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Forecast of development trends in Taiwan's machinery industry

Pao-Cheng Chang^{a,*}, Chien-Pin Wang^b, Benjamin J.C. Yuan^a,
Kai-Ting Chuang^b

^a*Institute of Management of Technology, National Chiao Tung University, Taipei, Taiwan*

^b*Machinery Industry Research Laboratory, Industry Technology Research Institute, Taipei, Taiwan*

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Abstract

Industry transformation oriented toward high technology is being expected in the next 10 years by targeting Taiwan becoming an island of the technology. The machinery industry, which has been playing a vital role in Taiwan's economic development in the past, should be continuously emphasized during the course of the future development. This paper presents a detailed study on the future development of Taiwan's machinery industry along with the valuable proposals to the government policy and the investment strategy to the private sectors. The 10-year forecasting survey based on the strength, weakness, opportunity and threats (SWOT) analysis was made through an integrated professional team using the Delphi method. The derived results of market growth forecasting and the projected high potential products are further elaborated in the paper.

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1. Introduction

Machinery industry is important in Taiwan's overall industry development. The statistics in 1997 indicated that there were about 11,500 machinery factories, accounting for 14.8% of the

Abbreviations: SWOT, strength, weakness, opportunity, treat; CD-ROM, compact disc read-only memory; NC, numerical control; CNC, computer numerical control; FMS, flexible manufacturing system; CIM, computer-integrated manufacturing; CV, coefficient of variation; 3C, computer, communications, consumer electronics.

* Corresponding author. China productivity Center, 2F, 79 Hsin-Tai-Wu Road Sec. 1, Hsichih, Taipei Hsien, 221, Taiwan, R.O.C. Tel.: +886-2-2698-5802; fax: +886-2-2698-9247.

E-mail address: pcchang@cpc.org.tw (P.-C. Chang).

total manufacturing industry. There were more than 145,000 people employed in this industry. The production value of machinery industry was about US\$14.4 billion, representing 6.1% of Taiwan's total production value. The machinery export was US\$9.7 billion, or about 8% of total exports. The export of leather shoes manufacturing machinery was second in the world with 23.6% market share, while woodworking machinery was third with 15%, and machine tool was fifth with 6%. Meanwhile, molds and plastic machinery was in the 6th place [1] (see Table 1).

In recent years, Taiwan's machinery industry has been facing pressure from a number of serious problems such as the high rising land cost, high construction cost, labor shortage, high percentage of less competitive factories with small-scale production, long payback years and new competition from other developing countries. Asian economic turmoil in the past 2 years also hurt the market in the region.

The Taiwanese government has listed the precision machinery industry as one of the 10 most important targeting industries in the government resources allocation with higher priorities. Most of those related government industrial policy and business incentives do not involve long-term planning, only up to 3 or 5 years. This research aims to have a 10-year forecast for the machinery industry in which the business directions, the major products with their key components in most great potential markets and the major issues to be faced with possible resolutions are to be studied. Our purpose is to provide the government and private sectors the important references for their long-term planning in the policy making and business decisions up to year 2010.

Table 1
Hot list of the major industrial machinery exporting countries in 1997

Item	Rank							
	1st Place		2nd Place		3rd Place		Taiwan ranks	
	Country	%	Country	%	Country	%	Rank	%
Plastic/rubber machinery	Germany	22.2	Japan	18.1	Italy	12.4	6	5.9
Machine tool	Japan	30.4	Germany	19.4	Italy	9.7	5	6.0
Food processing machinery	Germany	22.3	Italy	21.0	USA	12.6	14	1.6
Leather shoes machinery	Italy	40.1	Taiwan	23.6	S. Korea	8.2	2	23.6
Paper/printing machinery	Germany	26.9	USA	15.1	Japan	11.4	12	2.0
Pneumatic/hydraulic	Germany	35.3	England	9.7	Italy	8.9	10	2.4
Chemical machinery	Germany	19.3	USA	16.0	Japan	15.6	8	3.4
Textile machinery	Germany	22.2	Japan	22.1	Italy	11.8	6	6.0
Wood machinery	Germany	22.8	Italy	22.1	Taiwan	14.7	3	14.7
Transport machinery	USA	21.3	Japan	18.4	Germany	13.3	20	0.1
Molds	Japan	23.2	Germany	13.2	USA	11.5	6	7.0
Elec. tool	USA	16.6	Germany	15.1	Japan	14.1	8	4.3
Pump, fan, compressor	USA	21.9	Germany	17.7	Japan	15.3	9	2.6
Bearing	Japan	25.0	Germany	17.6	USA	12.5	13	1.2

In total, the list includes the 15 EU countries, USA, Canada, Japan, Europe, S. Korea, and Taiwan, for a total of 21 major industrial countries.

Data source: Datastar/Gardner Publication (www.gardner/web.com) internet/EU, USA, Japan, R.O.C. customs' import/export database.

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