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Professor of Applied Economics – Department of Management and Technology- Bocconi University, Milan - Italy

President of ICRIOS (Invernizzi Centre for Research on Innovation, Organization, Strategy and Entrepreneurship) , Bocconi University, Milan

Editor of the Journal "Industrial and Corporate Change"

Advisory Editor of the Journal "Research Policy"

Associate Editor of the "Journal of Evolutionary Economics"

EDUCATION

1983 – Ph.D. in Economics, Yale University

EMPLOYMENT

-Professor of Applied Economics - Bocconi University

-Previously, Director of CESPRI and Director of KITEs Research Centres - Bocconi University

VISITING APPOINTMENTS

Visiting Scholar at:

-Department of Economics Stanford University

-CEPR and SIEPR -Stanford University

-University of Queensland

-University of Stellenbosch (ZA)

-Max Planck Institute of Economics- Jena

-University Louis Pasteur-Strasbourg

AWARDS

-Schumpeter Price 2012

RESEARCH AND POLICY ADVISORY ACTIVITIES (from 2001 on)

2002-2004 President of the International Schumpeter Society

2003-2005 President of EARIE- European Association of Research in Industrial Economics

2002-2007 Member of the Advisory Board of CRIC- University of Manchester

2001-2008 Member of the Advisory Board of SPRU-University of Sussex

2006-2010 Member of the Advisory Board of the Max Plank Institute of Economics - Jena

2012 Member of the EU High-Level Panel for “New Innovation Indicators for Europe”

2013-2016 Member of the EU High-Level Panel for “A New European Innovation Policy”

Research and collaborations with European Union, European DG Research, OECD, American National Science Foundation, Italian Ministry of Science and Technology, Italian National Research Council, Confindustria Italy, Lombardy Region.

MAIN AREAS OF RESEARCH

Innovation studies;
Economics of technological change;
Industrial dynamics and industry evolution;
Sectoral analyses;
Innovation systems;
History-friendly models;
Entrepreneurship;
Economic development and industrial catch-up;
Industrial, science and technology policy.

RESEARCH HIGHLIGHTS

1. Innovation and the evolution of industries: history-friendly models

In the book *Innovation and the evolution of industries* (Cambridge University Press, 2016), Richard Nelson, Luigi Orsenigo, Sidney Winter and I present a new style of analysis for investigating technological progress and its relationships with competition and the evolution of industry structures. We have labeled it “History-Friendly Modeling” (HFM). This style is based on the historical reconstruction of the main elements which characterize the evolution of an industry; the identification of the key factors that might explain the specific observed patterns; the construction of a model which incorporates the crucial explanatory assumptions suggested by the historical analysis; the testing of the ability of such a model to actually replicate the observed phenomena and to produce distinctively different patterns when one or some of the key assumptions are removed or modified. If and when results are deemed satisfactory, the analysis can proceed further by using the model to address more general questions. In a history-friendly fashion, specific models can be developed for different industries. Comparisons between these models can then be used to generate new and more general hypotheses about the factors shaping the interactions between technological change and industrial evolution. In the CUP book we present three history-friendly models regarding the evolution of three industries: computers, semiconductors and pharmaceuticals.

Several history-friendly models for other industries have been developed. They can be very helpful for the analysis of firms’ innovation, strategies and organization in evolving and dynamic sectoral contexts.

2. Spinoffs and user-industry spinouts.

Spinoffs play a major role in the evolution of industries. From the extensive literature on spinoffs, several stylized facts on spinoffs' origin and performance have been identified. In the working paper *Spinoff in context: entry and performance across industries* (2017) Gianluca Capone, Luigi Orsenigo and I discuss four major stylized facts about spinoffs (spinoffs perform better than *de novo* entrants; there is an inverted U-shaped relationship between the age of a firm and spinoff formation; better parents generate more spinoffs; and better parents originate better spinoffs). These stylized facts hold in some industries (for example automobiles) but not in others (for example lasers, disk drives and asbestos). Existing theories of spin-off formation and performance explain these stylized facts but not their differences across industries. Inspired by the history-friendly models of industry evolution, we present an agent-based simulation model in which technological and demand conditions contribute to determine both the emergence and the performance of spinoffs. The model is able to generate the stylized facts identified by empirical research and also explain the diversity across industries.

In related research, I identify a new category of start-ups from downstream user industries, called *user-industry spinouts*. Recent scholarship on entrepreneurship suggests that the pre-entry know-how of new entrants, embodied in their founders, affects not only their entry strategy, but also their performance. While prior work has focused on entrants from the focal industry (i.e. employee spinouts) and from academic organizations (i.e. university spinoffs), in *User-industry spinouts: downstream user knowledge as a source of new firm entry and survival* (Organization Science, 2016), Pamela Adams, Roberto Fontana and I examine user-industry spinouts. We draw from the literature on evolutionary theory, user innovation, and industrial dynamics to propose that, given the unique combination of knowledge inherited by these entrants, their choices at entry and their ability to survive in the focal industry user-industry spinouts differ with respect to other start-ups. We do this by extending existing work on new firm formation to investigate entry and performance in specific product markets. Our findings, based on a dataset of new entrants in the semiconductor industry from 1997 to 2007, show that user-industry spinouts are more likely both to enter and to survive in application-specific submarkets.

In *Bridging knowledge resources: the location choices of spinouts* (Strategic Entrepreneurship Journal, 2017), Pamela Adams, Roberto Fontana and I develop a framework that links a typology of spinouts with distinct product/market strategies and the characteristics of localization economies in order to study location choice. Specifically, we examine focal spinouts and user-industry spinouts entry into generic and market-specific product categories, and localization economies related to the focal industry and to downstream user-industries. We test our hypotheses on a sample of spinouts in the U.S. semiconductor industry from 1997 to 2007. Our findings show that focal spinouts make different location choices than user-industry spinouts and that such choices are mediated by product strategy at entry. Location, therefore, location needs to be treated as a strategic choice to be exercised by new firms as they enter an industry. In some cases, localization economies related to downstream industries might offer greater potential to entrants than localization economies related to the focal industry.

In *Knowledge resources, spinouts and exit through acquisition* (working paper, 2017) Pamela Adams, Roberto Fontana and I offer also new insights for the literature on acquisitions

by focusing on user-industry spinouts and focal industry spinouts as a unique subset of target firms. Spinouts have increasingly been identified as attractive targets for acquisitions in high technology industries where the pace of innovation and new product development often involves large and highly uncertain investments. This study examines the impact of the knowledge heritage and product strategies of spinouts from different knowledge contexts on their potential to be acquired by firms in both the focal industry and downstream industries. Overall, our findings support our proposition that the knowledge heritage of spinout ventures represents an important resource that affects evaluations concerning acquisitions.

3. Catch-up by firms from emerging economies

The catch-up by firms from emerging economies is one of the most striking evidence in the evolution of several industries, including the high-tech ones. I have examined this topic by focusing on the role of sectoral and national differences in the process of catching up.

In *Learning and catching-up in different sectoral systems: evidence from six industries* (Industrial and Corporate Change, 2011), Richard Nelson and I claim that catching-up is a learning process that often differs significantly across economic sectors in the factors leading to success or failure. We support this claim by examining factors affecting catching up by several countries in six industries: India and Brazil for pharmaceuticals; Korea, China, and Brazil for autos; India, Ireland, Israel, China, Brazil for software; Korea and India for telecommunication equipment; Korea, Taiwan, China, and Malaysia for semiconductors; and China, Brazil, Costa Rica, and Nigeria for some agricultural crops. The paper shows that there are significant differences across these sectors in the variables and mechanisms related to catch-up. It also identifies common factors affecting catching up. The paper then discusses the interplay between national systems and sectoral systems.

This topic is further examined in *The rise to market leadership* (Elgar 2017). In this book Sunil Mani, Pamela Adams and I look at specific cases of new international market leaders from the BRICS countries that have emerged in some manufacturing and service industries. We present evidence from companies in the automotive, pharmaceutical and ICT industries from Brazil, China and India. The book demonstrates that being local and able to capitalize on local knowledge matters, highlighting the importance of vibrant entrepreneurship as one of the key factors for market success and the rise to market leadership.

Finally, in *The long march to catch-up: a history friendly model of China's mobile communication industry* (working paper, 2017) Daitian Li, Gianluca Capone and I develop a history-friendly model of the process of catch-up by Chinese firms in the mobile communications industry. The model aims to explain how the sectoral environment in terms of segmented markets and generational technological change facilitated the catch-up of domestic firms with respect to foreign multinationals. Segmented markets provided a nurturing environment in peripheral markets for the survival of domestic firms starting with low level capabilities in their infant stage. Generational technological change opened windows of opportunities for domestic firms to catch-up with foreign multinationals in new product segments. Segmented markets and generational technological change allowed domestic firms to leverage their initial advantages in rural markets to catch-up in urban markets.

A key aspect of the catch-up process is the change in industrial leadership that may take place in various industries between incumbents from advanced countries and firms from emerging economies. In *Catch-up cycles and changes in industrial leadership: Windows of*

opportunity and responses of firms and countries in the evolution of sectoral systems (Research Policy, 2017) Keun Lee and I propose a framework that aims to explain why successive changes in industrial leadership (called the catch-up cycle) occur over time in a sector. To identify factors at the base of catch-up cycles, we adopt a sectoral system framework and identify windows of opportunity that may emerge during the long-run evolution of an industry. This study proposes three windows related to the specific dimensions of a sectoral system. One dimension is related to changes in knowledge and technology. The second dimension pertains to changes in demand, and the third includes changes in institutions and public policy. The combination of the opening of a window (technological, demand, or institutional/policy) and the responses of firms and other components of the sectoral system of the latecomer and incumbent countries determines catch-up and changes in industrial leadership and catch-up. Sectors differ according to the type of windows that may open and the responses of firms and other components of systems. Empirical evidence of catch-up cycles is presented from six sectors: mobile phones, cameras, semiconductors, steel, mid-sized jets, and wines.

Related to the previous paper, in *A history-friendly model of the successive changes in industrial leadership and the catch-up by latecomers* (Research Policy, 2017) Fabio Landini, Keun Lee and I develop a history-friendly model to explore the role played by technological conditions in the change of the leadership of industries from firms in advanced countries to firms from emerging economies. The model is inspired by two cases where the emergence of a novel technology played an important role: mobile phones and semiconductors. In the baseline setting the model is able to generate the benchmark case of three cycles with two leadership changes. In particular, the simulation analysis reveals that the more disruptive the new technology and the lower the incumbents' capabilities are, the greater is the shake-up of market shares between incumbents and latecomers; that leadership change is more likely to occur when it coincides with certain responses by the actors to the technological disruption; and that a technology-driven change of industrial leadership is more likely to occur in the presence of increasing returns to technological investments. The counterfactual experiments show that different catch-up dynamics can emerge depending on the magnitude of technological disruption, the degree of lock-ins, the shape of technological landscape, and incumbents' initial capabilities. In particular, four types of catch-up cycle are generated – aborted cycle, persistent leadership, return of the old leadership, and coexistence in leadership between latecomers and incumbents. Each of these cycles is then related to a specific case of catch-up in an industry.

Finally, in *Public policy, catching up in global industries and technological change: A simulation model* (Cambridge Journal of Economics, forthcoming) Fabio Landini and I examine the effects of different public policies (strengthen capability building, favour firms' learning, introduce protectionism and support the entry of new domestic firms) on the catch-up of a latecomer with respect to an incumbent country in changing and uncertain technological environments. The effects of these policies are examined first separately and then jointly, to assess possible complementarities.

4. The dynamics of vertically related industries

I have examined the relationships between two vertically related industries in various ways. In *Vertical Integration and Dis-integration of Computer Firms: A History Friendly Model of the Co-evolution of the Computer and Semiconductor Industries* (Industrial and Corporate Change, 2008), Richard Nelson, Luigi Orsenigo, Sidney Winter and I analyzed the evolution

of the semiconductor and computer industries and the vertical integration and disintegration of large firms. We develop a model building on the competence-based approach and show that the vertical scope of computer producers is essentially determined by the co-evolution of the specific capabilities in designing and producing semiconductors by firms, the size of the markets and the structure of the two industries.

In *Related yet diverging sectoral systems: telecommunications equipment and semiconductors in China* (Industry and Innovation, 2017), Jang Yu, Pamela Adams, Yue Zhang and I examine the diverging evolution of two vertically related industries from a common starting point. In one case, system factors worked to foster global competitiveness, while in the other case, system factors slowed the formation of a competitive industry. The findings suggest that the characteristics of vertically integrated industries may be seen as two sectoral systems that interact and influence the speed and direction of innovation and industrial development of the each other's industries.

Finally, in *Spinouts and knowledge heritage across vertically related industries* (working paper, 2017) Pamela Adams, Roberto Fontana and I look at new firms that spin out from established firms and enter vertically related industry, either upstream or downstream. Spinouts that enter vertically related industries represent a major link between the two industries. These spinouts carry knowledge from one industry to another. The knowledge that upstream or downstream spinouts inherit from their industry of origin characterizes their distinctiveness in the new industry with respect to other de-novo entrants. This is an important evolutionary process that affects the generation and transmission of knowledge and the selection process in industries. In the paper we examine these issues in semiconductors and telecommunications.

5. Sectoral systems, institutions and innovation

I have also continued to conduct research on sectoral systems of innovation, following my initial paper *Sectoral systems of innovation and production* (Research Policy 2002). This way of analyzing innovation in sectors focusses on the knowledge base, the actors and networks and the institutions that characterize a sector. It is a multi-dimensional, integrated, and dynamic approach which draws from three areas of research: the dynamics and transformation of industries, evolutionary theory and innovation systems.

In addition to several qualitative and quantitative work on sectoral systems, I edited two books on sectoral systems in Europe and the United States (*Sectoral systems of innovation*, Cambridge University Press, 2004) and in developing countries (*Sectoral systems of innovation and production in developing countries*, with Sunil Mani, Elgar, 2009) and I wrote two surveys for two Oxford Handbooks: "Sectoral systems of innovation: how and why innovation differs across sectors" in *Handbook of Innovation* J.Fagerber, D.Mowery and R.Nelson ed., Oxford University Press, 2005; and "Sectoral systems of innovation" (with P.Adams) *Handbook of Innovation Management* M. Dodgson D. Gann and N. Phillips ed., Oxford University Press, 2014.

Current research concerns the analysis of specific dimensions of sectoral systems, such as the the knowledge base of sectors, its characteristics and evolution and its effects of the performance of innovative firms.

RECENT PUBLICATIONS (2007-2017)

Articles and papers (2007-2017)

Bridging knowledge resources: the location choices of spinouts (with P.Adams and R.Fontana) *Strategic Entrepreneurship Journal*, on line February 2017

Toward a theory of catch-up cycles: Windows of opportunity in the evolution of sectoral systems (with K.Lee) *Research Policy* 41, 2, pp. 338-351, 2017

A history-friendly model of the successive changes in industrial leadership and the catch-up by latecomers (with F.Landini and K. Lee) *Research Policy*, 41, pp.431-446, 2017

Related yet diverging sectoral systems: telecommunication s equipment and semiconductors in China (with J.Yu, P.Adams and Y.Zhang) *Industry and Innovation*, 24, pp. 190-212, 2017

Sectors and the additionality effect of R&D tax credits: a cross-country microeconomic analysis (with I. Bodas Freitas, F. Castellacci, R. Fontana and A. Vezzulli) *Research Policy* 46, pp. 57-72, 2017

User-industry spinouts: donwnstream user knowledge as a source of new firm entry and survival (with P.Adams and R.Fontana), *Organization Science*, 2016, 27, 1, pp. 18-35

The legacy of Steven Klepper: industry evolution, entrepreneurship and geography (with R.Agarwal, G.Buenstorf, W.Cohen) *Industrial and Corporate Change* 24, 4 739-753, 2015

The structure and dynamics of networks of scientific collaborations in Northern Africa (with F.Landini and R.Mavilia) *Scientometrics*, 2015

Pre-entry experience, technological complementarities and the survival of de-novo entrants (with R.Fontana and A.Marinoni) *Economics of innovation and new technologies* 9, 2015

The evolution of the pharmaceutical industry (with L.Orsenigo) *Business History* v. 57 n. 5, 664-687, 2015

Sectoral systems of innovation (with P.Adams) *Oxford Handbook of Innovation Management* M. Dodgson D. Gann and N. Phillips ed., Oxford University Press, Oxford, 2014

Knowledge intensive entrepreneurship: sectoral patterns in a sample of European high-tech firms (with S.Breschi, C.Lenzi, ML.Mancusi) *Technology Analysis and Strategic Management* 26 751-764, 2014

Innovation and market structure in pharmaceuticals: an econometric analysis on simulated data (with C.Garavaglia, L.Orsenigo and M.Pezzoni) *Jahrbucher fur nationalokonomie und statistic* p.1-29, 2014

A tribute to Stan Metcalfe and his contribution to evolutionary theory, Schumpeterian dynamics and innovation systems *Economics of Innovation and New Technologies* pp.

623-630, 2013

Innovation, profitability and growth in medium and high-tech manufacturing industries: evidence from Italy (with C. Cozza, M.L. Mancusi, G.Perani and A.Vezzulli) *Applied Economics* 44: 15, 1963-1976, 2013

Innovation, international R&D spillovers and the sectoral heterogeneity of knowledge flows (with ML Mancusi and F.Montobbio) *Review of World Economy* 149: 697-722, 2013

The magnitude of innovation by users in a sectoral system: the case of semiconductors (with P.Adams and R.Fontana) *Research Policy*, 2013

Are switching costs always effective in creating first mover advantages? (with G. Capone and L.Orsenigo) *Long Range Planning*, 2013

User knowledge in innovation in high technologies: an empirical analysis of semiconductors (with P.Adams and R.Fontana) *International Journal of Technology Management* 284-299, 2012

Technological regimes and demand structure in the evolution of the pharmaceutical industry (with C.Garavaglia, L.Orsenigo and M.Pezzoni) *Journal of Evolutionary Economics* 22, 4, 677-709, 2012

Assessing the scientific and technological output of EU Framework programmes: evidence from the FP6 projects in the ICT field (with S. Breschi) *Scientometrics* 88, 1, 239-257, 2011

Learning and catching up in different sectoral systems: evidence from six industries (with R.Nelson) *Industrial and corporate change* 6, 1645-1676, 2011

Knowledge, supply and demand in industrial development: a sectoral system perspective (with P.Adams and S. Brusoni) *Innovation and Development* 1, 2, 167-185, 2011

Demand, Innovation and Industrial Dynamics (with S. Klepper) *Industrial and Corporate Change*, 2010

Demand as source of entry and the survival of new semiconductor firms (with R. Fontana) *Industrial and Corporate Change*, 2010

User-producer relations, innovation and the evolution of market structure under alternative contractual regimes (with L.Orsenigo) *Structural Change and Economic Dynamic* 21, 1, 50-84, 2010

China's system and vision: an analysis in relation to the strategic adjustment and medium to long term ST development plan (2006-20) (with S.Gu, B.Lundvall, J.Liu, S. Schwaag serger) *Industry and innovation* 16, 4, 369-388, 2009

The impact of EU funded research networks on knowledge diffusion at the regional level (with L.Cassi, N. Corrocher and N. Vonortas) *Research Evaluation* 4, 17, 2009

Vertical Integration and Dis-integration of Computer Firms: A History Friendly Model of the Co-evolution of the Computer and Semiconductor Industries (with R. Nelson, L.Orsenigo and S. Winter) *Industrial and Corporate Change*, 2008

Public policies and changing boundaries of firms in a “history-friendly” model of the coevolution of the computer and semiconductor industry (with R.Nelson, L.Orsenigo and S.Winter) *Journal of Economic Behaviour and Organization*, 2008

Research networks as infrastructure for knowledge diffusion in European regions *Economics of innovation and new technologies* (with L.Cassi, N.Corrocher and N.Vonortas) 17, 7-8, 633-676, 2008

Technological paradigms: past, present and future (with N. Von Tunzelman, P.Nightingale and S.Metcalf) *Industrial and Corporate Change* 17, 467-484, 2008

Schumpeterian Patterns of Innovative Activity in the ICT Field (with N.Corrocher and F. Montobbio) *Research Policy*, 2007

Innovation and the dynamics and evolution of industries: progress and challenges *International Journal of Industrial Organization*, 2007

Schumpeterian patterns of innovation in the ICT field (with N.Corrocher and F.Montobbio) *Research Policy* 36, 3, 418-432, 2007

Demand innovation and the dynamics of market structure: the role of experimental users and diverse preferences (with R.Nelson, L.Orsenigo and S. Winter) *Journal of Evolutionary Economics* 17, 4, 371-399, 2007

Books (2007-2017)

The rise to market leadership (ed. with S.Mani and P. Adams) Elgar 2017

Innovation and Industry Evolution: History-friendly Models (with R. Nelson, L. Orsenigo, S. Winter) Cambridge University Press, Cambridge, 2016

Dynamics of Knowledge Intensive Entrepreneurship. Business strategy and public policy (ed. with Y. Caloghirou, M. McKelvey, S. Radošević) Routledge, 2015

Economic Development as a learning process. Variations across sectoral systems (ed. with R. Nelson. ed.) Elgar, 2012

Knowledge Intensive Entrepreneurship and Innovation Systems: Evidence from Europe (editor) Routledge, 2010

Sectoral systems of innovation and production in developing countries (ed. with S.Mani) Elgar, 2009

Innovation networks in industries (ed. with N. Vonortas) Elgar 2009

Perspectives on innovation (ed. with S.Brusoni) Cambridge University Press, 2007

Innovation, industrial dynamics and structural transformation (with U.Cantner) Springer, 2007

MOST RELEVANT PUBLICATIONS UNTIL 2006

Articles and papers

"Demand Structure and Technological Change: the Case of the Semiconductor Industry" *Research Policy* n.14, 1985

"R-D cooperation between industry, university and non-academic research organizations" (con F. Onida) *Technovation*, 1989

"Learning and Incremental Technical Change" *Economic Journal* July, 1992

"Internal capabilities and external networks in innovative activities" (with S.Torrissi) "*Economics of Innovation and New Technologies*" Vol.2 n° 3, 1992

"Italy" in "*National innovation systems: a comparative analysis*" (R.Nelson ed.) Oxford University Press Oxford, 1993

"Technological regimes and firm behavior" (with L.Orsenigo) *Industrial and Corporate Change* vol.2 n.1, 1993

"Schumpeterian patterns of innovation" (with L. Orsenigo) *Cambridge Journal of Economics*, 1995

"Schumpeterian patterns of innovation are technology specific" (with L.Orsenigo) *Research Policy*, 1996

"The Dynamics and Evolution of Industries" *Industrial and corporate change*, 1996

"Choice and Action" (with D.Lane et al.) *Journal of Evolutionary Economics* n° 1, 1996

"Technological Regimes and Sectoral Patterns of Innovative Activities" (with L.Orsenigo) *Industrial and Corporate Change*, 1997

"Industrial dynamics: puzzles, interpretations and models" (with G.Dosi et al.) *Industrial and Corporate Change*, 1997

"Persistence of innovative activities, sectoral patterns of innovation and international technological specialization" (with L.Orsenigo e P. Peretto) *International Journal of Industrial Organization*, 1997

"History friendly models of industry evolution: the case of the computer industry" (with R.Nelson, L.Orsenigo and S.Winter) *Industrial and Corporate change*, 1999

"Industrial Dynamics and the Evolution of Firms' and Nations' Competitive capabilities in the World Computer Industry" (with T. Bresnahan) in *The Sources of Industrial Leadership* R. Nelson and D.Mowery (ed) MIT Press, 1999

“Technological Regimes and Schumpeterian Patterns of Innovation” (with S.Breschi e L.Orsenigo) *Economic Journal*, April 2000

“Knowledge, innovative activities and industry evolution” (with L.Orsenigo) *Industrial and Corporate Change* n.1, 2000

“Competition and industrial policies in a “history friendly model of the evolution of the computer industry” (with R.Nelson, L.Orsenigo and S.Winter) *International Journal of Industrial Organization*, 2001

“The geography of innovation and economic clustering: some introductory notes” (with S.Breschi), *Industrial and Corporate Change* n. 4, 2001

“Introduction to the Special Issue in Honour of Richard Nelson” (with W.Cohen, D.Mowery e S.Winter), *Industrial and Corporate Change* n.3, 2001

“Is the tendency to variation a chief source of progress” (with W.Cohen), *Industrial and corporate change* n.3, 2001

“Sectoral systems of innovation and production" *Research Policy* 2002

“Innovation and market structure in the dynamics of the pharmaceutical industry and biotechnology: towards a history friendly model” (with L.Orsenigo) *Industrial and Corporate Change* 2002

“Knowledge relatedness in firms technological diversification” (with S. Breschi e F. Lissoni), *Research Policy*, 2003

“Exploring the factors affecting international technological specialization: the role of knowledge flows and the structure of innovative activity” (with F.Montobbio) *Journal of Evolutionary Economics*, 2003 n. 13

“How do new technologies emerge? A patent based analysis of ICT related new industrial activities” (with N.Corrocher and F.Montobbio) 2003 *Innovation: management, policy and practice* v.5 (2-3) pp. 249-279

“Sectoral systems of innovation: how and why innovation differs across sectors” in *Handbook of Innovation* J.Fagerber, D.Mowery and R.Nelson (ed). Cambridge University Press, Cambridge 2005

“Sectoral systems of innovation: a framework for linking innovation to the knowledge base, structure and dynamics of sectors” *Economics of Innovation and New Technologies* January-March vol.14, n.1-2 p.63-83 2005

“Innovation and the evolution of industries” *Journal of Evolutionary Economics*, v.16, n.1-2 2006

“Innovation, industrial dynamics and industry evolution” in *Revue de l'OFCE* June 2006 pp.21-46

“Information, appropriability and the generation of innovative knowledge four decades after Arrow and Nelson: an introduction (with G.Dosi, G.Ramello and F.Silva) *Industrial and Corporate Change* 2006 v. 15 pp.891-901

Books

“*The semiconductor business: the economics of rapid growth and decline*” University of Wisconsin Press-Madison (USA) e Frances Pinter-Londra, 1985

Franco Malerba

"*Organization and strategy in the evolution of the enterprise*" (editor with G.Dosi)
MacMillan London, 1996

"*The Organization of Innovative Activity in Europe*" (editor with A.Gambardella)
Cambridge University Press, 1999

"*Economia dell'innovazione*" Nuova Italia Scientifica, 2000

"*Sectoral systems of innovation*" (editor) Cambridge University Press, Cambridge 2004

"*Clusters, networks and innovation*" (editor with S. Breschi) Oxford University Press 2005