Diplomacy at the Leading Edge: Advanced Technology and Canadian Trade Policy

2. Canada's Advanced Technology Trade in a Global Context

This Section reviews available Industry Canada and OECD data on Canada's trade performance in advanced technology sectors to understand better the context of various policy issues reviewed later in the text.⁶

2.1 The Global Context

The United States had a commanding technological lead in the 1950s and 1960s. However, the U.S. share of global high-technology exports, which stabilized at 24-25 percent during the period 1976-1985, declined to 21-22 per cent during 1985-89. In Japan, the level of high technology imports has remained relatively unchanged over the last two decades, with domestic suppliers accounting for about 95 percent of the Japanese market for high technology products.⁷

The decline of the U.S. and European "science-based" sectors relative to Japan between 1970 and 1990, due mainly to declines in the electronics sector, has been a cause of great angst and sparked a number of changes in U.S. technology policy. <u>The rapidity with which the U.S. domestic economy "internationalized" during this</u> <u>period is considered central to understanding the U.S. debate in the 1990s over</u> <u>technology and trade policies.⁸ The U.S.'s responses to this internationalization has</u> <u>had, and will have, significant implications for Canada</u>.

In 1993, over 80 percent of the world's R&D expenditure and approximately 70 percent of the world's R&D personnel were located in 5 industrial countries (the U.S., Japan, France, the United Kingdom and West Germany).⁹ With the addition of five smaller European countries, the shares rise to over 90 percent and 80 percent respectively.

Japan is the only country to have doubled in 15 years its export market shares in high technology sectors, without increasing the overall rate of manufacturing import penetration. Ibid., p. 197.

⁸ For example, see *Technology and Trade Performance*, in Science and Technology Policy: Review and Outlook 1994 (OECD 1994), pp. 195-223.

⁹ R&D is defined as creative work undertaken on a sytematic basis to increase the stock of scientific and technical knowledge in new applications. Expenditures on R&D are an important indicator of the effort devoted to creative acitivity in science and technology.

⁶ For example, see Industry, Science and Technology Canada, Trade in Advanced Technology Products, S&T Economic Analysis Division, ISTC, Ottawa, 1992. About 500 of the 22,000 commodity classification codes used in reporting U.S. merchandise trade were identified as "advanced technology." In this report, the 500 ATPs in the U.S. list were aggregated to the six-digit level in order to make a successful cross-over to the HS tanff system, which reduced the number of commodities to 222.