

## 1. Introduction

Technology trade means an international transaction in the form of the provision and acquirement of patents, utility models and technical know-how which comprise industrial property rights. The data on technology trade balances is a significant indicator of Japan's level of technology and R&D activities.

This is because patents, utility models and know-how are results of R&D activities by firms and research institutes. They have the effect of developing the national and private firm's international competitiveness.

Japan has four main statistics related with technology trade. These are the "Balance of Payments of Japan" prepared by the Bank of Japan ("BJ statistics"), the "Report on the Survey of Research and Development" prepared by Management and Coordination Agency ("MCA statistics"), the "Annual Report" of Fair Trade Commission ("FTC statistics") and the "Analysis of trends in Technology Imports" prepared by National Institute of Science and Technology Policy, Science and Technology Agency ("NISTEP statistics").

These statistics vary with regard to the survey method used, subjects covered and the scope of technology trade. Statistics based on values have even produced findings which are completely contradictory. Hence, special care is required when using these statistics.

<Trends of values of technology trade and ratio of balance of payments>

Figure 1 shows a graph of the trends of the value of technology trade (by technology exports and imports) according to the "BJ statistics" and "MCA statistics". (US dollars have been converted into yen using inter-bank middle rates.)

The technology export and import values of these statistics have been increasing every year. In FY1991, the technology export value reached 2.984 billion dollars (around 397.4 billion yen) and the technology import value 6.493 billion dollars (around 864.7 billion yen) according to the "BJ statistics". The "MCA statistics" showed the technology export value of 370.6 billion yen and the import value of 394.7 billion yen.

As can be seen, there has emerged a great difference in the two's ratios of balance of payments (export value / import value) (see Figure 2). In FY1991 the ratio was 0.46 according to the "BJ statistics" and 0.94 according to the "MCA statistics".

This report will first outline the four statistics, and next qualitatively analyze the statistics of balance of payments and lastly attempt to quantitatively analyze the major differences.

Figure 1. Trends of Value of Technology Trade

Figure 2. Trends of Ratio of Balance of Payments of Technology Trade (Value of technology exports / Value of Btechonology imports)