicator (developing or developed), and the variable of investment mode.

We group investment modes into three categories. Specifically, horizontal FDI includes: production affiliate (code: 4), processing (5), market (6), wholesale (7), and trading centers (8). Vertical FDI includes foreign resource utilization (1) and real estate (2). The R&D seeking FDI include both research and development (3) and consulting service (9).

Regarding the non-MNCs matching, we use capital-intensive indicator and year dummies as new covariates to perform the PSM matching. The results are shown in columns (2) and (4) of Table 2 in the paper. As expected, private non-MNCs are more productive than state-owned non-MNCs. Moreover, in the standard Melitz-type models, firm size is a sufficient statistic for productivity. Therefore, we do not use firm sales or employment as our covariates in the PSM. However, adding firm-size variables such as employment and sales as new covariates do not change our results.

3 Online Appendix C: Proofs

3.1 Proof of Proposition 1

Proof: The first two parts have already been proved. Here we prove the last two parts. Because the monotone likelihood ratio property (MLRP) implies first-order stochastically dominance (FOSD), we only need to prove the part 3 under the assumption of FOSD.

First, the fraction of MNCs among each type of firm is

$$frac_{i,mnc} = \frac{1 - F_i(\bar{\varphi}_{iO})}{1 - F_i(\bar{\varphi}_{iD})},$$

where $i \in \{P, S\}$ and $F_i(\varphi)$ is the cumulative probability density function (CDF) of the productivity draw.

Note that since $\bar{\varphi}_{PD} > \bar{\varphi}_{SD}$, a sufficient condition for $frac_{S,mnc} < frac_{P,mnc}$ to hold is

$$\frac{1 - F_S(\bar{\varphi}_{SO})}{1 - F_S(\bar{\varphi}_{PD})} < \frac{1 - F_P(\bar{\varphi}_{PO})}{1 - F_P(\bar{\varphi}_{PD})}.$$

Since the FOSD property holds for the truncated productivity distributions and $\bar{\varphi}_{SO} > \bar{\varphi}_{PO}$, it must be true that

$$\frac{1 - F_S(\bar{\varphi}_{SO})}{1 - F_S(\bar{\varphi}_{PD})} < \frac{1 - F_S(\bar{\varphi}_{PO})}{1 - F_S(\bar{\varphi}_{PD})} < \frac{1 - F_P(\bar{\varphi}_{PO})}{1 - F_P(\bar{\varphi}_{PD})},$$

which leads to the result that the fraction of MNCs is larger among private firms than among SOEs.

Second, average productivity of active private firms is

$$\begin{aligned} \int_{\bar{\varphi}_{PD}}^{\infty} \frac{\varphi f_P(\varphi)}{1 - F_P(\bar{\varphi}_{PD})} d\varphi &= \bar{\varphi}_{PD} + \int_{\bar{\varphi}_{PD}}^{\infty} \frac{1 - F_P(\varphi)}{1 - F_P(\bar{\varphi}_{PD})} d\varphi \\ &> \bar{\varphi}_{SD} + \int_{\bar{\varphi}_{SD}}^{\infty} \frac{1 - F_P(\varphi)}{1 - F_P(\bar{\varphi}_{SD})} d\varphi \\ &> \bar{\varphi}_{SD} + \int_{\bar{\varphi}_{SD}}^{\infty} \frac{1 - F_S(\varphi)}{1 - F_S(\bar{\varphi}_{SD})} d\varphi, \end{aligned}$$

where the first line comes from integration by parts, and the second line is true as $\bar{\varphi}_{SD} < \bar{\varphi}_{PD}$. The last step is true because the truncated distribution of the productivity draw also satisfies the FOSD property.

Furthermore, as

$$\int_{\bar{\varphi}_{SD}}^{\infty} \frac{\varphi f_S(\varphi)}{1 - F_S(\bar{\varphi}_{SD})} d\varphi = \bar{\varphi}_{SD} + \int_{\bar{\varphi}_{SD}}^{\infty} \frac{1 - F_S(\varphi)}{1 - F_S(\bar{\varphi}_{SD})} d\varphi,$$

we have the result that average productivity of private firms is greater than that of SOEs overall.

For the proof of part 4, we have to impose a stronger assumption that both types of firms make productivity draws from the same distribution (i.e., $f(\varphi) = f_P(\varphi) = f_S(\varphi)$), although this is not a necessary condition for the result to hold. Under this assumption, we have

$$\begin{aligned} \int_{\bar{\varphi}_{PO}}^{\infty} \frac{\varphi f(\varphi)}{1 - F(\bar{\varphi}_{PO})} d\varphi &= \bar{\varphi}_{PO} + \int_{\bar{\varphi}_{PO}}^{\infty} \frac{1 - F(\varphi)}{1 - F(\bar{\varphi}_{PO})} d\varphi \\ &< \bar{\varphi}_{SO} + \int_{\bar{\varphi}_{SO}}^{\infty} \frac{1 - F(\varphi)}{1 - F(\bar{\varphi}_{SO})} d\varphi \\ &= \int_{\bar{\varphi}_{SO}}^{\infty} \frac{\varphi f(\varphi)}{1 - F(\bar{\varphi}_{SO})} d\varphi, \end{aligned}$$

which implies that (simple) average productivity of private MNCs is smaller than that of state-owned MNCs.

3.2 Proof of Proposition 2

Proof: Comparing equation (13) with equation (14) in the main text, we know that the productivity premium of state-owned MNCs increases with the level of domestic distortion (i.e., selection into the FDI market becomes much less stringent for private firms compared with SOEs), or $\frac{\bar{\varphi}_{SO}}{\bar{\varphi}_{PO}} (> 1)$ increases with c . Furthermore, selection into the domestic market becomes more stringent for private firms compared with SOEs when c increases, as $\frac{\bar{\varphi}_{PD}}{\bar{\varphi}_{SD}} (> 1)$ increases with c . Therefore, the first part follows.

For the second part, since we have $\mu = 1$ now, the production function becomes

$$q(k, l) = \varphi \left(\frac{k}{0.5} \right)^{0.5} \left(\frac{l}{0.5} \right)^{0.5}, \quad (1)$$

and TVC and FC (for SOEs) become

$$TVC(q, \varphi) = \frac{qr}{\varphi \omega^{0.5}} \quad (2)$$

and

$$FC(q, \varphi) = \frac{f_i r}{\omega^{0.5}}, \quad (3)$$

where $i \in \{e, D, X, I\}$. Repeating the procedure as before, we obtain

$$\frac{\bar{\varphi}_{PX}}{\bar{\varphi}_{PD}} = \frac{\bar{\varphi}_{SX}}{\bar{\varphi}_{SD}} > 1; \quad \bar{\varphi}_{SO} > \bar{\varphi}_{PO}; \quad \bar{\varphi}_{SD} < \bar{\varphi}_{PD}.$$

Furthermore, it is straightforward to establish that both $\frac{\bar{\varphi}_{SO}}{\bar{\varphi}_{PO}} (> 1)$ and $\frac{\bar{\varphi}_{PD}}{\bar{\varphi}_{SD}} (> 1)$ increase with c . Therefore, the productivity premium of state-owned MNCs is more pronounced in capital intensive industries. And, SOEs are much less likely to engage in FDI (relative to private firms) in capital intensive industries.

3.3 Proof of Proposition 3

Proof: For the first part, the relative size of private MNCs (i.e., compared with private non-exporting firms) is

$$\frac{\pi_{PD}(\bar{\varphi}_{PO}) \left[1 - \left(\frac{\bar{\varphi}_{PD}}{\bar{\varphi}_{PX}} \right)^k \right]}{\pi_{PD}(\bar{\varphi}_{PD}) \left[1 - \left(\frac{\bar{\varphi}_{PD}}{\bar{\varphi}_{PX}} \right)^{k-(\sigma-1)} \right]} = \frac{\bar{\varphi}_{PO}^{\sigma-1} \left[1 - \left(\frac{\bar{\varphi}_{PD}}{\bar{\varphi}_{PX}} \right)^k \right]}{\bar{\varphi}_{PD}^{\sigma-1} \left[1 - \left(\frac{\bar{\varphi}_{PD}}{\bar{\varphi}_{PX}} \right)^{k-(\sigma-1)} \right]}$$

under the Pareto assumption. Similarly, for SOEs, the relative size is

$$\frac{\pi_{SD}(\bar{\varphi}_{SO}) \left[1 - \left(\frac{\bar{\varphi}_{SD}}{\bar{\varphi}_{SX}} \right)^k \right]}{\pi_{SD}(\bar{\varphi}_{SD}) \left[1 - \left(\frac{\bar{\varphi}_{SD}}{\bar{\varphi}_{SX}} \right)^{k-(\sigma-1)} \right]} = \frac{\bar{\varphi}_{SO}^{\sigma-1} \left[1 - \left(\frac{\bar{\varphi}_{SD}}{\bar{\varphi}_{SX}} \right)^k \right]}{\bar{\varphi}_{SD}^{\sigma-1} \left[1 - \left(\frac{\bar{\varphi}_{SD}}{\bar{\varphi}_{SX}} \right)^{k-(\sigma-1)} \right]}$$

Since

$$\frac{\bar{\varphi}_{PX}}{\bar{\varphi}_{PD}} = \frac{\bar{\varphi}_{SX}}{\bar{\varphi}_{SD}} > 1, \quad \bar{\varphi}_{SO} > \bar{\varphi}_{PO}, \quad \bar{\varphi}_{SD} < \bar{\varphi}_{PD},$$

the relative size of private MNCs (i.e., compared with private non-exporting firms) is smaller than that of state-owned MNCs.

We now prove the second part. Comparing equation (12) with equation (9) in the main text and noting that overall sales are proportional to the operating profit, we conclude that the ratio of foreign sales to domestic sales is higher for private MNCs (than for state-owned MNCs), conditioning on φ . This is because domestic sales are smaller for private firms than for SOEs, conditioning on the productivity draw, φ .

For the third part of the proposition, there are three cases to consider. The first case is that both types of firms are non-exporters before the reduction in f_I . Equations (7), (9) (11) and (12) in the main text together imply that

$$\frac{\pi_{PO}(\varphi)}{\pi_{PD}(\varphi)} > \frac{\pi_{SO}(\varphi)}{\pi_{SD}(\varphi)},$$

which is what we need to prove (remember that overall sales are proportional to the operating profit). The second case is that both types of firms are exporters before the reduction in f_I . In this case, equations (8), (10) (11) and (12) in the main text together imply that

$$\frac{\pi_{PO}(\varphi)}{\pi_{PX}(\varphi)} > \frac{\pi_{SO}(\varphi)}{\pi_{SX}(\varphi)}.$$

Therefore, after two firms with the same φ undertake FDI, the increase in overall firm size is greater for the new private MNC than for the new state-owned FDI firm.

The final case is that the SOE is an exporter and the private firm is a non-exporter before the reduction of the fixed FDI cost. In this case, we have

$$\frac{\pi_{PO}(\varphi)}{\pi_{PD}(\varphi)} > \frac{\pi_{PO}(\varphi)}{\pi_{PX}(\varphi)} > \frac{\pi_{SO}(\varphi)}{\pi_{SX}(\varphi)},$$

since $\pi_{PX}(\varphi) > \pi_{PD}(\varphi)$. Therefore, after two firms with the same φ undertake FDI, the increase in overall firm size is larger for the new private MNC (than for the new state-owned MNC). In total, the third part of this proposition is true for all possible cases.

4 Online Appendix D: Variants of the Model

4.1 Fixed FDI Cost

In this subsection, we assume that the fixed FDI cost is paid using domestic factors. Under current specification, we derive FDI cutoffs as

$$\frac{(f_I - f_X)r_H}{(1 + \omega_H^{\mu-1})^{\frac{1}{\mu-1}}} = \frac{D_F}{\sigma} (\beta \bar{\varphi}_{SO})^{\sigma-1} \left[\frac{(1 + \omega_F^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{r_F^{\sigma-1}} - \frac{(1 + \omega_H^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{(\tau r_H)^{\sigma-1}} \right] \quad (4)$$

and

$$\frac{(f_I - f_X)cr_H}{(1 + (c\omega_H)^{\mu-1})^{\frac{1}{\mu-1}}} = \frac{D_F}{\sigma} (\beta \bar{\varphi}_{PO})^{\sigma-1} \left[\frac{(1 + \omega_F^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{r_F^{\sigma-1}} - \frac{(1 + (c\omega_H)^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{(c\tau r_H)^{\sigma-1}} \right]. \quad (5)$$

Denote the inverse of domestic marginal cost (after normalizing φ to one) as

$$x_H(r_H, w_H) = \frac{(1 + \omega_H^{\mu-1})^{\frac{1}{\mu-1}}}{r_H} \quad (6)$$

and the inverse of foreign marginal cost as

$$x_F(r_F, w_F) = \frac{(1 + \omega_F^{\mu-1})^{\frac{1}{\mu-1}}}{r_F}. \quad (7)$$

Note that the existence of the input price wedge increases the domestic marginal cost, or

$$x_H(r_H, w_H) > x_H(cr_H, w_H).$$

A sufficient and necessary condition for $\bar{\varphi}_{SO} > \bar{\varphi}_{PO}$ (for any $c > 1$) is that

$$\tau^{\sigma-1} x_F(r_F, w_F)^{\sigma-1} (x_H(r_H, w_H) - x_H(cr_H, w_H)) < x_H(r_H, w_H)^\sigma - x_H(cr_H, w_H)^\sigma,$$

which puts an upper bound on the marginal production cost in China (i.e., ‘‘H’’).⁹ The above condition is more likely to hold in the case of China (especially before 2008), as China enjoyed relatively low production costs compared with developed economies.

Another variant of the above model is that both types of firms use domestic resources to pay for the fixed FDI cost, and private firms do not face discrimination when they pay for this fixed cost. This assumption receives some empirical support, as the Chinese government is actively seeking to support

⁹Note that since $\sigma > 1$, $\frac{x_H(r_H, w_H)^\sigma - x_H(cr_H, w_H)^\sigma}{x_H(r_H, w_H) - x_H(cr_H, w_H)}$ increases with $x_H(r_H, w_H)$.

the ‘‘Going-Out’’ strategy of Chinese firms which include private firms. For this variant of the model, FDI cutoffs can be derived as

$$\frac{(f_I - f_X)r_H}{(1 + \omega_H^{\mu-1})^{\frac{1}{\mu-1}}} = \frac{D_F}{\sigma} (\beta \bar{\varphi}_{SO})^{\sigma-1} \left[\frac{(1 + \omega_F^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{r_F^{\sigma-1}} - \frac{(1 + \omega_H^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{(\tau r_H)^{\sigma-1}} \right] \quad (8)$$

and

$$\frac{f_I r_H}{(1 + \omega_H^{\mu-1})^{\frac{1}{\mu-1}}} - \frac{f_X c r_H}{(1 + (c\omega_H)^{\mu-1})^{\frac{1}{\mu-1}}} = \frac{D_F}{\sigma} (\beta \bar{\varphi}_{PO})^{\sigma-1} \left[\frac{(1 + \omega_F^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{r_F^{\sigma-1}} - \frac{(1 + (c\omega_H)^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{(c\tau r_H)^{\sigma-1}} \right]. \quad (9)$$

Obviously, the selection reversal result holds irrespective of parameter values (i.e., $\bar{\varphi}_{SO} > \bar{\varphi}_{PO}$), since there is no difference in the fixed cost of engaging in FDI between SOEs and private firms.

4.2 Variable FDI Cost

In this subsection, we modify our basic model to allow SOEs to use domestic factors when producing abroad. SOEs would have incentive to do so, if

$$x_H(r_H, w_H) > x_F(r_F, w_F) > x_H(c r_H, w_H),$$

and firms are allowed to bring domestic factors to the foreign country to produce. Under this specification, FDI cutoffs can be derived as

$$\frac{f_I r_F}{(1 + \omega_F^{\mu-1})^{\frac{1}{\mu-1}}} - \frac{f_X r_H}{(1 + (\omega_H)^{\mu-1})^{\frac{1}{\mu-1}}} = \frac{D_F}{\sigma} (\beta \bar{\varphi}_{SO})^{\sigma-1} \left[\frac{(1 + \omega_H^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{r_H^{\sigma-1}} - \frac{(1 + \omega_H^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{(\tau r_H)^{\sigma-1}} \right] \quad (10)$$

and

$$\frac{f_I r_F}{(1 + \omega_F^{\mu-1})^{\frac{1}{\mu-1}}} - \frac{f_X c r_H}{(1 + (c\omega_H)^{\mu-1})^{\frac{1}{\mu-1}}} = \frac{D_F}{\sigma} (\beta \bar{\varphi}_{PO})^{\sigma-1} \left[\frac{(1 + \omega_F^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{r_F^{\sigma-1}} - \frac{(1 + (c\omega_H)^{\mu-1})^{\frac{\sigma-1}{\mu-1}}}{(c\tau r_H)^{\sigma-1}} \right]. \quad (11)$$

A sufficient condition for the selection reversal result to hold (i.e., $\bar{\varphi}_{SO} > \bar{\varphi}_{PO}$) is

$$\tau^{\sigma-1} [x_H(r_H, w_H)^{\sigma-1} - x_F(r_F, w_F)^{\sigma-1}] < x_H(r_H, w_H)^{\sigma-1} - x_H(c r_H, w_H)^{\sigma-1},$$

where $x_H(.,.)$ and $x_F(.,.)$ are defined in equations (6) and (7) respectively. Note that this condition is a sufficient but non-necessary condition for the selection reversal result to hold. Absent general equilibrium feedback, the above inequality holds if the distortion is more severe (i.e., $x_H(c r_H, w_H)$ is small enough) or

the difference in the undistorted factor prices across countries is small (i.e., $x_H(r_H, w_H)$ is close enough to $x_F(r_F, w_F)$).

5 Online Appendix E: Outward FDI between 2000 and 2013

In this appendix, we use the new sample with the longer time span to check the extensive margin of outward FDI. For 2000-13, the MNC ratio for private firms is 0.93 percent, whereas that for broadly defined SOEs is 0.70 percent. This finding suggests that the fraction of MNCs is larger among private firms than among SOEs, which is consistent with our theoretical prediction and our finding using data for 2000-08. Since firm productivity cannot be precisely estimated using the new data set, we do not check the productivity premium of state-owned MNCs. Instead, we focus on examining whether SOEs are still less likely to engage in outward FDI, even after we include data after 2008.

Appendix Table 9 picks up this task. the regressand is the firm's outward FDI indicator, whereas the SOE indicator is the key regressor. In all estimates, we control for the log of employment and log of firm size as well as the firm's export indicator. Column (1) is the simple linear probability model, and columns (2) and (3) are logit estimates. It turns out that, once again, the coefficient of the SOE indicator is negative and statistically significant, suggesting that SOEs are less likely to undertake outward FDI. Column (4) uses rare-event logit to correct for rare-event bias; the rest of the table uses complementary log-log regressions. In particular, column (6) uses a broadly defined SOE indicator, and column (7) drops observations with outward FDI to tax haven destinations. Column (8) drops observations before 2004, and columns (9) and (10) only include observations after the global financial crisis (2010-13). Finally, column (10) drops the switching SOEs (to private firms) from the sample. In all respects, our previous key finding that SOEs are less likely to engage in outward FDI is shown to be robust.

[Insert Appendix Table 9 Here]

As further robustness checks for our previous findings, we use observations until 2013 to run the difference-in-differences regressions with emphasis on the industry-level interest rate differential and the difference between capital-intensive industries and labor-intensive industries. The results are reported in Appendix Table 10 and 11. Similar to our findings using the sample of 2000-2008, SOEs are still less likely to engage in outward FDI when industry-level interest rate differential (between SOEs and private firms) becomes larger. Furthermore, they are still less likely to engage in outward FDI when they come from capital intensive industries (compared to SOEs coming from labor intensive industries). In all respects, it is still true that SOEs are less likely to engage in outward FDI in sectors that experience more severe distortion distortion (in terms of the cost of borrowing). Furthermore, it is still true that SOEs are less likely to engage in outward FDI in sectors that have higher demand for working capital, since the

magnitude of the interacted coefficient of the SOE indicator and capital-intensive indicator is larger than that of the SOE indicator and labor-intensive indicator.

[Insert Appendix Table 10 Here]

[Insert Appendix Table 11 Here]

6 Online Appendix F: Tables for Online Appendix

In this section, we report summary statistics of our main sample (2000-08) in Appendix Table 1. In Appendix Table 2 and 3, we report average productivity of all firms, non-MNCs and MNCs in our TFP estimations using pooled sample (i.e., MNCs and non-MNCs). In Appendix Table 4, we report absolute size premium for state-owned MNCs. In Appendix Table 5, we show that private firms are more likely to start FDI. In Appendix Table 6, we show that private firms are more likely to conduct and start FDI, even after we have controlled for the industry fixed effects and destination market fixed effects. In Appendix Table 7, we show that the selection reversal holds as the own coefficient of the SOE indicator and its interaction term with MNC indicator are negatively (and positively) significant, respectively. In Appendix Table 8, we check whether the selection reversal holds in the distributional sense for the default TFP measures we use (i.e., $RTFP_{soe}^{distort}$). We report estimation results for the longer sample (2000-13) in Appendix Table 9-11.

Appendix Table 1: Summary Statistics of Key Variables (2000-08)

Variable	Mean	Std. dev.	Min	Max
Firm FDI indicator	0.003	0.066	0	1
Firm export indicator	0.29	0.451	0	1
SOE indicator	0.04	0.191	0	1
SOE indicator (broader)	0.07	0.252	0	1
Foreign indicator	0.20	0.402	0	1
Firm log employment	4.78	1.115	1.61	13.25

Appendix Table 2: Productivity Premium of State-owned MNC by Different Types of Relative TFP (2000-08)

Category Measures	All Firms			Non-MNC Firms			MNC Firms		
	RTFP ^{OP} (1)	RTFP ^{Distort} (2)	RTFP ^{Distort} _{SOE} (3)	RTFP ^{OP} (4)	RTFP ^{Distort} (5)	RTFP ^{Distort} _{SOE} (6)	RTFP ^{OP} (7)	RTFP ^{Distort} (8)	RTFP ^{Distort} _{SOE} (9)
(i) Private firms	0.504	0.495	0.498	0.503	0.494	0.497	0.617	0.501	0.503
(ii) SOE	0.484	0.479	0.482	0.484	0.478	0.481	0.650	0.528	0.531
Difference=(i)-(ii)	0.020*** (54.91)	0.016*** (47.01)	0.016*** (46.72)	0.019*** (54.83)	0.016*** (47.11)	0.016*** (46.83)	-0.033 (-1.61)	-0.027*** (-2.67)	-0.028*** (-2.70)

Notes: Number in parenthesis are t-value. ***(**,*) denotes the significance at 1(5, 10)%, respectively. Columns (1)-(3) show that private firms have higher relative TFP than SOEs for all firms. Similarly, columns (4)-(6) show that private non-MNC firms have higher relative TFP than SOE non-MNC firms. Columns (8)-(9) show that private MNC firms are *less* productive than state-owned MNCs. Columns (1), (4) and (7) are relative Olley-Pakes TFP. Columns (2), (5) and (8) are relative TFP featured with input factor distortions. Columns (3), (6) and (9) are relative TFP controlling for input price distortions and interacted SOE dummy. All types of TFP measures pool all firms within an industry and control in the first stage for firm's MNC status.

Appendix Table 3: Robustness Checks for Productivity Premium of State-owned MNCs (2000-06)

Category	All Firms		Non-MNC Firms		MNC Firms	
	Labor Productivity (1)	RTFP ^{LevPet} (2)	Labor Productivity (3)	RTFP ^{LevPet} (4)	Labor Productivity (5)	RTFP ^{LevPet} (6)
(i) Private firms	10.69	0.525	10.69	0.525	11.14	0.596
(ii) SOE	10.30	0.518	10.29	0.519	11.72	0.684
Difference=(i)-(ii)	0.39*** (58.82)	0.007*** (6.49)	0.40*** (59.08)	0.006*** (6.57)	-0.588*** (-4.46)	-0.088*** (-2.80)

Notes: Columns (1)-(2) show that private firms have higher log labor productivity and relative TFP (measured in Levinsohn-Petrin) than SOEs for all firms. Similarly, columns (3) and (4) show that private non-MNC firms have higher log labor productivity and relative TFP than SOE non-MNC firms. Columns (5) and (6) show that private MNC firms are *less* productive than SOE MNC firms. Number in parenthesis are t-value. ***(**, *) denotes the significance at 1(5, 10)% respectively.

Appendix Table 4: Absolute Size Premium for SOEs

Category Variable	Non-FDI exporting firms		FDI non-exporting firms		MNCs		Domestic sales of MNCs (7)
	LnI (1)	Sales (2)	LnI (3)	Sales (4)	LnI (5)	Sales (6)	
(i) Private firms	5.19	60,703	4.73	181,713	5.77	3,110,883	1,874,675
(ii) SOE	6.88	130,238	6.55	549,485	8.29	11,130,681	10,347,231
Difference=(i)-(ii)	-1.69*** (-140.8)	-69,535*** (-26.71)	-1.82*** (-7.85)	-367,772** (-2.26)	-2.52*** (-14.14)	-8,019,798*** (-5.49)	-8,472,556*** (-8.48)
	Regressions						
SOE Indicator	1.566*** (79.35)	1.491*** (70.83)	1.795*** (4.78)	1.701*** (4.07)	2.400*** (7.68)	2.841*** (8.14)	3.727*** (6.84)
Firm TFP	0.068*** (21.56)	0.550*** (163.30)	0.180*** (4.41)	0.683*** (15.03)	0.345*** (7.61)	0.807*** (15.95)	0.938*** (11.51)
Year-specific Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-specific Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	323,397	323,397	1,375	1,375	2,352	2,352	2,058
R-squared	0.07	0.21	0.15	0.33	0.16	0.31	0.21

Note: Columns (1) to (6) of the upper module show that private firms have lower sales and employment than SOEs for non-FDI exporting firms, FDI non-exporting firms, and MNCs, respectively. Column (7) in the upper module shows that domestic sales of private MNCs are smaller than those of state-owned MNCs. The lower module regresses firm size (in log employment) and firm sales on the SOE indicator while controlling for firm TFP, year-specific fixed effects, and firm-specific fixed effects. All the regressions show that SOEs are larger than private firms among non-FDI exporting firms, non-exporting MNCs, and MNCs. The numbers in parentheses are *t*-values. *** (**, *) denotes significance at the 1 percent (5 percent, 10 percent) level.

Appendix Table 5: Private Firms Are More Likely to Start FDI

Regressand: Starting FDI Indicator Year coverage: SOE defined: Variable:	LPM		Logit		Logit		Rare Event Logit		Complementary Log-Log					
									2000-2008			2004-2008		
	narrow (1)	narrow (2)	narrow (3)	narrow (4)	narrow (5)	broad (6)	narrow (7)	narrow (8)	narrow (9)	narrow (10)				
SOE Indicator	-0.001*** (-5.46)	-0.878*** (-3.97)	-1.079*** (-4.79)	-1.579*** (-7.54)	-1.071*** (-4.79)	-0.981*** (-4.29)	-1.402*** (-5.06)	-0.818*** (-2.99)	-1.114*** (-4.68)	-1.212*** (-4.59)				
Firm TFP	0.004*** (6.10)	2.641*** (5.19)	2.975*** (5.40)	3.820*** (9.44)	2.933*** (5.40)	2.934*** (5.40)	2.773*** (4.63)	3.629*** (4.98)	2.871*** (5.20)	2.691*** (4.70)				
Log Firm Labor	0.001*** (14.56)	0.583*** (21.84)	0.603*** (18.87)	0.557*** (21.23)	0.598*** (19.02)	0.596*** (18.98)	0.569*** (16.65)	0.720*** (16.41)	0.598*** (18.88)	0.587*** (18.94)				
Export Indicator	0.002*** (15.77)	1.347*** (16.08)	1.621*** (16.98)	1.624*** (19.09)	1.620*** (16.98)	1.620*** (16.97)	1.708*** (16.39)	1.159*** (9.00)	1.621*** (16.92)	1.520*** (16.14)				
Foreign Firms Dropped	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Tax Haven Dropped	No	No	No	No	No	No	No	No	No	No				
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Distribution FDI Dropped	No	No	No	No	No	No	No	Yes	No	No				
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Switching SOE Dropped	No	No	No	No	No	No	No	No	Yes	Yes				
M&A Deals Dropped	No	No	No	No	No	No	No	No	No	Yes				
Observations	1,136,604	1,135,468	859,096	896,315	859,096	859,096	858,705	857,641	707,154	554,760				

Note: The regressand is the starting FDI indicator. All columns except column (1) include industry dummies at the 2-digit level and year dummies. The numbers in parentheses are *t*-values clustered at the firm level. *** (**) denotes significance at the 1 percent (5 percent) level. Columns (1)-(2) include foreign-invested firms whereas all other columns drop those firms. Columns (1)-(8) cover data over the period of 2000-2008 whereas Columns (9)-(10) cover data over the period of 2004-2008. Column (6) uses broadly defined SOE. Column (7) drops outward FDI to tax haven destinations. Column (8) drops distribution-oriented FDI. Column (9) drops the switching SOEs (i.e., switching from SOEs to private firms). Column (10) drops both switching SOEs and merge & acquisition deals. In all columns, TFP is measured by augmented Olley-Pakes controlling for input price distortions.

Appendix Table 6: Regressions with Destination-specific and Affiliates' Industry-specific Fixed Effects

Regressand:	FDI Indicator		Starting FDI Indicator	
	2000-2008			
SOE Indicator	-0.000001*** (-9.55)	-0.000001*** (-3.96)	-0.000001 (-0.73)	-0.000001 (-1.54)
Parent Industry FEs	Yes	Yes	Yes	Yes
Affiliate Industry FEs	Yes	Yes	Yes	Yes
Destination FEs	No	Yes	No	Yes
Year FEs	Yes	Yes	Yes	Yes
Observations	1,136,604	1,136,604	1,136,604	1,136,604
R-squared	1.00	1.00	0.32	0.33

Note: The regressand in columns (1) to (2) is FDI Indicator as in Table 5, while the regressand in columns (3) to (4) is the indicator of starting FDI as in Table 6. All columns include firm-level controls such as firm's relative TFP, log employment and the exporting indicator. Parent industry-specific, year-specific and affiliate industry-specific fixed effects are included into all columns. The numbers in parentheses are robust *t*-values. *** (**, *) denotes significance at the 1 percent (5 percent, 10 percent) level.

Appendix Table 7: Estimation of Productivity Premium of State-owned MNC (2000-08)

Regressand: Measures of SOE	TFP ^{OP}				Relative TFP ^{OP}			
	narrow (1)	narrow (2)	broad (3)	broad (4)	narrow (5)	narrow (6)	broad (7)	broad (8)
SOE Indicator	-0.320*** (-26.97)	-0.332*** (-28.78)	-0.282*** (-26.06)	-0.284*** (-26.88)	-0.053*** (-26.84)	-0.055*** (-28.24)	-0.047*** (-25.94)	-0.048*** (-26.86)
SOE Indicator×MNC Indicator	0.547*** (3.91)	0.546*** (4.01)	0.562*** (4.24)	0.575*** (4.45)	0.092*** (3.91)	0.094*** (4.10)	0.094*** (4.23)	0.097*** (4.45)
Firm controls	No	Yes	No	Yes	No	Yes	No	Yes
Affiliate Industry Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Destination Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Parent Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	1,140,824	1,140,824	1,140,824	1,140,824	1,140,824	1,140,824	1,140,824	1,140,824
R-squared	0.01	0.05	0.01	0.05	0.01	0.05	0.01	0.05

Notes: Number in parenthesis are t-value. ***(**,*) denotes the significance at 1(5, 10)%, respectively. The regressands in columns (1)-(4) are Olley-Pakes TFP whereas those in columns (5)-(8) are relative Olley-Pakes TFP. Columns (1), (2), (5) and (6) use the narrow-defined SOE indicator whereas those in columns (3), (4), (7) and (8) use the broad-defined SOE indicator. All columns are controlled with firm-specific fixed effects. In additions, columns (2), (4), (6), (8) include affiliate industry fixed effects, FDI destination country fixed effects and more firm-level controls such as log employment, foreign indicator, and export indicator.

Appendix Table 8: Distribution of MNCs' Relative TFP (2000-08)

Measures of RTFP: $RTFP_{soe}^{Distort}$	All Industries		Capital-intensive Industries	
	Private firms		Private firms	
	SOEs (1)	(2)	SOEs (3)	(4)
Category of MNCs:				
Percentile				
1%	0.322	0.269	0.323	0.250
5%	0.373	0.337	0.374	0.332
25%	0.435	0.439	0.435	0.428
50%	0.515	0.489	0.553	0.486
75%	0.585	0.558	0.598	0.583
95%	0.785	0.681	0.829	0.698
99%	0.917	0.768	0.922	0.820

Notes: Productivity of the most productive firms in each industry is normalized to one. Capital-intensive industries are defined as industries with CIC code higher than 20.

Appendix Table 9: Private Firms Are More Likely to Undertake FDI (2000-2013)

Regressand: FDI Indicator	LPM		Logit		Logit		Rare Event		Complementary Log-Log					
	2000-2013		2000-2013		2000-2013		2000-2013		2004-13		2004-13		2010-2013	
	narrow	narrow	narrow	narrow	narrow	narrow	narrow	narrow	broad	narrow	narrow	narrow	narrow	narrow
Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)				
SOE Indicator	-0.002*** (-6.35)	-0.541*** (-5.23)	-0.699*** (-6.64)	-1.413*** (-16.88)	-0.695*** (-6.63)	-0.756*** (-7.99)	-0.951*** (-6.50)	-0.692*** (-6.58)	-0.399*** (-3.78)	-0.425*** (-3.93)				
Log Firm Sales	0.004*** (37.66)	0.431*** (44.35)	0.455*** (39.50)	0.548*** (71.84)	0.443*** (39.80)	0.444*** (39.86)	0.443*** (28.33)	0.442*** (39.79)	0.430*** (35.94)	0.430*** (35.85)				
Log Firm Labor	0.001*** (10.26)	0.216*** (16.88)	0.268*** (17.93)	0.142*** (14.23)	0.258*** (17.89)	0.262*** (18.06)	0.276*** (13.57)	0.258*** (17.91)	0.261*** (15.57)	0.263*** (15.60)				
Export Indicator	0.004*** (22.24)	0.671*** (26.63)	0.721*** (24.50)	1.109*** (52.99)	0.713*** (24.45)	0.712*** (24.42)	1.168*** (27.23)	0.712*** (24.42)	0.367*** (13.18)	0.366*** (13.12)				
Foreign Firms Dropped	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Tax Haven Dropped	No	No	No	No	No	No	Yes	No	No	No				
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Firm Fixed Effects	Yes	No	No	No	No	No	No	No	No	No				
Industry Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
with Switching SOEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Observations	2,529,449	2,529,074	2,028,733	1,820,515	2,028,733	2,028,733	2,022,589	1,696,358	547,719	545,306				

Note: The regressand is the FDI indicator. All columns except column (1) include industry dummies at the 2-digit level and year dummies. The numbers in parentheses are *t*-values clustered at the firm level. *** (**) denotes significance at the 1 percent (5 percent) level. Columns (1)-(2) include foreign-invested firms whereas all other columns drop those firms. Columns (1)-(7) cover data over the period of 2000-2013, whereas Column (8) covers data from 2004-2013. Columns (9)-(10) cover data over the period of 2010-2013. Column (6) uses broadly defined SOE. Column (7) drops outward FDI to tax haven destinations. Column (10) drops the switching SOEs (i.e., switchers from SOEs to private firms).

Appendix Table 10: Logit Estimates on Channels (2000-13)

SOE Defined	Narrow							Broad	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Regressand: FDI Indicator									
SOE Indicator	-0.599*** (-8.59)	-0.728*** (-10.39)	-0.591*** (-8.44)	-1.004*** (-10.02)	-1.002*** (-9.96)	-0.254*** (-5.53)	-0.449*** (-9.20)	-0.262*** (-5.65)	
Industry Rate Differential	-0.000** (-2.00)	-0.000** (-2.43)	-0.000* (-1.95)	0.000 (0.89)	0.000 (1.05)	-0.000** (-2.15)	-0.000** (-2.39)	-0.000** (-2.09)	
SOE Indicator × Ind. Rate Differential	-0.000 (-1.53)	-0.001* (-1.79)	-0.000 (-1.52)	-0.001** (-2.38)	-0.001** (-2.54)	-0.000 (-1.03)	-0.000 (-1.54)	-0.000 (-1.05)	
Log Firm Labor	0.609*** (89.18)	0.684*** (87.33)	0.608*** (88.81)	0.706*** (70.15)	0.701*** (69.73)	0.610*** (87.93)	0.690*** (86.04)	0.609*** (87.62)	
Export Indicator	0.752*** (41.55)	0.819*** (39.90)	0.751*** (41.43)	1.212*** (42.18)	1.217*** (42.37)	0.753*** (41.56)	0.819*** (39.85)	0.751*** (41.43)	
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Foreign Firms Included	Yes	No	Yes	No	No	Yes	No	Yes	
Tax Haven Included	Yes	Yes	Yes	No	No	Yes	Yes	Yes	
Year Coverage	2000-13	2000-13	2004-13	2000-13	2004-13	2000-13	2000-13	2004-13	
Observations	2,586,369	2,066,377	2,178,413	2,056,130	1,735,448	2,586,369	2,066,377	2,178,413	

Note: The regressand is the FDI indicator. The numbers in parentheses are *t*-values clustered at the firm level. *** (**) denotes significance at the 1 percent (5 percent) level. Columns (1)-(5) use conventional definition of the SOE indicator whereas the SOE indicator in column (6)-(8) is broadly defined as in Hsieh and Song (2015). Industry interest rate differential is measured by average industry-level interest rate paid by private firms minus that paid by SOEs in each 3-digit industry level. Columns (4) and (5) drop FDI to tax haven destinations. Columns (2), (4), (5) and (7) drop parent firms that are foreign firms. Columns (1), (2), (4), (6) and (7) cover data over 2000-13 whereas the rest of the table covers data over 2004-13. All regressions include 3-digit industry fixed-effects and year fixed-effects.

Appendix Table 11: Logit Estimates by Sectors (2000-13)

Sectoral Category: Regressand: FDI Indicator	2000-13		2004-13		
	(1)	(2)	(3)	(4)	(5)
SOE Indicator ×	-0.567*** (-2.61)	-0.648*** (-2.97)	-0.443 (-1.50)	-0.638*** (-2.93)	-0.598* (-1.81)
Labor-intensive Indicator					
SOE Indicator ×	-0.582*** (-4.73)	-0.753*** (-6.07)	-1.164*** (-6.79)	-0.754*** (-6.03)	-0.995*** (-5.57)
Capital-intensive Indicator					
Log Firm Labor	0.607*** (49.28)	0.681*** (49.59)	0.696*** (38.46)	0.680*** (49.55)	0.738*** (47.31)
Export Indicator	0.758*** (28.10)	0.836*** (26.40)	1.248*** (27.57)	0.835*** (26.37)	1.016*** (26.47)
Foreign Firms Dropped	No	Yes	Yes	Yes	Yes
Tax Haven Destinations Dropped	No	No	Yes	No	No
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
SOE switching firms dropped	No	No	No	No	Yes
Observations	2,602,602	2,080,027	2,074,328	1,747,652	1,056,652

Note: The regressand is the FDI indicator. All columns include industry dummies at the 2-digit level and year dummies. The numbers in parentheses are *t*-values clustered at the firm level. *** (**) denotes significance at the 1 percent (5 percent) level. Columns (1)-(3) cover observations during years 2000-13 whereas columns (4)-(5) cover observations during years 2004-13. Columns (1) keeps foreign invested firms whereas the other columns drop foreign invested firms. Columns (3) drops outward FDI to tax-haven regions. Columns (5) drops SOE switching firms. Labor intensive sectors indicator equals one if firm's Chinese industrial classification is higher than 20 and zero otherwise.