high growth potential and broad infrastructure applications may jeopardize future competitive success and result in increased costs later.[30]

Among the top 100 foreign firms doing R&D in Canada in 1993, 68 percent was conducted by U.S. firms, down from 76 percent in 1986.[31] Perhaps more surprising, however, is the fact that Canadian firms now invest in R&D in the United States almost half the value of what they do in Canada, and this amount is growing.[32] A number of Canadian firms have invested heavily in R&D operations in the U.S to cultivate good economic relations with U.S. scientific and political elites. American political elites, however, are becoming increasingly demanding and protectionist. Clearly, even when formal market access commitments have been made, investors are often frustrated by informal barriers.[33]

3.2.2 Technology Consortia and Countervail

Technology consortia for R&D purposes exist in virtually every industry. However, they tend to be concentrated in the knowledge-intensive product and service sectors: motor vehicles, telecommunications and electronics. The benefits of such R&D cooperation are well documented. They include: product development, new networks of contacts, the potential for enhanced international marketing and joint venture opportunities, and increased export sales.[34] European and U.S. rules of participation in government-supported R&D consortia limit access to foreigners through intellectual property restrictions and discriminatory rules on participation (see section 3.3.1 below).

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[30] "Strategic technologies" include biotechnology, new materials, microelectronic technologies and telecommunications.

[31] See Stephen Wilson, *Changing Partners: Trends and Prospects in Canada's Regional Economic Relations*, Policy Planning Staff paper No. 95/02, Department of Foreign Affairs and International Trade, February 1995. The relative decline of expenditures by U.S. affiliates is apparently due, in part, to the growth of R&D spending by European affiliates, primarily in the pharmaceutical sector.

[32] Canadian companies spent almost US$2 billion on R&D in the United States in 1990 or almost half the value of Canadian firms' R&D spending in Canada. See Statistics Canada, Service Bulletin, Science Statistics Vol. 17, No. 5 (August 1993), p.4.

[33] See Industry Canada, *Formal and Informal Investment Barriers in the G-7 countries*, Occasional Paper No.1 Vols. I and II, Ottawa: Government of Canada (1994).

[34] For a study on the role for R & D consortia in Canadian technology development, see Vinod Kumar and Sunder Magun, *The Role of R & D Consortia in Technology Development*, Occasional Paper No. 3, Industry Canada, (February 1995).