Economics of Innovation and Technical Change

Syllabus

Readings required

Suggested readings (not required)

MODULE 1 – 20 h. (Stefano Breschi, Università L. Bocconi)

1.1 INTRODUCTION AND OVERVIEW
The fundamental features and role of innovation and technical change in the contemporary economies. Impact of innovation on growth and development, industrial dynamics, business strategies, and public policies.

Christopher Freeman and Luc Soete, The Economics of Industrial Innovation, London: Pinter, 1997: Chapter 1, pp. 1-25.


1.2 BASIC CONCEPTUAL ISSUES: KNOWLEDGE AND INNOVATION
Innovation in neoclassical models: the production function. Invention, innovation, diffusion. Two views of the innovation process: from the ‘linear’ to the ‘chain-linked’ model of innovation. The role of science and users in innovative processes.


1.3 MARKET STRUCTURE AND INNOVATION: THE NEOCLASSICAL APPROACH
Schumpeterian hypotheses: monopoly or perfect competition? Firm size and innovation. From Arrow’s model to game theoretic models: persistence of monopoly, patent races, licensing, and RJVs.


1.4 **DIFFERENCES ACROSS INDUSTRIES IN INNOVATION PATTERNS: FROM HIGH-TECH TO TRADITIONAL SECTORS**
The notion of technological regime. Technological regimes and industrial patterns of innovation. Pavitt’s taxonomy. Science-based, scale-intensive, specialised suppliers, and supplier dominated industries.


1.5 **INNOVATION AND INDUSTRIAL EVOLUTION**
Innovation and industrial dynamics. Entry, exit, and innovation. Industry life cycles. The forces driving industry evolution.


1.6 **HOW RAPID IS THE DIFFUSION OF INNOVATIONS?**


1.7 **THE ECONOMICS OF QWERTY: COMPETING TECHNOLOGIES IN THE PRESENCE OF NETWORK EXTERNALITIES**

1.8 FROM INDUSTRIAL DISTRICTS TO SILICON VALLEY: THE GEOGRAPHY OF INNOVATION

Knowledge externalities and geographical agglomeration of innovations. The coexistence of local and global innovation systems.


1.9 NATIONAL SYSTEMS OF INNOVATION: THE ROLE OF INSTITUTIONS

The main actors and relationships in innovation systems. The role of universities. Sectoral vs. national systems of innovation. Boundaries of innovation systems. The Italian innovation system: strengths and weaknesses.


1.10 MEASUREMENT OF TECHNICAL CHANGE

Innovation indicators: advantages and limitations. R&D expenditures, patents, surveys, and bibliometrics. Sources of data on innovative activities. Methods of analysis.


MODULE 2 – 10 h. (Bruce Tether, University of Manchester)