

2.3 R&D Expenditures and Technology Balance of Payments

The structure of Canada's postwar technology policy has been characterized by heavy reliance on federal R&D funding as a percentage of national R&D expenditure. Canada's planned R&D expenditures in 1995 was at 1.56% of GDP.¹³ As a percentage of GDP, Canadian R&D expenditure has remained relatively constant throughout the 1990s. According to Statistics Canada, the business sector intended to perform 59% of the total R&D, higher education 24% and the federal government 13% for a total of \$11.8 billion.

In 1995, Canadian universities, as in the U.S., account for a large share of national R&D, especially for basic research. The importance of small firms and service industries in technology commercialization is also increasingly recognized. In 1987, a quarter of industrial R&D was performed in service industries, a share which has risen steadily to 30 percent in 1994.¹⁴

Canada has one of the highest proportions of R&D financed directly from foreign sources among OECD countries. In 1991, 72.3 percent of Canada's business sector R&D expenditure was funded by industry; 9.6 percent by government; and 18.1 percent from foreign sources.¹⁵ (It is unclear from the data whether foreign firms are relocating their R&D to Canada or simply acquiring existing R&D facilities). Moreover, about 40 percent of all R&D funded by industry in Canada is performed by subsidiaries of foreign companies.¹⁶

For its part, the Technology Balance of Payments (TBP) does not measure R&D proper, but rather concerns the purchase and sale of technology. The TBP covers international transactions relating to trade in patents and licenses based on patents and other associated elements of industrial property and includes payments for services with scientific or technological content.¹⁷ Virtually all OECD countries pay as

¹³ Also known as the GERD, or "gross domestic expenditure on research and development", total R&D expenditures represent all R&D performed in a country's national territory during a given year. The GERD includes R&D performed within a country and funded from abroad but excludes payments sent abroad for R&D performed in other countries.

¹⁴ See Antoine Rose, *Strategic R&D Alliances*, Analytical Paper Series No. 4 Services, Science and Technology Division, Statistics Canada (1995).

¹⁵ OECD, *Science and Technology Policy: Review and Outlook*, (1994), p. 160.

¹⁶ *Ibid.*, p.148.

¹⁷ When reviewing TBP, it should be remembered that it covers both the current acquisition of technology and outflows for past contracts. See *Ibid.*, Table II.35, p. 185.