

Readings list for:

Empirical Industrial Organization I (FEIO16)

Instructors / lecturers:

Professor Otto Toivanen
Aalto University and University of Leuven

Professor Ari Hyytinen
University of Jyväskylä

Professor Mika Maliranta
University of Jyväskylä and ETLA

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The course consists of three parts and the readings / literature are organized accordingly, part-by-part:

Part 1 (Toivanen): R&D and innovation

Those articles that we will discuss in class are in bold.

Lecture #1: Tradition and background

- Akerberg, Dan, Lanier Benkard, Steve Berry and Ariel Pakes, 2007, Econometric tools for analyzing market outcomes, Handbook of Econometrics, vol. VI., (ABBP).
- Bresnahan, Timothy, 1992, Sutton's Sunk Costs and Market Structure: Price Competition, Advertising and the Evolution of Concentration, RAND Journal of Economics, 23, 1, 137-152.
- Bresnahan, T., 1989, Empirical Studies of Industries with Market Power, Handbook of Industrial Organization, vol. II., Schmalensee, R. and Willig, R. (eds.), North-Holland.
- Cowling, Keith and Michael Waterson, 1976, Price-cost margins and market structure, *Economica*, 43, 267-274.
- Dube, J.-P., Fox, J., Su, C.-L., 2012, Improving the Numerical Performance of BLP Static and Dynamic Discrete Choice Random Coefficients Demand Estimation, *Econometrica*, 2012, 80(5).
- Fisher, Franklin, M., 1989, Games Economists Play: A Noncooperative View, RAND Journal of Economics, 20, 113-24.
- Hood, WM., and Tjalling Koopmans eds., 1953, Studies in econometric method, Cowles Commission and John Wiley & Sons.
- Keane, Michael, 2010, Structural and atheoretic econometric models, *Journal of Econometrics*, vol. 156, no. 1, pp. 3-20.

- Reiss, Peter, and Frank Wolak, 2007, Structural Econometric Modeling: Rationales and Examples from Industrial Organization, Handbook of Econometrics, vol. VI. available at <http://www.stanford.edu/~wolak/>. (RW)
- Shapiro, Carl, 1989, The Theory of Business Strategy, RAND Journal of Economics, 20, 1, 125-137.
- Schmalensee, Richard, 1989, Inter-industry Studies of Structure and Performance, Handbook of Industrial Organization, vol. II., Schmalensee, R. and Willig, R. (eds.), North-Holland.
- Sutton, John, 1991, Sunk Costs and Market Structure: Price Competition, Advertising and the Evolution of Concentration, Cambridge, Mass., MIT Press.

Lecture #2: Empirical studies on IPR

- Budish, Eric, Benjamin N. Roin, and Heidi L. Williams. Do firms underinvest in long-term research? Evidence from cancer clinical trials. American Economic Review, 105(7): 2044-2085, 2015.
- Galasso, Alberto and Mark Schankerman. Patents and cumulative innovation: Causal evidence from the courts. Quarterly Journal of Economics, 130(1): 317-369, 2015.
- Izhak, Olena, Tanja Saxell and Tuomas Takalo, 2016, Patent duration, breadth and costly imitation: evidence from the US pharmaceutical market, mimeo
- Kyle, Margaret and Anita McGahan. 2012. Investments in Pharmaceuticals Before and After TRIPS. Review of Economics and Statistics, 94(4): 1157-1172, 2012.
- Lanjouw, Jean and Mark Schankerman. Characteristics of patent litigation: A window on competition. RAND Journal of Economics, 495(114): 441-465, 2004.
- Lerner, Josh. 150 Years of Patent Protection. American Economic Review, 92(2), 221-225, 2002.
- Josh Lerner. The empirical impact of intellectual property rights on innovation: Puzzles and clues. American Economic Review, 99(2): 343-348, 2009.
- Petra Moser. Patents and Innovation: Evidence from Economic History. Journal of Economic Perspectives, 27(1), 23_44, 2013.
- Sakakibara Mariko and Lee Branstetter. Do stronger patents induce more innovation? Evidence from the 1988 Japanese patent law reforms. RAND Journal of Economics, 32(1): 77-100, 2001.
- Williams, Heidi, Intellectual Property Rights and Innovation: Evidence from the Human Genome, 2013, Journal of Political Economy 121(1): 1-2.

Lecture #3: Reduced form studies on R&D support

- Cerulli, G., 2010, Modelling and measuring the effect of public subsidies on business R&D: a critical review of the economic literature. *Economic Record*, 86, pp. 421-449
- Dechezleprêtre, A., E. Einiö, R. Martin, K.-T. Nguyen and J. van Reenen, 2015, Do tax incentives for research increase firm innovation? An RD design for R&D. mimeo.
- Einiö, Elias, R&D Subsidies and Company Performance: Evidence from Geographic Variation in Government Funding Based on the ERDF Population-Density Rule, The Review of Economics and Statistics, October 2014, Vol. 96, No. 4: 710–72
- Garcíá-Quevedo, J., 2004, Do public subsidies complement business R&D? A meta-analysis of the econometric evidence. *KYKLOS*, 57, pp. 87–102.
- Howell, Sabrina T. 2016, Financing Constraints as Barriers to Innovation: Evidence from R&D Grants to Energy Startups, mimeo.
- Hünermund, P. and D. Czarnitzki, 2016, Estimating the local average treatment effect of R&D subsidies in a Pan-European program. mimeo.

Lecture #4: Structural models of R&D support

- Akcigit, N., D. Hanley, and N. Serrano-Verde, Back to basics: Basic research spillovers, innovation policy and growth, NBER WP. 19473
- Arqué-Castells, P. and P. Mohnen, 2014, Sunk costs, extensive R&D subsidies and permanent inducement effects. *Journal of Industrial Economics*, forthcoming.
- González, X., J. Jaumandreu and C. Pazó, 2005, Barriers to innovation and subsidy effectiveness. *RAND Journal of Economics*, 36, pp. 930-950
- Takalo, T., T. Tanayama, and O. Toivanen, 2013a, Estimating the benefits of targeted R&D subsidies. *Review of Economics and Statistics*, 95, pp. 255-272.
- Takalo, T., T. Tanayama, and O. Toivanen, 2013b, Market failures and the additionality effects of public support to private R&D: Theory and empirical implications. *International Journal of Industrial Organization*, 31, pp. 634-642
- Takalo, T., T. Tanayama, and O. Toivanen, 2016, Welfare effects of R&D support policies, mimeo.

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Part 2 (Hyytinen): Entry and entrepreneurship

Lecture #5: Measurement of entry & entry patterns

Topics covered: Measurement of entry and entrepreneurship; Empirical regularities on entry and exit; Founding (entry) conditions and firm survival; What do small businesses do?

Literature:

- Geroski, 1995, What do we know about entry? *International Journal of Industrial Organization*, 13, p. 421-440.
- Disney, Haskel and Heden, 2003, Entry, exit and establishment survival in UK manufacturing, *Journal of Industrial Economics*, vol. LI, p. 91-112.
 - Calvino, F., C. Criscuolo and C. Menon, 2015, Cross-country evidence on start-up dynamics, *OECD Science, Technology and Industry Working Papers*, 2015/06, OECD Publishing, Paris.
- Geroski, Mata and Portugal, 2010, Founding conditions and the survival of new firms, *Strategic Management Journal*, 31, p. 510-529.
- Hurst and Pugsley, 2011, What do small businesses do? *Brookings Papers on Economic Activity*, Fall 2011.

Additional readings -- for those who are interested:

- Additional readings (on empirical regularities of entry, exit and firm size):

- Caves, 1998 Industrial Organization and New Findings on the Turnover and Mobility of Firms, *Journal of Economic Literature*, Vol. 36, No. 4, pp. 1947-1982.
- Dunne, Timothy, Mark J. Roberts, and Larry Samuelson, 1988, Patterns of firm exit and entry in U.S. manufacturing industries, *Rand Journal of Economics* 19, 495-515.
- Sutton, 1999, Gibrat's legacy, *Journal of Economic Literature*, vol.
- Cabral and Mata, On the evolution of the firm size distribution: Facts and theory, *American Economic Review*, vol. 93(4), pp. 1075-1090.

Lecture #6: Modelling (free) entry

Topics covered: Free entry and socially optimal number of firms; Variety and entry; Competition effects of (free) entry.

Literature:

- Mankiw and Whinston, 1986, Free entry and social inefficiency, *Rand Journal of Economics*, vol. 17, pp. 48-58.
 - Amir, Castro and Koutsougeras, 2014, Free entry versus socially optimal entry, *Journal of Economic Theory*, vol. 154, pp. 112-125.
 - Salop, 1979, Monopolistic competition with outside goods, *Bell Journal of Economics*, vol. 10, pp. 141-156.
 - Dixit and Stiglitz, 1977, Monopolistic competition and optimum product diversity, *American Economic Review*, vol. 67, pp. 297-308.
- Bresnahan and Reiss, 1991, Entry and competition in concentrated markets, *Journal of Political Economy*, vol. 99, pp. 977-1009.
 - Berry and Reiss, 2007, Empirical models of entry and market structure, *Handbook of Industrial Organization*, Vol. 3, pp. 1845-1886. (comprehensive survey)
- Schaumans and Verboven, 2015, Entry and competition in differentiated product markets, *Review of Economics and Statistics*, vol. 97(1), pp. 195-209.

Additional readings -- for those who are interested:

- Additional readings (on competition effects of entry):
 - Asplund and Sandin, 1999, The number of firms and production capacity in relation to market size, *Journal of Industrial Economics*, vol. 47, 69-85.
 - Manuszak, 2002, Endogenous market structure and competition in 19th century American brewing industry, vol. 20, pp. 673-692.
- Additional readings (on theory of variety and market entry):
 - Spence, 1976, Product selection, fixed costs and monopolistic competition, *Review of Economics Studies*, vol. 43, pp 217-235.
 - Bronnenberg, 2015, The provision of convenience and variety by the market, *Rand Journal of Economics*, to appear.

Lecture #7: Entrepreneurship

Topics covered: Entrepreneurial ability and occupational choice; Entrepreneurship as experimentation.

Literature:

- Lucas, 1978, On the size distribution of business firms, *Bell Journal of Economics*, vol 9, pp. 508-523.
 - Guiso and Schivardi, 2011, What determines entrepreneurial clusters? *Journal of European Economic Association*, vol. 9, pp. 61-86.
- Jovanovic, 1994, Firm formation with heterogeneous management and labour skills, *Small Business Economics*, vol. 6, pp. 185-191.
 - Levine and Rubinstein, 2015, Smart and illicit: who becomes an entrepreneur and do they earn more? manuscript.
- Lazear, 2005, Entrepreneurship, *Journal of Labour Economics*, vol. 23, pp. 649-680.
- Kerr, Nanda, Rhodes-Kropf, 2014, Entrepreneurship as experimentation, *Journal of Economic Perspectives*, vol. 28, pp. 25-48.
 - Manso, 2016, Experimentation and returns to entrepreneurship, *Review of Financial Studies*, in press.

Additional readings -- for those who are interested:

- Additional readings (on entrepreneurial entry and occupational choice):
 - Nocke, 2006, A gap for me: Entrepreneurs and entry, *Journal of European Economic Association*, vol. 4, pp. 929-956.
 - Poschke, 2013, Who becomes an entrepreneur? Labour market prospects and occupational choice, *Journal of Economic Dynamics and Control*, vol. 37, pp. 693-710.
 - Åstebro, Holger, Nanda, and Weber, 2014, Seeking the roots of entrepreneurship: Insights from behavioral economics, *Journal of Economic Perspectives*, Vol. 28, pp. 49-70.
 - Lazear, 2004, Balanced skills and entrepreneurship, *American Economic Review*, vol. 94, pp. 208-211.
 - Parker, 2009, *Economics of entrepreneurship*, Cambridge University Press, especially chapters 2, 4.
- Additional readings (on entrepreneurial risk-taking, experimentation/demonstration effects and growth):
 - Hall and Woodward, 2010, The burden of non-diversifiable risk of entrepreneurship, *American Economic Review*, vol. 100, pp. 1163-1194.
 - Nanda and Rhodes-Kropf, 2015, Financing entrepreneurial experimentation, NBER Working Paper No. 21278, June 2015.
 - Samila and Sorenson, 2011, Venture capital, entrepreneurship and economic growth, *Review of Economics and Statistics*, vol. 93, pp. 338-349.
 - Parker, 2009, *Economics of entrepreneurship*, Cambridge University Press, especially chapters 10, 11, 13, and 14.

Lecture #8: Entry and innovation

Topics covered: Commercialization strategies of innovative entrants; competitive pressure and innovation.

Literature:

- Gans, Hsu and Stern, 2002, When does start-up innovation spur the gale of creative destruction? *Rand Journal of Economics*, vol. 33, pp. 571-586.
- Marx, Gans and Hsu, 2014, Dynamic commercialization strategies for disruptive technologies: Evidence from speech recognition industry, *Management Science*, vol. 60, pp. 3103-3123.
- Aghion, Blundell, Griffith, Howitt and Prantl, 2009, The effects of entry on incumbent innovation and productivity, *Review of Economics and Statistics*, vol. 91, pp. 20-32.
 - Aghion, Bloom, Blundell, Griffith, and Howitt, 2005, Competition and innovation: An inverted-U relationship, *Quarterly Journal of Economics*, vol. 120, pp. 701-728.
 - Hashmi, 2013, "Competition and innovation: The inverted-U relationship revisited". *Review of Economics and Statistics*, vol. 95, pp. 1653-1668.

Additional readings -- for those who are interested:

- Additional readings (on commercialization strategies of technology start-ups):
 - Arora, Fosfuri and Gambardella, 2001, Markets for technology and their implications for corporate strategy, *Industrial and Corporate Change*, vol. 10, pp. 419-451.
 - Gans and Stern, 2003, The product market and the market for ideas: Commercialization strategies for technology entrepreneurs, *Research Policy*, vol. 32, pp. 333-350.
 - Yin, Davis, and Muzurya, 2014, Entrepreneurial innovation: Killer apps in the iPhone ecosystem, *American Economic review: P&P*, vol. 104, pp. 105-259.
- Additional readings (on innovation and competitive pressure):
 - Nickell, 1996, Competition and corporate performance, *Journal of Political Economy*, vol. 104, pp. 724-746.
 - Aghion and Griffith, 2005, *Competition and growth: Reconciling theory and evidence*, MIT Press.
 - Vives, 2008, Innovation and competitive pressure. *Journal of Industrial Economics*, vol. LVI, pp. 419-466.
 - Beneito, Coscolla-Girona, Rochina-Barrachina and Sanchis, 2015, Competitive pressure and innovation at the firm level. *Journal of Industrial Economics*, vol. LXIII, pp. 422-457.

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Part 3 (Maliranta): Productivity

Lecture #9: Measurement of productivity and efficiency

Topics covered: Measures of productivity: labor productivity, TFP, MFP. Index (axiomatic) approach.

Literature:

- Balk, B. M., W.E., D., & Nakamura, A. (2010). Introduction to Index Number Theory for Price and Productivity Measurement. In W. E. Diewert, B. M. Balk, D. Fixler, K. J. Fox & A. Nakamura (Eds.), *Price and Productivity Measurement: Volume 6--Index Number Theory* (Vol. Volume 6, pp. 1-10): Trafford Press, Also available as a free e-publication at www.vancouvervolumes.com and www.indexmeasures.com.
- Balk, B. M. (2010). Measuring Productivity Change without Neoclassical Assumptions: A Conceptual Analysis. In W. E. Diewert, B. M. Balk, D. Fixler, K. J. Fox & A. Nakamura (Eds.), *Price and Productivity Measurement: Volume 6--Index Number Theory* (Vol. 7, pp. 133-154).
- W.Erwin, D. (2016). Decomposition of Productivity Growth into Sectoral Effects: Some Puzzles Explained. In W. H. Greene, L. Khalaf, C. , R. Sickles, M. Veall & M.-C. Voia (Eds.), *Productivity and Efficiency Analysis* (pp. 1-14): Springer.
- Van Biesebroeck, J. (2008). The Sensitivity of Productivity Estimates: Revisiting Three Important Debates. *Journal of Business and Economic Statistics*, 26(3), 311-328.

See also

- Fox, K. J. (2012). Problems with (dis) aggregating productivity, and another productivity paradox. *Journal of Productivity Analysis*, 37(3), 249-259.
- Bartelsman, E. J., & Doms, M. (2000). Understanding Productivity: Lessons from Longitudinal Microdata. [Article]. *Journal of Economic Literature*, 38(3), 569-594.

Lecture #10: Decomposition of micro-level sources of productivity growth

Topics covered: Methods of micro-level decomposition of sectoral productivity measures for analyzing business dynamics. Dynamic and static decompositions. Interpretation of results.

- Balk, B. M. (2016). The Dynamics of Productivity Change: A Review of the Bottom-Up Approach. In W. H. Greene, L. Khalaf, C. , R. Sickles, M. Veall & M.-C. Voia (Eds.), *Productivity and Efficiency Analysis* (pp.15-49): Springer.
- Melitz, M. J., & Polanec, S. (2015). Dynamic Olley-Pakes productivity decomposition with entry and exit. *The RAND Journal of Economics*, 46(2), 362-375.
- Maliranta, M., & Määttänen, N. (2015). An Augmented Static Olley–Pakes Productivity Decomposition with Entry and Exit: Measurement and Interpretation. *Economica*, 82, 1372-1416. doi: 10.1111/ecca.12159
- Hyttinen, A., Ilmakunnas, P. & Maliranta, M. (2015). Olley–Pakes productivity decomposition: computation and inference. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, n/a-n/a.10.1111/rssa.12135

See also

- Petrin, A., & Levinsohn, J. (2012). Measuring aggregate productivity growth using plant-level data. *The RAND Journal of Economics*, 43(4), 705-725.

Lecture #11: Empirical analyzes of micro-level dynamics of productivity growth at sectors

Topics covered: Empirical analyses of micro-level sources of productivity growth (and levels).

- Foster, L., Haltiwanger, J., & Krizan, C. J. (2001). Aggregate Productivity Growth: Lessons from Microeconomic Evidence. In C. R. Hulten, E. R. Dean & M. J. Harper (Eds.), *New developments in productivity analysis* (pp. 303-363). Chicago and London: University of Chicago Press.
- Foster, L., Haltiwanger, J., & Krizan, C. J. (2006). Market Selection, Reallocation, and Restructuring in the U.S. Retail Sector in the 1990s. *Review of Economics & Statistics*, 88(4), 748-758.
- Foster, L., Haltiwanger, J., & Syverson, C. (2008). Reallocation, Firm Turnover, and Efficiency: Selection on Productivity or Profitability? *American Economic Review*, 98(1), 394-425.
- Hyytinen, A., & Maliranta, M. (2013). Firm lifecycles and evolution of industry productivity. *Research Policy*, 42(5), 1080-1098. doi: <http://dx.doi.org/10.1016/j.respol.2013.01.008>
- Maliranta, M., & Määttänen, N. (2015). An Augmented Static Olley–Pakes Productivity Decomposition with Entry and Exit: Measurement and Interpretation. *Economica*, 82, 1372-1416. doi: 10.1111/ecca.12159

See also

- Griliches, Z., & Regev, H. (1995). Firm Productivity in Israeli Industry: 1979-1988. *Journal of Econometrics*, 65(1), 175-203.
- Nishida, M., Petrin, A., & Polanec, S. (2014). Exploring reallocation's apparent weak contribution to growth. *Journal of Productivity Analysis*, 42(2), 187-210.
- Bartelsman, E., Haltiwanger, J., & Scarpetta, S. (2009). Measuring and Analyzing Cross-Country Differences in Firm Dynamics. In T. Dunne, B. J. Jensen & M. J. Roberts (Eds.), *Producer Dynamics* (pp. 15-82). Chicago: University of Chicago Press (available at <http://www.nber.org/chapters/c0480>).

Lecture #12: Competitiveness, labour markets, and micro-level dynamics of productivity

Topics covered: Implications of micro-level dynamics to competitiveness, economic growth and employment

Literature:

- Böckerman, P., & Maliranta, M. (2007). The Micro-Level Dynamics of Regional Productivity Growth: The Source of Divergence in Finland. *Regional Science and Urban Economics*, 37(2), 165-182.
- Böckerman, P., & Maliranta, M. (2012). Globalization, creative destruction, and labour share change: evidence on the determinants and mechanisms from longitudinal plant-level data. *Oxford Economic Papers*, 64(2), 259-280.

- Haltiwanger, J., Jarmin, R. S., Kulick, R., & Miranda, J. (2016). High Growth Young Firms: Contribution to Job, Output, and Productivity Growth Measuring Entrepreneurial Businesses: Current Knowledge and Challenges: University of Chicago Press (available at <http://www.nber.org/chapters/c13492.pdf>).
- Riley, R., Rosazza-Bondibene, C., & Young, G. (2015). Staff Working Paper No. 531 The UK productivity puzzle 2008–13: evidence from British businesses.

See also

- Petrin, A., & Levinsohn, J. (2012). Measuring aggregate productivity growth using plant-level data. *The RAND Journal of Economics*, 43(4), 705-725.
- Hsieh, C.-T., & Klenow, P. J. (2009). Misallocation and manufacturing TFP in China and India. *The Quarterly Journal of Economics*, 124(4), 1403-1448.