

### 3.2.4 Empirical work

Data concerning the effects of MNEs on R&D in host economies are limited and sometimes contradictory. The OECD has shown that R&D intensity of foreign subsidiaries operating in the manufacturing industry in Canada is, on the whole, slightly lower than for the entire manufacturing industry based in this country.<sup>32</sup> However, Bernstein (1991) found that, for a group of "major R&D performers", the mean investment in R&D for foreign affiliates is 2.5 times greater than that of domestic firms.<sup>33</sup> For Canada, nonetheless, the OECD finding indicated that foreign technology could be either a complement or a substitute; the relationship either way was not strong. The OECD analysis has also shown that the foreign takeover of firms engaged in R&D activities can result in a net reduction of domestic positive externalities, although an Investment Canada study may provide some evidence to the contrary (see footnote 71).

Bernstien showed that foreign affiliates are less sensitive to business-cycles in determining their R&D capital demands, and therefore less likely to decrease investment in R&D (which would have long-run implications) due to temporary downturns. Over the long-run, domestic and foreign-owned firms were found to behave similarly.

Contradictory arguments are put forward concerning the implications of the presence of technologically active MNEs in host economies. For some countries, a high proportion of foreign-controlled multinationals is likely to augment domestic activities, while for others it is either a consequence or a cause of deficiencies in nationally-controlled activities.<sup>34</sup> For Canada, however, some evidence indicates that the former is probably the case, even though Canada was also found to be a country in which much of subsidiary R&D is parent-financed, which can be interpreted as parent-controlled.

Patel and Pavitt (1991) found that Canada had a greater proportion of foreign-controlled large firms engaged in technological activities than domestic large firms

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<sup>32</sup>OECD, *The Impact of Foreign Investment on Domestic Economies of OECD Countries*, DSTI/EAS/IND(93)3, 1993, p. 51.

<sup>33</sup>Bernstien, *op. cit.*, p. 115.

<sup>34</sup>Patel and Pavitt, *op. cit.*, p. 12.