

Chapter 2

Results from Questionnaire Survey of Japanese Die and Mold Industry

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Introduction

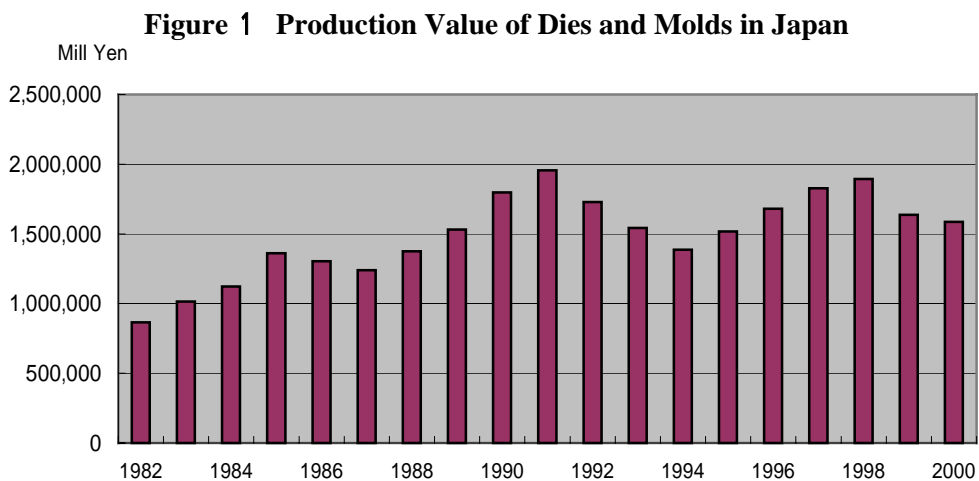
As was stated in the introductory remarks of this collection of research papers, the Japan Institute of Labour mailed a questionnaire survey to some 2,200 firms in the Japanese die and mold industry, and recovered the completed sheets of the questionnaire survey by mail. This questionnaire survey in Japan was conducted in November 2001.

In this chapter, the results of the questionnaire survey conducted in Japan are summarized based on the results of the interim report published on November 20, 2001.

1. Japanese Die and Mold Industry

1.1 Number of enterprises, employees and value of production

Looking at the recent situation of the Japanese die and mold industry in the light of



Source: Web Site of the Japan Die & Mold Industry Association

several annual editions of the “Census of Manufactures” published by the Ministry of Economy and Industry, it is revealed that this industry has undergone waves of substantial change over recent years. The number of enterprises in this industry declined by some 1,000 from 12,953 in 1998 to 11,994 in 1999.

The number of employees in the industry declined by some 4,000, from 115,820 in 1998 to 111,997 in 1999, due mainly to the decline of enterprises in this industrial sector.

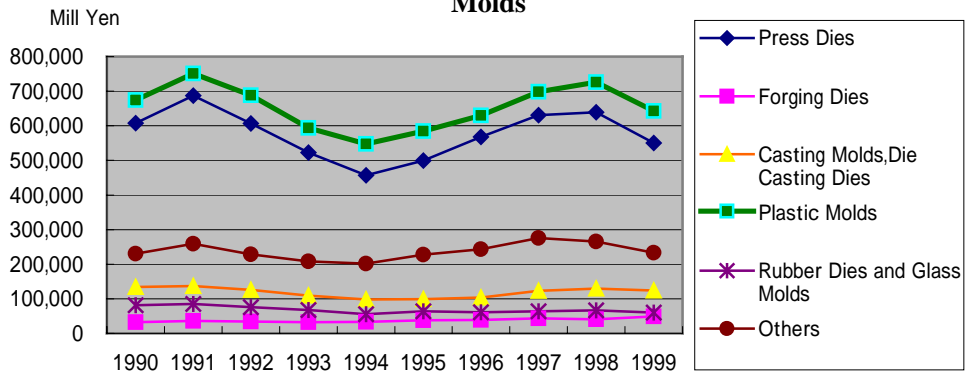
According to the Census of Manufactures, changes in die and mold production in value throughout the 1990s are as follows: As seen in Chart 1, the production volume of dies and molds in value reached a one time peak of ¥1,957.5 billion in 1991, and then production declined through 1994, when it bottomed with ¥1,895 billion. Then, production increased again to reach the latest peak of ¥1,895 billion in 1998, but by 2000 production had fallen again to ¥1,587 billion. The causes of these declines are that assembly makers moved to offshore production and began to source dies and molds locally, so that die and mold manufacturers operating in Japan lost orders placed by those assembly makers, initiating the collapse of their affiliated subcontractors. Also, as the findings from the questionnaire survey indicate, the unit price on orders received plummeted substantially, even if the volume of orders received remained unchanged. However, these are not phenomena specific to Japan, and according to the results of the questionnaire survey conducted in Korea and Taiwan, the decline of unit prices took place in these two countries as well. The decline of unit prices may probably be attributed to technological innovations due to the adoption of CAD and the curtailed delivery period of dies and molds, to mention a few.

1.2 Characteristics of die and mold production in Japan

Die and mold production as practiced in Japan shows characteristics different from those in Korea and Taiwan. Namely, in the Asian region other than Japan, molds for plastics account for overwhelmingly higher percentage in total die and mold production, while in Japan, as Figure 2 indicates, molds for plastics and press dies share around 30% each, respectively, in the product mix of die and mold production, with the balance representing dies and molds for die cast, glass, forging and other applications.

Production in value of both molds for plastic products and press dies is declining, while in the context of Korea, Taiwan and other economies in Asian region, at least at present molds for plastic products are mainly produced in Asian region, while the percentage of press dies in the total production of dies and molds is low as compared with molds for plastic products. This can be attributed to several reasons: one is that the electronic/electric machinery industries may be the primary customer industries for dies

Figure 2 Constitution of Production Value in Kinds of Dies and Molds



Source: Web Site of the Japan Die & Mold Industry Association

and molds. The lower percentage of press dies is explained by the fact that in the press applications, technology still remains in the developing process, starting from stand-alone presses, to transfer machines, to the progressive (sequential feed) technology, so that manufacturers of press dies in Asian region are not able to catch up easily with these technological changes. According to another explanation, capital investment expended on press machines for trial run is too much in the region, and thus they could not generate returns on investment immediately, which hampers the production of press dies. Engineers serving for the Mold Support Center in Korea stated that the higher percentage of molds for plastic products in the product mix could be attributable to more loose tolerance for molds for plastic products than that for press dies. According to another opinion, press technology will not develop in counties where castings are not produced.

1.3 Findings from the questionnaire survey conducted in Japan

The percentage of the firms which increased their sales

To begin with, attention was paid to sales in value, and an aggregation of the results from the completed questionnaire sheets was conducted in terms of an analytical approach looking to what differences existed between those firms which increased their sales and those did not, and what were the sources of these differences, as an effort to derive specific factors behind these differences.

The results show that out of the 163 firms enumerated in the interim aggregation work, one third (or 31%) of the total respondents answered that their sales increased, while two thirds (62%) answered that their sales decreased. Detailed comparison of answers to other questions in the questionnaire found that no significant difference was

observed between these two groups. Those answers may prove that the enumerated Japanese firms have been substantially homogenized in terms of the technology level, installations of production facilities, retained human resources, and training procedures for their employees, but it was indeed difficult to identify factors that contributed to either the increased or decreased sales. However, the differences cited in the following section may have divided the respondents into good and poor performers in terms of sales:

Differences in answers between those firms which increased their sales and those that did not, were seen in relation to the following questions:

- (1) 65% of the firms that suffered a sales decrease mentioned the fact that production volume remained unchanged, but the unit price for their products plummeted.
- (2) 67% of the firms that enjoyed a sales increase answered that they were successful to cultivate new customers.
- (3) 51% of the firms that enjoyed a sales increase answered, to the question of the intended difference in product quality, that they were successful in differentiating their products from competitions to an extent that no one could imitate their products.
- (4) 44% of the firms that enjoyed a sales increase answered, to the question of strategies for production costs, that they attached importance to the performance of their products, even if it could lead to higher cost.
- (5) Regarding the designing technology to which they attach utmost importance, 44% of the firms that enjoyed a sales increase mentioned renovation design/development design, against 25% of the firms that suffered a sales decrease.
- (6) Regarding the use of information technology, 48% of the firms that enjoyed a sales increase used IT for making better use of customer information, against 27% of the firms suffering from a sales decrease, and 32% of the firms that enjoyed the sales increase used IT for making better use of collected purchasing information, against 9% of the firms suffering from a sales decrease.

To summarize these results from the questionnaire survey conducted in Japan, those firms that enjoyed a sales increase place management emphasis on product differentiation, attach importance to renovation design and development design in terms of technology, cultivate their new customers by making better use of IT, commit to a high cost strategy, and retain effective price bargaining power over their customers as they manufacture products that their competitors cannot build. In other words, the successful firms were seemingly not those that pursued cost reductions. Even if a Japanese die and mold manufacturer seeks cost reductions, if it simply offers products which squarely compete

with Korean and Chinese products, the Japanese firm could not win the race nor earn profit on its business. The Japanese die and mold firms that enjoyed a sales increase seemingly manufactured products that could not be made in Korea and Taiwan, and tried to build their price bargaining power.