

ECO 448 TECHNOLOGY AND INDUSTRIAL DYNAMICS

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Spring 2011

Instructor

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Room R-134

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Lecture hours

Monday 13:40-15:30, Wednesday 11:40-12:30

Room R-111

Course objective

The main objective is to enable students to understand and to analyze themselves the forces which determine industrial development. The material includes a wide range of issues from a variety of perspectives: broad historical analyses, microeconomic theory, the economics of technological change, the formation of industrial networks, globalization, and industrial policy from both a domestic and an international perspective. The course will be taught as a seminar. Papers in the reading list will be summarized and discussed in each lecture.

Readings and exams

A preliminary reading list for each set of topics is attached. The reading list includes all papers to be discussed in lectures. Course grades will be based on an assignment, a midterm exam and a final exam. They will be weighted at 15%, 35%, and 50%, respectively. The midterm will be held on April 25 at 13:40. The assignment will be submitted by June 11.

Outline of topics

1. Industrial dynamics: introduction and basic concepts
2. Technology and theories of economic development
 - * Neo-classical approach
 - * Neo-Smithian approach (the Theory of Flexible Specialization)
 - * Neo-Schumpeterian approach (Techno-economic Paradigms)
 - * Neo-Marxian approach (the Regulation school)
3. The productivity paradox and the “new” economy
 - * Neo-classical approach
 - * Neo-Schumpeterian approach
 - * Neo-Marxian approach
4. Technological change as an evolutionary process
 - * Elements of technological change: Links, chains, and feedbacks
 - * The “inner logic” of technological change: path-dependency and technological lock-in
 - * Technological change and market structure
5. Technology, the firm, and networks
 - * The nature of the firm
 - * Technological change and the boundaries of the firm
 - * User-producer interactions
 - * Networks of innovators
 - * National systems of innovation
6. Technology and “globalization”

READING LIST

1. Industrial dynamics: introduction and basic concepts

2. Technology and theories of economic development

Neo-classical approach

Solow, R. (1957), "Technical Change and the Aggregate Production Function", *Review of Economics and Statistics* (39): 312-320.

Neo-Smithian approach: The theory of flexible specialization

Piore, M.J. and Sabel, C.F. (1984), *The Second Industrial Divide*, New York: Basic Books, pp.3-18, 165-193, 251-280.

Neo-Schumpeterian approach: Techno-economic paradigms

Freeman, C. and Perez, C. (1988), "Structural Crises of Adjustment", in G.Dosi *et al.* (eds.), *Technical Change and Economic Theory*, London: Pinter, pp.38-66.

Neo-Marxian approach: The Regulation school

Lipietz, A. (1986), "Behind the Crisis", *Review of Radical Political Economics* (18): 13-32.
Boyer, R. (1988), "Technical Change and the Theory of 'Régulation'", in G.Dosi *et al.* (eds.), *Technical Change and Economic Theory*, London: Pinter, pp.38-66.

3. The productivity paradox, and the "new" economy

Neo-classical approach

Oliner, S.D. and Sichel, D.E. (2000), "The Resurgence of Growth in the Late 1990s: Is Information Technology the Story?", *Journal of Economic Perspectives*, 14: 3-22.
Gordon, R.J. (2000), "Does the 'New Economy' Measure up to the Great Inventions of the Past?", *Journal of Economic Perspectives*, 14: 49-74.
van Ark, B., O'Mahony, M. and Timmer, M.P. (2008), "The Productivity Gap between Europe and the United States: Trends and Causes", *Journal of Economic Perspectives*, 22: 25-44.

Neo-Smithian approach

Marangoni, G. and Solari, S. (2006), "Flexible Specialisation 20 Years On: How the 'Good' Industrial Districts in Italy Have Lost Their Momentum", *Competition & Change*, 10: 73-87.

Neo-Schumpeterian approach: Techno-economic paradigms

Perez, C. (2007), "Finance and Technical Change: A Long-term View", in *The Elgar Companion to Neo-Schumpeterian Economics*, ed. by H. Hanusch, and A. Pyka. Edward Elgar, Cheltenham.

Neo-Marxian approach: The Regulation school

Dumenil, G. and Levy, D. (2002), "The Profit Rate: Where and How Much Did it Fall? Did it Recover? (USA 1948-1997)", *Review of Radical Political Economics*, 34: 437-461.
Agliette, M. (2008), "Into a New Growth Regime?", *New Left Review*, 54: 61-74.

4. Technological change as an evolutionary process

The “inner logic” of technological change: path-dependency and technological lock-in

Arthur, W.B. (1988), “Competing Technologies: An Overview”, in G.Dosi *et al.* (eds.), *Technical Change and Economic Theory*, London: Pinter, pp.590-607.

David, P. (1985), “Clio and the Economics of QWERTY”, *American Economic Review, Proceedings* (75), 332-337.

Technological change and market structure

Lee, C.-Y. and Sung, T. (2005), “Schumpeter’s Legacy: A New Perspective on the Relationship between Firm Size and R&D”, *Research Policy*, 34: 914-931.

5. Technology, the firm, and networks

The nature of the firm

Coase, R.H. (1937/1991), “The Nature of the Firm”, in O.L.Williamson and S.G.Winter (eds.), *The Nature of the Firm: Origins, Evolution, and Development*, Oxford: Oxford University Press, pp.18-33.

Technological change and the boundaries of the firm

Teece, D. (1988), “Technological Change and the Nature of the Firm”, in G.Dosi *et al.* (eds.), *Technical Change and Economic Theory*, London: Pinter, pp.256-281.

Langlois, R.N. (1989), “Economic Change and the Boundaries of the Firm”, in B.Carlsson (ed.), *Industrial Dynamics*, Boston: Kluwer, pp.85-107.

User-producer interactions

Lundvall, B.A. (1988), “Innovation as an Interactive Process”, in G.Dosi *et al.* (eds.), *Technical Change and Economic Theory*, London: Pinter, pp.349-369.

Networks of innovators

De Bresson, C. and Amesse, F. (1991), “Networks of Innovators”, *Research Policy* (20): 363-80.

Imai, K. 1989, “Evolution of Japan's Corporate and Industrial Networks”, in B.Carlsson (ed.), *Industrial Dynamics*, Boston: Kluwer, pp.123-155.

Kock, C.J. and Guillén, M.F. (2001), “Strategy and Structure in Developing Countries: Business Groups as an Evolutionary Response to Opportunities for Unrelated Diversification”, *Industrial and Corporate Change*, 10: 77-113.

National systems of innovation

OECD (1999), *Managing National Innovation Systems*, Paris: OECD.

6. Technology and “globalization”

Lipietz, A. (1982), “Towards Global Fordism?”, *New Left Review*, n.132.

Feenstra, R.C. (1998), “Integration of Trade and Disintegration of of Production in the Global Economy,” *Journal of Economic Perspectives*, 12: 31-50.

Kleinknecht, A. and ter Wengel, J. (1998). “The Myth of Economic Globalisation”, *Cambridge Journal of Economics*, 22: 637-647.

Ernst, D. and Kim, L. (2002), “Global Production Networks, Knowledge Diffusion, and Local Capability Formation”, *Research Policy*, 31: 1417–1429.

Archibugi, D. and Iammarino, S. (1999), “The Policy Implications of the Globalisation of Innovation”, *Research Policy*, 28: 317–336.