



# UNIVERSITÀ DI PISA

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## INDUSTRIAL ECONOMICS

### FEDERICO TAMAGNI

Anno accademico	2019/20
CdS	ECONOMICS
Codice	252PP
CFU	6

Moduli	Settore/i	Tipo	Ore	Docente/i
INDUSTRIAL ECONOMICS (ADVANCED COURSE)	SECS-P/02	LEZIONI	42	ARIANNA MARTINELLI FEDERICO TAMAGNI

#### Obiettivi di apprendimento

##### *Conoscenze*

The course introduces to recent developments in theory and empirics of firm dynamics and to its interplay with innovation patterns in shaping aggregate outcomes such as growth, productivity and international trade. The course has a strong applied focus, providing students with solid knowledge of the empirical evidence concerning key firm-level characteristics (size, growth, productivity and innovation) and industry-level dynamics, with the final aim to develop an informed view about the ability of theories to match with stylised facts.

##### *Modalità di verifica delle conoscenze*

Interaction in class and work-groups, in addition to a standard final examination

##### *Capacità*

- Develop ability to critically read scientific articles and draw implications for interpreting the real world
- Knowledge of specific empirical skills: (a) understanding and developing data useful for measuring firm and industry level performance; (b) econometric/statistical techniques specific to the area of research

##### *Modalità di verifica delle capacità*

Interaction in class and work-groups, in addition to a standard final examination

##### *Comportamenti*

Developing ability to critically connect theories and empirical facts

##### *Modalità di verifica dei comportamenti*

Interaction in class and work-groups, in addition to a standard final examination

##### *Prerequisiti (conoscenze iniziali)*

Basic knowledge of microeconomics, production theory and econometrics at bachelor level

##### *Programma (contenuti dell'insegnamento)*

Course outline:

1. Firm heterogeneity and firm-industry dynamics: review of alternative theories
2. The dynamics of firm productivity: empirics and stylised facts
3. Firm size and firm growth: empirics and stylised facts
4. The role of entry, exit and firm age in industry dynamics
4. Productivity, firm growth and industrial dynamics: empirics and stylised facts
5. Sectoral patterns of innovation
6. Measuring innovative activity of firms
7. Innovation and firm-growth



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### Bibliografia e materiale didattico

Lecture Notes/Slides and a list of scientific articles/book chapters provided in class.

Mandatory readings include:

1) On Firm-industry dynamics (productivity, size-growth, entry/exit, theories and empirics of selection):

- Bartelsman, E.J., and M. Doms (2000), "Understanding Productivity: Lessons from Longitudinal Microdata", *Journal of Economic Literature*, 38, 569-594.
- Levinsohn, J., and A. Petrin (2003), "Estimating Production Functions Using Inputs to Control for Unobservables", *Review of Economic Studies*, 70, 317-41.
- Bottazzi, G., and A. Secchi (2003), "Common Properties and Sectoral Specificities in the Dynamics of U.S. Manufacturing Companies", *Review of Industrial Organization*, 23, 217-232.
- Bottazzi, G., A. Secchi and F. Tamagni (2014), "Financial constraints and firm dynamics", *Small Business Economics*, 42, 99-116.
- Sutton, J. (1997), "Gibrat's Legacy", *Journal of Economic Literature*, 35, 40-59.
- Bartelsman, E.J., S. Scarpetta and F. Schivardi (2005), "Comparative Analysis of Firm Demographics and Survival: Micro-Level Evidence for the OECD Countries", *Industrial and Corporate Change*, 14, 365-391
- Dunne, T., M.J. Roberts and L. Samuelson (1988), "Patterns of Firm Entry and Exit in US Manufacturing Industries", *Rand Journal of Economics*, 19, 495-515.
- Haltiwanger, J., R.S. Jarmin, and J. Mirand (2013), "Who Creates Jobs? Small versus Large versus Young", *The Review of Economics and Statistics*, 95, 347-361.
- Castellacci, F. (2011), "Theoretical Models of Heterogeneity, Growth and Competitiveness: Insights from the Mainstream and Evolutionary Economics Paradigms", in Miroslav N. Jovanovi (ed.), *International Handbook on the Economics of Integration*, Volume II, chapter 5, Edward Elgar Publishing.
- Dosi, G., O. Marsili, L. Orsenigo and R. Salvatore (1995), "Learning, market selection and the evolution of industrial structures", *Small Business Economics*, 7, 411-436.
- Hopenhayn, H. (1992), "Entry, Exit, and Firm Dynamics in Long Run Equilibrium", *Econometrica*, 60(5), 1127-1150.
- Malerba, F. (2007), "Innovation and the dynamics and evolution of industries: Progress and challenges", *International Journal of Industrial Organization*, 25(4), 675-699.
- Dosi, G., D. Moschella, E. Pugliese and F. Tamagni (2015), "Productivity, market selection and corporate growth: comparative evidence across US and Europe", *Small Business Economics*, 45, 643-672.
- Foster, L., J.C. Haltiwanger and C.J. Krizan (2001), "Aggregate Productivity Growth: Lessons from Microeconomic Evidence", in *New Developments in Productivity Analysis*, National Bureau of Economic Research, Inc, NBER Chapters, 303-372.

2) On innovation and firm-industry dynamics:

- Greenhalgh, C. and M. Rogers (2010), "Innovation, Intellectual Property and Economic Growth, Princeton University Press" - Chapters 1, 2, 3 and 5.
- Kline, S.J. and N. Rosenberg (1986), "An overview of innovation." In R. Landau & N. Rosenberg (eds.), *The Positive Sum Strategy: Harnessing Technology for Economic Growth*. Washington, D.C.: National Academy Press, pp. 275-305.
- Pavitt, K (2006), "Innovation Processes", ch.4 in J. Fagerberg, D.C. Mowery, and R.R. Nelson (eds.) *The Oxford Handbook of Innovation*, Oxford: Oxford University Press
- Hall, B. H. and D. Harho, (2012), "Recent Research on the Economics of Patents", NBER Working Paper No. 17773
- Hall, B. H. and R. Ziedonis, (2001), "The Patent Paradox Revisited: An Empirical Study of Patenting in the U.S. Semiconductor Industry, 1979-1995", *The RAND Journal of Economics*, 32(1), 101-128.
- Smith, K. (2006) "Measuring Innovation", ch. 6 in J. Fagerberg, D.C. Mowery, and R. R. Nelson (eds.) *The Oxford Handbook of Innovation*, Oxford: Oxford University Press
- Greenhalgh, Ch and M. Rogers (2006), "The value of innovation: The interaction of competition, R&D and IP", *Research Policy*, 35(4), 562-580
- Pavitt, K. (1984), "Sectoral patterns of technical change: Towards a taxonomy and a theory", *Research Policy* 13(6), 343-373
- Breschi, S., F. Malerba and L. Orsenigo (2000), "Technological regimes and Schumpeterian patterns of innovation", *Economic Journal* 110(April), 388-410.
- Audretsch, D.B., A. Coad, and A. Segarra (2014), "Firm growth and innovation", *Small Business Economics*, 43, 743-749.
- Bianchini, S., G. Pellegrino and F. Tamagni (2018), "Innovation complementarities and firm growth", *Industrial and Corporate Change*, 27, 657-676.
- Crepon, B., E. Duguet and J. Mairesse (1998), "Research, Innovation And Productivity: An Econometric Analysis At The Firm Level", *Economics of Innovation and New Technology*, 7, 115-158.

### Modalità d'esame

Preferred assessment method will be a combination of work-groups and final written examination (multiple and open questions). This has been changed into a final oral examination, due to COVID-19 emergency.

### Pagina web del corso

<https://elearning.ec.unipi.it/course/view.php?id=1268>

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