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Book Review: Canadian R & D Incentives: Their Adequacy and Impact

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Canadian R & D Incentives: Their Adequacy and Impact

by Donald G. McFetridge and Jacek P. Warda. Toronto, Canadian Tax Foundation, 1983. Pp. vii, 100. \$10.00.

As its title implies, this book addresses the issue of whether incentives in Canada, in particular incentives in the tax system, are sufficiently favorable toward the conduct of research and development (R & D). The authors attempt to throw light on the answer to this question by, in the main, comparing the tax treatment of R & D in Canada with that in a wide selection of other countries.

The dramatic decline in Canada's rate of productivity growth has led to a desperate and wide ranging search for causes and solutions. Virtually every interest group has tried to cash in on the government's confused inability to reverse this trend by purporting to find its cause in some injury to their special place in the economy. Those with a stake in R & D have been playing this game with a strong hand. Two widely accepted premises would appear to support their arguments for more generous tax treatment for R & D. First, many analysts assert that there is a strong relationship between the amount spent on R & D and productivity growth. Second, the amount spent on R & D in Canada, measured as a percentage of gross national product, has been substantially below that of most other countries in recent years. From these two premises the inference that Canada ought to provide more generous tax treatment for R & D is often taken to follow logically. This book, however, throws considerable doubt upon the validity of this inference for the authors conclude that Canada's tax system provides a greater incentive to engage in R & D than the tax system of any of 20 of the 21 countries examined. (The exception is Singapore.)

The author's comparison involves a careful analytical review of the relevant tax provisions in each country, which alone makes the book of considerable value. The real value of the study, however, is the development of a single index, the B-index, which enables relatively meaningful cross-country comparisons of the

total impact of a country's tax system or direct expenditures or both on R & D. The impact of tax incentives is frequently measured simply by computing their effect on the after-tax cost of particular investments, without taking into account the tax on the return from the investment. The B-index accounts for the effect of the tax system on both the cost of an investment and its rate of return.

The B-index cannot capture all aspects of each country's tax system and therefore its meaningfulness is subject to a number of variables. The authors carefully review these variables; most of them suggest that the Canadian tax system is even more generous to R & D than the B-index would indicate. For example, the definition of R & D in Canada is broader than that provided in many tax systems, R & D deductions can be carried forward indefinitely in Canada (they expire after a number of years in most countries), and under the recently proposed tax changes in Canada R & D tax incentives will be available to firms without taxable income.

Although most of the book is devoted to calculating a B-index based upon each included country's tax system, the authors address three additional issues toward the end of the book. First, because tax incentives are economically equivalent to other policy instruments, such as direct subsidies and the subsidy element of government contracts, a B-index for the tax system alone might be misleading. The authors therefore calculate a B-index that accounts for direct subsidies and the subsidy element of government contracts. Basically, they find that among the countries for which they could get reasonably good data accounting for direct subsidies and making various assumptions about the subsidy element of government contracts would not change Canada's high ranking.

As the authors point out, the fact that Canada's tax subsidies for R & D are more generous than those of virtually all other countries does not of itself mean that they are adequate. In economic theory, a country should subsidize R & D until at the margin the costs equal the private and social returns. R & D is assumed by most economists to have large social returns because it is characterized by

substantial external economies, riskiness and indivisibilities. Although the social rate of return from R & D is difficult to estimate, the authors note that the best available studies indicate it might be very high. If correct, these studies would seem to suggest that in Canada some under-investment may exist despite the generous tax treatment. However, as the existing studies are rough, it is probably premature to draw precise policy implications from them.

Finally, the penultimate chapter contains a brief examination of the impact of incentives on spending for R & D. On the basis of a tentative estimate of the MBC schedule for R & D, the authors conclude that the government foregoes annually \$350 million in tax revenue to induce \$200 million in additional R & D spending.

In conclusion, the authors' research provides a basis for answering the question of whether international comparisons suggest a need for more R & D incentives in Canada with a resounding no. Furthermore, even if the large social returns to R & D suggest more generous subsidies the authors note that 'In a world where technology can be developed in one location and used without compensation in many others [an] appeal to the taxpayers of a small country to provide a high level of support for R & D ... based on self-interest would be ... difficult to sustain' (p.91).

The fact that R & D has remained a small percentage of GNP in Canada even though incentives are generous by international standards may seem puzzling. It might be useful therefore to place the study in the context of a number of other recent studies on R & D. It has been suggested recently, for example, that the ratio of gross expenditures on R & D to GNP may be a misleading indicator for international comparison; most R & D takes place in a country's manufacturing sector, which in Canada accounts for a much smaller fraction of GNP than in most other countries. Further, this ratio does not account for 'invisible' transfers of R & D that occur through multi-national enterprises. (See generally, K.S. Palda and B. Pazderka, *Approaches to an International Comparison of Canada's R & D Expenditures*, a study prepared for the Economic Council of Canada. Ottawa,

Minister of Supply and Services, 1982.)

Moreover, the Canadian tax measures may be badly designed. They are complicated, do not assist firms in a non-taxable position and are often not of immediate benefit to firms doing extensive R & D. (See generally, Department of Finance, *Research and Development: Tax Policies*, a paper for consultation. Ottawa, 1983.)

Finally, perhaps non-discretionary, broadly directed tax subsidies are not the appropriate policy instrument in this area. They invariably provide large rewards to expenditures that would have been made without the incentive; they fail to differentiate between industries on the basis of a wide variety of characteristics that are known to influence productive R & D in the Canadian economy; and they do not affect the adoption and diffusion rate of technology, the aspects of technical advance that might be most responsible for productivity growth. (See generally, Economic Council of Canada, *The Bottom Line: Technology, Trade and Income Growth*, Ottawa, Minister of Supply and Services, 1983.)

The great value of the book under review is that it debunks a widely held myth about the lack of generosity of R & D incentives in Canada. Hopefully, reform efforts will now be directed less at tinkering with the tax system and more at designing instruments that can deal effectively with the government's objectives with respect to R & D.

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City Politics in Canada

edited by Warren Magnusson and Andrew Sancton. Toronto, University of Toronto Press, 1983. Pp.viii, 338. \$15.00.

Canadian political scientists have long confined their interest in policy issues and the pattern of politics derived from them to the federal and, more recently, the provincial scene. Only recently have these been examined seriously within the context of municipal government. This book is therefore most welcome.

It contains seven essays each dealing with the government and politics of a particular city: Montreal, Toronto, Ottawa Hull, Halifax,