
APPLIED BUSINESS STUDIES

Period: a.y. 2020/21 – II sem.

Class times: Room 101. Monday-(some)

Tuesday: 08:30-11:50

Instructor:

Prof. Alfonso Gambardella

Dept. of Mgmt. & Tech. - Room 4-E1-07

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Course description

The goal of this course is to learn how to produce an empirical paper in business research using quantitative data. We cover some of the most widely used methodologies. The learning opportunities of this course stem from (i) a review of econometric theory with emphasis on intuition, (ii) applications of methods in published papers, (iii) practical lessons for producing your own research. Each paper in the list below is an example of a well-thought and original empirical strategy, whether based on stories, correlations, identification, experiments or any other (more or less) advanced technique for empirical analysis. Each one of these papers can serve as a template for addressing empirical questions in the way the paper does. In the smorgasbord of empirical papers that we see today, I sometimes chose to go back to some older classical papers because they tend to make the point in a clear and straightforward way.

Course Material

Papers below that students can easily find online. I will make the slides available to the students. Classes are crucial and there will be relevant material covered only in class.

Classes/Topics

Class 1-2 (Monday May 28 – 830:1150AM)

Prologue (overview of techniques and problem, interpretation of empirical results)

- Bettis, R., Gambardella, A., Helfat, C., Mitchell, W. (2014) "Quantitative Empirical Analysis in Strategic Management" *Strategic Management Journal* 35 (7), 949-953.
- Goldfarb, B. and King, A. (2016) "Scientific Apophenia in Strategic

Management Research” *Strategic Management Journal* 37(1), 167-176.

- King, A., Goldfarb, B. and Simcoe, T. (2021) “Learning from Testimony on Quantitative Research in Management” *Academy of Management Review* 46 (3), 465-488. See also <https://www.youtube.com/watch?v=QQnyPRa7m2g>

Evidence using stories and tables (no regressions)

- Greenstein, S. (2017) “The Reference War: Encyclopedia Britannica’s Decline and Encarta’s Emergence” *Strategic Management Journal* 38 (5), 995-1017.
- Kortum, S., and Lerner, J. (1999) “What is Behind the Recent Surge in Patenting” *Research Policy* 28, 1-22.
- Bresnahan, T. and Gambardella, A. (1998) “The Division of Inventive Labor and the Extent of the Market” in Helpman, E. (ed.) *General-Purpose Technologies and Economic Growth*, MIT Press, Cambridge

Regressions that produce correlations (no causality, but some attempts to identify with proxies or in more elaborate ways)

- Lingsye, J. and Foss, N. (2017) “The More The Merrier? Women in Top Management Teams and Entrepreneurship in Established Firms” *Strategic Management Journal* 38 (3), 487-505.
- Bresnahan, T., Brynjolfsson, E. and Hitt, L. (2002) “Information Technology, Workplace Organization, and the Demand for Skilled Labor: Firm-Level Evidence” *Quarterly Journal of Economics* 117, 339-376.
- Bloom, N., Schankerman, M. and Van Reenen, J. (2013) “Identifying Technological Spillovers and Product Market Rivalry” *Econometrica*, 81 (4), 1347-1393, <https://people.stanford.edu/nbloom/research>

Class 3-4 (Monday April 4 – 830:1150AM)

Causality – Instruments

- Bascle, G. (2008) “Controlling for Endogeneity with Instrumental Variables in Strategic Management Research” *Strategic Organization* 6 (3), 285-327
- Hoisl, K. and Mariani, M. (2017) “It’s a Man’s Job: Income and Gender Gap in Industrial Research” *Management Science* 63 (3), 766-790
- Bennedsen, M., Nielsen, K.M., Perez-Gonzalez, F. and Wolfenzon, D. (2007) “Inside the Family Firm: The Role of Families in Succession Decisions and Performance” *Quarterly Journal of Economics* 122 (2), 647-691.

Causality – fixed effects

- Stern, S. 2004. “Do Scientists Pay to Be Scientists?” *Management Science* 50 (6), 835-853.
- Jaffe, A., Trajtenberg, M. and Henderson, R. (1993) “Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations” *Quarterly Journal of Economics* 108 (3), 577-598.
- Thompson, P. (2006) “Patent Citations and the Geography of Knowledge Spillovers: Evidence from Inventor and Examiner-Added Citations” *Review of Economics and Statistics* 88 (2), 383-388.

Causality – diff-in-diff

- Conti, R. (2014) “Do Non-Competition Agreements Lead Firms to Pursue Risky R&D Projects?” *Strategic Management Journal* 35 (8), 1230-1248.
- Gagliardi L. and Mariani, M. (2022) “Trained to Lead: Evidence from Industrial Research” *Strategic Management Journal* 43 (4), 847-871.
- Amore, M.D. and Bennedsen, M. (2013) “The Value of Local Political Connections in a Low-Corruption Environment” *Journal of Financial Economics* 110, 387-402.
- Waldinger, F. (2010) “Quality Matters: The Expulsion of Professors and the Consequences for PhD Student Outcomes in Nazi Germany” *Journal of Political Economy* 118 (4), 787-831.

Class 5-6 (Monday April 11 – 830:1150AM)

Practical session (regressions, causality)

- Students replicate existing studies or design their own research

Class 7-8 (Tuesday April 26 – 830:1150AM)

Selection on observables: Propensity score, matching methods

- Villalonga, B. (2004) “Does Diversification Cause the ‘Diversification Discount’?” *Financial Management* (Summer), 5-27.
- Azoulay P., Graff Z. J. Wang J. (2010), “Superstar Extinction” *Quarterly Journal of Economics* 125 (2), 549-589.
- Feldman, E., Villalonga, B. and R. Amit (2016), “Corporate Divestiture and Family Control” *Strategic Management Journal* 37 (3), 429-446.

Regression discontinuity, scenarios and experiments

- Flammer, C. (2015) “Does Corporate Social Responsibility Lead to Superior Financial Performance? A Regression Discontinuity Approach” *Management Science* 61 (11), 2549-2568.
- Flammer C., and P. Bansal (2017) “Does a Long-Term Orientation Create Value? Evidence from a Regression Discontinuity” *Strategic Management Journal* 38 (9), 1827-1847.
- Di Stefano, G., King, A. and G. Verona (2013) “Kitchen Confidential? Norms for the Use of Transferred Knowledge in Gourmet Cuisine” *Strategic Management Journal* 35 (11), 1645-1670
- Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., Roberts, J. (2013) “Does Management Matter? Evidence from India” *Quarterly Journal of Economics* 128 (1), 1-51, <https://people.stanford.edu/nbloom/research>
- Bandiera, O., Barankay, I. and Rasul, I. (2005) “Social Preferences and the Response to Incentives: Evidence from Personnel Data” *Quarterly Journal of Economics* 120 (3), 917-962.
- Camuffo, A., Cordova, A., Gambardella, A. and Spina, C. (2020) “A Scientific Approach to Entrepreneurial Decision Making: Evidence from a Randomized Control Trial” *Management Science* 66 (2), 564-586.
- Camuffo, A., Gambardella, A., Messinese, D., Novelli, E., Paolucci, E. and Spina, C. (2021) “A Scientific Approach to Innovation Management: Theory and Evidence from Four Field Experiments” CEPR – DP 15972 (v3), www.cepr.org



Class 9-10 (Monday May 2 – 830:1150AM)

Count and qualitative dependent variables (Poisson, Negative Binomial, Probit & Logit, including ordered and multinomial – including theory)

- Hoetker, G. (2007) “The use of logit and probit models in strategic management research: Critical issues” *Strategic Management Journal* 28 (4), 331-343.
- Greene, W. (2010), “Testing hypothesis about interaction terms in nonlinear models” *Economics Letters* 107: 291-296
- Henderson, R. and Cockburn, I. (1996) “Scale, Scope and Spillovers: The Determinants of Research Productivity in Drug Discovery” *Rand Journal of Economics* 27 (1), 32-59.
- Bresnahan, T. and Reiss, P. (1991) “Entry and Competition in Concentrated Markets” *Journal of Political Economy* 99 (5), 977-1009.
- Cassiman, B. and Veugelers, R. (2006) “In Search of Complementarity in Innovation Strategy: Internal R&D and External Knowledge Acquisition” *Management Science* 52 (1), 68-82.
- Giuri, P. and Mariani, M. (2013) “When Distance Disappears: Inventors, Education and the Locus of Knowledge Spillovers” *Review of Economics and Statistics* 95 (2), 449-463.

Class 11-12 (Tuesday May 3 – 830:1150AM)

Sample selection, generalized tobit models & maximum likelihood estimation

- Arend, R. and Amit, R. (2005) “Selection in Strategic Alliance Activity: Effects on Firm Performance in the Computing Industry” *European Management Journal* 23 (4), 361-385.
- Arora, A., Gambardella, A., Magazzini, L. and Pammolli, F. (2009) “A Breadth of Fresh Air: Firm Types, Scale, Scope, and Selection Effects in Drug Development” *Management Science* 55 (10), 1638-1653.

Survival

- Conti, R., Gambardella, A. and M. Mariani, (2014) “Learning to Be Edison: Inventors, Organizations and Breakthrough Inventions” *Organization Science* 25 (3), 833-849.
- Santamaria, S. (2022) “Portfolio Entrepreneurs’ Behavior and Performance: A Resource Redeployment Perspective” *Management Science* 68 (1), 333-354

Class 13-14 (Monday May 9 – 830:1150AM)

Practical session (qualitative response models, maximum likelihood estimation)

- Students replicate existing studies or design their own research

Class 15-16 (Monday 16 – 830:1150AM)

Text analysis

- Gentzkow, M., Kelly, B. and Taddy, M. (2019) “Text as Data” *Journal of Economic Literature* 57 (3), 535-574.

- Bandiera, O., Prat, A., Hansen, S. and Sadun, R. (2020) “CEO Behavior and Firm Performance” *Journal of Political Economy* 128 (4), 1325-1369.

Machine Learning and Econometrics

- Athey, S. and Imbens, G. (2018) “Machine Learning and Econometrics” Slides, AEA Continuing Education Webcasts, January 7-8, <https://www.aeaweb.org/conference/cont-ed/2018-webcasts>
- Mullainathan, S. and Spiess, J. (2017) “Machine Learning: An Applied Econometrics Approach” *Journal of Economic Perspectives* 31 (2), 87-106
- Kleinberg, J., Lakkaraju, H., Leskovec, J., Ludwig, J. and Mullainathan, S. (2018) “Human Decisions and Machine Predictions” *Quarterly Journal of Economics* 133 (1), 237-293

Class 17-18 (Monday May 23 – 830:1150AM)

Practical session (text analysis, machine learning)

- Students replicate existing studies or design their own research

Assessment Methods

Take home practical applications of the topics studied in class. You will have from 9AM of May 30th to 11:59PM of May 31st to write the exam and email it to marialuisa.ambrosini@unibocconi.it & alfonso.gambardella@unibocconi.it. The exam is open book and should be performed by each student individually without any external communication.

Faculty Bio

Alfonso Gambardella obtained his PhD in 1991 from the Department of Economics of Stanford University. His work focuses on the economics and management of technological innovations and the technology strategies of firms. He was visiting professor in the Department of Economics, Stanford University (2003, 2005-6), and MIT’s Sloan School (2015-16). In 2013-2019 he was co-editor of the Strategic Management Journal, and is currently Department Editor of Business Strategy of Management Science. He is a Fellow of the Strategic Management Society and a member of the Center for Economic and Policy Research (CEPR), London. In 2015-16 he was Chair of the Business Policy and Strategy Division of the US Academy of Management. He participated in numerous research projects of the European Commission and other research agencies. In 2021 he was awarded an ERC advanced grant on “A Scientific Approach to Innovation Management.” His website is <http://faculty.unibocconi.eu/alfonsogambardella/>

