

● The Patent Term Extension and the Effect on Innovations

The task of testing whether an extension of the patent term has any innovation stimulating effects would appropriately require a detailed estimation of costs and benefits of such a policy on Canadian industries. At present, there appear to be no cost-benefit studies in the literature and such an exercise is beyond the scope of this Paper. Nevertheless, recent developments in the pharmaceutical industry in Canada present an opportunity of a quick and best guess check. However, firmer conclusions cannot be drawn unless cost-benefit estimates on an industry basis are compared.

Recall that in Section II.2, it was argued that researchers have found a positive relationship between (a) patents and R&D expenditures, and (b) sales and patents. In this Paper, I propose to use the ratio of R&D expenditures and total sales to check the relationship between patent term extension and innovations.

Recall that economic theory predicts that in a non-trading economy, "hard" and "major" innovations would merit longer patent terms than "easy" and small innovations. The evidence on the importance of patent term from earlier studies, discussed in Section II.2, is that patents matter most in the pharmaceutical and other chemical industries. On the other hand, in a trading economy, the Berkowitz and Kotowitz (BK) theory, as discussed in Section II.3, predicts that there are no benefits from having a patent system in a trading economy. If a patent term of zero years is optimal and it obtains an efficient level of innovations, then the BK theory would suggest the following hypothesis: *In a trading country, any extension in the patent term from zero years will not confer positive benefits of increased innovations in the economy.*

The stimulus to innovations of an extension in the patent term depends on whether the period of effective market protection has been increased or not. From 1969 to 1987, generic firms could obtain compulsory licenses anytime, but in practice on average about four years elapsed before the generics came on the market; i.e., prior to 1987 a patentee had on average four years of effective market exclusivity. In 1987, the effective average patent protection increased to about seven years.⁵⁴ In other words, the effective market exclusivity to the patentee in the pharmaceutical industry increased by approximately three years.⁵⁵ If the BK theory is correct, then such an extension in effective patent term should not lead to a significant increase in innovations as measured by the R&D and sales ratio.

⁵⁴ Industry, Science and Technology Canada, *The Benefits of Bill C-22*, Government of Canada, Ottawa, 1992.

⁵⁵ The effective patent term is illustrated in the time-line charts found in Annex C.