The Dynamics of Innovation and Firm Performance
An Econometric Panel Data Analysis

Wladimir Raymond

1. Observed firm heterogeneity between firms plays a major role in explaining innovation decisions (Chapter 2) but its role is taken over by unobserved heterogeneity when the latter is accounted for when modeling the innovation process (Chapters 4 and 6).

2. The process explaining innovation activities is nonlinear, dynamic and involves firm specific features.

3. Dutch manufacturing enterprises show persistence in their innovation behavior when it comes to R&D or innovation activities but show no persistence when it comes to introducing new products or new processes. (Chapters 4 and 6).

4. Two-step Gauss-Hermite quadrature performs very well in evaluating the two-dimensional indefinite integral resulting from individual unobserved random components in the likelihood function of dynamic panel data sample selections models with large N and small T (Chapter 3).

5. When there is no selection bias, estimating a dynamic type 2 tobit amounts to estimating separately a dynamic probit and a dynamic linear regression.

6. Adaptive Gauss-Hermite quadrature works better than normal Gauss-Hermite quadrature in static random-effects probit models when T is very large.

7. When estimating dynamic panel data models with small T using maximum likelihood, assuming exogenous initial conditions results in an overestimation of the coefficient(s) of the lagged dependent variables(s) (Chapters 3 and 5).

8. In order to obtain precise knowledge about the effects of R&D on innovation, critical information is needed at the level of the company rather than at the level of the enterprises that form the company.

9. *Sonje lapli ki leve mayi ou* (Remember the rain that made your corn grow, Haitian proverb)