

Part 2

Results of Studies in Korea

Chapter 3

State of the Die and Mold Industry in the Republic of Korea

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1. General State of the Industry

1.1 Past history

In the early of 1960s, development of the Korean die and mold industry began along with a government drive for industrialization under the First and Second 'Economic Development Five-Years Plan's. Cared development of this industry was mainly achieved in the 1970s. Since then, it has continuously expanded with growing demands in electronics and automotive industries. In the latter half of 1980s, many die and mold companies have been established with the rapid growth of the industry. Meanwhile Also, die and mold courses were opened in the related colleges and technical high schools in

Fig. 1 Gross Sales of Die and Mold Industries of Korea

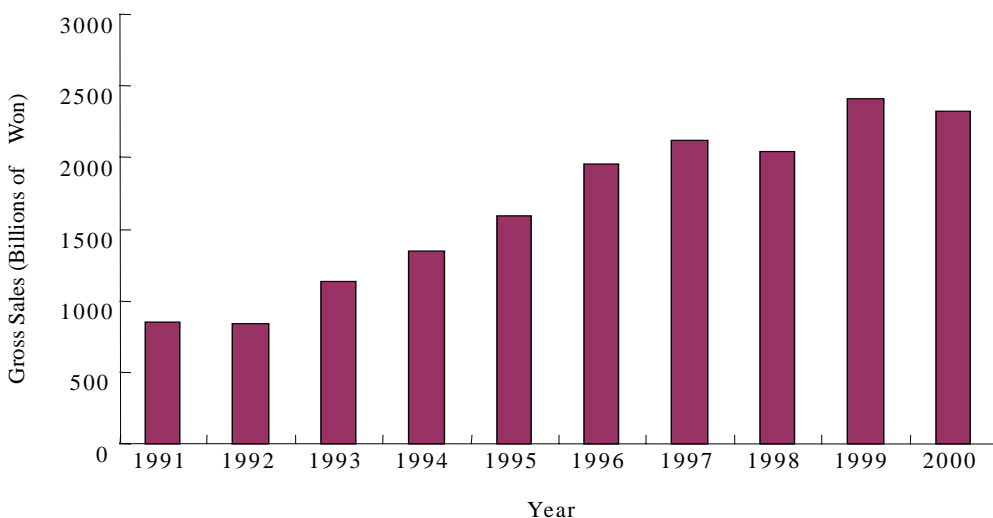


Fig. 2 Trends of Exports & Imports of Dies and Molds

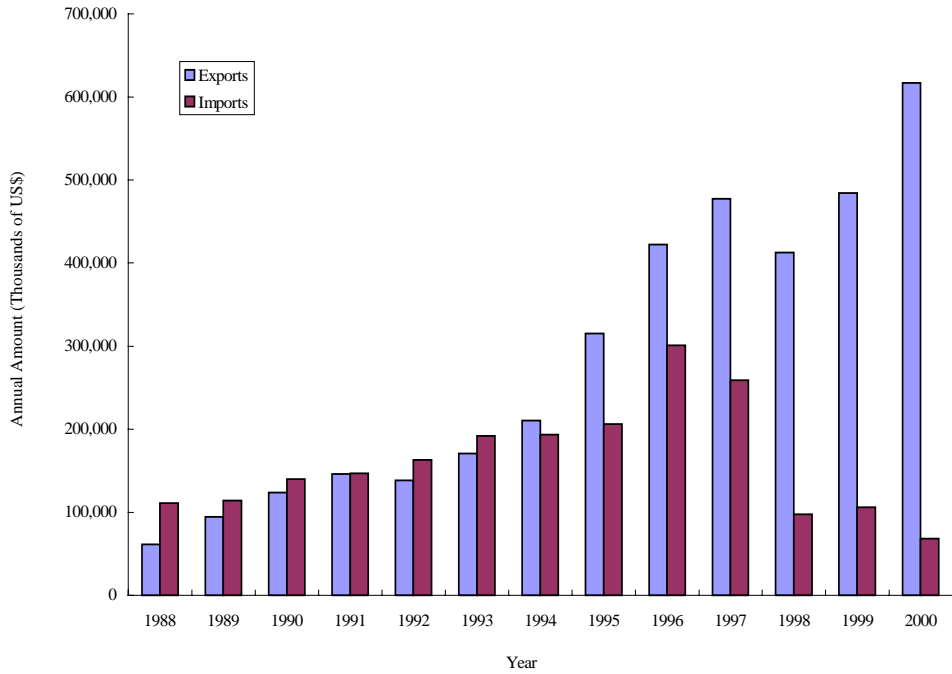
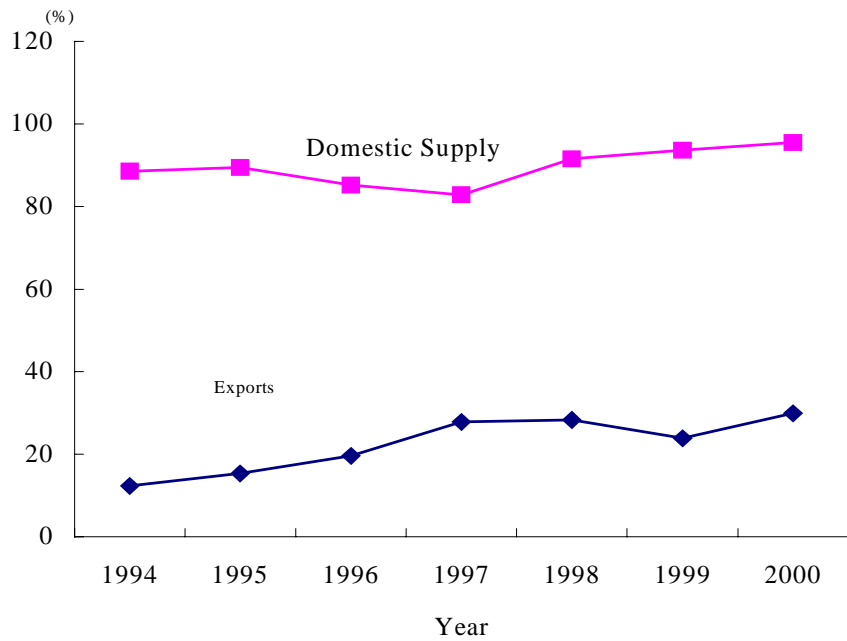


Fig. 3 Exports and Domestic Supply Rates of Dies and Molds



order to facilitation in these technologies.

In the 1990s, continuous growth has led to an increase in and gross sales of die and mold industries of about 2.7 times (yearly mean 11.9%) as shown in Figure 1. Furthermore, die and mold industry exports in 1990 exceeded over 100 million dollars for the first time, and trade deficits turned became surpluses in 1994 (refer to Figure 2). Since then, the trade balance of die and mold industry has continued to improve rapidly. Imports in 2000 accounted for less than 5% of total domestic demand. While, exports rose to 29.9% of gross sales in Korea (refer to Figure 3).

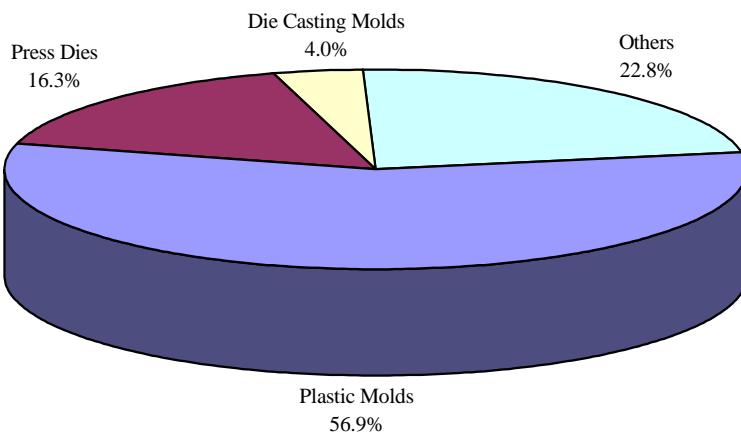
1.2 Present industry trend

The market share of the present Korean die and mold industry is shown in Figure 4. Plastic molds occupy a very large portion of the market compared to other press die and die casting molds.

This phenomenon appears more clearly in the export shares. Plastic mold exports in 2000 dominated about 80% of total die and mold exports, as shown in Figure 5. The high ratio of the plastic molds among exports accounts for the very high ratio of gross sales of this industry.

The export and import countries of plastic molds are shown in Figures 6 and 7. Japan is the largest country for export (31.1%), with China (11.7%) second. Many countries from Southeast Asia, such as Hong Kong, Indonesia and Malaysia, and South America,

Fig. 4 Constitution of Gross Sales in Kinds of Dies and Molds



Gross Sales in FY2000: 23.3 billions of Won

Fig. 5 Constitution of Exports in Kinds of Dies and Molds

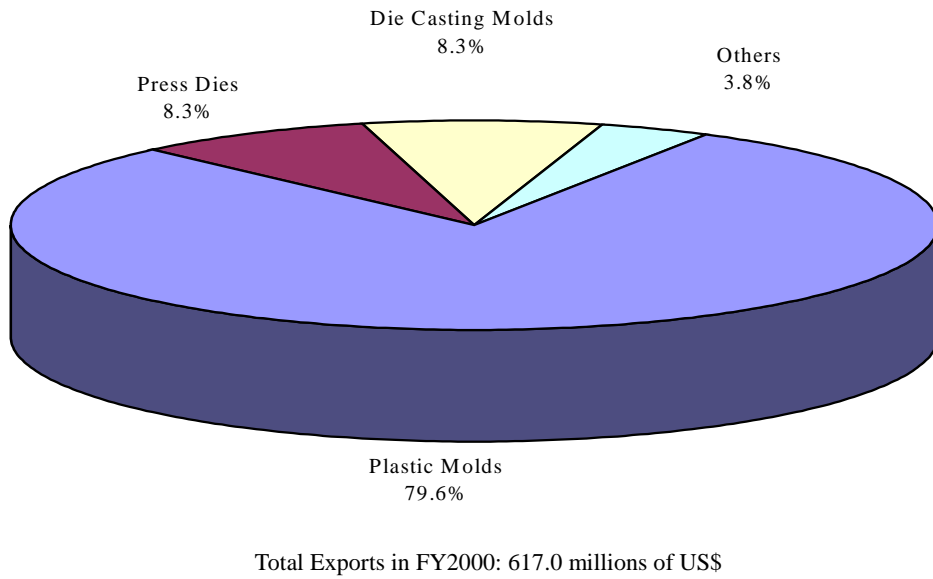


Fig. 6 Distribution of Export Countries (Plastic Molds)

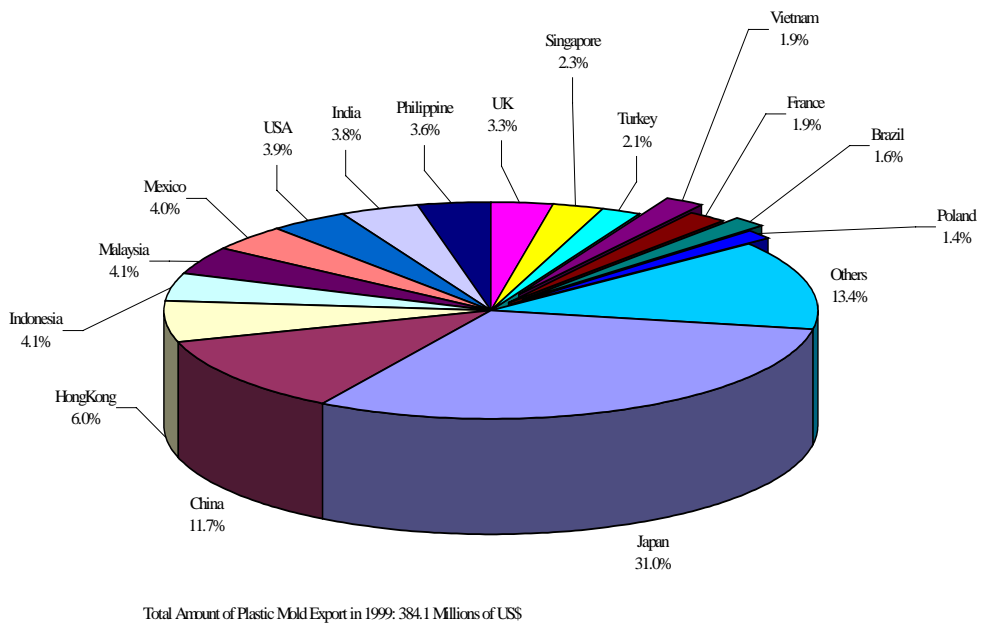
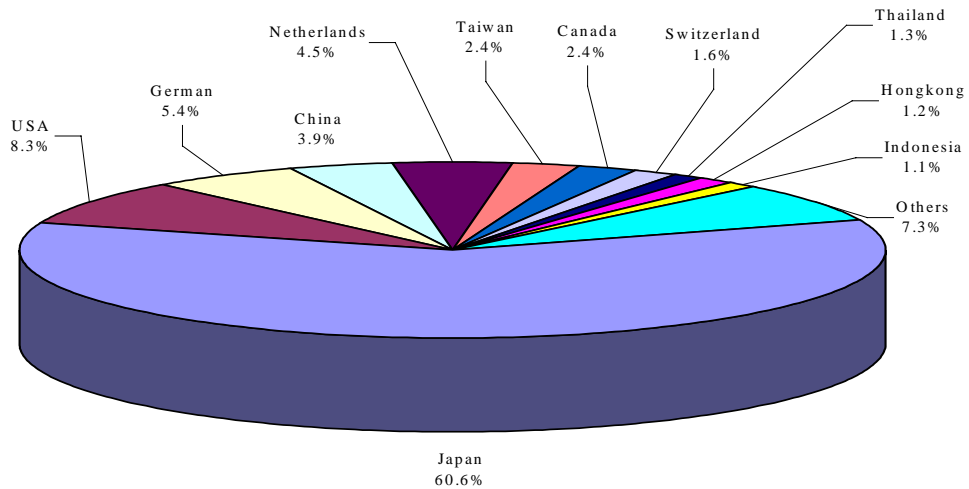
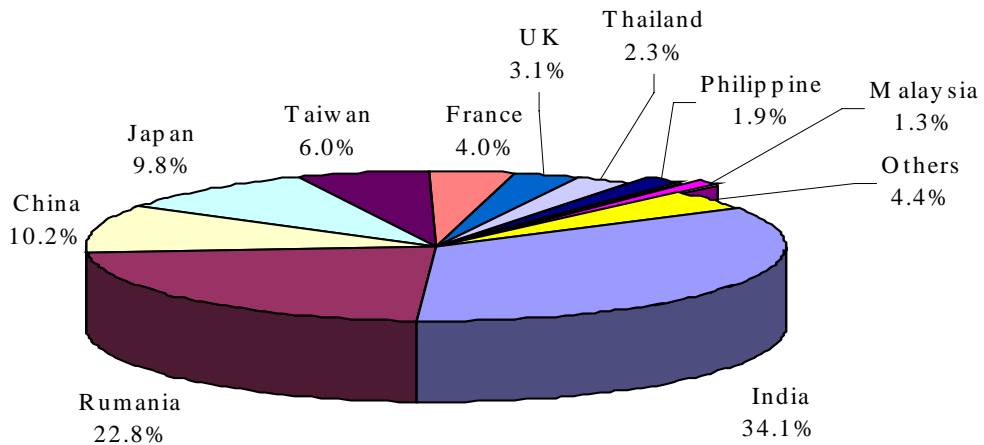


Fig. 7 Distribution of Import Countries of Plastic Molds in 1999



Total amount of Plastic Mold Import in 1999: 33.1 millions of US\$

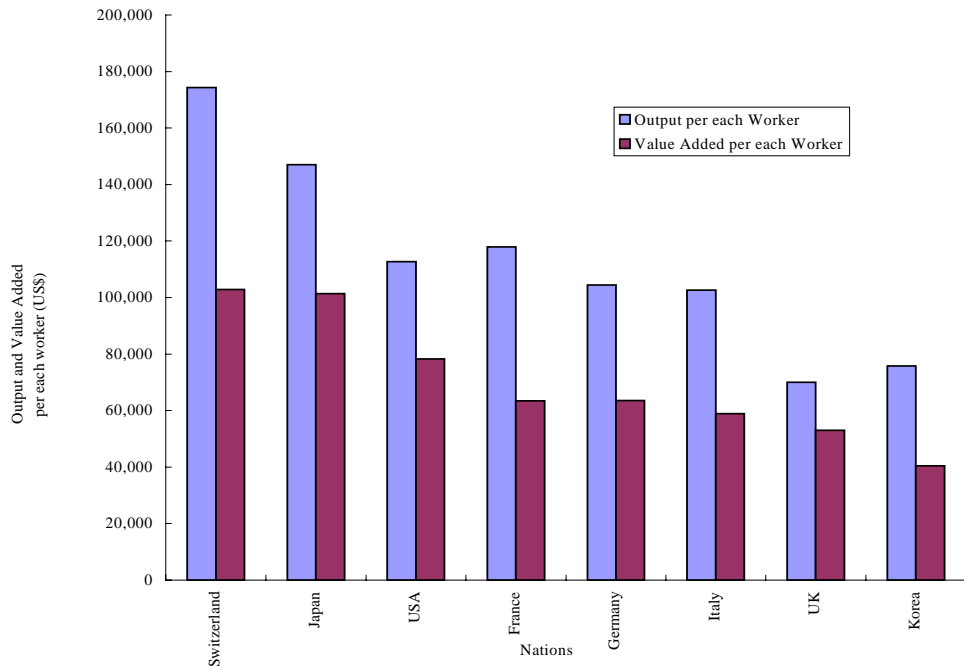
Fig. 8 Distribution of Export Countries (Press Dies)



Total Amount Press Die Exports in 1999: 37.9 Millions of US\$

such as Mexico and Brazil, appear on the export list. Thus the Korean plastic mold industry has high international competitiveness. This also seems to be closely related to the enlargement of overseas markets of automotive, and electronics industries. However, high quality is a main factor for imports because industrially advanced nations such as the United States of America, Germany and Japan are major import suppliers, and low price is not regarded as a primary factor for imports.

Fig. 9 Comparison of Productivities in Die and Mold Industries



Source : Surveyed in 1998 by Korean Die & Mold Industry Association

Korea's Export share of press dies occupies only less than 8.3%, and India and Rumania are major sharing countries in the export, as shown in Figure 8. This illustrates Korea's lack of competitiveness in the press die field compared with industrially advanced countries including Japan.

Korea is still trailing industrially advanced countries like Japan in technology and investment as shown in Figure 9. To overcome this problem, the Korean die and mold industry may need to narrow the large gap of output and value added per worker.

1.3 Government industrial policy

At present, there is no special government support program for the Korean die and mold industry. The industry support programs of the Korean government, including support for research and development, are presented in Table 1; however these programs are limited to general support, like that of other industries.

Efforts have been made to introduce IT technology to the die and mold technology for systematization via practical use of CAD/CAM/CAE technology and CNC machine

Table 1 Government Support Programs for Die and Mold Industries

- ◆ Special Program for support die and mold industries does not exist.
- ◆ Common programs for all industries
 - Funding for Research & Development by industrial technology infrastructure promotion program
 - Several kinds of technology-related loan programs
 - Loan programs for developing export market
 - Loan programs for restructuring small and medium enterprises
 - Several kinds of programs for tax reducing

tools. "An Integrated Molds & Dies Technology Service Center" was established to promote new technologies in this area. The role of this center covers die and mold technical support, technical education and training aiming at improving and expanding Korean die and mold technologies, as shown in Table 2.

In additions, die and mold school courses opened in numerous colleges and technical high schools since the 1980s have produced many die and mold engineers. Die and mold-

Table 2 Activities of Integrated Molds and Dies Technology Service Center

1. Facility Support
 - Design Tool, Machining & Forming Equipment, Measuring & Inspection Equipment
2. Technical Support
 - Computer Simulation, Test Machining & Forming, Measurement
3. Education Program
 - Technical Courses
 - Technical Seminars
3. Web -Based On-line Technical Support System
4. R&D Infra Support
 - Technical Information Service
 - Die & MoldDB
5. Joint Research

Table 3 Established Mold Technology Education System (1998.)

Types of Education System	No. of Education System
University	2
Colleges	10
Polytechnic Colleges	8
Technical High School	6
Human Resource Development Institute	4

related departments have been established in 30 schools and the total number of students reached 6,387 in the 1990s (refer to Table 3). However, some programs have been merged into mechanical engineering departments in the 2000s due to the difficulties in employment caused by recession, and a general reluctance among Koreans to do what is known colloquially as “3D work” (dirty, difficult, dangerous).