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### **Abstract**

This paper examines shares of foreign multinational corporations (MNCs), state-owned enterprises (SOEs), and other non-SOEs in Vietnam's economy, and then compares the performance of these ownership groups in Vietnam using time series data for the 1990s and cross section data from the economic census for 1994-1995 and the industrial survey for 1998. During the 1990s, shares of foreign MNCs in Vietnam's economy grew very rapidly as Vietnam succeeded in promoting large increases in inward foreign direct investment (FDI). Consistent with the theoretical suggestion that MNCs are supposed to possess relatively large amounts of firm-specific assets related to production technology, marketing networks, and management know-how, these results suggest that MNCs were generally larger and had higher labor productivity, capital intensity, wage levels, investment propensities, and trade propensities than non-MNCs. On the other hand, the economic census data suggest a weak tendency for the foreign MNCs to have relatively low capital productivity. State-owned enterprises (SOEs) also continue to play an important role during the transition to a market economy in the 1990s, while the role of local non-SOEs remained extremely limited, largely because systematic biases worked to their disadvantage. Somewhat contrary to a common view that SOEs tend to be relatively inefficient compared to non-SOEs, these results suggest that SOEs were generally much larger and had higher labor productivity, capital intensity, wage levels, and investment propensities. Compared to foreign MNCs, SOEs also tended to be larger, especially in terms of employment, but had lower labor productivity, wage levels, and investment propensities, while there were no significant differences observed in capital productivity.

## 1. Introduction

Since 1986, Vietnam has implemented a series of ambitious reforms to open itself to the world and the region, and change its formerly centrally planned economy into a market-driven economy. Most observers agree that these policy reform efforts have contributed to a marked increase in living standards and a remarkable economic transition toward a market-based economy. This paper investigates issues related to three important policy changes that played a key role in this transition, (1) increased emphasis on restructuring of and reducing reliance on state-owned enterprises (SOEs), (2) the promotion of foreign direct investment (FDI) and other activities by foreign multinational corporations (MNCs), and (3) the more recent emphasis on removing the strong policy bias that existed against private Vietnamese-owned firms.

The results of FDI promotion efforts were quite impressive with net annual FDI flows increasing from 0 in 1988 to US\$100-300 million a year in 1989-1993, and then to US\$1 billion or more in 1994-1999 before falling off to US\$800 million in 2000 (International Centre for the Study of East Asian Development 2002, Table 12.2). Correspondingly, the share of foreign MNCs' value added in GDP at current prices rose from 6 percent in 1994 and 1995 to 9 percent in 1997 and 13 percent in 2000 (Table 1). Shares were somewhat smaller in 1997 and 2000, 8 percent and 11 percent, respectively, if measured in constant 1994 prices. On the other hand, efforts to reduce dependence on SOEs were less successful and the share of SOEs in GDP at current prices actually rose in the early 1990s from 31-32 percent in 1990-1991 to 39-40 percent in 1994-2000 or from 38 percent to 40-41 percent if measured in constant prices. The SOE share of investment capital rose even faster from 35-45 percent in 1990-1996 to 62 percent in 1999-2000. The difficulties encountered in reducing reliance on SOEs and the rapid growth of MNCs reflect the strong policy biases against private local firms that existed in Vietnam until the implementation of corporate law reform beginning in 2000. Correspondingly, the share of other firms (non-SOEs) in GDP fell from 53-54 percent in 1994-1996 to 48 percent in 2000 in current prices or from 52-53 percent to 49 percent, respectively, in constant prices. In 2000 and 2001, strong enforcement of the corporate law drafted in 1999 led to a large increase in the number of new businesses established by local private owners,<sup>1</sup> but this has not yet translated into large increases in production or investment.

Economists have long argued that SOEs and foreign MNCs both tend to differ from other firms in important respects because of relatively weak motivation to earn profits in SOEs and the fact that MNCs tend to possess relatively large amounts of firm-specific assets related to production technology, marketing, and management know-how. In some contrast, many

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<sup>1</sup> Since the law's introduction in early 2000, around 42,000 companies and 300,000 sole proprietorships were established with total investment pledges of US\$4 billion, creating 750,000 jobs (*Vietnam Economic Times*, May 2002, <http://www.vneconomy.com.vn>).

Vietnamese officials and economists argue that SOEs in particular play a particularly important role in the Vietnamese economy. Moreover, as will be seen below, differences between SOEs and local private firms in Vietnam do not necessarily follow the theoretical expectations of economists, partially because the local private sector has been so small. The purpose of this paper is to examine these and related assertions by comparing SOEs, foreign MNCs, and other non-SOEs in Vietnam in the 1990s. To this end Section 2 first examines the theoretical and methodological issues that underlie the study and Section 3 reviews the available time series evidence. Sections 4 and 5 then look at cross section evidence from 1995 economic census covering 1994/1995 and the 1999 industrial survey covering 1998, respectively, and Section 6 summarizes the conclusions emerging from the study.

## **2. Ownership and Enterprise Performance: Theoretical and Methodological Perspectives**

There are two rather distinct areas of economic literature relevant to this paper. First, most economists have long held that SOEs are more likely to be less profitable and therefore less efficient than other firms because operators of SOEs are less motivated to make profit than are the owners of private firms. Second, economists have also asserted that possession of relatively large amounts of intangible assets and/or the ability to internalize markets are key characteristics that a firm must possess to become an MNC, and it then follows that MNCs are likely to be relatively efficient and profitable compared to non-MNCs. Thus, in the comparison of MNCs and non-MNCs the key causal relationship runs from differences in the amounts of firm-specific assets controlled by MNCs and non-MNCs to differences in efficiency, profitability, and other indicators. In contrast, when comparing SOEs and non-SOEs, the key causal relationship runs from differences in profit motivation to differences in profitability, efficiency, and other indicators. This section briefly summarizes this literature below and then concludes with a description of statistical methodologies for examining differences among different types of firms.

### **2.1. SOEs versus Private Firms: Motivation and Performance**

The debate about the efficacy of public ownership is extremely old, going back to Adam Smith, if not farther. One of Smith's most famous arguments reflected in modern economics textbooks was that competition in the market place constituted an invisible hand that leads to an efficient allocation of resources as long as competition is sufficiently vigorous (Heilbroner 1967 pp. 48-54). Correspondingly, excessive government interference with markets, including the public ownership of firms, was thought to be undesirable because it diluted the motive to seek profit and thus reduced efficiency in the economy. However, the reality is much more complicated than this simple dichotomy suggests. Perhaps the most important theoretical point is that motives of

management are not necessarily correlated with public or private ownership in that it is perfectly possible to have a highly profit-motivated management staff in an SOE and a very weakly motivated management staff in a non-SOE (Stretton and Orchard 1994). It is thus crucial to examine the empirical evidence before concluding that SOEs are motivated differently and perform less efficiently than private firms. This point is further highlighted by surveys of the empirical literature (e.g., Aharoni 2000, Megginson and Netter 2001, and Stretton and Orchard 1994), which reveal a number of cases in which SOEs do not appear to be less profitable and/or less efficient than private firms.<sup>2</sup> Nonetheless, the majority of the evidence emerging from this literature does suggest that private firms do indeed tend to be more profitable and efficient than SOEs. There is some debate about the appropriateness of these kinds of comparisons because governments often dictate corporate priorities and prices of inputs and outputs in SOEs (Aharoni 2000). Moreover, the results of comparisons of efficiency often differ greatly from study to study, leading Aharoni (2000, p. 59) to conclude, “. . . the empirical evidence on the issue of private versus public efficiency, has been somewhat ambiguous, and the conclusions reached may have been based more on ideological beliefs than on clear statistical tests.”

It should also be stressed that SOEs often have other important reasons for existing than to make profit. For example, Marx (e.g., Heilbroner 1967, pp. 140-146) stressed the importance of public ownership of the means of production as a way of insuring economic equality, which he thought was lacking in capitalist systems. Although most modern economists do not subscribe to Marx's prescriptions for public ownership to promote equality, there are two important kinds of markets in which economists agree that competition does not automatically lead to an efficient allocation of resources, (1) imperfectly competitive markets and (2) markets in which large externalities exist. In these markets it is not clear whether government intervention will improve efficiency and or if public ownership of firms is the most effective means of policy intervention. However, examples of public ownership are common in areas where large positive externalities are thought to exist. For example, national defense forces, police forces, fire departments, educational institutions, health-care institutions, transportation infrastructure, power-supply infrastructure, and communications infrastructure are often run by SOEs. In some economies, especially in developing economies, SOEs have also been common in so-called key industries such as steel.

In transitional economies like Vietnam comparisons of SOEs and other enterprises is further complicated by the lack of locally owned private firms to compare the SOEs with. Vietnam, like many socialist regimes, severely restricted the activity of local entrepreneurs before the implementation of the corporation law in 2000 and the result is that there are often no similar

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<sup>2</sup> An example is that the most profitable firms in Northeast Asia's large steel industry in the 1990s were China Steel of Taiwan, an SOE, and Pohang Steel of Korea, which was formerly an SOE (Ramstetter and Movshuk 2002).

locally owned, private firms to compare with the SOEs in the country. Moreover, before the late 1980s, there were virtually no foreign MNCs in the country as well. Thus, in many respects comparisons of SOEs and non-SOEs are meaningless in Vietnam before the 1990s.

## **2.2. MNCs versus Non-MNCs: Internalization and Ownership-Based Advantages**

The theory of the MNC inevitably begins with an attempt to explain why MNCs exist when MNCs are clearly at a disadvantage relative to local firms in foreign markets because they have inferior knowledge of those markets and how to operate in them. Correspondingly, the economic theory of the MNE focuses on explaining how MNCs overcome these disadvantages with two major explanations emerging.<sup>3</sup> Although there is disagreement over the necessary conditions for a firm to become a MNC, there is general agreement that MNCs tend to possess relatively large amounts of firm-specific assets, especially proprietary, knowledge-based, generally intangible assets related to production techniques and processes, marketing networks, and/or management ability. The clearest empirical evidence supporting this assertion is the fact that MNCs tend to be relatively intensive in research and development (R&D) and advertising than non-MNCs (e.g., Dunning 1988, 1993; Markusen 1991; and Caves 1996). The fact that MNCs possess these firm-specific, ownership-based assets in relatively large amounts then implies that they are likely to be relatively efficient in some sense compared to non-MNCs. Correspondingly, MNCs are also likely to be relatively profitable than other firms if they face similar demand conditions.

There is a growing empirical literature comparing foreign MNCs and local firms in manufacturing industries of Asian economies, which suggests that foreign MNCs do indeed tend to be more efficient than local firms in many cases (e.g., Ramstetter 1999a; Sjöholm 1998, 1999; Takii 2002; Takii and Ramstetter 2002). These and other studies also suggest that there has been a positive correlation between foreign MNC shares of industries and efficiency in local firms in Indonesia (Blomström and Sjöholm, 1999; Sjöholm 1998, 1999; Takii 2001). In addition, there is evidence that foreign MNCs tend to be relatively large (e.g., Ramstetter 1999a; Takii and Ramstetter 2000), relatively capital intensive (Ramstetter 1994, 1999a), pay relatively high wages (e.g., Lipsey and Sjöholm 2001; Matsuoka 2001; Ramstetter 1999a), and tend to have relatively high profit rates (Ramstetter 1999a; Ramstetter and Matsuoka 2001), that may be related to greater

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<sup>3</sup> For example, according to Dunning (1981, 1993), three types of advantages are necessary, (1) ownership advantages or advantages accruing from exploitation of firm-specific assets (e.g., patents, marketing networks), (2) internalization advantages or advantages accruing from the internalization of economic transactions within a single firm unit (e.g., the reduction of transactions costs where uncertainty makes inter-firm transactions risky and thus costly), and (3) locational advantages or advantages accruing from operating in a specific location (e.g., reductions in transport or labor costs). In contrast, others (e.g., Buckley and Casson 1991, Casson 1987, Rugman 1980, 1985) argue that internalization alone is sufficient to explain the existence of the MNC and that the possession of firm-specific assets simply reflects the internalization process.

efficiency in MNCs.<sup>4</sup> In some contrast, evidence for Thailand (e.g., Ito 2002; Ramstetter 1994, 2002b) and Malaysia (e.g., Menon 1998; Oguchi 2002) suggests that MNCs are not necessarily more efficient in those economies.

In addition, the marketing networks of MNCs are often more concentrated in international marketing than the marketing networks of non-MNCs and, combined with greater ability to produce internationally competitive products, possession of these networks make it relatively easy for MNCs to exploit opportunities in international markets. Correspondingly, there is also evidence that foreign MNCs tended to be more dependent on international trade, and on exports in particular, than local firms in a wide range of Asian economies (e.g., Ramstetter 1994, 1999a, 1999b, 2002a).

### **2. 3. Empirical Methodologies for Comparing Ownership Groups of Firms**

There are many dimensions in which different groups of firms can be compared by type of ownership. The most sophisticated comparisons take economic models of a given activity as a base and then compare the two groups of firms after removing the other relevant influences on the activity in question that the economic models identify. For example, when comparing production technology in two ownership groups, it is common to estimate production functions for the two groups of firms, test to see if the production actually differs between the two groups, and then examine the differences observed if they are found to be statistically significant. Another approach is to model the economic activity in question (e.g., average labor productivity, wage levels, trade propensities) directly as a function of related variables (e.g., factor intensities, size, vintage) and a set of dummy variables identifying firms belonging to the ownership group(s) of interest. The signs and significance levels of the coefficients on the ownership dummies then reveal the differences in the dependent variable among ownership groups after controlling for differences in the other relevant independent variables that are included in the equations.

Although the approach described above is clearly the most preferable methodology for comparing ownership groups because it allows one to isolate the effects of ownership from the effects of other differences among ownership groups, it is not always practical given data constraints. For example, one often does not have enough observations to make reliable estimates when analyzing time series or relatively small industrial cross sections. Another problem is that data on the control variables may be lacking. Both of these problems are relevant in this paper. Correspondingly, this paper uses a simpler approach to comparing mean values of various indicators among ownership groups, and then employing simple t-tests to see if observed

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<sup>4</sup> It is important to realize that these other differences may not be related to greater efficiency and that other factors such as market imperfections may explain such differences.

differences among ownership groups are in some sense statistically significant.<sup>5</sup> This methodology facilitates some rough comparisons among ownership groups that can account for differences in mean performance and differences in variation of performance across groups. However, the approach does not allow one to sort out the influences of ownership and the influences of other factors that may be involved. For example, if one observes that foreign MNCs have relatively high average labor productivity, it may be that this difference results from the fact that foreign MNCs are more capital intensive and that differences between foreign MNCs and other firms would disappear if differences in capital intensity could be controlled for.

Following Ramstetter (1999a) the indicators examined can be divided into five groups of economic indicators as follows:

1. Firm or plant size
  - 1a. Employees per firm or employees per plant
  - 1b. Sales (or gross output) per firm or Sales (or gross output) per plant
  - 1b. Value added per firm or value added per plant
2. Factor productivity
  - 2a. Average product of labor
  - 2b. Compensation per employee
  - 2c. Average product of capital
3. Factor intensity
  - 3a. Fixed assets per employee
  - 3b. Investment propensities
4. Functional income distribution
  - 4a. Compensation/value added
5. Trade propensities
  - 5a. Exports/value added
  - 5b. Imports/value added

These indicators will be compared in three different samples, time series for all industries and the industrial sector in 1990-2000 as available, two cross-sections of industries from the 1995

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<sup>5</sup> If the sample size differs among groups m and n the t-statistic and degrees of freedom are: (Sachs 1984, p. 270):

$$t = \frac{MN(X1) - MN(X2)}{SQ((VR(X1)/N1) + (VR(X2)/N2))}$$

$$df = \frac{VR(X1)/N1 + VR(X2)/N2}{((VR(X1)/N1)^2 / (N1-1) + (VR(X2)/N2)^2 / (N2-1))}$$

If sample size is the same for groups 1 and 2, these formulae become:

$$t = \frac{MN(X1) - MN(X2)}{SQ((VR(X1) + VR(X2))/N)}$$

$$df = N - 1 + ((2N - 2) / ((VR(X1)/VR(X2)) + (VR(X2)/VR(X1))))$$

where MN=mean operator, N1, N2=number of observations for samples 1 and 2, SQ=square root operator, VR=sample variance operator, X1=value of X in samples 1 and 2.



economic census (1994/1995 data), and one cross section of manufacturing industries from the 1999 industrial survey (1998 data). The following sections look at the evidence from these samples one by one.

### 3. Time Series Evidence

As indicated in the introduction above, in the 1990s the Vietnamese economy experienced sharp increases in shares of foreign MNCs in production, slight increases in the shares of SOEs, and declining shares of non-SOEs (Table 1). These patterns are particularly evident in shares of production in both all industries (measured as value added or GDP) and the industrial sector (defined as mining, manufacturing, and construction, and measured as gross output including value added and intermediate consumption). Shares of foreign MNCs also increased rapidly in international trade of all industries and in the number of enterprises and in employment of the industrial sector. Similar to patterns observed in other Asian economies (e.g., Ramstetter 1994, 1999a, 2002a, 2002b), foreign MNC shares tended to be highest in terms of exports, of intermediate size in terms of production, small in terms of employment, and smallest in terms of the number of enterprises. Shares of SOEs were also relatively large in terms of production, followed by employment and the number of enterprises. In other words, on average both SOEs and foreign MNCs had higher average labor productivity, and production or employment per enterprise than other types of firms, while foreign MNCs also had relatively high trade propensities. In contrast the share of foreign MNCs in total investment capital fluctuated more, peaking in 1994-1997, while the share of SOEs grew more steadily. It is also noteworthy that foreign MNC shares appear to have been relatively large in the industrial sector, but the difference between shares of the industrial sector and shares of all industries was smaller for SOEs.<sup>6</sup>

Table 2 then compares indicators that are available in time series for ownership groups in 1990-2000. In all industries, on average foreign MNCs had the highest investment and trade (both export and import) propensities, while SOEs had higher investment propensities than non-SOEs. All of these differences were statistically significant at the 1 percent level or less, which indicates that these differences were consistent for most of the period. One interesting exception is the investment propensity in foreign MNCs, which was much higher than in other groups through 1998 but this propensity was higher in SOEs in 1999-2000. In the industrial sector, two measures of size are compared with different results. SOEs were the largest if size is measured as employment per firm while foreign MNCs were the largest in terms of output per firm, and non-SOEs were by far the smallest by both measures. Foreign MNCs also had by far highest output per employee.

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<sup>6</sup> This comparison is not precise, however, because shares of production for all industries refer to shares of value added or GDP, while shares of production for the industrial sector refer to shares of gross output, including intermediate consumption.

Thus, these limited time series data suggest that foreign MNCs were the most efficient in terms of labor productivity, relatively large, and the most dependent on trade of the three groups identified. However, SOEs were the largest in terms of employment and SOEs are larger than non-SOEs in terms of production. SOEs also had higher labor productivity than non-SOEs.

**4. Cross Section Evidence from the 1995 Economic Census (1994-1995 data)**

Table 3 shows the shares of employment, fixed assets, and sales by ownership group for the industry grouping included in the 1995 Economic Census. The sample from this Census covered MNCs in the country reasonably comprehensively but coverage of SOEs and non-SOEs was much poorer.<sup>7</sup> Moreover, shares of non-SOEs, which accounted for only 25 percent of the employment, 16 percent of the sales, and 6 percent of the fixed assets of sample firms, tended to be much smaller than suggest by the annual data in Table 1. SOEs were the largest group with over 76 percent of sales, 71 percent of employment, and 63 percent of fixed assets. Foreign MNCs had the remaining 5 percent of employment, 9 percent of sales, and 31 percent of fixed assets. One reason that MNC shares were so much larger in terms of fixed assets was because of the relatively large investments in crude oil exploration. Fixed assets of MNCs in crude oil mining amounted to 21 trillion dong or 56 percent of the 37 trillion dong in all industries (Appendix Table A3). Foreign MNCs were also relatively large in hotels and restaurants, education and training, culture and sport, and health care and social relief. In processing, foreign MNC shares were relatively large in a wide range of industries, foodstuff and beverages, leather and shoes, wood products, coke and oil products, metals, metal products, office equipment and computers, non-classified electric machinery, radio and television, etc., precision instruments, engine vehicles, other transportation means, and furniture.

Labor productivity, capital productivity, and capital intensity are compared across two samples of industries using these data, where capital is defined as the stock of fixed assets.<sup>8</sup> In the first sample of 14 single-digit industries, average labor productivity was 287 percent higher and average capital intensity was 1,602 percent higher in foreign MNCs than in the other two groups combined, but average capital productivity was 15 percent lower (Table 4). However, the variation across industries was very large and none of these differences were significant at even the 10 percent level, much less the standard 5 percent level. Almost all of the comparisons made in

<sup>7</sup> This is clear from the following comparison of employment estimates by type of firm (calculated from Appendix Tables A2 and A3).

Data Type	SOEs	NonSOEs	MNCs
Census 94/95	324,809	821,126	77,579
Annual 1994	675,111	1,624,917	62,909
Annual 1995	750,090	1,778,396	104,715

<sup>8</sup> Economically, this is a very poor measure of capital because it refers to the book values of these assets, not to their economic value.

this sample reveal insignificant differences among ownership groups, the single exception being the observation of significantly higher average capital productivity in foreign MNCs compared to non-SOEs. In a second sample of 23 processing industries, results were similar to the results from the single-digit sample, with average labor productivity 59 percent higher and average capital intensity 389 percent higher, but average capital productivity 93 percent lower in foreign MNCs than in other firms. In this sample, the difference in average capital intensity was statistically significant at the standard 5 percent level and the difference in average capital productivity was also significant at a somewhat lower 9 percent level. More detailed comparisons of ownership groups are only possible for average capital productivity and here the only significant result suggests that foreign MNCs had lower capital productivity than SOEs.

## **5. Cross Section Evidence from the 1999 Industrial Survey (1998 data)**

Table 5 shows the shares of establishments, employment, employee compensation, value added, and fixed investment from the 1999 industrial survey, which covered industrial firms with 5 or more employees in 17 provinces.<sup>9</sup> In this sample non-SOEs were again very small, accounting for only 24 percent of the employment in the sample, compared to 25 percent in the economic census sample in the previous section. The non-SOE share of production was even smaller, only 7 percent of the value added in this sample. Foreign MNC shares were much larger in this sample, accounting for 23 percent of the employment compared to only 5 percent in the economic census sample. This increase reflects the fact that foreign MNC presence clearly grew rapidly during 1995-1998. However, it also appears likely that foreign MNCs were overrepresented in both the industrial survey and economic census samples, but to a much greater degree in the industrial survey. For example, the time series data in Table 1 suggest that foreign MNC shares of industrial employment were 4 percent in 1995 and 9 percent in 1998. The difference in 1995 estimates are not large but the industrial survey estimate for 1998 is more than two times larger than the time series estimate, suggesting that the sample includes an unusually large number of foreign MNCs.

Foreign MNCs again accounted for a very large share of oil production, which accounted for 11 trillion dong or 46 percent of the 25 trillion dong in value added produced by all foreign MNCs in this sample (Appendix Table A4). Ranked by value added, this industry was followed by food and beverages (3.0 trillion dong), leather products and footwear (1.4 trillion dong), textiles (1.3 trillion dong), non-metallic mineral products (1.2 trillion dong), chemicals and precision machinery (0.9 trillion dong each). Relative to the industry as a whole, foreign MNCs accounted for 87 percent of all value added in mining, 39 percent in manufacturing, and 1 percent in electricity, gas, and water supply. In manufacturing, foreign MNC shares of value added were

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<sup>9</sup> These 17 provinces accounted for 41 percent of establishments, 59 percent of employment, and 75 percent of gross output at current prices countrywide (General Statistical Office, 2000a).

relatively high (46 percent or higher) in textiles, leather and footwear, coke and refined petroleum, basic metals, metal products, radio and television, etc., precision machinery, other transportation machinery, and furniture and miscellaneous manufactures. In general foreign MNC shares were relatively large in terms of value added and fixed investment but smaller in terms of the number of establishments and employment. In short, foreign MNCs again appear to have been larger and more productive than other groups on average.

Table 6 makes these and other comparisons among the three ownership groups. Looking first at the size indicators, SOEs were again the largest firms when measured as employment per firm. In the sample of 2-digit industries, this difference was highly significant statistically when non-SOEs are compared with the other two groups but only significant at the 7 percent level when comparing SOEs and foreign MNCs. Non-SOEs were also significantly smaller than the other two groups in terms of production per plant, but in this case the difference between SOEs and foreign MNCs was very small and statistically insignificant. Foreign MNCs also had significantly higher value added per worker and compensation per worker, suggesting that average labor productivity and wages were both highest in foreign MNCs. Interestingly, differences in the ratio of compensation to value added were not statistically significant in comparisons involving foreign MNCs. Wages were also higher in SOEs than in non-SOEs, but the differences in average labor productivity and the ratio of compensation to value added were not statistically significant in this comparison. Finally, in this year the investment propensity was significantly higher in foreign MNCs than in the other two groups. The investment propensity was also higher in SOEs than in non-SOEs, but this difference was only significant at the 9 percent level.

## **6. Conclusions**

After a brief theoretical and methodological review, this paper examined trends in the shares of the three ownership groups, foreign MNCs, SOEs, and local non-SOEs, in Vietnam's economy during 1990s. Shares of foreign MNCs rose rapidly, reflecting the government's rather successful promotion of FDI. On the other hand, shares of SOEs remained rather high, reflecting the lack of success in reducing reliance on SOEs and promoting the development of local non-SOEs. Foreign MNC shares tended to be highest in terms of exports, of intermediate size in terms of production, small in terms of employment, and smallest in terms of the number of enterprises. Shares of SOEs were also relatively large in terms of production, followed by employment and the number of enterprises. These differences suggest further differences among ownership groups in firm size, productivity, and trade propensities, among other indicators of firm performance. The paper then compares these and other indicators of firm performance for the three ownership groups in Vietnam.

Comparisons of these groups draw on two separate strands of theoretical literature. First,

economists recognize that the motivation of SOEs may differ from those of non-SOEs, which are assumed to maximize profits. If the profit motive is relatively weak in SOEs as is often hypothesized, economists generally expect SOEs to be likely to be less efficient than non-SOEs. However, many studies, including this one, indicate that this is not necessarily so. More specifically, in Vietnam, SOEs were found to be relatively large, while labor productivity and wages also tended to be higher in SOEs compared to non-SOEs in the time series and cross section samples examined here. However, differences observed in the cross section samples were often insignificant statistically in the sense that variances were relatively large compared to the mean difference observed in a direct comparison of SOEs and non-SOEs. Evidence from the 1995 economic census also suggests that SOEs had relatively high capital productivity compared to non-SOEs, but here again these differences were not statistically significant.

Second, economists theorize that MNCs are likely to have relatively large endowments of firm-specific assets related to production technology, marketing networks, and management know-how. Correspondingly, MNCs are likely to be larger, more efficient, and more dependent on international trade than non-MNCs. The comparisons made suggest that foreign MNCs in Vietnam were usually characterized by relatively large firm size, high labor productivity and/or wages, and high trade propensities compared to non-MNCs, though differences in labor productivity were not always significant. Moreover, foreign MNCs in the 1995 economic census tended to have relatively low capital productivity, though these differences were not always significant. Foreign MNCs also had relatively high investment propensities for most of the 1990s but this difference was more a result of the government's relaxation of restrictions on FDI than a result of intrinsic differences among types of firms.

One must be very clear that these crude comparisons do not constitute rigorous tests of differences among groups of firms for several reasons. First and foremost, many of these comparisons are likely to be affected by other factors that could not be accounted for here. For example, differences in labor productivity are very likely to be affected by differences in size, vintage, factor intensities, and the like. In order to make more rigorous comparisons it is thus necessary to construct models that allow one to identify relevant control variables and isolate their effects before comparing ownership groups. Unfortunately, the second and third large problems faced in this study, small sample size and lack of data on relevant variables, make such modeling impossible with these data sets. One possible way to address the first two problems would be to arrange access to the firm-level data underlying the 1995 economic census and the 1999 industrial survey.

Given these severe difficulties, how does one best interpret these results? First, to reiterate, these findings must be viewed as extremely preliminary. Having said that, however, the second important point is that differences between foreign MNCs and local firms in Vietnam in the 1990s appear to have been similar to the differences suggested by theory in many respects, the

important exception being the comparison of capital productivity in the 1995 census. Third, in marked contrast to theoretical expectations, it is very difficult to find evidence that SOEs were less efficient than local non-SOEs. Indeed there is a fair amount of evidence suggesting the exact opposite. In this respect, these results are similar to results of several other studies, which also provide evidence that SOEs are not necessarily less efficient than their non-SOE counterparts. However, in the Vietnamese case, it is important not to make too much of this finding because the local private sector remains so underdeveloped that comparisons of SOEs and local non-SOEs in Vietnam may not be very meaningful for another decade or so.

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**Table 1: Shares of Economic Activities by Ownership Group 1990-2000 (percent of total)**

Item, Owner	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
All Industries, GDP at Current Prices											
SOEs	31.76	31.07	34.29	38.21	40.12	40.18	39.93	40.48	40.00	38.74	38.98
Non-SOEs	na	na	na	na	53.47	53.51	52.68	50.44	49.97	49.02	47.77
Collective	na	na	na	na	10.17	10.06	10.02	8.91	8.90	8.84	8.53
Private & Mixed	na	na	na	na	7.44	7.44	7.40	7.21	7.24	7.25	7.20
Household	na	na	na	na	35.86	36.02	35.25	34.32	33.83	32.93	32.03
Foreign MNCs	na	na	na	na	6.41	6.30	7.39	9.07	10.03	12.24	13.25
All Industries, GDP at Constant 1994 Prices											
SOEs	38.06	38.35	39.02	39.55	40.12	40.07	40.78	41.35	41.27	40.40	40.64
Non-SOEs	na	na	na	na	53.47	53.20	51.87	50.44	49.49	49.24	48.70
Collective	na	na	na	na	10.17	9.70	9.19	8.72	8.54	8.64	8.47
Private & Mixed	na	na	na	na	7.44	7.56	7.65	7.50	7.50	7.51	7.60
Household	na	na	na	na	35.86	35.94	35.03	34.22	33.45	33.09	32.63
Foreign MNCs	na	na	na	na	6.41	6.73	7.35	8.20	9.24	10.36	10.67
All Industries, Total Investment Capital at Current Prices											
SOEs	40.20	37.97	35.12	43.99	38.30	38.28	45.23	48.07	53.97	61.55	61.94
Non-SOEs	46.75	47.73	43.92	30.82	31.31	29.39	26.17	20.65	21.06	20.24	19.49
Foreign MNCs	13.06	14.30	20.96	25.18	30.39	32.33	28.60	31.28	24.97	18.21	18.57
All Industries, Total Investment Capital at Constant 1994 Prices											
SOEs	40.20	37.97	35.12	44.00	38.30	38.28	45.23	48.07	53.97	61.55	61.94
Non-SOEs	46.75	47.74	43.92	30.82	31.31	29.39	26.17	20.65	21.06	20.24	19.49
Foreign MNCs	13.06	14.30	20.96	25.18	30.39	32.33	28.60	31.28	24.97	18.21	18.57
All Industries, Merchandise Exports at Current Prices											
Foreign MNCs	na	na	na	na	3.97	8.08	10.83	19.49	21.18	22.44	23.20
All Industries, Merchandise Imports at Current Prices											
Foreign MNCs	na	na	na	na	10.31	18.00	18.33	27.57	23.20	29.10	28.58
Industrial Sector, Number of Enterprises											
SOEs	0.71	0.59	0.54	0.45	0.39	0.32	0.30	0.30	0.31	0.29	na
Non-SOEs	99.29	99.40	99.43	99.51	99.56	99.61	99.61	99.59	99.54	99.56	na
Collective	3.32	1.82	1.30	0.93	0.32	0.18	0.16	0.16	0.16	0.18	na
Private & Mixed	0.19	0.22	0.27	0.72	0.96	0.87	0.93	0.98	1.00	0.98	na
Household	95.77	97.36	97.87	97.86	98.28	98.56	98.52	98.45	98.38	98.40	na
Foreign MNCs	0.01	0.01	0.03	0.04	0.05	0.07	0.09	0.11	0.15	0.16	na
Industrial Sector, Number of Employees											
SOEs	32.90	31.27	31.88	28.02	28.57	28.49	27.48	28.32	28.72	25.98	na
Non-SOEs	66.67	68.12	67.17	70.34	68.77	67.54	66.57	63.38	62.03	63.97	na
Collective	20.26	12.95	9.72	7.11	4.73	2.12	2.54	2.41	2.81	2.83	na
Private & Mixed	0.86	1.13	2.25	5.71	6.86	8.09	8.49	9.30	9.99	11.04	na
Household	45.54	54.04	55.21	57.52	57.17	57.33	55.54	51.67	49.24	50.11	na
Foreign MNCs	0.43	0.61	0.95	1.64	2.66	3.98	5.95	8.29	9.25	10.05	na
Industrial Sector, Gross Output at Constant 1994 Prices											
SOEs	50.89	48.96	48.56	49.49	50.12	50.29	49.25	47.96	45.93	43.38	42.20
Non-SOEs	28.25	27.49	25.68	24.65	24.12	24.62	24.02	23.11	22.09	21.94	22.58
Collective	6.97	3.72	2.19	1.64	0.85	0.63	0.58	0.56	0.57	0.64	0.73
Private & Mixed	2.28	2.31	3.29	4.24	5.06	6.39	7.37	7.86	7.75	8.28	9.47
Household	19.00	21.45	20.20	18.76	18.21	17.60	16.07	14.69	13.77	13.03	12.38
Foreign MNCs	16.70	22.03	26.40	26.62	26.41	25.09	26.73	28.92	31.98	34.68	35.22

Sources: Calculated from Appendix Tables A1, A2.

**Table 2: Percentage Differences in Economic Indicators Among Ownership Groups 1990-2000**

Comparison, indicator	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Mean Difference	Significance Level
All Industries, Foreign MNCs vs. All Others (SOEs and Non-SOEs), current prices													
Investment/GDP	na	na	na	na	638	710	502	456	298	160	149	407	0.01
Exports/GDP	na	na	na	na	60	131	152	243	241	207	198	181	0.04
Imports/GDP	na	na	na	na	168	326	281	382	271	294	262	283	0.00
All Industries, SOEs vs. All Others (Foreign MNC and Non-SOEs), current prices													
Investment/GDP	144	136	104	127	93	92	124	136	176	253	255	140	0.01
All Industries, Foreign MNCs vs. SOEs, current prices													
Investment/GDP	na	na	na	na	497	538	342	290	184	94	88	266	0.02
All Industries, Foreign MNCs vs. Non-SOEs, current prices													
Investment/GDP	na	na	na	na	810	934	779	842	590	360	344	699	0.00
All Industries, SOEs vs. Non-SOEs, current prices													
Investment/GDP	na	na	na	na	163	173	228	290	320	385	390	262	0.00
Industrial Sector, Foreign MNCs vs. SOEs, number or constant 1994 prices													
Employment/Firm	114	89	63	72	70	63	75	81	67	72	na	75	0.00
Output/Firm	2,853	2,069	1,154	662	396	224	189	167	144	149	na	482	0.01
Output/Employee	2,503	2,325	1,833	916	565	357	250	206	216	207	na	714	0.00
Industrial Sector, Foreign MNCs vs. Non-SOEs, number or constant 1994 prices													
Employment/Firm	7,902	6,895	5,466	6,376	7,395	8,222	10,333	12,090	9,993	10,080	na	8,326	0.00
Output/Firm	722,091	621,964	399,152	294,506	209,162	142,275	128,501	115,611	96,996	101,420	na	261,029	0.00
Output/Employee	9,138	9,020	7,302	4,619	2,828	1,730	1,244	956	971	1,006	na	3,275	0.00
Industrial Sector, SOEs vs. Non-SOEs, number or constant 1994 prices													
Employment/Firm	6,932	7,749	8,683	8,831	10,560	13,104	13,703	14,918	15,005	13,995	na	11,054	0.00
Output/Firm	25,306	30,064	34,593	44,514	52,820	63,465	68,059	69,283	67,406	68,132	na	54,138	0.00
Output/Employee	365	388	398	504	500	484	497	464	449	487	na	459	0.00

Sources: Calculated from Appendix Tables A1, A2.

**Table 3: Shares of Employment, Fixed Assets, and Sales for Enterprises with Independent Cost Accounting in 1994-1995 from the 1995 Economic Census by Industry and Owner (percent)**

Industry	Number of Employees			Fixed Assets in current prices			Sales in current prices		
	SOEs	Non-SOEs	For. MNC	SOEs	Non-SOEs	For. MNC	SOEs	Non-SOEs	For. MNC
	<b>All industries</b>	71	25	5	63	6	31	76	16
Mineral industry	84	12	4	12	0	87	23	0	77
Coal, mildcoal, peat	na	na	0	100	0	0	100	0	0
Crude oil, natural gas, petrol services	na	na	39	1	0	99	6	0	94
Ores	na	na	4	92	0	8	69	0	31
Stone and other minerals	na	na	1	80	11	9	93	7	1
Processing industry	64	29	7	68	10	22	74	15	11
Food & beverages	na	na	6	49	11	40	64	22	14
Cigarettes, tobacco	na	na	1	96	2	3	98	2	0
Textiles	na	na	6	82	3	15	70	19	11
Apparel	na	na	8	50	33	17	69	20	12
Leather, shoes, suitcases, saddles	na	na	19	38	22	40	52	16	32
Wood products, bamboo, etc.	na	na	7	38	37	25	42	48	10
Paper & paper products	na	na	8	85	7	8	77	12	12
Publishing & printing	na	na	1	98	1	1	98	1	1
Coke, oil products, nuclear	na	na	7	61	0	39	89	0	11
Chemicals & chemical products	na	na	4	74	7	19	90	6	5
Rubber & plastic products	na	na	5	54	23	23	60	35	5
Non-metallic mineral products	na	na	1	92	4	4	92	7	1
Metals	na	na	8	68	6	26	70	4	26
Metal products	na	na	3	64	17	19	61	27	12
Non-classified machinery	na	na	2	84	4	12	86	10	3
Office equipment & computers	na	na	26	64	14	22	82	1	17
Non-classified electric machinery	na	na	5	64	7	30	80	5	15
Radio, television, & telecommunication	na	na	15	50	12	39	87	5	7
Precision instruments, clocks	na	na	13	49	8	44	76	5	19
Engine vehicles	na	na	11	48	4	49	52	4	44
Other transportation means	na	na	3	69	3	28	79	5	16
Furniture	na	na	13	24	44	32	33	51	16
Regenerate	na	na	0	94	6	0	73	27	0
Electricity, gas, & water	99	1	0	94	0	6	100	0	0
Construction	79	20	0	82	14	4	83	16	1
Trade & repair of engine vehicles, etc.	71	28	1	79	18	3	79	20	0
Hotel & restaurants	56	31	12	26	10	64	71	6	23
Transportation, storage, & communication	77	22	1	93	4	3	83	7	10
Finance & banking	88	11	1	72	18	10	80	15	5
Scientific & technical activities	79	20	0	62	36	1	83	16	1
Asset business activities & consulting	76	15	8	59	3	38	83	4	14
Education & training	52	36	12	4	33	63	1	11	88
Health care & social relief	24	43	33	11	67	22	78	22	0
Culture & sport	65	18	17	32	0	68	98	0	2
Public & personal services	94	5	1	94	2	5	98	1	1

Source: Calculated from Appendix Table A3.

**Table 4: Percentage Differences in Economic Indicators Among Ownership Groups for Enterprises with Independent Cost Accounting in 1994-1995 from the 1995 Economic Census**

Industry	Foreign MNCs vs. All Others (SOEs & Non-SOEs)			Foreign MNCs vs. SOEs			Foreign MNCs vs. Non-SOEs			SOEs vs. Non-SOEs		
	Sales/ Empl.	Sales/ FixAs.	FixAs./ Empl.	Sales/ Empl.	Sales/ FixAs.	FixAs./ Empl.	Sales/ Empl.	Sales/ FixAs.	FixAs./ Empl.	Sales/ Empl.	Sales/ FixAs.	FixAs./ Empl.
<b>All industries</b>	95	-90	815	74	-57	646	195	-79	2,486	70	-51	246
<b>Single-Digit Industries</b>												
Mineral industry	8,767	-100	18,187	7,746	-100	16,190	69,607	-100	103,007	788	40	533
Processing industry	64	-81	283	36	-36	203	198	-54	811	119	-27	200
Electricity, gas, & water	-72	-100	1,175	-72	-97	1,169	42	-94	2,729	401	125	123
Construction	173	362	1,320	158	292	1,218	250	245	1,931	36	-12	54
Trade & repair of engine vehicles, motor	-65	255	253	-68	601	213	-52	527	425	50	-11	68
Hotel & restaurants	115	-99	1,160	50	-96	1,036	852	-84	1,468	534	359	38
Transportation, storehouse, & communica	708	-75	115	586	176	76	2,136	45	988	226	-47	520
Finance & banking	341	-59	789	367	43	888	204	87	391	-35	31	-50
Scientific & technical activities	58	2,841	196	50	926	272	97	2,918	66	31	194	-55
Asset business activities & consulting	75	-99	577	52	-93	488	576	-93	2,620	345	-4	363
Education & training	5,091	299	1,164	29,957	-43	6,624	2,275	-48	484	-92	-9	-91
Health care & social relief	na	402	-40	na	-86	54	na	199	-55	520	2,044	-71
Culture & sport	-89	-100	919	-92	-100	698	9,700	-100	49,504	115,486	1,758	6,120
Public & personal services	-47	-88	263	-49	-72	251	78	-68	969	248	14	204
MEAN	287	-15	1,602	244	236	1,494	595	371	3,436	102	40	122
SIGNIFICANCE	0.20	0.82	0.11	0.22	0.30	0.11	0.14	0.03	0.30	0.27	0.53	0.25

**Table 4 (continued)**

Industry	Foreign MNCs vs. All Others (SOEs & Non-SOEs)			Foreign MNCs vs. SOEs			Foreign MNCs vs. Non-SOEs			SOEs vs. Non-SOEs		
	Sales/ Empl.	Sales/ FixAs.	FixAs./ Empl.	Sales/ Empl.	Sales/ FixAs.	FixAs./ Empl.	Sales/ Empl.	Sales/ FixAs.	FixAs./ Empl.	Sales/ Empl.	Sales/ FixAs.	FixAs./ Empl.
<b>Two-Digit Processing Industries</b>												
Foodstuff & beverage production	163	-87	973	na	-58	na	na	-73	na	na	-35	na
Cigarettes, rustic tobacco production	-42	-97	347	na	-41	na	na	-46	na	na	-8	na
Textile production	90	-53	170	na	46	na	na	-79	na	na	-85	na
Dress production, tanning & dyeing fur p	61	104	145	na	-13	na	na	100	na	na	129	na
Tanning & processing leather, sandal ha	105	2	197	na	-71	na	na	-46	na	na	85	na
Wood, wood products, bamboo, neohouz	54	88	348	na	73	na	na	45	na	na	-16	na
Paper & paper products	50	-61	-9	na	73	na	na	-6	na	na	-46	na
Publishing, printing, & copy	-12	-77	-23	na	28	na	na	41	na	na	10	na
Coke, oil products, nuclear	64	na	768	na	na	na	na	na	na	na	na	na
Chemicals & chemical products	18	-84	485	na	-75	na	na	-61	na	na	54	na
Rubber & plastic products	0	-29	470	na	36	na	na	2	na	na	-25	na
Non-metallic minerals	-15	-84	224	na	68	na	na	-8	na	na	-45	na
Metal	296	-93	281	na	-86	na	na	-75	na	na	73	na
Metallic products	330	25	636	na	48	na	na	-12	na	na	-40	na
Non-classified machinery	72	-70	623	na	-16	na	na	-67	na	na	-61	na
Office equipment & computers	-42	-97	-17	na	-96	na	na	-37	na	na	1,322	na
Non-classified electric machinery	214	-91	661	na	-85	na	na	-78	na	na	51	na
Radio, television, & telecommunication	-56	-98	255	na	-92	na	na	-70	na	na	273	na
Health, accurate, & optical instruments;	63	-91	420	na	-92	na	na	-83	na	na	131	na
Engine vehicles	540	-97	669	na	-92	na	na	-92	na	na	0	na
Other transportation means	599	-92	1,333	na	-84	na	na	-89	na	na	-34	na
Bed, wardrobe, desk, table, chair produc	20	111	203	na	16	na	na	38	na	na	19	na
Regenerate	na	na	na	na	na	na	na	na	na	na	-83	na
MEAN	59	-93	389	na	-50	na	na	-41	na	na	18	na
SIGNIFICANCE	0.33	0.09	0.00	na	0.01	na	na	0.11	na	na	0.45	na

Source: Calculated from Appendix Table A3.



**Table 5: Shares of Selected Principle Indicators for 1998 for Industrial Establishments in 17 Provinces from the 1999 Industrial Survey by Industry and Owner (percent)**

Industry	Establishments			Employees			Compensation of Employees			Value Added			Fixed Investment		
	SOEs	Non-SOEs	For. MNCs	SOEs	Non-SOEs	Foreign MNCs	SOEs	Non-SOEs	Foreign MNCs	SOEs	Non-SOEs	Foreign MNCs	SOEs	Non-SOEs	Foreign MNCs
<b>Industry total</b>	23	62	15	53	24	23	50	14	36	42	7	51	21	9	69
Mining and quarrying	40	56	3	69	25	6	60	4	37	12	1	87	19	3	78
Coal and lignite; extraction of peat	81	15	4	99	0	0	99	0	1	100	0	0	87	0	13
Crude petroleum and natural gas	50	0	50	63	0	37	16	0	84	1	0	99	2	0	98
Mining of metal ores	50	33	17	45	43	12	36	42	23	27	22	51	54	43	3
Other mining and quarrying	33	66	1	27	73	0	67	33	1	78	21	0	58	42	0
Manufacturing	22	63	16	51	24	25	48	15	36	50	10	39	20	11	69
Food & beverages	15	76	9	57	26	17	53	13	34	54	8	39	17	9	74
Tobacco	80	7	13	92	0	8	96	0	4	100	0	0	94	0	6
Textiles	26	49	25	69	11	19	68	7	25	46	7	46	16	8	76
Apparel	17	62	21	45	31	24	47	24	29	45	22	32	33	28	39
Leather products & footwear	22	44	34	26	29	45	18	19	62	23	20	57	6	16	79
Wood & wood products	13	82	5	35	56	9	36	45	19	36	39	25	39	26	35
Paper & paper products	17	75	9	54	34	12	62	22	16	64	18	18	36	14	50
Publishing & printing	78	18	4	94	4	2	95	2	3	97	2	1	90	9	1
Coke & refined petroleum	0	33	67	0	20	80	0	6	94	0	22	78	0	7	93
Chemicals & chemical products	29	47	24	68	15	16	54	11	34	49	11	40	21	5	74
Rubber & plastics	16	63	21	47	26	27	55	17	29	56	20	24	13	14	74
Non-metallic mineral products	19	76	5	64	27	9	62	16	22	58	7	34	60	23	17
Basic metals	19	56	25	86	5	9	79	3	18	45	3	52	25	4	71
Fabricated metal products	19	56	25	48	24	28	46	12	41	33	13	54	18	16	66
Machinery & equipment	42	42	17	78	12	10	64	15	21	42	18	40	37	15	48
Electrical machinery & apparatus	32	63	4	72	12	16	79	8	14	59	10	32	15	1	85
Radio, television & communication	30	25	45	37	6	57	33	4	63	38	6	56	7	1	92
Precision machinery	13	20	67	19	3	78	11	1	88	4	0	96	6	1	94
Motor vehicles	30	58	13	65	20	15	52	11	37	48	10	42	37	3	60
Other transportation machinery	44	44	12	77	12	12	57	15	28	33	6	61	54	3	43
Furniture & miscellaneous manuf.	7	83	10	13	68	18	12	48	40	7	28	65	7	25	68
Recycling	0	4	96	0	0	100	0	0	100	0	0	100	0	0	100
Electricity, gas and water supply	91	0	9	99	0	1	96	0	4	99	0	1	96	0	4
Electricity, gas, steam, hot water s	60	0	40	92	0	8	81	0	19	99	0	1	48	0	52
Water collection, purification, & d	100	0	0	100	0	0	100	0	0	100	0	0	100	0	0

Source: Calculated from Appendix Table A4.

**Table 6: Percentage Differences in Selected Principle Indicators among Ownership Groups for 1998 for Industrial Establishments in 17 Provinces from the 1999 Industrial Survey**

Industry	Foreign MNCs vs. SOEs						Foreign MNCs vs. Non-SOEs						SOEs vs. Non-SOEs					
	E/N	V/N	V/E	C/E	I/V	C/V	E/N	V/N	V/E	C/E	I/V	C/V	E/N	V/N	V/E	C/E	I/V	C/V
<b>Industry total</b>	-36	84	185	66	165	-42	284	2,700	628	175	9	-62	497	1,426	155	66	-59	-35
Mining and quarrying	6	8,816	8,307	614	-44	-92	301	183,837	45,791	3,900	-73	-91	278	1,963	446	460	-51	3
Coal and lignite; extraction of peat	-92	-98	-82	39	20,645	657	907	676	-23	330	den=0	458	12,153	51,422	320	210	den=0	-26
Crude petroleum and natural gas	-42	6,697	11,663	783	-36	-92	na	na	na	na	na	na	na	na	na	na	na	na
Mining of metal ores	-17	476	597	130	-97	-67	-43	356	698	90	-97	-76	-31	-21	15	-17	5	-28
Other mining and quarrying	-77	-89	-51	2	-96	110	-83	-16	389	466	-98	16	-25	650	906	456	-63	-45
Manufacturing	-31	8	58	51	330	-4	313	1,413	266	127	71	-38	500	1,296	132	51	-60	-35
Electricity, gas and water supply	-92	-93	-17	355	498	448	na	na	na	na	na	na	na	na	na	na	na	na
Electricity, gas, steam, hot water supply	-87	-99	-90	169	11,944	2,524	na	na	na	na	na	na	na	na	na	na	na	na
Water collection, purification, & distribution	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
<b>Two-digit Manufacturing Industries</b>																		
Food & beverages	-47	27	141	117	494	-10	465	4,172	657	295	59	-48	969	3,260	214	82	-73	-42
Tobacco	-45	-97	-95	-50	1,202	829	4,233	4,254	0	88	den=0	87	7,848	149,751	1,785	280	den=0	-80
Textiles	-71	5	262	34	386	-63	224	1,118	276	99	48	-47	1,011	1,054	4	49	-70	43
Apparel	-56	-40	38	20	69	-13	127	331	90	58	-2	-17	419	616	38	32	-42	-4
Leather products & footwear	13	59	41	94	483	38	102	281	88	111	74	12	80	140	34	9	-70	-19
Wood & wood products	-37	61	157	107	31	-19	159	897	285	162	114	-32	311	518	50	27	64	-16
Paper & paper products	-57	-48	21	11	399	-8	203	718	170	95	258	-28	607	1,478	123	76	-28	-21
Publishing & printing	-62	-83	-54	58	22	244	121	107	-6	197	-77	217	486	1,092	104	88	-81	-8
Coke & refined petroleum	na	na	na	na	na	na	94	77	-9	290	266	327	na	na	na	na	na	na
Chemicals & chemical products	-71	-1	238	162	335	-22	109	629	248	189	330	-17	616	638	3	10	-1	7
Rubber & plastics	-57	-67	-24	-9	1,217	20	206	278	23	69	331	37	615	1,061	62	86	-67	15
Non-metallic mineral products	-48	117	318	146	-53	-41	398	7,263	1,379	305	-85	-73	860	3,297	254	65	-68	-53
Basic metals	-92	-10	991	113	150	-80	297	4,652	1,098	230	-15	-72	4,702	5,174	10	55	-66	41
Fabricated metal products	-56	21	176	52	126	-45	165	839	255	184	1	-20	501	674	29	86	-55	45
Machinery & equipment	-67	134	615	143	36	-66	112	442	156	58	42	-38	548	132	-64	-35	5	81
Electrical machinery & apparatus	62	294	143	-22	970	-68	1,720	4,543	155	40	4,293	-45	1,023	1,080	5	80	311	71
Radio, television & communication equipment	3	0	-3	25	741	28	455	422	-6	50	1,041	60	440	423	-3	20	36	25
Precision machinery	-17	439	547	95	-40	-70	705	5,657	615	179	-9	-61	866	969	11	43	51	29
Motor vehicles	-45	110	279	204	81	-20	249	1,815	449	358	360	-17	530	812	45	51	154	4
Other transportation machinery	-43	580	1,097	225	-56	-73	268	3,923	994	94	35	-82	548	492	-9	-40	207	-35
Furniture & miscellaneous manufacturing	0	547	549	151	6	-61	134	1,915	760	207	16	-64	135	212	32	22	10	-8
Recycling	na	na	na	na	na	na	1,230	1,548	24	69	den=0	37	na	na	na	na	na	na
MEAN	-44	-10	127	79	229	-19	239	932	191	150	115	-17	509	1,043	28	40	-35	2
SIGNIFICANCE	0.07	0.83	0.01	0.00	0.01	0.21	0.02	0.00	0.00	0.00	0.03	0.28	0.00	0.04	0.57	0.00	0.09	0.89

Notes: C=compensation of employees E=number of employments; I=investment in fixed assets; N=number of establishments; V=value added; na=not applicable (one group has no establishments); den=denominator. Source: Calculated from Appendix Table A4.

**Appendix Table A1: Economic Activities by Ownership Group in All Industries 1990-2000**

Item, Owner	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>GDP at Current Prices (billion current dong)</b>											
Total	41,955	76,707	110,532	140,258	178,535	228,892	272,036	313,623	361,016	399,942	444,139
SOEs	13,324	23,836	37,903	53,592	71,620	91,977	108,634	126,970	144,406	154,927	173,118
Non-SOEs	na	na	na	na	95,470	122,487	143,296	158,203	180,396	196,057	212,159
Collective	na	na	na	na	18,164	23,020	27,271	27,946	32,131	35,347	37,907
Private	na	na	na	na	5,469	7,139	9,103	10,590	12,325	13,461	14,638
Household	na	na	na	na	64,025	82,447	95,896	107,632	122,138	131,706	142,279
Mixed	na	na	na	na	7,812	9,881	11,026	12,035	13,802	15,543	17,335
Foreign MNCs	na	na	na	na	11,441	14,428	20,106	28,450	36,214	48,958	58,862
<b>GDP at Constant Prices (billion 1994 dong)</b>											
Total	131,968	139,634	151,782	164,043	178,535	195,567	213,833	231,264	244,596	256,272	273,582
SOEs	50,227	53,555	59,230	64,882	71,620	78,367	87,208	95,638	100,953	103,531	111,173
Non-SOEs	na	na	na	na	95,470	104,045	110,916	116,656	121,050	126,181	133,228
Collective	na	na	na	na	18,164	18,978	19,654	20,173	20,879	22,141	23,164
Private	na	na	na	na	5,469	5,978	6,838	7,507	8,103	8,365	8,976
Household	na	na	na	na	64,025	70,287	74,913	79,128	81,819	84,790	89,277
Mixed	na	na	na	na	7,812	8,802	9,511	9,848	10,249	10,885	11,811
Foreign MNCs	na	na	na	na	11,441	13,155	15,709	18,970	22,593	26,560	29,181
<b>Total Investment Capital (billion current dong)</b>											
Total	7,581	13,471	24,737	42,177	54,296	68,048	79,367	96,870	97,336	103,772	120,600
SOEs	3,047	5,115	8,688	18,556	20,796	26,048	35,894	46,570	52,536	63,872	74,700
Non-SOEs	3,544	6,430	10,864	13,000	17,000	20,000	20,773	20,000	20,500	21,000	23,500
Foreign MNCs	990	1,926	5,185	10,621	16,500	22,000	22,700	30,300	24,300	18,900	22,400
<b>Total Investment Capital (billion 1994 dong)</b>											
Total	22,176	26,268	40,197	54,830	54,296	60,757	67,489	79,205	75,580	78,997	91,807
SOEs	8,914	9,973	14,118	24,122	20,796	23,257	30,523	38,078	40,793	48,623	56,866
Non-SOEs	10,366	12,539	17,654	16,900	17,000	17,857	17,664	16,353	15,918	15,986	17,890
Foreign MNCs	2,896	3,756	8,426	13,807	16,500	19,643	19,303	24,774	18,869	14,388	17,052
<b>Merchandise exports (billion current dong)</b>											
Total	15,585	20,948	28,910	31,766	44,458	60,146	80,051	107,311	124,192	160,905	202,711
Foreign MNCs	na	na	na	na	1,767	4,858	8,672	20,913	26,305	36,113	47,037
<b>Merchandise imports (billion current dong)</b>											
Total	17,843	23,468	28,461	41,755	63,884	90,021	122,943	135,436	152,577	162,041	215,349
Foreign MNCs	na	na	na	na	6,585	16,205	22,536	37,342	35,399	47,156	61,544

Sources: General Statistical Office (2000b, 2001, various years)

**Appendix Table A2: Economic Activities by Ownership Group in the Industrial Sector 1990-2000**

Item, Owner	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number of Enterprises											
Total	393,570	437,218	413,958	460,237	514,182	615,389	626,129	617,805	592,948	618,198	na
SOEs	2,782	2,575	2,250	2,066	2,014	1,973	1,879	1,843	1,821	1,786	na
Central govt.	589	538	538	525	529	549	557	560	575	583	na
Local govt.	2,193	2,037	1,712	1,541	1,485	1,424	1,322	1,283	1,246	1,203	na
Non-SOEs	390756	434587	411602	458003	511900	612977	623710	615296	590246	615453	na
Cooperatives	13086	7975	5369	4301	1654	1093	1023	973	967	1090	na
Private	743	955	1108	3322	3882	4007	4323	4469	4347	4181	na
Household	376927	425657	405125	450380	505333	606557	616855	608250	583352	608314	na
Mixed	0	0	0	0	1031	1320	1509	1604	1580	1868	na
Foreign MNCs	32	56	106	168	268	439	540	666	881	959	na
Number of Employees											
Total	2,260,708	2,183,398	2,091,058	2,332,132	2,362,937	2,633,201	2,745,452	2,715,770	2,742,089	2,921,829	na
SOEs	743,844	682,855	666,712	653,412	675,111	750,090	754,453	769,165	787,431	759,105	na
Central govt.	400,278	369,601	378,319	373,390	381,549	444,381	446,085	437,629	449,027	412,857	na
Local govt.	343,566	313,254	288,393	280,022	293,562	305,709	308,368	331,536	338,404	346,248	na
Non-SOEs	1,507,111	1,487,328	1,404,573	1,640,358	1,624,917	1,778,396	1,827,511	1,721,352	1,700,946	1,869,141	na
Cooperatives	458,093	282,770	203,185	165,718	111,828	55,851	69,725	65,490	76,975	82,632	na
Private	19,402	24,757	46,958	133,244	72,455	77,363	77,535	78,992	75,845	78,051	na
Household	1,029,616	1,179,801	1,154,430	1,341,396	1,350,950	1,509,486	1,524,708	1,403,205	1,350,152	1,464,013	na
Mixed	0	0	0	0	89,684	135,696	155,543	173,665	197,974	244,445	na
Foreign MNCs	9,753	13,215	19,773	38,362	62,909	104,715	163,488	225,253	253,712	293,583	na
Gross Output (billion dong, 1994 prices [1990-1994 data rebased])											
Total	54,483	60,161	70,449	79,374	90,271	103,375	118,097	134,420	151,223	168,749	194,919
SOEs	27,727	29,455	34,212	39,281	45,248	51,991	58,166	64,474	69,463	73,208	82,260
Central govt.	17,297	18,591	21,743	25,388	29,208	33,920	38,411	42,215	45,677	48,395	53,710
Local govt.	10,438	10,870	12,475	13,896	16,043	18,070	19,755	22,259	23,785	24,813	28,550
Non-SOEs	15,389	16,535	18,092	19,563	21,774	25,451	28,369	31,068	33,402	37,027	44,010
Cooperatives	3,799	2,237	1,540	1,304	765	650	684	751	859	1,076	1,425
Private	476	779	1,799	2,892	1,989	2,277	2,792	3,227	3,383	3,718	4,305
Household	10,350	12,907	14,232	14,894	16,438	18,191	18,977	19,745	20,827	21,983	24,124
Mixed	0	0	0	0	2,381	4,333	5,915	7,345	8,334	10,250	14,156
Foreign MNCs	9,100	13,252	18,597	21,133	23,843	25,933	31,562	38,878	48,358	58,515	68,649

Source: Vietnam, General Statistical Office (2000a).

**Appendix Table A3: Selected Principle Indicators for Enterprises with Independent Cost Accounting in 1994-1995 from the 1995 Economic Census by Industry and Owner**

Industry	Employees (number)			Fixed Assets (million dong)			Sales (million dong)		
	Non-MNCs		Foreign MNCs	Non-MNCs		Foreign MNCs	Non-MNCs		Foreign MNCs
		SOEs			SOEs			SOEs	
<b>All industries</b>	2,034,855	1,506,911	97,832	83,838,716	76,139,827	36,890,744	220,088,034	182,419,363	20,624,879
Mineral industry	98,035	85,316	3,722	2,995,885	2,926,946	20,800,534	2,945,426	2,896,816	9,915,677
Coal, mildcoal, peat	52,693	na	0	1,607,018	1,604,802	0	1,526,920	1,524,293	0
Crude oil, natural gas, petrol services	4,753	na	3,075	245,888	245,475	20,693,472	652,090	651,015	9,850,976
Ores	8,276	na	309	584,105	583,570	51,513	139,133	138,295	61,490
Stone and other minerals	32,313	na	338	558,874	493,099	55,549	627,283	583,213	3,211
Processing industry	999,620	687,961	73,618	28,358,017	24,642,003	7,995,934	59,318,214	49,155,726	7,156,587
Foodstuff & beverage production	184,375	na	11,366	5,168,989	4,239,959	3,417,697	16,852,640	12,580,856	2,735,890
Cigarettes, rustic tobacco production	10,963	na	73	672,258	661,460	20,027	3,605,714	3,542,565	13,924
Textile production	124,465	na	8,080	4,251,044	4,092,246	744,452	4,500,188	3,553,388	554,686
Dress production, tanning & dyeing fur products	135,976	na	11,034	1,728,522	1,042,958	343,340	2,970,554	2,307,108	387,923
Tanning & processing leather, sandal hand bag, shoes, suitcase, saddle	82,416	na	18,710	644,454	409,267	434,645	1,353,553	1,032,581	631,104
Wood, wood products, bamboo, neohouzeaua, straw	56,370	na	4,249	770,152	392,857	260,195	1,874,304	872,712	216,892
Paper & paper products	24,299	na	2,173	1,341,523	1,238,953	108,923	1,466,522	1,272,839	196,479
Publishing, printing, & copy	16,672	na	167	961,488	951,048	7,426	1,754,757	1,737,456	15,485
Coke, oil products, nuclear	1,847	na	136	172,532	172,532	110,229	1,458,508	1,458,508	176,582
Chemicals & chemical products	42,681	na	1,715	1,360,493	1,236,903	319,950	6,056,214	5,687,040	286,530
Rubber & plastic products	17,298	na	894	585,073	408,949	172,499	1,389,025	883,041	71,802
Non-metallic minerals	111,395	na	1,546	5,740,730	5,502,099	258,227	6,366,977	5,901,056	75,303
Metal	16,583	na	1,500	715,765	653,835	246,559	1,738,337	1,648,250	622,342
Metallic products	25,285	na	799	479,414	380,775	111,465	781,148	545,495	106,241
Non-classified machinery	44,205	na	836	1,225,758	1,171,022	167,589	1,549,818	1,384,111	50,340
Office equipment & computers	321	na	111	8,832	7,232	2,526	65,283	64,283	13,046
Non-classified electric machinery	14,007	na	772	341,709	309,838	143,288	871,977	816,444	150,968
Radio, television, & telecommunication equipment	9,963	na	1,759	341,211	277,314	214,069	1,996,113	1,880,126	156,432
Health, accurate, & optical instruments; clocks	3,756	na	556	66,685	57,797	51,356	107,579	100,856	25,936
Engine vehicles	11,677	na	1,434	251,734	233,025	237,664	317,939	294,367	249,860
Other transportation means	34,191	na	922	1,083,683	1,039,103	418,884	1,303,097	1,223,905	245,712
Bed, wardrobe, desk, table, chair production	30,710	na	4,786	433,450	151,035	204,924	928,186	361,556	173,110
Regenerate	165	na	0	12,518	11,796	0	9,781	7,183	0
Electricity, gas, & water	48,280	47,849	239	15,742,000	15,678,657	993,727	6,215,224	6,204,071	8,759
Construction	303,024	240,904	886	5,358,695	4,590,637	222,515	14,421,472	12,120,737	114,955
Trade & repair of engine vehicles, motorbikes, & personal goods	222,324	160,305	1,883	6,930,070	5,630,215	207,239	112,150,299	89,148,610	332,882
Hotel & restaurants	60,179	38,694	8,375	2,568,066	1,831,499	4,502,603	3,507,535	3,224,972	1,048,772
Transportation, storehouse, & communication	197,506	154,317	2,736	19,039,325	18,216,389	566,967	12,084,005	11,128,553	1,353,126
Finance & banking	40,952	36,432	492	709,282	567,425	75,746	4,966,809	4,171,598	262,909
Scientific & technical activities	972	772	4	8,206	5,188	100	23,104	19,288	150
Asset business activities & consulting	37,304	31,052	3,403	1,646,055	1,577,415	1,016,347	2,287,471	2,188,388	364,614
Education & training	494	291	67	2,511	278	4,304	3,096	315	21,799
Health care & social relief	407	146	196	2,714	378	782	2,373	1,842	0
Culture & sport	9,520	7,419	1,982	231,659	230,609	491,343	1,877,964	1,877,504	42,525
Public & personal services	16,238	15,453	229	246,231	242,188	12,603	285,042	280,943	2,124

Source: General Statistical Office (1998).

**Appendix Table A4: Selected Principle Indicators for 1998 for Industrial Establishments in 17 Provinces by Industry and Owner**

Industry	Establishments (number)			Employees (number)			Compensation of Employees (million dong)			Value Added (million dong)			Fixed Investment (million dong)		
	SOEs	Non-SOEs	For. MNCs	SOEs	Non-SOEs	Foreign MNCs	SOEs	Non-SOEs	Foreign MNCs	SOEs	Non-SOEs	Foreign MNCs	SOEs	Non-SOEs	Foreign MNCs
<b>Industry total</b>	1,084	2,956	727	537,198	245,234	231,887	6,448,360	1,773,312	4,613,999	20,059,945	3,585,246	24,687,600	3,304,173	1,435,536	10,775,688
Mining and quarrying	74	103	6	79,272	29,197	6,817	921,190	60,575	565,713	1,578,124	106,476	11,408,696	447,854	61,820	1,820,753
Coal and lignite; extraction of peat	21	4	1	57,252	89	224	691,773	347	3,753	1,030,570	381	739	322,881	0	48,030
Crude petroleum and natural gas	2	0	2	11,109	0	6,419	109,615	0	559,084	167,635	0	11,393,550	40,663	0	1,772,627
Mining of metal ores	3	2	1	261	252	72	2,740	3,198	1,735	6,594	5,560	12,671	1,333	1,075	80
Other mining and quarrying	48	97	2	10,650	28,856	102	117,062	57,030	1,141	373,325	100,535	1,736	82,977	60,745	16
Manufacturing	990	2,853	719	450,151	216,037	225,004	5,373,553	1,712,737	4,042,349	16,852,310	3,478,770	13,267,413	2,645,037	1,373,716	8,946,022
Food & beverages	148	723	84	61,673	28,177	18,480	774,285	194,294	503,776	4,223,283	614,008	3,047,668	450,762	245,417	1,931,433
Tobacco	12	1	2	8,584	9	780	174,068	48	7,832	2,283,730	127	11,059	42,635	0	2,688
Textiles	54	99	51	65,409	10,790	18,006	642,591	71,248	237,165	1,291,940	205,218	1,287,256	249,327	130,016	1,206,225
Apparel	63	224	75	63,014	43,191	32,791	665,418	344,890	414,059	968,397	480,836	693,391	100,541	86,107	121,686
Leather products & footwear	31	63	48	44,250	50,062	77,177	360,705	376,104	1,222,979	558,890	473,528	1,374,259	74,968	212,998	1,074,712
Wood & wood products	31	204	13	7,704	12,329	2,034	59,899	75,774	32,783	135,690	144,597	91,894	30,190	19,629	26,715
Paper & paper products	32	144	17	12,685	8,079	2,893	162,634	58,842	41,116	456,542	130,202	125,742	135,417	53,877	186,113
Publishing & printing	119	28	6	15,281	614	291	267,388	5,722	8,062	919,413	18,153	8,061	189,307	20,045	2,027
Coke & refined petroleum	0	2	4	0	99	385	0	1,232	18,670	0	26,439	93,749	0	1,545	20,025
Chemicals & chemical products	68	110	56	24,346	5,499	5,861	381,851	78,283	240,876	1,141,146	250,010	928,353	169,935	37,725	601,860
Rubber & plastics	41	166	55	14,365	8,136	8,251	229,062	69,718	119,614	679,644	236,964	296,515	173,967	185,172	999,394
Non-metallic mineral products	114	467	31	40,203	17,160	5,672	492,610	127,701	170,850	2,002,501	241,474	1,180,164	393,811	149,525	109,069
Basic metals	14	41	18	22,019	1,343	2,338	256,624	10,119	58,097	457,263	25,391	529,700	127,000	20,780	368,146
Fabricated metal products	49	147	65	9,982	4,982	5,832	161,994	43,429	144,188	262,022	101,598	421,926	99,116	86,037	360,289
Machinery & equipment	66	66	27	19,615	3,029	2,628	187,721	44,748	61,205	335,404	144,799	321,329	112,724	46,429	146,476
Electrical machinery & apparatus	22	43	3	12,130	2,111	2,681	219,396	21,202	37,758	457,118	75,746	245,360	106,180	4,284	609,623
Radio, television & communication	22	18	33	4,728	716	7,279	70,653	8,880	135,756	230,265	36,051	344,870	36,836	4,252	464,148
Precision machinery	6	9	30	1,791	278	7,462	21,146	2,299	171,876	33,573	4,713	904,368	13,683	1,269	221,176
Motor vehicles	26	51	11	4,974	1,549	1,165	54,319	11,230	38,705	96,997	20,859	86,173	34,262	2,903	55,195
Other transportation machinery	56	55	15	14,292	2,166	2,173	160,735	40,818	79,506	265,119	43,982	482,560	86,795	4,691	69,534
Furniture & miscellaneous manuf.	16	190	22	3,106	15,671	4,254	30,454	125,833	104,815	53,373	203,346	474,554	17,581	61,015	165,044
Recycling	0	2	53	0	47	16,571	0	323	192,661	0	729	318,462	0	0	204,444
Electricity, gas and water supply	20	0	2	7,775	0	66	153,617	0	5,937	1,629,511	0	11,491	211,282	0	8,913
Electricity, gas, steam, hot water supp	3	0	2	743	0	66	24,870	0	5,937	1,262,838	0	11,491	8,133	0	8,913
Water collection, purification, & distr	17	0	0	7,032	0	0	128,747	0	0	366,673	0	0	203,149	0	0

Source: Vietnam, General Statistical Office (2000a).