

Foreign Takeovers and Employment in Indonesian Manufacturing

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Introduction

One of the possible consequences of inward FDI for developing countries, and one that is of particular interest to their governments, is the extent to which the investment creates new jobs in the industrial, or “modern” sector, to help in the transformation of the economies. There are several ways in which inward FDI might play this role, but few studies go far beyond counting the number of jobs in the foreign-owned sector.

There is considerable evidence that foreign-owned firms are relatively efficient, and may for that reason have access to foreign markets that would not be within the reach of domestically-owned firms, an advantage that should provide a positive effect on employment. On the other side, the foreign-owned firms may compete with domestically-owned firms for some markets, so that the losses of employment by

domestically-owned firms offset, to some extent, the gains in the foreign-owned firms. In addition, the foreign-owned firms may tend to be more capital-intensive than domestically-owned firms, and more intensive in the use of imported intermediate products, so that an increase in their sales adds less to employment than would a corresponding increase by domestically-owned firms.

In this paper, we concentrate on one strand in the effects of foreign ownership by examining employment growth after foreign acquisitions of domestically-owned establishment and domestic acquisitions of foreign-owned establishments. From 1975 through 1989, there were more domestic takeovers of foreign plants than foreign takeovers of domestically-owned plants, but the foreign takeovers were larger and employment in foreign takeovers was roughly balanced by employment in domestic takeovers of foreign-owned establishments. However, from 1990 through 1999, the net balance shifted to the foreign takeovers. They didn't differ greatly in size from the domestic takeovers, but there were over 40 percent more of them.

These observations hold constant the identity of the individual establishment. If foreign ownership provides superior technology or better access to world markets, establishments should tend to raise their employment after foreign takeovers. If these advantages require continued foreign ownership, there may be employment losses when a foreign-owned establishment is acquired by a domestic firm. On the other hand, if the technological or other gains from foreign ownership are retained in the establishment, its growth of employment may continue after a domestic acquisition.

Acquisitions may not be random with respect to the prospects for an establishment. We try to control for this bias by a matching procedure where we compare

employment growth in acquired firms with a group of similar non-acquired firms. We combine the matching procedure with a difference in difference estimation.

Finally, is it foreign acquisitions or changes between foreign and domestic ownership in general that affect employment? We try to distinguish between these two possibilities by examining both establishments that are acquired by foreign owners and foreign-owned establishments that are acquired by domestic owners.

The data set used in this version of our paper extends from 1975 through 1999. Data for 2000 to 2005 will be added later

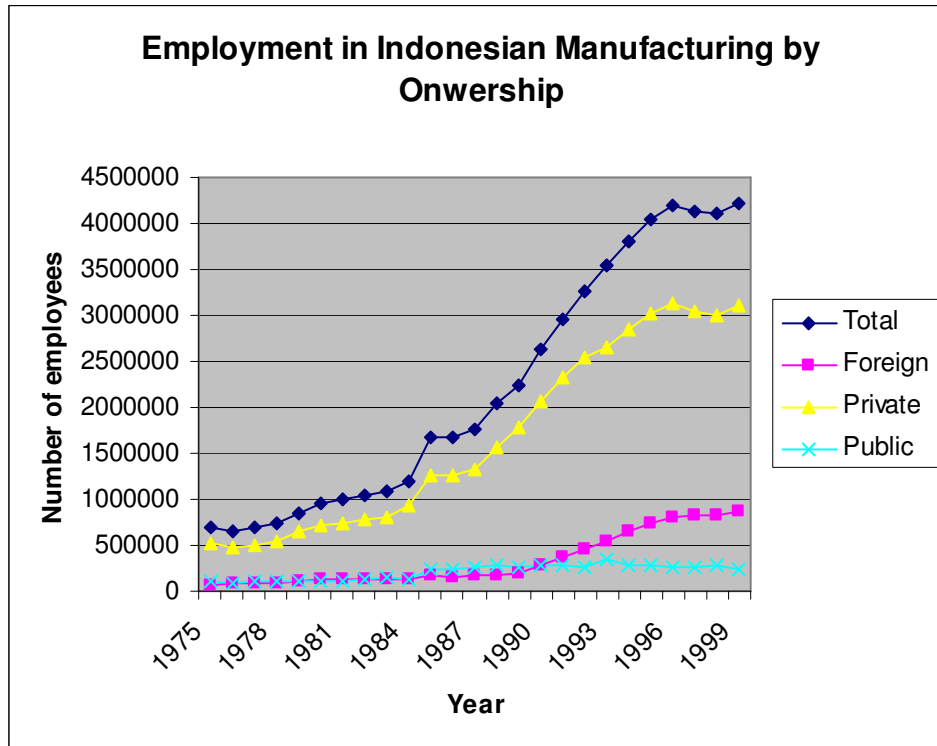
Previous Literature

Few studies compare employment growth in foreign- and domestically-owned firms. Alvarez and Görg (2007) examine the difference between firms' adjustment to a financial crisis by examining growth in employment at a plant level in Chilean manufacturing between 1990 and 2000. Their results suggest no major differences between employment growth in multinational and non-multinational firms. Karlsson et al. (2007), comparing employment growth in foreign-owned and domestically-owned Chinese firms between 1998 and 2004, find that employment in foreign-owned firms grew relatively fast and that the job creation advantage of foreign-owned firms was associated with their firm characteristics. These include high productivity, high capital intensity, high wages and, in particular, their access to export markets. There were also indirect effects on employment, spillovers to domestically-owned private firms, but not to domestically-owned non-private firms.

It is not possible to know from these studies whether foreign ownership causes high employment growth or if foreign owners simply acquire firms with high growth potential, so called cherry picking. To examine the issue further, one might therefore focus on growth in employment before and after a foreign acquisition. A few such studies have been conducted on developed countries, often with a focus on employment composition rather than on total employment (e.g. Almeida, 2003; Huttunen, 2007). Bändeck and Karpaty (2007) examine the employment effect of foreign acquisitions of Swedish firms on total employment as well as on skilled and unskilled workers. They find foreign acquisitions to increase employment, particularly for skilled workers. Based on a sample of Chinese state-owned enterprises, for the period 1999 to 2003, Gong et al. (2006) examine the effect of privatization and foreign acquisition on employment. Their results suggest that domestic privatization leads to lower employment growth while foreign acquisition increases employment, as compared to firms that remained state-owned.

Foreign Establishments in Indonesian Manufacturing

Foreign establishments have played an increasing role in Indonesian manufacturing employment, as indicated by Figure 1. Manufacturing employment in plants with more than 20 employees increased from fewer than seven hundred thousand in 1975 to above 4 million in 1999. That growth was driven mainly by a strong increase in employment in domestically-owned private plants, but plants with some foreign ownership, accounting for less than 10 percent of manufacturing employment in 1975, employed over 20 percent in 1999. The share of government-owned plants, much larger than the foreign plant share in 1975, shrank steadily, and was only 6 percent in 1999.



Source: BPS

The share of employment in foreign-owned plants jumped in the first few years, but then receded, not growing rapidly again until after 1990. The government-owned share was relatively stable until the middle or late 1980s, and then fell rapidly, as the foreign-owned share rose. And the private domestic share was relatively stable, between 70 and 80 percent.

The rates of growth of manufacturing employment of the three ownership groups are shown in Table 1. Almost all the growth in employment in foreign-owned manufacturing establishments took place in 1975-79 and 1990-94. Employment in government-owned plant grew only before the 1990s, and then declined. Manufacturing employment hardly grew at all between 1995 and 1999, the period that includes the Asian crisis.

Table 1: Employment Growth (%) in Indonesian Manufacturing Establishments, by Type of Ownership, 1975-1999, by Periods

Year	Total	Foreign	Private	Gov't.
1975~1979	25.3	85.5	21.6	9.6
1980~1984	22.9	7.3	27.8	9.1
1985~1989	34.2	16.8	40.2	14.6
1990~1994	44.4	138.2	38.3	-3.3
1995~1999	4.6	0.2	2.6	-10.8

The figures above show that foreign firms have become an increasingly important employer in Indonesian manufacturing. Moreover the growth in employment in foreign firms is not concentrated to small segments of the manufacturing sector (Table 2). The foreign plants' share of employment grew between 1975 and 1999 in all the major manufacturing sectors except Wood products, although it fell in some other industries in between. The foreign share more than doubled in Textiles and Paper products, the two metals industries, and Other manufacturing.

Table 2. Share of Foreign-owned Manufacturing Establishments in Indonesian Manufacturing Employment

(total and 2-digit sector level) 1975, 1990, 1999.

Sector	ISIC	1975	1990	1999
Total		8.5	10.6	20.7
Food products	31	4.0	4.4	8.0
Textiles	32	7.8	12.1	24.8
Wood	33	11.2	7.3	10.4
Paper	34	7.1	9.1	14.3
Chemicals	35	16.9	15.7	17.7
Non-Metallic Minerals	36	10.3	7.1	12.7
Basic Metal Industries	37	12.7	24.4	25.2
Fabricated Metals	38	18.1	17.8	44.2
Other Manufacturing	39	4.2	16.9	44.5

The industry sectors and the ownership groups differed in other ways as well. One extreme difference was in size: government-owned plants were far larger than domestically-owned private plants, seven times as large, on average, in 1975 and still over four times as large in 1999. They were much larger also within the industry groups, with one exception in each of the two years (Table 3). Foreign-owned plants were also much larger than domestically-owned private plants, about three times as large in both beginning and end years. In 1999, the foreign-owned plants were larger than

government-owned ones in several industry groups and larger than domestically-owned private plants in every group. The size disparity may be an element in the frequency and success of takeovers.

To the extent that we can associate the share of blue-collar workers in total employment with the average skill level in an establishment, it appears that foreign firms tended to use a somewhat higher skill labor force than private domestic firms in the same industry. Government-owned plants operated with the lowest proportions of blue-collar workers consistently across industries. Only government-owned plants employed work forces made up to the extent of 30 percent or more of white-collar workers, almost 40 percent in a few cases, while private domestic plants employed more than 20 percent white-collar workers in only one industry group in one year.

Table 3. Average number of employees per establishment and the share of blue-collar workers, 1975 and 1999

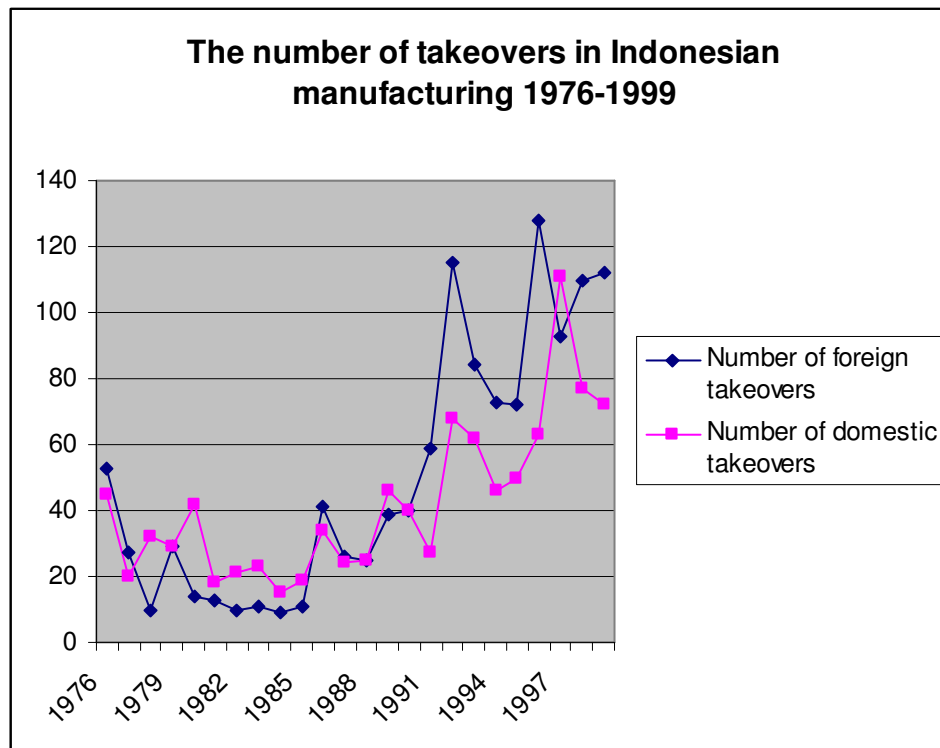
		Private-domestic		Gov't-domestic		Foreign	
Sector	ISIC	Aver, no. of empl. per plant	Share of blue-collar workers	Aver.no. of empl. per plant	Share of blue-collar workers	Aver.no. of empl. per plant	Share of blue-collar workers
1975							
Total		76	0.88	553	0.73	220	0.77
	31	92	0.88	871	0.77	175	0.81
	32	75	0.93	528	0.79	442	0.91
	33	58	0.83	86	0.83	150	0.81
	34	53	0.83	366	0.72	157	0.77
	35	76	0.83	290	0.65	167	0.64
	36	42	0.88	915	0.61	325	0.85
	37	174	0.82	72*	0.65*	96*	0.75*
	38	86	0.86	321	0.69	223	0.73
	39	51	0.90	na	na	167*	0.92*
1999							
Total		155	0.87	644	0.71	509	0.79
	31	124	0.86	665	0.69	332	0.75
	32	223	0.90	453	0.80	1000	0.89
	33	176	0.88	262	0.85	458	0.85
	34	136	0.80	587	0.61	515	0.83
	35	159	0.80	580	0.70	255	0.70
	36	75	0.90	724	0.61	411	0.79
	37	217	0.77	1782*	0.85*	228	0.74
	38	133	0.83	924	0.71	451	0.78
	39	116	0.89	100*	0.84*	665	0.90

* - Fewer than 5 observations

Foreign Takeovers and Employment Growth

The changes in the share of Indonesian manufacturing employees in foreign-owned plants came about in several different ways. One was the establishment of new plants by foreign owners and the demise of existing plants. Another was from takeovers of domestically-owned plants by foreign firms, offset by takeovers of foreign-owned plants by Indonesian owners. A third source of change was any differences in average rates of growth between locally-owned and foreign-owned plants.

The path of takeover activity between foreign and domestic owners, in terms of numbers of takeovers, is described by the chart below. The numbers of takeovers in both directions had been fairly similar until the 1990s, but since then foreign takeovers have been more numerous, except in 1997, during the Asian crisis.



Not only the number of takeovers but also their role in the growth of the foreign share of Indonesian manufacturing employment fluctuated widely. Up through 1989, they accounted for a large part of total growth in employment in foreign-owned manufacturing establishments, but they were offset by declines in such employment from local takeovers of foreign-owned plants. After 1989, the foreign takeovers added more to the foreign-owned share than the domestic takeovers took away. However, the net effect of foreign and domestic takeovers was less important as a source of employment growth in foreign-owned establishments than the combination of new foreign-owned plants and their more rapid growth (Table 4).

Table 4: Employment Growth in Foreign-owned Manufacturing Establishments in Indonesia, by Source of Growth, 1975-1999

Year	Foreign	Foreign Takeover	Domestic Takeover	Other ^a
1975~1979	49,599	20,969	-10,410	39,040
1980~1984	9,140	18,463	-27,435	18,112
1985~1989	27,897	47,223	-47,997	28,671
1990~1994	384,419	181,947	-85,763	288,235
1995~1999	133,593	218,313	-184,666	99,946

Note:

a). New establishments minus disappearances, firm growth after takeover, and miscellaneous changes.

Both foreign and domestic takeovers were spread over the whole range of establishment sizes. A surprising 31 percent of domestic takeovers of foreign-owned plants were reported to be of establishments with fewer than 50 employees (Table 5). Despite the small number of foreign-owned plants, the number of domestic takeovers of foreign-owned plants with fewer than 50 employees was 67 percent greater than the number of foreign takeovers of domestically-owned plants of that size. At the three largest plant sizes, there were more foreign takeovers of domestically-owned establishments than domestic takeovers of foreign-owned plants.

Of course, there were many more domestic plants than foreign-owned plants in existence to be potential targets of takeovers. The frequency of takeovers (the ratios of foreign takeovers to the number of domestically-owned plants and of domestic takeovers to the number of foreign-owned plants) is therefore much higher for domestic takeovers than for foreign takeovers. The frequency of takeovers in both directions was highest for plants with between 100 and 200 employees, aside from the strange frequency of domestic takeovers of the smallest foreign-owned firms. But at the top sizes of plant, foreign takeovers were more common than domestic takeovers.

Table 5: Size Distribution of Foreign and Domestic Takeovers

Plant Employment	No. of Foreign Takeovers	% of Total	Share of Domestic IDs (%) ^a	No. of Domestic Takeovers	% of Total	Share of Foreign IDs (%) ^b
1-49	93	13.38	0.04	156	31.39	13.15
50-99	94	13.53	0.14	74	14.89	4.53
100-199	163	23.45	0.41	90	18.11	3.43
200-299	95	13.67	0.65	42	8.45	2.79
300-399	59	8.49	0.67	24	4.83	2.74
400-499	27	3.88	0.49	16	3.22	2.29
500-599	25	3.60	0.74	20	4.02	3.97
600-699	25	3.60	0.77	11	2.21	2.77
700-799	16	2.30	0.69	15	3.02	3.86
800-899	17	2.45	1.68	14	2.82	5.37
900-999	14	2.01	0.93	6	1.21	1.99
1,000-1,499	41	5.90	0.99	13	2.62	1.73
>1,500	26	3.74	0.57	16	3.22	2.01
Total^c	695	100	0.18	497	100	4.69

Note:

- a). Ratios of numbers of foreign takeovers in year t to numbers of existing domestic establishments of the same size class in year t-1;
- b). Ratios of numbers of domestic takeovers in year t to numbers of existing foreign establishments of the same size class in year t-1;
- c). Total for share of domestic IDs is the average of ratios from a) over time, and Total for share of foreign IDs is the average of ratios from b) over time.

The changes in employment associated with acquisitions are described in Table 6, for all manufacturing and the broad industry groups. Both foreign and domestic takeovers are associated with increases in plant employment, but the growth is larger in

the foreign takeovers, especially between the year preceding the takeover and the year of the takeover. The large increases in the year of takeover, much larger on average than in the succeeding years, might hint at the existence of rescue operations.

The effect of takeovers on the composition of employment, captured by the share of blue-collar workers, seems to increase but only marginally after both types of takeovers.

Table 6: Employment in Indonesian Manufacturing Establishments Acquired by Foreigners from Domestic Owners or by Domestic Owners from Foreign Owners
Pre- and Post- acquisitions

ISIC		Number of employees				Share of blue collar workers			
		T-1	T	T+1	T+2	T-1	T	T+1	T+2
Total	Foreign takeover	272	367	391	397	0.82	0.82	0.82	0.83
	Domestic takeover	256	274	288	292	0.82	0.83	0.83	0.84
31	Foreign takeover	210	257	261	247	0.75	0.78	0.79	0.78
	Domestic takeover	152	156	165	174	0.82	0.83	0.82	0.84
32	Foreign takeover	374	571	631	633	0.89	0.90	0.90	0.91
	Domestic takeover	411	442	456	470	0.91	0.89	0.89	0.89
33	Foreign takeover	355	362	393	368	0.86	0.86	0.88	0.87
	Domestic takeover	308	338	325	350	0.84	0.88	0.87	0.86
34	Foreign takeover	203	311	332	560	0.79	0.76	0.80	0.81
	Domestic takeover	235	426	419	219	0.79	0.79	0.79	0.81
35	Foreign takeover	180	221	236	222	0.72	0.68	0.70	0.71
	Domestic takeover	146	138	145	153	0.63	0.72	0.70	0.74
36	Foreign takeover	211	223	225	245	0.81	0.82	0.81	0.82
	Domestic takeover	214	220	230	228	0.85	0.81	0.83	0.83
37	Foreign takeover*	72	140	130	113	0.87	0.74	0.71	0.65
	Domestic takeover*	244	309	274	225	0.73	0.74	0.78	0.78
38	Foreign takeover	243	360	378	380	0.81	0.82	0.81	0.82
	Domestic takeover	197	160	177	190	0.79	0.79	0.79	0.80
39	Foreign takeover	304	313	339	531	0.89	0.89	0.90	0.90
	Domestic takeover	220	299	524	564	0.83	0.90	0.91	0.91

Note: Foreign takeover refers to a foreign acquisition of a domestically-owned establishment. Domestic takeover refer to a domestic acquisition of a foreign- owned firm. Only plants included throughout the period T-1 to T+2 are included.

* - Fewer than 10 observations.

The growth of a plant's employment

We begin the econometric analysis by treating growth in employment as a function of various plant characteristics:

$$\Delta \ln L_{it} = \ln L_{it} - \ln L_{it-1} = \alpha + \lambda \text{Plant}_{it-1} + \sum \beta_w \text{Ownership}_i + \sum \beta_t \text{Year_dummy}_t + \sum \beta_{ind} \text{Ind_dummy}_j + \sum \beta_R \text{Reg_dummy}_R + \varepsilon_{it}, \quad (1)$$

where i indexes firms, t indexes year.

The variables included in the model are:

L : Employment.

Plant_{it} : A vector of lagged plant characteristics, i.e. plant size measured by employment, the export share of total sales, labor productivity (value added per employee), energy intensity (energy use per employee), and inputs of intermediate goods per employee

Ownership_i : Ownership dummy variables indicating four ownership categories.

Year_t : Year dummy variables.

Industry_j : Industry dummy variables.

Region : Regional dummy variables.

The plant control variables might be endogenously determined and we try to control for this possibility by lagging them one period. Hence, we assume that growth in

employment between period $t-1$ and t is caused by, for instance, the size and productivity in period $t-1$.

We also include dummy variables on ownership, which is divided into foreign, government-domestic and private domestic. Foreign establishments are defined as plants with any foreign ownership. Government-owned establishments are defined as plants without foreign ownership but with any government (central or local) ownership. The remaining plants are defined as private-domestically owned. In some later calculations, ownership is instead a dummy on foreign acquisitions of domestically owned plants and a dummy on domestic acquisitions of foreign owned plants. Finally, we include time dummies, industry dummies (2 digit level of ISIC) and regional dummies (5 regions).

Determinants of Plant Employment Growth

We start in Table 7 with simple OLS analyses on the whole sample of firms. The first equations include only the ownership variables *Foreign* and *Government*. Hence, the reference group is domestic-private firms. It is seen that the coefficient for *Foreign* is positive and statistically significant. Growth in employment is about five percent higher in foreign than in domestic-private plants. The coefficient for government is negative and statistically significant but its economic significance is marginal.

Plants of different ownership might be distributed differently over sectors and regions and there might be differences among regions and industries with respect to economic conditions. We therefore include dummy variables for industry group and region in the second equation, along with a dummy variable for the year, since there have been major changes over time in economic conditions and policies. The results remain

robust, with high employment growth in foreign plants and a small difference between government and private domestic plants.

The third equation includes plant characteristics that might affect employment growth. Large firms have comparatively low growth rates, in accordance with previous studies (e.g. Karlsson et al., 1997). Energy- and input-intensive firms have relatively high employment growth. The effect of foreign ownership increases substantially when we control for plant characteristics: growth in employment is about 10 percent higher in foreign plants than in private-domestic plants. Finally, controlling for plant characteristics makes the coefficient for government ownership both statistically and economically significant. Government-owned plants have growth in employment almost five percent higher than similar private-domestic plants.

The fourth equation includes an additional control variable, labor productivity. The coefficient is positive and statistically significant but the size is so small that it is of no economic significance. One reason is presumably that productivity is highly related to size and capital (energy) intensity. Labor productivity is not included in the next estimations.

The last two columns examine growth of the numbers of blue- and white collar workers. The results show that various characteristics affect growth of blue- and white collar workers differently. Starting with foreign ownership, it is seen that the positive

Table 7: Ownership and Growth in Employment, OLS estimations

	Total empl.	Total empl.	Total empl.	Total empl.	Blue-collar workers	White-collar workers
Foreign	0.053 (18.06)***	0.050 (16.82)***	0.065 (17.14)***	0.063 (16.15)***	0.067 (16.61)***	0.033 (6.96)***
Government	-0.005 (2.41)**	-0.005 (1.65)*	0.029 (7.39)***	0.028 (7.28)***	0.025 (5.78)***	0.018 (3.07)***
Size (t-1)	--	--	-0.040 (42.33)***	-0.040 (42.36)***	-0.040 (41.48)***	-0.024 (20.97)***
Energy (t-1)	--	--	0.013 (26.34)***	0.012 (26.06)***	0.013 (25.37)***	0.005 (6.80)***
Inputs (t-1)	--	--	0.017 (29.70)***	0.016 (27.93)***	0.016 (26.73)***	0.013 (14.42)***
Product. (t-1)	--	--	--	0.000 (2.17)**	--	--
Time dummy	--	Estimated	Estimated	Estimated	Estimated	Estimated
Ind. Dummy	--	Estimated	Estimated	Estimated	Estimated	Estimated
Region dummy	--	Estimated	Estimated	Estimated	Estimated	Estimated
R-square	0.001	0.008	0.030	0.030	0.023	0.006
No. of obs.	281,908	281,908	265,352	265,352	265,270	209,319

Note: a constant is included in all estimations. Energy, Inputs and Productivity are in log form. T-values based on robust (cluster at plant level) standard deviations are in parentheses.

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

effect on the employment of blue collar workers is substantially larger than the effect on white-collar workers: 6.7 percent compared to 3.3 percent. The effect of government ownership is also higher for blue than for white collar workers but both effects are small compared to the effect of foreign ownership. Finally, the negative effect of size is primarily seen for blue-collar workers, as is also the case for the positive effect from energy intensity.

Foreign Takeovers and Employment Growth

The changes in the foreign-owned share of Indonesian manufacturing employment, described earlier, came about in several different ways. One was the establishment of new firms by foreign owners and the demise of existing plants. Another was the takeover of locally-owned firms or plants by foreign owners, offset by acquisitions of foreign-owned plants by Indonesian owners. A third source of change was any difference in average rates of growth between locally-owned and foreign-owned plants. We estimated in Table 7 that foreign-owned plants grew about 6 percent per year faster than domestically-owned establishments.

Table 8 is an econometric analysis of the effect of acquisitions. One advantage with this approach is that if it is unobservable plant characteristics rather than ownership that determine employment growth, we would not expect any effect of an acquisition. We include both foreign acquisitions of domestic plants and domestic acquisitions of foreign plants to examine if it is the acquisition itself or the type of ownership that affects employment growth.

Foreign plants are divided into two groups. One is “Always foreign” plants, which are plants that are foreign-owned throughout their period in the sample, although they might originally have been domestically-owned. The first equation divides ownership into always foreign, foreign acquisitions, domestic acquisitions, government¹, and the largest group, the base group, not shown, plants that were always private domestic. Both types of foreign-owned plants show a high growth in employment. The effect is larger for acquisitions than for plants that were always foreign: about 7.8 percent, compared to 3.2 percent. The effects of domestic acquisitions and government ownership are negative but of only marginal economic significance.

¹ Always Foreign describes a plant that is foreign owned from the start of its appearance in the data. It could be the case that, for instance, plants have been established before 1975 as an acquisition but that they are considered always foreign in our analysis. However, using only foreign plants established after 1975 does not change the results.

Table 8. Acquisitions and Growth in Employment.

	Total empl.	Total empl.	Total empl.	Total empl.	Blue-collar workers	White-collar workers
	OLS	OLS	OLS	Fixed effect	Fixed effect	Fixed effect
Always Foreign.	0.046 (14.06)***	0.042 (12.65)***	0.055 (12.50)***	--	--	--
Foreign Acquis.	0.081 (10.34)***	0.081 (10.25)***	0.104 (11.73)***	0.148 (5.78)***	0.179 (6.13)***	0.019 (0.59)
Domestic Acquis.	0.003 (0.94)	0.002 (0.63)	0.011 (2.57)***	-0.035 (2.30)**	-0.025 (1.59)	-0.055 (2.23)**
Government	-0.005 (1.60)	-0.005 (1.71)*	0.028 (7.31)***	--	--	--
Size (t-1)	--	--	-0.040 (42.13)***	-0.418 (81.58)***	-0.421 (79.44)***	-0.284 (44.30)***
Energy (t-1)	--	--	0.013 (26.47)***	0.011 (10.09)***	0.012 (9.94)***	-0.001 (0.67)
Inputs (t-1)	--	--	0.017 (29.70)***	0.020 (14.63)***	0.020 (13.18)***	0.009 (3.34)***
Time dumm.	--	Estimated	Estimated	Estimated	Estimated	Estimated
Ind. Dumm.	--	Estimated	Estimated	--	--	--
Region dum.	--	Estimated	Estimated	--	--	--
R-square	0.001	0.001	0.030	0.240	0.189	0.041
No. of obs.	279,507	279,507	263,047	247,504	247,442	192,395

Note: a constant is included in all estimations. Energy, Inputs and Productivity are in log form. T-values based on robust (cluster at plant level) standard deviations are in parentheses.

- Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

The results remain robust in the second equation, where we include dummy variables, but change in equation three, where we also include various plant characteristics in period t-1. Higher intermediate input and energy input in the previous period are associated with larger employment growth, while larger size goes with slower growth. Both types of foreign ownership go with increased employment. The effect of foreign acquisition is particularly large and shows a 13 percent increase in employment growth. The effect of domestic acquisitions on employment growth turns positive, but small in size, and the effect of government ownership is similar to the one in Table 7.

Selectivity in Acquisitions

It is often suggested that the faster growth of foreign-owned plants than of domestically-owned plants reflects not any effects of foreign ownership, but only the selection of superior plants for acquisition by foreign owners. That proposition is tested in Table 9, where we measure the quality of acquired plants by their rates of growth of employment during their existence before takeover. We then compare the rates of growth after takeover between foreign-owned and domestically-owned establishments, taking account of their pre-takeover rates of growth in employment, as well as other variables.

As in earlier calculations, foreign takeover targets grew faster after takeover than the base population, establishments that remained in domestic private hands, by about 8 percent. Domestic takeover targets among foreign firms grew more slowly than the base population after takeover, by about 2 percent. The foreign takeover targets had been growing faster than the base group before their takeover, by about 4

Table 9. Growth in Establishment Employment after Foreign and Domestic Acquisition, Taking Account of Pre-Acquisition Growth Rates

	Total empl.	Total empl.	Total empl.	Blue collar	White collar
	OLS	OLS	OLS	OLS	OLS
Always Foreign	0.046 (14.13)***	0.043 (12.72)***	0.056 (12.69)***	0.057 (12.43)***	0.026 (4.96)***
Before Foreign Acquisition	0.044 (9.25)***	0.040 (7.50)***	0.049 (7.69)***	0.035 (5.30)***	0.071 (8.43)***
After Foreign Acquisition	0.081 (10.38)***	0.081 (10.27)***	0.104 (11.81)***	0.108 (11.37)***	0.053 (4.77)***
Before Domestic Acquis.	0.040 (6.22)***	0.040 (5.78)***	0.052 (6.99)***	0.052 (6.65)***	0.033 (3.31)***
After Domestic Acquis.	-0.022 (4.19)***	-0.021 (4.04)***	-0.017 (2.81)***	-0.005 (0.75)	-0.045 (5.27)***
Government	-0.005 (1.71)*	-0.006 (1.77)*	0.029 (7.35)***	0.025 (5.75)***	0.018 (3.03)***
Size (t-1)	--	--	-0.040 (42.46)***	-0.040 (41.61)***	-0.024 (21.15)***
Energy (t-1)	--	--	0.013 (26.38)***	0.013 (25.40)***	0.005 (6.87)***
Inputs (t-1)	--	--	0.017 (29.69)***	0.016 (26.72)***	0.013 (14.42)***
Time dumm.	--	Included	Included	Included	Included
Ind. Dumm.	--	Included	Included	Included	Included
Region dum.	--	Included	Included	Included	Included
R-square	0.002	0.009	0.030	0.023	0.006
No. of obs.	281,908	281,908	265,352	265,270	209,319

Note: a constant is included in all estimations. Energy, Inputs and Productivity is in log forms. T- values based on robust (cluster at plant level) standard deviations are in parentheses.

*Significant at 10 % level **Significant at 5% level ***Significant at 1% level

percent per year, and the takeover seemed to roughly double that superiority. The domestic takeover targets, all foreign-owned establishments, had been growing in employment at about 4 percent faster than the base group, at about the same rate as the “Always foreign” establishments. They lost that margin after domestic takeover and fell behind the base population, roughly 10 percent below the growth rate of foreign takeovers.

What do these results say about selectivity in takeovers? Foreign firms acquired domestic establishments that had been growing faster than the average of domestically-owned plants. Domestic firms acquired foreign establishments with similar past rates of growth. Where they differed was in post-acquisition experience. Foreign acquisitions raised their margins over private domestic firms while domestic acquisitions fell behind the average private firm in employment growth.

The inclusion of time, industry, and region dummies did not change these conclusions. The further addition of establishment characteristics also did not produce a very much changed result. The breakdown between blue-collar and white-collar employees showed some differences between the two groups. Among the foreign acquisitions, the growth in employment was twice as high for white-collar as for blue-collar employees before acquisition, but became higher for blue-collar employees after acquisition. Among domestic acquisitions, white collar employment had been growing

more slowly relative to the base group before acquisition and fell more rapidly after acquisition.

Matched Comparisons of Domestic and Foreign Takeovers

Acquisitions may not be random with respect to factors that might determine future growth. We therefore construct a control group of establishments with unchanged ownership that are as similar as possible to the acquired firms by way of a matching approach. We also construct a control group of domestic takeovers to compare with the foreign takeovers. We then combine the matching and difference in difference methods to examine the effect of FDI on employment.

Among the candidates for matching criteria are the year of takeover, the industry group, size of establishment, and other characteristics of the plant, such as productivity, energy intensity, and use of purchased intermediate inputs. Adding criteria reduces the chances for finding matches, and some ordering of importance will be necessary.

To be completed.

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