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Why Is Multinational Status Important? Evidence from Job Creation and Job Destruction in Japan[§]

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Abstract

Previous studies of job creation and job destruction (JCJD) have found that the gross job reallocation rate greatly exceeded the net job creation rate even in a narrowly defined industry or the same international trade orientation. This paper asks whether multinational enterprises (MNEs) reflect different patterns of JCJD compared to domestic firms. We distinguish two types of MNEs (i.e., Japanese MNEs and foreign-owned firms) and utilize firm-level data in Japan for 1995-2002. We find that the gross job reallocation rate may be equal to the net job creation rate once we control for the entry/exit, industry, worker type, and multinational status. Multinational status is important in explaining the heterogeneity of employment patterns among firms.

JEL Classification Code: F23 (Multinational Firms), J23 (Job Creation)
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1. Introduction

With the rapid expansion of the activities of multinational enterprises (MNEs), the employment characteristics of MNEs are clearly important. One of the important concerns is the effect of offshore production on domestic employment, which has often been argued to be negative. This is because offshore production by an MNE replaces domestic production, which shifts its downward-sloping labor demand schedule and so employment offered by the MNE declines in the home country. Theoretically, however, the effects of offshore production on domestic employment can be both positive and negative at the firm level. As Barba Navaretti and Venables (2004, pp. 43–44) suggest, domestic employment declines through horizontal foreign direct investment (FDI) but expands through vertical FDI. Therefore, if a firm conducts both horizontal and vertical FDI at the same time, the effects on employment become ambiguous. The same is true at the aggregate level. Net effects are unclear if some firms conduct vertical FDI while others conduct horizontal FDI. The final economy-wide outcome is an empirical matter.

This paper empirically addresses this concern by asking whether MNEs reflect different job creation and job destruction (JCJD) patterns as compared to domestic firms. In order to answer these questions, we use large-scale firm-level panel data for Japan for

1995–2002. Our data consist of firms in manufacturing and wholesale/retail trade industries, and the number of firms exceeds 16,000 annually. Note that there are two types of MNEs in a country. One is an MNE that has an affiliate in a foreign country and the other is a foreign-owned firm that has a parent firm in its home country. These two types of firms do not always have the same effects on employment. For instance, the entry of foreign-owned firms is mainly through merger and acquisition (M&A), which is a typical mode of entry in developed countries.[1] Thus, the job creation by newly entered foreign-owned firms does not necessarily mean the creation of new jobs, but it simply means that jobs are reallocated from domestic to foreign-owned firms through ownership status change.[2] Our paper thus distinguishes the JCJD pattern between Japanese MNEs and foreign-owned firms in Japan.

The contribution of our paper is twofold. First, we address the multinational aspects of JCJD. A study by Davis and Haltiwanger (1992) has investigated JCJD patterns, and other studies have investigated the relationship between international trade (e.g., Levinsohn, 1999) and JCJD and have focused on the multinational status of firms (e.g., Görg and Strobl, 2005). However, none of these studies considered the outward aspect of FDI: the difference between firms with and without production sites abroad. Recent empirical

[1] For more detail, see UNCTAD (2004, pp. 111–114).
[2] The entry of foreign-owned firms in Japan and its possible benefits are becoming issues for policy makers in Japan because the inward FDI remains at a low level compared with other OECD countries. For more detail, see Fukao and Amano (2004) and Kimura and Kiyota (2006a).

studies in international trade are recognizing that the behavior and performance of MNEs are quite different from domestic firms. For instance, Helpman, Melitz, and Yeaple (2004) and Kimura and Kiyota (2006b) found that MNEs were more productive than domestic firms. Kiyota and Urata (2005) confirmed that MNEs dominated international trade. These studies suggest that the heterogeneity of employment patterns among firms can be also explained by their multinational status. Our paper sheds lights on a new aspect of JCJD, focusing on the difference between MNEs and domestic firms.

Studies of JCJD in Japan include Genda (1998) and Higuchi (2001). Our new contribution is to update of these studies for the period after 1998 and to extend them in several aspects, including the introduction of a multinational aspect. In Japan, job destruction by MNEs is a great concern for policy makers in view of the expansion of Japanese MNE activities in the 1990s. Figure 1 presents Japan's unemployment rate from 1955 to 2005. It clearly indicates that the unemployment rate was historically low until 1995. Except in 1987, the unemployment rate was less than 3.0 percent from 1955 to 1994. The unemployment rate rapidly increased from 3.5 percent in January 1998 to 4.1 percent in July 1998. It continued to rise and exceeded 5.0 percent in July 2001. In June 2002, the unemployment rate reached 5.5 percent, which was the highest rate in the past 50 years.

=== Figure 1 ===

Several factors have affected the unemployment rate. Among them, offshore production by MNEs, especially in East Asia, is believed to be one of the most important.[3] Rapid economic growth in East and Southeast Asian countries has attracted Japanese FDI and, therefore, Japanese MNEs have relocated production plants from Japan to the East and Southeast Asian countries such as China. Accordingly, this has caused the "hollowing out" of industries, resulting in the decline of employment in Japan. Note that the concern about "hollowing out" of industries is not limited to Japan, and has often been discussed in several developed countries.[4] Indeed, the employment response to the expansion of MNE activities is commonly an important issue in developed countries.

Why is multinational status important? It is widely recognized that job creation and job destruction are quite heterogeneous in the sense that the gross job reallocation rate greatly exceeds the net job creation rates even in a narrowly defined industry or the same international trade orientation. However, we find quite homogenous JCJD patterns for production workers. Once we control for the multinational status as well as entry/exit, industry, and worker type, the gross job reallocation rate may be equal to the net job creation rates for production workers. This suggests that the multinational status is

[3] Fukao and Amano (2004, pp. 80–87) provide a survey on this issue. Cowling and Tomlinson (2000) also discuss the negative effects of offshore production by Japanese MNEs on domestic employment in the 1990s.
[4] See, for instance, Feinberg and Keane (2001) for the case of Canada, and Barry (2004) for the case of Ireland.

important in explaining the heterogeneity of employment patterns among firms. We also find that the net negative employment growth is observed only for Japanese MNEs. Moreover, the negative growth is attributable not only to rapid job destruction but also to slow job creation. This is evidence of the "hollowing out" of industries in Japan.

The organization of this paper is as follows. The next section discusses the data used for the analysis and provides an overview of the employment patterns for Japanese MNEs, foreign-owned firms, and domestic firms. Section 3 examines the difference of JCJD patterns among Japanese MNEs, foreign-owned firms, and domestic firms. Section 4 extends the JCDC analysis in various ways. Section 5 summarizes the major findings and discusses policy implications.

2. The Data

2.1. Source

We use the micro database of *Kigyou Katsudou Kihon Chousa Houkokusho* (*The Results of the Basic Survey of Japanese Business Structure and Activities*) prepared annually by the Research and Statistics Department, METI (1994–2002) (hereafter, referred to as the METI database). This survey was first conducted in 1991, then in 1994, and annually afterwards. The main purpose of the survey is to capture statistically the overall picture of Japanese corporate firms in light of their activity diversification, globalization,

and strategies on research and development and information technology. The strength of the survey is its sample coverage and reliability of information. The survey includes all firms with more than or equal to 50 workers and with capital of more than or equal to 30 million yen.

The survey covers the mining, manufacturing, and service industries, although some services industries, such as finance, insurance, and software services, are not included. Our study thus can address the issues of outward FDI by manufacturing firms and the inward FDI by foreign firms in wholesale/retail trade, which are commonly observed FDI patterns in developed countries. The limitation of the survey is that some information on financial and institutional features, such as keiretsu, are not available and small firms with less than 50 workers (or with capital of less than 30 million yen) are excluded.

From these surveys, we constructed a panel data set for the years from 1995 to 2002. We removed firms from our sample if firm age (questionnaire-level year minus establishment year), total wages, tangible assets, value-added (sales minus purchases), or employment were not positive and responses were incomplete.[5] We focus on manufacturing and wholesale and retail industries since the number of firms in other industries is rather small. The number of firms exceeds 16,000 annually.

[5] In the METI database, employment is defined as the number of regular workers that includes part-time workers but excludes day workers. Employment of Japanese affiliates in foreign countries is also excluded.

In our study, we classify multinational firms into two categories. One is the foreign-owned firm, which is defined as a firm with more than 33.3 percent of the equity coming from foreign investors. The other is the Japanese MNE, which is defined as a firm with at least one production affiliate in a foreign country.[6] All other Japanese firms are classified as domestic firms.

2.2. Employment Growth

Table 1 presents the employment growth of all firms, Japanese MNEs, foreign-owned firms, and domestic firms from 1995 to 2002. The employment growth of all firms indicates similar patterns to the unemployment rate in Figure 1. The negative employment growth is much larger for 1995–1998 than for 1998–2002. This suggests that the recession became severe after 1998. Note also that the net employment growth rate is different between firm types. Although Japanese MNEs and domestic firms show negative growth, foreign-owned firms generally reflect positive growth throughout the period except for 1995–1996 and 1999–2000.

=== Table 1 ===

Table 2 indicates employment growth by industry.[7] There are three messages in this

[6] If a firm with more than 33.3 percent equity coming from foreign investors has one production affiliate in foreign countries, we classify such a firm as foreign-owned.
[7] For the sectoral distribution of the number of MNEs, foreign-owned firms, and domestic firms, see

table. First, although the overall annual average employment growth is negative (–1.3 percent from 1995 to 2002), there are some differences between manufacturing and wholesale/retail trade. While the manufacturing sector shows negative employment growth (–3.1 percent for 1995–2002), the wholesale/retail trade sector indicates positive growth (1.3 percent for 1995–2002). Positive employment growth is supported by the growth of retail trade, indicating 3.6 percent of the annual average growth rate for 1995–2002. Second, although manufacturing as a whole indicates negative growth, employment growth rates differ between industries. For instance, non-metallic mineral products rapidly decline, indicating an annual average growth rate of –5.0 percent for 1995–2002. On the other hand, precision machinery declines slowly, with a –0.9 percent average annual growth rate. These results imply that the industry category could be one factor explaining the difference in employment growth between firms.

=== Table 2 ===

Finally, and most importantly, the employment change is quite different across firm types. While Japanese MNEs and domestic firms show negative employment growth in almost all industries, foreign-owned firms show positive employment growth in many industries. The remarkable employment growth of foreign-owned firms is confirmed in

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Table A1. The industry code is assigned to each firm in 1994 or the time of entry.

transportation machinery and retail trade, with 20.2 and 21.0 percent annual average growth rates, respectively.

3. Job Creation and Job Destruction (JCJD)

3.1. Methodology

This section investigates how patterns of JCJD compare between Japanese MNEs, foreign-owned firms, and domestic firms. The analysis of JCJD is particularly useful for examining gross job flows, or gross job reallocation. Net job creation, which is defined as job creation plus destruction, masks several facts. For instance, when the net job growth is negative, the job destruction effects cancel out job creation effects. We thus may underestimate the contribution of MNEs to job creation without examining JCJD at the same time.

Several studies, such as Dunne, Roberts, and Samuelson (1989) and Davis, Haltiwanger, and Schuh (1996), have confirmed that gross job reallocation rates are substantially larger than net job creation rates, implying that JCJD occurs at the same time even in the narrowly defined industry. Levinsohn (1999) extended this analytical framework to examine the relationship between international trade orientation and gross job reallocation rates, finding that, in Chile, trade liberalization promoted job reallocation in the job market. Following Levinsohn (1999), we adopt the analytical framework of Davis,

Haltiwanger, and Schuh (1996) and apply the framework to examine JCJD by multinationals.

Denote L_{it}^s as the employment of firm i of firm type $s \in S$ in year t. Firm type is classified into three groups: Japanese MNEs JM, foreign-owned firms FF, and domestic firms DF. Denote the symbol Δ as the first-difference operator from year $t-1$ to year t. Define firm-level growth rate as $g_{it}^s = \Delta L_{it}^s / \bar{L}_{it}^s$, where $\bar{L}_{it}^s$ is the average of employment of firm i between year $t-1$ and year t: $\bar{L}_{it}^s = (L_{it}^s + L_{it-1}^s)/2$. Similarly, we denote the average of employment of firm type s from year $t-1$ to year t: $\bar{L}_t^s = (L_t^s + L_{t-1}^s)/2$, where $\bar{L}_t^s = \sum_{i \in S^-} L_{it}^s$.

Gross job creation C_t^s and destruction D_t^s by firm type s between year $t-1$ and year t are $C_t^s = \sum_{i \in S^+} \Delta L_{it}^s$ and $D_t^s = \sum_{i \in S^-} \Delta L_{it}^s$, where superscript + and – mean a subset of firms of firm type s that create or destroy employment, respectively. Denote gross JCJD rates of firm type s, which are defined as size-weighted sums of firm-level growth, as c_t^s and d_t^s, respectively.

$$c_t^s = \frac{C_t^s}{\bar{L}_t^s} = \sum_{i \in S^+} \left(\frac{\bar{L}_{it}^s}{\bar{L}_t^s} \right) g_{it}^s \text{ and } d_t^s = \frac{D_t^s}{\bar{L}_t^s} = \sum_{i \in S^-} \left(\frac{\bar{L}_{it}^s}{\bar{L}_t^s} \right) g_{it}^s . \quad (1)$$

The gross job reallocation rate is $c_t^s + \left| d_t^s \right|$ and the net job creation rate is $c_t^s + d_t^s$.

3.2. Results

3.2.1. Basic Facts

Table 3 presents the JCJD rates of Japanese firms from 1995 to 2002. The net job creation rates, which are defined as job creation rates plus job destruction rates, are the same as the net employment growth rates presented in Table 2: the net job creation rates of Japanese MNEs, foreign-owned firms, and domestic firms are –3.7 percent, 9.4 percent, and –0.5 percent, respectively. In Table 3, however, we can identify JCJD through status change.

=== Table 3 ===

Four findings stand out from this table. First, the largest parts of the job creation rates of Japanese MNEs and foreign-owned firms are attributable to status change.[8] The job creation rates through status change are 1.5 percent for Japanese MNEs, 12.0 percent for foreign-owned firms, and 0.6 percent for domestic firms. On the other hand, if we focus on newly created jobs (i.e., job creation rate excluding status change), job creation rates by Japanese MNEs, foreign-owned firms, and domestic firms are 0.8 percent, 2.9 percent, and 4.8 percent, respectively. This implies that the job creation through M&A is a source of job creation by foreign-owned firms in Japan.

[8] The number of firms that change their status is summarized in Table A2.

Second, the largest parts of the job creation rates of domestic firms are attributable to entry and exit. The job creation rate and job destruction rates of domestic firms are 5.4 percent and -5.9 percent, respectively. Among them, entry accounted for 3.1 percentage points and exit accounted for -3.5 percentage points. This is because domestic firms are small compared with multinational firms. Since the main focus of our paper is JCJD by incumbent MNEs, hereafter JCJD excludes those occurring through status change and entry/exit, unless otherwise noted.

Third, compared with job creation rates, job destruction rates are much larger for Japanese MNEs and foreign-owned firms. Japanese MNEs show a –2.6 percent job destruction rate and a 0.4 percent job creation rate. Similarly, foreign-owned firms show a –0.9 percent job destruction rate and a 0.7 percent job creation rate. Previous studies of JCJD found that there was always job creation and job destruction at the same time even within the same international trade orientation or detailed classifications of industry. For instance, the difference between gross and net job creation rates is 11.9 percent for Davis and Haltiwanger (1992, Table 2), 30.4 percent for Levinsohn (1999, Table 6, exporter), and 17.6 percent for Görg and Strobl (2005, Table 4b).[9] However, our results indicate that Japanese incumbent MNEs do not seem to create and destroy jobs at the same time: while they

[9] Cahuc and Zylberberg (2004, p.506) also indicated that the gross job creation rate is about ten times higher than the net job creation rate in Germany, the Netherlands, the United Kingdom, and the United States, and 30 times higher in France.

destrroyed large jobs (–2.6 percent), they created only a small amount of jobs (0.4 percent). The difference between gross and net job creation rates is only 0.8 percent. We will discuss this issue in more detail in the next section.

Finally, Japanese MNEs present the smallest contribution to the net job creation rate. While the net job creation rate is 0.0 percent for domestic firms and 0.2 percent for foreign-owned firms, it is –2.2 percent for Japanese MNEs. Note that the difference in job creation rates between Japanese MNEs and domestic firms is 1.4 percentage points (|1.8%–0.4%|) while that of job destruction rate is 1.2 percentage points (|–1.4%–(–2.6%)|). Negative employment growth of Japanese MNEs is therefore attributable to slow job creation as well as rapid job destruction, implying that the relocation of production sites by Japanese MNEs causes slow job creation as well as rapid job destruction.

3.2.2. Alternative threshold level

There may be a concern about the specified threshold level of foreign equity ownership. In the baseline analysis, a foreign-owned firm is defined as a firm where more than 33.3 percent of the equity is from foreign investors. However, there are several Japanese firms that have a large part of the equity owned by foreign investors. For instance, the equity share of foreign investors is 48.1 percent for Sony, 48.7 percent for Fujifilm, and

37.9 percent for Nintendo.[10] To check the sensitivity of the threshold level, we redefine a foreign-owned firm as a firm where more than 50.0 percent of the equity is from foreign investors (majority-owned firms).

The right hand side of Table 3 indicates the results when we redefine the foreign-owned firms. The results are generally the same as the results when we define a foreign-owned firm as the firm with more than 33.3 percent of foreign ownership except for the status change of foreign-owned firms. One notable difference is that the effects of status change decline when we redefine foreign-owned firms. This implies that status changes mainly occurred between 33.3 and 50.0 percent of equity share and thus our results are not very sensitive to the threshold level once we exclude the effects of status change.

4. Discussion

4.1. Firm size

There may be concern that the difference in JCJD patterns might be attributable to firm size rather than the multinational status of firms. To examine this, we examine the JCJD rates for large, medium-sized, and small-sized firms, respectively. The large firm is defined as a firm with more than 1,000 workers. The small-sized firm is a firm with less than 300 workers. Other firms are defined as medium-sized firms.[11]

[10] *Nikkei Newspaper*, June 28, 2005. (In Japanese.)
[11] Table A3 summarizes by firm size, the number of Japanese MNEs, foreign-owned firms, domestic firms.

Table 4 indicates the JCJD rates, by firm size. Firms that change size are included in entry and exit in this table, so that the table does not become complex.[12] Therefore, we just focus on the incumbent results. The results indicate that differences in firm size cannot explain differences in the JCJD patterns among multinational status since the JCJD rates are not very different across firm sizes. For instance, the job creation rate of large Japanese MNEs is 0.4 percent while those of medium- and small-sized MNEs are 0.3 percent and 0.4 percent, respectively.

=== Table 4 ===

The job destruction by Japanese MNEs and the job creation by domestic firms are exceptions. The job destruction rates of large, medium-sized, and small-sized Japanese MNEs are –2.6 percent, –1.3 percent, and –1.1 percent, respectively. The job creation rates of large, medium-sized, and small-sized domestic firms are 2.4 percent, 0.6 percent, and 0.6 percent, respectively. There is accordingly a difference in JCJD patterns between large firms and small-/medium-sized firms even in the same multinational status. This also suggests that the arguments of "hollowing out" of Japanese industries might be based on the employment patterns of *large* Japanese MNEs.

[12] For instance, if the firm employment grows from 950 to 1,200 workers, it is included as the exit of a medium-sized firm and the entry of a large firm.

Note that firms often change their category (e.g., from a large to a medium-sized firms). Firms that change their size are excluded from “incumbents” and included in the “entry and exit” category. This means that the definition of the incumbent is slightly different from the definition in the previous section. To maintain the consistency of the analysis, the following discussion focuses on some aspects other than firm size.

4.2. Period and industry

It is often pointed out that the employment patterns might be largely affected by periods and industries, which we now examine.

4.2.1. Difference between 1995-1998 and 1998-2002

As confirmed in Table 1, the negative employment growth is particularly notable after 1998. To determine if there are any differences of employment patterns between before and after 1998, we calculate the JCJD rates for 1995-1998 and 1998-2002 separately.

Table 5 presents the results. Regardless of firm types, the job destruction rates for 1998–2002 are much larger than those for 1995–1998. The job destruction rate of Japanese MNEs is –2.4 percent for 1995–1998 and –3.5 percent for 1998–2002. Similarly, the job destruction rates of foreign-owned firms and domestic firms for 1998–2002 are –2.4 percent and –2.1 percent, respectively, which are larger than those for 1995–1998 (–2.1 percent for foreign-owned firms and –2.0 percent for domestic firms). This implies that the

severe recession between 1998 and 2002 strongly affected the employment of firms in Japan, regardless of the firm type.[13]

=== Table 5 ===

4.2.2. Difference across Industries

Table 2 confirms that there are clear differences in net job growth between manufacturing and wholesale/retail trade. To investigate the differences in more detail, we calculate JCJD rates for manufacturing and wholesale/retail trade, respectively.

Table 6 presents the results of JCJD rates in manufacturing and wholesale/retail trade for 1995–2002. We can see, first, that the positive net job creation rates in wholesale/retail trade for all firms are attributable to the large job creation rate in wholesale/retail trade. Table 6 shows that job creation rates in manufacturing and wholesale/retail trade are 0.6 percent and 2.4 percent, respectively. On the other hand, the differences in job destruction rates are relatively small, being –2.6 percent in manufacturing and –1.4 percent in wholesale/retail trade. This implies that the positive employment growth rate in wholesale/retail trade is supported by the strong job creation rate.

[13] Note that foreign-owned firms show a positive net job creation rate (0.2 percent) for 1995–2002 (sub-total in Table 3), although they show negative net job creation (i.e., job destruction) rates in two subperiods: for 1995–1998 (–1.3 percent) and for 1998–2002 (–1.0 percent). This is caused by status change. For instance, suppose that a domestic firm changes its status to a foreign-owned firm between 1995 and 1998 and destroys jobs between 1998 and 2002. This change is regarded as job destruction by foreign-owned incumbent firms for 1998–2002. However, the change is classified as a status change for 1995–2002. Thus, the results for the overall period are not always the same as those for subperiods.

=== Table 6 ===

Second, in all firm types, job creation rates in manufacturing are smaller than those in wholesale/retail trade. For Japanese MNEs, the job creation rate in manufacturing is 0.4 percent, whereas it is 0.6 percent in wholesale/retail trade. The job creation rate of foreign-owned firms in manufacturing is 0.6 percent, which is much smaller than the 1.2 percent in wholesale/retail trade. Similarly, the job creation rate of domestic firms in wholesale/retail trade is 2.6 percent, which is three times as much as the job creation rate of domestic firms in manufacturing (0.8 percent).

Third, job destruction rates are much larger in terms of absolute values in wholesale/retail trade than in manufacturing for Japanese MNEs and domestic firms and vice versa for foreign-owned firms. The job destruction rate of Japanese MNEs is –2.7 percent in manufacturing and –2.1 percent in wholesale/retail trade. Similarly, the job destruction rate of domestic firms is –1.8 percent, which is –0.7 percent points larger than the job destruction rate in wholesale/retail trade (–1.1 percent). On the other hand, the job destruction rate of foreign-owned firms is –0.8 percent in manufacturing and –1.2 percent in wholesale/retail trade. Job destruction in manufacturing, therefore, is much more severe in Japanese firms (Japanese MNEs and domestic firms) than in foreign-owned firms.

Table 7 shows the JCJD rates by industry in manufacturing. The total net job

creation rates in Table 7 correspond to the sectoral employment growth in Table 2. The results suggest that the industry-specific factor might play an important role in the employment patterns of firms because the JCJD rates are different across sectors even in the same multinational status. For instance, Japanese MNEs show a –1.0 percent job destruction rate in transportation machinery while there is a –4.0 percent rate in iron, steel, and metal. Note, however, that even for the same industry, multinational status can explain some of the difference of employment across firms. In iron steel, and metal products, the job destruction rate of Japanese MNEs is –4.0 percent, of which is significantly higher than that of foreign-owned firms (0.0 percent). This suggests that both multinational status and industry are important factors in explaining the employment patterns of firms.

=== Table 7 ===

4.3. Difference between production and nonproduction workers

An important policy question is whether MNEs destroy production workers' jobs more rapidly than nonproduction workers' jobs. The job destruction by MNEs in the manufacturing sector affects production workers more than the rest of the labor force. This is because the shift of production sites from Japan to foreign countries may cause a stronger decline in demand for production workers than for other workers. The analyses above cannot answer this question, although it is of great concern to policy makers. We thus

further decompose JCJD in manufacturing firms into production and nonproduction workers, and examine the differences between firm types.

=== Table 8 ===

Table 8 presents the results of JCJD rates for production workers and nonproduction workers from 1995 to 2002. We can see, first, that net job destruction in production workers is confirmed in all types of firms, with Japanese MNEs showing higher job net destruction rate than domestic firms. The net growth in employment of production workers is –3.4 percent for MNEs, –1.5 percent for foreign-owned firms, and –1.1 percent for domestic firms. The clearly indicates that MNEs destroy production workers' jobs vis-à-vis foreign-owned firms and domestic firms. It is also notable that foreign-owned firms create jobs for nonproduction workers as the net job flow rate is positive (0.1 percent).

Second, the job destruction rate for MNE production workers is much larger than that for domestic firms, as the job destruction rate of domestic firms is –2.2 percent compared to MNEs of –3.9 percent. As for nonproduction workers, the job destruction rates of Japanese MNEs are almost the same as those of domestic firms, being –2.4 percent and –2.5 percent, respectively. This is further evidence to support the "hollowing out" of industries in Japan.

4.4. Is Multinational Status Important?

Thus far, we have found that not only multinational status but also industry and worker type (i.e., production or nonproduction workers) are important factors in explaining the difference in JCJD patterns among firms. It is then natural to ask how important multinational status is when we control for the industry and worker type at the same time.

Table 9 indicates the JCJD rates of Japanese MNEs and foreign-owned firms for production workers by selected manufacturing sectors (iron, steel, and metal products, general machinery, electrical machinery, transportation machinery, and other manufacturing).[14] The results are striking. Some of the gross job reallocation rates are almost the same as the net job reallocation rates. For example, Japanese MNEs in iron, steel, and metal products show a 0.4 percentage point difference between gross and net job creation rates. The differences are 0.0 percentage point for foreign-owned firms in iron, steel, and metal products, electrical machinery, transportation machinery, and other manufacturing. Once we control for multinational status as well as entry/exit, industry, and worker type, we can confirm quite homogenous JCJD patterns for production workers. This has an important implication, namely that a number of studies emphasized the heterogeneous patterns of JCJD based on the fact that gross job reallocation rates were substantially larger than net job creation rates. However, some of the heterogeneity might

[14] The detailed results are presented in Tables A4-A8.

be explained by multinational status. Once we control for the multinational status as well as entry/exit, industry, and worker type, we no longer find the substantial difference between gross job reallocation and net job creation.

=== Table 9 ===

5. Concluding Remarks

In this paper, we ask whether multinational enterprises (MNEs) reflect different job creation and job destruction (JCJD) patterns compared to domestic firms. We distinguish two types of MNEs (i.e., Japanese MNEs and foreign-owned firms) and utilize firm-level data in Japan between 1995 and 2002. Our major findings are as follows. First, the net negative employment growth is observed only for Japanese MNEs. Moreover, the negative growth is attributable not only to rapid job destruction but also to slow job creation. Second, job creation through M&A is a source of job creation by foreign-owned firms in Japan. Third, the job destruction rate is particularly large for Japanese MNEs in manufacturing. Finally, once we control for the multinational status as well as entry/exit, industry, and worker type, we can confirm quite homogenous JCJD patterns for production workers. This suggests that the multinational status is important in explaining the heterogeneity of employment patterns among firms.

Two implications for policy debate can be drawn from our analysis. First, part of

recent rise in the unemployment rate might be attributable to the exit of domestic firms and the offshore production by large Japanese MNEs in manufacturing. The relocation of production sites by Japanese MNEs may cause slow job creation as well as rapid job destruction. Japanese policy makers should therefore recognize the fact that Japan is losing location advantage as a production site vis-à-vis other East and Southeast Asian countries. It is thus important to discuss what kind of location advantage Japan can offer to MNEs.

Second, inward FDI promotion policy might have some validity. Foreign-owned firms contributed to the creation of jobs in Japan between 1995 and 2002. The foreign-owned firms created jobs not by new entries but by their M&As. Although they were not newly created jobs, we can at least say that the foreign-owned firms helped by propping up employment in the 1990s. Similar arguments can be applied to other developed countries where FDI through M&A is becoming popular. Fukao and Amano (2004) pointed out that Japan still had entry barriers to foreign-owned firms in some industries such as medical services. The removal of such barriers thus might attract foreign investors.[15]

Our paper suggests various avenues for future research. One important direction is to link the information on parent and affiliate firms and identify the relationship between the activity (and the destination) of the affiliates and the employment patterns of the parent firm in Japan. For instance, the production affiliates in China and in the United States might

[15] See, Fukao and Amano (2004, pp. 55-57).

have different effects on the employment of the parent firm. As Eaton, Kortum, and Kramarz (2004) argued in their analysis of the differences in export destination by firms, different market penetration may cause different firm behaviors, including labor demand.

It is also important to ask whether our results hold for other countries and to identify which factors drive the difference in employment patterns between MNEs and domestic firms. For instance, Ono (2006) found that the difference in employment patterns can be attributable to institutional constraints. It may also be important to extend our analysis to identify why multinational status is not able to explain the heterogeneous JCJD patterns for nonproduction workers.

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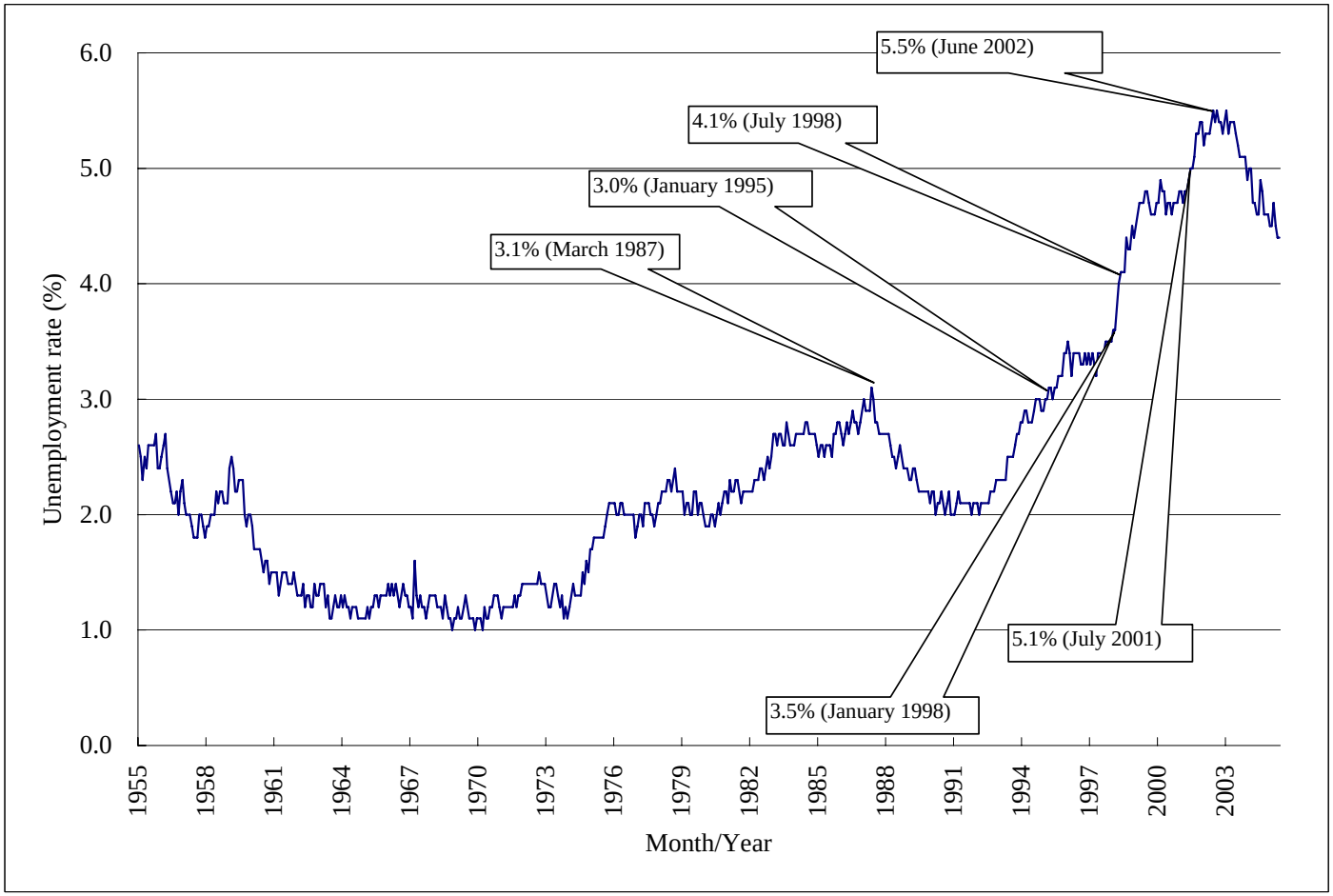
Figure 1. Unemployment Rate in Japan, 1955-2005



Note: Unemployment is seasonally adjusted.
Source: Ministry of Internal Affairs and Communication website (2005) *Labor Force Survey* .
http://www.stat.go.jp/data/roudou/longtime/zuhyou/lt01-13.xls

Table 1. Employment of Japanese Multinational Enterprises (MNEs), Foreign-owned Firms, and Domestic Firms, 1995-2002

	All firms		Japanese MNEs		Foreign-owned firms		Domestic firms	
	Employment	Growth (%)	Employment	Growth (%)	Employment	Growth (%)	Employment	Growth (%)
1995	7,782		3,073		161		4,548	
1996	7,744	-0.5	3,045	-0.9	148	-8.5	4,552	0.1
1997	7,936	2.4	2,959	-2.9	181	20.2	4,796	5.2
1998	7,860	-1.0	2,872	-3.0	273	40.5	4,715	-1.7
1999	7,690	-2.2	2,712	-5.7	315	14.4	4,662	-1.1
2000	7,603	-1.1	2,705	-0.3	295	-6.6	4,603	-1.3
2001	7,337	-3.6	2,452	-9.8	303	2.5	4,582	-0.5
2002	7,086	-3.5	2,365	-3.6	320	5.5	4,402	-4.0

Notes: Japanese MNE: A firm that has more than one production affiliate in foreign countries.
Foreign-owned firm: A firm where more than 33.3 percent of the equity is owned by foreign investors and that has more than one production plant in Japan.
Domestic firm: A firm other than Japanese MNE or foreign-owned firm.
The employment growth includes the employment changes through status change.

Source: METI database.

Table 2. Employment of Multinational Enterprises (MNEs), Foreign-owned Firms, and Domestic Firms, by Industry

	All firms						Japanese MNEs					
	Level (thousands)			Annual average growth rate (%)			Level (thousands)			Annual average growth rate (%)		
	1995	1998	2002	1995-1998	1998-2002	1995-2002	1995	1998	2002	1995-1998	1998-2002	1995-2002
All industries	7,782	7,860	7,086	0.3	-2.6	-1.3	3,073	2,872	2,365	-2.3	-4.8	-3.7
Manufacturing	4,966	4,728	3,999	-1.6	-4.2	-3.1	2,651	2,466	2,055	-2.4	-4.5	-3.6
Food products and beverages	483	494	437	0.8	-3.1	-1.4	150	141	128	-2.1	-2.5	-2.3
Chemicals	439	409	367	-2.4	-2.7	-2.6	261	247	205	-1.8	-4.7	-3.4
Non-metallic mineral products	168	151	118	-3.5	-6.1	-5.0	88	80	66	-3.4	-4.8	-4.2
Iron, steel, and metal products	510	465	378	-3.1	-5.2	-4.2	267	251	200	-2.0	-5.7	-4.1
General machinery	504	477	412	-1.8	-3.6	-2.9	274	260	252	-1.8	-0.8	-1.2
Electrical machinery	1,158	1,103	900	-1.6	-5.1	-3.6	743	677	538	-3.1	-5.7	-4.6
Transportation machinery	773	743	646	-1.3	-3.5	-2.6	513	472	393	-2.7	-4.6	-3.8
Precision machinery	100	108	94	2.5	-3.5	-0.9	52	57	49	3.3	-3.8	-0.8
Other manufacturing	830	776	646	-2.3	-4.5	-3.6	303	280	225	-2.6	-5.5	-4.2
Wholesale/retail trade	2,816	3,132	3,087	3.5	-0.4	1.3	422	406	310	-1.3	-6.7	-4.4
Wholesale trade	1,255	1,196	1,079	-1.6	-2.6	-2.2	304	293	266	-1.2	-2.4	-1.9
Retail trade	1,561	1,936	2,009	7.1	0.9	3.6	118	114	44	-1.3	-22.2	-13.1

	Foreign-owned firms						Domestic firms					
	Level (thousands)			Annual average growth rate (%)			Level (thousands)			Annual average growth rate (%)		
	1995	1998	2002	1995-1998	1998-2002	1995-2002	1995	1998	2002	1995-1998	1998-2002	1995-2002
All industries	161	273	320	17.2	4.0	9.4	4,548	4,715	4,402	1.2	-1.7	-0.5
Manufacturing	126	223	251	18.6	2.9	9.5	2,189	2,039	1,693	-2.4	-4.6	-3.6
Food products and beverages	2	2	2	-3.9	1.9	-0.6	331	352	308	2.0	-3.3	-1.0
Chemicals	34	38	58	3.7	10.2	7.3	144	124	104	-5.0	-4.4	-4.6
Non-metallic mineral products	1	1	1	19.5	-12.0	1.6	79	70	52	-4.0	-7.5	-6.0
Iron, steel, and metal products	5	1	2	-43.1	19.1	-10.0	238	213	176	-3.7	-4.7	-4.3
General machinery	23	22	7	-1.7	-25.4	-15.0	207	196	154	-1.8	-6.0	-4.2
Electrical machinery	32	65	68	23.1	1.0	10.4	384	362	294	-2.0	-5.2	-3.8
Transportation machinery	18	82	107	42.3	6.4	20.2	241	189	147	-8.2	-6.2	-7.0
Precision machinery	1	1	1	11.7	3.7	7.0	48	50	43	1.3	-3.3	-1.3
Other manufacturing	10	10	4	0.8	-18.8	-10.4	518	485	417	-2.2	-3.8	-3.1
Wholesale/retail trade	35	50	69	11.6	7.9	9.2	2,359	2,676	2,708	4.2	0.3	2.0
Wholesale trade	31	32	43	0.6	7.3	4.4	920	872	770	-1.8	-3.1	-2.5
Retail trade	4	18	26	42.7	8.9	21.0	1,439	1,804	1,939	7.5	1.8	4.2

Note: See Table 1.

Source: METI database.

Table 3. Job Creation and Job Destruction by MNEs, Foreign-owned Firms, and Domestic Firms, 1995-2002

		Baseline results				Alternative threshold level			
		All firms	Japanese MNEs	Foreign-owned firms	Domestic firms	All firms	Japanese MNEs	Foreign-owned firms	Domestic firms
Job creation									
[A]	Entry	2.1%	0.4%	2.3%	3.1%	2.1%	0.4%	3.6%	3.0%
[B]	Incumbent	1.4%	0.4%	0.7%	1.8%	1.4%	0.4%	1.1%	1.8%
[C] Sub-total (=[A] + [B])		**3.4%**	**0.8%**	**2.9%**	**4.8%**	**3.4%**	**0.8%**	**4.8%**	**4.9%**
[D]	Status change		1.5%	12.0%	0.6%		1.5%	3.8%	0.6%
[E] Total (=[C] + [D])			**2.3%**	**14.9%**	**5.4%**		**2.3%**	**8.6%**	**5.5%**
Job destruction									
[A]	Exit	-2.7%	-1.3%	-1.9%	-3.5%	-2.7%	-1.3%	-3.1%	-3.5%
[B]	Incumbent	-2.1%	-2.6%	-0.9%	-1.4%	-2.1%	-2.8%	-1.5%	-1.4%
[C] Sub-total (=[A] + [B])		**-4.7%**	**-4.0%**	**-2.8%**	**-4.9%**	**-4.7%**	**-4.1%**	**-4.5%**	**-4.9%**
[D]	Status change		-2.1%	-2.7%	-1.0%		-1.2%	-2.2%	-1.0%
[E] Total (=[C] + [D])			**-6.0%**	**-5.5%**	**-5.9%**		**-5.3%**	**-6.7%**	**-5.9%**
Net job creation									
[A]	Entry and exit	-0.6%	-0.9%	0.3%	-0.4%	-0.6%	-0.9%	0.6%	-0.4%
[B]	Incumbent	-0.7%	-2.2%	-0.2%	0.4%	-0.7%	-2.4%	-0.3%	0.4%
[C] Sub-total (=[A] + [B])		**-1.3%**	**-3.2%**	**0.2%**	**0.0%**	**-1.3%**	**-3.3%**	**0.2%**	**0.0%**
[D]	Status change		-0.6%	9.3%	-0.4%		0.3%	1.6%	-0.4%
[E] Total (=[C] + [D])			**-3.7%**	**9.4%**	**-0.5%**		**-3.0%**	**1.9%**	**-0.4%**
Gross job reallocation									
[A]	Entry and exit	4.7%	1.8%	4.2%	6.5%	4.7%	1.7%	6.7%	6.5%
[B]	Incumbent	3.4%	3.0%	1.6%	3.2%	3.4%	3.2%	2.6%	3.2%
[C] Sub-total (=[A] + [B])		**8.2%**	**4.8%**	**5.7%**	**9.7%**	**8.2%**	**4.9%**	**9.3%**	**9.7%**
[D]	Status change		3.6%	14.7%	1.6%		2.7%	6.1%	1.6%
[E] Total (=[C] + [D])			**8.3%**	**20.4%**	**11.4%**		**7.6%**	**15.3%**	**11.3%**

Notes: Baseline results: foreign-owned firm is defined as a firm with more than 33.3 percent of foreign ownership
Alternative threshold level: foreign-owned firm is defined as a firm with more than 50.0 percent of foreign ownership

Source: METI database.

Table 4. Job Creation and Job Destruction, by Firm Size

		All firms			Japanese MNEs		
Job creation		Large firms	Medium-sized firms	Small-sized firms	Large firms	Medium-sized firms	Small-sized firms
[A]	Entry	2.2%	5.0%	4.5%	0.4%	4.9%	5.2%
[B]	Incumbent	1.3%	0.6%	0.7%	0.4%	0.3%	0.4%
[C] Sub-total (=[A] + [B])		**3.5%**	**5.6%**	**5.2%**	**0.8%**	**5.2%**	**5.6%**
[D]	Status change				0.8%	2.7%	5.3%
[E] Total (=[C] + [D])					**1.6%**	**7.9%**	**10.9%**
Job destruction							
[A]	Exit	-2.3%	-6.0%	-5.6%	-1.9%	-4.0%	-4.2%
[B]	Incumbent	-2.1%	-1.2%	-1.4%	-2.6%	-1.3%	-1.1%
[C] Sub-total (=[A] + [B])		**-4.5%**	**-7.2%**	**-7.0%**	**-4.4%**	**-5.3%**	**-5.3%**
[D]	Status change				-2.0%	-1.5%	-1.7%
[E] Total (=[C] + [D])					**-4.9%**	**1.1%**	**3.9%**
Net job creation							
[A]	Entry and exit	-0.1%	-1.0%	-1.1%	-1.5%	1.0%	1.0%
[B]	Incumbent	-0.9%	-0.6%	-0.7%	-2.2%	-1.0%	-0.7%
[C] Sub-total (=[A] + [B])		**-1.0%**	**-1.6%**	**-1.8%**	**-3.7%**	**-0.1%**	**0.3%**
[D]	Status change				-1.2%	1.2%	3.6%
[E] Total (=[C] + [D])					**-3.3%**	**9.0%**	**14.9%**

		Foreign-owned firms			Domestic firms		
Job creation		Large firms	Medium-sized firms	Small-sized firms	Large firms	Medium-sized firms	Small-sized firms
[A]	Entry	1.9%	7.8%	8.1%	4.8%	5.0%	4.4%
[B]	Incumbent	0.4%	0.3%	0.6%	2.4%	0.6%	0.6%
[C] Sub-total (=[A] + [B])		**2.3%**	**8.0%**	**8.7%**	**7.2%**	**5.6%**	**5.0%**
[D]	Status change	13.6%	5.2%	4.3%	1.2%	0.3%	0.1%
[E] Total (=[C] + [D])		**15.9%**	**13.2%**	**13.0%**	**8.4%**	**5.9%**	**5.2%**
Job destruction							
[A]	Exit	-1.4%	-7.3%	-4.8%	-3.1%	-6.5%	-5.7%
[B]	Incumbent	-0.8%	-0.7%	-1.1%	-0.8%	-1.0%	-1.3%
[C] Sub-total (=[A] + [B])		**-2.2%**	**-8.1%**	**-5.9%**	**-3.9%**	**-7.5%**	**-7.1%**
[D]	Status change	-3.1%	-0.4%	-0.6%	-1.3%	-0.8%	-0.5%
[E] Total (=[C] + [D])		**10.6%**	**4.7%**	**6.5%**	**3.1%**	**-2.5%**	**-2.4%**
Net job creation							
[A]	Entry and exit	0.5%	0.4%	3.3%	1.7%	-1.6%	-1.3%
[B]	Incumbent	-0.4%	-0.5%	-0.5%	1.6%	-0.4%	-0.7%
[C] Sub-total (=[A] + [B])		**0.1%**	**0.0%**	**2.8%**	**3.3%**	**-2.0%**	**-2.0%**
[D]	Status change	10.5%	4.8%	3.7%	-0.2%	-0.5%	-0.4%
[E] Total (=[C] + [D])		**26.5%**	**18.0%**	**19.5%**	**11.5%**	**3.4%**	**2.8%**

Note: See Table 1 for the definition of Japanese MNEs, foreign-owned firms, and domestic firms.

Source: METI database.

Table 5. Job Creation and Job Destruction: Difference between 1995-1998 and 1998-2002

		All firms		Japanese MNEs		Foreign-owned firms		Domestic firms	
Job creation		1995-1998	1998-2002	1995-1998	1998-2002	1995-1998	1998-2002	1995-1998	1998-2002
[A]	Entry	2.6%	2.0%	0.4%	0.4%	1.5%	2.4%	4.1%	3.0%
[B]	Incumbent	2.0%	2.0%	0.7%	0.8%	0.8%	1.3%	2.6%	2.5%
[C] Sub-total (=[A] + [B])		**4.6%**	**4.1%**	**1.1%**	**1.2%**	**2.3%**	**3.7%**	**6.7%**	**5.4%**
[D]	Status change			2.7%	2.1%	20.3%	8.8%	1.3%	1.2%
[E] Total (=[C] + [D])				**3.7%**	**3.3%**	**22.6%**	**12.5%**	**8.0%**	**6.6%**
Job destruction		1995-1998	1998-2002	1995-1998	1998-2002	1995-1998	1998-2002	1995-1998	1998-2002
[A]	Exit	-1.9%	-3.7%	-0.8%	-1.7%	-1.5%	-2.4%	-2.6%	-5.0%
[B]	Incumbent	-2.4%	-2.9%	-2.4%	-3.5%	-2.1%	-2.4%	-2.0%	-2.1%
[C] Sub-total (=[A] + [B])		**-4.3%**	**-6.7%**	**-3.2%**	**-5.2%**	**-3.6%**	**-4.8%**	**-4.6%**	**-7.2%**
[D]	Status change			-2.8%	-2.9%	-1.7%	-3.8%	-2.2%	-1.2%
[E] Total (=[C] + [D])				**-6.0%**	**-8.1%**	**-5.3%**	**-8.6%**	**-6.8%**	**-8.3%**
Net job creation		1995-1998	1998-2002	1995-1998	1998-2002	1995-1998	1998-2002	1995-1998	1998-2002
[A]	Entry and exit	0.7%	-1.7%	-0.4%	-1.3%	0.0%	0.0%	1.5%	-2.1%
[B]	Incumbent	-0.4%	-0.9%	-1.8%	-2.8%	-1.3%	-1.0%	0.6%	0.3%
[C] Sub-total (=[A] + [B])		**0.3%**	**-2.6%**	**-2.2%**	**-4.1%**	**-1.3%**	**-1.0%**	**2.1%**	**-1.7%**
[D]	Status change			-0.1%	-0.8%	18.5%	5.0%	-0.9%	0.0%
[E] Total (=[C] + [D])				**-2.3%**	**-4.8%**	**17.2%**	**4.0%**	**1.2%**	**-1.7%**

Source: METI database.

Table 6. Job Creation and Job Destruction: Difference between Manufacturing and Non-manufacturing Firms

		All firms			Japanese MNEs		
Job creation		Manufacturing	Wholesale & retail trade	All industry	Manufacturing	Wholesale & retail trade	All industry
[A]	Entry	1.2%	3.4%	2.1%	0.3%	1.2%	0.4%
[B]	Incumbent	0.6%	2.4%	1.4%	0.4%	0.6%	0.4%
[C] Sub-total (=[A] + [B])		**1.8%**	**5.8%**	**3.4%**	**0.6%**	**1.8%**	**0.8%**
[D]	Status change				1.4%	2.0%	1.5%
[E] Total (=[C] + [D])					**2.1%**	**3.8%**	**2.3%**
Job destruction		Manufacturing	Wholesale & retail trade	All industry	Manufacturing	Wholesale & retail trade	All industry
[A]	Exit	-2.3%	-3.1%	-2.7%	-1.3%	-1.5%	-1.3%
[B]	Incumbent	-2.6%	-1.4%	-2.1%	-2.7%	-2.1%	-2.6%
[C] Sub-total (=[A] + [B])		**-4.9%**	**-4.5%**	**-4.7%**	**-4.0%**	**-3.7%**	**-4.0%**
[D]	Status change				-1.7%	-4.5%	-2.1%
[E] Total (=[C] + [D])					**-5.7%**	**-8.1%**	**-6.0%**
Net job flows		Manufacturing	Wholesale & retail trade	All industry	Manufacturing	Wholesale & retail trade	All industry
[A]	Entry and exit	-1.1%	0.2%	-0.6%	-1.0%	-0.3%	-0.9%
[B]	Incumbent	-1.9%	1.1%	-0.7%	-2.3%	-1.5%	-2.2%
[C] Sub-total (=[A] + [B])		**-3.1%**	**1.3%**	**-1.3%**	**-3.4%**	**-1.9%**	**-3.2%**
[D]	Status change				-0.3%	-2.5%	-0.6%
[E] Total (=[C] + [D])					**-3.6%**	**-4.4%**	**-3.7%**
		Foreign-owned firms			Domestic firms		
Job creation		Manufacturing	Wholesale & retail trade	All industry	Manufacturing	Wholesale & retail trade	All industry
[A]	Entry	1.2%	5.9%	2.3%	2.3%	3.6%	3.1%
[B]	Incumbent	0.6%	1.2%	0.7%	0.8%	2.6%	1.8%
[C] Sub-total (=[A] + [B])		**1.8%**	**7.0%**	**2.9%**	**3.0%**	**6.2%**	**4.8%**
[D]	Status change	13.0%	8.2%	12.0%	0.6%	0.6%	0.6%
[E] Total (=[C] + [D])		**14.8%**	**15.3%**	**14.9%**	**3.7%**	**6.8%**	**5.4%**
Job destruction		Manufacturing	Wholesale & retail trade	All industry	Manufacturing	Wholesale & retail trade	All industry
[A]	Exit	-1.3%	-4.0%	-1.9%	-3.7%	-3.4%	-3.5%
[B]	Incumbent	-0.8%	-1.2%	-0.9%	-1.8%	-1.1%	-1.4%
[C] Sub-total (=[A] + [B])		**-2.1%**	**-5.2%**	**-2.8%**	**-5.4%**	**-4.5%**	**-4.9%**
[D]	Status change	-3.2%	-0.8%	-2.7%	-1.9%	-0.4%	-1.0%
[E] Total (=[C] + [D])		**-5.3%**	**-6.0%**	**-5.5%**	**-7.3%**	**-4.8%**	**-5.9%**
Net job creation		Manufacturing	Wholesale & retail trade	All industry	Manufacturing	Wholesale & retail trade	All industry
[A]	Entry and exit	-0.1%	1.9%	0.3%	-1.4%	0.3%	-0.4%
[B]	Incumbent	-0.2%	-0.1%	-0.2%	-1.0%	1.5%	0.4%
[C] Sub-total (=[A] + [B])		**-0.3%**	**1.8%**	**0.2%**	**-2.4%**	**1.8%**	**0.0%**
[D]	Status change	9.8%	7.4%	9.3%	-1.3%	0.2%	-0.4%
[E] Total (=[C] + [D])		**9.5%**	**9.2%**	**9.4%**	**-3.6%**	**2.0%**	**-0.5%**

Notes: 1) See Table 1 for the definition of Japanese MNEs, foreign-owned firms, and domestic firms.

2) Figures indicate the annual average rate for 1995-2002.

Source: METI database.

Table 7. Job Creation and Job Destruction: Difference across Industries

Job creation		All firms: Iron, steel, and metal products	All firms: General machinery	All firms: Electrical machinery	All firms: Transportation machinery	All firms: Other manufacturing	Japanese MNEs: Iron, steel, and metal products	Japanese MNEs: General machinery	Japanese MNEs: Electrical machinery	Japanese MNEs: Transportation machinery	Japanese MNEs: Other manufacturing
[A]	Entry	1.0%	1.0%	1.3%	0.6%	1.6%	0.1%	0.4%	0.3%	0.1%	0.5%
[B]	Incumbent	1.1%	0.6%	0.4%	0.6%	1.7%	0.1%	0.6%	0.2%	0.5%	0.4%
[C] Sub-total (=[A] + [B])		**2.2%**	**1.6%**	**1.7%**	**1.2%**	**3.3%**	**0.2%**	**1.0%**	**0.5%**	**0.6%**	**0.8%**
[D]	Status change						1.2%	2.2%	0.7%	1.6%	1.6%
[E] Total (=[C] + [D])							**1.4%**	**3.1%**	**1.2%**	**2.2%**	**2.4%**
Job destruction											
[A]	Exit	-2.2%	-2.3%	-2.1%	-1.7%	-3.5%	-1.0%	-1.5%	-0.9%	-1.2%	-2.4%
[B]	Incumbent	-4.2%	-2.2%	-3.2%	-2.0%	-3.3%	-4.0%	-2.1%	-3.7%	-1.0%	-2.9%
[C] Sub-total (=[A] + [B])		**-6.4%**	**-4.5%**	**-5.3%**	**-3.7%**	**-6.8%**	**-5.0%**	**-3.7%**	**-4.6%**	**-2.2%**	**-5.2%**
[D]	Status change						-0.6%	-0.7%	-1.1%	-3.7%	-1.3%
[E] Total (=[C] + [D])							**-5.6%**	**-4.4%**	**-5.7%**	**-5.9%**	**-6.6%**
Net job creation											
[A]	Entry and exit	-1.1%	-1.3%	-0.8%	-1.1%	-1.9%	-0.8%	-1.1%	-0.5%	-1.1%	-1.9%
[B]	Incumbent	-3.1%	-1.6%	-2.8%	-1.5%	-1.6%	-3.9%	-1.6%	-3.6%	-0.5%	-2.5%
[C] Sub-total (=[A] + [B])		**-4.2%**	**-2.9%**	**-3.6%**	**-2.6%**	**-3.6%**	**-4.7%**	**-2.7%**	**-4.1%**	**-1.6%**	**-4.4%**
[D]	Status change						0.6%	1.5%	-0.4%	-2.2%	0.2%
[E] Total (=[C] + [D])							**-4.1%**	**-1.2%**	**-4.6%**	**-3.8%**	**-4.2%**

Job creation		Foreign-owned firms: Iron, steel, and metal products	Foreign-owned firms: General machinery	Foreign-owned firms: Electrical machinery	Foreign-owned firms: Transportation machinery	Foreign-owned firms: Other manufacturing	Domestic firms: Iron, steel, and metal products	Domestic firms: General machinery	Domestic firms: Electrical machinery	Domestic firms: Transportation machinery	Domestic firms: Other manufacturing
[A]	Entry	7.2%	1.3%	1.9%	0.8%	1.1%	2.0%	1.8%	2.9%	1.7%	2.2%
[B]	Incumbent	0.3%	0.1%	0.0%	0.1%	0.0%	0.4%	0.6%	0.8%	0.6%	0.8%
[C] Sub-total (=[A] + [B])		**7.4%**	**1.4%**	**1.9%**	**0.9%**	**1.1%**	**2.4%**	**2.4%**	**3.7%**	**2.3%**	**3.0%**
[D]	Status change	1.2%	1.4%	10.2%	23.2%	2.6%	0.5%	0.8%	0.4%	0.5%	0.7%
[E] Total (=[C] + [D])		**8.7%**	**2.8%**	**12.2%**	**24.1%**	**3.7%**	**2.9%**	**3.2%**	**4.1%**	**2.8%**	**3.7%**
Job destruction											
[A]	Exit	-0.9%	-0.2%	-0.4%	-0.2%	-10.0%	-3.6%	-3.5%	-4.5%	-3.3%	-4.0%
[B]	Incumbent	0.0%	-1.0%	-0.9%	0.0%	-3.3%	-2.1%	-1.9%	-1.9%	-1.6%	-1.8%
[C] Sub-total (=[A] + [B])		**-0.9%**	**-1.2%**	**-1.4%**	**-0.2%**	**-13.3%**	**-5.7%**	**-5.5%**	**-6.5%**	**-4.9%**	**-5.8%**
[D]	Status change	-17.8%	-16.7%	-0.4%	-3.8%	-0.9%	-1.5%	-2.0%	-1.5%	-4.9%	-1.0%
[E] Total (=[C] + [D])		**-18.7%**	**-17.9%**	**-1.8%**	**-4.0%**	**-14.1%**	**-7.1%**	**-7.4%**	**-7.9%**	**-9.8%**	**-6.8%**
Net job creation											
[A]	Entry and exit	6.3%	1.1%	1.4%	0.6%	-8.9%	-1.6%	-1.7%	-1.6%	-1.5%	-1.8%
[B]	Incumbent	0.3%	-0.9%	-0.9%	0.1%	-3.3%	-1.7%	-1.4%	-1.2%	-1.0%	-1.0%
[C] Sub-total (=[A] + [B])		**6.5%**	**0.2%**	**0.5%**	**0.7%**	**-12.2%**	**-3.3%**	**-3.0%**	**-2.7%**	**-2.6%**	**-2.8%**
[D]	Status change	-16.6%	-15.2%	9.9%	19.5%	1.7%	-1.0%	-1.2%	-1.0%	-4.4%	-0.3%
[E] Total (=[C] + [D])		**-10.0%**	**-15.0%**	**10.4%**	**20.2%**	**-10.4%**	**-4.3%**	**-4.2%**	**-3.8%**	**-7.0%**	**-3.1%**

For notes and source, see Table 4.

Table 8. Job Creation and Job Destruction: Difference between Production and Non-production Workers in Manufacturing Firms

		All firms		Japanese MNEs		Foreign-owned firms		Domestic firms	
Job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry	1.3%	1.0%	0.3%	0.3%	1.8%	0.8%	2.5%	1.9%
[B]	Incumbent	2.1%	3.7%	0.5%	1.9%	0.3%	1.2%	1.2%	1.6%
[C] Sub-total (=[A] + [B])		**3.4%**	**4.8%**	**0.8%**	**2.2%**	**2.1%**	**2.1%**	**3.6%**	**3.6%**
[D]	Status change			1.3%	1.7%	15.4%	11.1%	0.5%	1.0%
[E] Total (=[C] + [D])				**2.1%**	**3.9%**	**17.5%**	**13.2%**	**4.1%**	**4.5%**
Job destruction		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Exit	-2.4%	-2.3%	-1.3%	-1.4%	-1.3%	-1.4%	-3.8%	-3.5%
[B]	Incumbent	-4.8%	-4.3%	-3.9%	-2.4%	-1.8%	-0.4%	-2.2%	-2.5%
[C] Sub-total (=[A] + [B])		**-7.2%**	**-6.6%**	**-5.2%**	**-3.8%**	**-3.0%**	**-1.8%**	**-6.0%**	**-5.9%**
[D]	Status change			-1.6%	-1.8%	-3.8%	-2.8%	-1.8%	-2.2%
[E] Total (=[C] + [D])				**-6.8%**	**-5.7%**	**-6.9%**	**-4.6%**	**-7.8%**	**-8.1%**
Net job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry and exit	-1.1%	-1.2%	-1.0%	-1.1%	0.5%	-0.6%	-1.3%	-1.5%
[B]	Incumbent	-2.7%	-0.6%	-3.4%	-0.5%	-1.5%	0.8%	-1.1%	-0.8%
[C] Sub-total (=[A] + [B])		**-3.8%**	**-1.8%**	**-4.4%**	**-1.6%**	**-1.0%**	**0.2%**	**-2.4%**	**-2.4%**
[D]	Status change			-0.3%	-0.1%	11.6%	8.4%	-1.3%	-1.2%
[E] Total (=[C] + [D])				**-4.7%**	**-1.7%**	**10.6%**	**8.6%**	**-3.7%**	**-3.6%**

For notes and source, see Table 4.

Table 9. Job Creation and Job Destruction pf Production Workers by Japanese MNEs and Foreing-owned Firms

	Iron, steel, and metal products		General machinery		Electrical machinery		Transportation machinery		Other manufacturing	
	Production workers		Production workers		Production workers		Production workers		Production workers	
Job creation	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms
[A] Entry	0.1%	7.2%	0.4%	1.8%	0.3%	4.0%	0.1%	0.8%	0.5%	0.6%
[B] Incumbent	0.2%	0.4%	0.8%	0.5%	0.5%	0.0%	0.5%	0.1%	0.3%	0.0%
[C] Sub-total (=[A] + [B])	**0.3%**	**7.6%**	**1.2%**	**2.3%**	**0.8%**	**4.1%**	**0.6%**	**0.9%**	**0.8%**	**0.6%**
[D] Status change	1.2%	0.8%	1.6%	2.1%	0.6%	14.0%	1.6%	22.9%	1.5%	2.8%
[E] Total (=[C] + [D])	**1.5%**	**8.3%**	**2.8%**	**4.4%**	**1.4%**	**18.1%**	**2.2%**	**23.7%**	**2.3%**	**3.4%**
Job destruction	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms
[A] Exit	-0.9%	-0.8%	-1.5%	-0.2%	-0.9%	-0.6%	-1.3%	-0.3%	-2.0%	-14.0%
[B] Incumbent	-5.3%	0.0%	-2.9%	-2.3%	-5.7%	-4.2%	-1.5%	0.0%	-4.1%	-3.0%
[C] Sub-total (=[A] + [B])	**-6.3%**	**-0.8%**	**-4.4%**	**-2.6%**	**-6.6%**	**-4.8%**	**-2.8%**	**-0.3%**	**-6.1%**	**-16.9%**
[D] Status change	-0.5%	-18.2%	-0.8%	-11.0%	-1.1%	-0.8%	-3.6%	-4.1%	-0.8%	-1.5%
[E] Total (=[C] + [D])	**-6.8%**	**-19.0%**	**-5.1%**	**-13.6%**	**-7.7%**	**-5.6%**	**-6.4%**	**-4.4%**	**-6.9%**	**-18.4%**
Net job creation	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms
[A] Entry and exit	-0.8%	6.4%	-1.1%	1.5%	-0.6%	3.4%	-1.2%	0.5%	-1.5%	-13.4%
[B] Incumbent	-5.1%	0.4%	-2.1%	-1.8%	-5.2%	-4.2%	-1.0%	0.1%	-3.7%	-3.0%
[C] Sub-total (=[A] + [B])	**-6.0%**	**6.8%**	**-3.2%**	**-0.3%**	**-5.8%**	**-0.7%**	**-2.2%**	**0.5%**	**-5.3%**	**-16.3%**
[D] Status change	0.7%	-17.5%	0.8%	-8.9%	-0.5%	13.2%	-2.0%	18.8%	0.6%	1.3%
[E] Total (=[C] + [D])	**-5.3%**	**-10.7%**	**-2.3%**	**-9.2%**	**-6.3%**	**12.4%**	**-4.2%**	**19.3%**	**-4.6%**	**-15.1%**
Gross job reallocation	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms
[A] Entry and exit	1.1%	7.9%	1.9%	2.0%	1.2%	4.7%	1.3%	1.1%	2.5%	14.6%
[B] Incumbent	5.5%	0.4%	3.7%	2.8%	6.1%	4.2%	2.1%	0.1%	4.4%	3.0%
[C] Sub-total (=[A] + [B])	**6.6%**	**8.3%**	**5.6%**	**4.8%**	**7.4%**	**8.9%**	**3.4%**	**1.2%**	**6.9%**	**17.5%**
[D] Status change	1.7%	19.0%	2.4%	13.1%	1.7%	14.8%	5.2%	27.0%	2.3%	4.3%
[E] Total (=[C] + [D])	**8.2%**	**27.3%**	**7.9%**	**18.0%**	**9.1%**	**23.7%**	**8.6%**	**28.2%**	**9.2%**	**21.8%**
Gross - |Net|	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms	Japanese MNEs	Foreign-owned firms
Incumbent	0.4%	0.0%	1.6%	1.0%	1.0%	0.1%	1.0%	0.0%	0.6%	0.0%

For notes and source, see Table 4.

Table A1. Number of Multinational Enterprises (MNEs), Foreign-owned Firms, and Domestic Firms, by Industry

Number of firms	All firms			Japanese MNEs			Foreign-owned firms			Domestic firms		
	1995	1998	2002	1995	1998	2002	1995	1998	2002	1995	1998	2002
All industries	19,130	18,968	16,945	1,811	1,986	1,987	202	312	338	17,117	16,670	14,620
Manufacturing	10,954	10,763	9,666	1,479	1,638	1,655	112	171	185	9,363	8,954	7,826
Food products and beverages	1,209	1,231	1,155	94	101	89	8	10	11	1,107	1,120	1,055
Chemicals	770	758	715	151	163	172	43	57	57	576	538	486
Non-metallic mineral products	539	507	389	49	53	47	3	4	3	487	450	339
Iron, steel, and metal products	1,459	1,412	1,264	169	198	198	5	9	11	1,285	1,205	1,055
General machinery	1,214	1,227	1,114	182	199	221	12	19	19	1,020	1,009	874
Electrical machinery	1,545	1,568	1,447	268	307	303	16	25	36	1,261	1,236	1,108
Transportation machinery	935	925	834	181	202	209	10	17	24	744	706	601
Precision machinery	281	294	294	59	63	65	4	6	8	218	225	221
Other manufacturing	3,002	2,841	2,454	326	352	351	11	24	16	2,665	2,465	2,087
Wholesale/retail trade	8,176	8,205	7,279	332	348	332	90	141	153	7,754	7,716	6,794
Wholesale trade	4,914	4,674	4,040	276	286	281	77	107	126	4,561	4,281	3,633
Retail trade	3,262	3,531	3,239	56	62	51	13	34	27	3,193	3,435	3,161

Share (%, all industries = 100.0)	All firms			Japanese MNEs			Foreign-owned firms			Domestic firms		
	1995	1998	2002	1995	1998	2002	1995	1998	2002	1995	1998	2002
All industries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Manufacturing	57.3	56.7	57.0	81.7	82.5	83.3	55.4	54.8	54.7	54.7	53.7	53.5
Food products and beverages	6.3	6.5	6.8	5.2	5.1	4.5	4.0	3.2	3.3	6.5	6.7	7.2
Chemicals	4.0	4.0	4.2	8.3	8.2	8.7	21.3	18.3	16.9	3.4	3.2	3.3
Non-metallic mineral products	2.8	2.7	2.3	2.7	2.7	2.4	1.5	1.3	0.9	2.8	2.7	2.3
Iron, steel, and metal products	7.6	7.4	7.5	9.3	10.0	10.0	2.5	2.9	3.3	7.5	7.2	7.2
General machinery	6.3	6.5	6.6	10.0	10.0	11.1	5.9	6.1	5.6	6.0	6.1	6.0
Electrical machinery	8.1	8.3	8.5	14.8	15.5	15.2	7.9	8.0	10.7	7.4	7.4	7.6
Transportation machinery	4.9	4.9	4.9	10.0	10.2	10.5	5.0	5.4	7.1	4.3	4.2	4.1
Precision machinery	1.5	1.5	1.7	3.3	3.2	3.3	2.0	1.9	2.4	1.3	1.3	1.5
Other manufacturing	15.7	15.0	14.5	18.0	17.7	17.7	5.4	7.7	4.7	15.6	14.8	14.3
Wholesale/retail trade	42.7	43.3	43.0	18.3	17.5	16.7	44.6	45.2	45.3	45.3	46.3	46.5
Wholesale trade	25.7	24.6	23.8	15.2	14.4	14.1	38.1	34.3	37.3	26.6	25.7	24.8
Retail trade	17.1	18.6	19.1	3.1	3.1	2.6	6.4	10.9	8.0	18.7	20.6	21.6

Note: See Table 1.

Source: METI database.

Table A2. Status Change between 1995 and 2002

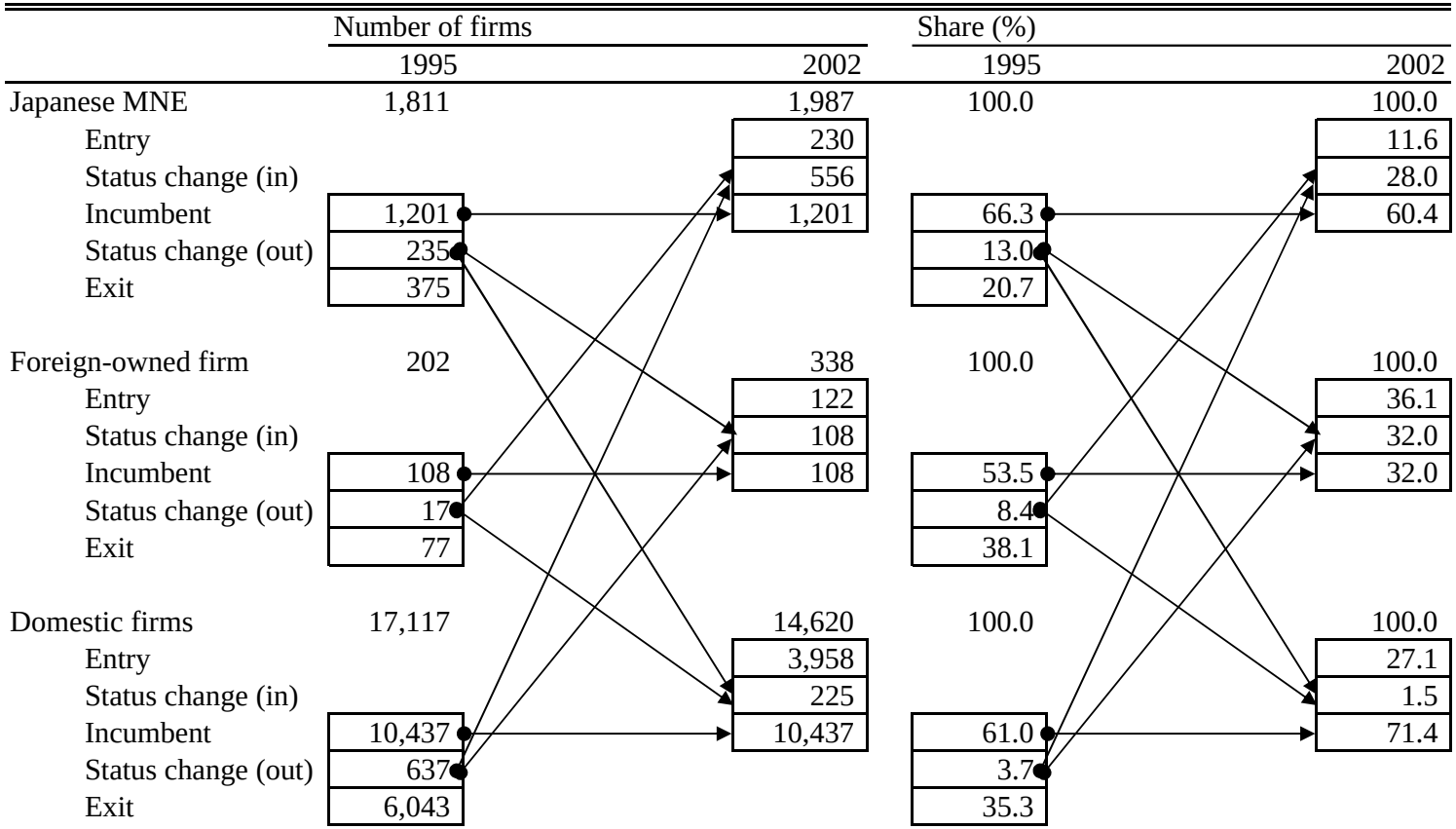


Table A3. Number of Multinational Enterprises (MNEs), Foreign-owned Firms, and Domestic Firms, by Firm Size

	All firms			Japanese MNEs			Foreign-owned firms			Domestic firms		
Number of firms	1995	1998	2002	1995	1998	2002	1995	1998	2002	1995	1998	2002
All industries												
1000-	1,178	1,241	1,119	546	524	437	30	36	48	602	681	634
300-999	3,392	3,434	3,052	578	659	632	53	72	73	2,761	2,703	2,347
50-299	14,560	14,293	12,774	687	803	918	119	204	217	13,754	13,286	11,639
Total	19,130	18,968	16,945	1,811	1,986	1,987	202	312	338	17,117	16,670	14,620
Manufacturing												
1000-	740	725	584	468	452	371	23	30	37	249	243	176
300-999	1,946	1,914	1,703	476	541	527	27	34	33	1,443	1,339	1,143
50-299	8,268	8,124	7,379	535	645	757	62	107	115	7,671	7,372	6,507
Total	10,954	10,763	9,666	1,479	1,638	1,655	112	171	185	9,363	8,954	7,826
Wholesale/retail trade												
1000-	438	516	535	78	72	66	7	6	11	353	438	458
300-999	1,446	1,520	1,349	102	118	105	26	38	40	1,318	1,364	1,204
50-299	6,292	6,169	5,395	152	158	161	57	97	102	6,083	5,914	5,132
Total	8,176	8,205	7,279	332	348	332	90	141	153	7,754	7,716	6,794

	All firms			Japanese MNEs			Foreign-owned firms			Domestic firms		
Share (% of total)	1995	1998	2002	1995	1998	2002	1995	1998	2002	1995	1998	2002
All industries												
1000-	6.2	6.5	6.6	30.1	26.4	22.0	14.9	11.5	14.2	3.5	4.1	4.3
300-999	17.7	18.1	18.0	31.9	33.2	31.8	26.2	23.1	21.6	16.1	16.2	16.1
50-299	76.1	75.4	75.4	37.9	40.4	46.2	58.9	65.4	64.2	80.4	79.7	79.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Manufacturing												
1000-	6.8	6.7	6.0	31.6	27.6	22.4	20.5	17.5	20.0	2.7	2.7	2.2
300-999	17.8	17.8	17.6	32.2	33.0	31.8	24.1	19.9	17.8	15.4	15.0	14.6
50-299	75.5	75.5	76.3	36.2	39.4	45.7	55.4	62.6	62.2	81.9	82.3	83.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wholesale/retail trade												
1000-	5.4	6.3	7.3	23.5	20.7	19.9	7.8	4.3	7.2	4.6	5.7	6.7
300-999	17.7	18.5	18.5	30.7	33.9	31.6	28.9	27.0	26.1	17.0	17.7	17.7
50-299	77.0	75.2	74.1	45.8	45.4	48.5	63.3	68.8	66.7	78.4	76.6	75.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table A4. Job Creation and Job Destruction: Difference between Production and Non-production Workers in Iron, Steel, and Metal Products

		All firms		Japanese MNEs		Foreign-owned firms		Domestic firms	
Job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry	1.1%	0.9%	0.1%	0.1%	7.2%	7.2%	2.1%	1.5%
[B]	Incumbent	1.2%	3.0%	0.2%	2.5%	0.4%	0.1%	0.7%	1.3%
[C] Sub-total (=[A] + [B])		**2.3%**	**3.8%**	**0.3%**	**2.7%**	**7.6%**	**7.3%**	**2.8%**	**2.8%**
[D]	Status change			1.2%	1.2%	0.8%	2.5%	0.3%	0.9%
[E] Total (=[C] + [D])				**1.5%**	**3.9%**	**8.3%**	**9.8%**	**3.2%**	**3.6%**
Job destruction		Production workers	Non-prod. workers	Production workers	Non-prod. workers	Production workers	Non-prod. workers	Production workers	Non-prod. workers
[A]	Exit	-2.1%	-2.3%	-0.9%	-1.0%	-0.8%	-1.2%	-3.6%	-3.6%
[B]	Incumbent	-5.1%	-4.0%	-5.3%	-3.0%	0.0%	-0.2%	-2.4%	-2.8%
[C] Sub-total (=[A] + [B])		**-7.2%**	**-6.3%**	**-6.3%**	**-4.0%**	**-0.8%**	**-1.5%**	**-6.0%**	**-6.4%**
[D]	Status change			-0.5%	-0.8%	-18.2%	-16.6%	-1.5%	-1.3%
[E] Total (=[C] + [D])				**-6.8%**	**-4.8%**	**-19.0%**	**-18.1%**	**-7.5%**	**-7.6%**
Net job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry and exit	-1.0%	-1.4%	-0.8%	-0.9%	6.4%	5.9%	-1.4%	-2.1%
[B]	Incumbent	-3.9%	-1.1%	-5.1%	-0.5%	0.4%	-0.1%	-1.7%	-1.5%
[C] Sub-total (=[A] + [B])		**-4.9%**	**-2.5%**	**-6.0%**	**-1.3%**	**6.8%**	**5.8%**	**-3.2%**	**-3.6%**
[D]	Status change			0.7%	0.4%	-17.5%	-14.1%	-1.2%	-0.4%
[E] Total (=[C] + [D])				**-5.3%**	**-0.9%**	**-10.7%**	**-8.3%**	**-4.4%**	**-4.0%**
Gross job reallocation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry and exit	3.2%	3.1%	1.1%	1.1%	7.9%	8.4%	5.7%	5.1%
[B]	Incumbent	6.3%	7.0%	5.5%	5.5%	0.4%	0.3%	3.2%	4.0%
[C] Sub-total (=[A] + [B])		**9.5%**	**10.1%**	**6.6%**	**6.6%**	**8.3%**	**8.7%**	**8.8%**	**9.1%**
[D]	Status change			1.7%	2.1%	19.0%	19.2%	1.9%	2.1%
[E] Total (=[C] + [D])				**8.2%**	**8.7%**	**27.3%**	**27.9%**	**10.7%**	**11.3%**

For notes and source, see Table 4.

Table A5. Job Creation and Job Destruction: Difference between Production and Non-production Workers in General Machinery

		All firms		Japanese MNEs		Foreign-owned firms		Domestic firms	
Job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry	1.1%	0.9%	0.4%	0.4%	1.8%	0.7%	2.0%	1.6%
[B]	Incumbent	2.1%	3.9%	0.8%	1.9%	0.5%	0.7%	0.9%	1.5%
[C] Sub-total (=[A] + [B])		**3.2%**	**4.7%**	**1.2%**	**2.3%**	**2.3%**	**1.5%**	**2.9%**	**3.0%**
[D]	Status change			1.6%	3.1%	2.1%	0.7%	0.8%	0.9%
[E] Total (=[C] + [D])				**2.8%**	**5.4%**	**4.4%**	**2.2%**	**3.7%**	**4.0%**
Job destruction		Production workers	Non-prod. workers	Production workers	Non-prod. workers	Production workers	Non-prod. workers	Production workers	Non-prod. workers
[A]	Exit	-2.3%	-2.3%	-1.5%	-1.6%	-0.2%	-0.1%	-3.6%	-3.5%
[B]	Incumbent	-4.2%	-4.6%	-2.9%	-2.6%	-2.3%	-0.6%	-2.5%	-2.5%
[C] Sub-total (=[A] + [B])		**-6.5%**	**-6.9%**	**-4.4%**	**-4.3%**	**-2.6%**	**-0.7%**	**-6.0%**	**-6.0%**
[D]	Status change			-0.8%	-0.6%	-11.0%	-22.8%	-1.9%	-2.1%
[E] Total (=[C] + [D])				**-5.1%**	**-4.9%**	**-13.6%**	**-23.5%**	**-8.0%**	**-8.1%**
Net job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry and exit	-1.2%	-1.4%	-1.1%	-1.2%	1.5%	0.6%	-1.6%	-1.9%
[B]	Incumbent	-2.1%	-0.7%	-2.1%	-0.7%	-1.8%	0.2%	-1.5%	-1.0%
[C] Sub-total (=[A] + [B])		**-3.3%**	**-2.1%**	**-3.2%**	**-1.9%**	**-0.3%**	**0.8%**	**-3.1%**	**-3.0%**
[D]	Status change			0.8%	2.5%	-8.9%	-22.1%	-1.2%	-1.1%
[E] Total (=[C] + [D])				**-2.3%**	**0.5%**	**-9.2%**	**-21.3%**	**-4.3%**	**-4.1%**
Gross job reallocation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry and exit	3.4%	3.2%	1.9%	2.1%	2.0%	0.9%	5.6%	5.1%
[B]	Incumbent	6.3%	8.4%	3.7%	4.5%	2.8%	1.3%	3.4%	4.0%
[C] Sub-total (=[A] + [B])		**9.7%**	**11.6%**	**5.6%**	**6.6%**	**4.8%**	**2.2%**	**8.9%**	**9.1%**
[D]	Status change			2.4%	3.7%	13.1%	23.5%	2.7%	3.0%
[E] Total (=[C] + [D])				**7.9%**	**10.3%**	**18.0%**	**25.7%**	**11.6%**	**12.1%**

For notes and source, see Table 4.

Table A6. Job Creation and Job Destruction: Difference between Production and Non-production Workers in Electrical Machinery

		All firms		Japanese MNEs		Foreign-owned firms		Domestic firms	
Job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry	1.4%	1.0%	0.3%	0.4%	4.0%	0.6%	3.1%	2.4%
[B]	Incumbent	1.6%	3.7%	0.5%	2.6%	0.0%	1.1%	1.3%	1.8%
[C] Sub-total (=[A] + [B])		**3.0%**	**4.7%**	**0.8%**	**3.1%**	**4.1%**	**1.7%**	**4.4%**	**4.2%**
[D]	Status change			0.6%	0.8%	14.0%	8.1%	0.4%	0.5%
[E] Total (=[C] + [D])				**1.4%**	**3.9%**	**18.1%**	**9.8%**	**4.8%**	**4.7%**
Job destruction		Production workers	Non-prod. workers	Production workers	Non-prod. workers	Production workers	Non-prod. workers	Production workers	Non-prod. workers
[A]	Exit	-2.2%	-1.8%	-0.9%	-0.8%	-0.6%	-0.4%	-4.5%	-4.6%
[B]	Incumbent	-5.7%	-3.9%	-5.7%	-2.9%	-4.2%	-0.1%	-2.2%	-3.4%
[C] Sub-total (=[A] + [B])		**-7.8%**	**-5.7%**	**-6.6%**	**-3.7%**	**-4.8%**	**-0.4%**	**-6.7%**	**-8.0%**
[D]	Status change			-1.1%	-1.1%	-0.8%	-0.1%	-1.4%	-1.5%
[E] Total (=[C] + [D])				**-7.7%**	**-4.8%**	**-5.6%**	**-0.6%**	**-8.2%**	**-9.5%**
Net job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry and exit	-0.8%	-0.8%	-0.6%	-0.4%	3.4%	0.3%	-1.4%	-2.2%
[B]	Incumbent	-4.0%	-0.2%	-5.2%	-0.2%	-4.2%	1.0%	-1.0%	-1.6%
[C] Sub-total (=[A] + [B])		**-4.8%**	**-1.0%**	**-5.8%**	**-0.6%**	**-0.7%**	**1.3%**	**-2.3%**	**-3.8%**
[D]	Status change			-0.5%	-0.3%	13.2%	7.9%	-1.0%	-1.0%
[E] Total (=[C] + [D])				**-6.3%**	**-0.9%**	**12.4%**	**9.2%**	**-3.4%**	**-4.8%**
Gross job reallocation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry and exit	3.6%	2.8%	1.2%	1.2%	4.7%	1.0%	7.6%	7.0%
[B]	Incumbent	7.3%	7.6%	6.1%	5.5%	4.2%	1.1%	3.5%	5.2%
[C] Sub-total (=[A] + [B])		**10.8%**	**10.4%**	**7.4%**	**6.7%**	**8.9%**	**2.1%**	**11.1%**	**12.2%**
[D]	Status change			1.7%	1.9%	14.8%	8.2%	1.8%	2.0%
[E] Total (=[C] + [D])				**9.1%**	**8.7%**	**23.7%**	**10.3%**	**13.0%**	**14.2%**

For notes and source, see Table 4.

Table A7. Job Creation and Job Destruction: Difference between Production and Non-production Workers in Transportation Machinery

		All firms		Japanese MNEs		Foreign-owned firms		Domestic firms	
Job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry	0.6%	0.5%	0.1%	0.1%	0.8%	0.8%	1.8%	1.5%
[B]	Incumbent	3.5%	5.4%	0.5%	1.8%	0.1%	0.1%	0.9%	1.4%
[C] Sub-total (=[A] + [B])		**4.1%**	**5.9%**	**0.6%**	**1.9%**	**0.9%**	**1.0%**	**2.8%**	**2.8%**
[D]	Status change			1.6%	1.4%	22.9%	23.8%	0.4%	0.7%
[E] Total (=[C] + [D])				**2.2%**	**3.3%**	**23.7%**	**24.8%**	**3.1%**	**3.5%**
Job destruction		Production workers	Non-prod. workers	Production workers	Non-prod. workers	Production workers	Non-prod. workers	Production workers	Non-prod. workers
[A]	Exit	-1.8%	-1.5%	-1.3%	-1.0%	-0.3%	0.0%	-3.2%	-3.3%
[B]	Incumbent	-5.4%	-5.9%	-1.5%	-1.0%	0.0%	0.0%	-1.8%	-2.8%
[C] Sub-total (=[A] + [B])		**-7.1%**	**-7.3%**	**-2.8%**	**-2.1%**	**-0.3%**	**-0.1%**	**-5.1%**	**-6.2%**
[D]	Status change			-3.6%	-4.1%	-4.1%	-3.2%	-4.4%	-6.3%
[E] Total (=[C] + [D])				**-6.4%**	**-6.1%**	**-4.4%**	**-3.3%**	**-9.4%**	**-12.5%**
Net job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry and exit	-1.1%	-0.9%	-1.2%	-0.9%	0.5%	0.8%	-1.4%	-1.9%
[B]	Incumbent	-1.9%	-0.5%	-1.0%	0.8%	0.1%	0.1%	-0.9%	-1.5%
[C] Sub-total (=[A] + [B])		**-3.0%**	**-1.4%**	**-2.2%**	**-0.1%**	**0.5%**	**0.9%**	**-2.3%**	**-3.3%**
[D]	Status change			-2.0%	-2.7%	18.8%	20.6%	-4.0%	-5.7%
[E] Total (=[C] + [D])				**-4.2%**	**-2.8%**	**19.3%**	**21.5%**	**-6.3%**	**-9.0%**
Gross job reallocation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry and exit	2.4%	2.0%	1.3%	1.1%	1.1%	0.9%	5.1%	4.8%
[B]	Incumbent	8.9%	11.2%	2.1%	2.8%	0.1%	0.2%	2.8%	4.2%
[C] Sub-total (=[A] + [B])		**11.3%**	**13.2%**	**3.4%**	**4.0%**	**1.2%**	**1.0%**	**7.8%**	**9.0%**
[D]	Status change			5.2%	5.5%	27.0%	27.0%	4.8%	7.0%
[E] Total (=[C] + [D])				**8.6%**	**9.4%**	**28.2%**	**28.0%**	**12.6%**	**16.0%**

For notes and source, see Table 4.

Table A8. Job Creation and Job Destruction: Difference between Production and Non-production Workers in Other Manufacturing

		All firms		Japanese MNEs		Foreign-owned firms		Domestic firms	
Job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry	1.6%	1.5%	0.5%	0.4%	0.6%	1.6%	2.2%	2.2%
[B]	Incumbent	1.7%	3.4%	0.3%	1.8%	0.0%	0.1%	1.3%	2.0%
[C] Sub-total (=[A] + [B])		**3.3%**	**4.9%**	**0.8%**	**2.2%**	**0.6%**	**1.7%**	**3.5%**	**4.2%**
[D]	Status change			1.5%	1.7%	2.8%	2.5%	0.4%	1.3%
[E] Total (=[C] + [D])				**2.3%**	**3.9%**	**3.4%**	**4.1%**	**3.9%**	**5.5%**
Job destruction		Production workers	Non-prod. workers	Production workers	Non-prod. workers	Production workers	Non-prod. workers	Production workers	Non-prod. workers
[A]	Exit	-3.7%	-3.2%	-2.0%	-3.0%	-14.0%	-6.0%	-4.5%	-3.3%
[B]	Incumbent	-4.2%	-3.6%	-4.1%	-2.3%	-3.0%	-3.7%	-2.8%	-2.1%
[C] Sub-total (=[A] + [B])		**-7.9%**	**-6.9%**	**-6.1%**	**-5.3%**	**-16.9%**	**-9.7%**	**-7.3%**	**-5.4%**
[D]	Status change			-0.8%	-2.1%	-1.5%	-0.3%	-1.0%	-1.1%
[E] Total (=[C] + [D])				**-6.9%**	**-7.4%**	**-18.4%**	**-10.0%**	**-8.3%**	**-6.5%**
Net job creation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry and exit	-2.1%	-1.7%	-1.5%	-2.5%	-13.4%	-4.4%	-2.2%	-1.1%
[B]	Incumbent	-2.5%	-0.3%	-3.7%	-0.5%	-3.0%	-3.6%	-1.5%	-0.1%
[C] Sub-total (=[A] + [B])		**-4.6%**	**-1.9%**	**-5.3%**	**-3.1%**	**-16.3%**	**-8.0%**	**-3.8%**	**-1.2%**
[D]	Status change			0.6%	-0.5%	1.3%	2.2%	-0.6%	0.3%
[E] Total (=[C] + [D])				**-4.6%**	**-3.5%**	**-15.1%**	**-5.8%**	**-4.4%**	**-0.9%**
Gross job reallocation		Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers	Production workers	Nonproduction workers
[A]	Entry and exit	5.3%	4.8%	2.5%	3.4%	14.6%	7.6%	6.7%	5.5%
[B]	Incumbent	5.9%	7.0%	4.4%	4.1%	3.0%	3.7%	4.1%	4.1%
[C] Sub-total (=[A] + [B])		**11.2%**	**11.8%**	**6.9%**	**7.5%**	**17.5%**	**11.3%**	**10.7%**	**9.6%**
[D]	Status change			2.3%	3.8%	4.3%	2.7%	1.4%	2.4%
[E] Total (=[C] + [D])				**9.2%**	**11.3%**	**21.8%**	**14.1%**	**12.1%**	**12.0%**

For notes and source, see Table 4.