

Entry of Small and Medium Enterprises and Economic Dynamism in Japan

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ABSTRACT. In examining the evolution of small and medium enterprises in Japan in the postwar period, this paper shows that entry rates for new firms have declined sharply in the last quarter century or so, a trend observed across most sectors of the economy as well as across most firm-size categories. To explain this pattern, the paper investigates the determinants of entry in Japan. Among other factors, it finds that cost disadvantages owing to small scale and the shortage of technical resources are significant deterrents to entry. It also finds that the availability of government-directed credit deters entry which suggests that, in their current form, such credit programs protect incumbents. Among positive factors, it finds that subcontracting opportunities promote entry which suggests that the subcontracting system in Japan is open to newcomers and helps give them a foothold in the economy.

1. SMEs in the Japanese economy

Small and medium enterprises (SMEs) have many important roles in the economy. One of the crucial roles in promoting economic growth is to promote dynamism in the economy. Being flexible and versatile, SMEs can adjust to changing business environments better than large firms. In many cases it is SMEs that enter new markets first, and some of them become large as a result of successful operation. Indeed, there have been a number of such cases in the post-WW II period in Japan. For example, in the electronics industry, there were 120 large firms as of March 1979, whose paid-in capital exceeded 1 billion yen. Out

of these 120 large firms, 54 firms, or 45 percent of the total, were SMEs in March 1955. And six large firms were established as an SME between March 1955 and March 1979.¹ These figures indicate that more than 50 percent of large electronics firms existing in March 1979 had grown from the level of SMEs during the post WW II period.

The share of Japan's SMEs in the total number of establishments has been remarkably constant for the last four decades, fluctuating between a high of 99.7 percent in 1957 and a low of 98.8 percent in 1996. A similar pattern can be observed for the share of employment, although that fluctuates over a slightly larger range. Within this overall constancy, however, one can detect much variation across sectors, enterprise size groups, and periods (see Table I).²

For example, the number of SMEs declined in manufacturing and distribution (wholesale and retail sales) after 1989 but continued to grow in services, construction, real estate, and transportation and communications. This pattern mostly reflects the changes in the production structure from manufacturing and distribution to other services in the Japanese economy. These changes in production structure in turn can be explained by the corresponding changes in demand patterns and industrial policies. One specific example is revision of the large retail store law in the late 1980s. The large retail store law had protected SMEs by limiting the scope of operation of large retail stores. However, faced with pressure from the U.S. government, which was interested in promoting entry of large U.S. retail stores in the Japanese market, the Japanese government relaxed the law. As a result of liberalization, inefficient small retail stores had to exit from the market,

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TABLE I
Small and medium enterprises in the Japanese economy

		Number of establishments			Number of employees		
		Number (1,000)	Share of total establishments (%)	Share of non-primary total (%)	Number (1,000)	Share of total employment (%)	Share of non-primary total (%)
Manufacturing	1957	541	99.4	15.6	5,475	73.5	33.7
	1969	733	99.4	15.9	8,680	69.0	31.7
	1981	868	99.5	13.9	9,551	74.3	25.7
	1986	874	99.5	13.3	9,921	74.4	25.1
	1996	768	99.4	11.7	9,576	74.1	21.5
Wholesale and retail	1957	1,804	99.8	52.2	5,635	94.4	34.7
	1969	2,287	99.6	49.5	9,010	86.9	32.9
	1981	3,011	99.5	48.3	12,978	87.4	34.9
	1986	3,045	99.4	46.3	13,635	87.0	34.5
	1996	2,805	99.1	42.7	15,146	83.2	34.0
Services	1957	773	99.4	22.3	2,318	88.8	14.2
	1969	973	98.9	21.0	3,664	74.5	13.4
	1981	1,335	98.5	21.4	5,580	69.2	15.0
	1986	1,519	98.3	23.1	6,448	67.1	16.3
	1996	1,746	97.2	26.6	8,449	61.2	19.0
Construction	1957	176	99.9	5.0	1,097	88.3	6.7
	1969	345	99.8	7.5	2,931	89.3	10.7
	1981	550	99.9	8.8	4,714	95.3	12.7
	1986	595	99.9	9.1	4,597	96.0	11.6
	1996	647	99.9	9.9	5,527	95.7	12.4
Real estate	1957	23	100.0	0.6	60	98.3	0.3
	1969	127	100.0	2.7	294	95.7	1.1
	1981	238	100.0	3.8	610	97.6	1.6
	1986	280	100.0	4.3	694	98.0	1.8
	1996	292	100.0	4.4	896	96.5	2.0
Transportation and communications	1957	67	100.0	1.9	799	82.3	4.9
	1969	84	99.3	1.8	1,549	81.9	5.7
	1981	133	99.6	2.1	2,083	88.8	5.6
	1986	151	99.5	2.3	2,446	88.1	6.2
	1996	189	99.5	2.9	3,033	87.6	6.8
Nonprimary total	1957	3,452	99.7	100.0	16,222	82.8	100.0
	1969	4,624	99.4	100.0	27,414	78.3	100.0
	1981	6,230	99.4	100.0	37,206	81.4	100.0
	1986	6,572	99.2	100.0	39,506	80.6	100.0
	1996	6,562	98.8	100.0	44,493	77.6	100.0

Notes: SMEs are those firms with fewer than 299 employees, except for those in wholesale (fewer than 99 employees), and for those in retail and services (fewer than 49 employees).

Source: Management and Coordination Agency, Establishment Census, various years.

leading to a decline in the number of establishments. Despite a relative decline in recent years, the manufacturing and distribution sectors still account for a large share of total, as their combined share in 1996 was 54 percent.

Looking at employment changes, it is inter-

esting to note that manufacturing is the only sector that lost employees, as the number of employees in manufacturing declined from 9.9 million in 1989 to 9.6 million in 1996. This decline in the number of employees in manufacturing SMEs is attributable not only to a decline in the level of

production but also partly to an increase in labor productivity, resulting from introduction of labor-saving technologies.

There have been significant changes in the size distribution of SMEs over time. Among SMEs of different sizes, SMEs of the smallest size group (one to four employees) saw a decline in their number starting in the mid-1980s after a continuous increase, while the larger SMEs continued to increase in their number (Table II). Specifically, the number of very small SMEs, declined from 4.4 million in 1986 to 4.1 million in 1996, while the number of relatively larger SMEs with 5–299 employees increased from 2.1 million to 2.4 million during the same period.

Observing the contrasting changes in the number of establishments between micro SMEs and relatively larger SMEs in recent years, one should note that the relative weight of SMEs in terms of the number of establishments has been shifting from micro SMEs to relatively larger SMEs throughout the post-WW II period. Specifically, the share of micro SMEs in total number of establishments declined steadily from 83 percent in 1951 to 63 percent in 1996, while the shares of larger SMEs increased their shares. In particular, the share of SMEs with five to nine employees increased significantly from 9 percent to 19 percent during the 1951–1996 period.

SMEs also play an important role as subcontractors. According to a survey by the SME

Agency, in 1987, 55.9 percent of SMEs were engaged in subcontracting. Most large firms depend on SMEs for the supply of parts and components. It is well known that the competitiveness of Japanese automobile, electronics, and other machinery production comes from an efficient subcontracting system involving SMEs. SMEs also have an important position in a number of regional production networks, or clusters, that are an integral part of regional economic activities in many parts of Japan. Indeed, it is often the case that subcontracting arrangements take place within clusters.

2. Entry and exit of SMEs

The previous section examined the position of SMEs in the Japanese economy and its changes in the post-war period. In particular, the examination focused on the changes in the number of establishments over time. This section examines the changing patterns of entry and exit of firms, especially those of SMEs, which are reflected in the changes in the number of firms.

The entry rate declined substantially from the mid-1960s to the mid-1990s (Figure 1).³ From the late 1960s through the late 1970s (1978–1981), the average annual entry rate for the private nonprimary sector remained around 6–7 percent, then it started to decline notably to register 2.82 percent in the first half of the 1990s.⁴ The average annual

TABLE II
Number of enterprises by employment size: Non-primary sector

Year	Total	1–4	5–9	10–29	30–49	50–99	100–299	300–
Number of enterprise (1,000)								
1957	3461	2715	433	237	38	22	12	4
1969	4650	3360	687	431	84	54	27	7
1981	6269	4349	1056	640	113	70	33	8
1986	6494	4428	1118	705	124	75	36	8
1996	6503	4080	1230	886	156	94	46	10
Compositional shares (%)								
1957	100	78.45	12.51	6.85	1.10	0.64	0.35	0.12
1969	100	72.26	14.77	9.27	1.81	1.16	0.58	0.15
1981	100	69.37	16.84	10.21	1.80	1.12	0.53	0.13
1986	100	68.19	17.22	10.85	1.90	1.16	0.56	0.12
1996	100	62.74	18.92	13.63	2.40	1.45	0.70	0.16

Source: Management and Coordination Agency, Establishment Census, various years.

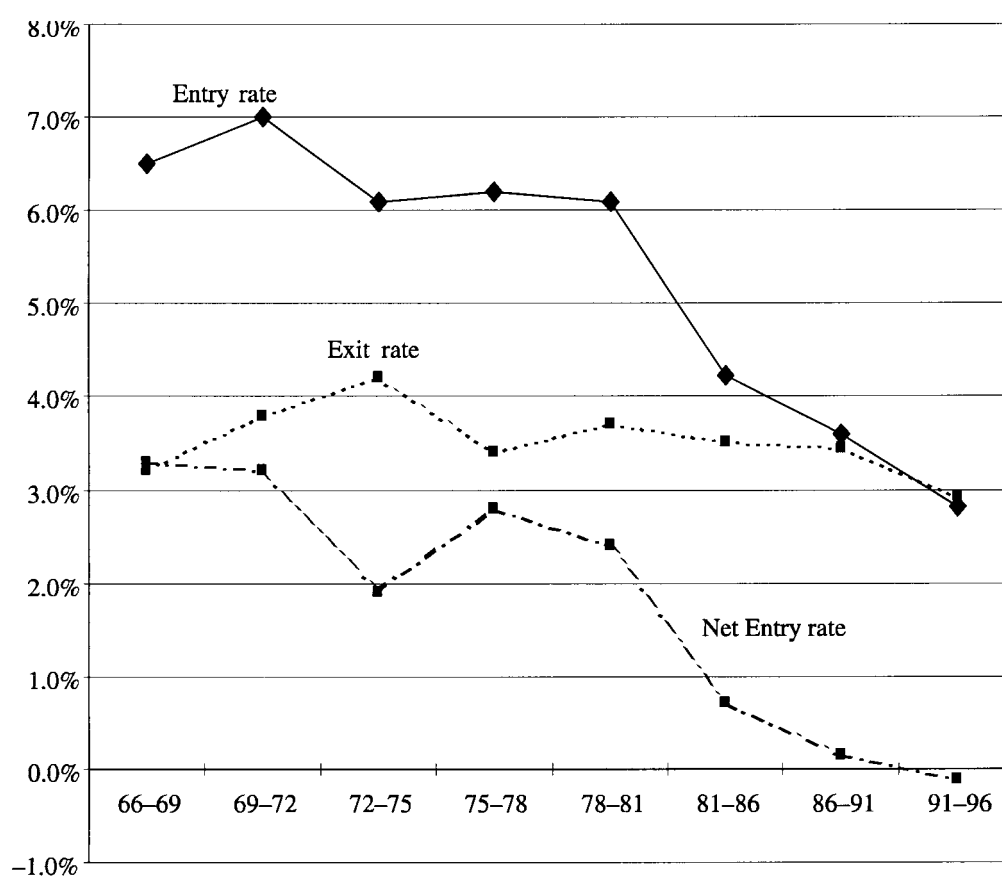


Figure 1. Entry, exit, and net entry rates.

exit rate also declined from 4.20 percent in the mid-1970s to 2.93 percent in the first of the 1990s. The rate of decline is significantly larger for the entry rate when compared with the exit rate. Indeed, the annual average exit rate exceeded the corresponding entry rate in the first half of the 1990s, resulting in the decline in the number of firms.

The observed patterns of the changes in entry and exit rates above seem to indicate that they are correlated. A study by the Small and Medium Enterprise Agency (1999) found both entry and exit rates are closely correlated to the rate of economic growth. While high economic growth would increase business opportunities, inducing entry, high rate of entry results in high exit rates, since the probability of exit is high for new firms.⁵ During the boom period, turnover of the firms through entry and exit becomes high, probably

leading to the promotion of economic growth by improving allocative and technical efficiency. The validity of this assertion will be examined in a later section of the paper.

Entry rates differ significantly among the establishments of different sizes. Table III reveals that entry rates are high for the firms with five to nine employees and 10–19 employees. Firms with five to nine employees register the highest entry rate. The entry rate declines steadily with the size of firms, and the entry rate is the lowest for large firms with more than 300 employees. The relationship between the entry rates and the firm size observed above can be found for most sectors shown in the table. The exit rate declines with the firm size, similar to the pattern observed for the entry rate.⁶ One difference is that unlike the entry rate, whose value for the smallest firms (firms with one to four employees) is not the highest

TABLE III
Rate of entry by industry and by establishment size in 1986–1991

	Employment Size (number of employees)									
	Average	1–4	5–9	10–19	20–29	30–49	50–99	100–199	200–299	300–
All sectors	6.2	5.9	7.3	6.8	6.0	5.3	4.4	3.6	3.4	2.6
Agric. forst. fishery	4.1	4.3	4.5	4.2	3.5	2.7	1.2	2.1	0.0	0.0
Mining	2.7	4.1	2.6	2.0	1.0	1.7	2.6	0.0	0.0	5.6
Construction	4.9	4.1	6.2	5.4	4.4	4.0	3.3	3.0	3.3	4.1
Manufacturing	4.3	3.8	5.1	5.3	4.8	4.4	3.8	3.2	2.4	1.4
Utilities	4.0	2.8	6.0	5.8	4.6	3.9	3.6	3.0	2.4	2.4
Transp. and communication	5.9	5.4	9.2	7.1	4.8	4.3	3.5	2.8	3.2	2.3
Wholesale and retail	6.6	6.4	7.5	7.3	6.4	5.6	4.9	3.9	4.5	4.5
Finance and insurance	7.7	8.9	10.0	7.1	6.3	5.3	4.4	4.1	4.5	3.6
Services	6.8	6.2	8.6	8.3	8.0	7.2	5.3	4.5	4.5	3.7

Note: The figures in italic are greater than the average for the sector.

Source: Management and Coordination Agency, Establishment Census, various years.

among all size groups, the exit rate for the smallest firms is the highest, resulting in the steady decline in exit rate with firm size. High entry and exit rates observed for small firms appear to reflect the fact that entry and exit barriers such as required investment in physical and human capital, or sunk cost, are low for small firms. High exit rates for small firms may also be due to a lack of competitiveness, which in turn is due to limited amount of financial and human resources.

Differences in the rates of turnover among the firms of different sizes observed above are reflected in the age structure of the firms of different sizes. From the figures in Table IV one observes that small firms are young, while large

firms are old. Specifically, for the firms with 5–19 employees, more than 50 percent of them were established after 1975, while the corresponding value for the firms with 300 or more employees is much lower at 29.1 percent. By contrast, 30 percent of the firms with 300 or more employees were established before 1954, while the corresponding value for the firms with 5–19 employees is significantly lower at 13 percent. In addition to the differences in the entry and exit rates among the firms of different sizes noted above, the fact that surviving firms tend to increase their size in terms of employment explain the high proportion of old firms among large firms.⁷

TABLE IV
Age structure of establishment (%): 1996

Size of establishment by employment	Year of establishment							
	–54	55–64	65–74	75–84	85–86	87–89	90–	Total
Total	15.7	12.0	21.3	26.6	6.7	11.6	6.2	100.0
1–4	16.9	12.2	21.1	26.4	6.5	10.8	5.9	100.0
5–9	13.3	11.0	20.6	27.2	7.1	13.5	7.3	100.0
10–19	12.3	11.1	22.1	27.4	7.1	13.2	6.8	100.0
20–29	13.2	12.1	23.4	26.4	6.7	12.3	6.0	100.0
30–49	14.8	13.2	23.7	25.4	6.2	11.4	5.3	100.0
50–99	17.2	14.9	24.5	23.5	5.7	9.9	4.4	100.0
100–199	19.8	16.6	24.8	21.6	5.2	8.4	3.6	100.0
200–299	23.1	16.4	24.9	19.4	4.9	7.9	3.4	100.0
300–	30.6	17.3	23.1	15.8	4.5	6.2	2.6	100.0

Source: Management and Coordination Agency, Establishment Census, various years.

3. Entry motives and impediments

In this section we examine the motives of entry and the barriers to entry of Japanese SMEs by mainly using the results of a questionnaire survey conducted on the founders of SMEs by the Small and Medium Enterprise Agency of the Japanese government.⁸ In the next section we attempt to identify the determinants of entry in the Japanese manufacturing sector by analyzing statistically the factors encouraging and discouraging entry.

According to the results of the survey, the most popular motive, which was noted by 47 percent of the respondents, was to pursue their dreams. Other motives that received high response rates, include "try out their potential (36.3 percent)" and "work independently (22.6 percent)." Behind these noneconomic and somewhat spiritual motives comes the profit-seeking motive (21.6 percent). A large number of entrepreneurs with noneconomic motives may explain the high failure rate, or exit rate, among the new entrants, as their business plans may not be well prepared from the financial aspect. It is interesting to note that "admiration for successful entrepreneurs" and "acquaintance with entrepreneurs" are the two more popular reasons for acquiring an interest in starting business among business-oriented students.⁹

Potential entrants face various obstacles. According to the results of a survey conducted by the Small and Medium Enterprise Agency, the three most serious obstacles are lack of financial resources, lack of human resources, and difficulty in developing distribution network¹⁰ Young entrants find these obstacles to be particularly serious. Below we examine some of the problems faced by the entrants in obtaining financial and human resources in more detail.

A large proportion of potential entrants of small business has limited financial resources. According to the survey by the Small and Medium Enterprise Agency, approximately 70 percent of potential entrants of small and medium size had an income of 5 million yen or less.¹¹ In 1998 for as many as 79 percent of startups the initial amount of financial expenses was at least 5 million yen, and for 67 percent the amount was more than 10 million yen. In light of these observations, those who are interested in starting business with

their own funds are likely to have difficulty in obtaining necessary financial resources. However, personal savings is most commonly used means of obtaining initial financial resources for SMEs, because lack of market credibility and small size make it difficult for entrepreneurs to borrow or raise funds from external sources. Indeed, for 80 percent of newly established SMEs, personal saving was a source of finance. Family members and friends are also important sources of finance, because approximately 30 percent of new SMEs relied on them as a source of loans or investments.

Approximately 40 percent of startup SMEs obtained loans from financial institutions, but they faced difficulty in obtaining loans and in many cases the amount of loans they obtained was significantly lower than the amount they requested. The results of a survey by People's Finance Corporation reveals that problems potential entrants of small size face include lack of collateral (73 percent of the firms surveyed), low credit worthiness (59 percent), and lack of guarantor (29 percent).¹² To obtain loans in Japan, collateral and guarantor are generally required. Lack of clear distinction between personal property and firm's property results in loss of personal property, which is often used as collateral, in case of business failure. Indeed, the concern over such possibility makes potential entrepreneurs hesitate to start new business. Public financial assistance in the form of loans and subsidies for startup firms has been provided. However, SMEs are not so interested in loans from public institutions because those loans are not much different from private loans with respect to the conditions on borrowing and repayment.

In light of the difficulty in obtaining financing, it is desirable for SMEs to expand the sources of funds to other sources such as capital markets, venture capital, and angel funds. However, it is not easy for SMEs to do so, because they have to provide detailed information, such as a balance sheet, which the investors use for making investment decisions. Realizing such a difficulty, a large number of SMEs are more interested in the extension of the upper limit of the loan that is covered by the Credit Guarantee Association, and the increase of the subsidies for startups.¹³

Difficulty in recruiting capable personnel is another problem often encountered by potential

entrants. A survey by the Small and Medium Enterprise Agency showed that 40 percent of the entrants surveyed were successful in recruiting personnel who turned out to be capable at the time of startup.¹⁴ The respondents noted that an inability to pay a high salary and an inability to provide a desirable working environment was a major contribution in the success or failure in recruiting qualified personnel. Furthermore, a strong interest in working for established and large firms on the part of Japanese workers makes it difficult for new and small firms to attract capable workers.

4. Determinants of entry: A quantitative analysis

Entry occurs when the expected profit from entry is positive. The expected profit is in turn determined by the difference between the expected value of sales and the cost of starting and running business. As was pointed out earlier in the results of the survey on the obstacles to startup, the cost of starting a business, which depends on the height of entry barriers, has an important impact on entry. Obviously, entry takes place when the value of expected sales is high and entry barriers are low. Even if the expected sales are high, then entry is not likely to take place when entry barriers are high.

Several studies have examined the determinants of entry for the Japanese manufacturing sector.¹⁵ Yamawaki (1991) estimated the net entry equation for 135 Japanese three-digit industries over the 1979–1984 period. He found that net entry is positively and significantly affected by lagged profitability (price-cost margin, PCM), lagged industry growth, and the growth rate of GNP, and negatively and significantly affected by the price of investment goods and the discount rate. Because the price of investment goods and the discount rate are used as a proxy for the cost of capital, his finding indicates that high cost of capital is an effective barrier to net entry.

Odagiri and Honjo (1995) estimated the net entry equation for 98 industries by using a panel data covering 1988–1990. They found that profitability (PCM) and sales growth had a positive and significant impact on net entry, while both economies of scale and capital-output ratio had a

negative and significant impact. The coefficient on market size was positive but it was not significant. In a separate estimation, they tested the impact of concentration on net entry and found that concentration had a negative impact on net entry but the relationship is not statistically significant. Morikawa and Tachibanaki (1997) analyzed the gross entry rate for 561 industries between 1990 and 1993. They found that gross entry rate is positively and significantly affected by sales growth and negatively and significantly affected by the average number of employees per establishment and capital-labor ratio. In addition, they found that a regulation dummy had a negative and significant impact on gross entry.

These studies on entry in the Japanese manufacturing sector have confirmed the positive impact of demand-side factors and the negative impact of entry barriers on entry for Japanese firms. We will examine the determinants of entry by extending the previous analyses in several ways. One is to incorporate additional explanatory variables, and another is to examine entry for the firms of different sizes.

Following the previous studies of the determinants of entry, we use three variables to test the impact of entry inducing factors on entry (price-cost margin, market size, and sales growth), and four variables to test the impact of entry barriers on entry (minimum efficient scale, MES), minimum capital requirement, technological requirement, and product differentiation). We expect the impact of entry-inducing factors to have a positive impact on entry, and we expect the impact of entry barriers on entry to be negative.

A few words on the variables representing entry barriers are in order. Two types of entry barriers are considered in our analysis, economies of scale and cost disadvantage, that are closely related to each other as will be shown below. In an industry where scale economies play an important role in production or sales, an entrant with a limited scale of production faces a cost disadvantage vis-à-vis the incumbents who have already achieved the MES of production and therefore are able to produce at low cost. We use MES as an indicator of economies of scale and measure MES by taking the ratio of average value of shipment of the plants supplying the upper half of industry shipments and total value of shipment of the industry.

Cost disadvantage faced by an entrant may be captured by three different types of investment required for entry; that is, investment in physical capital, technologies, and marketing or advertising. Well-performing incumbents, against whom entrants have to compete, have already constructed factories and installed machinery and other necessary equipment. Moreover, not only have they already developed necessary technologies and human resources through R&D but also have established brand names through advertising. The greater the amount of investment required for entry, the larger becomes the risk of investment, thereby becoming an effective entry barrier. Because investment in physical capital, technologies, and advertisement has a characteristic of fixed cost, cost disadvantage is closely related to scale economies. Recognizing this point, we include capital-output ratio, R&D-sales ratio, and advertisement expenditure-sales ratios to examine the impact of three different types of entry barriers. We expect these entry barriers to be particularly effective to deter entry of small firms.

In addition to these variables, we include three other variables: concentration, subcontracting, and policy loans. Market concentration may have two contrasting impacts on entry.¹⁶ One hypothesis is that incumbents can retaliate against entry more easily in concentrated industries than in non-concentrated industries, because incumbents in concentrated industries can easily detect entry. According to this hypothesis, concentration discourages entry. Alternatively, one can hypothesize that high profits resulting from concentration would induce entry. Considering that entry by small firms would be of only little threat to incumbents, one would expect that concentration would have a positive impact on entry.

Many firms, especially SMEs, are involved with other firms through subcontracting in Japan. They have been engaged in subcontracting because it has brought benefits to the firms involved. The benefits may be gained by avoiding coordination failure by adjusting production levels through close contact. Subcontractors also gain benefits from obtaining technical and financial assistance from subcontractees, or parent firms.

As to the impact of subcontracting system on entry, one may argue that it acts as an entry barrier, because the subcontracting system is built on

a long-term business relationship between the firms involved in the subcontracting system. Alternatively, one may argue that subcontracting encourages entry, because subcontracting practiced in Japan is generally open to outsiders. Indeed, parent firms encourage competition among subcontractors by making the subcontracting system open to obtain benefits in the form of low priced and high quality services provided by subcontractors. Specifically, parent firms do not hesitate to reduce or stop the business with the subcontractors that do not perform as expected, and they recruit actively new subcontractors with high performance.

Another factor associated with subcontracting that promotes entry is that there have been many cases where former employees of parent firms start business as a subcontractor to their former employers. Parent firms often encourage their employees to start new business and to be engaged in subcontracting relationship with them, because subcontracting would bring the benefits just discussed and at the same time would reduce the cost of operation. Finally, one may argue that subcontracting facilitates entry of new firms, because under the subcontracting system new firms can avoid substantial initial investment because it allows them to specialize in a particular process that they have competitiveness in. On the basis of these discussions, one cannot assign expected impact of subcontracting on entry, *a priori*.

Policy loans from public financial institutions have important position as a source of financing for SMEs. At the end of 1997, policy loans account for approximately 25 percent of outstanding balance of the loans to SMEs.¹⁷ Policy loans have been given to entrants, but a dominant part of them have been given to incumbent firms. Although policy loans would be helpful to potential entrants, who suffer from the shortage of the fund, policy loans to incumbents would lead to the creation of entry barriers as they would help the incumbents improve their competitiveness.

The results of the regression analysis on the determinants of entry rates are shown in Table V. The dependent variable is the average annual rate of gross entry. The explanatory variables used in the analysis explain 60–90 percent of the variations of the entry rates. Examining the results for the establishments of all sizes, which are shown

TABLE V
Determinants of gross entry rates for Japanese manufacturing by size: 1986–1991 (two-digit industrial classification)

	1–4 employees		5–9 employees		10–19 employees		20–29 employees		30–49 employees	
	Coeffi- cients	<i>t</i> -value	Coeffi- cients	<i>t</i> -value	Coeffi- cients	<i>t</i> -value	Coeffi- cients	<i>t</i> -value	Coeffi- cients	<i>t</i> -value
PCM	0.054	1.147	0.021	1.562	0.024	1.721	0.015	1.393	0.015	1.272
Market size	0.001	0.558	0.000	0.002	0.000	–0.264	0.001	0.307	0.000	–0.043
Sales growth	0.376	2.735	0.274	2.519	0.294	2.979	0.223	1.937	0.107	0.654
MES	–0.020	–1.867	–0.004	–1.222	–0.003	–1.210	–0.011	–0.593	–0.022	–0.827
Capital/output	–0.005	–0.172	–0.005	–0.224	–0.034	–1.605	–0.055	–2.223	–0.049	–1.414
Concentration	–0.004	–1.437	–0.002	–1.721	–0.002	–1.751	–0.001	–1.280	0.000	–1.070
R&D	–0.004	–2.263	–0.002	–1.783	–0.002	–1.719	0.000	–1.016	–0.002	–1.661
Advertise/sales	0.001	0.247	0.002	0.457	0.000	0.100	0.001	0.247	0.000	–0.005
Subcontracting	0.000	1.961	0.000	1.809	0.000	1.887	0.000	1.972	0.000	1.787
Policy loan	–0.002	–2.079	–0.002	–1.915	–0.002	–1.050	–0.001	–1.588	–0.003	–1.031
constant	0.037	1.071	0.036	1.332	0.046	1.898	0.041	1.414	0.043	1.049
R ²	0.758		0.7796		0.8211		0.7763		0.6174	
nob	20		20		20		20		20	

	50–99 employees		100–199 employees		200–299 employees		300– employees		Total	
	Coeffi- cients	<i>t</i> -value	Coeffi- cients	<i>t</i> -value	Coeffi- cients	<i>t</i> -value	Coeffi- cients	<i>t</i> -value	Coeffi- cients	<i>t</i> -value
PCM	0.018	1.461	0.005	1.131	0.012	1.271	0.013	1.293	0.070	6.416
Market size	0.002	0.937	0.003	1.618	0.004	1.875	0.002	0.883	0.006	2.268
Sales growth	0.189	1.633	0.228	2.017	0.103	0.798	0.101	0.799	0.052	2.788
MES	0.000	–1.015	–0.023	–1.214	–0.014	–1.635	–0.003	–1.122	–0.010	–3.019
Capital/output	–0.068	–2.777	–0.054	–2.230	–0.041	–1.485	–0.021	–0.776	0.000	–2.991
Concentration	–0.001	–1.344	0.001	0.444	0.001	0.287	0.003	0.046	–0.002	–1.475
R&D	–0.003	–1.123	–0.001	–0.416	–0.002	–0.721	0.000	0.137	–0.004	–3.386
Advertise/sales	0.002	0.439	0.002	0.617	–0.001	–0.202	0.001	0.309	0.001	–1.955
Subcontracting	0.000	0.722	0.000	–0.767	0.000	0.136	0.000	–0.401	0.000	4.258
Policy loan	–0.001	–0.482	–0.001	–1.733	–0.001	–0.572	0.002	0.731	–0.002	–2.878
Constant	0.031	1.093	–0.019	–0.683	–0.012	–0.361	–0.032	–1.035	0.012	1.122
R ²	0.7358		0.7192		0.664		0.4723		0.9559	
nob	20		20		20		20		20	

Note: The definitions of variables and their data sources are shown in Appendix 1.

under total establishments, one observes that entry inducing factors, profitability (PCM), market size, and sales growth are significantly positive, while entry barriers, minimum efficient scale, capital-output ratio, R&D, and advertisement-sales ratio are significantly negative. These findings are consistent with our expectation. The estimated coefficient on concentration, here measured by the Herfindahl index, is negative, but not statistically significant. Subcontracting is shown to have a positive impact on entry. This result suggests that not only subcontracting relation is open to outsiders, but also it may offer an opportunity for

SMEs to specialize in the process in which they are competitive and to obtain financial, technical, and other assistance from their parent firms. The impact of policy loans on entry is estimated to be negative, suggesting that policy loans protect incumbents.

An examination of the results for the establishments of different sizes reveals that the explanatory variables used in the analysis explain the entry rates for SMEs better than for larger establishments. Indeed, none of the estimated coefficients is statistically significant for establishments with more than 300 employees. Among

the factors inducing entry, sales growth turns out to be positive and significant for the establishments of different sizes, but profitability and market size are revealed to be insignificant in most cases. Scale economies (MES) is found to be an effective entry barrier only for the establishments of very small size, while capital constraint is shown to be an effective entry barrier for the establishments of medium sizes (those with 20–199 employees). Technical barrier (R&D) is shown to be effective for the establishments of relatively small sizes, while subcontracting is shown to promote entry for small and medium establishments. Provision of policy loans to incumbents appears to be an effective deterrent to entry by very small establishments.

5. Conclusions

The entry rate in Japan has been declining more or less steadily since the early 1980s. We have identified several structural barriers to entry from

our cross-sectional analysis of the determinants of entry. Specifically, cost disadvantage owing to small scale and shortage of financial and technical resources are shown to be effective deterrents to entry. To reduce technical barriers, the government can provide technical education and training to prospective SME entrants and provide financial assistance to reduce financial or capital requirement barriers. Recognizing that financial assistance to incumbents could protect them from entry, it is important that financial assistance be given to potential entrants and the incumbents with high potentiality.

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Appendix 1. Variable definition and sources of data used for estimating the determinants of entry

Variable name	Definition	Source
Price-cost margin (PCM)	$(\text{sales} - \text{material costs} - \text{capital costs}) / \text{sales}$	MITI, <i>Kogyo Tokei Hyo (Census of Manufacturing)</i>
Market size	Sales	MITI, <i>Kogyo Tokei Hyo (Census of Manufacturing)</i>
Sales growth	Growth rate of sales	MITI, <i>Kogyo Tokei Hyo (Census of Manufacturing)</i>
Minimum efficient scale (MES)	See the main text	MITI, <i>Kogyo Tokei Hyo (Census of Manufacturing)</i>
Capital-output ratio	Value of tangible assets/output	MITI, <i>Kogyo Tokei Hyo (Census of Manufacturing)</i>
Market concentration	Herfindahl index	Fair trade commission, <i>Annual Survey of Market Concentration</i>
R&D	R&D expenditure/sales	MITI, <i>Input-output tables</i>
Advertisement-sales ratio	Advertisement expenditure/Sales	MITI, <i>Input-output tables</i>
Subcontracting	Shares of firms engaged in subcontracting in total number of firms	SME Agency, <i>Kogyo Jittai Kihon Chosa [Basic Survey of Manufactures]</i>
Policy loan	Outstanding balance of public loan/ Outstanding balance of total loan	SME Agency, <i>Kogyo Jittai Kihon Chosa [Basic Survey of Manufactures]</i>

Note: MITI (Ministry of International Trade and Industry).

Notes

¹ Small and Medium Enterprise Agency (1979, p. 336).

² The analysis in this section is based on information on establishments rather than firms, because of data availability. In this paper, the terms indicating “firms” such as SMEs and “establishments” are used interchangeably in many cases, although most of the information used are those on establishments. The following definitions of SMEs are used in Japan. In terms of employees, SMEs in manufacturing are defined as those with 299 or fewer employees. SMEs in wholesale on the one hand, and retail and other services on the other, are defined as those with 99 or fewer, and 49 or fewer employees, respectively. In addition to the definitions in terms of employees, definitions based on the size of paid-in capital are also used. In terms of paid-in capital, SMEs in manufacturing are those with paid-in capital worth less than 100 million yen. SMEs in wholesale are those with paid-in capital worth less than 30 million yen, while those in retail and other services are those with paid-in capital worth less than 10 million yen.

³ The rate of entry (exit) is defined as the number of entering firms (exiting firms) divided by the number of firms at the beginning of the period.

⁴ One should note that the average annual rates of entry and exit for the period before 1981 and those after 1981 shown in Figure 1 are not strictly comparable. This is because the length of the period compared is different between those two periods owing to the differences in the timing of the data compilation. For the period before 1981 data are compiled every three years, while for the period after 1981 they are compiled every five years. The average annual rates of entry and exit tend to be lower for the period after 1981 when compared with those for the period before 1981. This is because the number of firms that entered and subsequently exited within the period and thus are not recorded tends to be higher when the period of data compilation is longer.

⁵ Caves (1998) makes this argument.

⁶ See Small and Medium Enterprise Agency (1999, p. 217) on this point. This observation is consistent with the findings on other countries. See Caves (1998) for a review of previous studies.

⁷ Small and Medium Enterprise Agency (1999, p. 234) found that the number of surviving firms increasing in their employment size is greater than those reducing in their size.

⁸ Chusho Kigyo Sozoteki Katsudo Jittai Chosa [Survey of Creative Activities by SMEs], October 1998.

⁹ Small and Medium Enterprise Agency (1999, p. 281).

¹⁰ Small and Medium Enterprise Agency (1999, p. 284). Itoh and Urata (1994) found that in Japan the public sector played a useful role in providing financial, technical, and marketing support for the firms in the early stages of development.

¹¹ Small and Medium Enterprise Agency (1999, p. 288).

¹² People's Finance Corporation (1997).

¹³ Small and Medium Enterprise Agency (1999, p. 289).

¹⁴ Small and Medium Enterprise Agency (1999, p. 290).

¹⁵ In addition to those studies on Japanese economy, various studies on other economies have been conducted. For review of previous studies, see Acs and Audretsch (1991), Caves (1998), and Martin (2001).

¹⁶ Acs and Audretsch (1991) presents a good discussion on this point.

¹⁷ The Bank of Japan, Monthly economics statistics.

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