

The benefits of research

Researchers in *Québec* walk tall. For are they not, together with entrepreneurs, at the centre of the provincial government's affections? That goes without saying. Whether they are adequately supported is another matter, but at least the government of *Québec* has made an important gesture, setting up channels separate from those of the federal government for supporting research.

Canada as a whole, for the size of its population, is well placed in the world's league tables, linked with countries such as Austria and Italy in spending about 1.5 per cent of gross domestic product (GDP) on research and development. Total federal spending in the field has been kept at C\$6 billion in a year of fiscal retrenchment (beginning on 1 April); although the federal government has cut back its investment in the US Space Station and has abandoned altogether a scheme to build a kaon factory at the site of its Tri-University Meson Facility (TRIUMF) in British Columbia, spending on project science has been maintained. For as in *Québec*, so in Canada as a whole, research is now regarded as the road leading to prosperity.

The federal government's arrangements for supporting civil research involve three research councils covering the natural sciences and engineering, medicine and the social sciences and humanities and the Natural Research Council (NRC), now largely concentrated on support for industry, chiefly through its management of federal laboratories. *Québec* reckons to get less than its fair share from the last of these sources.

Comparisons are invidious, but comparisons with Ontario are commonplace in *Québec*. And the plain truth is that total research and development spending in Ontario, at roughly C\$5 billion, was (in 1990) roughly twice that in *Québec*, although the population of Ontario (roughly 10 million) is only half as much again as that of *Québec*. Much of the difference is explained by the greater concentration of NRC and other laboratories in Ontario, which appears to have collared 60 per cent of federal in-house research, but industrial spending on research and development is also twice as great in Ontario as in *Québec*.

Yet *Québec* reckons to be competing successfully for its share of research council funds. *Québec* researchers now routinely win more than 28 per cent of federal research grants, compared with Ontario's 34 per cent; *Québec*'s share of Medical Research Council grants actually exceeds that of Ontario (33 per cent of the total, compared with 29 per cent). But the

provincial government seeks further strengthening of the research effort.

Québec's arrangements for supplementing federal spending have their roots in the 1950s, and now consist of a number of "Fonds" for supporting research in fields such as health research (see box below) so as to complement rather than compete with federal research council spending. Although the *Fonds* will occasionally support projects in the familiar sense, it will more commonly support infrastructure development (often instruments or technical assistance), travel and, invariably, the appointment of people on short-term fellowships.

The consequence of these developments and the general enthusiasm is that *Québec*'s direct support for research, which exceeds C\$200 million a year in total, has grown rapidly (multiplying by more than three in the 1980s). The amounts of money spent do not differ much between *Québec* and Ontario, but the *Québec* government's spending is a larger and thus a more influential proportion (some 9 per cent) of a smaller total.

Building on institutional success

Genest says that, at the outset, he was appalled that French-speaking researchers habitually failed to apply for federally available research funds, taking the view that the inherent virtues of their projects should be recognized and that the authorities should "subsidize them" unsolicited. He believes that the mere existence of *FRSO* has helped to change that view, and to exorcise the sense of neglect that it invited. From its modest beginning, *FRSO* has grown to have an annual budget exceeding C\$60 million a year.

Genest has been a formidable institution-builder in *Québec*. He retired only two years ago as director of the *Institut de recherche clinique de Montréal* which he founded 20 years earlier, and which now houses 30 PhD students in a joint programme with McGill's department of experimental medicine.

Like most other researchers, Genest regrets that separation has become the live issue it now is. He says that it would have taken very little in the way of concession to *Québécois* to have avoided the confrontation on which "extremists" appear bent.

Research set great store by the provincial government's *Fonds*, chiefly on the grounds that they make it possible for research groups to compete successfully for federal funds when they would otherwise be hampered by lack of equipment or departmental spending money. They particularly applaud the grants of up to C\$40,000 that may be awarded (at least by the *Fonds de recharge en santé du Québec* to new faculty recruits to get stuck into research.

By what means can *Québec*'s commitment to research be judged? There are, of course, few objective indicators of the economic value of research; increases of GDP are expected to lag behind research investment by decades, and can be unambiguously linked with them only by students of economic history, working with anecdotal evidence.

Otherwise, it is always possible to count published scientific papers. By that yardstick, three universities predictably dominate *Québec*'s research output McGill (38 per cent), *Montréal* (23 per cent) and Laval (15 per cent). The *Université de Québec à Montréal* is a poor fourth with under 8 per cent.

What rationality would require of *Québec*, at this stage in its constitutional history, is a serious appraisal of the likely long-term economic value of its commitment to research. The potential benefits are not simply those of the patents applied for, or the degree to which *Québec* companies are directly helped to innovation by research spending, but the less tangible benefits of the quantity of skill that *Québec* is generating for itself each year. But this crucial question is not much discussed. It is likely to be answered as if it were an article of faith.

Thus the way ahead for *Québec*, separation or not, is that the amounts of money available through the provincial government's *Fonds* should be even more rapidly increased, to the point at which those in charge of them discover that the quality of the demands upon them is declining. That way, given the difficulty of proving retrospectively that investment in research does lead to prosperity, *Québec* might at least be able to put the proposition to an empirical test.

The best-known, and the oldest, of *Québec*'s provincial research *Fonds* is the *Fonds de recherche, en santé du Québec (FRSO)*, whose founder, Dr Jacques Genest, used C\$100,000 (mostly from the provincial government) to begin what was at first the *Québec* Medical Research Council. (The name was changed a few years ago, when the government chose to put it on the same footing as the *Fonds pour la formation des chercheurs et l'aide à la recherche, FCAR*, and the *Fonds de développement technologique, FDT*.)