

Industrial & Applied Mathematics & School of Mathematics & Statistics

Present

Title: A Viability Theory Approach to a Two-stage Optimal Control Problem of Technology Adoption

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Abstract

A new technology adoption problem can be modelled as a two-stage control problem, in which model parameters (“technology”) might be altered at some time. Thus, an optimal solution to utility maximisation for this class of problems needs to contain information on the time, at which the change will take place (0, finite or never), along with the optimal control strategies before and after the change. For the change, or switch, to occur the “new technology” value function needs to dominate the “old technology” value function, after the switch. We characterise the value function using the fact that its hypograph is a viability kernel of an auxiliary problem and we study when the graphs can intersect. If they do not, the switch cannot occur at a positive time. Using this characterisation we analyse a technology adoption problem and show how to recognise the models, for which the switch will occur at time zero or never.

Biography



Jacek is an applied mathematician working in the School of Economics and Finance at Victoria University of Wellington, New Zealand for the past 22 years. Jacek completed his initial academic studies [PhD] at Warsaw University of Technology Poland followed by 4 years in Mexico City at the National Polytechnical University. He then settled in New Zealand with time spent in Japan at Kyoto Institute of Economic Research during this period. His research interests comprise dynamic games, optimal control, viability theory and applications of the above to monetary policy, portfolio management, environmental and energy economics. He is visiting this School until early November.

**You are invited to a
presentation by**

**Jacek Krawczyk
Victoria University
Of Wellington NZ**

Date: Friday 19th Sep 2008

Time: 1400—1500hrs

Venue: Building Q1-01,
Mawson Lakes Campus