Progress of Japan's Machine Tool Industry

Japanese machine tool manufacturers took a keen early interest in the applied development of NC (numerical control) technology, which was developed in the United States in the first half of the 1950s. As a result of having aggressively introduced NC technology, Japan quickly achieved further development of the technology. By the late 1970s, world markets had already come to appreciate the performance of Japanese NC machine tools. And by riding the growing wave of the mainstreaming of NC machine tools, Japan took over in 1982 as the world leader in the production volume of NC machine tools, which till then had been led by the United States.

Maintaining its pace-setting lead in machine tools, Japan has managed to weather the shocks and twists of history, including the end of the cold war between the East and the West, the collapse of Japan's economic bubble, and the reorganization of the global auto industry. And keeping abreast of the ongoing globalization of the world economy, Japan has carried out its responsibilities self-confidently, supplying high-performance machine tools to the world manufacturing industry.

Starting in 2003, production volume began rising again, driven by surging demand in China and other new markets. In 2007, the volume of production topped 1,300 billion yen for the first time in 17 years, and the industry seemed awash in prosperity.

However, September 2008 saw the shock bankruptcy of Lehman Brothers. It was a serious blow to the world economy and cast a deep shadow over the business of Japan's machine tool industry. Although business had been brisk at the beginning of 2008, the tempo slowed quickly. The volume of production in 2009 dropped suddenly to 486.3 billion yen. This was a low last seen 30 years before.

The year 2010 saw recovery driven largely by foreign demand. The year 2011 saw an unprecedented disaster. In March, Japan was struck by the Great East Japan Earthquake. This event severely disturbed Japan's channels of economic activity, including shortages of electric power. Nonetheless, production value topping 1 trillion yen for the first time in three years in 2011. Since then, it topped 1 trillion yen for five consecutive years.

Turning to trade, imports greatly exceeded exports for a while during the post-war period because domestic machine tools did not at first have adequate supply channels or technological capabilities. But exports rose sharply starting from the 1960s, when domestic machine tools began showing competitive edges. Exports finally topped imports in 1972. From then on, exports tended to rise despite occasional hiccups, driven by the strong international competitiveness of Japanese NC machine tools. Recently, local production in the Asian region due to "local production of local consumption" is also increasing.

The total value of exports in 2017 marked the first year of year- on- year increase in three years, due to the revival of Asia's special demand. Meanwhile, imports in 2017 marked the year-on-year decline for two consecutive years. However, imports from the Asian region where local production was made are on an upward trend.

Recent Trends of Machine Tool Demand and Supply

(Value in 100 Millions of Yen) ( ): comparison %

Year	2012	2013	2014	2015	2016	2017
Total Orders	12,124(91.4)	11,170(92.1)	15,094(135.1)	14,806(98.1)	12,500(84.4)	16,456(131.6)
Domestic Orders	3,758(89.1)	4,008(106.6)	4,964(123.8)	5,862(118.1)	5,305(90.5)	6,294(118.6)
share (%)	31.0	35.9	32.9	39.6	42.4	38.2
Foreign Orders	8,366(92.5)	7,162(85.6)	10,130(141.4)	8,944(88.3)	7,195(80.4)	10,162(141.2)
share (%)	69.0	64.1	67.1	60.4	57.6	61.8
Production	11,520(100.2)	8,864(76.9)	11,863(133.8)	12,581(106.1)	10,128(80.5)	11,298(111.6)
NC Machine Tools	10,365(107.4)	7,914 (76.4)	10,722(135.5)	11,415(106.5)	9,117(79.9)	10,289(112.9)
NC ratio	90.0	89.3	90.4	90.7	90.0	91.1
Export	9,456(110.6)	7,665(81.1)	9,619(125.5)	9,321(96.9)	6,665(71.5)	7,862(118.0)
Import	511(117.6)	630(123.4)	781(123.9)	916(117.3)	782(85.4)	723(92.4)
Import Dependancy Ratio (%)	19.8	34.5	25.8	21.9	18.4	17.4

Source; Orders: JMTBA, Production: METI, Export and Import: Ministry of Finance (MOF)

Machine Tool Demand and Supply in Japan

Source; Orders: JMTBA, Production: METI, Export and Import: MOF