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in Transition: Further Evidence
from Vietnamese Manufacturing**

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**Productivity, Ownership, and Producer Concentration in Transition:
Further Evidence from Vietnamese Manufacturing**

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Abstract

Multinational corporations (MNCs), both wholly-foreign and joint ventures, and state-owned enterprises (SOEs) often had higher labor productivity and lower capital productivity than local, private firms in Vietnamese manufacturing during 2000-2006. After controlling for firm-level variation in factor intensities and scale, and industry-level variation in producer concentration, total factor productivity differentials between MNC joint ventures or SOEs on the one hand, and private firms on the other, were positive and statistically significant in samples of all manufacturing firms combined and in most industry-level samples for 2001-2006 and two subperiods. Differentials between wholly-foreign MNCs and private firms were generally insignificant or negative in a contemporaneous specification, but more often positive and significant when a lagged specification was used to account for potential simultaneity. Estimates of productivity spillovers from SOEs and MNCs to private firms and the productivity effects of concentration tended to be insignificant statistically, both when all manufacturing industries were combined and in subsamples of industries with relatively high or low concentration. These results are consistent with the view that Vietnam's manufacturing firms, especially wholly-foreign MNCs and private firms, are often engaged in assembly operations using relatively simple technologies, and that local firms are often quick to imitate their MNC competitors. However, the substantial variation of estimates among industries and time periods suggests that combining heterogeneous industries or time periods biases productivity estimates in this diverse, rapidly changing economy.

Keywords: productivity; ownership; multinational corporation; state-owned enterprise; producer concentration

JEL Categories: D24, F23, K22, L11, L32, L33, O53

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1. Introduction

There is now a wide ranging literature examining the hypothesis that ownership modes affect firm productivity. More specifically, economists often assert that multinational corporations (MNCs) tend to be relatively efficient and that state-owned enterprises (SOEs) are generally relatively inefficient. MNCs are usually thought to possess relatively large amounts of intangible assets that facilitate efficiency (e.g., patents and other fruits of R&D, management know-how, marketing resources). Meanwhile, motivation to pursue profits and efficiency is generally believed to be relatively weak in SOEs. In addition, MNCs are often thought to generate spillovers that affect the efficiency of non-MNCs through linkages, labor mobility, and competition effects, for example. Similar spillovers can also be imagined for SOEs in transition economies like Vietnam, where SOEs are designated to play leading roles in industry. The degree of competition is another element thought to affect firm productivity and the nature of productivity spillovers.

Vietnam provides an interesting case to study these relationships. The process of *Doi Moi* (reform) which began in 1986 has gradually transformed a command economy into a more market-oriented one. Although the reform process has been uneven, there is now substantial evidence of marked changes in ownership patterns and market structure, especially after the implementation of Enterprise Law in 2000 and subsequent, related reforms. The rapid growth of the local private sector and the marked decrease of producer concentration have been particularly conspicuous.

Firm-level data from Vietnam's enterprise surveys are available annually from 2000 and used to analyze the following three questions:

- (1) Is there a meaningful relationship between ownership modes and firm productivity levels?
- (2) Does the presence of MNCs or SOEs affect the productivity levels in private, local firms (hereafter referred to as private firms)?
- (3) Has variation in producer concentration had an effect on firm productivity?

This paper begins with a brief review of the literature (Section 2), followed by a description of the data and key patterns observed in average productivity differentials and related variables (Section 3). Productivity differentials (Section 4) and productivity spillovers (Section 5) are then analyzed after accounting for (1) firm-level variation in factor intensities and scale, (2) industry-level variation in producer concentration, and (3) generic effects related to a firm's industry affiliation, location, and year of operation. Finally, some concluding remarks are offered (Section 6).

2. Productivity, Spillovers, and Market Structure

There are two major strands of the literature that examines how ownership relates to productivity levels and/or spillovers. One focuses on the determinants and effects of MNC behavior, while the second focuses on analysis of SOE behavior and the effects of privatization, and related issues. Analyses of productivity levels and differentials also differ substantially from spillover analyses.

2a. Productivity Levels and Differentials

The theoretical literature on MNCs often asserts that for a firm to overcome the extra costs of doing business in more than one economy, it must have offsetting cost advantages generated by the

possession of firm-specific assets. These are often intangible assets such as patents or other fruits of research and development (e.g., production techniques and processes), marketing networks, and/or management abilities.¹ In turn, the possession of these assets in relatively large amounts should make MNCs more efficient than non-MNCs. Because MNCs possess firm-specific assets that distinguish them from non-MNCs, they are by definition heterogeneous and must therefore operate in imperfectly competitive industries. Moran (2001) also asserts that affiliates which are closely integrated with the parent company and its network, usually through high parent ownership shares and/or other means of control, are more efficient than more loosely related affiliates. On the other hand, MNC parents are generally thought to be more reluctant to share their firm-specific assets with minority-owned affiliates than with majority-owned or wholly-owned affiliates.²

Many economists believe that SOE managers have weaker motives to pursue profit and efficiency than those in privately owned firms, including MNCs.³ Hence SOEs are often expected to be relatively inefficient compared to other firms. Moreover, governments have often established SOEs in imperfectly competitive or highly regulated industries, where the lack of competition further weakens the pressure to instill efficiency.

Evidence from firm- or plant-level investigations of productivity differentials among ownership

¹ See Dunning (1993), Hymer (1960), and Markusen (1991). Other theorists (e.g., Buckley and Casson 1992; Casson 1987; Rugman 1980, 1985) dispute this view, asserting that internalization is the key necessary condition for a firm to become a MNC. However, all agree that MNCs tend to possess intangible assets in relatively large amounts as evidenced by relatively high technology and advertising intensity compared to non-MNCs.

² See, for example, Caves 2007 (ch. 3, 7, 9) and Dunning (1993, ch. 7-9, 11).

³ See Stretton and Orchard (1994) for a survey of the theoretical literature on this topic. See Jefferson (1998) for an application of the theory to issues raised by China's SOEs.

modes is more ambiguous than theory suggests. For example, evidence for manufacturing plants in Malaysia (Oguchi et al. 2002; Haji Ahmad 2010) and Thailand (Ramstetter 2004, 2006) suggests that productivity differentials between MNCs and non-MNCs were relatively small and were often statistically insignificant.⁴ Indonesian evidence suggests that productivity differentials were somewhat larger and statistically significant in samples of all manufacturing plants combined (with intercept dummies to capture industry effects). However, differentials often become statistically insignificant when plants are disaggregated by industry (allowing for differences in production function slopes, Takii 2006). Evidence for China suggests significant differences in both capital- and labor-productivity when all manufacturing firms are combined (Jefferson and Su 2006), but we know of no firm-level estimates for disaggregated industries.

For Vietnam, Nguyen, T.T.A. et al. (2006) show that MNCs had relatively high sales per employee in three manufacturing groups (mechanics and electronics, textiles, garments, and footwear, and food processing) in 2001-2003. Athukorala and Tran (2010) indicate that MNCs had relatively high productivity in a sample of all manufacturers for 2000-2005, but industry-level estimates again suggest that MNC- or SOE-private differentials were often insignificant (Ramstetter and Phan 2008). Alternative evidence shows that MNC takeovers of SOEs have generated larger productivity gains than takeovers by local, private companies in Eastern Europe (Brown et al. 2004, 2005).

Direct evidence regarding differences between SOEs and non-SOEs is rather limited and focused on transition economies. For China, Jefferson and Su's (2006) results indicate that capital- and

⁴ Other evidence from Malaysia (Menon 1998, Oguchi et al. 2002) indicates that the growth of total factor productivity (TFP) was often less rapid in MNCs than non-MNCs.

labor-productivity were significantly lower in SOEs than private firms or MNCs, who had the highest productivity by both measures. Their results also indicate that conversion of SOEs to shareholding corporations contributed to increases in productivity. Results from Brown et al. (2004, 2005) suggest that privatization resulted in relatively large productivity gains in manufacturing firms in Hungary and Romania, but relatively small gains in Ukraine, and declines in Russia. Evidence from firms in 25 transition economies located Eastern Europe, the Commonwealth of Independent States (CIS), and Central Asia also suggests that the degree of competition had a key impact on privatization outcomes (Carlin et al. 2001). The survey by Djankov and Murrell (2002) reinforces this finding in the case of Eastern Europe, but not in the case of the CIS. The one known study of privatization in Vietnam (Truong et al. 2006) is also consistent with the proposition that privatization improves firm performance. On the other hand, Nguyen's (no date; 2004) study of textiles and apparel firms found that SOEs are more efficient than locally owned private firms, but less efficient than MNCs in this industry.⁵

Most of this evidence seems consistent with the conclusion of Megginson and Netter's (2001, p. 380) survey that "Research now supports the proposition that privately owned firms are more efficient and more profitable than otherwise-comparable state-owned firms". However, the studies reviewed above, as well as earlier surveys by Aharoni (2000), and Stretton and Orchard (1994), also

⁵ Vu (2003, p. 87) also suggests that Vietnam's SOEs "recorded a rather high level of technical efficiency, as well as a moderate improvement in technical efficiency between 1997 and 1998". Industry-level evidence from Vietnam's industrial survey of 1998 data also suggests SOEs generally had higher labor productivity and wage levels than local plants but lower levels than MNCs (Phan and Ramstetter 2004, pp. 390-391).

highlight a number of cases in which SOE do not appear to be less profitable and/or less efficient than private firms. Thus, the size and direction of productivity differentials between SOEs and non-SOEs, and between MNCs and non-MNCs, remains an empirical matter.

2a. Productivity Spillovers

The spillover literature focuses on how MNCs' possession of ownership advantages and related firm specific assets can result in MNC presence affecting the performance of non-MNCs. For example, MNCs purchase inputs from local suppliers or subcontract certain production lines to local firms. Especially in developing countries such as Vietnam, the local supplier base is relatively weak and MNCs often teach local suppliers how to guarantee quality control commensurate with MNC requirements. Labor mobility, which is rather high among relatively skilled workers in Southeast Asia's developing economies, is a second avenue of spillovers from MNCs. Local firms headhunt talent from MNCs, who have often learned relatively sophisticated business practices in the MNC. There are also examples of local workers quitting an MNC to start firms which produce goods and/or services that compete with and/or serve as inputs for their former MNC employers. The entry of MNCs can also increase the level of competition in a host market, forcing local firms to increase their efforts to become more efficient, and the extent of this kind of spillover may have a close relationship to market structure or producer concentration.

Several reviews emphasize that empirical evidence regarding productivity spillovers is mixed (Görg and Greenaway 2003; Lipsey and 2005). In Asia, there is growing evidence consistent with

the existence of positive productivity spillovers in China (Buckley et al. 2006, 2007; Hale and Long 2006; Tong and Hu 2003; Wei and Lu 2006), Indonesia (Takii 2006), and Thailand (Kohpaiboon 2006, Ramstetter 2006). Kohpaiboon's cross section study of Thai manufacturing highlights how spillovers tend to be higher in industries where import protection is relatively weak, while Kokko (1996) emphasizes how competition between MNCs and local firms appears to have fostered relatively large productivity spillovers in Mexico. However, recent evidence for Malaysia (Khalifah and Adam 2009; Haji Ahmad 2010) suggests spillovers are sensitive to how foreign presence is measured (e.g., employment, production, fixed assets) and the degree of industry disaggregation.

For Vietnam, cross section results tend to suggest some degree of positive spillovers, but evidence from panel analysis is relatively weak. Nguyen, T.T.A. et al. (2006) conclude that "there is little evidence of positive spillover effects at the firm level", though there are also "no signs of negative spillover effect either" (p. 56). In contrast, Pham's (2008) cross section, Cobb-Douglas estimates generally suggested positive spillovers that were largest in Hanoi and Ho Chi Minh City, and from MNCs that were not wholly-foreign. Combining firm-level data for 2000-2005 with the 2000 input-output table, Nguyen, P.L. (2008) estimates cross section Cobb Douglas functions finding that both horizontal and vertical spillovers were generally positive, and largest in more advanced regions and in more sophisticated local firms. Analysis of an unbalanced panel of the same data, Nguyen, N.A. et al. (2008) finds that backward, vertical spillovers were positive in manufacturing, while horizontal spillovers were positive in services. Using a similar approach, Le and Pomfret (2008) find positive backward spillovers in manufacturing but negative horizontal spillovers during 2000-2004,

which were relatively strong on private firms, domestic-oriented firms, firms without R&D, and firms in low technology industries.

Few studies analyze productivity spillovers from SOEs, probably because SOEs are not thought to possess the firm-specific assets and competitive advantages of MNCs.⁶ On the other hand, Vietnam's policy makers often emphasize how SOEs should play leading roles in industry and that private firms should seek to cooperate with SOEs (Vu 2005, pp. 304-306). Correspondingly, the government has regulated MNCs, and particularly private firms, rather strictly in industries where SOEs dominate. Because these regulations can encourage inefficiency, it is also interesting to see if large SOE presence is correlated with productivity in Vietnam's private firms

3. Ownership Patterns, Productivity Differentials, and Related Indicators

In 2000, Vietnam implemented a new Enterprise Law, which removed many of the legal and regulatory barriers previously faced by private businesses (Van Arkadie and Mallon 2003, pp. 164-169). This law and subsequent reforms removed many ownership-related biases in Vietnam's corporate sector.⁷ Implementation has been uneven, but these policy changes have contributed to rapid increases in the number of manufacturing firms with positive employment and sales, from 10,366 in 2000 to 25,968 in 2006 and 38,249 in 2008.⁸ Manufacturing employment and sales also

⁶ Gabriele (2001) discusses the possibility of positive productivity spillovers from SOEs in China.

⁷ Subsequent reforms included implementation of U.S.-Vietnam Bilateral Trade Agreement in 2001, gradual reductions of tariffs and non-tariff barriers in conjunction with the ASEAN (Association of Southeast Asian Nations) Free Trade Area, and further revisions of Investment and Enterprise Laws in 2006, which were related to Vietnam's accession to the World Trade Organization.

⁸ These are authors' compilations from General Statistics Office (various years b). They differ

grew very quickly, from 1.6 to 3.3 and 3.9 million and from 246 to 857 and 1,507 trillion dong, respectively (Table 1). Growth was concentrated in private firms, who benefited most from the changes. SOE shares of manufacturing firm sales fell from 38 to 19 and 13 percent, respectively, while MNC shares rose from 41 to 47 percent before falling to 45 percent, respectively.⁹

Table 1 about here

The enterprise data imply relatively rapid decreases in SOE shares of the corporate sector, which contrast sharply with corresponding trends in nation-wide estimates for GDP and employment (Table 1). SOE shares of non-household GDP (value added) and SOE shares of all firm sales, including non-manufacturers, were similar in 2000 (57 and 55 percent, respectively). The SOE share of firm sales fell rapidly to 25 percent in 2008, but the SOE share of non-household value added remained much higher (51 percent).¹⁰ On the other hand, trends in MNC shares are more consistent in nation-wide and enterprise survey estimates.

Because estimates of value added (or intermediate consumption) and fixed assets are crucial for productivity analysis, this study focuses on subsamples of enterprises reporting positive values for these variables as well as sales and employment. For 2000 (10,100 firms) to 2006 (24,217 firms),

slightly from published compilations (General Statistics Office, various years a), primarily because firms with duplicate records in a year and firms reporting non-positive employment and sales were excluded. The data supplied to us also appear to differ slightly from those underlying published compilations. Please contact the authors for details (see also Appendix B).

⁹ SOE shares of manufacturing employment also fell precipitously, but MNC shares rose rapidly (from 22 to 41 and 43 percent, respectively). In other words, private shares of employment were initially larger and increased less rapidly than private shares of sales.

¹⁰ The SOE share of employment (including households) rose slightly in 2000-2008 (9.3 to 10.9 percent), partially because the corporate sector, including SOEs, grew relatively rapidly. However, the nation-wide trend still contrasts inexplicably with trends in the enterprise data, which suggest that the SOE share of firm employment fell from 59 to 20 percent.

value added samples were similar to the overall samples, but value added samples were much smaller than overall samples in 2007 and 2008.¹¹ The ratio of sales by firms reporting positive sales, employment, value added, and fixed assets to sales of all firms were only 85 percent in 2007 and 44 percent in 2008, compared to 95 percent in 2003, and 98-100 percent in 2000-2002, 2004-2006 (Table 1). If calculated using employment instead of sales, corresponding ratios were similar, but slightly lower in most years. Because the coverage of the value added data is poor for 2007 and 2008, the following analyses focus on 2000-2006.

Small firms with 19 or fewer employees differ systematically from larger firms and are predominantly private firms. In the value added samples, small firms were 49-56 percent of private firms in 2000-2006, but only 1-2 percent of SOEs and 7-9 percent of MNCs (authors' calculations). Small firms accounted for 18 percent of private firm sales in 2000 and 9-12 percent in 2001-2006, and 6-8 percent of private firm employment in 2000-2006, but no more than 1 percent of SOE or MNC employment or sales in any of these years. In the following analyses, we focus on comparisons among medium-large firms with 20 or more employees because comparisons among ownership groups are likely to be distorted if smaller, predominately private firms are included.¹²

Ownership shares differed greatly depending on the industry. SOEs have always had a relatively

¹¹ The value added sample consisted of 17,294 firms in 2007 and 15,939 in 2008, primarily because value added estimates were not available for a large number of firms (11,107 and 19,730, respectively; authors' calculations [see also Appendix B]). Intermediate consumption data are not collected directly from firms but estimated for major products of each firm using industry-level estimates. We use value added as the measure of production because it yields more meaningful measures of average productivities than sales and because it reduces the number of parameters and the potential for multicollinearity in the econometric estimates.

¹² The elimination of small firms from the sample also removes most firms with extreme values for key variables (e.g., average labor productivity or average capital productivity).

large presence in heavy manufacturing industries such as the chemicals and metals groups in Table 2. On the other hand, SOE shares were generally relatively small in machinery and transport equipment, and fell from relatively high to relatively low levels in the food, textiles, and wood groups. SOE shares were also very high in the small, heterogeneous group of other manufacturing, primarily because of large SOE presence in tobacco and printing/publishing.

Table 2 about here

Table 2 indicates that shares of wholly-foreign MNCs tended to rise, while shares of MNC joint ventures tended to fall. Shares of wholly-foreign MNCs rose in all of the industries in Table 2 and were particularly large in textiles (much of which is footwear) and machinery, where shares rose conspicuously from 2002 to 2006. Wholly-foreign shares were smallest but tended to rise in the metals, food, and transportation equipment. They were close to the manufacturing average in chemicals for most years and relatively small in food. Shares of MNC joint ventures were by far the highest in transportation equipment but tended to decline in this industry and in metals, the other group with a relatively large initial share. Shares were close to the manufacturing average in chemicals and machinery. Joint ventures with SOEs were rather common in these four industry groups. On the other hand, shares of joint ventures were relatively small in the remaining industries.

Among medium-large firms in the value added samples, there was large variation of mean, real value added per worker across years, industries, and ownership groups (Table 3).¹³ In marked contrast to nationwide estimates, which suggest rather steady increases in manufacturing value added

¹³ The deflator of manufacturing output for 2-digit categories (General Statistics Office, various years c) is used to estimate real value added in all ownership groups.

per worker during 2000-2006, the enterprise data suggest unusual spikes in 2000 and 2003 in both nominal and real series. On the other hand, nationwide estimates and enterprise data suggest similar increases in average labor productivity in 2001-2004 and 2004-2006. Moreover, the unusual spikes are observed in most owner-industry combinations in 2000 and 2003, which suggests the estimates for these years differ systematically from those for other years.

Table 3 about here

According to the data in Table 3, both wholly-foreign MNCs and joint ventures generally had higher labor productivity than SOEs or private firms. Relative to private firms, average labor productivity differentials were often very large (2-fold or more) for joint ventures in all industries except textiles. Corresponding differentials were smaller for wholly-foreign MNCs, but average labor productivity was 1.5-fold or more than in private firms for at least five of the seven years in all industries except wood. Differentials between SOEs and private firms tended to be even smaller, exceeding 1.2-fold for all seven years in wood, five years in chemicals, and four years each in metals and transportation equipment, but only two years in the remaining industries. Average labor productivity was also lower in SOEs than in private firms for four years in machinery, three years in transportation equipment, and less frequently in four other industries.

In contrast, calculations of mean value added-fixed asset ratios in Table 4 indicate average capital productivity was generally lower in MNCs than in private firms, and often lower than in SOEs.¹⁴ Average capital productivity was only half or less of private firm levels in six or seven years for

¹⁴ Fixed assets are original book values net of accumulated depreciation as reported by firms.

wholly-foreign MNCs in all industries except wood. The same was true for MNC joint ventures in all industries except wood and machinery. Similarly large, negative differentials were also common for SOEs in textiles (all years), food, wood, and metals (five years each), and machinery (four years). The fact that MNCs and SOEs tended to have relatively high average labor productivity but relatively low average capital productivity reflects a tendency for MNCs and SOEs to use more fixed assets per worker than private firms.¹⁵ MNCs and SOEs also tend to be much larger than private firms, which may also contribute to relatively high labor productivity levels.¹⁶ The following section thus attempts to measure productivity differentials and spillovers after accounting for differences in size and factor intensity.

Table 4 about here

4. Productivity Differentials after Accounting for Firm and Industry Characteristics

In order account for differences in factor intensities and scale, and to allow for the most flexible assumptions about technology, translogarithmic (translog) production functions are estimated. The constant in these equations reflects productivity not explained by variation in labor and capital, and is commonly called total factor productivity (TFP). This interpretation can be problematic, however, because the constant not only reflects productivity after accounting for the use of capital and labor,

¹⁵ For example, mean ratios of fixed assets per employee in all manufacturing (excluding other manufacturing) were 2.9-7.3 times larger than private firms for wholly-foreign MNC in 2000-2006, 4.9-16.3 times larger for joint ventures, and 1.6-2.5 times larger for SOEs (authors' calculations).

¹⁶ For example, mean value added per firm in all manufacturing (excluding other manufacturing) was 3.7-7.8 times larger than private firms for wholly-foreign MNC in 2000-2006, 9.1-13.4 times larger for joint ventures, and 4.0-8.6 times larger for SOEs (authors' calculations).

but also errors in measurement and specification, which can be substantial. Nonetheless, this approach is standard in the literature and has been adopted by most of the studies reviewed above.¹⁷

The effects of producer concentration on productivity are investigated by adding either the 4-firm concentration ratio or the Herfindahl index for 37 industries, which were generally defined at the 3-digit level, to the production function.¹⁸ Concentration measures come from larger samples of all firms reporting positive sales and employment (c.f. Table 2), because they are designed to include the effect of competition from smaller firms and other firms excluded from the estimation sample (e.g., firms with missing variables or negative value added). Producer concentration tended to fall over this period in Vietnam with the mean 4-firm concentration ratio in these 37 industries declining from 45 percent in 2000 to 36 percent in 2006. Relatively large declines of 10 percentage points or more were relatively common, being observed in 15 of the 37 industries.¹⁹

Dummy variables for wholly-foreign MNCs, MNC joint ventures, and SOEs are also added, their coefficients revealing whether ownership-related TFP differentials between these groups and private firms remain after accounting for firm-level inputs and industry-level characteristics:

$$(1) LV_{ijt} = a0 + a1(LE_{ijt}) + a2(LK_{ijt}) + a3(LE_{ijt}^2) + a4(LK_{ijt}^2) + a5(LELK_{ijt}) + a6(DS_{ijt}) + a7(DM_{ijt}) + a8(DJ_{ijt}) + a9(C_{jt})$$

¹⁷ In addition to accounting for the influences of labor and capital, Ramstetter and Phan (2008) tried to account for the effects of skilled-labor intensity, which was proxied by including the share of science and technology workers in the production function. However, these data are not available for 2001, 2003, and 2005-2006.

¹⁸ 3-digit categories were used except when they contained too few firms. Printing and publishing, petroleum products, recycling, and miscellaneous manufacturing other than furniture were omitted from the regression analysis because they differ markedly from other industries and are quite small.

¹⁹ These calculations use 2005 instead of 2006 for one industry, electricity distribution machinery (VSIC 312) because no firms were classified in this industry in 2006. Similar trends are also observed in the Herfindahl index (details available from authors and Appendix B).

$$(2) LV_{ijt} = b_0 + b_1(LE_{ijt}) + b_2(LK_{ijt}) + b_3(LE_{ijt}^2) + b_4(LK_{ijt}^2) + b_5(LELK_{ijt}) + b_6(DS_{ijt}) + b_7(DM_{ijt}) + b_8(DJ_{ijt}) + b_9(H_{jt})$$

where

C_{jt} =4-firm concentration ratio of industry j in year t

DJ_{ijt} =dummy variable for MNC joint venture firm i of industry j in year t

DM_{ijt} =dummy variable for wholly-foreign MNC firm i of industry j in year t

DS_{ijt} =dummy variable for SOE firm i of industry j in year t

H_{jt} =Herfindahl index (ratio) of industry j in year t

LE_{ijt} =natural log of the number of employees in firm i of industry j in year t

$LELK_{ijt}$ =the product of LE_{ijt} and LK_{ijt}

LK_{ijt} =natural log of fixed assets in firm i of industry j in year t (million dong, 1994 prices)

LV_{ijt} =natural log of value added in firm i of industry j in year t (million dong, 1994 prices).²⁰

Estimates are performed in a highly unbalanced panel, reflecting high growth and substantial entry and exit during 2000-2006. Because ownership does not change for the vast majority of firms in the sample, ownership is itself a fixed effect for most firms. Thus, a fixed effects estimator would eliminate most ownership-related productivity differentials and a random effects estimator is used to analyze the question of whether TFP levels differ among ownership groups.²¹

Partially because labor and capital are measured at yearend and affected by the level of production during the year, estimates of the contemporaneous equations (1) and (2) are likely to be affected by simultaneity bias. Concentration is also clearly affected by the scope of firm production and another source of potential simultaneity. Results from estimating contemporaneous equations are thus compared to results where labor, capital, and concentration variables are lagged one period. Ownership dummies are not lagged because they are predetermined for most firms in each year. This

²⁰ Logged variables are defined as deviations from their respective means to reduce the potential for multicollinearity. Both value added and fixed assets are deflated with the same deflator (see footnote 13 above).

²¹ A pooled regression model is another alternative, but results of the Breusch and Pagan test for random effects suggests the random effects model is preferred in almost all cases examined.

approach is rather unsatisfactory because it does not account for the exact nature of potential simultaneity and because lagging these independent variables results in substantially smaller samples. However, it is the only practical alternative given the lack of appropriate instruments in this data set.

As is common practice, vectors of industry, time, and region dummies are added to account for industry-, year-, and region-specific differences in intercepts.²² In addition, separate production functions are estimated for the seven major industry groups discussed above and two subperiods (2001-2003, 2004-2006). These estimates suggest differences in many slopes across industries and over time. This finding makes sense in Vietnam where there are large differences among industries and the economy has been changing rapidly.

Although all details are not presented here to save space, production function estimates were generally in line with expectations.²³ Measures of fit were satisfactory (overall R-squared was a minimum of 0.60) and coefficients on labor and capital were always positive and statistically significant at standard levels (5 percent or better). Coefficients on the square of capital were also positive and significant in the vast majority of estimates, but signs on labor squared and the interaction terms were most often insignificant. Tests of Cobb-Douglas restrictions were rejected in most cases, indicating that the translog form is the most appropriate for this analysis.

Samples were relatively large, the smallest being the lagged samples in machinery and

²² Industry dummies are defined at the same level of aggregation as the concentration variables. Regional dummies distinguish provinces by 3 groups of population density in 2007 (less than 500 people per square meter, 574-1272, and above 3000) and 5 regional locations (Red River Delta, northeast and northwest, center, southeast, and Mekong Delta).

²³ Estimation details are in available from the authors (see also Appendix Table A1).

transportation equipment in 2001-2003 (1,105 and 802 firms, respectively). As indicated above, samples were substantially smaller in the lagged specifications. For example, the entire sample was 55,306 firms for 2001-2006 in the contemporaneous specification but 38,059 in the lagged one.

Table 5 summarizes results for coefficients measuring ownership-related productivity differentials and the productivity effects of concentration. Estimates of SOE-private differentials were consistently positive and significant at standard levels (5 percent or better) in samples of all manufacturing firms combined. However, at the industry level, this was true in only two industries, wood and metals. If differentials that were weakly significant (10 percent level) are also included, consistently positive coefficients are observed in food and beverages and textiles, and in the contemporaneous estimates for chemicals. These estimates suggest that SOE-private differentials declined in food and beverages, textiles, and wood, rose in chemicals, changed very little in metals, and rose slightly when all industries were combined. In contrast, SOE-local differentials were not consistently significant in machinery and transportation equipment, but there was weak evidence that these differentials became positive and significant in 2004-2006.

Table 5 about here

Results in Table 5 are also consistent with previous descriptive analysis in suggesting that MNC joint ventures tended to have the highest productivity levels among ownership groups.²⁴ These differentials were always highly significant statistically (at the 1 percent level or better) in samples of

²⁴ To the extent that ownership is related to integration with the parent group, this result is somewhat at odds with Moran's (2001) expectations discussed above. However, similar results have also been found in several industries for Indonesia (Takii 2006) and Thailand (Ramstetter 2006).

all manufacturing industries combined and at standard levels in textiles, metals, machinery, and transportation equipment. In 2004-2006, these differentials were also consistently positive and significant in wood and chemicals, and weakly significant in food and beverages. Unlike SOE-private differentials, these differentials tended to increase over time, the decline in textiles and the small change in machinery being the only exceptions. The variation of these differentials among industries (e.g., from 0.28-0.46 in textiles to 0.85-0.91 in transportation equipment in 2004-2006) was also relatively large compared to SOE-local differentials, for example.

In contrast to SOE-private and joint venture-private differentials, differentials between wholly-foreign and private firms differed between the contemporaneous and lagged specifications (Table 5). In the contemporaneous specification they were generally insignificant. However, they were consistently negative and significant or weakly significant in metals and machinery, and in all industries combined, wood, and chemicals for 2001-2003. In 2004-2006, there was only one positive and weakly significant positive differential in the contemporaneous specification (wood).

In contrast, there was only one weakly significant, negative differential in the lagged specification (metals in the early period; Table 5). Differentials were always positive and significant when all industries were combined and in textiles. In 2004-2006, they were positive and significant at standard levels in food, wood, chemicals, metals, and machinery, and weakly significant in transportation equipment. Unfortunately, it is impossible to determine whether differences in contemporaneous and lagged results are related to simultaneity bias in the contemporaneous specification or the omission of many firms in the lagged samples, or both. However, the lagged results reflect patterns observed in

the descriptive data (c.f., Tables 3-4) more than the contemporaneous results.

The significance and signs of the productivity effects of concentration were never consistent across periods and estimation techniques in any of the industry groups or in manufacturing industries combined. On the other hand, when significant, signs on the two concentration measures (*C4* and *HF*) were usually the same, which reflects the relatively high correlation of these measures.²⁵ There are important differences between the contemporaneous specification, which suggests concentration's effects were never consistently significant in any of the samples examined, and the lagged specification, which indicates concentration was negatively correlated with productivity in wood, and positively correlated in metals, and that these correlations were at least weakly significant. In the earlier period, there was a significantly negative correlation in food and a positive one in all industries combined. However, the most reasonable conclusion seems to be that concentration's relationship to productivity was haphazard during this period in Vietnam's manufacturing industries.

5. Productivity Spillovers to Private Firms

The extent of productivity spillovers to private firms is examined by estimating equations similar to (1) to (2) in samples of private firms, where SOE and MNC shares of industry employment are added as explanatory variables.

$$(3) LV_{ijt} = c0 + c1(LE_{ijt}) + c2(LK_{ijt}) + c3(LE_{ijt}^2) + c4(LK_{ijt}^2) + c5(LELK_{ijt}) + c6(SS_{ijt}) + c7(SM_{ijt}) + c8(SJ_{ijt}) + c9(C_{jt})$$

²⁵ Industry-level correlation coefficients between the two measures varied from 0.79-0.81 in 2000-2001 to 0.93-0.94 in 2003 and 2006.

$$(4) LV_{ijt} = d0 + d1(LE_{ijt}) + d2(LK_{ijt}) + d3(LE_{ijt}^2) + d4(LK_{ijt}^2) + d5(LELK_{ijt}) + d6(SS_{ijt}) + d7(SM_{ijt}) + d8(SJ_{ijt}) + d9(H_{jt})$$

where

SJ_{jt} =the MNC joint venture share in the employment of industry j in year t (ratio)

SM_{jt} =the wholly-foreign MNC share in the employment of industry j in year t (ratio)

SS_{jt} =the SOE share in the employment of industry j in year t (ratio)

all other variables as defined in equations (1) to (2) above

Like concentration, SOE and MNC shares are calculated from larger samples of all firms reporting positive sales and employment in order to reflect overall presence of these ownership groups.

Coefficients on ownership shares reflect how private firm production responds to SOE or MNC presence and are generally interpreted to indicate the degree of productivity spillovers from the ownership group in question to private firms.

Following the usual practice, results of estimating these equations are first analyzed for samples of all 37 narrowly defined manufacturing industries. In addition, spillovers were compared between samples of 14 industries that were highly concentrated in both 2001-2003 and 2004-2006 and another 14 industries that were lowly concentrated in both periods. In other words, these spillover analyses are similar to most of those in the literature in that they fail to account for inter-industry differences in slope coefficients to the extent that the previous analysis of productivity differentials did, for example. In addition, because we remain concerned about simultaneity, contemporaneous estimates (equations 3, 4) are compared with alternative lagged specifications. In this case, we lag all independent variables including ownership shares, because like concentration measures, ownership shares can be influenced by the scope of large firm production.

Fixed effects panel estimates are common in the spillover literature because they measure how

private firm productivity changes over time after controlling for unobserved firm-specific characteristics, in addition to the observable characteristics specified in equations (3) and (4). In many ways, fixed effects estimates are more appropriate for examining spillovers, because they focus more on the question of whether larger MNC or SOE presence leads to increases or decreases of productivity in private firms over time, rather than on the question of whether productivity in private firms at a given point in time is related to the size of MNC or SOE presence. By focusing on changes in productivity rather than productivity levels, fixed effects estimates are also less likely to be affected by simultaneity problems. Thus, we follow the literature and use a fixed effects estimator. Because industry affiliation and location are fixed effects for most firms, corresponding dummies are excluded from the spillover analysis, though year dummies are included.

In general, estimates for private firms performed somewhat more poorly than estimates for all firms presented in the previous section. Goodness of fit measures were lower, especially in the lagged specifications (overall R-squared as low as 0.31 for all industries in 2001-2003 and 0.08 for highly concentrated industries in 2004-2006). Coefficients on labor and capital variables continued to be significant in all cases but signs on squares or cross products were often insignificant. Correspondingly, tests of the null hypothesis that Cobb-Douglas restrictions were appropriate were not rejected for highly concentrated industries and in about half of the cases for lowly concentrated industries or all industries. Sample size remained large enough that translog specifications were judged preferable for comparisons across industries and samples, however.

Coefficients on MNC or SOE shares and concentration are the main concern here and summarized

in Table 6. The lack of consistent results between contemporaneous and lagged specifications and between equations (3) and (4) is conspicuous in estimates for all manufacturing combined. SOE shares were positively correlated with local firm productivity in 2004-2006 in both contemporaneous and lagged specifications, but this result is significant (at standard levels) only when the concentration ratio (equation 3) is used to measure concentration. In 2001-2003, there was a negative correlation to the SOE share, but it was only significant in the lagged specification. Correlations to shares of wholly-foreign firms were negative and significant in 2001-2003, but insignificant in 2004-2006. Coefficients on joint venture shares were negative and significant in the lagged specification in 2001-2003, but insignificant in the contemporaneous specification. These coefficients were also negative in 2004-2006, but only weakly significant or insignificant. Both contemporaneous and lagged specifications suggested a positive correlation to concentration in 2001-2003, but this correlation became negative and significant or weakly significant in 2004-2006.

Table 6 about here

Results for highly concentrated and lowly concentrated industries were similarly inconsistent depending on the specification used with one notable exception. Namely, the positive correlation of private firm productivity to concentration observed in all manufacturing in 2001-2003 was also observed in lowly concentrated industries (Table 6). This suggests that private firms in lowly concentrated industries tended to be more productive the higher the degree of concentration. Nonetheless, these results do not support any clear, general conclusion about the nature of concentration's effect on productivity in private firms or all firms (c.f., Table 5). Similarly, there are

no consistent indications of productivity spillovers from MNCs or SOEs to private firms.

6. Conclusion

This paper has examined relationships between producer concentration, firm ownership, and productivity in Vietnam's manufacturing enterprises in 2000-2006. Simple calculations indicate that wholly-foreign MNCs, MNC joint ventures and SOEs often had substantially higher labor productivity and lower capital productivity than local, private firms. After controlling for firm-level variation in factor intensities and scale, and industry-level variation in producer concentration, as well as generic effects related to industry, region, and year of operation, TFP differentials between MNC joint ventures or SOEs on the one hand, and private firms on the other, were generally positive and often significant statistically. On the other hand, differentials between wholly-foreign MNCs and private firms were generally insignificant or negative in 2001-2003 and in the contemporaneous specification for 2004-2006, but more often positive and significant, when a lagged specification is used to account for potential simultaneity in 2004-2006. There was large variation in the size of all differentials among industries and between periods (2001-2003 and 2004-2006), but estimates of differentials were not very sensitive to how concentration was measured and concentration was usually an insignificant determinant of firm-level productivity. Estimates of productivity spillovers from SOEs and MNCs to private firms also tended to be insignificant statistically and were particularly inconsistent among the samples (all, highly-concentrated, or lowly-concentrated industries), periods, and specifications examined.

As the literature review emphasizes, large variation of MNC-local productivity differentials

among MNC ownership groups, industries, and/or periods has also been observed in previous industry-level studies for Indonesia, Malaysia, and Thailand. Significant industry-level differentials between MNC joint ventures and local firms were somewhat more common in Vietnam than in other Southeast Asian economies, but wholly-foreign-local differentials have a similar tendency to be insignificant and all differentials varied substantially over this relatively short time period. In other words, allowing all production function coefficients to vary among industries and over time influences estimates of productivity differentials substantially. Correspondingly, combining manufacturing industries into a single sample or two samples may lead to unreliable estimates of productivity differentials or spillovers.

Rapid economic growth and important institutional changes (e.g., the implementation of the Corporate Law in 2000) encouraged entry and turnover, and explain much of the variation in data samples and results over time. There were also potentially problematic changes in data coverage, but samples have been carefully chosen to minimize related problems. In short, the results are probably realistic and largely consistent with the view that Vietnam's manufacturing firms, especially wholly-foreign MNCs and private firms, are often engaged in assembly operations using relatively simple technologies, and that private firms are often quick to imitate MNC and SOE competitors.

However, these rather standard estimates are only a first step toward understanding related issues, and there a relatively long list of tasks for future research. First, although we have done a lot of work cleaning the data, further efforts to remove errors and resolve inconsistencies with nation-wide estimates are warranted. Second, variation among industries is apparently large, but industry

definitions are always rather arbitrary. Experimentation with alternative definitions and alternative industry groupings (for spillover analysis) should also be pursued. Third, alternative measures of foreign presence (i.e., shares of production or fixed assets) have also been shown to influence spillover estimates and should be investigated. Fourth, further efforts to deal with potential simultaneity problems are warranted, but complicated by the lack of good instruments in the data. Fifth, although this period of rapid change is interesting, large changes in samples over time make it difficult to interpret the results. Because the pace of change inevitably has to slow some, it will be very important to revisit these issues as time passes.

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Table 1: Estimates of Production (trillion dong, current), Employment (millions), and Shares of SOEs and MNCs (percent)

Owner, industry	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sales of firms with positive sales & employment										
All industries	809	933	1,152	1,405	1,617	2,020	2,395	3,157	5,083	-
SOEs (% of total)	55	51	50	46	38	35	29	26	25	-
MNCs (% of total)	20	19	19	20	23	23	25	23	19	-
Manufacturing	246	299	361	452	584	707	857	1,144	1,501	-
SOEs (% of total)	38	33	32	29	26	23	19	16	13	-
MNCs (% of total)	41	39	42	43	44	44	47	45	45	-
Sales of firms with positive sales, employment, value added, & fixed assets										
Manufacturing, 20+ workers	235	288	346	416	564	671	825	953	626	-
SOEs (% of total)	40	34	33	31	27	23	20	17	19	-
MNCs (% of total)	43	40	43	44	45	46	48	50	43	-
Manufacturing, 1-19 workers	9	9	12	12	17	21	27	25	29	-
Value added: national accounts estimates										
Non-household value added	299	328	367	425	499	588	685	804	1,041	1,160
SOEs (% of total)	57	56	56	56	56	55	53	51	51	50
MNCs (% of total)	20	20	20	21	22	23	24	26	26	26
Manufacturing	82	95	110	125	145	173	207	243	302	333
Value added of firms with positive sales, employment, value added, & fixed assets										
Manufacturing, 20+ workers	97	69	81	179	128	152	183	355	182	-
SOEs (% of total)	39	35	35	27	30	26	22	16	18	-
MNCs (% of total)	25	20	23	27	28	30	33	33	29	-
Manufacturing, 1-19 workers	4	2	2	5	4	4	5	10	11	-
Employment, nation-wide estimates										
All industries	37.61	38.56	39.51	40.57	41.59	42.77	43.98	45.21	46.46	47.74
SOEs (% of total)	9.3	9.3	9.5	9.9	9.9	11.6	11.2	11.0	10.9	10.5
MNCs (% of total)	1.0	1.2	1.5	1.9	2.3	2.6	3.0	3.5	3.6	3.4
Manufacturing	3.55	3.89	4.16	4.56	4.83	5.28	5.74	6.10	6.52	6.85
Employment of firms with positive sales & employment										
All industries	3.53	3.91	4.54	5.02	5.46	6.01	6.14	6.94	8.10	-
SOEs (% of total)	59	54	48	43	36	31	23	21	20	-
MNCs (% of total)	12	12	15	17	19	20	23	23	23	-
Manufacturing	1.60	1.79	2.17	2.50	2.82	3.04	3.27	3.70	3.92	-
SOEs (% of total)	45	39	34	30	25	20	14	13	10	-
MNCs (% of total)	22	24	29	31	34	37	41	41	43	-
Employment firms with positive sales, employment, value added, & fixed assets										
Manufacturing, 20+ workers	1.53	1.74	2.10	2.30	2.71	2.85	3.13	2.80	1.64	-
SOEs (% of total)	46	40	35	32	26	19	15	13	15	-
MNCs (% of total)	23	25	29	32	35	39	42	46	42	-
Manufacturing, 1-19 workers	0.04	0.04	0.05	0.05	0.07	0.08	0.10	0.06	0.08	-

Source: Authors' compilations from General Statistics Office (various years b, c).

Table 2: Sales and Ownership Shares of Firms with Positive Sales and Employment by Manufacturing Industry Group

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sales of All Manufacturing Firms (trillion dong, current)									
Manufacturing	246	299	361	452	584	707	857	1,144	1,501
Food, beverages	70	78	95	106	135	165	187	264	358
Textiles, apparel, leather, footwear	39	44	54	69	85	104	143	152	184
Wood, furniture, paper	14	16	24	28	40	55	66	90	115
Chemicals, rubber, plastics	28	33	40	55	73	87	105	135	183
Metals, non-metallic mineral prod.	34	54	57	75	96	115	144	203	301
Machinery	29	32	38	50	65	80	103	142	171
Transportation equipment	20	27	36	47	63	70	74	114	137
Other manufacturing	13	15	18	21	26	31	35	44	53
SOE shares (percent of industry totals)									
Manufacturing	38	33	32	29	26	23	19	16	13
Food, beverages	41	35	36	32	27	20	17	13	9
Textiles, apparel, leather, footwear	36	33	30	26	23	19	13	13	10
Wood, furniture, paper	43	30	22	20	15	17	11	10	8
Chemicals, rubber, plastics	42	34	29	27	27	25	22	21	19
Metals, non-metallic mineral prod.	44	33	37	37	34	29	26	20	16
Machinery	19	21	19	17	14	13	12	10	8
Transportation equipment	19	18	17	16	18	21	16	15	13
Other manufacturing	70	71	66	66	59	57	50	47	42
Wholly-foreign MNCs (percent of industry totals)									
Manufacturing	22	21	23	25	28	29	32	31	32
Food, beverages	14	15	13	16	19	20	19	21	25
Textiles, apparel, leather, footwear	41	39	41	46	48	52	60	53	56
Wood, furniture, paper	12	18	28	24	29	29	34	34	33
Chemicals, rubber, plastics	18	19	21	23	25	24	29	29	33
Metals, non-metallic mineral prod.	8	7	11	11	12	14	16	16	15
Machinery	51	43	43	47	51	54	54	56	60
Transportation equipment	13	19	24	20	25	21	20	22	22
Other manufacturing	13	12	17	12	18	19	22	23	23
MNC joint ventures (percent of industry totals)									
Manufacturing	20	18	19	18	16	15	15	14	13
Food, beverages	13	12	12	12	10	10	10	10	9
Textiles, apparel, leather, footwear	6	7	6	7	6	6	5	6	5
Wood, furniture, paper	6	5	4	5	5	4	4	3	3
Chemicals, rubber, plastics	21	20	22	20	18	18	17	14	11
Metals, Non-metallic mineral prod.	31	23	25	21	18	16	16	15	13
Machinery	23	25	24	21	19	17	15	13	12
Transportation equipment	59	49	51	56	47	46	50	47	47
Other manufacturing	8	7	6	6	5	7	9	10	11

Source: Authors' compilations from General Statistics Office (various years b).

Table 3: Mean Value Added per Worker in Firms with 20 or More Employees and Positive Sales, Value Added, and Fixed Assets by Owner and Manufacturing Industry Group (million 1994 dong)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006
Private Firms							
Manufacturing less other manuf.	30	33	16	35	17	18	20
Food, beverages	53	20	20	60	23	22	25
Textiles, apparel, leather, footwear	12	8	9	13	9	9	11
Wood, furniture, paper	18	10	11	20	11	13	13
Chemicals, rubber, plastics	44	25	25	55	28	30	29
Metals, non-metallic mineral prod.	27	95	18	35	20	22	23
Machinery	37	21	23	43	19	20	21
Transportation equipment	42	22	12	27	12	15	19
SOEs							
Manufacturing less other manuf.	27	20	21	35	25	33	36
Food, beverages	27	24	22	46	26	31	37
Textiles, apparel, leather, footwear	13	8	8	12	10	12	16
Wood, furniture, paper	26	15	15	26	18	24	20
Chemicals, rubber, plastics	51	32	35	53	38	52	50
Metals, non-metallic mineral prod.	29	26	27	40	35	42	51
Machinery	27	19	18	38	22	30	37
Transportation equipment	24	17	21	25	21	46	27
Wholly-foreign MNCs							
Manufacturing less other manuf.	68	32	32	59	30	30	32
Food, beverages	84	55	57	123	58	52	60
Textiles, apparel, leather, footwear	32	15	12	23	16	14	16
Wood, furniture, paper	48	15	31	30	16	17	18
Chemicals, rubber, plastics	122	59	50	123	49	49	49
Metals, non-metallic mineral prod.	66	33	34	48	34	39	41
Machinery	85	38	40	78	39	37	34
Transportation equipment	68	27	35	43	29	31	30
MNC joint ventures							
Manufacturing less other manuf.	142	90	84	177	79	82	88
Food, beverages	105	71	60	136	69	66	72
Textiles, apparel, leather, footwear	35	18	14	27	16	15	14
Wood, furniture, paper	45	29	26	35	25	26	31
Chemicals, rubber, plastics	158	95	92	244	117	119	123
Metals, Non-metallic mineral prod.	202	121	125	216	113	115	121
Machinery	188	122	132	325	102	114	148
Transportation equipment	221	146	138	263	128	121	106
Addenda: current value added per worker (million dong), calculated from Table 1							
Nation-wide estimates	23	24	27	28	30	33	36
Manufacturing firms, all sizes	64	39	39	78	47	53	58
Manufacturing firms, 20+ workers	63	39	39	78	47	53	59

Note: The relatively heterogeneous, small group of other manufacturing (tobacco, printing & publishing, oil & coal products, and miscellaneous manufacturing) is excluded.

Source: Authors' compilations from General Statistics Office (various years b).

Table 4: Mean Value Added-Fixed Asset Ratios in Firms with 20 or More Employees and Positive Sales, Value Added, and Fixed Assets by Owner and Manufacturing Industry Group

Owner, industry group	2000	2001	2002	2003	2004	2005	2006
Private Firms							
Manufacturing less other manuf.	6.37	7.01	4.40	9.57	4.40	4.01	4.01
Food, beverages	10.96	3.19	5.74	26.27	4.53	4.05	3.81
Textiles, apparel, leather, footwear	5.32	3.77	5.41	6.22	6.67	5.60	4.14
Wood, furniture, paper	4.84	3.26	5.52	5.49	3.99	3.82	3.71
Chemicals, rubber, plastics	5.12	3.43	2.51	5.84	2.48	3.91	4.81
Metals, non-metallic mineral prod.	4.04	18.30	2.88	5.76	4.11	3.33	3.80
Machinery	10.68	8.03	3.41	8.21	3.92	3.55	4.45
Transportation equipment	7.10	5.33	3.35	6.08	2.96	2.79	4.63
SOEs							
Manufacturing less other manuf.	2.65	1.68	1.57	2.70	2.57	4.56	2.30
Food, beverages	2.16	1.61	1.29	3.09	1.18	2.34	1.25
Textiles, apparel, leather, footwear	1.29	0.89	1.50	1.22	1.10	1.21	1.98
Wood, furniture, paper	6.85	2.35	1.46	2.19	1.72	1.41	0.96
Chemicals, rubber, plastics	4.07	3.38	2.23	3.19	2.59	4.24	2.23
Metals, non-metallic mineral prod.	1.77	1.36	1.46	1.95	1.38	11.54	1.24
Machinery	2.42	1.54	1.51	2.72	2.13	1.80	2.34
Transportation equipment	3.52	1.87	2.18	6.74	13.43	3.93	9.36
Wholly-foreign MNCs							
Manufacturing less other manuf.	1.25	0.80	1.08	2.30	1.40	2.25	1.31
Food, beverages	0.79	0.50	0.99	3.45	1.14	1.78	2.20
Textiles, apparel, leather, footwear	1.50	0.96	1.36	2.74	1.66	4.21	1.62
Wood, furniture, paper	1.26	0.78	1.08	1.63	2.12	2.15	1.19
Chemicals, rubber, plastics	0.91	0.64	0.78	2.49	0.96	0.99	0.81
Metals, non-metallic mineral prod.	1.63	0.77	0.90	1.28	1.09	1.10	1.20
Machinery	1.26	1.05	1.12	2.38	1.38	1.51	1.37
Transportation equipment	1.11	0.62	0.86	1.09	0.83	0.63	0.59
MNC joint ventures							
Manufacturing less other manuf.	2.19	0.92	1.17	2.83	1.78	1.54	1.83
Food, beverages	1.27	0.62	0.68	1.57	0.93	1.13	1.20
Textiles, apparel, leather, footwear	1.85	1.18	1.41	2.18	3.84	1.84	1.70
Wood, furniture, paper	1.12	0.87	1.33	4.55	2.27	2.32	2.32
Chemicals, rubber, plastics	1.35	0.73	1.10	3.48	1.12	1.17	1.11
Metals, Non-metallic mineral prod.	4.49	1.04	1.31	1.65	1.02	1.11	1.40
Machinery	2.30	1.18	1.64	6.01	1.59	2.39	4.81
Transportation equipment	0.82	0.72	0.79	2.06	1.48	1.33	1.37

Note: The relatively heterogeneous, small group of other manufacturing (tobacco, printing & publishing, oil & coal products, and miscellaneous manufacturing) is excluded.

Source: Authors' compilations from General Statistics Office (various years b).

Table 5: Coefficients Measuring SOE-Private and MNC-Private Productivity Differentials and the Productivity Effects of Concentration from Random Effects Production Function Estimates

Indicator, industry group	2001-2003		2004-2006		2001-2006	
	Eq. (1)	Eq. (2)	Eq. (1)	Eq. (2)	Eq. (1)	Eq. (2)
SOE-private productivity differentials, contemporaneous specification						
Manufacturing less other manuf.	0.228 a	0.228 a	0.246 a	0.246 a	0.233 a	0.233 a
Food, beverages	0.300 a	0.304 a	0.185 a	0.183 a	0.225 a	0.229 a
Textiles, apparel, leather, footwear	0.274 a	0.278 a	0.162 a	0.160 a	0.214 a	0.210 a
Wood, furniture, paper	0.384 a	0.384 a	0.317 a	0.318 a	0.286 a	0.287 a
Chemicals, rubber, plastics	0.207 c	0.203 c	0.334 a	0.332 a	0.181 b	0.186 b
Metals, non-metallic mineral prod.	0.227 a	0.225 a	0.234 a	0.234 a	0.231 a	0.229 a
Machinery	-0.160	-0.158	0.126	0.129	0.071	0.075
Transportation equipment	-0.059	-0.059	0.252 b	0.252 b	0.091	0.091
SOE-private productivity differentials, lagged specification						
Manufacturing less other manuf.	0.201 a	0.201 a	0.205 a	0.205 a	0.193 a	0.192 a
Food, beverages	0.182 b	0.180 b	0.099 c	0.100 c	0.173 a	0.172 a
Textiles, apparel, leather, footwear	0.164 b	0.164 b	0.134 b	0.133 b	0.114 c	0.112 c
Wood, furniture, paper	0.314 a	0.312 a	0.280 a	0.280 a	0.238 a	0.238 a
Chemicals, rubber, plastics	0.193	0.193	0.276 a	0.275 a	0.157 b	0.155 b
Metals, non-metallic mineral prod.	0.171 b	0.171 b	0.168 a	0.169 a	0.180 a	0.179 a
Machinery	-0.094	-0.093	0.220 b	0.220 b	0.139	0.139
Transportation equipment	0.114	0.114	0.275 c	0.276 c	0.171	0.170
Wholly-foreign MNC-private productivity differentials, contemporaneous specification						
Manufacturing less other manuf.	-0.171 a	-0.171 a	-0.045	-0.045	-0.050 c	-0.050 c
Food, beverages	0.052	0.055	0.044	0.044	0.068	0.075
Textiles, apparel, leather, footwear	0.006	0.006	0.007	0.005	0.015	0.013
Wood, furniture, paper	-0.334 a	-0.334 a	0.126 c	0.127 c	0.015	0.016
Chemicals, rubber, plastics	-0.202 c	-0.201 c	0.003	0.003	-0.044	-0.044
Metals, non-metallic mineral prod.	-0.342 a	-0.343 a	-0.144 b	-0.144 b	-0.153 b	-0.155 b
Machinery	-0.329 b	-0.324 b	-0.323 a	-0.323 a	-0.312 a	-0.313 a
Transportation equipment	-0.318	-0.322	-0.103	-0.110	-0.164	-0.170
Wholly-foreign MNC-private productivity differentials, lagged specification						
Manufacturing less other manuf.	0.136 a	0.136 a	0.257 a	0.256 a	0.301 a	0.300 a
Food, beverages	0.153	0.153	0.256 b	0.256 b	0.290 a	0.288 a
Textiles, apparel, leather, footwear	0.437 a	0.437 a	0.339 a	0.340 a	0.411 a	0.412 a
Wood, furniture, paper	0.017	0.017	0.219 a	0.219 a	0.207 a	0.207 a
Chemicals, rubber, plastics	0.035	0.035	0.308 a	0.308 a	0.358 a	0.358 a
Metals, non-metallic mineral prod.	-0.224 c	-0.230 c	0.221 a	0.220 a	0.154 c	0.152 c
Machinery	-0.009	-0.006	0.229 b	0.228 b	0.219 b	0.218 b
Transportation equipment	0.267	0.277	0.381 c	0.377 c	0.422 b	0.427 b

Table 5 (continued)

Indicator, industry group	2001-2003		2004-2006		2001-2006	
	Eq. (1)	Eq. (2)	Eq. (1)	Eq. (2)	Eq. (1)	Eq. (2)
MNC joint venture-private productivity differentials, contemporaneous specification						
Manufacturing less other manuf.	0.377 a	0.377 a	0.433 a	0.432 a	0.352 a	0.352 a
Food, beverages	0.150	0.138	0.212 c	0.212 c	0.242 b	0.235 b
Textiles, apparel, leather, footwear	0.341 b	0.340 b	0.284 a	0.279 a	0.242 b	0.238 b
Wood, furniture, paper	0.194	0.194	0.437 b	0.437 b	0.377 b	0.377 b
Chemicals, rubber, plastics	0.334 b	0.330 b	0.442 a	0.442 a	0.188	0.186
Metals, non-metallic mineral prod.	0.408 a	0.410 a	0.474 a	0.474 a	0.389 a	0.389 a
Machinery	0.564 a	0.565 a	0.568 a	0.571 a	0.391 b	0.393 b
Transportation equipment	0.561 b	0.555 b	0.852 a	0.835 a	0.702 a	0.694 a
MNC joint venture-private productivity differentials, lagged specification						
Manufacturing less other manuf.	0.492 a	0.492 a	0.533 a	0.533 a	0.540 a	0.539 a
Food, beverages	0.121	0.121	0.280 c	0.280 c	0.305 b	0.309 b
Textiles, apparel, leather, footwear	0.751 a	0.751 a	0.462 a	0.462 a	0.598 a	0.598 a
Wood, furniture, paper	0.496 a	0.496 a	0.531 a	0.530 a	0.568 a	0.567 a
Chemicals, rubber, plastics	0.211	0.211	0.567 a	0.567 a	0.330 a	0.328 a
Metals, non-metallic mineral prod.	0.335 b	0.335 b	0.519 a	0.518 a	0.489 a	0.488 a
Machinery	0.694 a	0.694 a	0.801 a	0.800 a	0.734 a	0.733 a
Transportation equipment	1.161 a	1.169 a	0.912 a	0.901 a	1.023 a	1.022 a
Productivity effects of concentration, contemporaneous specification						
Manufacturing less other manuf.	0.551 a	1.149 a	-0.142	-0.151	-0.084	0.165
Food, beverages	5.755 a	32.95 a	-0.227	-2.636	1.936 a	12.06 a
Textiles, apparel, leather, footwear	1.721 c	0.176	-0.339 b	-0.452	-0.513 a	-0.898 a
Wood, furniture, paper	0.167	0.785	-0.331	-1.889	-0.259	-0.607
Chemicals, rubber, plastics	-1.988 b	4.192	-0.152	0.736	-2.245 a	-3.350
Metals, non-metallic mineral prod.	1.022 a	2.510 a	0.172	-0.190	0.150	1.002 b
Machinery	0.270	0.454	0.020	0.479	-0.146	0.214
Transportation equipment	0.070	-0.304	-0.237	-4.068 b	-0.124	-2.284 c
Productivity effects of concentration, lagged specification						
Manufacturing less other manuf.	0.250 a	0.711 a	-0.052	0.065	-0.090 c	0.067
Food, beverages	-2.642 a	-8.75 b	0.187	1.012	-1.349 a	-8.166 a
Textiles, apparel, leather, footwear	0.303	1.088	-0.346	-0.801	-0.421	-1.152
Wood, furniture, paper	-0.345 c	-1.646 b	-0.933 a	-9.013 b	-0.558 a	-2.183 a
Chemicals, rubber, plastics	0.084	0.473	-0.186	-0.597	-0.366 c	-1.142
Metals, non-metallic mineral prod.	1.239 a	3.338 a	0.401 b	1.372 c	0.407 a	1.656 a
Machinery	0.230	0.310	-0.065	-0.057	-0.034	-0.044
Transportation equipment	0.253	1.411	-1.610 a	-5.349 a	0.089	1.111

Note: a=significant at the 1% level, b=significant at the 5% level, c=significant at the 10% level.

Table 6: Coefficients Measuring Productivity Spillovers and the Productivity Effects of Concentration on Private Firms from Fixed Effects Production Function Estimates

Indicator, industry group	2001-2003		2004-2006		2001-2006	
	Eq. (3)	Eq. (4)	Eq. (3)	Eq. (4)	Eq. (3)	Eq. (4)
Manufacturing (less other manufacturing) combined, contemporaneous specification						
SOE spillovers	-0.348	-0.247	0.201 b	0.179 c	0.049	0.039
Wholly-foreign MNC spillovers	-0.821 a	-0.732 a	0.022	0.039	-0.270 a	-0.290 a
MNC joint venture spillovers	-0.657	-0.441	-0.530 c	-0.518 c	-0.481 b	-0.528 b
Concentration effects	0.603 a	1.482 a	-0.179 c	-0.643 b	-0.033	0.098
Manufacturing (less other manufacturing) combined, lagged specification						
SOE spillovers	-0.435 b	-0.339 c	0.228 b	0.172	0.097	0.051
Wholly-foreign MNC spillovers	-1.352 a	-1.249 a	0.104	0.030	-0.240 b	-0.324 a
MNC joint venture spillovers	-1.943 a	-1.787 a	-0.438	-0.594 c	-0.529 b	-0.699 a
Concentration effects	0.502 a	1.297 a	-0.226 c	0.002	-0.131	0.266
Highly concentrated industries, contemporaneous specification						
SOE spillovers	0.243	-0.881	-0.387	-0.301	0.597 c	0.263 a
Wholly-foreign MNC spillovers	0.057	-0.980	-0.537	-0.492	-0.402 c	-0.540 a
MNC joint venture spillovers	0.440	-1.017	-1.334 a	-1.265 a	-0.440	-0.805 a
Concentration effects	-1.754 a	-0.052	-0.122	-0.789	-0.825 a	-0.190 a
Highly concentrated industries, lagged specification						
SOE spillovers	-1.010	-1.184 c	1.815 a	1.883 a	0.880 b	0.685 c
Wholly-foreign MNC spillovers	-2.139 b	-2.221 b	0.067	0.071	-0.412	-0.581 c
MNC joint venture spillovers	-2.013 c	-2.217 c	0.205	0.186	-0.404	-0.705
Concentration effects	-0.382	0.090	-1.614 a	-2.705 c	-0.526	0.428
Lowly concentrated industries, contemporaneous specification						
SOE spillovers	0.979 b	0.993 a	0.451 a	0.450 a	0.129	0.114
Wholly-foreign MNC spillovers	-0.431	-0.346	-0.074	-0.072	-0.431 a	-0.456 a
MNC joint venture spillovers	0.626	1.162	0.089	0.107	-0.313	-0.412
Concentration effects	1.112 a	2.733 a	-0.130	-0.778	0.030	0.718 c
Lowly concentrated industries, lagged specification						
SOE spillovers	-0.362	-0.277	0.224	0.247	0.002	-0.022
Wholly-foreign MNC spillovers	-1.428 a	-1.348 a	0.290	0.297	-0.221	-0.285 c
MNC joint venture spillovers	-5.865 a	-5.622 a	-0.843	-0.811	-2.244 a	-2.455 a
Concentration effects	0.738 a	2.193 a	-0.644 b	-5.156 b	-0.231 b	0.022

Note: a=significant at the 1% level, b=significant at the 5% level, c=significant at the 10% level; in principle industries are defined at the three-digit level of Vietnam's Standard Industrial Classification Code, Revision 3; however 2-digit categories or combinations of 3-digit categories are used when samples in 3-digit categories are small.

Appendix Table A1: Details for Random Effects Estimates of Productivity Differentials and Productivity Effects of Concentration (excluding year, region and industry dummies, robust standard errors)

Independent variable, statistic	2001-2003				2004-2006				2001-2006			
	C Equation		H Equation		C Equation		H Equation		C Equation		H Equation	
	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.
Manufacturing less other manufacturing, contemporaneous estimates												
LE_{ijt}	0.7346	0.00	0.7345	0.00	0.7216	0.00	0.7215	0.00	0.7504	0.00	0.7505	0.00
LK_{ijt}	0.3317	0.00	0.3318	0.00	0.3071	0.00	0.3072	0.00	0.2882	0.00	0.2883	0.00
LE_{ijt}^2	-0.0310	0.00	-0.0307	0.00	-0.0137	0.08	-0.0136	0.08	-0.0213	0.00	-0.0212	0.00
LK_{ijt}^2	0.0244	0.00	0.0244	0.00	0.0155	0.00	0.0155	0.00	0.0132	0.00	0.0133	0.00
$LELK_{ijt}$	0.0083	0.37	0.0083	0.36	0.0113	0.10	0.0113	0.10	0.0163	0.00	0.0163	0.00
DS_{ijt}	0.2281	0.00	0.2278	0.00	0.2464	0.00	0.2465	0.00	0.2334	0.00	0.2332	0.00
DM_{ijt}	-0.1710	0.00	-0.1708	0.00	-0.0450	0.16	-0.0453	0.16	-0.0499	0.09	-0.0503	0.09
DJ_{ijt}	0.3775	0.00	0.3767	0.00	0.4328	0.00	0.4325	0.00	0.3525	0.00	0.3518	0.00
C_{jt}, H_{jt}	0.5506	0.00	1.1486	0.00	-0.1418	0.15	-0.1510	0.55	-0.0841	0.23	0.1649	0.31
Constant	-0.0142	0.82	0.0860	0.14	-0.0783	0.12	-0.1007	0.03	-0.0616	0.19	-0.0881	0.05
Obs., Eq.	22,152	1	22,152	2	33,154	1	33,154	2	55,306	1	55,306	2
Groups	10,888	-	10,888	-	16,598	-	16,598	-	19,833	-	19,833	-
R ² -within	0.373	-	0.373	-	0.185	-	0.184	-	0.257	-	0.257	-
R ² -between	0.641	-	0.641	-	0.629	-	0.629	-	0.615	-	0.615	-
R ² -overall	0.658	-	0.658	-	0.661	-	0.661	-	0.655	-	0.655	-
T,CD	157.53	0.00	157.07	0.00	126.89	0.00	126.92	0.00	156.91	0.00	157.11	0.00
T, $DS=DM$	70.05	0.00	69.91	0.00	60.57	0.00	60.70	0.00	67.10	0.00	67.23	0.00
T, $DS=DJ$	5.30	0.02	5.27	0.00	10.25	0.00	10.20	0.00	4.98	0.03	4.93	0.03
T, $DM=DJ$	67.33	0.00	67.08	0.00	68.27	0.00	68.18	0.00	57.18	0.00	57.06	0.00
Manufacturing less other manufacturing, estimates with lagged labor, capital, & concentration												
LE_{ijt-1}	0.5770	0.00	0.5770	0.00	0.5174	0.00	0.5173	0.00	0.5374	0.00	0.5375	0.00
LK_{ijt-1}	0.3173	0.00	0.3174	0.00	0.3043	0.00	0.3042	0.00	0.2702	0.00	0.2701	0.00
LE_{ijt-1}^2	-0.0050	0.61	-0.0052	0.59	0.0293	0.00	0.0293	0.00	0.0132	0.03	0.0132	0.03
LK_{ijt-1}^2	0.0297	0.00	0.0297	0.00	0.0273	0.00	0.0273	0.00	0.0217	0.00	0.0217	0.00
$LELK_{ijt-1}$	0.0022	0.81	0.0025	0.79	-0.0116	0.10	-0.0115	0.10	0.0002	0.97	0.0002	0.98
DS_{ijt}	0.2006	0.00	0.2009	0.00	0.2050	0.00	0.2048	0.00	0.1928	0.00	0.1921	0.00
DM_{ijt}	0.1356	0.00	0.1358	0.00	0.2568	0.00	0.2561	0.00	0.3008	0.00	0.2996	0.00
DJ_{ijt}	0.4922	0.00	0.4916	0.00	0.5332	0.00	0.5325	0.00	0.5404	0.00	0.5389	0.00
C_{jt-1}, H_{jt-1}	0.2497	0.00	0.7106	0.00	-0.0520	0.49	0.0654	0.75	-0.0899	0.09	0.0669	0.57
Constant	0.3237	0.00	0.3642	0.00	0.0390	0.48	0.0258	0.62	0.1967	0.00	0.1695	0.00
Obs., Eq.	14,957	1	14,957	2	23,102	1	23,102	2	38,059	1	38,059	2
Groups	7,226	-	7,226	-	10,054	-	10,054	-	11,766	-	11,766	-
R ² -within	0.270	-	0.271	-	0.057	-	0.057	-	0.173	-	0.173	-
R ² -between	0.676	-	0.676	-	0.688	-	0.688	-	0.675	-	0.675	-
R ² -overall	0.676	-	0.676	-	0.686	-	0.686	-	0.676	-	0.676	-
T,CD	169.98	0.00	169.80	0.00	228.33	0.00	228.32	0.00	229.83	0.00	229.07	0.00
T, $DS=DM$	1.76	0.18	1.76	0.18	1.77	0.18	1.74	0.19	8.78	0.00	8.71	0.00
T, $DS=DJ$	20.04	0.00	19.89	0.00	27.74	0.00	27.68	0.00	42.00	0.00	41.80	0.00
T, $DM=DJ$	34.15	0.00	33.93	0.00	21.14	0.00	21.16	0.00	21.85	0.00	21.77	0.00

Appendix Table A1 (continued)

Independent variable, statistic	2001-2003				2004-2006				2001-2006			
	C Equation		H Equation		C Equation		H Equation		C Equation		H Equation	
	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.
Food & beverages (VSIC 15), contemporaneous estimates												
LE_{ijt}	0.7208	0.00	0.7167	0.00	0.7600	0.00	0.7598	0.00	0.7550	0.00	0.7529	0.00
LK_{ijt}	0.3602	0.00	0.3610	0.00	0.3458	0.00	0.3460	0.00	0.3327	0.00	0.3322	0.00
LE_{ijt}^2	-0.0330	0.19	-0.0314	0.21	-0.0105	0.55	-0.0104	0.55	-0.0398	0.01	-0.0391	0.01
LK_{ijt}^2	0.0175	0.05	0.0175	0.06	0.0106	0.14	0.0106	0.13	0.0096	0.11	0.0095	0.12
$LE LK_{ijt}$	0.0080	0.73	0.0067	0.77	-0.0192	0.28	-0.0193	0.27	0.0073	0.63	0.0069	0.65
DS_{ijt}	0.2997	0.00	0.3036	0.00	0.1849	0.00	0.1833	0.00	0.2252	0.00	0.2294	0.00
DM_{ijt}	0.0525	0.69	0.0551	0.68	0.0443	0.68	0.0438	0.69	0.0682	0.49	0.0748	0.45
DJ_{ijt}	0.1505	0.24	0.1380	0.29	0.2118	0.10	0.2117	0.10	0.2416	0.02	0.2348	0.02
C_{jt}, H_{jt}	5.7546	0.00	32.9454	0.00	-0.2266	0.60	-2.6364	0.44	1.9360	0.00	12.0571	0.00
Constant	-1.7724	0.00	-1.2884	0.00	-0.2565	0.06	-0.2561	0.04	-0.8357	0.00	-0.7071	0.00
Obs., Eq.	3,865	1	3,865	2	5,469	1	5,469	2	9,334	1	9,334	2
Groups	1,958	-	1,958	-	2,752	-	2,752	-	3,388	-	3,388	-
R ² -within	0.388	-	0.396	-	0.125	-	0.125	-	0.242	-	0.243	-
R ² -between	0.591	-	0.591	-	0.599	-	0.599	-	0.580	-	0.579	-
R ² -overall	0.619	-	0.619	-	0.631	-	0.631	-	0.620	-	0.620	-
T,CD	9.45	0.02	9.04	0.03	4.35	0.23	4.36	0.22	13.01	0.00	12.62	0.01
T, $DS=DM$	3.17	0.07	3.18	0.07	1.51	0.22	1.49	0.22	2.25	0.13	2.18	0.78
T, $DS=DJ$	1.20	0.27	1.47	0.23	0.04	0.84	0.04	0.83	0.02	0.88	0.00	0.96
T, $DM=DJ$	0.45	0.50	0.32	0.57	1.30	0.25	1.31	0.25	2.52	0.11	2.12	0.14
Food, & beverages (VSIC 15), estimates with lagged labor, capital, and concentration												
LE_{ijt-1}	0.6116	0.00	0.6146	0.00	0.5862	0.00	0.5861	0.00	0.5719	0.00	0.5728	0.00
LK_{ijt-1}	0.3441	0.00	0.3432	0.00	0.2983	0.00	0.2982	0.00	0.2864	0.00	0.2865	0.00
LE_{ijt-1}^2	-0.0116	0.63	-0.0112	0.64	0.0442	0.03	0.0441	0.03	0.0093	0.56	0.0091	0.56
LK_{ijt-1}^2	0.0304	0.00	0.0307	0.00	0.0297	0.00	0.0296	0.00	0.0214	0.00	0.0216	0.00
$LE LK_{ijt-1}$	0.0030	0.89	0.0020	0.93	-0.0348	0.09	-0.0348	0.09	-0.0124	0.43	-0.0120	0.45
DS_{ijt}	0.1822	0.02	0.1799	0.03	0.0994	0.09	0.0997	0.08	0.1733	0.00	0.1724	0.00
DM_{ijt}	0.1527	0.23	0.1528	0.23	0.2561	0.02	0.2561	0.02	0.2900	0.01	0.2884	0.01
DJ_{ijt}	0.1213	0.40	0.1210	0.40	0.2804	0.08	0.2802	0.08	0.3054	0.02	0.3089	0.01
C_{jt-1}, H_{jt-1}	-2.6422	0.00	-8.7525	0.01	0.1873	0.67	1.0121	0.72	-1.3494	0.00	-8.1656	0.00
Constant	0.5997	0.01	0.1953	0.27	-0.2977	0.07	-0.2802	0.06	0.2395	0.12	0.1415	0.31
Obs., Eq.	2,550	1	2,550	2	3,819	1	3,819	2	6,369	1	6,369	2
Groups	1,275	-	1,275	-	1,666	-	1,666	-	2,016	-	2,016	-
R ² -within	0.295	-	0.290	-	0.030	-	0.030	-	0.197	-	0.197	-
R ² -between	0.649	-	0.650	-	0.630	-	0.630	-	0.624	-	0.625	-
R ² -overall	0.641	-	0.641	-	0.636	-	0.636	-	0.630	-	0.631	-
T,CD	27.97	0.00	28.11	0.00	28.32	0.00	28.27	0.00	23.10	0.00	23.84	0.00
T, $DS=DM$	0.05	0.82	0.04	0.84	1.79	0.18	1.79	0.18	1.14	0.29	1.13	0.29
T, $DS=DJ$	0.17	0.68	0.16	0.69	1.22	0.27	1.22	0.27	1.05	0.30	1.13	0.29
T, $DM=DJ$	0.04	0.83	0.05	0.83	0.02	0.88	0.02	0.88	0.01	0.91	0.02	0.88

Appendix Table A1 (continued)

Independent variable, statistic	2001-2003				2004-2006				2001-2006			
	C Equation		H Equation		C Equation		H Equation		C Equation		H Equation	
	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.
Textiles, apparel, leather, footwear (VSIC 17, 18, 19), contemporaneous estimates												
LE_{ijt}	0.7013	0.00	0.7018	0.00	0.6777	0.00	0.6775	0.00	0.7092	0.00	0.7092	0.00
LK_{ijt}	0.2855	0.00	0.2849	0.00	0.2905	0.00	0.2913	0.00	0.2677	0.00	0.2682	0.00
LE_{ijt}^2	0.0302	0.12	0.0312	0.10	0.0398	0.01	0.0401	0.01	0.0502	0.00	0.0507	0.00
LK_{ijt}^2	0.0223	0.00	0.0223	0.00	0.0149	0.00	0.0151	0.00	0.0139	0.00	0.0140	0.00
$LE LK_{ijt}$	-0.0102	0.59	-0.0106	0.57	-0.0075	0.60	-0.0078	0.59	-0.0095	0.39	-0.0099	0.37
DS_{ijt}	0.2742	0.00	0.2776	0.00	0.1624	0.01	0.1595	0.01	0.2138	0.00	0.2100	0.00
DM_{ijt}	0.0057	0.94	0.0055	0.94	0.0070	0.91	0.0054	0.93	0.0146	0.80	0.0133	0.81
DJ_{ijt}	0.3407	0.02	0.3399	0.02	0.2835	0.01	0.2786	0.01	0.2423	0.03	0.2380	0.04
C_{jt}, H_{jt}	1.7207	0.06	0.1764	0.97	-0.3390	0.03	-0.4523	0.19	-0.5126	0.00	-0.8980	0.01
Constant	-0.2449	0.37	0.2099	0.31	0.1610	0.15	0.0740	0.45	0.1406	0.16	0.0209	0.81
Obs., Eq.	4,294	1	4,294	2	6,521	1	6,521	2	10,815	1	10,815	1
Groups	2,149	-	2,149	-	3,269	-	3,269	-	3,936	-	3,936	-
R ² -within	0.320	-	0.319	-	0.196	-	0.195	-	0.238	-	0.237	-
R ² -between	0.628	-	0.627	-	0.650	-	0.650	-	0.630	-	0.630	-
R ² -overall	0.653	-	0.652	-	0.683	-	0.683	-	0.667	-	0.667	-
T,CD	30.93	0.00	31.24	0.00	35.58	0.00	35.84	0.00	51.51	0.00	52.01	0.00
T, $DS=DM$	8.31	0.00	8.53	0.00	4.43	0.04	4.34	0.04	8.55	0.00	8.32	0.00
T, $DS=DJ$	0.20	0.66	0.17	0.68	1.12	0.29	1.08	0.30	0.06	0.81	0.06	0.81
T, $DM=DJ$	4.99	0.03	4.97	0.03	6.49	0.01	6.31	0.01	3.85	0.05	3.75	0.05
Textiles, apparel, leather, footwear (VSIC 17, 18, 19), estimates with lagged labor, capital, & concentration												
LE_{ijt-1}	0.4909	0.00	0.4909	0.00	0.5237	0.00	0.5248	0.00	0.5039	0.00	0.5048	0.00
LK_{ijt-1}	0.3166	0.00	0.3167	0.00	0.2822	0.00	0.2815	0.00	0.2647	0.00	0.2641	0.00
LE_{ijt-1}^2	0.0554	0.00	0.0554	0.00	0.0461	0.00	0.0463	0.00	0.0629	0.00	0.0630	0.00
LK_{ijt-1}^2	0.0361	0.00	0.0361	0.00	0.0245	0.00	0.0243	0.00	0.0273	0.00	0.0271	0.00
$LE LK_{ijt-1}$	-0.0156	0.38	-0.0156	0.38	-0.0092	0.51	-0.0090	0.51	-0.0215	0.06	-0.0214	0.06
DS_{ijt}	0.1641	0.04	0.1639	0.04	0.1345	0.03	0.1329	0.03	0.1142	0.05	0.1123	0.06
DM_{ijt}	0.4374	0.00	0.4374	0.00	0.3389	0.00	0.3397	0.00	0.4112	0.00	0.4117	0.00
DJ_{ijt}	0.7505	0.00	0.7507	0.00	0.4621	0.00	0.4624	0.00	0.5982	0.00	0.5983	0.00
C_{jt-1}, H_{jt-1}	0.3027	0.67	1.0875	0.78	-0.3463	0.23	-0.8011	0.67	-0.4208	0.13	-1.1517	0.50
Constant	-0.0374	0.88	0.0093	0.96	-0.1024	0.38	-0.1553	0.15	-0.0595	0.63	-0.1319	0.23
Obs., Eq.	2,887	1	2,887	2	4,525	1	4,525	2	7,412	1	7,412	2
Groups	1,382	-	1,382	-	1,975	-	1,975	-	2,314	-	2,314	-
R ² -within	0.225	-	0.225	-	0.057	-	0.057	-	0.141	-	0.141	-
R ² -between	0.698	-	0.698	-	0.710	-	0.710	-	0.695	-	0.695	-
R ² -overall	0.697	-	0.697	-	0.706	-	0.706	-	0.699	-	0.699	-
T,CD	83.00	0.00	83.05	0.00	58.18	0.00	57.96	0.00	100.92	0.00	101.16	0.00
T, $DS=DM$	8.77	0.00	8.78	0.00	7.49	0.01	7.67	0.01	17.77	0.00	18.07	0.00
T, $DS=DJ$	19.63	0.00	19.67	0.00	8.50	0.00	8.61	0.00	21.74	0.00	21.93	0.00
T, $DM=DJ$	6.30	0.01	6.31	0.01	1.37	0.24	1.36	0.24	3.85	0.05	3.84	0.05

Appendix Table A1 (continued)

Independent variable, statistic	2000				2002				2004			
	C Equation		H Equation		C Equation		H Equation		C Equation		H Equation	
	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.
Wood, paper, furniture (VSIC 20, 21, 361), contemporaneous estimates												
LE_{ijt}	0.7039	0.00	0.7038	0.00	0.6959	0.00	0.6960	0.00	0.7370	0.00	0.7372	0.00
LK_{ijt}	0.2951	0.00	0.2951	0.00	0.2547	0.00	0.2546	0.00	0.2375	0.00	0.2372	0.00
LE_{ijt}^2	-0.0325	0.13	-0.0326	0.13	0.0112	0.47	0.0113	0.47	-0.0196	0.17	-0.0192	0.18
LK_{ijt}^2	0.0081	0.35	0.0081	0.35	0.0111	0.01	0.0111	0.01	0.0018	0.68	0.0016	0.70
$LE LK_{ijt}$	0.0488	0.01	0.0489	0.01	0.0107	0.38	0.0108	0.38	0.0438	0.00	0.0441	0.00
DS_{ijt}	0.3837	0.00	0.3839	0.00	0.3171	0.00	0.3176	0.00	0.2860	0.00	0.2870	0.00
DM_{ijt}	-0.3338	0.00	-0.3338	0.00	0.1265	0.08	0.1266	0.08	0.0150	0.82	0.0155	0.81
DJ_{ijt}	0.1936	0.33	0.1937	0.33	0.4372	0.02	0.4368	0.02	0.3766	0.02	0.3772	0.02
C_{jt}, H_{jt}	0.1667	0.46	0.7853	0.37	-0.3310	0.42	-1.8890	0.63	-0.2589	0.21	-0.6075	0.51
Constant	-0.2246	0.02	-0.2060	0.02	0.0528	0.54	0.0315	0.69	-0.0901	0.25	-0.1301	0.06
Obs., Eq.	3,948	1	3,948	2	6,215	1	0	2	10,163	1	10,163	2
Groups	2,015	-	2,015	-	3,278	-	0	-	3,935	-	3,935	-
R ² -within	0.435	-	0.435	-	0.212	-	0.212	-	0.306	-	0.305	-
R ² -between	0.583	-	0.583	-	0.605	-	0.605	-	0.581	-	0.581	-
R ² -overall	0.610	-	0.610	-	0.641	-	0.641	-	0.626	-	0.626	-
T,CD	22.84	0.00	22.86	0.00	24.37	0.00	24.42	0.00	35.87	0.00	36.08	0.00
T, $DS=DM$	33.48	0.00	33.48	0.00	4.21	0.04	4.24	0.04	9.63	0.00	9.67	0.00
T, $DS=DJ$	0.84	0.36	0.84	0.36	0.35	0.55	0.35	0.56	0.28	0.60	0.28	0.60
T, $DM=DJ$	6.56	0.01	6.57	0.01	2.19	0.14	2.17	0.14	4.53	0.03	4.53	0.03
Wood, paper, furniture (VSIC 20, 21, 361), estimates with lagged labor, capital, & concentration												
LE_{ijt-1}	0.5315	0.00	0.5313	0.00	0.4586	0.00	0.4587	0.00	0.4979	0.00	0.4981	0.00
LK_{ijt-1}	0.2542	0.00	0.2542	0.00	0.2760	0.00	0.2758	0.00	0.2293	0.00	0.2290	0.00
LE_{ijt-1}^2	0.0088	0.72	0.0094	0.70	0.0487	0.00	0.0488	0.00	0.0050	0.75	0.0055	0.73
LK_{ijt-1}^2	0.0102	0.20	0.0102	0.20	0.0237	0.00	0.0236	0.00	0.0090	0.07	0.0088	0.07
$LE LK_{ijt-1}$	0.0413	0.07	0.0412	0.07	-0.0056	0.70	-0.0055	0.71	0.0382	0.00	0.0384	0.00
DS_{ijt}	0.3136	0.00	0.3124	0.00	0.2795	0.01	0.2798	0.01	0.2378	0.00	0.2376	0.00
DM_{ijt}	0.0172	0.85	0.0172	0.85	0.2187	0.00	0.2191	0.00	0.2071	0.00	0.2072	0.00
DJ_{ijt}	0.4962	0.01	0.4963	0.01	0.5309	0.01	0.5300	0.01	0.5675	0.00	0.5665	0.00
C_{jt-1}, H_{jt-1}	-0.3452	0.06	-1.6460	0.02	-0.9333	0.01	-9.0131	0.02	-0.5583	0.00	-2.1831	0.00
Constant	0.0383	0.72	0.0030	0.98	0.0946	0.32	0.0641	0.48	0.0996	0.26	0.0296	0.71
Obs., Eq.	2,513	1	2,513	2	4,092	1	4,092	2	6,605	1	6,605	2
Groups	1,256	-	1,256	-	1,829	-	1,829	-	2,150	-	2,150	-
R ² -within	0.341	-	0.342	-	0.067	-	0.067	-	0.204	-	0.203	-
R ² -between	0.638	-	0.638	-	0.685	-	0.685	-	0.667	-	0.667	-
R ² -overall	0.632	-	0.632	-	0.682	-	0.682	-	0.658	-	0.658	-
T,CD	27.12	0.00	27.42	0.00	44.87	0.00	44.87	0.00	46.82	0.00	47.07	0.00
T, $DS=DM$	5.36	0.02	5.33	0.02	0.29	0.59	0.29	0.59	0.10	0.75	0.10	0.76
T, $DS=DJ$	0.87	0.35	0.88	0.35	1.47	0.23	1.45	0.23	3.25	0.07	3.23	0.07
T, $DM=DJ$	7.24	0.01	7.28	0.01	2.45	0.12	2.43	0.12	4.38	0.04	4.34	0.04

Appendix Table A1 (continued)

Independent variable, statistic	2001-2003				2004-2006				2001-2006			
	C Equation		H Equation		C Equation		H Equation		C Equation		H Equation	
	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.
Chemicals, rubber, plastics (VSIC 24, 25), contemporaneous estimates												
LE_{ijt}	0.6828	0.00	0.6842	0.00	0.7241	0.00	0.7239	0.00	0.7424	0.00	0.7429	0.00
LK_{ijt}	0.3637	0.00	0.3645	0.00	0.2838	0.00	0.2839	0.00	0.2847	0.00	0.2874	0.00
LE_{ijt}^2	-0.0302	0.48	-0.0340	0.43	-0.0042	0.90	-0.0040	0.91	-0.0273	0.28	-0.0247	0.33
LK_{ijt}^2	0.0268	0.00	0.0268	0.00	0.0152	0.06	0.0151	0.06	0.0080	0.17	0.0085	0.15
$LE LK_{ijt}$	-0.0099	0.80	-0.0063	0.87	-0.0234	0.39	-0.0232	0.39	0.0053	0.81	0.0034	0.88
DS_{ijt}	0.2066	0.07	0.2030	0.08	0.3340	0.00	0.3322	0.00	0.1806	0.03	0.1865	0.02
DM_{ijt}	-0.2024	0.07	-0.2010	0.07	0.0031	0.97	0.0033	0.97	-0.0443	0.60	-0.0443	0.60
DJ_{ijt}	0.3344	0.02	0.3297	0.02	0.4417	0.00	0.4423	0.00	0.1882	0.14	0.1865	0.14
C_{jt}, H_{jt}	-1.9877	0.03	4.1915	0.42	-0.1523	0.73	0.7362	0.73	-2.2452	0.00	-3.3504	0.17
Constant	0.5134	0.24	-0.7179	0.08	-0.1073	0.62	-0.2109	0.20	0.7803	0.00	-0.0004	1.00
Obs., Eq.	2,519	1	2,519	2	3,854	1	3,854	2	6,373	1	6,373	2
Groups	1,214	-	1,214	-	1,963	-	1,963	-	2,315	-	2,315	-
R ² -within	0.448	-	0.446	-	0.202	-	0.202	-	0.324	-	0.317	-
R ² -between	0.623	-	0.623	-	0.569	-	0.569	-	0.567	-	0.566	-
R ² -overall	0.636	-	0.636	-	0.604	-	0.604	-	0.611	-	0.610	-
T,CD	21.56	0.00	18.34	0.00	4.43	0.22	4.36	0.23	4.99	0.17	4.74	0.19
T, $DS=DM$	2.85	0.09	7.79	0.01	7.18	0.01	7.08	0.01	4.44	0.04	4.66	0.03
T, $DS=DJ$	3.58	0.06	0.59	0.44	0.52	0.47	0.54	0.46	0.00	0.96	0.00	1.00
T, $DM=DJ$	12.57	0.00	12.21	0.00	14.06	0.00	14.04	0.00	4.55	0.03	4.48	0.03
Chemicals, rubber, plastics (VSIC 24, 25), estimates with lagged labor, capital, & concentration												
LE_{ijt-1}	0.5857	0.00	0.5858	0.00	0.4988	0.00	0.4982	0.00	0.5438	0.00	0.5434	0.00
LK_{ijt-1}	0.3104	0.00	0.3104	0.00	0.2831	0.00	0.2834	0.00	0.2374	0.00	0.2381	0.00
LE_{ijt-1}^2	-0.0101	0.82	-0.0102	0.82	0.0193	0.54	0.0195	0.54	0.0005	0.98	0.0010	0.97
LK_{ijt-1}^2	0.0318	0.00	0.0318	0.00	0.0169	0.03	0.0170	0.03	0.0156	0.00	0.0158	0.00
$LE LK_{ijt-1}$	-0.0086	0.80	-0.0085	0.80	0.0081	0.73	0.0078	0.74	0.0094	0.61	0.0091	0.63
DS_{ijt}	0.1929	0.12	0.1928	0.12	0.2760	0.00	0.2748	0.00	0.1566	0.04	0.1553	0.04
DM_{ijt}	0.0347	0.75	0.0347	0.75	0.3075	0.00	0.3076	0.00	0.3577	0.00	0.3579	0.00
DJ_{ijt}	0.2106	0.12	0.2106	0.12	0.5670	0.00	0.5672	0.00	0.3301	0.00	0.3284	0.00
C_{jt-1}, H_{jt-1}	0.0844	0.77	0.4725	0.75	-0.1860	0.51	-0.5966	0.72	-0.3661	0.07	-1.1416	0.28
Constant	-0.4768	0.02	-0.4768	0.02	-0.0120	0.93	-0.0453	0.72	0.0183	0.88	-0.0481	0.69
Obs., Eq.	1,730	1	1,730	2	2,614	1	2,614	2	4,344	1	4,344	2
Groups	835	-	835	-	1,151	-	1,151	-	1,347	-	1,347	-
R ² -within	0.450	-	0.450	-	0.096	-	0.095	-	0.306	-	0.305	-
R ² -between	0.634	-	0.634	-	0.652	-	0.652	-	0.633	-	0.632	-
R ² -overall	0.654	-	0.654	-	0.648	-	0.648	-	0.637	-	0.637	-
T,CD	15.53	0.00	15.51	0.00	15.06	0.00	15.01	0.00	21.14	0.00	21.14	0.00
T, $DS=DM$	1.06	0.30	1.06	0.30	0.08	0.78	0.08	0.77	3.79	0.05	3.86	0.05
T, $DS=DJ$	0.01	0.92	0.01	0.92	3.79	0.05	3.85	0.05	2.04	0.15	2.03	0.15
T, $DM=DJ$	1.54	0.22	1.54	0.22	4.37	0.04	4.42	0.04	0.09	0.76	0.11	0.74

Appendix Table A1 (continued)

Independent variable, statistic	2001-2003				2004-2006				2001-2006			
	C Equation		H Equation		C Equation		H Equation		C Equation		H Equation	
	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.
Metals & products, non-metallic mineral products (VSIC 26, 27, 28), contemporaneous estimates												
LE_{ijt}	0.8256	0.00	0.8252	0.00	0.7326	0.00	0.7332	0.00	0.8045	0.00	0.8039	0.00
LK_{ijt}	0.3270	0.00	0.3274	0.00	0.3058	0.00	0.3056	0.00	0.2828	0.00	0.2832	0.00
LE_{ijt}^2	-0.0551	0.04	-0.0548	0.04	-0.0086	0.67	-0.0092	0.65	-0.0346	0.04	-0.0344	0.04
LK_{ijt}^2	0.0265	0.00	0.0265	0.00	0.0164	0.00	0.0162	0.00	0.0165	0.00	0.0166	0.00
$LE LK_{ijt}$	0.0113	0.62	0.0114	0.61	0.0187	0.29	0.0191	0.28	0.0175	0.22	0.0173	0.23
DS_{ijt}	0.2272	0.00	0.2254	0.00	0.2336	0.00	0.2338	0.00	0.2306	0.00	0.2293	0.00
DM_{ijt}	-0.3418	0.00	-0.3427	0.00	-0.1444	0.05	-0.1444	0.05	-0.1533	0.03	-0.1547	0.03
DJ_{ijt}	0.4083	0.01	0.4099	0.01	0.4743	0.00	0.4744	0.00	0.3890	0.00	0.3892	0.00
C_{jt}, H_{jt}	1.0222	0.00	2.5096	0.00	0.1718	0.43	-0.1896	0.86	0.1502	0.32	1.0021	0.02
Constant	-0.7662	0.00	-0.4801	0.01	0.1555	0.36	0.2772	0.10	-0.0052	0.97	-0.0820	0.53
Obs., Eq.	4,696	1	4,696	2	7,316	1	7,316	2	12,012	1	12,012	2
Groups	2,324	-	2,324	-	3,794	-	3,794	-	4,520	-	4,520	-
R ² -within	0.353	-	0.354	-	0.181	-	0.181	-	0.260	-	0.260	-
R ² -between	0.693	-	0.693	-	0.641	-	0.641	-	0.640	-	0.640	-
R ² -overall	0.708	-	0.708	-	0.680	-	0.680	-	0.687	-	0.687	-
T,CD	59.77	0.00	59.91	0.00	53.47	0.00	52.95	0.00	62.38	0.00	62.82	0.00
T, $DS=DM$	23.03	0.00	22.96	0.00	19.28	0.00	19.26	0.00	23.81	0.00	23.81	0.00
T, $DS=DJ$	1.43	0.23	1.49	0.22	3.56	0.06	3.56	0.06	1.74	0.19	1.77	0.18
T, $DM=DJ$	17.58	0.00	19.18	0.00	21.78	0.00	21.76	0.00	17.96	0.00	18.06	0.00
Metals & products, non-metallic mineral products (VSIC 26, 27, 28), estimates with lagged labor, capital, & concentration												
LE_{ijt-1}	0.6739	0.00	0.6741	0.00	0.5381	0.00	0.5377	0.00	0.5871	0.00	0.5864	0.00
LK_{ijt-1}	0.3536	0.00	0.3545	0.00	0.3112	0.00	0.3117	0.00	0.2937	0.00	0.2943	0.00
LE_{ijt-1}^2	-0.0024	0.92	-0.0036	0.88	0.0484	0.03	0.0485	0.03	0.0326	0.06	0.0328	0.06
LK_{ijt-1}^2	0.0351	0.00	0.0351	0.00	0.0298	0.00	0.0299	0.00	0.0299	0.00	0.0300	0.00
$LE LK_{ijt-1}$	-0.0270	0.25	-0.0263	0.27	-0.0166	0.38	-0.0168	0.37	-0.0280	0.07	-0.0282	0.07
DS_{ijt}	0.1709	0.02	0.1705	0.02	0.1685	0.00	0.1695	0.00	0.1798	0.00	0.1787	0.00
DM_{ijt}	-0.2235	0.07	-0.2298	0.06	0.2214	0.01	0.2200	0.01	0.1540	0.06	0.1516	0.06
DJ_{ijt}	0.3352	0.03	0.3350	0.03	0.5194	0.00	0.5175	0.00	0.4888	0.00	0.4875	0.00
C_{jt-1}, H_{jt-1}	1.2387	0.00	3.3384	0.00	0.4011	0.03	1.3717	0.08	0.4069	0.00	1.6557	0.00
Constant	-0.3535	0.10	-0.0758	0.68	0.1095	0.51	0.1742	0.27	0.1605	0.29	0.1879	0.18
Obs., Eq.	3,100	1	3,100	2	4,888	1	4,888	2	7,988	1	7,988	2
Groups	1,511	-	1,511	-	2,188	-	2,188	-	2,559	-	2,559	-
R ² -within	0.209	-	0.215	-	0.055	-	0.055	-	0.142	-	0.144	-
R ² -between	0.718	-	0.718	-	0.725	-	0.725	-	0.715	-	0.715	-
R ² -overall	0.716	-	0.717	-	0.720	-	0.720	-	0.715	-	0.715	-
T,CD	49.13	0.00	49.34	0.00	93.65	0.00	93.68	0.00	74.64	0.00	75.08	0.00
T, $DS=DM$	8.98	0.00	9.19	0.00	0.34	0.56	0.31	0.56	0.09	0.77	0.09	0.76
T, $DS=DJ$	1.09	0.30	1.09	0.30	7.43	0.01	7.30	0.01	6.60	0.01	6.59	0.01
T, $DM=DJ$	10.56	0.00	12.54	0.00	5.41	0.02	5.38	0.02	7.42	0.01	6.55	0.01

Appendix Table A1 (continued)

Independent variable, statistic	2001-2003				2004-2006				2001-2006			
	C Equation		H Equation		C Equation		H Equation		C Equation		H Equation	
	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.
Machinery (general [VSIC 29], office and computing [30], electrical [31], radio, television & communication [32], precision [33]), contemporaneous estimates												
LE_{ijt}	0.8882	0.00	0.8903	0.00	0.8656	0.00	0.8654	0.00	0.8949	0.00	0.8950	0.00
LK_{ijt}	0.3181	0.00	0.3160	0.00	0.3060	0.00	0.3067	0.00	0.2755	0.00	0.2756	0.00
LE_{ijt}^2	-0.0719	0.08	-0.0706	0.09	-0.1368	0.00	-0.1379	0.00	-0.1196	0.00	-0.1180	0.00
LK_{ijt}^2	0.0367	0.00	0.0367	0.00	0.0043	0.71	0.0044	0.70	0.0084	0.29	0.0086	0.28
$LELK_{ijt}$	-0.0242	0.55	-0.0252	0.53	0.0890	0.01	0.0895	0.01	0.0659	0.01	0.0647	0.01
DS_{ijt}	-0.1599	0.12	-0.1575	0.12	0.1263	0.15	0.1286	0.14	0.0709	0.36	0.0749	0.34
DM_{ijt}	-0.3290	0.03	-0.3244	0.03	-0.3229	0.01	-0.3232	0.01	-0.3117	0.01	-0.3130	0.01
DJ_{ijt}	0.5639	0.01	0.5647	0.01	0.5684	0.00	0.5706	0.00	0.3912	0.03	0.3934	0.03
C_{jt}, H_{jt}	0.2702	0.40	0.4541	0.16	0.0201	0.95	0.4788	0.41	-0.1457	0.45	0.2138	0.42
Constant	-0.2109	0.26	-0.1554	0.29	0.0372	0.84	-0.0377	0.79	-0.0132	0.92	-0.1098	0.31
Obs., Eq.	1,624	1	1,624	2	2,248	1	2,248	2	3,872	1	3,872	2
Groups	799	-	799	-	1,172	-	1,172	-	1,434	-	1,434	-
R ² -within	0.419	-	0.420	-	0.252	-	0.252	-	0.294	-	0.294	-
R ² -between	0.679	-	0.679	-	0.670	-	0.670	-	0.651	-	0.651	-
R ² -overall	0.678	-	0.678	-	0.684	-	0.684	-	0.674	-	0.674	-
T,CD	23.99	0.00	23.63	0.00	18.82	0.00	18.99	0.00	34.38	0.00	33.90	0.00
T, $DS=DM$	1.18	0.28	1.15	0.28	12.45	0.00	12.68	0.00	10.52	0.00	10.85	0.00
T, $DS=DJ$	11.81	0.00	11.76	0.00	5.87	0.02	5.88	0.02	2.83	0.09	2.80	0.09
T, $DM=DJ$	15.80	0.00	15.63	0.00	26.25	0.00	26.48	0.00	12.33	0.00	12.50	0.00
Machinery (general [VSIC 29], office and computing [30], electrical [31], radio, television & communication [32], precision [33]), estimates with lagged labor, capital, and concentration												
LE_{ijt-1}	0.6402	0.00	0.6417	0.00	0.5681	0.00	0.5679	0.00	0.6024	0.00	0.6022	0.00
LK_{ijt-1}	0.3031	0.00	0.3023	0.00	0.2871	0.00	0.2872	0.00	0.2481	0.00	0.2482	0.00
LE_{ijt-1}^2	0.0012	0.98	-0.0005	0.99	0.0412	0.23	0.0412	0.23	0.0301	0.24	0.0301	0.24
LK_{ijt-1}^2	0.0110	0.33	0.0106	0.35	0.0385	0.01	0.0384	0.01	0.0191	0.03	0.0191	0.03
$LELK_{ijt-1}$	0.0036	0.92	0.0049	0.89	-0.0488	0.22	-0.0486	0.22	-0.0146	0.60	-0.0147	0.60
DS_{ijt}	-0.0943	0.40	-0.0926	0.41	0.2198	0.04	0.2200	0.04	0.1391	0.14	0.1386	0.14
DM_{ijt}	-0.0089	0.95	-0.0057	0.97	0.2288	0.04	0.2277	0.04	0.2190	0.03	0.2182	0.04
DJ_{ijt}	0.6935	0.00	0.6937	0.00	0.8014	0.00	0.7996	0.00	0.7338	0.00	0.7332	0.00
C_{jt-1}, H_{jt-1}	0.2305	0.20	0.3099	0.19	-0.0647	0.66	-0.0575	0.84	-0.0343	0.77	-0.0442	0.78
Constant	-0.0182	0.91	0.0515	0.73	-0.0700	0.54	-0.0895	0.38	0.0325	0.77	0.0226	0.82
Obs., Eq.	1,105	1	1,105	2	1,543	1	1,543	2	2,648	1	2,648	2
Groups	529	-	529	-	702	-	702	-	843	-	843	-
R ² -within	0.426	-	0.426	-	0.164	-	0.164	-	0.299	-	0.299	-
R ² -between	0.689	-	0.689	-	0.716	-	0.716	-	0.695	-	0.695	-
R ² -overall	0.691	-	0.691	-	0.716	-	0.716	-	0.698	-	0.698	-
T,CD	4.67	0.20	4.15	0.21	13.42	0.00	13.42	0.00	16.77	0.00	16.78	0.00
T, $DS=DM$	0.27	0.60	0.28	0.59	0.00	0.95	0.00	0.95	0.43	0.51	0.42	0.51
T, $DS=DJ$	16.16	0.00	16.11	0.00	7.79	0.01	7.70	0.01	10.93	0.00	10.92	0.00
T, $DM=DJ$	11.66	0.00	11.54	0.00	9.80	0.00	9.76	0.00	9.06	0.00	9.06	0.00

Appendix Table A1 (continued)

Independent variable, statistic	2001-2003				2004-2006				2001-2006			
	C Equation		H Equation		C Equation		H Equation		C Equation		H Equation	
	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.
Transportation equipment (VSIC 34, 35), contemporaneous estimates												
LE_{ijt}	0.9969	0.00	0.9956	0.00	0.9838	0.00	0.9765	0.00	0.9821	0.00	0.9797	0.00
LK_{ijt}	0.3027	0.00	0.3045	0.00	0.2854	0.00	0.2882	0.00	0.2785	0.00	0.2809	0.00
LE_{ijt}^2	-0.0944	0.09	-0.0943	0.09	-0.1411	0.01	-0.1413	0.01	-0.1164	0.00	-0.1165	0.00
LK_{ijt}^2	0.0253	0.04	0.0256	0.04	0.0055	0.58	0.0066	0.52	0.0085	0.28	0.0093	0.25
$LE LK_{ijt}$	0.0142	0.75	0.0141	0.75	0.0773	0.08	0.0761	0.09	0.0476	0.13	0.0466	0.14
DS_{ijt}	-0.0591	0.67	-0.0591	0.67	0.2525	0.05	0.2520	0.05	0.0909	0.37	0.0914	0.36
DM_{ijt}	-0.3179	0.15	-0.3220	0.14	-0.1034	0.46	-0.1100	0.43	-0.1639	0.22	-0.1696	0.21
DJ_{ijt}	0.5608	0.01	0.5549	0.02	0.8520	0.00	0.8350	0.00	0.7017	0.00	0.6935	0.00
C_{jt}, H_{jt}	0.0701	0.86	-0.3038	0.84	-0.2373	0.75	-4.0678	0.04	-0.1239	0.75	-2.2839	0.08
Constant	0.4758	0.12	0.5543	0.04	0.3287	0.44	0.6640	0.02	0.3802	0.16	0.6080	0.01
Obs., Eq.	1,206	1	1,206	2	1,531	1	1,531	2	2,737	1	2,737	2
Groups	588	-	588	-	781	-	781	-	977	-	977	-
R ² -within	0.383	-	0.382	-	0.252	-	0.255	-	0.300	-	0.300	-
R ² -between	0.720	-	0.720	-	0.745	-	0.746	-	0.723	-	0.724	-
R ² -overall	0.723	-	0.723	-	0.757	-	0.758	-	0.737	-	0.737	-
T,CD	17.82	0.00	17.98	0.00	12.97	0.00	14.12	0.00	16.78	0.00	17.77	0.00
T, $DS=DM$	1.26	0.26	1.29	0.26	4.86	0.03	5.00	0.03	2.92	0.09	3.10	0.08
T, $DS=DJ$	7.28	0.01	7.18	0.01	10.11	0.00	9.31	0.00	11.44	0.00	11.08	0.00
T, $DM=DJ$	11.79	0.00	11.77	0.00	25.58	0.00	23.85	0.00	20.73	0.00	20.39	0.00
Transportation equipment (VSIC 34, 35), estimates with lagged labor, capital, and concentration												
LE_{ijt-1}	0.7679	0.00	0.7690	0.00	0.6783	0.00	0.6740	0.00	0.7016	0.00	0.7022	0.00
LK_{ijt-1}	0.2447	0.00	0.2408	0.00	0.3806	0.00	0.3837	0.00	0.2809	0.00	0.2779	0.00
LE_{ijt-1}^2	0.0639	0.21	0.0628	0.22	0.0636	0.11	0.0620	0.12	0.0379	0.24	0.0384	0.23
LK_{ijt-1}^2	0.0342	0.01	0.0328	0.02	0.0440	0.00	0.0447	0.00	0.0372	0.00	0.0366	0.00
$LE LK_{ijt-1}$	-0.0579	0.21	-0.0553	0.23	-0.0956	0.00	-0.0953	0.00	-0.0607	0.02	-0.0600	0.02
DS_{ijt}	0.1136	0.51	0.1141	0.51	0.2749	0.07	0.2759	0.07	0.1705	0.18	0.1700	0.18
DM_{ijt}	0.2671	0.25	0.2775	0.23	0.3813	0.05	0.3773	0.06	0.4221	0.01	0.4268	0.01
DJ_{ijt}	1.1610	0.00	1.1691	0.00	0.9117	0.00	0.9014	0.00	1.0229	0.00	1.0215	0.00
C_{jt-1}, H_{jt-1}	0.2534	0.49	1.4113	0.19	-1.6105	0.00	-5.3490	0.01	0.0892	0.77	1.1106	0.26
Constant	0.4076	0.18	0.3616	0.18	1.2367	0.00	0.9436	0.00	0.4034	0.09	0.3067	0.14
Obs., Eq.	802	1	802	2	1,091	1	1,091	2	1,893	1	1,893	2
Groups	389	-	389	-	485	-	485	-	586	-	586	-
R ² -within	0.241	-	0.245	-	0.083	-	0.082	-	0.138	-	0.139	-
R ² -between	0.717	-	0.716	-	0.785	-	0.785	-	0.752	-	0.752	-
R ² -overall	0.715	-	0.715	-	0.774	-	0.774	-	0.745	-	0.745	-
T,CD	7.41	0.06	6.94	0.07	19.06	0.00	19.51	0.00	24.33	0.00	23.53	0.00
T, $DS=DM$	0.43	0.51	0.48	0.49	0.32	0.57	0.28	0.00	2.01	0.16	2.10	0.15
T, $DS=DJ$	12.37	0.00	12.60	0.00	6.74	0.01	6.41	0.01	15.82	0.00	15.82	0.00
T, $DM=DJ$	9.65	0.00	9.61	0.00	4.18	0.04	3.98	0.05	7.14	0.01	0.01	7.05

Note: T,CD is a Wald test for Cobb-Douglas technology (i.e., a test that coefficients on LE , LK , and $LELK$ are all 0); T, $D_ = D_ =$ are Wald tests that coefficients on the ownership dummies specified are equal. Full results including coefficients on year and industry dummies are available from the authors.

Appendix Table A2: Details for Fixed Effects Estimates of the Effects of SOE Presence, MNC Presence, and Concentration on Local Firm Productivity (excluding year dummies, robust standard errors)

Independent variable, statistic	2001-2003				2004-2006				2001-2006			
	C Equation		H Equation		C Equation		H Equation		C Equation		H Equation	
	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.
Manufacturing less other manufacturing, contemporaneous estimates												
LE_{ijt}	0.4971	0.00	0.4970	0.00	0.4530	0.00	0.4526	0.00	0.5690	0.00	0.5689	0.00
LK_{ijt}	0.1899	0.00	0.1916	0.00	0.1456	0.00	0.1453	0.00	0.1670	0.00	0.1670	0.00
LE_{ijt}^2	-0.0522	0.01	-0.0529	0.01	-0.0145	0.25	-0.0143	0.25	-0.0268	0.01	-0.0268	0.01
LK_{ijt}^2	0.0187	0.01	0.0187	0.01	0.0057	0.15	0.0056	0.15	0.0073	0.02	0.0073	0.02
$LELK_{ijt}$	-0.0118	0.50	-0.0116	0.51	-0.0112	0.30	-0.0112	0.30	-0.0003	0.97	-0.0003	0.97
SS_{ijt}	-0.3481	0.11	-0.2467	0.25	0.2012	0.04	0.1794	0.05	0.0491	0.56	0.0389	0.63
SM_{ijt}	-0.8211	0.00	-0.7317	0.00	0.0223	0.83	0.0391	0.71	-0.2697	0.00	-0.2895	0.00
SJ_{ijt}	-0.6566	0.13	-0.4410	0.29	-0.5298	0.07	-0.5184	0.07	-0.4809	0.04	-0.5276	0.02
C_{jt}, H_{jt}	0.6031	0.00	1.4821	0.00	-0.1790	0.07	-0.6429	0.02	-0.0325	0.67	0.0982	0.61
Constant	-0.2348	0.03	-0.1873	0.09	-0.1239	0.01	-0.1440	0.00	-0.2835	0.00	-0.2890	0.00
Obs., Eq.	14,695	3	14,695	4	24,178	3	24,178	4	38,873	3	38,873	4
Groups	7,716	-	7,716	-	12,715	-	12,715	-	15,279	-	15,279	-
R ² -within	0.411	-	0.411	-	0.163	-	0.163	-	0.257	-	0.257	-
R ² -between	0.426	-	0.424	-	0.486	-	0.485	-	0.455	-	0.455	-
R ² -overall	0.464	-	0.463	-	0.508	-	0.508	-	0.490	-	0.491	-
T,CD	5.66	0.00	5.75	0.00	1.76	0.15	1.73	0.16	4.72	0.00	4.71	0.00
T,DS=DM	4.80	0.03	5.05	0.02	2.81	0.09	1.76	0.19	12.72	0.00	13.35	0.00
T,DS=DJ	0.49	0.48	0.20	0.65	6.58	0.01	5.96	0.01	5.11	0.02	5.92	0.02
T,DM=DJ	0.14	0.70	0.46	0.50	4.04	0.04	4.18	0.04	0.88	0.35	1.14	0.28
Manufacturing less other manufacturing, estimates with lagged labor, capital, & concentration												
LE_{ijt-1}	0.1454	0.00	0.1465	0.00	0.1243	0.00	0.1237	0.00	0.2500	0.00	0.2494	0.00
LK_{ijt-1}	0.0736	0.00	0.0748	0.00	0.0911	0.00	0.0911	0.00	0.1075	0.00	0.1074	0.00
LE_{ijt-1}^2	0.0177	0.36	0.0171	0.38	0.0402	0.00	0.0404	0.00	0.0238	0.01	0.0241	0.01
LK_{ijt-1}^2	0.0119	0.05	0.0120	0.05	0.0141	0.00	0.0140	0.00	0.0142	0.00	0.0142	0.00
$LELK_{ijt-1}$	0.0058	0.71	0.0066	0.68	-0.0245	0.01	-0.0246	0.01	-0.0022	0.77	-0.0022	0.77
SS_{ijt-1}	-0.4347	0.02	-0.3386	0.07	0.2278	0.04	0.1715	0.10	0.0967	0.29	0.0506	0.56
SM_{ijt-1}	-1.3518	0.00	-1.2488	0.00	0.1038	0.46	0.0302	0.83	-0.2397	0.03	-0.3239	0.00
SJ_{ijt-1}	-1.9430	0.00	-1.7875	0.00	-0.4377	0.18	-0.5944	0.06	-0.5293	0.04	-0.6990	0.01
C_{jt-1}, H_{jt-1}	0.5023	0.00	1.2975	0.00	-0.2259	0.07	0.0024	0.99	-0.1305	0.13	0.2659	0.17
Constant	0.3454	0.00	0.3743	0.00	0.0708	0.21	0.0572	0.31	0.1016	0.07	0.0898	0.11
Obs., Eq.	8,956	3	8,956	4	15,654	3	15,654	4	24,610	3	24,610	4
Groups	4,671	-	4,671	-	7,240	-	7,240	-	8,457	-	8,457	-
R ² -within	0.334	-	0.335	-	0.051	-	0.051	-	0.189	-	0.189	-
R ² -between	0.316	-	0.319	-	0.521	-	0.530	-	0.495	-	0.500	-
R ² -overall	0.308	-	0.311	-	0.506	-	0.514	-	0.475	-	0.479	-
T,CD	2.37	0.07	2.44	0.06	8.50	0.00	8.50	0.00	11.82	0.00	11.83	0.00
T,DS=DM	19.52	0.00	19.19	0.00	0.87	0.35	1.10	0.29	10.56	0.00	13.21	0.00
T,DS=DJ	9.58	0.00	9.15	0.00	4.47	0.03	5.99	0.01	6.31	0.01	9.25	0.00
T,DM=DJ	1.66	0.20	1.42	0.23	3.52	0.06	4.82	0.03	1.46	0.23	2.52	0.11

Appendix Table A2 (continued)

Independent variable, statistic	2001-2003				2004-2006				2001-2006			
	C Equation		H Equation		C Equation		H Equation		C Equation		H Equation	
	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.
Highly concentrated industries, contemporaneous estimates												
LE_{ijt}	0.7295	0.00	0.7108	0.00	0.4762	0.00	0.4720	0.00	0.6320	0.00	0.6325	0.00
LK_{ijt}	0.1238	0.04	0.1253	0.05	0.1040	0.01	0.1038	0.01	0.0853	0.01	0.0858	0.00
LE_{ijt}^2	-0.0530	0.55	-0.0647	0.50	-0.0956	0.07	-0.0959	0.07	-0.0598	0.16	-0.0581	0.00
LK_{ijt}^2	0.0072	0.61	0.0082	0.57	0.0073	0.51	0.0075	0.50	-0.0093	0.26	-0.0087	0.00
$LE LK_{ijt}$	-0.0267	0.67	-0.0263	0.69	0.0513	0.15	0.0518	0.14	0.0330	0.25	0.0290	0.00
SS_{ijt}	0.2427	0.74	-0.8813	0.14	-0.3868	0.43	-0.3015	0.55	0.5968	0.08	0.2628	0.00
SM_{ijt}	0.0568	0.94	-0.9795	0.17	-0.5365	0.10	-0.4925	0.12	-0.4015	0.10	-0.5399	0.00
SJ_{ijt}	0.4396	0.71	-1.0167	0.36	-1.3343	0.00	-1.2647	0.01	-0.4404	0.32	-0.8048	0.00
C_{jt}, H_{jt}	-1.7538	0.00	-0.0518	0.91	-0.1220	0.75	-0.7893	0.49	-0.8248	0.01	-0.1898	0.00
Constant	0.3724	0.41	0.3278	0.47	0.2460	0.39	0.2123	0.39	-0.0622	0.78	-0.2537	0.00
Obs., Eq.	1,208	3	1,208	4	1,995	3	1,995	4	3,203	3	3,203	4
Groups	684	-	684	-	1,136	-	1,136	-	1,404	-	1,404	-
R ² -within	0.507	-	0.494	-	0.192	-	0.193	-	0.297	-	0.293	-
R ² -between	0.384	-	0.425	-	0.491	-	0.483	-	0.352	-	0.396	-
R ² -overall	0.422	-	0.460	-	0.498	-	0.490	-	0.379	-	0.418	-
T,CD	0.43	0.73	0.54	0.66	2.40	0.07	2.46	0.06	0.97	0.40	0.92	0.43
T,DS=DM	0.09	0.77	0.03	0.87	0.09	0.76	0.16	0.69	6.29	0.00	6.29	0.01
T,DS=DJ	0.03	0.86	0.01	0.91	3.78	0.05	3.80	0.05	5.79	0.02	5.79	0.02
T,DM=DJ	0.12	0.73	0.00	0.97	3.37	0.07	3.46	0.06	0.39	0.93	0.39	0.53
Highly concentrated industries, lagged estimates												
LE_{ijt-1}	0.3167	0.01	0.3074	0.01	0.0942	0.17	0.0886	0.20	0.2231	0.00	0.2119	0.00
LK_{ijt-1}	-0.0473	0.48	-0.0483	0.47	0.0814	0.05	0.0792	0.05	0.0248	0.46	0.0249	0.47
LE_{ijt-1}^2	-0.0146	0.87	-0.0164	0.86	0.0510	0.28	0.0508	0.29	0.0866	0.05	0.0845	0.04
LK_{ijt-1}^2	0.0215	0.17	0.0213	0.17	0.0124	0.27	0.0122	0.27	0.0148	0.10	0.0144	0.11
$LE LK_{ijt-1}$	0.0106	0.85	0.0116	0.84	-0.0012	0.98	-0.0040	0.93	-0.0469	0.17	-0.0454	0.16
SS_{ijt-1}	-1.0102	0.16	-1.1845	0.08	1.8153	0.00	1.8834	0.00	0.8800	0.02	0.6847	0.06
SM_{ijt-1}	-2.1393	0.04	-2.2205	0.04	0.0671	0.87	0.0706	0.87	-0.4118	0.21	-0.5811	0.06
SJ_{ijt-1}	-2.0126	0.09	-2.2167	0.07	0.2046	0.73	0.1859	0.76	-0.4042	0.47	-0.7051	0.16
C_{jt-1}, H_{jt-1}	-0.3816	0.48	0.0900	0.83	-1.6141	0.00	-2.7051	0.08	-0.5261	0.17	0.4276	0.30
Constant	1.2471	0.03	1.1396	0.05	0.0608	0.83	-0.5399	0.04	-0.0844	0.78	-0.2976	0.31
Obs., Eq.	649	3	649	4	1,194	3	1,194	4	1,843	3	1,843	4
Groups	359	-	359	-	588	-	588	-	702	-	702	-
R ² -within	0.446	-	0.445	-	0.135	-	0.124	-	0.250	-	0.249	-
R ² -between	0.093	-	0.105	-	0.074	-	0.068	-	0.140	-	0.172	-
R ² -overall	0.108	-	0.122	-	0.084	-	0.077	-	0.137	-	0.163	-
T,CD	1.07	0.36	1.08	0.36	1.56	0.20	1.40	0.24	1.87	0.13	1.96	0.12
T,DS=DM	1.24	0.27	1.05	0.31	9.65	0.00	9.49	0.00	13.04	0.00	12.50	0.00
T,DS=DJ	0.74	0.39	0.75	0.39	7.25	0.01	7.73	0.01	6.53	0.01	7.59	0.01
T,DM=DJ	0.05	0.82	0.00	0.99	0.09	0.77	0.06	0.80	0.00	0.99	0.09	0.76

Appendix Table A2 (continued)

Independent variable, statistic	2001-2003				2004-2006				2001-2006			
	C Equation		H Equation		C Equation		H Equation		C Equation		H Equation	
	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.	Value	P-val.
Lowly concentrated industries, contemporaneous estimates												
LE_{ijt}	0.4860	0.00	0.4861	0.00	0.4458	0.00	0.4457	0.00	0.5587	0.00	0.5586	0.00
LK_{ijt}	0.1958	0.00	0.1977	0.00	0.1420	0.00	0.1420	0.00	0.1713	0.00	0.1712	0.00
LE_{ijt}^2	-0.0667	0.00	-0.0676	0.00	-0.0104	0.44	-0.0103	0.45	-0.0236	0.03	-0.0235	0.03
LK_{ijt}^2	0.0175	0.06	0.0177	0.06	0.0036	0.41	0.0036	0.41	0.0072	0.04	0.0071	0.04
$LE LK_{ijt}$	0.0033	0.87	0.0039	0.84	-0.0110	0.33	-0.0110	0.33	0.0018	0.84	0.0019	0.83
SS_{ijt}	0.9788	0.01	0.9934	0.01	0.4508	0.00	0.4500	0.00	0.1285	0.29	0.1138	0.35
SM_{ijt}	-0.4310	0.22	-0.3465	0.33	-0.0743	0.60	-0.0722	0.62	-0.4308	0.00	-0.4564	0.00
SJ_{ijt}	0.6263	0.45	1.1620	0.15	0.0895	0.92	0.1074	0.90	-0.3132	0.53	-0.4123	0.41
C_{jt}, H_{jt}	1.1115	0.00	2.7328	0.00	-0.1302	0.47	-0.7776	0.61	0.0304	0.81	0.7179	0.09
Constant	-0.9235	0.00	-0.7775	0.00	-0.1961	0.01	-0.2074	0.00	-0.3307	0.00	-0.3375	0.00
Obs., Eq.	11,608	3	11,608	4	19,526	3	19,526	4	31,134	3	31,134	4
Groups	6,177	-	6,177	-	10,461	-	10,461	-	12,549	-	12,549	-
R ² -within	0.408	-	0.408	-	0.162	-	0.162	-	0.258	-	0.259	-
R ² -between	0.406	-	0.402	-	0.487	-	0.487	-	0.456	-	0.456	-
R ² -overall	0.444	-	0.441	-	0.511	-	0.511	-	0.493	-	0.493	-
T,CD	5.08	0.00	5.19	0.00	0.92	0.43	0.91	0.44	3.11	0.03	3.07	0.03
T, $DS=DM$	17.41	0.00	15.65	0.00	8.67	0.43	8.53	0.00	15.76	0.00	16.34	0.00
T, $DS=DJ$	0.19	0.66	0.05	0.83	0.02	0.68	0.16	0.69	0.79	0.37	1.13	0.29
T, $DM=DJ$	1.65	0.20	3.45	0.06	0.04	0.84	0.05	0.83	0.06	0.81	0.01	0.93
Lowly concentrated industries, lagged estimates												
LE_{ijt-1}	0.1423	0.00	0.1428	0.00	0.1247	0.00	0.1244	0.00	0.2457	0.00	0.2455	0.00
LK_{ijt-1}	0.0944	0.00	0.0959	0.00	0.0984	0.00	0.0987	0.00	0.1166	0.00	0.1164	0.00
LE_{ijt-1}^2	0.0076	0.73	0.0072	0.74	0.0404	0.00	0.0406	0.00	0.0218	0.04	0.0222	0.03
LK_{ijt-1}^2	0.0090	0.22	0.0093	0.20	0.0145	0.00	0.0145	0.00	0.0157	0.00	0.0156	0.00
$LE LK_{ijt-1}$	0.0125	0.49	0.0129	0.48	-0.0274	0.01	-0.0274	0.01	-0.0010	0.91	-0.0010	0.91
SS_{ijt-1}	-0.3624	0.23	-0.2772	0.36	0.2240	0.12	0.2472	0.11	0.0019	0.99	-0.0220	0.87
SM_{ijt-1}	-1.4284	0.00	-1.3483	0.00	0.2902	0.17	0.2972	0.16	-0.2211	0.16	-0.2847	0.07
SJ_{ijt-1}	-5.8651	0.00	-5.6223	0.00	-0.8434	0.34	-0.8114	0.36	-2.2444	0.00	-2.4550	0.00
C_{jt-1}, H_{jt-1}	0.7383	0.00	2.1934	0.00	-0.6440	0.01	-5.1562	0.05	-0.2314	0.04	0.0218	0.94
Constant	0.4444	0.01	0.5100	0.00	0.1389	0.11	0.0983	0.24	0.2282	0.00	0.1954	0.01
Obs., Eq.	6,956	3	6,956	4	12,342	3	0	4	19,298	3	19,298	4
Groups	3,666	-	3,666	-	5,775	-	0	-	6,757	-	6,757	-
R ² -within	0.334	-	0.335	-	0.051	-	0.051	-	0.190	-	0.189	-
R ² -between	0.302	-	0.306	-	0.521	-	0.518	-	0.502	-	0.504	-
R ² -overall	0.298	-	0.303	-	0.505	-	0.502	-	0.481	-	0.483	-
T,CD	1.14	0.33	1.20	0.31	6.43	0.00	6.44	0.00	11.79	0.00	11.72	0.00
T, $DS=DM$	11.89	0.00	11.86	0.00	0.09	0.76	0.05	0.82	1.86	0.17	2.57	0.11
T, $DS=DJ$	40.37	0.00	38.48	0.00	1.55	0.21	1.52	0.22	19.79	0.00	23.60	0.00
T, $DM=DJ$	25.98	0.00	24.25	0.00	1.91	0.17	1.83	0.18	15.73	0.00	18.36	0.00

Note: T,CD is a Wald test for Cobb-Douglas technology (i.e., a test that coefficients on LE , LK , and $LELK$ are all 0); T, $D_ = D_$ are Wald tests that coefficients on the ownership dummies specified are equal. Full results including coefficients on year and industry dummies are available from the authors.

Appendix Table B1a: Sales of All Firms, SOEs, and MNCs with 20 or More Employees and Positive Sales, Value Added and Fixed Assets by Industry Group (trillion dong)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	702.0	792.9	996.3	1,056.3	1,368.5	1,569.0	1,894.8	2,167.7	1,877.5
Manufacturing	235.3	288.3	346.3	415.9	563.5	671.4	824.7	952.7	625.8
Food, beverages	63.1	71.5	86.9	93.8	127.0	152.8	177.0	213.0	120.6
Textiles, apparel, leather, footwear	38.4	43.2	52.6	62.9	83.9	100.8	140.5	132.2	76.9
Wood, furniture, paper	13.2	15.2	22.6	25.4	38.1	51.9	61.9	67.3	34.4
Chemicals, rubber, plastics	26.7	31.9	39.0	49.1	70.4	81.9	100.5	116.7	88.3
Metals, non-metallic mineral prod.	33.6	52.9	55.8	69.6	92.7	109.8	137.1	166.6	129.6
Machinery	28.4	32.2	36.7	48.7	64.0	77.4	101.3	124.2	97.1
Transportation equipment	19.3	26.5	35.2	46.4	62.4	67.3	73.4	97.3	50.4
Other manufacturing	12.5	15.0	17.6	19.9	25.2	29.4	32.9	35.4	28.5
Non-manufacturing	466.7	504.5	649.9	640.4	805.0	897.7	1,070.1	1,214.9	1,251.7
SOEs, all industries	439.5	456.9	563.1	541.6	603.9	592.9	644.9	711.6	643.8
Manufacturing	93.7	98.1	113.1	127.8	150.3	153.7	161.5	162.2	116.2
Food, beverages	28.9	27.5	33.6	33.6	36.1	33.0	32.6	32.5	21.2
Textiles, apparel, leather, footwear	14.0	14.3	16.2	17.5	19.7	18.5	18.8	16.9	13.6
Wood, furniture, paper	6.0	4.8	5.2	5.5	6.0	9.1	7.4	7.2	2.7
Chemicals, rubber, plastics	11.5	11.3	11.7	14.5	19.5	20.8	23.2	26.3	21.7
Metals, non-metallic mineral prod.	15.2	17.7	21.1	27.6	32.9	32.6	37.4	35.4	18.5
Machinery	5.5	6.7	7.2	8.1	9.2	9.5	12.7	12.6	10.9
Transportation equipment	3.8	4.9	6.0	7.5	11.3	12.8	12.0	14.5	10.3
Other manufacturing	8.8	10.8	11.9	13.5	15.6	17.4	17.5	16.9	17.3
Non-manufacturing	345.7	358.8	450.0	413.8	453.6	439.2	483.4	549.4	527.6
Wholly-foreign MNCs	58.7	72.0	93.4	115.0	178.3	228.2	317.6	373.7	228.9
Manufacturing	53.2	62.2	82.3	106.2	159.7	200.3	273.6	320.3	173.1
Food, beverages	9.6	11.7	11.8	14.5	25.1	30.8	36.4	51.9	25.2
Textiles, apparel, leather, footwear	15.9	17.0	22.3	31.0	41.1	54.2	85.2	75.1	31.5
Wood, furniture, paper	1.6	2.8	6.5	6.6	11.6	16.1	21.8	27.4	9.7
Chemicals, rubber, plastics	4.7	6.2	8.3	11.6	17.7	20.1	30.0	34.7	18.8
Metals, non-metallic mineral prod.	2.7	3.6	6.0	7.5	11.3	16.2	21.7	29.8	19.5
Machinery	14.5	14.0	16.0	23.4	32.8	42.9	55.6	71.5	52.1
Transportation equipment	2.5	5.1	8.4	9.2	15.3	14.3	15.1	21.1	12.0
Other manufacturing	1.6	1.8	3.0	2.5	4.7	5.7	7.8	8.9	4.4
Non-manufacturing	5.5	9.8	11.0	8.8	18.7	27.9	43.9	53.3	55.8
MNC Joint Ventures	100.0	105.7	124.1	133.4	187.3	208.6	243.3	273.6	143.5
Manufacturing	47.7	54.4	67.3	77.9	95.0	107.2	125.7	154.9	92.9
Food, beverages	9.3	9.3	11.7	11.1	13.6	16.6	19.3	25.9	15.4
Textiles, apparel, leather, footwear	2.4	3.1	3.5	2.7	5.3	6.1	7.0	7.9	4.6
Wood, furniture, paper	0.9	0.8	1.0	1.2	2.1	2.4	2.7	2.5	1.4
Chemicals, rubber, plastics	5.6	6.6	8.7	10.9	13.5	15.6	17.5	18.4	11.6
Metals, Non-metallic mineral prod.	10.5	12.3	14.2	14.2	17.4	18.7	23.1	28.2	24.8
Machinery	6.7	8.2	8.9	10.2	12.4	13.5	15.9	18.1	14.5
Transportation equipment	11.2	13.0	18.3	26.3	29.6	32.3	37.1	49.8	17.9
Other manufacturing	1.0	1.0	1.1	1.3	1.2	2.1	3.1	4.1	2.6
Non-manufacturing	52.3	51.4	56.8	55.5	92.3	101.4	117.6	118.7	50.6

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table B1b: Sales of All Firms, SOEs, and MNCs with Positive Sales, Employment, Value Added, and Fixed Assets by Industry Group (trillion dong)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	781.7	889.6	1,111.3	1,186.3	1,549.4	1,794.0	2,263.1	2,448.1	2,297.2
Manufacturing	244.4	297.8	358.4	427.5	581.0	692.3	851.6	977.3	655.0
Food, beverages	69.8	77.9	93.9	99.4	134.6	161.7	186.8	224.4	128.3
Textiles, apparel, leather, footwear	38.7	43.4	53.4	63.6	84.8	101.9	142.3	133.5	78.7
Wood, furniture, paper	13.7	15.9	23.6	27.0	40.1	54.3	65.1	69.7	38.3
Chemicals, rubber, plastics	27.2	32.6	40.1	50.3	72.3	84.7	104.2	119.8	92.9
Metals, non-metallic mineral prod.	34.2	53.6	56.9	71.2	95.5	113.2	142.1	170.6	136.8
Machinery	28.5	32.4	37.1	49.1	64.8	78.3	102.6	125.0	98.5
Transportation equipment	19.5	26.6	35.5	46.7	62.8	67.9	73.8	97.7	50.8
Other manufacturing	12.6	15.3	18.0	20.4	26.0	30.4	34.7	36.6	30.6
Non-manufacturing	537.4	591.8	752.9	758.8	968.4	1,101.6	1,411.5	1,470.7	1,642.2
SOEs, all industries	440.3	458.4	564.5	542.5	604.5	593.5	646.0	712.5	644.4
Manufacturing	93.8	98.1	113.2	128.0	150.3	153.8	161.5	162.2	116.2
Food, beverages	28.9	27.5	33.6	33.6	36.1	33.0	32.6	32.5	21.2
Textiles, apparel, leather, footwear	14.0	14.3	16.3	17.6	19.7	18.5	18.8	16.9	13.6
Wood, furniture, paper	6.0	4.8	5.2	5.5	6.0	9.1	7.4	7.2	2.7
Chemicals, rubber, plastics	11.5	11.3	11.7	14.5	19.5	20.8	23.2	26.3	21.7
Metals, non-metallic mineral prod.	15.2	17.7	21.1	27.6	32.9	32.6	37.5	35.4	18.5
Machinery	5.5	6.7	7.2	8.1	9.2	9.5	12.7	12.6	10.9
Transportation equipment	3.8	4.9	6.0	7.5	11.3	12.8	12.0	14.5	10.3
Other manufacturing	8.8	10.8	11.9	13.5	15.6	17.4	17.5	16.9	17.3
Non-manufacturing	346.6	360.3	451.3	414.6	454.2	439.7	484.4	550.2	528.1
Wholly-foreign MNCs	59.1	72.5	94.2	116.3	180.0	229.9	320.4	375.6	232.0
Manufacturing	53.4	62.5	82.8	107.2	160.7	201.1	274.9	321.5	175.1
Food, beverages	9.6	11.7	11.9	14.7	25.4	30.8	36.5	52.0	26.2
Textiles, apparel, leather, footwear	15.9	17.0	22.3	31.1	41.1	54.2	85.4	75.2	31.7
Wood, furniture, paper	1.6	2.8	6.5	6.8	11.6	16.2	22.0	27.4	9.8
Chemicals, rubber, plastics	4.8	6.3	8.4	11.8	17.9	20.5	30.4	35.2	19.1
Metals, non-metallic mineral prod.	2.7	3.6	6.1	7.6	11.4	16.4	22.0	30.1	19.6
Machinery	14.5	14.1	16.0	23.4	33.0	42.9	55.7	71.6	52.2
Transportation equipment	2.5	5.1	8.5	9.3	15.5	14.3	15.1	21.1	12.0
Other manufacturing	1.6	1.8	3.0	2.5	4.7	5.8	7.8	8.9	4.5
Non-manufacturing	5.7	10.0	11.4	9.1	19.3	28.7	45.5	54.2	56.9
MNC Joint Ventures	100.4	106.0	124.5	133.7	187.9	209.1	244.7	274.4	144.5
Manufacturing	47.7	54.5	67.4	78.0	95.3	107.4	125.8	155.0	93.0
Food, beverages	9.3	9.4	11.7	11.1	13.7	16.6	19.3	25.9	15.4
Textiles, apparel, leather, footwear	2.4	3.1	3.5	2.7	5.3	6.1	7.0	7.9	4.6
Wood, furniture, paper	0.9	0.8	1.1	1.2	2.1	2.4	2.7	2.5	1.4
Chemicals, rubber, plastics	5.7	6.7	8.7	10.9	13.5	15.7	17.5	18.4	11.6
Metals, Non-metallic mineral prod.	10.5	12.3	14.2	14.3	17.6	18.8	23.1	28.3	24.8
Machinery	6.7	8.3	8.9	10.3	12.4	13.5	15.9	18.1	14.5
Transportation equipment	11.2	13.0	18.3	26.3	29.6	32.3	37.1	49.8	18.0
Other manufacturing	1.0	1.0	1.1	1.3	1.2	2.1	3.1	4.1	2.6
Non-manufacturing	52.6	51.6	57.0	55.7	92.7	101.8	118.8	119.4	51.5

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table B1c: Sales of All Firms, SOEs and MNCs with Positive Sales and Employment by Industry Group (trillion dong)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All owners, all industries	808.7	933.5	1,152.0	1,405.3	1,617.0	2,019.9	2,394.9	3,157.2	5,083.1
-published estimates	810	936	1,212	1,457	1,751	2,221	2,743	3,567	5,315
Manufacturing	246.3	298.6	360.5	452.0	583.9	707.0	856.7	1,144.3	1,501.3
-published estimates	-	-	-	-	608	736	906	1,185	1,553
Food, beverages	70.2	78.4	94.5	106.5	135.1	164.7	187.3	264.3	357.7
Textiles, apparel, leather, footwear	39.0	43.5	53.9	68.9	85.4	104.2	142.9	152.2	183.7
Wood, furniture, paper	13.9	16.0	23.7	28.4	40.4	55.4	65.5	90.2	115.3
Chemicals, rubber, plastics	27.8	32.7	40.2	54.5	72.9	87.3	104.7	135.3	183.3
Metals, non-metallic mineral prod.	34.3	53.6	57.1	75.0	95.9	115.1	143.9	202.7	300.7
Machinery	28.6	32.5	37.5	50.3	65.0	79.6	103.1	142.1	170.7
Transportation equipment	19.9	26.6	35.6	47.3	62.8	69.6	74.4	113.8	136.9
Other manufacturing	12.7	15.3	18.0	21.1	26.2	31.1	35.0	43.7	53.1
Non-manufacturing	562.3	634.8	791.4	953.3	1,033.1	1,312.9	1,538.2	2,012.9	3,581.7
SOEs, all industries	445.0	478.5	572.6	645.3	618.5	716.5	699.2	823.6	1,265.5
-published estimates	445	482	621	679	726	859	993	1,128	1,349
Manufacturing	94.0	98.5	113.6	129.7	150.4	160.8	161.6	183.8	193.7
-published estimates	-	-	-	-	165	176	186	197	210
Food, beverages	28.9	27.8	34.0	33.8	36.2	33.3	32.6	34.9	30.4
Textiles, apparel, leather, footwear	14.1	14.3	16.3	17.8	19.7	20.0	18.8	19.1	17.5
Wood, furniture, paper	6.0	4.8	5.2	5.6	6.0	9.6	7.4	9.4	9.5
Chemicals, rubber, plastics	11.6	11.3	11.7	14.7	19.5	21.6	23.2	28.1	34.9
Metals, non-metallic mineral prod.	15.2	17.7	21.2	27.6	32.9	33.6	37.5	40.4	47.3
Machinery	5.5	6.7	7.2	8.6	9.2	10.6	12.7	14.1	13.6
Transportation equipment	3.8	4.9	6.0	7.5	11.3	14.4	12.1	17.2	18.3
Other manufacturing	8.8	10.9	11.9	13.9	15.6	17.8	17.5	20.5	22.2
Non-manufacturing	350.9	380.0	459.0	515.6	468.1	555.7	537.6	639.8	1,071.8
Wholly-foreign MNCs	59.4	72.6	94.3	126.2	180.4	232.3	323.3	415.0	580.7
-published estimates	59	73	98	131	189	241	338	444	603
Manufacturing	53.5	62.5	82.9	112.3	160.9	203.5	276.4	352.9	478.2
-published estimates	-	-	-	-	166	210	283	359	480
Food, beverages	9.7	11.7	11.9	17.1	25.4	32.6	36.5	55.0	88.4
Textiles, apparel, leather, footwear	15.9	17.0	22.3	31.8	41.2	54.4	85.4	81.2	103.1
Wood, furniture, paper	1.6	2.8	6.5	6.9	11.6	16.2	22.0	30.3	38.2
Chemicals, rubber, plastics	4.9	6.3	8.5	12.8	18.0	20.8	30.4	39.1	59.6
Metals, non-metallic mineral prod.	2.7	3.6	6.1	8.1	11.4	16.5	23.2	33.0	44.3
Machinery	14.5	14.1	16.0	23.7	33.0	42.9	55.9	79.4	102.0
Transportation equipment	2.5	5.1	8.5	9.4	15.5	14.3	15.1	24.6	30.2
Other manufacturing	1.6	1.8	3.0	2.5	4.8	5.8	7.9	10.3	12.3
Non-manufacturing	5.9	10.1	11.4	13.9	19.5	28.8	46.9	62.1	102.5
MNC Joint Ventures	101.2	106.4	124.9	158.1	188.0	229.5	265.0	303.5	376.0
-published estimates	103	107	128	162	193	261	269	315	390
Manufacturing	48.3	54.5	67.5	83.5	95.3	107.5	125.9	164.9	193.5
-published estimates	-	-	-	-	97	109	127	165	193
Food, beverages	9.3	9.4	11.7	12.6	13.7	16.7	19.4	27.3	30.7
Textiles, apparel, leather, footwear	2.4	3.1	3.5	4.6	5.3	6.1	7.0	9.0	9.5
Wood, furniture, paper	0.9	0.8	1.1	1.5	2.1	2.4	2.7	3.0	3.1
Chemicals, rubber, plastics	5.8	6.7	8.7	11.1	13.5	15.7	17.5	19.2	20.4
Metals, Non-metallic mineral prod.	10.5	12.3	14.2	15.8	17.6	18.8	23.1	30.2	39.4
Machinery	6.7	8.3	8.9	10.3	12.4	13.5	15.9	18.6	20.8
Transportation equipment	11.6	13.0	18.3	26.3	29.6	32.3	37.1	53.4	64.0
Other manufacturing	1.0	1.0	1.1	1.3	1.2	2.1	3.1	4.2	5.7
Non-manufacturing	52.9	51.9	57.4	74.6	92.7	122.0	139.1	138.6	182.6

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table B2a: Yearend Employment of All Firms, SOEs, and MNCs with 20 or More Employees and Positive Sales, Value Added and Fixed Assets by Industry Group (thousands)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	3,292	3,650	4,173	4,112	4,906	4,969	5,324	4,618	3,304
Manufacturing	1,535	1,737	2,096	2,300	2,713	2,852	3,131	2,798	1,643
Food, beverages	247	273	315	326	376	383	402	337	167
Textiles, apparel, leather, footwear	637	716	891	976	1,141	1,192	1,307	1,193	708
Wood, furniture, paper	134	160	204	243	301	353	398	314	135
Chemicals, rubber, plastics	112	121	140	147	178	181	202	191	136
Metals, non-metallic mineral prod.	198	224	262	291	339	349	367	324	203
Machinery	95	110	125	143	161	175	208	209	151
Transportation equipment	54	66	87	94	112	113	127	119	72
Other manufacturing	58	65	73	79	103	106	119	110	70
Non-manufacturing	1,757	1,913	2,077	1,812	2,194	2,117	2,193	1,820	1,661
SOEs, all industries	2,065	2,095	2,152	1,841	1,978	1,540	1,398	1,122	919
Manufacturing	713	691	729	732	704	555	474	362	251
Food, beverages	131	120	132	127	120	94	74	47	28
Textiles, apparel, leather, footwear	252	245	259	260	241	178	145	101	70
Wood, furniture, paper	38	34	36	33	31	38	30	24	10
Chemicals, rubber, plastics	61	55	54	55	61	42	41	38	29
Metals, non-metallic mineral prod.	124	120	128	136	130	103	81	67	41
Machinery	44	48	45	46	41	29	30	18	21
Transportation equipment	32	33	39	39	42	34	38	39	27
Other manufacturing	33	35	36	36	39	36	34	28	26
Non-manufacturing	1,352	1,404	1,423	1,109	1,274	985	924	760	668
Wholly-foreign MNCs	281	358	527	646	851	999	1,216	1,201	653
Manufacturing	271	344	507	631	822	964	1,171	1,159	609
Food, beverages	18	23	23	28	42	43	50	48	23
Textiles, apparel, leather, footwear	157	191	304	383	479	560	654	650	358
Wood, furniture, paper	19	28	41	55	77	96	124	118	31
Chemicals, rubber, plastics	15	19	25	29	40	47	67	64	36
Metals, non-metallic mineral prod.	12	16	25	28	39	46	56	53	32
Machinery	31	37	49	61	74	97	123	137	88
Transportation equipment	7	12	17	21	29	30	39	35	16
Other manufacturing	12	18	22	26	40	44	59	55	25
Non-manufacturing	10	14	20	16	30	35	45	41	43
MNC Joint Ventures	119	121	150	137	175	185	205	185	124
Manufacturing	80	86	111	105	131	137	151	136	81
Food, beverages	16	16	19	16	18	20	19	20	10
Textiles, apparel, leather, footwear	22	26	38	32	49	49	58	53	28
Wood, furniture, paper	5	4	7	8	10	10	11	8	4
Chemicals, rubber, plastics	8	9	11	9	10	10	10	8	6
Metals, Non-metallic mineral prod.	12	12	13	13	15	16	17	17	13
Machinery	8	7	7	8	10	11	11	11	8
Transportation equipment	8	9	13	16	17	20	23	17	12
Other manufacturing	1	1	2	2	2	2	2	2	1
Non-manufacturing	39	35	38	32	43	48	54	49	42

Source: Authors' compilations from General Statistics Office (various years b) and published estimates from General Statistics Office (various years a)

Appendix Table B2b: Yearend Employment of All Firms, SOEs, and MNCs with Positive Sales, Employment, Value Added, and Fixed Assets by Owner and Industry Group (thousands)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	3,457	3,850	4,423	4,372	5,262	5,388	5,933	4,971	3,776
Manufacturing	1,575	1,780	2,151	2,352	2,786	2,935	3,233	2,862	1,719
Food, beverages	265	291	334	344	397	406	427	354	181
Textiles, apparel, leather, footwear	640	719	894	979	1,147	1,198	1,316	1,198	715
Wood, furniture, paper	139	167	213	252	313	367	415	324	150
Chemicals, rubber, plastics	115	124	144	152	185	190	213	198	144
Metals, non-metallic mineral prod.	205	232	272	301	354	366	388	338	221
Machinery	96	112	128	146	165	180	214	213	156
Transportation equipment	55	68	89	96	115	116	130	121	74
Other manufacturing	60	67	77	83	109	113	130	116	78
Non-manufacturing	1,882	2,070	2,273	2,020	2,477	2,453	2,700	2,109	2,057
SOEs, all industries	2,071	2,099	2,155	1,842	1,980	1,543	1,403	1,123	920
Manufacturing	714	692	730	731	704	556	474	362	251
Food, beverages	131	121	132	127	120	94	74	47	28
Textiles, apparel, leather, footwear	252	245	259	260	241	178	145	101	70
Wood, furniture, paper	38	34	36	33	31	38	30	24	10
Chemicals, rubber, plastics	61	55	54	55	61	42	41	38	29
Metals, non-metallic mineral prod.	124	120	128	135	130	103	81	67	41
Machinery	44	48	45	46	41	29	30	18	21
Transportation equipment	32	33	39	39	42	34	39	39	27
Other manufacturing	33	35	36	36	39	36	34	28	26
Non-manufacturing	1,357	1,407	1,425	1,111	1,276	988	928	761	669
Wholly-foreign MNCs, all industries	282	360	529	648	854	1,003	1,221	1,203	656
Manufacturing	272	345	508	631	823	966	1,174	1,160	610
Food, beverages	18	23	23	28	42	43	50	48	23
Textiles, apparel, leather, footwear	157	191	304	383	480	560	655	649	358
Wood, furniture, paper	19	28	41	55	78	97	124	118	30
Chemicals, rubber, plastics	15	19	25	29	41	48	68	64	37
Metals, non-metallic mineral prod.	12	16	25	28	39	46	56	53	33
Machinery	31	37	50	61	74	97	124	138	88
Transportation equipment	7	12	17	21	29	30	39	35	16
Other manufacturing	12	18	22	26	41	45	59	55	25
Non-manufacturing	10	15	21	16	31	36	47	42	45
MNC Joint Ventures	120	122	151	137	176	186	206	186	125
Manufacturing	80	86	112	106	132	137	152	136	82
Food, beverages	16	16	19	16	18	20	19	20	10
Textiles, apparel, leather, footwear	22	26	38	32	50	49	58	53	28
Wood, furniture, paper	5	4	7	8	10	10	11	8	4
Chemicals, rubber, plastics	8	9	11	9	10	10	11	8	6
Metals, Non-metallic mineral prod.	12	12	13	13	15	16	17	17	13
Machinery	8	7	7	8	10	11	11	11	8
Transportation equipment	8	9	13	16	17	20	23	17	12
Other manufacturing	1	1	2	2	2	2	2	2	1
Non-manufacturing	40	36	39	32	44	49	55	50	43

Source: Authors' compilations from General Statistics Office (various years b) and published estimates from General Statistics Office (various years a)

Appendix Table B2c: Yearend Employment of All Firms, SOEs, and MNCs with Positive Sales and Employment by Industry Group (thousands)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	3,531	3,914	4,537	5,020	5,463	6,006	6,137	6,944	8,095
<i>-published estimates</i>	3,537	3,933	4,658	5,175	5,771	6,237	6,715	7,382	8,155
Manufacturing	1,596	1,791	2,171	2,500	2,824	3,041	3,274	3,696	3,922
<i>-published estimates</i>	-	-	-	-	2,893	3,099	3,402	3,774	3,943
Food, beverages	268	294	338	368	402	417	430	457	499
Textiles, apparel, leather, footwear	651	723	902	1,049	1,158	1,230	1,329	1,474	1,560
Wood, furniture, paper	141	168	214	263	320	377	421	476	481
Chemicals, rubber, plastics	116	125	146	165	189	199	216	250	271
Metals, non-metallic mineral prod.	206	233	275	316	360	383	396	459	499
Machinery	97	112	129	152	167	190	217	268	284
Transportation equipment	56	68	90	99	116	126	131	168	172
Other manufacturing	60	68	77	90	112	118	133	145	156
Non-manufacturing	1,935	2,123	2,367	2,520	2,639	2,966	2,863	3,248	4,173
SOEs, all industries	2,087	2,105	2,174	2,156	1,987	1,879	1,410	1,439	1,606
<i>-published estimates</i>	2,089	2,114	2,260	2,265	2,250	2,038	1,900	1,763	1,635
Manufacturing	717	693	732	742	705	607	475	470	409
<i>-published estimates</i>	-	-	-	-	757	636	552	482	414
Food, beverages	131	122	134	129	122	96	74	56	48
Textiles, apparel, leather, footwear	254	245	259	263	241	196	145	133	105
Wood, furniture, paper	38	34	36	34	31	40	30	32	25
Chemicals, rubber, plastics	61	55	54	56	61	47	41	44	39
Metals, non-metallic mineral prod.	124	120	128	137	130	111	81	88	81
Machinery	44	48	45	48	41	37	30	29	26
Transportation equipment	32	33	39	39	42	43	39	53	50
Other manufacturing	33	35	36	37	39	38	34	35	34
Non-manufacturing	1,370	1,412	1,443	1,413	1,282	1,272	935	969	1,197
Wholly-foreign MNCs	285	360	531	679	858	1,010	1,226	1,405	1,599
<i>-published estimates</i>	286	364	536	688	865	1,028	1,237	1,459	1,604
Manufacturing	275	345	509	655	826	973	1,178	1,353	1,524
<i>-published estimates</i>	-	-	-	-	-	988	1,187	1,396	1,528
Food, beverages	19	23	23	31	42	47	50	55	61
Textiles, apparel, leather, footwear	159	191	306	396	482	562	655	749	861
Wood, furniture, paper	19	28	41	56	78	97	124	142	143
Chemicals, rubber, plastics	16	19	25	33	41	48	68	76	91
Metals, non-metallic mineral prod.	12	16	25	30	39	46	58	64	74
Machinery	31	37	50	62	75	97	124	163	179
Transportation equipment	7	12	17	21	29	30	39	43	46
Other manufacturing	12	18	22	27	41	45	59	62	69
Non-manufacturing	11	15	21	23	32	37	48	53	75
MNC Joint Ventures	121	122	152	170	177	187	207	221	224
<i>-published estimates</i>	122	125	155	173	180	192	208	227	225
Manufacturing	81	86	112	127	132	137	152	165	158
<i>-published estimates</i>	-	-	-	-	133	138	153	166	158
Food, beverages	16	16	20	19	18	20	19	23	20
Textiles, apparel, leather, footwear	22	26	38	46	50	49	58	64	58
Wood, furniture, paper	5	4	7	9	10	10	11	10	9
Chemicals, rubber, plastics	9	9	11	11	10	10	11	10	10
Metals, Non-metallic mineral prod.	12	12	13	14	15	16	17	19	20
Machinery	8	7	7	8	10	11	11	12	11
Transportation equipment	8	9	14	16	17	20	23	25	28
Other manufacturing	1	1	2	2	2	2	2	2	2
Non-manufacturing	40	36	39	43	44	50	55	56	66

Source: Authors' compilations from General Statistics Office (various years b) and published estimates from General Statistics Office (various years a)

Appendix Table B3a: Number of All Firms, SOEs, MNCs with 20 or More Employees and Positive Sales, Value Added, and Fixed Assets by Industry Group

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	14,357	16,796	20,366	21,742	26,896	29,705	31,507	25,082	21,230
Manufacturing	5,764	6,719	8,037	8,674	10,787	11,767	12,556	10,202	7,357
Food, beverages	1,045	1,147	1,321	1,397	1,679	1,839	1,951	1,532	953
Textiles, apparel, leather, footwear	1,037	1,207	1,501	1,586	2,065	2,160	2,296	1,769	1,489
Wood, furniture, paper	904	1,113	1,319	1,516	1,867	2,105	2,243	1,759	1,144
Chemicals, rubber, plastics	611	717	880	922	1,148	1,282	1,424	1,252	911
Metals, non-metallic mineral prod.	1,129	1,343	1,607	1,746	2,208	2,478	2,630	2,179	1,502
Machinery	404	473	548	603	713	733	802	680	565
Transportation equipment	304	356	416	434	496	527	508	425	319
Other manufacturing	330	363	445	470	611	643	702	606	474
Non-manufacturing	8,593	10,077	12,329	13,068	16,109	17,938	18,951	14,880	13,873
SOEs, all industries	5,368	5,020	4,951	4,334	4,199	3,550	3,166	2,380	1,597
Manufacturing	1,531	1,379	1,343	1,222	1,164	933	804	625	477
Food, beverages	288	252	252	226	214	180	152	107	68
Textiles, apparel, leather, footwear	230	215	208	193	173	131	101	73	59
Wood, furniture, paper	116	105	100	81	77	66	62	40	21
Chemicals, rubber, plastics	136	120	111	106	100	74	68	56	44
Metals, non-metallic mineral prod.	328	272	263	250	240	188	155	119	78
Machinery	134	131	120	114	104	74	58	48	51
Transportation equipment	114	104	105	91	87	67	62	53	49
Other manufacturing	185	180	184	161	169	153	146	129	107
Non-manufacturing	3,837	3,641	3,608	3,112	3,035	2,617	2,362	1,755	1,120
Wholly-foreign MNCs	728	971	1,291	1,480	1,926	2,167	2,649	2,264	1,593
Manufacturing	630	830	1,121	1,323	1,679	1,882	2,283	1,998	1,280
Food, beverages	78	86	106	126	145	164	181	151	72
Textiles, apparel, leather, footwear	174	229	332	399	514	537	617	525	377
Wood, furniture, paper	60	94	130	162	200	238	281	256	115
Chemicals, rubber, plastics	96	125	149	174	239	276	383	333	196
Metals, non-metallic mineral prod.	73	95	131	146	196	224	281	251	187
Machinery	69	88	119	139	156	178	222	203	152
Transportation equipment	37	58	73	86	115	134	150	132	86
Other manufacturing	43	55	81	91	114	131	168	147	95
Non-manufacturing	98	141	170	157	247	285	366	266	313
MNC Joint Ventures	581	562	589	552	653	660	681	554	464
Manufacturing	324	317	352	360	386	380	387	322	222
Food, beverages	59	52	64	60	62	58	63	52	32
Textiles, apparel, leather, footwear	39	37	52	54	69	60	59	52	41
Wood, furniture, paper	27	24	27	31	38	41	39	31	17
Chemicals, rubber, plastics	51	53	59	59	54	57	60	47	27
Metals, Non-metallic mineral prod.	72	75	74	74	75	80	81	74	51
Machinery	44	43	39	40	47	42	40	30	27
Transportation equipment	22	22	24	28	28	29	30	23	18
Other manufacturing	10	11	13	14	13	13	15	13	9
Non-manufacturing	257	245	237	192	267	280	294	232	242

Source: Authors' compilations from General Statistics Office (various years b) and published estimates from General Statistics Office (various years a)

Appendix Table B3b: Number of All Firms, SOEs, and MNCs with Positive Sales, Employment, Value Added, and Fixed Assets by Industry Group

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	37,281	43,408	52,118	53,800	70,140	80,015	114,384	72,187	82,826
Manufacturing	10,101	11,320	13,816	14,188	18,239	20,199	24,217	17,294	15,939
Food, beverages	3,426	3,398	3,794	3,570	4,156	4,526	5,084	3,637	2,630
Textiles, apparel, leather, footwear	1,187	1,394	1,817	1,899	2,561	2,740	3,339	2,340	2,348
Wood, furniture, paper	1,444	1,755	2,182	2,395	3,031	3,449	4,065	2,879	2,802
Chemicals, rubber, plastics	847	1,023	1,306	1,341	1,806	2,110	2,628	2,003	1,808
Metals, non-metallic mineral prod.	1,800	2,077	2,563	2,724	3,619	4,071	4,902	3,560	3,358
Machinery	519	619	772	844	1,084	1,148	1,401	1,020	1,057
Transportation equipment	427	497	603	592	708	794	760	582	489
Other manufacturing	451	557	779	823	1,274	1,361	2,038	1,273	1,447
Non-manufacturing	27,180	32,088	38,302	39,612	51,901	59,816	90,167	54,893	66,887
SOEs, all industries	5,656	5,263	5,174	4,483	4,347	3,710	3,311	2,483	1,676
Manufacturing	1,558	1,402	1,366	1,237	1,179	947	817	637	484
Food, beverages	296	258	261	230	217	183	155	109	70
Textiles, apparel, leather, footwear	234	216	210	194	173	133	101	74	60
Wood, furniture, paper	117	106	100	83	78	66	64	41	21
Chemicals, rubber, plastics	139	121	112	106	100	75	68	57	44
Metals, non-metallic mineral prod.	331	275	265	251	243	189	159	122	79
Machinery	135	132	121	115	104	74	58	48	51
Transportation equipment	118	107	107	93	88	70	63	53	49
Other manufacturing	188	187	190	165	176	157	149	133	110
Non-manufacturing	4,098	3,861	3,808	3,246	3,168	2,763	2,494	1,846	1,192
Wholly-foreign MNCs	820	1,100	1,471	1,660	2,206	2,475	3,114	2,521	1,989
Manufacturing	683	902	1,222	1,436	1,837	2,058	2,508	2,159	1,486
Food, beverages	86	102	124	145	169	184	199	166	93
Textiles, apparel, leather, footwear	178	235	345	408	529	548	641	537	403
Wood, furniture, paper	61	99	132	168	210	252	300	267	131
Chemicals, rubber, plastics	111	140	171	199	272	331	444	381	234
Metals, non-metallic mineral prod.	81	108	147	170	224	255	316	284	232
Machinery	77	94	136	154	181	200	257	224	188
Transportation equipment	40	61	77	93	124	142	166	139	90
Other manufacturing	49	63	90	99	128	146	185	161	115
Non-manufacturing	137	198	249	224	369	417	606	362	503
MNC Joint Ventures	639	635	680	609	741	741	800	624	551
Manufacturing	340	343	385	386	416	411	422	346	251
Food, beverages	60	56	69	65	67	66	69	57	38
Textiles, apparel, leather, footwear	39	39	52	55	72	61	62	53	43
Wood, furniture, paper	28	25	30	32	40	43	41	31	17
Chemicals, rubber, plastics	57	59	67	64	61	62	68	51	30
Metals, Non-metallic mineral prod.	76	81	81	81	79	85	86	79	55
Machinery	45	44	45	46	52	47	46	35	34
Transportation equipment	23	24	25	29	30	32	33	24	22
Other manufacturing	12	15	16	14	15	15	17	16	12
Non-manufacturing	299	292	295	223	325	330	378	278	300

Source: Authors' compilations from General Statistics Office (various years b) and published estimates from General Statistics Office (various years a)

Appendix Table B3c: Number of All Firms, SOEs, and MNCs with Positive Sales and Employment by Owner and Industry Group

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	42,051	48,926	60,539	69,368	87,877	107,294	128,000	152,354	204,513
<i>-published estimates</i>	42,288	51,680	62,908	72,012	91,756	112,950	131,318	155,771	205,689
Manufacturing	10,366	11,608	14,408	16,439	19,955	23,156	25,968	30,436	38,249
<i>-published estimates</i>	-	-	-	-	20,531	24,017	26,863	31,057	38,384
Food, beverages	3,482	3,452	3,892	4,018	4,376	4,943	5,303	5,892	6,957
Textiles, apparel, leather, footwear	1,239	1,445	1,917	2,242	2,822	3,204	3,640	4,230	5,551
Wood, furniture, paper	1,484	1,803	2,263	2,695	3,289	3,934	4,345	5,341	6,994
Chemicals, rubber, plastics	873	1,053	1,377	1,608	1,992	2,398	2,798	3,294	3,971
Metals, non-metallic mineral prod.	1,837	2,124	2,686	3,138	3,990	4,659	5,255	6,355	8,130
Machinery	539	635	803	974	1,213	1,375	1,532	1,789	2,265
Transportation equipment	440	512	630	671	772	911	815	988	1,160
Other manufacturing	472	584	840	1,093	1,501	1,732	2,280	2,547	3,221
Non-manufacturing	31,685	37,318	46,131	52,929	67,922	84,138	102,032	121,918	166,264
SOEs, all industries	5,733	5,310	5,222	4,681	4,383	3,907	3,369	3,309	3,209
<i>-published estimates</i>	5,759	5,355	5,363	4,845	4,597	4,086	3,706	3,494	3,287
Manufacturing	1,570	1,409	1,374	1,272	1,185	1,025	827	838	778
<i>-published estimates</i>	-	-	-	-	1,247	1,082	946	872	792
Food, beverages	300	261	266	239	221	187	156	137	127
Textiles, apparel, leather, footwear	237	217	210	196	173	143	101	96	89
Wood, furniture, paper	117	106	100	87	78	68	65	61	56
Chemicals, rubber, plastics	140	121	112	107	100	83	68	71	62
Metals, non-metallic mineral prod.	332	275	267	254	243	203	159	169	154
Machinery	135	132	121	117	104	88	59	67	64
Transportation equipment	118	108	107	94	88	87	64	81	77
Other manufacturing	191	189	191	178	178	166	155	156	149
Non-manufacturing	4,163	3,901	3,848	3,409	3,198	2,882	2,542	2,471	2,431
Wholly-foreign MNCs	837	1,113	1,490	1,799	2,263	2,559	3,202	3,451	4,469
<i>-published estimates</i>	854	1,294	1,561	1,869	2,335	2,852	3,342	4,018	4,612
Manufacturing	691	910	1,231	1,517	1,866	2,100	2,543	2,842	3,469
<i>-published estimates</i>	-	-	-	-	1,891	2,217	2,587	3,064	3,500
Food, beverages	87	102	124	154	169	190	203	224	251
Textiles, apparel, leather, footwear	183	238	349	434	537	563	650	714	867
Wood, furniture, paper	61	100	134	173	212	256	303	346	383
Chemicals, rubber, plastics	112	140	172	217	277	336	447	487	606
Metals, non-metallic mineral prod.	81	110	148	178	226	260	322	384	511
Machinery	78	95	136	159	187	204	264	310	396
Transportation equipment	40	62	77	98	125	143	168	179	213
Other manufacturing	49	63	91	104	133	148	186	198	242
Non-manufacturing	146	203	259	282	397	459	659	609	1,000
MNC Joint Ventures	652	651	691	717	759	765	820	803	964
<i>-published estimates</i>	671	717	747	772	821	845	878	943	1,014
Manufacturing	344	343	388	413	421	416	429	431	453
<i>-published estimates</i>	-	-	-	-	435	437	445	452	458
Food, beverages	60	56	70	70	67	67	71	67	69
Textiles, apparel, leather, footwear	39	39	53	63	73	61	63	67	70
Wood, furniture, paper	28	25	30	34	41	43	41	40	37
Chemicals, rubber, plastics	59	59	67	70	62	62	69	67	66
Metals, Non-metallic mineral prod.	76	81	81	84	80	86	86	95	99
Machinery	46	44	45	48	52	47	47	44	53
Transportation equipment	24	24	26	29	31	34	33	32	39
Other manufacturing	12	15	16	15	15	16	19	19	20
Non-manufacturing	308	308	303	304	338	349	391	372	511

Source: Authors' compilations from General Statistics Office (various years b) and published estimates from General Statistics Office (various years a)

Appendix Table B4a: Value Added of All Firms, SOEs, and MNCs with 20 or More Employees and Positive Sales, Value Added and Fixed Assets by Owner and Industry Group (trillion dong)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	327.60	348.40	429.21	460.80	568.36	644.27	803.34	983.46	872.62
Manufacturing	96.93	68.59	81.39	179.19	128.36	152.01	183.44	355.17	182.44
Food, beverages	21.85	13.25	15.84	40.38	23.42	28.21	32.39	85.98	34.22
Textiles, apparel, leather, footwear	18.32	11.91	14.99	29.69	23.79	28.22	38.38	49.38	26.21
Wood, furniture, paper	6.48	3.43	5.24	10.93	9.08	12.45	14.39	30.79	12.17
Chemicals, rubber, plastics	11.79	6.54	8.10	21.80	14.35	16.71	20.33	39.19	24.31
Metals, non-metallic mineral prod.	14.87	15.19	14.56	28.48	23.18	26.94	33.12	63.01	39.96
Machinery	10.69	6.14	7.38	20.82	12.47	14.68	17.60	36.38	22.51
Transportation equipment	7.13	7.08	9.26	18.98	13.60	14.66	16.07	36.48	13.14
Other manufacturing	5.80	5.04	6.02	8.11	8.48	10.13	11.17	13.97	9.91
Non-manufacturing	230.67	279.80	347.82	281.61	440.00	492.26	619.90	628.30	690.18
SOEs, all industries	215.44	215.96	259.42	223.54	269.42	265.45	308.42	340.29	314.29
Manufacturing	37.52	24.33	28.61	48.67	38.02	39.87	40.59	57.50	33.48
Food, beverages	8.90	4.94	6.02	12.24	6.88	7.08	6.98	11.64	5.44
Textiles, apparel, leather, footwear	5.98	3.95	4.85	6.82	5.63	5.24	5.61	5.65	4.37
Wood, furniture, paper	3.25	1.10	1.26	2.24	1.51	2.30	1.75	3.65	0.79
Chemicals, rubber, plastics	4.87	2.38	2.63	5.22	4.07	4.33	4.68	6.62	4.57
Metals, non-metallic mineral prod.	7.26	5.16	6.08	11.20	9.06	8.80	9.32	14.21	6.61
Machinery	1.79	1.54	1.60	3.21	2.11	2.11	2.67	2.95	2.70
Transportation equipment	1.40	1.20	1.50	2.78	2.84	3.18	2.86	5.96	2.67
Other manufacturing	4.06	4.05	4.68	4.95	5.92	6.82	6.71	6.83	6.33
Non-manufacturing	177.93	191.62	230.81	174.86	231.40	225.58	267.84	282.79	280.81
Wholly-foreign MNCs	27.33	19.68	25.35	52.44	47.04	61.02	85.04	147.08	86.28
Manufacturing	23.78	13.97	19.04	47.53	36.27	45.09	60.35	117.67	52.33
Food, beverages	3.85	2.48	2.55	7.08	5.02	5.86	7.00	19.55	6.97
Textiles, apparel, leather, footwear	8.10	4.72	6.20	16.40	11.59	15.07	22.38	27.65	10.94
Wood, furniture, paper	0.91	0.61	1.49	2.64	2.68	3.76	5.01	13.20	4.16
Chemicals, rubber, plastics	1.85	1.19	1.54	5.00	3.33	3.84	5.77	14.37	6.69
Metals, non-metallic mineral prod.	1.20	0.88	1.41	2.53	2.55	3.83	5.00	10.92	6.32
Machinery	5.85	2.35	3.08	9.36	6.13	7.57	8.87	20.97	12.04
Transportation equipment	1.17	1.31	2.07	3.48	3.63	3.53	4.09	7.14	3.73
Other manufacturing	0.86	0.43	0.70	1.03	1.34	1.62	2.23	3.86	1.47
Non-manufacturing	3.54	5.71	6.30	4.91	10.77	15.93	24.70	29.42	33.95
MNC Joint Ventures	35.02	50.60	58.87	59.66	90.61	98.54	115.08	109.30	52.77
Manufacturing	18.77	13.11	16.25	35.13	20.50	23.25	27.46	55.28	22.63
Food, beverages	3.85	2.50	2.92	5.86	3.36	4.03	4.61	10.22	4.53
Textiles, apparel, leather, footwear	1.19	0.79	0.95	1.17	1.44	1.67	1.95	3.58	1.57
Wood, furniture, paper	0.35	0.20	0.27	0.46	0.52	0.55	0.61	0.82	0.38
Chemicals, rubber, plastics	2.88	1.33	1.72	5.55	2.60	3.02	3.59	6.46	2.85
Metals, Non-metallic mineral prod.	4.22	3.01	3.53	5.74	4.26	4.59	6.03	8.39	7.03
Machinery	2.23	1.56	1.65	4.64	2.14	2.48	2.58	4.89	2.34
Transportation equipment	3.65	3.50	4.97	10.99	5.90	6.31	7.06	19.59	3.34
Other manufacturing	0.41	0.22	0.24	0.72	0.28	0.61	1.04	1.34	0.59
Non-manufacturing	16.25	37.49	42.62	24.52	70.11	75.29	87.61	54.02	30.14

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table B4b: Value Added of All Firms, SOEs, and MNCs with Positive Sales, Employment, Value Added, and Fixed Assets by Owner and Industry Group (trillion dong)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	370.02	402.82	491.50	524.42	666.30	767.14	1,017.4	1,131.0	1,080.2
Manufacturing	100.98	70.10	83.49	184.53	131.95	156.13	188.78	365.61	193.68
Food, beverages	24.88	14.05	16.74	42.97	24.78	29.54	33.78	91.33	36.75
Textiles, apparel, leather, footwear	18.42	11.98	15.20	30.01	24.05	28.54	38.89	49.86	26.99
Wood, furniture, paper	6.69	3.58	5.48	11.62	9.50	12.97	15.08	31.76	13.82
Chemicals, rubber, plastics	12.03	6.69	8.33	22.31	14.74	17.28	21.07	40.25	25.89
Metals, non-metallic mineral prod.	15.13	15.37	14.82	29.13	23.80	27.72	34.24	64.69	43.06
Machinery	10.75	6.20	7.46	21.02	12.67	14.89	17.88	36.65	23.08
Transportation equipment	7.22	7.11	9.34	19.14	13.69	14.78	16.18	36.64	13.31
Other manufacturing	5.86	5.12	6.12	8.32	8.72	10.41	11.68	14.43	10.79
Non-manufacturing	269.04	332.72	408.02	339.89	534.35	611.02	828.65	765.40	886.56
SOEs, all industries	215.92	216.78	260.15	223.96	269.79	265.79	309.05	340.67	314.63
Manufacturing	37.54	24.34	28.65	48.72	38.02	39.88	40.59	57.51	33.49
Food, beverages	8.91	4.95	6.02	12.24	6.88	7.09	6.98	11.64	5.44
Textiles, apparel, leather, footwear	5.98	3.95	4.87	6.86	5.63	5.25	5.61	5.65	4.37
Wood, furniture, paper	3.25	1.10	1.26	2.25	1.51	2.30	1.75	3.65	0.79
Chemicals, rubber, plastics	4.87	2.38	2.63	5.22	4.07	4.33	4.68	6.62	4.57
Metals, non-metallic mineral prod.	7.27	5.16	6.08	11.20	9.06	8.80	9.33	14.21	6.61
Machinery	1.79	1.54	1.60	3.21	2.11	2.11	2.67	2.95	2.70
Transportation equipment	1.40	1.20	1.50	2.78	2.84	3.19	2.86	5.96	2.67
Other manufacturing	4.06	4.06	4.68	4.95	5.92	6.82	6.71	6.83	6.33
Non-manufacturing	178.39	192.44	231.50	175.24	231.76	225.91	268.46	283.15	281.14
Wholly-foreign MNCs	27.54	19.87	25.66	53.08	47.63	61.68	86.33	148.10	87.77
Manufacturing	23.84	14.03	19.13	48.02	36.48	45.26	60.62	118.13	53.16
Food, beverages	3.86	2.49	2.57	7.17	5.06	5.87	7.01	19.56	7.36
Textiles, apparel, leather, footwear	8.11	4.73	6.21	16.45	11.60	15.08	22.42	27.67	11.01
Wood, furniture, paper	0.91	0.62	1.49	2.71	2.69	3.77	5.03	13.21	4.23
Chemicals, rubber, plastics	1.87	1.22	1.57	5.11	3.37	3.93	5.86	14.61	6.84
Metals, non-metallic mineral prod.	1.21	0.89	1.43	2.57	2.58	3.86	5.05	11.05	6.41
Machinery	5.85	2.36	3.09	9.39	6.17	7.58	8.90	21.00	12.09
Transportation equipment	1.17	1.31	2.07	3.59	3.66	3.54	4.10	7.15	3.73
Other manufacturing	0.87	0.43	0.70	1.04	1.35	1.63	2.24	3.87	1.48
Non-manufacturing	3.70	5.84	6.53	5.06	11.16	16.42	25.71	29.97	34.61
MNC Joint Ventures	35.22	50.74	59.04	59.82	90.88	98.81	115.86	109.78	53.37
Manufacturing	18.81	13.14	16.28	35.20	20.55	23.30	27.49	55.33	22.68
Food, beverages	3.85	2.50	2.92	5.87	3.36	4.04	4.61	10.22	4.53
Textiles, apparel, leather, footwear	1.19	0.79	0.95	1.17	1.44	1.67	1.95	3.59	1.58
Wood, furniture, paper	0.35	0.20	0.27	0.46	0.52	0.55	0.61	0.82	0.38
Chemicals, rubber, plastics	2.88	1.34	1.73	5.55	2.60	3.02	3.59	6.46	2.85
Metals, Non-metallic mineral prod.	4.24	3.02	3.53	5.78	4.30	4.60	6.04	8.42	7.05
Machinery	2.23	1.56	1.66	4.65	2.14	2.48	2.58	4.89	2.35
Transportation equipment	3.65	3.50	4.97	10.99	5.90	6.31	7.06	19.59	3.35
Other manufacturing	0.41	0.22	0.24	0.72	0.28	0.62	1.04	1.34	0.59
Non-manufacturing	16.42	37.60	42.77	24.62	70.33	75.51	88.37	54.45	30.69

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table 5a: Yearend Fixed Assets of All Firms, SOEs, and MNCs with 20 or More Employees and Positive Sales, Value Added and Fixed Assets by Owner and Industry Group (trillion dong)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	280.81	313.68	351.10	296.63	477.87	422.49	578.66	578.77	630.77
Manufacturing	111.57	122.10	142.99	152.69	202.29	224.08	298.74	301.22	218.11
Food, beverages	22.35	22.67	24.97	26.64	31.94	34.66	42.01	46.27	27.34
Textiles, apparel, leather, footwear	20.72	24.58	29.34	33.91	42.98	48.28	61.09	60.08	32.26
Wood, furniture, paper	4.62	5.79	8.53	9.53	12.84	19.50	24.36	24.72	14.49
Chemicals, rubber, plastics	9.99	10.68	12.23	14.84	30.06	25.99	33.35	31.49	26.08
Metals, non-metallic mineral prod.	31.97	32.34	37.66	35.34	44.22	50.56	80.40	75.58	65.01
Machinery	10.81	12.02	13.57	14.33	17.19	19.65	23.55	28.41	28.80
Transportation equipment	7.70	10.00	11.75	12.54	16.48	18.17	24.84	25.13	16.51
Other manufacturing	3.42	4.02	4.95	5.55	6.59	7.27	9.14	9.54	7.62
Non-manufacturing	169.24	191.58	208.11	143.94	275.58	198.41	279.92	277.55	412.66
SOEs, all industries	128.20	144.70	165.33	107.51	212.12	136.01	188.52	177.92	290.86
Manufacturing	28.79	29.58	35.92	40.45	53.29	45.91	62.07	59.93	35.22
Food, beverages	6.49	6.16	6.92	7.74	8.12	7.44	7.26	9.39	2.92
Textiles, apparel, leather, footwear	5.83	6.65	7.19	7.78	7.78	6.11	5.48	4.36	3.71
Wood, furniture, paper	1.57	1.32	1.99	2.03	1.90	3.93	3.16	2.57	0.62
Chemicals, rubber, plastics	2.10	2.12	2.17	2.87	14.24	7.19	6.79	6.48	3.18
Metals, non-metallic mineral prod.	8.47	7.96	11.21	12.97	12.45	12.94	26.86	22.76	13.87
Machinery	1.44	1.67	2.00	2.11	2.19	1.64	1.76	1.44	1.81
Transportation equipment	1.19	1.54	1.99	2.07	3.43	3.48	6.90	9.27	4.96
Other manufacturing	1.69	2.16	2.44	2.88	3.20	3.17	3.85	3.67	4.14
Non-manufacturing	99.42	115.12	129.41	67.06	158.83	90.11	126.45	117.99	255.63
Wholly-foreign MNCs	39.30	46.44	56.56	61.49	81.39	99.81	142.16	151.53	91.00
Manufacturing	33.71	39.11	48.23	54.35	72.26	89.76	119.38	123.06	79.78
Food, beverages	7.45	7.41	7.69	8.20	11.35	11.65	12.98	13.61	6.89
Textiles, apparel, leather, footwear	10.89	12.34	15.90	19.63	26.35	31.76	41.34	40.70	16.04
Wood, furniture, paper	1.45	2.26	3.55	3.73	5.24	7.88	9.99	11.66	4.79
Chemicals, rubber, plastics	3.28	3.48	4.05	4.81	7.17	8.78	14.67	12.58	11.57
Metals, non-metallic mineral prod.	3.03	3.80	4.94	5.16	6.86	8.92	14.53	14.63	12.86
Machinery	5.48	6.47	7.88	8.20	9.39	12.78	15.11	19.59	20.86
Transportation equipment	1.20	2.32	2.65	3.28	4.40	5.96	7.64	6.76	5.06
Other manufacturing	0.92	1.03	1.57	1.34	1.51	2.02	3.12	3.54	1.72
Non-manufacturing	5.59	7.33	8.33	7.14	9.12	10.06	22.78	28.47	11.22
MNC joint ventures	91.74	92.35	87.51	75.14	110.10	88.87	102.92	91.48	63.87
Manufacturing	38.08	36.95	36.31	29.82	36.77	37.36	43.95	40.28	33.27
Food, beverages	6.22	5.61	5.57	4.88	4.38	4.19	5.16	4.96	3.37
Textiles, apparel, leather, footwear	0.89	1.51	1.32	0.98	1.73	1.80	2.23	2.63	1.29
Wood, furniture, paper	0.38	0.33	0.40	0.36	0.44	0.49	0.64	0.46	0.24
Chemicals, rubber, plastics	2.91	2.79	2.97	3.57	3.34	3.57	3.65	3.02	1.24
Metals, Non-metallic mineral prod.	18.48	17.31	16.88	11.16	15.83	16.87	20.77	19.53	20.75
Machinery	3.47	3.19	2.56	2.21	3.10	2.79	2.74	2.87	2.06
Transportation equipment	5.18	5.79	6.13	6.16	6.97	6.76	7.87	6.00	3.87
Other manufacturing	0.55	0.42	0.47	0.52	0.98	0.89	0.88	0.82	0.45
Non-manufacturing	53.66	55.40	51.20	45.31	73.33	51.52	58.97	51.20	30.60

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table 5b: Yearend Fixed Assets of All Firms, SOEs, and MNCs with Positive Sales, Employment, Value Added and Fixed Assets by Owner and Industry Group (trillion dong)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	280.81	313.68	351.10	296.63	477.87	422.49	578.66	578.77	630.77
Manufacturing	111.57	122.10	142.99	152.69	202.29	224.08	298.74	301.22	218.11
Food, beverages	22.35	22.67	24.97	26.64	31.94	34.66	42.01	46.27	27.34
Textiles, apparel, leather, footwear	20.72	24.58	29.34	33.91	42.98	48.28	61.09	60.08	32.26
Wood, furniture, paper	4.62	5.79	8.53	9.53	12.84	19.50	24.36	24.72	14.49
Chemicals, rubber, plastics	9.99	10.68	12.23	14.84	30.06	25.99	33.35	31.49	26.08
Metals, non-metallic mineral prod.	31.97	32.34	37.66	35.34	44.22	50.56	80.40	75.58	65.01
Machinery	10.81	12.02	13.57	14.33	17.19	19.65	23.55	28.41	28.80
Transportation equipment	7.70	10.00	11.75	12.54	16.48	18.17	24.84	25.13	16.51
Other manufacturing	3.42	4.02	4.95	5.55	6.59	7.27	9.14	9.54	7.62
Non-manufacturing	169.24	191.58	208.11	143.94	275.58	198.41	279.92	277.55	412.66
SOEs, all industries	128.20	144.70	165.33	107.51	212.12	136.01	188.52	177.92	290.86
Manufacturing	28.79	29.58	35.92	40.45	53.29	45.91	62.07	59.93	35.22
Food, beverages	6.49	6.16	6.92	7.74	8.12	7.44	7.26	9.39	2.92
Textiles, apparel, leather, footwear	5.83	6.65	7.19	7.78	7.78	6.11	5.48	4.36	3.71
Wood, furniture, paper	1.57	1.32	1.99	2.03	1.90	3.93	3.16	2.57	0.62
Chemicals, rubber, plastics	2.10	2.12	2.17	2.87	14.24	7.19	6.79	6.48	3.18
Metals, non-metallic mineral prod.	8.47	7.96	11.21	12.97	12.45	12.94	26.86	22.76	13.87
Machinery	1.44	1.67	2.00	2.11	2.19	1.64	1.76	1.44	1.81
Transportation equipment	1.19	1.54	1.99	2.07	3.43	3.48	6.90	9.27	4.96
Other manufacturing	1.69	2.16	2.44	2.88	3.20	3.17	3.85	3.67	4.14
Non-manufacturing	99.42	115.12	129.41	67.06	158.83	90.11	126.45	117.99	255.63
100% MNCs	39.30	46.44	56.56	61.49	81.39	99.81	142.16	151.53	91.00
Manufacturing	33.71	39.11	48.23	54.35	72.26	89.76	119.38	123.06	79.78
Food, beverages	7.45	7.41	7.69	8.20	11.35	11.65	12.98	13.61	6.89
Textiles, apparel, leather, footwear	10.89	12.34	15.90	19.63	26.35	31.76	41.34	40.70	16.04
Wood, furniture, paper	1.45	2.26	3.55	3.73	5.24	7.88	9.99	11.66	4.79
Chemicals, rubber, plastics	3.28	3.48	4.05	4.81	7.17	8.78	14.67	12.58	11.57
Metals, non-metallic mineral prod.	3.03	3.80	4.94	5.16	6.86	8.92	14.53	14.63	12.86
Machinery	5.48	6.47	7.88	8.20	9.39	12.78	15.11	19.59	20.86
Transportation equipment	1.20	2.32	2.65	3.28	4.40	5.96	7.64	6.76	5.06
Other manufacturing	0.92	1.03	1.57	1.34	1.51	2.02	3.12	3.54	1.72
Non-manufacturing	5.59	7.33	8.33	7.14	9.12	10.06	22.78	28.47	11.22
MNC Joint Ventures	91.74	92.35	87.51	75.14	110.10	88.87	102.92	91.48	63.87
Manufacturing	38.08	36.95	36.31	29.82	36.77	37.36	43.95	40.28	33.27
Food, beverages	6.22	5.61	5.57	4.88	4.38	4.19	5.16	4.96	3.37
Textiles, apparel, leather, footwear	0.89	1.51	1.32	0.98	1.73	1.80	2.23	2.63	1.29
Wood, furniture, paper	0.38	0.33	0.40	0.36	0.44	0.49	0.64	0.46	0.24
Chemicals, rubber, plastics	2.91	2.79	2.97	3.57	3.34	3.57	3.65	3.02	1.24
Metals, Non-metallic mineral prod.	18.48	17.31	16.88	11.16	15.83	16.87	20.77	19.53	20.75
Machinery	3.47	3.19	2.56	2.21	3.10	2.79	2.74	2.87	2.06
Transportation equipment	5.18	5.79	6.13	6.16	6.97	6.76	7.87	6.00	3.87
Other manufacturing	0.55	0.42	0.47	0.52	0.98	0.89	0.88	0.82	0.45
Non-manufacturing	53.66	55.40	51.20	45.31	73.33	51.52	58.97	51.20	30.60

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table 5c: Yearend Fixed Assets of All Firms, SOEs, and MNCs with Positive Sales and Employment by Owner and Industry Group (trillion dong)

Owner, industry group	2000	2001	2002	2003	2004	2005	2006	2007	2008
All firms, all industries	291.88	324.80	366.55	413.33	503.24	550.88	631.24	808.88	1,346.5
Manufacturing	115.24	124.47	146.41	167.78	206.96	233.87	306.30	389.76	511.22
Food, beverages	23.40	23.65	26.20	29.48	33.44	36.44	44.12	60.31	71.77
Textiles, apparel, leather, footwear	21.46	24.78	29.69	36.34	43.46	49.66	62.16	70.80	102.58
Wood, furniture, paper	4.79	6.08	8.85	10.39	13.44	20.43	25.45	34.02	42.76
Chemicals, rubber, plastics	10.50	10.99	12.68	16.34	30.58	27.19	34.44	40.04	53.18
Metals, non-metallic mineral prod.	32.27	32.66	38.37	41.50	45.13	52.31	82.08	100.92	132.10
Machinery	10.90	12.13	13.71	15.03	17.44	20.50	23.11	36.76	47.15
Transportation equipment	8.44	10.05	11.82	12.77	16.60	19.54	25.28	35.32	47.15
Other manufacturing	3.48	4.13	5.10	5.94	6.87	7.81	9.65	11.57	14.53
Non-manufacturing	176.64	200.32	220.14	245.55	296.27	317.01	324.95	419.12	835.27
SOEs, all industries	129.39	144.95	165.61	182.74	212.23	232.40	190.34	226.49	507.83
Manufacturing	28.95	29.52	35.91	40.90	53.31	49.47	62.11	75.63	91.97
Food, beverages	6.61	6.09	6.82	7.80	8.12	7.56	7.29	9.97	5.77
Textiles, apparel, leather, footwear	5.85	6.66	7.20	7.98	7.78	6.71	5.48	5.25	18.06
Wood, furniture, paper	1.57	1.32	1.99	2.06	1.90	3.98	3.17	3.35	3.61
Chemicals, rubber, plastics	2.11	2.12	2.17	2.88	14.24	7.50	6.79	6.88	5.85
Metals, non-metallic mineral prod.	8.48	7.96	11.30	12.99	12.45	13.64	26.87	31.38	37.53
Machinery	1.44	1.67	2.00	2.13	2.19	2.23	1.76	2.35	2.31
Transportation equipment	1.19	1.54	1.99	2.07	3.43	4.51	6.90	12.14	13.78
Other manufacturing	1.69	2.18	2.44	2.98	3.20	3.35	3.85	4.29	5.05
Non-manufacturing	100.44	115.42	129.70	141.84	158.92	182.92	128.23	150.86	415.86
100% MNCs	40.38	46.99	57.38	66.56	82.10	100.86	143.65	179.36	236.47
Manufacturing	34.76	39.54	48.82	57.70	72.61	90.53	119.74	148.36	199.96
Food, beverages	7.48	7.48	7.76	9.25	11.44	11.63	13.03	14.84	20.05
Textiles, apparel, leather, footwear	11.50	12.39	15.97	20.22	26.40	31.95	41.50	46.21	60.82
Wood, furniture, paper	1.45	2.35	3.57	3.83	5.29	7.97	10.12	13.98	15.84
Chemicals, rubber, plastics	3.58	3.59	4.22	5.45	7.08	9.03	14.97	16.58	25.58
Metals, non-metallic mineral prod.	3.08	3.86	5.13	5.62	6.96	9.05	14.78	17.82	25.25
Machinery	5.51	6.50	7.92	8.60	9.47	12.83	14.40	25.34	33.56
Transportation equipment	1.22	2.32	2.65	3.35	4.42	5.98	7.78	9.63	13.71
Other manufacturing	0.94	1.05	1.60	1.39	1.54	2.09	3.17	3.96	5.16
Non-manufacturing	5.62	7.45	8.56	8.86	9.50	10.33	23.91	30.99	36.51
MNC Joint Ventures	93.53	93.30	88.29	90.35	110.64	89.09	103.54	101.55	115.84
Manufacturing	38.88	37.04	36.46	35.83	36.89	37.36	43.92	47.38	55.51
Food, beverages	6.22	5.63	5.65	4.97	4.39	4.19	5.06	5.90	6.39
Textiles, apparel, leather, footwear	0.89	1.52	1.32	1.60	1.74	1.80	2.24	2.84	2.58
Wood, furniture, paper	0.38	0.33	0.41	0.46	0.44	0.49	0.64	0.61	0.56
Chemicals, rubber, plastics	2.96	2.81	2.99	3.65	3.38	3.60	3.67	3.36	3.88
Metals, Non-metallic mineral prod.	18.52	17.35	16.92	16.17	15.87	16.82	20.82	21.93	25.27
Machinery	3.48	3.19	2.57	2.30	3.10	2.79	2.76	3.01	3.61
Transportation equipment	5.87	5.80	6.13	6.16	6.97	6.77	7.88	8.87	12.12
Other manufacturing	0.56	0.43	0.47	0.52	1.00	0.89	0.87	0.87	1.10
Non-manufacturing	54.66	56.26	51.83	54.52	73.75	51.72	59.61	54.17	60.33

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table B6a: Four-Firm Concentration Ratios by 2- and 3-digit Vietnam Standard Industrial Classification (VSIC), Revision 3 (percent)

VSIC	2000	2001	2002	2003	2004	2005	2006	2007	2008
151+152	21.14	21.43	21.90	21.30	16.84	17.94	16.98	17.06	18.17
153	23.43	25.37	18.97	20.46	23.41	24.68	17.12	17.03	21.50
154	30.73	26.40	26.78	19.63	20.54	20.40	24.55	22.50	20.96
155	41.31	36.17	37.12	34.62	35.92	38.57	40.62	50.36	37.53
171	29.61	26.86	25.62	25.53	25.36	27.95	62.29	34.41	32.44
172+173	23.21	21.97	22.43	18.61	15.92	24.54	28.83	24.50	24.43
18	20.61	18.07	17.84	14.87	15.19	13.50	13.01	11.58	8.95
191	38.94	40.07	36.10	42.11	43.79	30.70	45.95	35.26	25.35
192	36.18	36.14	34.61	37.65	36.17	35.52	34.38	31.74	32.29
20	20.55	19.74	11.06	11.86	11.20	11.73	9.88	7.97	6.90
21	45.03	27.59	21.21	19.17	15.98	23.78	17.09	15.54	13.99
241	52.34	48.49	42.26	43.03	41.75	42.92	34.06	35.73	40.23
242+243	24.21	23.81	25.19	23.77	24.27	23.87	25.19	21.85	23.08
251	47.13	49.55	40.84	40.83	34.95	33.96	41.16	36.15	33.31
252	17.98	21.42	20.97	17.64	14.69	11.23	9.34	11.61	8.92
261	78.07	68.15	67.09	64.19	55.09	52.46	65.63	62.70	45.43
269	27.86	45.37	22.31	19.61	18.78	17.93	17.46	15.24	14.35
271	54.19	52.96	43.33	40.09	44.42	41.71	40.73	30.44	28.80
272	55.76	55.29	48.12	59.99	48.25	49.77	27.83	40.82	50.64
281	32.24	28.10	24.43	17.54	13.60	13.57	24.74	17.10	15.84
289	15.22	17.59	14.27	14.45	15.57	18.38	17.14	11.57	8.88
291	35.55	29.40	39.68	29.72	59.24	54.49	30.12	39.81	35.91
292	57.76	31.78	21.45	15.95	18.86	23.41	25.48	21.86	20.68
293	66.35	70.92	65.45	68.54	64.20	58.54	49.98	52.57	50.82
311	68.76	57.40	65.28	66.99	63.12	60.00	46.44	48.16	42.09
312	75.26	37.70	50.85	69.85	63.39	61.45	-	41.92	46.57
313	55.81	55.31	49.70	47.28	52.09	45.35	35.20	27.50	32.24
314+315+319	43.90	54.66	57.83	50.26	39.93	43.52	38.03	47.93	43.95
321	62.39	72.99	66.68	60.51	46.91	58.08	60.07	48.55	36.02
322	39.93	57.80	53.23	70.27	64.91	64.48	56.07	59.89	59.20
323	66.19	50.02	53.46	57.63	66.05	58.91	54.71	58.01	65.57
33+30	94.53	90.47	81.06	83.91	83.47	88.35	87.80	89.92	84.16
341+342	69.38	68.74	59.99	56.58	51.07	60.45	59.43	51.46	50.45
343	62.09	51.03	36.86	42.13	33.50	38.65	37.45	40.10	40.25
351	35.61	42.72	42.89	51.46	44.03	41.98	50.21	38.11	36.36
352+359	61.58	45.80	62.16	56.22	52.97	52.14	57.68	59.43	62.49
361	21.49	21.43	35.12	14.46	13.44	10.82	8.59	9.34	8.39

Note: See Appendix Table B6f for VSIC code definitions.

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table B6b: Herfindahl Indexes by 2- and 3-digit Vietnam Standard Industrial Classification (VSIC), Revision 3 (percent)

VSIC	2000	2001	2002	2003	2004	2005	2006	2007	2008
151+152	2.26	2.27	2.16	2.05	1.51	1.57	1.47	1.34	1.35
153	2.02	2.24	1.45	1.70	2.04	2.14	1.40	1.36	1.86
154	3.91	4.07	3.84	2.08	2.20	2.11	2.65	2.10	1.84
155	6.27	4.98	5.03	4.59	4.68	5.34	5.73	9.38	5.12
171	3.78	3.39	3.06	2.85	2.78	3.06	20.98	4.59	4.07
172+173	2.73	2.38	2.34	1.92	1.62	2.48	2.90	2.40	2.19
18	1.79	1.54	1.41	1.12	1.05	0.96	0.90	0.75	0.56
191	5.73	5.45	5.43	6.01	6.63	4.03	7.23	4.62	3.07
192	4.68	4.52	4.34	5.28	5.00	5.06	4.84	4.37	4.60
20	1.84	1.76	0.98	0.86	0.86	0.85	0.64	0.55	0.41
21	7.53	2.92	2.05	1.56	1.24	1.99	1.23	1.10	0.92
241	9.83	8.75	6.80	6.14	6.07	6.76	5.10	4.69	5.84
242+243	3.58	3.40	3.43	3.18	2.86	2.83	3.04	2.42	2.42
251	7.15	7.42	5.97	5.64	4.47	4.70	6.60	4.71	4.02
252	1.69	1.90	1.67	1.42	1.14	0.76	0.62	0.73	0.54
261	21.80	18.39	15.88	14.08	11.02	9.96	14.84	15.08	7.75
269	3.03	11.97	2.14	1.84	1.64	1.49	1.51	1.21	1.07
271	9.27	9.14	6.75	6.19	6.80	5.95	5.68	3.84	3.47
272	10.80	10.03	8.84	13.38	8.83	8.57	3.86	6.93	9.10
281	4.23	3.03	2.43	1.61	1.28	1.16	2.82	1.37	1.13
289	1.47	1.63	1.27	1.23	1.33	1.56	1.36	0.88	0.64
291	5.66	4.07	7.87	4.46	26.63	20.30	4.42	8.13	6.93
292	12.82	3.83	2.36	1.84	2.04	2.35	2.66	2.34	1.98
293	20.20	19.81	16.91	13.70	13.25	11.32	10.57	10.40	9.53
311	17.89	12.54	15.19	17.64	14.10	12.82	7.54	7.96	6.51
312	20.93	6.15	9.97	18.19	17.45	11.83	-	7.36	7.65
313	10.98	10.12	8.89	8.17	8.85	7.30	5.34	3.89	4.25
314+315+319	7.37	12.71	12.25	8.89	6.09	6.77	5.68	7.70	6.67
321	12.23	31.38	24.24	12.70	8.73	10.98	11.75	7.74	4.96
322	7.09	12.10	9.65	22.74	17.65	15.06	11.32	10.61	11.34
323	16.74	9.51	10.22	11.08	12.58	11.60	9.63	12.56	16.37
33+30	78.65	68.04	42.94	33.28	33.16	35.39	32.58	30.45	25.60
341+342	19.48	16.70	13.45	11.66	9.86	12.92	15.44	11.73	11.42
343	11.49	8.21	4.88	7.17	5.09	5.73	4.98	5.21	5.44
351	5.23	8.27	7.80	8.83	6.47	6.07	8.27	4.54	4.27
352+359	15.48	9.07	13.87	11.66	9.22	10.15	14.55	14.63	18.20
361	2.06	1.85	6.50	1.19	1.10	0.87	0.67	0.75	0.65

Note: See Appendix Table B6f for VSIC code definitions.

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table B6c: SOE shares of Yearend Employment by 2- and 3-digit Vietnam Standard Industrial Classification (VSIC), Revision 3 (percent)

VSIC	2000	2001	2002	2003	2004	2005	2006	2007	2008
151+152	52.97	44.32	43.60	40.54	32.51	22.43	16.97	11.51	8.22
153	11.26	14.48	14.95	9.06	9.03	6.21	5.23	4.24	3.91
154	56.17	49.95	46.98	37.50	33.04	28.15	21.41	14.26	13.30
155	49.58	42.07	39.12	42.20	35.02	30.21	23.59	23.09	17.07
171	67.37	68.62	65.22	62.50	57.01	47.35	33.03	33.13	26.40
172+173	41.69	31.73	28.07	22.50	17.63	15.05	16.99	9.71	8.85
18	47.80	40.24	32.66	27.05	22.82	17.94	12.42	9.21	6.53
191	15.90	8.66	12.02	9.73	7.57	3.57	3.06	0.20	0.17
192	24.84	21.47	17.31	16.30	13.05	8.54	5.46	4.94	4.14
20	29.23	26.78	20.77	16.89	14.44	13.09	11.50	8.40	5.82
21	40.49	31.03	28.37	22.71	14.56	20.11	11.13	12.04	10.36
241	80.93	80.34	72.42	68.34	71.59	65.78	61.86	50.46	43.66
242+243	60.41	47.09	42.19	38.76	33.50	28.95	21.75	23.77	17.29
251	58.13	52.90	46.85	42.97	50.58	29.60	32.31	25.98	23.09
252	17.66	15.77	13.03	11.63	7.92	4.73	2.21	3.11	2.68
261	42.12	31.84	27.82	19.23	13.21	13.53	10.10	20.81	5.75
269	61.45	53.97	51.06	48.93	42.64	31.00	22.18	21.27	17.38
271	80.69	70.64	63.70	59.33	57.33	53.63	47.35	30.80	29.45
272	80.81	77.29	68.03	65.67	48.08	42.66	31.42	30.68	30.47
281	42.70	32.02	26.55	25.26	21.85	29.00	19.88	20.61	16.53
289	49.29	39.18	31.55	26.00	18.25	12.62	8.14	8.31	8.57
291	79.58	62.32	44.90	35.58	24.81	21.68	41.29	16.39	16.42
292	64.72	77.37	69.99	66.83	56.76	49.62	31.28	32.53	29.29
293	47.44	39.66	33.18	23.33	14.33	8.06	11.22	8.48	7.51
311	33.95	43.48	34.83	24.09	21.62	20.81	17.93	10.29	6.56
312	64.80	21.40	40.80	46.91	41.81	33.55	-	31.37	29.56
313	15.29	7.96	7.39	16.14	14.40	10.47	3.72	6.56	3.61
314+315+319	51.96	33.46	26.20	22.04	18.79	18.01	12.60	6.80	9.42
321	31.84	20.90	16.08	14.33	14.41	13.29	8.28	4.03	3.05
322	83.83	57.45	47.07	46.39	41.13	19.31	27.46	15.07	13.99
323	27.58	32.65	29.16	18.11	8.65	11.72	7.25	8.41	7.30
33+30	18.39	11.60	11.22	9.97	7.45	2.10	0.93	3.66	2.64
341+342	52.18	36.60	42.56	38.97	44.31	42.23	36.44	28.60	27.39
343	45.79	44.45	35.12	33.07	23.80	16.33	13.08	3.40	0.51
351	75.45	69.79	66.89	62.86	66.32	66.13	59.36	63.31	57.61
352+359	40.17	31.72	26.79	22.52	16.68	13.16	10.23	7.16	6.58
361	10.65	6.64	6.58	5.68	4.65	5.85	4.34	4.62	3.52

Note: See Appendix Table B6f for VSIC code definitions.

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table B6d: SOE shares of Sales by 2- and 3-digit Vietnam Standard Industrial Classification (VSIC), Revision 3 (percent)

VSIC	2000	2001	2002	2003	2004	2005	2006	2007	2008
151+152	60.34	51.68	49.85	46.17	39.17	28.52	22.72	12.82	9.51
153	8.50	12.68	17.17	12.29	9.11	5.10	8.61	7.54	6.48
154	41.42	26.82	26.32	24.54	22.51	20.85	15.47	9.19	8.19
155	39.62	27.20	22.16	23.91	24.11	25.43	23.11	43.12	14.22
171	47.52	47.93	45.27	42.49	41.69	33.73	11.72	20.00	15.90
172+173	40.74	32.62	29.08	21.48	18.65	14.60	24.24	6.66	5.19
18	47.43	43.28	39.28	31.88	30.14	25.34	21.15	17.95	12.74
191	11.06	3.65	9.96	5.00	3.28	2.04	1.45	0.10	0.10
192	18.25	14.54	11.60	10.76	7.75	5.39	3.38	3.47	3.06
20	36.21	36.03	24.72	21.09	18.54	18.83	14.23	9.66	6.24
21	56.03	35.22	30.41	27.44	17.70	24.92	16.47	17.07	14.08
241	73.09	69.59	54.30	58.88	68.12	67.41	56.00	54.19	54.85
242+243	38.97	30.41	29.59	22.38	20.17	20.00	16.88	17.67	12.99
251	53.45	50.32	38.50	38.04	39.30	27.71	34.46	33.82	23.99
252	17.91	18.04	15.87	15.65	11.80	5.32	2.77	3.12	2.30
261	16.12	13.85	11.08	11.69	12.50	10.74	9.75	38.02	7.40
269	60.25	36.62	52.56	54.17	51.41	42.71	35.10	34.39	28.92
271	32.45	32.23	27.80	28.45	35.29	30.44	29.45	17.92	16.52
272	71.22	65.06	53.33	33.76	18.78	14.95	13.70	10.09	6.45
281	17.67	21.50	17.49	18.79	15.09	22.90	14.90	15.51	10.88
289	27.24	20.64	15.09	13.21	10.31	6.98	16.14	4.47	4.10
291	58.36	36.64	20.89	19.15	12.27	10.71	34.15	9.73	13.17
292	46.69	69.05	54.46	50.42	44.69	43.09	35.12	25.11	19.94
293	8.00	9.58	8.13	6.48	3.70	3.30	5.40	3.35	3.52
311	31.21	47.82	44.54	35.55	29.58	26.68	25.17	17.46	16.95
312	48.87	8.17	31.36	27.51	44.13	29.84	-	27.04	27.62
313	13.69	8.71	9.38	19.94	23.05	18.02	13.10	12.03	8.54
314+315+319	49.85	25.40	20.68	14.84	14.94	14.53	17.76	12.31	13.28
321	13.08	4.35	4.20	4.43	4.02	3.20	1.31	0.98	0.70
322	55.05	21.75	19.05	13.27	22.84	15.76	33.17	30.30	29.01
323	10.59	20.17	20.15	18.51	4.59	12.63	8.73	10.03	4.43
33+30	1.09	1.42	2.23	1.54	1.12	0.39	0.30	0.52	0.25
341+342	6.04	3.54	6.41	9.79	10.91	10.32	18.04	13.63	9.49
343	29.54	29.60	25.22	31.51	25.20	21.61	5.43	1.37	0.15
351	65.99	59.53	63.76	52.47	71.02	71.82	61.51	65.84	53.99
352+359	13.31	14.73	10.01	8.04	8.58	9.20	3.69	2.24	1.74
361	14.90	13.29	11.37	11.45	10.40	10.53	6.90	6.66	5.00

Note: See Appendix Table B6f for VSIC code definitions.

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table B6i: Definitions of 3-digit Categories in the Vietnam Standard Industrial Classification (VSIC), Revision 3 (percent)

VSIC	Definition
151+152	Meat, seafood, vegetables, vegetable, oil and fats; butter & milk
153	Grain mill products, starches, feeds
154	Other food products
155	Beverages
171	Textiles spinning & weaving
172+173	Other textiles; knitted fabrics
18	Garments
191	Leather products
192	Footwear
20	Wood products
21	Paper products
241	Basic chemicals
242+243	Other chemical products; artificial fibers
251	Rubber products
252	Plastic products
261	Glass products
269	Other non-metallic mineral products
271	Ferrous metals
272	Non-ferrous metals; metals' casting
281	Structural metal products
289	Other metal products
291	General purpose machinery
292	Special purpose machinery
293	Domestic appliances
311	Electric motors, etc.
312	Electricity distribution machinery
313	Insulated wire & cable
314+315+319	Batteries, etc.; electric lamps; other electrical machinery
321	Electronic components
322	Radio & TV transmitters, etc.
323	Radio & TV receivers, etc.
33+30	Office & computing machinery; precision machinery
341+342	Motor vehicle assembly, etc.; motor vehicle bodies, trailers, etc.
343	Motor vehicle parts
351	Ships & boats
352+359	Other transportation machinery
361	Furniture

Note: See Appendix Table B6f for VSIC code definitions.

Source: Authors' compilations from General Statistics Office (various years b).

Appendix Table B6j: Deflators for Manufacturing Output by 2-digit VSIC (1994 prices)

VSIC	Definition	2000	2001	2002	2003	2004	2005	2006	2007	2008
15	Food & beverages	1.856	1.824	1.796	1.924	2.090	2.359	2.385	2.434	2.868
16	Tobacco	1.324	1.317	1.364	1.352	1.344	1.444	1.425	1.444	1.565
17	Textiles	1.534	1.708	1.626	1.741	1.787	2.086	2.435	2.564	2.770
18	Apparel	1.900	1.789	2.259	2.412	2.546	2.567	2.565	2.733	3.044
19	Leather & footwear	1.634	1.656	1.740	1.895	2.090	2.242	2.144	2.220	2.468
20	Wood products	1.684	1.713	1.913	2.051	2.251	2.406	2.433	2.424	2.660
21	Paper products	1.549	1.716	1.879	2.023	2.129	2.235	2.381	2.486	2.655
22	Printing & publishing	1.837	1.894	1.928	2.285	2.623	2.708	2.793	2.599	2.961
23	Petroleum & coal products	4.040	3.006	3.114	3.348	3.556	3.594	6.253	5.530	8.573
24	Chemicals	1.541	1.474	1.679	1.887	2.305	2.319	2.484	2.475	3.138
25	Rubber & plastics	1.630	1.687	1.786	2.039	2.138	2.136	2.301	2.283	2.652
26	Non-metallic mineral products	1.176	1.237	1.268	1.377	1.380	1.463	1.593	1.623	1.875
27	Basic metals	1.545	1.682	1.789	2.097	2.762	2.674	2.889	3.439	3.932
28	Fabricated metals	1.745	1.859	2.271	2.441	2.703	2.615	2.609	2.736	3.023
29	General machinery	1.511	1.615	1.696	1.907	2.387	2.512	2.870	3.032	3.314
30	Office & computing machinery	1.341	3.060	3.995	4.369	4.304	4.512	3.385	3.761	3.690
31	Electrical machinery	2.126	2.182	2.113	2.306	2.669	2.769	2.810	2.914	3.117
32	Radio, TV & communication	1.677	1.556	1.794	1.967	2.219	2.231	2.551	2.584	2.597
33	Precision machinery	2.518	2.736	2.696	3.172	3.770	3.249	4.157	4.411	4.359
34	Motor vehicles	1.819	2.247	2.724	2.721	3.096	2.922	3.240	3.150	3.092
35	Other transport equipment	2.086	2.976	2.341	2.594	3.171	2.799	2.528	2.580	2.587
36	Furniture, other misc. manuf.	1.892	1.994	2.141	2.641	2.982	3.021	3.093	3.148	3.490
37	Recycling	1.173	1.339	1.828	1.955	2.334	2.710	3.073	3.020	3.110

Note: See Appendix Table B6f for VSIC code definitions.

Source: Authors' compilations from General Statistics Office (various years c).