

Course Name :	Game Theory
Degree :	M2 ETE- DEEQA
Teacher(s) :	Jérôme Renault
Semester :	1
Teaching Assistant :	Fabien Gensbittel
Teaching Hours CM:	30
Tutorials Hours TD:	7.5
Course Language:	English

OBJECTIVES : Learning how to deal with strategic interactions.
Fundamentals of Game Theory, with a formal presentation.

COURSE OUTLINE :

I Strategic games: dominant strategies, Nash equilibria, mixed strategies, elimination of strictly dominated strategies, rationalizability, value and optimal strategies of zero-sum games.

II Extensive-form games: model, associated strategic form, perfect information games, behavior strategies, sequential rationality; subgame-perfect, Bayesian-perfect and sequential equilibria.

III Bayesian games and games with incomplete information.

IV Correlated equilibrium: examples, definitions, canonical correlated equilibria, extensive-form correlated equilibria and communication equilibria.

V Introduction to repeated games. Feasible and individually rational payoffs. Folk Theorems. (Characterization of perfect equilibrium payoffs à la APS.)

REQUIREMENT :

Nothing compulsory. Some knowledge of game theory, basic mathematical analysis and probability will help.

TEACHING STAFF : Jérôme Renault : Office MF 414, jerome.renault@tse-fr.eu
<https://sites.google.com/site/jrenaultsite/>

TEXTBOOKS :

Lecture notes available at:

<https://sites.google.com/site/jrenaultsite/lecturenotes>

A Course in Game Theory: M.J. Osborne and A. Rubinstein. MIT Press 1994.

Game Theory: Analysis of Conflict, R.B. Myerson. Harvard University Press, 1991.

Game Theory, D. Fudenberg and J. Tirole. MIT Press, 1991.

Game Theory for Applied Economists, Gibbons. Princeton University Press 1992.

Game Theory. Maschler, Solan and Zamir, Cambridge UP 2013.

Repeated Games and Reputation. Mailath and Samuelson, Oxford University Press 2006.

GRADING POLICY : Terminal exam

Optimization

1 Objectives

The goal of these series of lectures is to provide M2 students and future PhD with a solid background in Optimization. In particular the course will emphasize rigorous methodologies, namely: importance of proofs, assumption checking, heuristics (“ideas genesis”). Such tasks become easier when the notions at stake are associated to concrete situations, that is why we shall, whenever possible, attach to each introduced notion geometrical ideas or concrete examples.

The outline of the course given below is quite ambitious in terms of length. It corresponds to an ideal situation in which most of the students are already familiar with elementary concepts of Calculus/Analysis such as: closed/compact sets, continuity, convexity etc... In other words, some mathematical maturity from the students will help them to better appreciate the course and will allow us to go further.

2 Outline

1. Optimization in Hilbert spaces

- Theoretical tools : examples, projection theorem, separation results, Riesz representation theorem, convex cones, Farkas lemma
- Convex functions : continuity issues, characterizations of convexity, existence and characterization of minimizers, second-order conditions for minimization
- Fenchel duality and subdifferentiation
- Convex programming : Lagrange method and KKT conditions, Lagrange multipliers, duality theory
- Nonlinear programming : KKT conditions

2. Introduction to the calculus of variations

- Sufficient conditions : Euler-lagrange conditions, transversality condition
- Regularity of the solutions: continuously differentiable solutions, piecewise continuously differentiable solutions, Erdmann-Weierstrass corner condition
- A sketch of an Hilbertian approach : the space $H^1 = W^{1,2}$ (existence results, duality)
- Problems with infinite horizons.
- Examples

3. Introduction to optimal control

- Pontryagyn maximum principle
- Sufficient conditions
- Dynamic programming : Bellman principle
- Problems with infinite horizons

3 Requirements

Basic knowledges in elementary linear algebra and basic calculus are strongly advised.

4 Bibliographical suggestions

- Most accessible references
- * Advanced books for rather experienced students or for advanced questions

Convex Analysis and Optimization

- * Bauschke, Heinz H.; Combettes, Patrick L. Convex analysis and monotone operator theory in Hilbert spaces. CMS Books in Mathematics/Ouvrages de Mathématiques de la SMC. Springer, New York, 2011. xvi+468 pp.
- Berge, C., “Espaces topologiques et fonctions multivoques”, Dunod, Paris, 1959. (One of the most original and motivating book in this list)
- Barvinok, A first course in Convex Analysis¹ AMS
- Bonnans F., “Optimisation continue”, Dunod, 2006.
- Borwein, J., Lewis, A.S., “Convex Analysis and Nonlinear Optimization”, Springer-Verlag 2000.
- • Ciarlet, P.-G, “Introduction à l’analyse matricielle et à l’optimisation”, Masson, Paris, 1988.
- * Hiriart-Urruty, J.-B, Lemaréchal, C., “Convex analysis and minimization algorithms”, Springer-Verlag, 1996. [algorithmic oriented]
- Rockafellar, R.T., “Convex analysis”, Princeton University Press, 1970. ²
- • Sundaram, R. K. “A first course in optimization theory”. Cambridge University Press, Cambridge, 1996. xviii+357 pp.

Fixed point theory

- Border, K.C., “Fixed point theorems with applications to economics and game theory”, Cambridge University Press, 1985. (A "must" for fixed-point like results)

Calculus of variations and Optimal control

- Gelfand I.M. and Fomin S.V., “Calculus of variations and Optimal control”, Dover publications, 1963.
- * Clarke, Frank H. Optimization and nonsmooth analysis. Canadian Mathematical Society Series of Monographs and Advanced Texts. A Wiley-Interscience Publication. John Wiley & Sons, Inc., New York, 1983. xiii+308 pp.
- Dacorogna, B., “Introduction to the calculus of variations”. Translated from the 1992 French original. Second edition. Imperial College Press, London, 2009. xiv+285 pp.
- • Demange, G., Rochet, J.-C, “Méthodes mathématiques de la finance”, Economica, 1992.
- Evans, L.C, (Berkeley), Online course on Optimal Control at:

¹A must for duality theory in infinite dimensional spaces

²THE reference in convex analysis

<http://math.berkeley.edu/~evans/control.course.pdf>

- • Luenberger, D. G. "Optimization by vector space methods". John Wiley & Sons, Inc., New York-London-Sydney 1969 xvii+326 pp
- • Liberzon, D., Calculus of Variations and Optimal Control Theory: A Concise Introduction, Princeton university press, 2012.

5 Grading policy

There will be a 2 hours final exam which is meant to check fundamental knowledge and basic proficiencies. More difficult questions requiring some originality or ingenuity will be also included, they represent between 20 and 30% of the total mark.

Development Microeconomics

Spring 2018

Presentation and organisation of the teaching staff:

Emmanuelle Auriol, office MF 513, meeting by appointment, preferred mean of interaction email emmanuelle.auriol@tse-fr.eu

Stéphane Straub, office MF 125, meeting by appointment, preferred mean of interaction email stephane.straub@tse-fr.eu

Objectives of the course: The course aims at providing students with an overview of recent research in the field of development micro-economics, especially that concerned with industrial organization issues, the behaviour of firms and government, the organization of markets and the functioning of supporting institutions and related public policies. The course will be in two parts. The first one with Emmanuelle Auriol will be theoretically oriented, while the second one with Stéphane Straub will be more empirically oriented. The aim of the first part of the course will be to show how simple conceptual frameworks and theory can help guide public policy in the specific context of developing countries. The second part of the course will cover the application of microeconomic tools to economic development issues in developing and emerging countries, with a special focus on the empirical study of infrastructure and regulation issues. This will be addressed from different angles, including institutional aspects such as corruption and political connections, as well as impact evaluation of infrastructure investments, policies, and regulation. The general objective is to introduce students to the corresponding development literature, to make them familiar with the tools used by economists to address these issues, to highlight promising research avenues, and to discuss the policy implications of the works covered.

Key Themes:

- Privatization, (de)regulation, infrastructure.
- Institutions, governance, corruption, rent-seeking, political connections.
- Firms in developing countries: informality and entrepreneurship.
- Government and non-profit organizations: incentives and capacity building.

Requirements: Although the course will not use difficult mathematics or econometrics, familiarity with game theory and incentive theory will be helpful for the theoretical part, and familiarity with panel data econometrics for the empirical part.

Grading: Grading will consist of a home assignment (part 1) / exam (part 2).

Part 1: Emmanuelle Auriol

Description: The prominent form of government intervention in markets no longer is public ownership of production means. Rather, modern forms of regulation attempt at correcting market failures. The latter are diverse, and so are the modes of intervention. This part of the course will focus on the intervention of government in market economies, both from a positive and from a normative point of view. The key topics will include intervention of the government in the context of economic development such as privatization, public-private partnerships, regulation of public utilities and infrastructure, entry barrier to the formal sector and to entrepreneurship, the size of the informal economy, technological transfer and innovation through the enforcement of intellectual property rights. We will discuss the impact of the fiscal burden of financing public services (i.e., opportunity cost of public funds) and the cost imposed by asymmetric information faced by public authorities. We will also analyse incentives in public administrations, including the cause of corruption and its implication in the implementation of public policies, and in non-profit organizations.

Outline:

- Theme 1: Privatization, Deregulation and Public-Private Partnership
- Theme 2: Corruption in Procurement and in Privatization
- Theme 3: Taxation Base and the Cost of Public Funds in Developing Countries
- Theme 4: Entrepreneurship, Innovation and Quality Provision

Syllabus

General Readings:

- Laffont J.J. *Regulation and Development*, collection Frederico Caffè Lectures, Cambridge University Press, mars 2005.
- Antonio Estache and Quentin Wodon, "Infrastructure and Poverty in Sub-Saharan Africa", Palgrave Macmillan, 2014.
- Christopher Decker, "Modern Economic Regulation: An Introduction to Theory and Practice", Cambridge University Press, December 2014.

1. Privatization, Deregulation and Public-Private-Partnerships

- Auriol, E. and P. Picard (2004), "Infrastructure and Public Utilities Privatizations in Developing Countries", *World Bank Economic Review*.
- Auriol, E. and P. Picard (2009), "Government Outsourcing: Public Contracting with Private Monopoly", the *Economic Journal*, vol. 119, n°540, p. 1464-1493
- Auriol, E. and P. Picard (2010), "A Theory of BOT Concession Contracts", *Journal of Economic Behavior and Organization*.

- Auriol, E. (2005) "Telecommunication Reforms in Developing Countries", *Communications & Strategies*, November 2005, special issue, pp. 31-53.
- Auriol, E. and S. Biancini, "Powering Up Developing Countries through Economic Integration" *World Bank Economic Review*, vol. 29, n°1, 2015, p. 1-40.
- Auriol, E., Antonio Estache and Liam Wren-Lewis, "Can supranational infrastructure regulation compensate for national institutional weaknesses? 2017 mimeo.
- Estache A. and A. Iimi "The Economics of Infrastructure Procurement: Theory and Evidence", (2011), *CEPR, London*
- Boycko, M. Shleifer, A. and R. Vishny (1996), "A Theory of Privatization", *Economic Journal*, 106, 309-319.
- Laffont, J.J. and J. Tirole (1993), *A Theory of Incentives in Procurement and Regulation*, MIT Press.
- Shleifer, A. and R. Vishny (1994), "Politicians and Firms", *Quarterly Journal of Economics*, 109: 599-617.
- Birdsall N. and J. Nellis (2005) Eds., *Reality Check: The Distributional Impact of Privatization in Developing Countries*, Center for Global Development.
- Bortolotti B. and D. Siniscalco, 2003, *The Challenges of Privatization: An International Analysis*, Oxford University Press.
- Engel, E. , R. Fischer and A. Galetovic (2003), "Privatizing Highways in Latin America: Fixing what Went Wrong", *Economia*, 4: 129-164.
- Galiani, S., P. Gertler and E. Schargrodsky (2005), "Water for Life: The Impact of Privatization of Water Services on Child Mortality", *Journal of Political Economy*, 113: 83-120.
- Guasch, J.L., J.J. Laffont and S. Straub (2007), "Renegotiation of Concession Contracts in Latin America", *International Journal of Industrial Organization*.
- Guasch, J.L., J.J. Laffont and S. Straub (2006), "Concession of Infrastructure in Latin America: Government-Led Renegotiations", *Journal of Applied Econometrics*.
- Harris, C. (2003), "Private Participation in Infrastructure in Developing Countries. Trends, Impacts, and Policy Lessons", World Bank Working Paper No.5, Washington D.C.
- Kessides I. (2004), *Reforming Infrastructure. Privatization, Regulation and Competition*, World Bank and Oxford University Press.
- Megginson W. (2005), *The Financial Economics of Privatization*, Oxford University Press.
- Megginson W. and J. Netter (2000), "From State to Market: A Survey of Empirical Studies on Privatization" *Journal of Economic Literature*, 39: 321-389.

2. Corruption in Procurement and in Privatization

- Auriol, Emmanuelle "Corruption in Procurement and Public Purchase", 2006, AURIOL Emmanuelle, *International Journal of Industrial Organization*, 24, 867-885.
- Auriol, Emmanuelle, Erling Hjelmeng, and Tina Soreide "Deterring Corruption and Cartels: In Search of a Coherent Approach" Feb. 2017, *Concurrences Review* N° 1-2017, Art. N° 82670.
- Auriol, Emmanuelle and Tina Soreide, "An Economic Analysis of Debarment", 2017, *International Review of Law and Economics*, Volume 50, June 2017, Pages 36–49
- Auriol, Emmanuelle and Aymeric Blanc "Capture and Corruption in Public Utilities: The Cases of Water and Electricity in Sub-Saharan Africa", *Utilities Policy*, 17 (2009) 203–216
- Auriol, Emmanuelle, Stephane Straub and Thomas Flochel, "Public Procurement and Rent-Seeking in Paraguay", *World Development* Vol. 77, pp. 395–407, 2016
- Auriol E. and S. Straub (2011), "Privatization of Rent-Generating Industries and Corruption", in the *International Handbook on the Economics of Corruption*, Volume 2, edited by Susan Rose-Ackerman and Tina Soreide, Edward Elgar Publishing
- Auriol, Emmanuelle and Julie Lassebie 2017 "A Theory of Petty Corruption", mimeo TSE.

- Hoff, K. and J. Stiglitz (2005), "The Creation of the Rule of Law and the Legitimacy of Property Rights: The Political and Economic Consequences of a Corrupt Privatization", NBER working paper 11772, Cambridge, MA.
- Martimort D. and S. Straub (2006), "Privatization and Changes in Corruption Patterns", forthcoming *Journal of Development Economics*.
- Clarke, G. and L. Xu (2004), "Privatization, Competition, and Corruption: How Characteristics of Bribe Takers and Payers Affect Bribes to Utilities", *J. of Public Economics*, 88: 2067-2097.
- Olken, B. (2007). Monitoring Corruption: Evidence from a Field Experiment in Indonesia., *Journal of Political Economy*, 115(2), 200-249.
- Olken, B. & Pande, R. (2012). Corruption in Developing Countries. *Annual Review of Economics*, 4, 479-505.
- Pande, R. (2008). Understanding Political Corruption in Low Income Countries, in *Handbook of Development Economics*, Vol. 4, eds.T. Schultz and J. Strauss. North-Holland: Elsevier.

4. Taxation Base and the Cost of Public Funds in Developing Countries

- Auriol, Emmanuelle. and Michael Warlters, "Taxation Base in Developing Countries", *Journal of Public Economics*, 2004.
- Auriol, Emmanuelle and Michael Warlters, 2011, "The Marginal Cost of Public Fund in Developing Countries: An application to 38 African countries", *J. of Development Economics*.
- Bardhan P. and C. Udry, *Developments Microeconomics*, Chapter 5.
- Besley, T. and T. Persson, "Why do Developing Countries Tax So little?", *Journal of Economics Perspectives*, Vol. 28, N°4, pp. 99-120
- Schneider, Friedrich and Dominik Enste, "Shadow Economies: Size, Causes, and Consequences", *Journal of Economic Literature*, XXXVIII, (2000), 77-114.
- Straub, Stéphane, "Informal Sector: The Credit Market Channel", *Journal of Development Economics*, 2005.
- Field, Erica "Entitled to Work: Urban Property Rights and Labor Supply in Peru", *Quarterly Journal of Economics*, November 2007.
- Djankov, Simeon, Rafael La Porta, Florencio Lopez de Silanes and Andrei Shleifer, "The Regulation of Entry", *Quarterly Journal of Economics*, CXVII, (2002), 1-37.
- Friedman, Eric., Simon Johnson, Daniel Kaufmann and Pablo Zoido-Lobaton, "Dodging the Grabbing Hand: The Determinants of Unofficial Activity in 69 countries", *Journal of Public Economics*, 76, (2000), 459-493.
- Johnson, Simon and Daniel Kaufmann, "Why Do Firms Hide? Bribes and Unofficial Activity after Communism", *Journal of Public Economics*, 76, (2000), 495-520.
- Johnson, Simon, Daniel Kaufmann, and Andrei Shleifer, "The Unofficial Economy in Transition", *Brookings Papers on Economic Activity*, Vol. 1997(2), (1997), 159-221.
- Johnson, Simon, Daniel Kaufmann and Pablo Zoido-Lobatón, "Regulatory Discretion and the Unofficial Economy", *American Economic Review P&P*, 88(2), 1998, 387-392.
- Lemieux, Thomas, Bernard Fortin and Pierre Fréchette, "The Effect of Taxes on Labor Supply in the Underground Economy", *American Economic Review*, 84(1), (1994), 231-254.

5. Entrepreneurship, Innovation and Quality provision in Developing Countries

- Alby Philippe, Emmanuelle Auriol and Pierre Nguimkeu (2014), "Social Barriers to Entrepreneurship in Africa: the Forced Mutual Help Hypothesis", mimeo.
- Auriol Emmanuelle and Jean-Luc Démonsant (2012), "Education and Migration Decisions in Hierarchical Societies: the Case of Matam, Senegal", *Regional Science and Urban Economics*, vol 42, p. 875–889

- Auriol, Emmanuelle, Sara Biancini, and Rodrigo Paillacar, (2014) "Intellectual Property Rights Protection and Trade", mimeo.
- Auriol, E. and S. Schilizzi, "Quality Signalling through Certification in Developing Countries", forthcoming in the *Journal of Development Economics*.
- Balineau, G., 2013, "Disentangling the Effects of Fair Trade on the Quality of Malian Cotton", *World Development*, 44, 241-255.
- Balineau, G. & I. Dufeu, 2010, "Are Fair Trade goods credence goods? A new proposal, with French illustrations", *Journal of Business Ethics*, 92 (suppl.2), 331-345.
- Balineau, G. (2015), "Fair Trade? Yes, but not at Christmas! Evidence from scanned data on French Fairtrade purchases", AFD Research Paper Series, No. 2015-0XX
- Darby, M. R., & Karni, E. (1973). "Free Competition and Optimal Amount of Fraud", *Journal of Law & Economics*, 16(1), 67-88.
- Engel, S. (2006). "Overcompliance, labeling, and lobbying: The case of credence goods", *Environmental Modeling & Assessment*, 11(2), 115-130.
- Fridell, G. (2004). "The Fair Trade Network in Historical Perspective", *Canadian Journal of Development Studies*, 25(3), 411-428
- Lupton, S. (2005). "Shared quality uncertainty and the introduction of indeterminate goods", *Cambridge Journal of Economics*, 29(3), 399-421.
- Nelson, P. (1970). "Information and Consumer Behavior", *Journal of Political Economy*, 78(2), 311-329.
- Strausz, R. (2005). "Honest certification and the threat of capture", *International Journal of Industrial Organization*, 23(1-2), 45-62.
- Tirole, J. (1988). *The theory of industrial organization*. MIT press. (Chapters 2 & 7)

Part 2: Stéphane Straub

Description: Development economics increasingly recognizes the importance of the institutional environment in fostering favourable development outcomes. This is especially true when it comes to issues such as infrastructure (understood here to cover energy, water and sanitation, transport and information and communication technologies (ICT)), which are key to individuals' welfare and entrepreneurial capacity and also involve complex interactions between the public and the private sector. Public policies in these sectors frequently raise governance issues, and examples of corruption and abuse of political connections abound. This part of the course will draw on the rich empirical literature that has documented these issues and analysed their impact on the process of development. We will review papers assessing the long-term impact of institutions, as well as the contemporaneous impact of corruption and rent-seeking on public policies. We will also discuss the economic literature on the impact of infrastructure on development outcomes and review its contribution to the process of public policy definition.

Outline:

- Theme 1: Governance in developing countries (long-term effect of institutions, corruption, rent-seeking, political connections and capture by entrepreneurs), in particular related to the course main issues, i.e., regulation and infrastructure.
- Theme 2: Infrastructure investments and policies long-term impact, and regulatory issues.

This part of the course will be organized as follows: session 1 will cover the long-term effects of institutions, sessions 2 and 3 will address corruption and political connections in the context of infrastructure, and sessions 4 and 5 will cover infrastructure impact, policies, and regulation.

Readings

Stéphane Straub will indicate each week which papers should be read for the following classes. Note that the reading list by no mean pretends to be an exhaustive list. On each of these topics, there are many more relevant papers not listed here, which can be found in the references of the papers below or doing a specific search.

General readings

Econometrics references:

Wooldridge, Jeffrey, *Econometric Analysis of Cross Section and Panel Data*, MIT Press

Angrist, Joshua D, and Pischke, Jorn-Steffen, *Mostly Harmless Econometrics*, Princeton University Press

1) Long-Term Effect of Institutions

Melissa Dell, "The Persistent Effects of Peru's Mining Mita", *Econometrica*, Vol. 78, No. 6 (November, 2010), 1863–1903.

Nunn, Nathan and Leonard Wantchekon, "The Slave Trade and the Origins of Mistrust in Africa," *American Economic Review*, Vol. 101, No. 7, December 2011, 3221-3252.

Stelios Michalopoulos and Elias Papaioannou, "Pre-colonial Ethnic Institutions and Contemporary African Development", *Econometrica*, 2013, 81(1): 113–152.

Marcella Alsan, 2012, "The Effect of the TseTse Fly on African Development", *American Economic Review*.

Acemoglu, D., S. Johnson, and J. A. Robinson (2001): "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review*, 91, 1369–1401.

Engerman, S., and K. Sokoloff (1997): "Factors Endowments, Institutions, and Differential Paths of Growth Among NewWorld Economies," in *How Latin American Fell Behind*, ed. by S. Haber. Stanford: Stanford University Press, 260–304.

Banerjee, A., and L. Iyer (2005): "History, Institutions, and Economic Performance: The Legacy of Colonial Land Tenure Systems in India," *American Economic Review*, 95, 1190–1213.

Baumol, William J. 1990. "Entrepreneurship: Productive, Unproductive, and Destructive." *Journal of Political Economy*, 98(5): 893—921.

Raghuram G. Rajan, 2009. "Rent Preservation and the Persistence of Underdevelopment," *American Economic Journal: Macroeconomics*, vol. 1(1), pages 178-218, January.

Acemoglu, Daron, 2003. "Why not a political Coase theorem? Social conflict, commitment, and politics," *Journal of Comparative Economics*, Elsevier, vol. 31(4), pages 620-652, December.

Murphy, Kevin M., Andrei Shleifer and Robert W. Vishny. 1991. "The Allocation of Talent: Implication for Growth." *Quarterly Journal of Economics*, 106(2): 503—530.

2) Corruption, Political Connections, and Rent-Seeking

Olken, Benjamin and Pande, Rohini, "Corruption in Developing Countries". *Annual Review of Economics* 4, pp. 479-505, July 2012.

Ritva Reinikka & Jakob Svensson "Fighting corruption to improve schooling: Evidence from a newspaper campaign in Uganda", *Journal of the European Economic Association*, 2005, 3 (2-3): 259-267.

Jie Bai, Seema Jayachandran, and Edmund J. Malesky, and Benjamin Olken, 2014, "Does Economic Growth Reduce Corruption? Theory and Evidence from Vietnam". NBER Working Paper #19483.

Ferraz, Claudio and Frederico Finan. 2008. "Exposing Corrupt Politicians: The Effect of Brazil's Publicly Released Audits on Electoral Outcomes." *Quarterly Journal of Economics*. 123(2): 703—745.

Frederico Finan and Claudio Ferraz, "Electoral Accountability and Corruption in Local Governments: Evidence from Audit Reports", *American Economic Review*, 2011, 101: 1274-1311.

Mauro, P. (1995). "Corruption and Growth." *The Quarterly Journal of Economics*, 110(3): 681-712.

John McMillan and Pablo Zoido, 2004, "How to Subvert Democracy: Montesinos in Peru", *Journal of Economic Perspectives*, Volume 18, Number 4, Pages 69-92.

Bertrand, Marianne, Simeon Djankov, Rema Hanna and Sendhil Mullainathan. 2007. "Obtaining a Driving License in India: An Experimental Approach to Studying Corruption." *The Quarterly Journal of Economics*, 122(4): 1639-1676.

- Olken, Benjamin. 2007. "Monitoring Corruption: Evidence from a Field Experiment in Indonesia." *Journal of Political Economy* 115(2): 200-249.
- Olken, B. and Barron, P. (2009). "The Simple Economics of Extortion: Evidence from Trucking in Aceh." *Journal of Political Economy*, 117(3): 417-452.
- Rose-Ackerman, Susan. 1999. *Corruption and Government: Causes, Consequences, and Reform*. Cambridge: Cambridge University Press.
- Olken B., "Corruption Perceptions vs. Corruption Reality". *Journal of Public Economics*, 93 (7-8), pp. 950-964, August 2009.
- Hanna, R., Mullainathan S., and A. Banerjee, "Corruption," *The Handbook of Organizational Economics*. Ed. Robert Gibbons and John Roberts. Princeton University Press, 1109-1147, 2012.
- Fisman, Raymond. 2001. "Estimating the Value of Political Connections." *American Economic Review*, 91(4): 1095-1102.
- Fisman, Raymond, Florian Schulz and Vikrant Vig, "The Private Returns to Public Office", 2013.
- Fisman, Raymond and Yongxiang Wang, "The Mortality Cost of Political Connections", forthcoming, *Review of Economic Studies*, 2015.
- Hsieh, Chang-Tai, Edward Miguel, Daniel Ortega and Francisco Rodriguez. 2008. "The Price of Political Opposition: Evidence from Venezuela's *Maisanta*." *American Economic Journal: Applied Economics*.
- Khwaja, Asim I. and Atif Mian. 2005. "Do lenders favor politically connected firms? Rent provision in an emerging financial market." *Quarterly Journal of Economics*, 120 (4): 1371-1411.
- Frederico Finan and Laura Schechter, "Vote-buying and Reciprocity", *Econometrica*, 2012, 80(2): 863-882.
- Li, Hongbin, Lingsheng Meng, Qian Wang and Li-An Zhou. 2008. "Political connections, financing and firm performance: Evidence from Chinese private firms." *Journal of Development Economics*, 87(2): 283-299.
- Barbosa, Klenio, and Stéphane Straub. 2017. "The Value of Revolving Doors in Public Procurement." *Mimeo*.
- Straub, S., 2014, "Political Firms, Public Procurement, and the Democratization Process", TSE working paper 461.
- Auriol, Emmanuelle, Thomas Flochel and Stéphane Straub, 2016, "Public Procurement and Rent-Seeking: The Case of Paraguay", *World Development*, 77, 395-407.
- Jean-Marie Baland & James A. Robinson, 2008. "Land and Power: Theory and Evidence from Chile," *American Economic Review*, vol. 98(5), pages 1737-65, December.
- Krueger, A. (1974). The political economy of the rent seeking society. *American Economic Review*, 64, 291-303.

3) Infrastructure Impact, Policies, and Regulation

- Lipscomb, M., M. Mobarak and T. Barham, 2013, "Development Effects of Electrification: Evidence from the Topographic Placement of Hydropower Plants in Brazil", *AEJ: Applied Economics*, 5(2): 200--231.
- T. Dinkelman, 2011, "The effects of rural electrification on employment: New evidence from South Africa", *American Economic Review*, 101(7): 3078--3108.
- Duflo E. and R. Pande (2007), "Dams", *Quarterly Journal of Economics*, 122(2), 601-646.

Galiani, S., P. Gertler and E. Schargrodsky (2005), "Water for Life: The Impact of Privatization of Water Services on Child Mortality", *Journal of Political Economy*, 113: 83-120.

Gertler, P., O. Shelef, C. Wolfram, and A. Fuchs. (2016). "The Demand for Energy-Using Assets among the World's Rising Middle Classes," *American Economic Review*. Vol. 106, No. 6, pp. 1366-1401.

Lee, K., Miguel, T., and C. Wolfram. (2016). "Experimental Evidence on the Demand for and Costs of Rural Electrification." Unpublished working paper.

Jensen R. (2007), "The Digital Divide: Information (Technology), Market performance, and Welfare in the South Indian Fisheries Sector", *Quarterly Journal of Economics*, 122(3), 879-924.

D. Donaldson, "Railroads of the Raj: Estimating the Impact of Transportation Infrastructure", forthcoming, *American Economic Review*.

Bird, J. and S. Straub, 2014, " The Brasília Experiment: Road Access and the Spatial Pattern of Long-term Local Development in Brazil ", *World Bank Policy Research Working Paper No.6964*.

Abhijit Banerjee, Esther Duflo and Nancy Qian. "On the Road: Access to Transportation Infrastructure and Economic Growth in China". mimeo, February 2012.

Allcott, Hunt, Allan Collard-Wexler, and Stephen D. O'Connell (2016). "How Do Electricity Shortages Affect Industry? Evidence from India." *American Economic Review*, Vol. 106, No. 3 (March), pages 587-624.

J. Assunção, M. Lipscomb, A. M. Mobarak, D. Szerman. "Agricultural Productivity and Deforestation in Brazil", mimeo.

Robin Burgess, Remi Jedwab, Edward Miguel, Ameet Morjaria and Gerard Padro-i-Miguel. "The Value of Democracy: Evidence from Road Building in Kenya", NBER Working Paper No. 19398, forthcoming, *American Economic Review*, June 2015

Remi Jedwab and Alexander Moradi. "The Permanent Economic Effects of Transportation Revolutions in Poor Countries: Evidence from Africa", forthcoming, *Review of Economics and Statistics*.

Bleakley, Hoyt, and Jeffrey Lin. 2012. "Portage and Path Dependence." *The Quarterly Journal of Economics*, 127(2): 587–644.

Baum-Snow, N, L Brandt, V Henderson, M Turner and Q Zhang (2012), "Roads, Railroads and Decentralization of Chinese Cities", working paper.

Ghani, E., Goswami, A. and W. Kerr, 2013, "Highway to success in India: the impact of the golden quadrilateral project for the location and performance of manufacturing", *Policy Research Working Paper Series 6320*, The World Bank.

Saugato Datta. "The impact of improved highways on Indian firms". *Journal of Development Economics*, Volume 99, Issue 1, September 2012, Pages 46—57.

Storeygard, A., 2016, "Farther on down the road: transport costs, trade and urban growth in sub-Saharan Africa", *Review of Economic Studies* 83(3): 1263-1295.

Gilles Duranton and Matt Turner, 2011, "Urban growth and transportation", *Review of Economic Studies*, forthcoming

Casaburi, L., Glennerster, R. and Suri, T., 2013, "Rural Roads and Intermediated Trade: Regression Discontinuity Evidence from Sierra Leone", mimeo.

Jenny Aker and Marcel Fafchamps, 2013, "How does mobile phone coverage affect farm-gate prices? Evidence from West Africa." *World Bank Economic Review*.

Jenny Aker and Isaac M. Mbiti. 2010. " Mobile Phones and Economic Development in Africa." *Journal of Economic Perspectives*. 24(3): 207-32.

Jenny Aker. 2010. " Information from Markets Near and Far: The Impact of Mobile Phones on Grain Markets in Niger." *American Economic Journal: Applied Economics*. 2: 46-59.

Jenny Aker, Christopher Ksoll and Travis Lybbert. 2012. "Can Mobile Phones Improve Learning? Evidence from a Field Experiment in Niger." 4(4), *American Economic Journal: Applied Economics*.

Michael Greenstone, Rema Hanna and Esther Duflo "Up in Smoke: The Influence of Household Behavior on the Long-Run Impact of Improved Cooking Stoves," *American Economic Journal: Economic Policy*, 2016, 8(1): 80-114.

Michael Greenstone, Esther Duflo, Raymond Guiteras, and Thomas Clasen, 2015, "Toilets Can Work: Short and Medium Run Health Impacts of Addressing Complementarities and Externalities in Water and Sanitation," Mimeograph.

David Martimort et Stéphane Straub, « How to Design Infrastructure Contracts in a Warming World? A Critical Appraisal of Public-Private Partnerships », *International Economic Review*, vol. 57, n° 1, février 2016, p. 61–88.

Jean-Jacques Dethier, Alex Moore et Stéphane Straub, « Regulation, Renegotiation and Capital Structure: Theory and Evidence from Latin American Transport Concessions », *Journal of Regulatory Economics*, vol. 45, n° 2, 2014, p. 209–232.

Straub, S. (2011), "Infrastructure and Development: A Critical Appraisal of the Macro-Level Literature", *The Journal of Development Studies*, vol. 47, n°5, p. 683-708.

Straub, S. (2008), "Infrastructure and Growth in Developing Countries: Recent Advances and Research Challenges", *World Bank Policy Research Working Paper No.4460*.

Philippe Alby, Jean-Jacques Dethier et Stéphane Straub, « Firms Operating under Electricity Constraints in Developing Countries? », *The World Bank Economic Review*, vol. 27, n° 1, 2013, p. 109–132.

Céline Bonnet, Pierre Dubois, David Martimort and Stéphane Straub, 2012, "Empirical Evidence on Satisfaction with Privatization in Latin America", *World Bank Economic Review*, Volume 26, Issue 1, Pp. 1-33.

Martimort, D., and S. Straub. 2009. "Infrastructure Privatization and Changes in Corruption Patterns: The Roots of Public Discontent". *Journal of Development Economics* 90: 69–84.

Rafael Di Tella, Sebastian Galiani, Ernesto Schargrotsky, 2012, "Reality versus propaganda in the formation of beliefs about privatization", *Journal of Public Economics*, Volume 96, Issues 5–6, June 2012, Pages 553–567.

Econometrics 1

Course title - Intitulé du cours	Econometrics 1
Level / Semester - Niveau /semestre	M2 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	E. GAUTIER et J. KIM
Other teacher(s) - Autre(s) enseignant(s)	J. BEYHUM
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	36
TA Hours - Volume horaire TD	15
TP Hours - Volume horaire TP	
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	Anglais

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Professor: Eric Gautier, office MF504, eric.gautier@tse-fr.eu, available for questions in the classroom after class.

Professor: Jihyun Kim, office MF427, Jihyun.kim@tse-fr.eu, available for questions in the classroom after class.

TD supervisor: Jad Beyhum, jad.beyhum@gmail.com .

Course's Objectives - Objectifs du cours :

Presentation of the basic concepts and results of the econometrics of independent identically distributed data. The objective of the course is to allow students to understand the theory behind the basic methods that are used in empirical economics and to allow interested student to acquire advanced knowledge in the subsequent courses in Econometrics.

Outline:

1) Econometrics modeling and identification: linear projection, linear regression, conditional expectation, nonlinear models, endogeneity, overidentification, nonseparable models (4.5 hours).

2) Parametric and semiparametric econometrics: elements of asymptotic theory, maximum likelihood and the Cramer-Rao lower bound, limited dependent variables, generalized method of moments, introduction to QMLE, optimality, tests and confidence intervals, weak and many instruments (13.5 hours)

3) Nonparametric estimation (9 hours).

4) Simulation methods and the bootstrap (9 hours).

Prerequisites - Pré requis :

Calculus (topology, differentiation of functions of multiple variables, multiple integrals and change of variables), algebra (matrix computations, trace, determinant), probability (discrete and continuous random variables, limit theorems, continuous mapping and delta method, conditional expectation) and basic statistics (Ordinary Least Squares, Maximum Likelihood).

Bibliography/references - Bibliographie/références :

Bruce Hansen, Econometrics, available on the author's webpage

Chapter 1 of Introduction to Nonparametric Estimation, Alexandre Tsybakov, Springer

Jean-Pierre Florens et al., Econometric Modeling and Inference, Cambridge, and any other graduate econometrics textbook

M2-ETE-TSE

Theoretical Industrial Organization

2019

**Doh-Shin Jeon
Patrick Rey
Stephane Caprice**

A. Textbooks

- Motta, Massimo (2004), *Competition Policy: Theory and Practice*. Cambridge University Press.
- Tirole, Jean (1988), *The Theory of Industrial Organization*, MIT.

B. Outline and references

Part I. Vertical relations (Patrick Rey, 3 weeks)

1. Introduction: vertical restraints, vertical integration and antitrust issues

2. Vertical coordination

a. Double marginalization

- Telser, Lester (1960), "Why Should Manufacturer Want Fair Trade," *Journal of Law and Economics*, 3: 86-105.
- *Rey, Patrick, and Jean Tirole (1986), "The Logic of Vertical Restraints," *American Economic Review*, 76: 921-939.

b. Nonprice dimensions

- Mathewson, Frank, and Ralph Winter (1984), "An Economic Theory of Vertical Restraints," *RAND Journal of Economics*, 15: 27-38.
- *Comanor, William, and H.E. Frech III (1985), "The Competitive Effects of Vertical Agreements," *American Economic Review*, 75: 539-546.
- Caillaud, Bernard, and Patrick Rey (1987), "A Note on Vertical Restraints with the Provision of Distribution Services," Working Paper INSEE and MIT.

- c. *Downstream agents*
 - Bernheim, B. Douglas, and Michael D. Whinston (1985), "Common Marketing Agency as a Device for Facilitating Collusion," *RAND Journal of Economics*, 16: 269-281.
 - Bernheim, B. Douglas, and Michael D. Whinston (1986), "Common Agency," *Econometrica*, 54: 923-942.
 - *Bernheim, B. Douglas, and Michael D. Whinston (1998), "Exclusive Dealing," *Journal of Political Economy*, 106: 64-103.
- d. *Upstream agents*
 - *Hart, Oliver, and Jean Tirole (1990), "Vertical Integration and Market Foreclosure," *Brookings Papers on Economic Activity: Microeconomics*, 205-285.
 - *O'Brien, Daniel P., and Greg Shaffer (1992), "Vertical Control with Bilateral Contracts," *RAND Journal of Economics*, 23(3): 299-308.
 - *McAfee, R. Preston, and Marius Schwartz (1994), "Opportunism in Multilateral Vertical Contracting: Nondiscrimination, Exclusivity, and Uniformity," *American Economic Review*, 84(1): 210-230.
 - Rey, Patrick, and Thibaud Vergé (2005), "Bilateral Control with Vertical Contracts," *RAND Journal of Economics*, 35(4): 728-746.
 - *Marx, Leslie, and Greg Shaffer (2007), "Upfront Payments and Exclusion in Downstream Markets," *RAND Journal of Economics*, 38: 823-43.
 - Rey, Patrick, Jeanine Miklós-Thal and Thibaud Vergé (2011), "Buyer Power and Intra-brand Coordination," *Journal of the European Economic Association*, 9(4): 721-741.
 - *Rey, Patrick, and Michael D. Whinston (2013), "Does Retailer Power Lead to Exclusion?," *RAND Journal of Economics*, 44(1): 75-81.

3. Rivalry among vertical structures

- a. *Strategic delegation*
 - Bonanno, Giacomo and John Vickers (1988), "Vertical Separation," *Journal of Industrial Economics*, 36: 257-265.
 - *Rey, Patrick, and Joseph E. Stiglitz (1995), "The Role of Exclusive Territories in Producers' Competition," *RAND Journal of Economics*, 26: 431-451.
 - *Caillaud, Bernard, Bruno Jullien and Pierre Picard (1995), "Competing Vertical Structures: Precommitment and Renegotiation," *Econometrica*, 63: 621-646.
 - Caillaud, Bernard, and Patrick Rey (1995), "Strategic Aspects of Vertical Delegation," *European Economic Review*, 39: 421-431.
 - Slade, Margaret E. (1998), "Beer and the Tie: Did Divestiture of Brewer-owned Public Houses Lead to Higher Prices?," *The Economic Journal*, 108: 565-602.
- b. *Facilitating practices*
 - *Jullien, Bruno, and Patrick Rey (2007), "Resale Price Maintenance and Collusion," *RAND Journal of Economics*, 38(4): 983-1001.

c. *Interlocking relationships*

- *Rey, Patrick, and Thibaud Vergé (2010), “Resale Price Maintenance and Interlocking Relationships,” *Journal of Industrial Economics*, 58(4): 928-961.
- Collard-Wexler, Allan, Gautam Gowrisankaran and Robin Lee (2018), **“Nash-in-Nash” Bargaining: A Microfoundation for Applied Work,*” *Journal of Political Economy*, forthcoming.
- Crawford, Gregory, Robin Lee, Michael D. Whinston and Ali Yurukoglu (2018), “The Welfare Effects of Vertical Integration in Multichannel Television Markets,” *Econometrica*, 86(3): 891–954.
- Ho, Kate, and Robin S. Lee (2016), “Equilibrium Provider Networks: Bargaining and Exclusion in Health Care Markets,” *American Economic Review*, forthcoming.
- Ho, Kate, and Robin S. Lee (2017), “Insurer Competition in Health Care Markets,” *Econometrica*, 85(2): 379-417.
- Ghili, Soheil (2016), “Network Formation and Bargaining in Vertical Markets: The Case of Narrow Networks in Health Insurance,” mimeo.
- Rey, Patrick, and Volker Nocke (2018), “Exclusive Dealing and Vertical Integration in Interlocking Relationships,” *Journal of Economic Theory*, forthcoming.
- *Rey, Patrick, and Thibaud Vergé (2016), “Secret contracting in multilateral relations,” TSE Working Paper, n. 16-744.

4. Exclusionary practices

a. *Naked exclusion*

- *Aghion, Philippe and Patrick Bolton (1987), “Contracts as a Barrier to Entry,” *American Economic Review*, 77: 388-401.
- *Rasmusen, Eric B., J. Mark Ramseyer and John S. Wiley (1991), “Naked Exclusion,” *American Economic Review*, 81: 1137-1145.
- Segal, Ilya, and Michael D. Whinston (2000), “Naked Exclusion: Comment,” *American Economic Review*, 90(1): 296-309.
- *Fumagalli, Chiara, and Massimo Motta (2006), “Exclusive dealing and entry, when buyers compete,” *American Economic Review*, 96(3): 785-795.
- Julian Wright (2005), “Exclusive Dealing and Entry, when Buyers Compete: Comment,” *American Economic Review*, 99(3): 1070-81.
- Simpson, John, and Abraham L. Wickelgren (2007), “Naked Exclusion, Efficient Breach, and Downstream Competition,” *American Economic Review*, 97: 1305-1320.
- Wright, Julian (2008), “Naked exclusion and the anticompetitive accommodation of entry,” *Economics Letters*, 98(1): 107-112.
- Abito, Jose Miguel, and Julian Wright (2008), “Exclusive Dealing with Imperfect Downstream Competition,” *International Journal of Industrial Organization*, 26: 227-246.
- Rey, Patrick, and William S. Comanor (2000), “Vertical Restraints and the Market Power of Large Distributors,” *Review of Industrial Organization*, 17(2): 135-153.

b. *Vertical integration and foreclosure*

- *Ordover, Janusz, Garth Saloner and Steven C. Salop (1990), "Equilibrium Market Foreclosure," *American Economic Review*, 80: 127-142.
- *Hart, Oliver, and Jean Tirole (1990), "Vertical Integration and Market Foreclosure," *Brookings Papers on Economic Activity: Microeconomics*, 205-285.
- *Rey, Patrick, and Volker Nocke (2018), "Exclusive Dealing and Vertical Integration in Interlocking Relationships", *Journal of Economic Theory*, forthcoming.
- Bolton, Patrick and Michael Whinston (1993), "Incomplete Contracts, Vertical Integration, and Supply Assurance," *Review of Economic Studies*, 60: 121-148.
- Chipty, Tasneen (2001), "Vertical Integration, Market Foreclosure, and Consumer Welfare in the Cable Television Industry," *American Economic Review*, 91(3): 428-453.
- *Allain, Marie-Laure, Claire Chambolle and Patrick Rey (2016), "Vertical Integration as a Source of Hold-up," *The Review of Economic Studies*, 83(1): 1-25.

Part II: Two-sided markets, Tying and IP (Five weeks, Doh-Shin Jeon)

1. Network competition two-sided markets

a. *Network competition*

- Katz, Michael, and Carl Shapiro (1985), "Network Externalities, Competition and Compatibility," *American Economic Review*.
- Farrell, Joseph, and Garth Saloner (1985), "Standardization, Compatibility and Innovation," *Rand Journal of Economics*, 16: 70-83.
- Farrell, Joseph, and Michael Katz (2000), "Innovation, Rent Extraction, and Integration in Systems Markets," *Journal of Industrial Economics*, 48(4): 413-432.

b. *Economics of platforms and two-sided markets*

- Armstrong, Mark (2006), "Competition in Two-Sided Markets," *Rand Journal of Economics*, 37(3): 668-691.
- Caillaud, Bernard, and Bruno Jullien (2001), "Competing Cybermediaries," *European Economic Review (Papers & Proceedings)*, 45: 797-808.
- Caillaud, Bernard, and Bruno Jullien (2003), "Chicken and Egg: Competition among Intermediation Service Providers," *Rand Journal of Economics*,
- Rochet, Jean-Charles, and Jean Tirole (2003), "Platform Competition in Two-Sided Markets," *Journal of the European Economic Association* 1: 990-1029.
- Rochet, Jean-Charles, and Jean Tirole. (2006), "Two-sided Markets: A Progress Report," *Rand Journal of Economics*, 37: 645-667.

- Weyl, Glen (2010), "A price theory of two-sided markets," *American Economic Review*,

2. Tying

a. Monopoly

- Bakos, Yannis, and Eric Brynjolfsson. (1999), "Bundling Information Goods: Pricing, Profits and Efficiency," *Management Science*, 45(12): 1613-1630.
- McAfee, R.P, McMillan, J., Whinston, M. (1989), "Multiproduct Monopoly, Commodity Bundling, and Correlation of Values," *Quarterly Journal of Economics*, 104: 371-384.

b. Leverage theory of tying with application to Microsoft case

- Carlton, Dennis W., and Michael Waldman (2002), "The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries," *Rand Journal of Economics*, Summer, pp. 194-220.
- Choi, Jay Pil, and Chris Stefanadis (2001), "Tying, Investment, and the Dynamic Leverage Theory," *RAND Journal of Economics*, 32(1): 52-71.
- Nalebuff, Barry (2004), "Bundling as an Entry Barrier," *Quarterly Journal of Economics*, 119(1): 159-188.
- Whinston, Michael D. (1990), "Tying, Foreclosure and Exclusion," *American Economic Review*, 80(4): 837-859.

c. Other applications

- Jeon, Doh-Shin, and Domenico Menicucci (2006), "Bundling Electronic Journals and Competition among Publishers," *Journal of the European Economic Association*, 4(5): 1038-83.
- Jeon, Doh-Shin, and Domenico Menicucci (2012), "Bundling and Competition for Slots," *American Economic Review*, 102: 1957-1985.

d. Tying in two-sided markets

- Choi, Jay Pil (2010), "Tying in Two-Sided Markets with Multi-Homing," *Journal of Industrial Economics*, 58 (3): 607-626.
- Choi, Jay Pil, and Doh-Shin Jeon (2016), "A Leverage Theory of Tying in Two-sided Markets," TSE WP.

3. Economics of Intellectual Property

a. Introduction

- Andrei Hagiu (2011), "Intellectual Property Intermediaries," Harvard Business School, Case study.
- Andrei Hagiu, David Yoffie and Alison Berkley Wagonfeld (2011), "Intellectual Ventures", Harvard Business School, Case study.
- Michael A. Heller and Rebecca S. Eisenberg (1998) "Can Patents Deter Innovation? The Anticommons in Biomedical Research," *Science*, 280: 698-701.
- Herbert Hovenkamp (2008), "Patent Deception in Standard Setting: the Case for Antitrust Policy," mimeo.

- b. *Weak patents*
 - Farrell, Joseph, and Carl Shapiro, (2008), “How strong are weak patents?,” *American Economic Review*, 98: 1347-69
 - Carl Shapiro (2010), “Injunctions, Hold-Up, and Patent Royalties,” *American Law and Economics Review*, 12: 509-557
- c. *Patent Pool*
 - Choi, Jay Pil. (2010), “Patent Pools and Cross Licensing in the Shadow of Patent Litigation,” *International Economic Review*, 441-460.
 - Choi, Jay Pil, and Heiko Gerlach (2015), “Patent Pools, Litigation and Innovation,” *The RAND Journal of Economics*, 46(3): 499-523.
 - Lerner, Josh, and Jean Tirole (2004), “Efficient Patent Pools,” *American Economic Review*, 691-711.
- d. *Patent Trolls*
 - Choi, Jay Pil, and Heiko Gerlach (2016), “A Model of Patent Trolls,” mimeo.
 - Lemus, Jorge, and Emil Temnyalov (2017), “Patent Privateering, litigation and R&D Incentives,” ,” the RAND Journal of Economics, 48 (4), 1004-1026
- e. *Cross-Licensing*
 - Jeon, Doh-Shin and Yassine Lefouili (2018), “Cross-Licensing and Competition,” the RAND Journal of Economics, 49(3), 656-671
- f. *Sequential Innovation*
 - Green, Jerry, and Suzanne Scotchmer (1995), “On the Division of Profit in Sequential Innovation,” *RAND Journal of Economics*, 26: 20-33.
 - Bessen, James, and Eric Maskin (2009), “Sequential Innovation, patents and imitation,” *RAND Journal of Economics*, 40: 611-635.

Part III: Buyer Power, Multi-Product Firms (Two weeks, Stephane Caprice)

1. Buyer power

- a. *Vertical bargaining and countervailing power*
 - Chen, Z., 2003, Dominant retailers and the countervailing-power hypothesis, *Rand Journal of Economics*, 34, 612-625.
 - Christou, C. and Papadopoulos, K. G., 2015, The countervailing power hypothesis in the dominant firm-competitive fringe model, *Economics Letters*, 126, 110-113.
 - Dobson, P. and Waterson, M., 1997, Countervailing power and consumer prices, *Economic Journal*, 107, 418-430.
 - Germain, G., 2017, Vertical bargaining and retail competition: what drives countervailing power, *Economic Journal*, Forthcoming.

- Iozzi, A., and Valletti, T., 2014, Vertical Bargaining and countervailing power, *American Economic Journal: Microeconomics*, 6(3), 106-135.
 - von Ungern-Sternberg, T., 1996, Countervailing power revisited, *International Journal of Industrial Organization*, 14, 507-519.
- b. *Sources of buyer power*
- Chipty, Tasneem, and Christopher M. Snyder (1999), "The role of firm size in bilateral bargaining: a study of the cable television industry," *Review of Economics and Statistics*, 81(2): 326-340.
 - Inderst, Roman, and Greg Shaffer (2007), "Retail mergers, buyer power and product variety," *Economic Journal*, 117(516): 45-67.
 - Caprice, Stéphane, and Patrick Rey (2015), "Buyer power from joint listing decision," *Economic Journal*, 125: 1677-1704.
- c. *Others*
- Inderst, R. and Shaffer, G., 2006, The role of buyer power in merger control, *Issues in competition law and policy* (Ed. W.D. Collins).
 - Ellison, S.F. and Snyder, C.M., 2001, Countervailing power in wholesale pharmaceuticals, *Journal of Industrial Economic*, 58(1), 32-53.
 - Normann, H.-T., Ruffle, B. J. and C. M. Snyder, 2007, Do buyer-size discounts depend on the curvature of the surplus function? Experimental tests of bargaining models, *Rand Journal of Economics*, 38(3), 747-767.
 - Ruffle, B.J., 2005, Buyer countervailing power: A survey of the theory and experimental evidence, in: Norman T. and Hinloopen H.J., *Experiments and antitrust policy*, Cambridge University Press.
 - Sorensen, A., 2003, Insurer-hospital bargaining: negotiated discounts in post-deregulation Connecticut, *Journal of Industrial Economics*, 51, 471-492.

2. Multi-Product Firms

- a. *Competitive bundling*
- Chen, Y., 2007, Equilibrium Product Bundling, *The Journal of Business*, 70(1), 85-103.
 - Christou, C. and Papadopoulos, K. G., 2015, The countervailing power hypothesis in the dominant firm-competitive fringe model, *Economics Letters*, 126, 110-113.
 - Hurkens, S., Jeon, D.-S., and Menicucci, D., 2017, Dominance and Competitive Bundling, TSE Working Paper.
 - Matutes, Carmen, and Pierre Regibeau (1992), "Compatibility and bundling of complementary goods in duopoly," *Journal of Industrial Economics*, XL(1): 37-54.
- b. *Shopping costs*
- Chen, Z., and Rey, P., 2012, Loss Leading as Exploitative Device, *The American Economic Review*, 102(7), 3462-3482.
 - Chen, Z., and Rey, P., 2016, Competitive Cross-Subsidization, TSE Working Paper.

Public Economics

Course title - Intitulé du cours	Public Economics
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Helmuth CREMER
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Professor: Helmuth Cremer helmuth.cremer@tse-fr.eu

Course's Objectives - Objectifs du cours :

Public economics studies the role of the government in a market economy and the implications of its actions for the citizenry. The underlying structure is one of a decentralized economy wherein economic decisions are coordinated through prices, which in turn are determined by free, but sometimes regulated, markets. Additionally, the public sector itself typically plays a significant role in these market economies. Public economics examines why and how the government may have to supplement the market mechanism. It evaluates the efficiency and equity justifications for an intervention and their ramifications for individuals' incentives and welfare. It also studies what form the interventions should take and how policies ought to be designed. The course provides an overview of some topics in public economics with an emphasis on taxation and other redistributive policies (such as in-kind transfers and social insurance). It is designed for 1st year graduate students (with a good background in microeconomic theory). We shall cover a good deal of "classical" material (you need to know the foundations) but also some more recent developments (to see some of the contemporary research in public economics). Similarly, we shall combine methodological with more applied issues. A recurrent theme is asymmetric information which is a crucial factor for the design of welfare state policies.

Course outline (provisional):

1. Introduction:

(a) Tax design and information

(b) The role of the government in a market economy: brief reminder

- i. Welfare theorems
- ii. Market failures

- iii. Redistribution
- iv. Paternalism

2. Taxation and efficiency (Auerbach and Hines, Section 2)

- (a) Deadweight loss of taxation: definition and measurement
- (b) Illustrations:
 - i. Partial equilibrium, single competitive market
 - ii. Single household, two goods
 - iii. Labor supply, savings, etc.

3. Optimal commodity taxation (GM, Ch. 4; Atkinson and Stiglitz, Ch. 12; Auerbach and Hines, Sections 3-5)

- (a) Introduction
- (b) Identical individuals
- (c) Heterogenous households
- (d) Ramsey-Boiteux prices
- (e) Application: access pricing in the postal sector

4. Optimal income taxation (MT, Ch. 2-4, Stiglitz (1987))

- (a) Introduction: income tax schedules (tax functions), marginal and average tax rates, progressivity
- (b) Linear income tax
- (c) Non-linear income tax
- (d) Applications and special cases

5. Income vs. commodity taxation (MT, Ch.12; Stiglitz (1987); Cremer, Pestieau and Rochet (2001))

- (a) Introduction: the direct vs. indirect tax controversy
- (b) The Atkinson and Stiglitz (AS) result (non-linear and linear commodity taxes)
- (c) Attacks on AS
- (d) Multi-dimensional heterogeneity and the design of tax policy: an example
- (e) Other instruments: social insurance, in-kind transfers, taxation of capital, etc.

6. Taxation of families and couples and gender policies (Cremer, Lozachmeur, Maldonado and Roeder, 2016; Cremer, Lozachmeur and Roeder, 2017)

- (a) Introduction: unitary vs collective couple

(b) Income taxation

(c) Commodity taxes: the tax treatment of male and female goods (Mademoiselle Coco and tampons vs. Fishing equipment)

(d) Gender wage gap, optimal taxation and child care policies

7. Externalities and optimal taxation (Salanié, Ch. 10)

(a) Introduction: First-best results

(b) Environmental taxation in second-best

(c) Linear taxation: Sandmo's analysis

(d) General taxation: Cremer and Gahvari

i. Taxation of final goods

ii. Taxation of inputs and emissions

(e) Empirical illustration: taxation of energy

8. Social insurance and optimal taxation (Rochet, 1991, Cremer and Pestieau, 1996, Cremer and Roeder, 2017)

(a) The role of social insurance with perfect private insurance markets

(b) Social insurance with adverse selection in private markets

Prerequisites - Pré requis :

- There will be a written examination at the end of the term. The material for the exam covers the lectures plus the required readings.
- The readings mentioned in the course outline and my slides are required for all students.
- Additional readings are optional (but strongly recommended).
- The lectures are completed by several problem sets which cover the core chapters of the material.
- Course material (slides, problem sets and solutions, most of the readings, etc.) is available on Moodle.
- Students are strongly advised to read the slides before coming to class.

Bibliography/references - Bibliographie/références :

The main references are Optimal Redistributive Taxation, by Matti Tuomala (MT), Oxford University Press, 2016, Public Economics by Gareth Myles (GM), Cambridge University Press, 1995 (the latter mainly for the Ramsey model), and my lecture notes (slides), available on moodle. Additional references are given below.

Textbooks:

- Atkinson, A. and J. Stiglitz, "Lectures on Public Economics", McGraw Hill : New York, 1980.
- Cornes, R and T. Sandler, "The Theory of Externalities, Public Goods and Club Goods", Cambridge University Press, Cambridge UK, 1996 (second edition).
- Jha, R. "Modern Public Economics", Routledge, London, 1998.
- Kaplow, L., The Theory of Taxation and Public Economics, Princeton University Press, 2008.
- Laffont, J-J., "Fundamentals of Public Economics", MIT Press, Cambridge Massachusetts, 1988.
- Mas-Colell, A., M. Whinston and J. Green, "Microeconomic Theory" Oxford University Press, 1995.
- Salanié B., "The Economics of Taxation", MIT Press, 2011.
- Varian, H, "Microeconomic Theory", Norton (third edition).

Surveys:

- Auerbach, A. The Theory of Excess Burden and Optimal Taxation, in
- Auerbach, A. and M. Feldstein, eds., Handbook of Public Economics, Vol.1, 1985, 61-86.
- Auerbach, A. and J. Hines "Taxation and Economic Efficiency, in Auerbach, A. and M. Feldstein, eds., Handbook of Public Economics, Vol.3, 2002, 1347-1422.
- Boadway, R. and M. Keen, Redistribution, in Atkinson, A. and F. Bourguignon, eds., Handbook of Income Distribution, Vol.1, 2000, 677-790.
- Cremer, H. and P. Pestieau, Wealth transfer taxation: a survey of the theoretical literature, in: Handbook on the Economics of Giving, Reciprocity and Altruism, Editors: L.-A. Gerard-Varet, S.C. Kolm and J. Mercier-Ythier, North-Holland, 2004, 1108-1134.
- Sandmo, A. The Effects of Taxation on Saving and Risk-Taking, in A. Auerbach and M. Feldstein, Eds., Handbook of Public Economics, Vol.1, Amsterdam: North Holland, 1985, 265-293.
- Stiglitz, J. Pareto Efficient and Optimal Taxation and the New Welfare Economics, in Auerbach, A. and M. Feldstein, Eds., Handbook of Public Economics, Volume 2, Amsterdam : North Holland, 1987, 991-1041.

Papers:

- Atkinson, A. and J. Stiglitz, The Design of Tax Structure: Direct Versus Indirect Taxation, Journal of Public Economics, 1976, 6, 55-75.
- Atkinson, A. Optimal Taxation and the Direct Versus Indirect Tax Controversy, Canadian Journal of Economics, 1977, 590-606.
- Atkinson, A. and A. Sandmo, "Welfare Implications of the Taxation of Savings, Economic Journal, 90, 1980, 529-549.
- Cremer, H. and F. Gahvari, 2017, Atkinson-Stiglitz and Ramsey reconciled: Pareto efficient taxation and pricing under a break-even constraint, Social Choice and Welfare, 49, 11-35.
- Cremer, H. and F. Gahvari, Uncertainty, optimal taxation and the direct versus indirect tax controversy, Economic Journal, 105, 1995, 1165-79.
- Cremer, H., F. Gahvari and JM Lozachmeur, Tagging and income taxation: theory and an application, American Economic Journal: Economic Policy, 2, 2010, 31-50.
- Cremer, H. and F. Gahvari, Second-best taxation of emissions and polluting goods, Journal of Public Economics, 80, 2001, 169-197.

- Cremer, H., N. Ladoux and F. Gahvari, Externalities and optimal taxation, *Journal of Public Economics*, 70, 1998, 343-364.
- Cremer, H., N. Ladoux and F. Gahvari, Tax reform versus tax design in the presence of consumption and production externalities (with Applications to France), *Journal of Environmental Economics and Management*, 59, 2010, 82-93.
- Cremer, H, D. Maldonado, JM Lozachmeur and K. Roeder, Household bargaining and the design of couples income taxation, *European Economic Review*, 89, 2016, 454-470.
- Cremer, H, JM Lozachmeur and K. Roeder, Household bargaining, spouses consumption patterns and the design of commodity taxes, 2017, TSE WP 17-767.
- Cremer, H. and P. Pestieau, Redistributive taxation and social insurance, *International Tax and Public Finance*, 3, 1996, 281-295.
- Cremer, H., P. Pestieau and J.C. Rochet, Direct versus indirect taxation: the design of the tax structure revisited", *International Economic Review*, 42, 2001, 781-799.
- Cremer, H., P. Pestieau and J.C. Rochet, Capital income taxation when inherited wealth is not observable, *Journal of Public Economics*, 87, 2003 2475-2490.
- Cremer, H. and K. Roeder, Social Insurance with Competitive Insurance Markets and Risk Misperception, *Journal of Public Economics*, 146, 2017, 138-147.
- Diamond, P., Optimal income taxation: an example with a U-shaped pattern of optimal marginal tax rates, *American Economic Review*, 1998, 83-95.
- Diamond, P. and J. Mirrlees, Optimal Taxation and Public Production: I, *American Economic Review*, 1971, 8-27.
- Goulder, L. Environmental taxation and the double dividend: A reader's guide, *International Tax and Public Finance*, 2, 1995, 157-183.
- Mirrlees, J. An Exploration in the Theory of Optimum Income Taxation, *Review of Economic Studies*, April 1971.
- Rochet, J.-Ch., 1991, Incentives, Redistribution and Social Insurance, *The Geneva Papers on Risk and Insurance Theory*, 16, 143-165.

Macroeconomics 1 (Master 2 level)

Synopsis: The objective of this course is to introduce students to the methods of analysis and use of dynamic stochastic equilibrium models in economics, which form the analytical core of macroeconomics. Note that although studied in the context of macroeconomics, these methods are used in many other fields of economics, such as labor economics, development economics, industrial organization, public economics, international or financial economics (corporate finance or asset pricing).

Macroeconomics, like most areas of economics, is an empirical field. Throughout the course, we will emphasize the need to confront theoretical results to empirical evidence, and we discuss methods to compare model and data.

In this first semester, we will develop the canonical complete markets model that is widely used as an analytical or quantitative benchmark. The second semester will bring students to the frontier of modern macroeconomics, in which microeconomic heterogeneity and frictions play an important role in shaping cross-sectional and aggregate allocations.

1. **The Long Run:** Kaldor facts, neo-classical growth theory, consumption-savings decisions, long-run dynamics of capital accumulation, optimal fiscal policy.
Methods: deterministic dynamic programming and optimization, value function iteration, welfare theorems, steady-state analysis, phase diagrams
2. **Idiosyncratic and Aggregate Shocks:** risk-sharing, asset pricing, real business cycles
Methods: stochastic dynamic programming and optimization, recursive competitive equilibrium, calibration and moment matching, stochastic processes.
3. **Monetary Theory and Policy:** Money demand, inflation and welfare in the long run, determinacy and the Taylor principle, monopolistic competition, sticky prices, real and nominal rigidities, menu costs and intensive vs. extensive margins
Methods: Dynamic programming and optimization methods

Background Readings:

- Ljungquist and Sargent: Recursive Macroeconomic Theory, 2nd edition (MIT Press, available online) Offers technical background material and covers parts 1 and 2 of this course
- Acemoglu: Introduction to Modern Economic Growth (Princeton University Press) Parts I-III cover the first part of the course.
- Stokey and Lucas: Recursive Methods in Economic Dynamics (Harvard University Press) This book offers background reading on dynamic programming and Markov processes
- Galí: Monetary Policy, Inflation and the Business Cycle (Princeton University Press) This book offers background reading on the material presented in the third part of the course.

Additional readings will be provided in the form of lecture notes and references to specific papers throughout the course. In addition, good lecture notes for many of the topics covered in this course are available online.

Syllabus Micro 1 Master 2 Fall 2018

Prof. Renato Gomes (renato.gomes@tse-fr.eu)
TD Peter Wikman (peter.wikman@tsefr.onmicrosoft.com)

Topics:

1. Consumer Theory
 - (a) Preferences and Utility Representation
 - (b) Consumer Demand: Utility Maximization and Expenditure Minimization
 - (c) Duality and the Slutsky Equation
 - (d) Aggregation of Demand
2. Producer Theory
 - (a) Firm Supply: Profit Maximization and Cost Minimization
 - (b) Duality in Production
 - (c) Aggregation of Supply
3. Uncertainty
 - (a) Expected Utility Representation
 - (b) Preferences over Risk
 - (c) Risk Dominance Criteria
4. General Equilibrium
 - (a) Exchange and One-Producer-One-Consumer Economies
 - (b) Pareto Optimality and the Welfare Theorems
 - (c) Existence of Walrasian Equilibria
 - (d) General Equilibrium under Uncertainty

Required Book: "Microeconomic Theory", by Andreu Mas-Colell, Michael Whinston and Jerry Green.

Further Reading: "Microeconomic Foundations I", by David Kreps;
"Advanced Microeconomic Theory", by Geoffrey Jehle and Philip Reny;
"Lecture Notes in Microeconomic Theory", by Ariel Rubinstein.

Evaluation: The grade comes from the combination of a midterm and a final exam.

Meetings: TBD. Practice sessions will be held on a weekly basis.

M2 ETE: Advanced Behavioral and Experimental Economics Syllabus 2018-2019

Objectives:

This is a course on advanced behavioral (micro)economics. The course should give students a clear idea of what has been learned from behavioral economics and what are the current frontiers. It is meant both for students who are potentially interested in pursuing research in behavioral economics, and for students who are interested in applying insights and methods from behavioral economics to other fields (theory, finance, development, environment, etc.).

Teaching team:

The course will be taught by a team of teachers to enable students an exposure to different methods and topics. The teaching team for 2018/2019 will consist of Roberta Dessi, Ingela Alger and Astrid Hopfensitz.

Requirements:

The course will be taught in English. Microeconomics and game theory are pre-requisites. Students are expected to actively participate in class and to prepare by reading the assigned texts.

Evaluations:

Students will be evaluated on one term paper (e.g. the outline for a research project) and three written take-home exams (one for each instructor). The term paper grade will represent 40% of the course grade, and each take-home exam, 20%. The deadlines for the three take-home exams will be February 18, March 18, and April 8, respectively. The deadline for the term paper will be April 15.

Outline:

week 1: Introduction, Astrid Hopfensitz

- historical introduction
- the experimental method

week 2 – 5: PART I, Roberta Dessi

Individual decision making: non-standard beliefs and preferences

- Introduction
- Heuristics and biases, framing
- Reference-dependent preferences, loss aversion and prospect theory
- Intertemporal choice and time discounting
- Overconfidence
- Bounded rationality and limited attention.

week 5 – 7: PART II, Ingela Alger

Decision making in social interactions: non-standard preferences

- non-standard preferences in social interactions (altruism, warm glow, fairness concerns, inequity aversion, etc.)
- introduction to the field of preference evolution

week 8 – 10: PART III, Astrid Hopfensitz

Social decision making: Groups, Norms and Networks

- empirical evidence for behavior in social interactions (public good games, trust games, dictator games)
- social enforcement mechanisms of pro-social behavior (peer-punishment, reward, ostracism, endogenous group formation)
- cross-cultural robustness (norms, culture)
- mechanism (social pressure, beliefs, emotions, group identity)
- heterogeneity of agents (heterogeneity of preferences, social position, network position)

Readings:

Book (we highly recommend the following book for parts of the course):

- *The Foundations of Behavioral Economic Analysis*, Sanjit Dhami, Oxford (37 Euros)

Articles: Each member of the teaching team will provide a list of papers for her part of the course.

Asset pricing and financial market

Course title - Intitulé du cours	Asset pricing and financial market
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Marianne ANDRIES
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

E-mail : marianne.andries@tse-fr.eu

Course's Objectives - Objectifs du cours :

This course provides some advanced empirical and theoretical analysis of asset pricing. Observed features in market movements are described, and the theoretical approach to explain them is discussed and analyzed. Econometrical methods for testing pricing models are provided.

Course Outline :

- Introduction to Asset Returns "puzzles"
- Theoretical Asset Pricing Models !
- Cross-Section Analysis of Asset Returns

Prerequisites - Pré requis :

Good knowledge of intermediate microeconomics, standard econometric methods and basic mathematics for economists. Some prior knowledge about market finance (M1 Market Finance provides an introduction to this course).

Grading system - Modalités d'évaluation :

Two problem sets (15%), final exam (85%). The exams include knowledge and understanding questions and a problem.

Bibliography/references - Bibliographie/références :

Lecture notes and papers will be posted online.

Asset Management by Andrew Ang, some chapters in Asset Pricing by John Cochrane are recommended additional reads.

Corporate Finance and Financial Intermediation 1

Course title - Intitulé du cours	Corporate Finance and Financial Intermediation 1
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Alexander Guembel
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

E-mail : alexander.guembel@tse-fr.eu

Course's Objectives - Objectifs du cours :

The course will cover the big topics in corporate finance (see course outline), both from a theoretical and an empirical perspective. It provides a treatment of the milestones of research in corporate finance and aims to give students an understanding of the frontier of current research.

The intended learning outcomes are:

- Explain how key frictions (moral hazard, asymmetric information) can be captured in an economic model.
- Assess how such frictions affect financial arrangements of a corporation.
- Describe how selected empirical evidence relates to model predictions.
- Build on existing models so as to capture new effects, with a view to being able to develop one's own research.

Course Outline :

Capital structure & security design

- Liquidity demand, fire sales, financial crisis
- Corporate governance (agency problems, monitoring, short-termism, executive compensation, takeovers and shareholder activism)
- Bankruptcy & control rights

Prerequisites - Pré requis :

Good knowledge of intermediate microeconomics and corporate finance at M1.

Grading system - Modalités d'évaluation :

A paper discussion (40%), final exam (60%). The exam will cover students' knowledge of the literature and ability to analyze specific problems.

Bibliography/references - Bibliographie/références :

Tirole, 2006, The Theory of Corporate Finance, Princeton University Press.

Development Microeconomics

Course title - Intitulé du cours	Development Microeconomics
Level / Semester - Niveau / semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Stephane STRAUB
Other teacher(s) - Autre(s) enseignant(s)	Emmanuelle AURIOL
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Emmanuelle Auriol, office MF 513, meeting by appointment, preferred mean of interaction email emmanuelle.auriol@tse-fr.eu

Stéphane Straub, office MF 125, meeting by appointment, preferred mean of interaction email stephane.straub@tse-fr.eu

Course's Objectives - Objectifs du cours :

The course aims at providing students with an overview of recent research in the field of development micro-economics, especially that concerned with industrial organization issues, the behaviour of firms and government, the organization of markets and the functioning of supporting institutions and related public policies. The course will be in two parts. The first one with Emmanuelle Auriol will be theoretically oriented, while the second one with Stéphane Straub will be more empirically oriented. The aim of the first part of the course will be to show how simple conceptual frameworks and theory can help guide public policy in the specific context of developing countries. The second part of the course will cover the application of microeconomic tools to economic development issues in developing and emerging countries, with a special focus on the empirical study of infrastructure and regulation issues. This will be addressed from different angles, including institutional aspects such as corruption and political connections, as well as impact evaluation of infrastructure investments, policies, and regulation. The general objective is to introduce students to the corresponding development literature, to make them familiar with the tools used by economists to address these issues, to highlight promising research avenues, and to discuss the policy implications of the works covered.

Key Themes:

- Privatization, (de)regulation, infrastructure.
- Institutions, governance, corruption, rent-seeking, political connections.
- Firms in developing countries: informality and entrepreneurship.
- Government and non-profit organizations: incentives and capacity building.

Prerequisites - Pré requis : Although the course will not use difficult mathematics or econometrics, familiarity with game theory and incentive theory will be helpful for the theoretical part, and familiarity with panel data econometrics for the empirical part.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Grading system - Modalités d'évaluation : Grading will consist of a home assignment (part 1) / exam (part 2). Late home assignments will be discounted by 50% if they are less than a week late. No home assignment will be accepted more than 1 week after the due date.

Part 1: Emmanuelle Auriol

Description: The prominent form of government intervention in markets no longer is public ownership of production means. Rather, modern forms of regulation attempt at correcting market failures. The latter are diverse, and so are the modes of intervention. This part of the course will focus on the intervention of government in market economies, both from a positive and from a normative point of view. The key topics will include intervention of the government in the context of economic development such as privatization, public-private partnerships, regulation of public utilities and infrastructure, entry barrier to the formal sector and to entrepreneurship, the size of the informal economy, technological transfer and innovation through the enforcement of intellectual property rights. We will discuss the impact of the fiscal burden of financing public services (i.e., opportunity cost of public funds) and the cost imposed by asymmetric information faced by public authorities. We will also analyse incentives in public administrations, including the cause of corruption and its implication in the implementation of public policies, and in non-profit organizations.

Outline:

- Theme 1: Privatization, Deregulation and Public-Private Partnership
- Theme 2: Corruption in Procurement and in Privatization
- Theme 3: Taxation Base and the Cost of Public Funds in Developing Countries
- Theme 4: Entrepreneurship, Innovation and Quality Provision

General Readings:

- Laffont J.J. Regulation and Development, collection Frederico Caffè Lectures, Cambridge University Press, mars 2005.
- Antonio Estache and Quentin Wodon, "Infrastructure and Poverty in Sub-Saharan Africa", Palgrave Macmillan, 2014.

- Christopher Decker, “Modern Economic Regulation: An Introduction to Theory and Practice”, Cambridge University Press, December 2014.

1. Privatization, Deregulation and Public-Private-Partnerships

- Auriol, E. and P. Picard (2004), “Infrastructure and Public Utilities Privatizations in Developing Countries”, World Bank Economic Review.
- Auriol, E. and P. Picard (2009), “Government Outsourcing: Public Contracting with Private Monopoly”, the Economic Journal, vol. 119, n°540, p. 1464-1493
- Auriol, E. and P. Picard (2010), “A Theory of BOT Concession Contracts”, Journal of Economic Behavior and Organization.
- Auriol, E. (2005) “Telecommunication Reforms in Developing Countries”, Communications & Strategies, November 2005, special issue, pp. 31-53.
- Auriol, E. and S. Biancini, “Powering Up Developing Countries through Economic Integration” World Bank Economic Review, vol. 29, n°1, 2015, p. 1-40.
- Auriol, E., Antonio Estache and Liam Wren-Lewis, “Can supranational infrastructure regulation compensate for national institutional weaknesses? 2017 mimeo.
- Estache A. and A. Iimi “The Economics of Infrastructure Procurement: Theory and Evidence”, (2011), CEPR, London
- Boycko, M. Shleifer, A. and R. Vishny (1996), “A Theory of Privatization”, Economic Journal, 106, 309-319.
- Laffont, J.J. and J. Tirole (1993), A Theory of Incentives in Procurement and Regulation, MIT Press.
- Shleifer, A. and R. Vishny (1994), “Politicians and Firms”, Quarterly Journal of Economics, 109: 599-617.
- Birdsall N. and J. Nellis (2005) Eds., Reality Check: The Distributional Impact of Privatization in Developing Countries, Center for Global Development.
- Bortolotti B. and D. Siniscalco, 2003, The Challenges of Privatization: An International Analysis, Oxford University Press.
- Engel, E. , R. Fischer and A. Galetovic (2003), “Privatizing Highways in Latin America: Fixing what Went Wrong”, Economia, 4: 129-164.
- Galiani, S., P. Gertler and E. Schargrotsky (2005), “Water for Life: The Impact of Privatization of Water Services on Child Mortality”, Journal of Political Economy, 113: 83-120.
- Guasch, J.L., J.J. Laffont and S. Straub (2007), “Renegotiation of Concession Contracts in Latin America”, International Journal of Industrial Organization.
- Guasch, J.L., J.J. Laffont and S. Straub (2006), “Concession of Infrastructure in Latin America: Government-Led Renegotiations”, Journal of Applied Econometrics.
- Harris, C. (2003), “Private Participation in Infrastructure in Developing Countries. Trends, Impacts, and Policy Lessons”, World Bank Working Paper No.5, Washington D.C.
- Kessides I. (2004), Reforming Infrastructure. Privatization, Regulation and Competition, World Bank and Oxford University Press.
- Megginson W. (2005), The Financial Economics of Privatization, Oxford University Press.

- Megginson W. and J. Netter (2000), "From State to Market: A Survey of Empirical Studies on Privatization" *Journal of Economic Literature*, 39: 321-389.

2. Corruption in Procurement and in Privatization

- Auriol, Emmanuelle "Corruption in Procurement and Public Purchase", 2006, AURIOL Emmanuelle, *International Journal of Industrial Organization*, 24, 867-885.
- Auriol, Emmanuelle, Erling Hjelmeng, and Tina Soreide "Deterring Corruption and Cartels: In Search of a Coherent Approach" Feb. 2017, *Concurrences Review* N° 1-2017, Art. N° 82670.
- Auriol, Emmanuelle and Tina Soreide, "An Economic Analysis of Debarment", 2017, *International Review of Law and Economics*, Volume 50, June 2017, Pages 36–49
- Auriol, Emmanuelle and Aymeric Blanc "Capture and Corruption in Public Utilities: The Cases of Water and Electricity in Sub-Saharan Africa", *Utilities Policy*, 17 (2009) 203–216
- Auriol, Emmanuelle, Stephane Straub and Thomas Flochel, "Public Procurement and Rent-Seeking in Paraguay", *World Development* Vol. 77, pp. 395–407, 2016
- Auriol E. and S. Straub (2011), "Privatization of Rent-Generating Industries and Corruption", in the *International Handbook on the Economics of Corruption*, Volume 2, edited by Susan Rose-Ackerman and Tina Soreide, Edward Elgar Publishing
- Auriol, Emmanuelle and Julie Lassebie 2017 "A Theory of Petty Corruption", mimeo TSE.
- Hoff, K. and J. Stiglitz (2005), "The Creation of the Rule of Law and the Legitimacy of Property Rights: The Political and Economic Consequences of a Corrupt Privatization" , NBER working paper 11772, Cambridge, MA.
- Martimort D. and S. Straub (2006), "Privatization and Changes in Corruption Patterns", forthcoming *Journal of Development Economics*.
- Clarke, G. and L. Xu (2004), "Privatization, Competition, and Corruption: How Characteristics of Bribe Takers and Payers Affect Bribes to Utilities", *J. of Public Economics*, 88: 2067-2097.
- Olken, B. (2007). *Monitoring Corruption: Evidence from a Field Experiment in Indonesia.*, *Journal of Political Economy*, 115(2), 200-249.
- Olken, B. & Pande, R. (2012). *Corruption in Developing Countries.* *Annual Review of Economics*, 4, 479-505.
- Pande, R. (2008). *Understanding Political Corruption in Low Income Countries*, in *Handbook of Development Economics*, Vol. 4, eds.T. Schultz and J. Strauss. North-Holland: Elsevier.

4. Taxation Base and the Cost of Public Funds in Developing Countries

- Auriol, Emmanuelle. and Michael Warlters, "Taxation Base in Developing Countries", *Journal of Public Economics*, 2004.
- Auriol, Emmanuelle and Michael Warlters, 2011, "The Marginal Cost of Public Fund in Developing Countries: An application to 38 African countries", *J. of Development Economics*.
- Bardhan P. and C. Udry, *Developments Microeconomics*, Chapter 5.
- Besley, T. and T. Persson, "Why do Developing Countries Tax So little?", *Journal of Economics Perspectives*, Vol. 28, N°4, pp. 99-120
- Schneider, Friedrich and Dominik Enste, "Shadow Economies: Size, Causes, and Consequences", *Journal of Economic Literature*, XXXVIII, (2000), 77-114.
- Straub, Stéphane, "Informal Sector: The Credit Market Channel", *Journal of Development Economics*, 2005.

- Field, Erica "Entitled to Work: Urban Property Rights and Labor Supply in Peru", *Quarterly Journal of Economics*, November 2007.
- Djankov, Simeon, Rafael La Porta, Florencio Lopez de Silanes and Andrei Shleifer, "The Regulation of Entry", *Quarterly Journal of Economics*, CXVII, (2002), 1-37.
- Friedman, Eric., Simon Johnson, Daniel Kaufmann and Pablo Zoido-Lobaton, "Dodging the Grabbing Hand: The Determinants of Unofficial Activity in 69 countries", *Journal of Public Economics*, 76, (2000), 459-493.
- Johnson, Simon and Daniel Kaufmann, "Why Do Firms Hide? Bribes and Unofficial Activity after Communism", *Journal of Public Economics*, 76, (2000), 495-520.
- Johnson, Simon, Daniel Kaufmann, and Andrei Shleifer, "The Unofficial Economy in Transition", *Brookings Papers on Economic Activity*, Vol. 1997(2), (1997), 159-221.
- Johnson, Simon, Daniel Kaufmann and Pablo Zoido-Lobaton, "Regulatory Discretion and the Unofficial Economy", *American Economic Review P&P*, 88(2), 1998, 387-392.
- Lemieux, Thomas, Bernard Fortin and Pierre Fréchet, "The Effect of Taxes on Labor Supply in the Underground Economy", *American Economic Review*, 84(1), (1994), 231-254.

5. Entrepreneurship, Innovation and Quality provision in Developing Countries

- Alby Philippe, Emmanuelle Auriol and Pierre Nguimkeu (2014), "Social Barriers to Entrepreneurship in Africa: the Forced Mutual Help Hypothesis", mimeo.
- Auriol Emmanuelle and Jean-Luc Démonsant (2012), "Education and Migration Decisions in Hierarchical Societies: the Case of Matam, Senegal", *Regional Science and Urban Economics*, vol 42, p. 875–889
- Auriol, Emmanuelle, Sara Biancini, and Rodrigo Paillacar, (2014) "Intellectual Property Rights Protection and Trade", mimeo.
- Auriol, E. and S. Schilizzi, "Quality Signalling through Certification in Developing Countries", forthcoming in the *Journal of Development Economics*.
- Balineau, G., 2013, "Disentangling the Effects of Fair Trade on the Quality of Malian Cotton", *World Development*, 44, 241-255.
- Balineau, G. & I. Dufeu, 2010, "Are Fair Trade goods credence goods? A new proposal, with French illustrations", *Journal of Business Ethics*, 92 (suppl.2), 331-345.
- Balineau, G. (2015), "Fair Trade? Yes, but not at Christmas! Evidence from scanned data on French Fairtrade purchases", *AFD Research Paper Series*, No. 2015-0XX
- Darby, M. R., & Karni, E. (1973). "Free Competition and Optimal Amount of Fraud", *Journal of Law & Economics*, 16(1), 67-88.
- Engel, S. (2006). "Overcompliance, labeling, and lobbying: The case of credence goods", *Environmental Modeling & Assessment*, 11(2), 115-130.
- Fridell, G. (2004). "The Fair Trade Network in Historical Perspective", *Canadian Journal of Development Studies*, 25(3), 411-428
- Lupton, S. (2005). "Shared quality uncertainty and the introduction of indeterminate goods", *Cambridge Journal of Economics*, 29(3), 399-421.
- Nelson, P. (1970). "Information and Consumer Behavior", *Journal of Political Economy*, 78(2), 311-329.
- Strausz, R. (2005). "Honest certification and the threat of capture", *International Journal of Industrial Organization*, 23(1-2), 45-62.

- Tirole, J. (1988). The theory of industrial organization. MIT press. (Chapters 2 & 7)

Part 2: Stéphane Straub

Description: Development economics increasingly recognizes the importance of the institutional environment in fostering favourable development outcomes. This is especially true when it comes to issues such as infrastructure (understood here to cover energy, water and sanitation, transport and information and communication technologies (ICT)), which are key to individuals' welfare and entrepreneurial capacity and also involve complex interactions between the public and the private sector. Public policies in these sectors frequently raise governance issues, and examples of corruption and abuse of political connections abound. This part of the course will draw on the rich empirical literature that has documented these issues and analysed their impact on the process of development. We will review papers assessing the long-term impact of institutions, as well as the contemporaneous impact of corruption and rent-seeking on public policies. We will also discuss the economic literature on the impact of infrastructure on development outcomes and review its contribution to the process of public policy definition.

Outline:

- Theme 1: Governance in developing countries (long-term effect of institutions, corruption, rent-seeking, political connections and capture by entrepreneurs), in particular related to the course main issues, i.e., regulation and infrastructure.
- Theme 2: Infrastructure investments and policies long-term impact, and regulatory issues.

This part of the course will be organized as follows: session 1 will cover the long-term effects of institutions, sessions 2 and 3 will address corruption and political connections in the context of infrastructure, and sessions 4 and 5 will cover infrastructure impact, policies, and regulation.

Readings: Stéphane Straub will indicate each week which papers should be read for the following classes. Note that the reading list by no mean pretends to be an exhaustive list. On each of these topics, there are many more relevant papers not listed here, which can be found in the references of the papers below or doing a specific search.

General readings:

Econometrics references:

- Wooldridge, Jeffrey, *Econometric Analysis of Cross Section and Panel Data*, MIT Press
- Angrist, Joshua D, and Pischke, Jorn-Steffen, *Mostly Harmless Econometrics*, Princeton University Press

1) Long-Term Effect of Institutions

- Melissa Dell, "The Persistent Effects of Peru's Mining Mita", *Econometrica*, Vol. 78, No. 6 (November, 2010), 1863–1903.
- Nunn, Nathan and Leonard Wantchekon, "The Slave Trade and the Origins of Mistrust in Africa," *American Economic Review*, Vol. 101, No. 7, December 2011, 3221-3252.
- Stelios Michalopoulos and Elias Papaioannou, "Pre-colonial Ethnic Institutions and Contemporary African Development", *Econometrica*, 2013, 81(1): 113–152.
- Marcella Alsan, 2012, "The Effect of the TseTse Fly on African Development", *American Economic Review*.
- Acemoglu, D., S. Johnson, and J. A. Robinson (2001): "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review*, 91, 1369–1401.
- Engerman, S., and K. Sokoloff (1997): "Factors Endowments, Institutions, and Differential Paths of Growth Among NewWorld Economies," in *How Latin American Fell Behind*, ed. by S. Haber. Stanford: Stanford University Press, 260–304.
- Banerjee, A., and L. Iyer (2005): "History, Institutions, and Economic Performance: The Legacy of Colonial Land Tenure Systems in India," *American Economic Review*, 95, 1190–1213.
- Baumol, William J. 1990. "Entrepreneurship: Productive, Unproductive, and Destructive." *Journal of Political Economy*, 98(5): 893–921.
- Raghuram G. Rajan, 2009. "Rent Preservation and the Persistence of Underdevelopment," *American Economic Journal: Macroeconomics*, vol. 1(1), pages 178-218, January.
- Acemoglu, Daron, 2003. "Why not a political Coase theorem? Social conflict, commitment, and politics," *Journal of Comparative Economics*, Elsevier, vol. 31(4), pages 620-652, December.
- Murphy, Kevin M., Andrei Shleifer and Robert W. Vishny. 1991. "The Allocation of Talent: Implication for Growth." *Quarterly Journal of Economics*, 106(2): 503—530.

2) Corruption, Political Connections, and Rent-Seeking

- Olken, Benjamin and Pande, Rohini, "Corruption in Developing Countries". *Annual Review of Economics* 4, pp. 479-505, July 2012.
- Ritva Reinikka & Jakob Svensson "Fighting corruption to improve schooling: Evidence from a newspaper campaign in Uganda", *Journal of the European Economic Association*, 2005, 3 (2-3): 259-267.
- Jie Bai, Seema Jayachandran, and Edmund J. Malesky, and Benjamin Olken, 2014, "Does Economic Growth Reduce Corruption? Theory and Evidence from Vietnam". NBER Working Paper #19483.
- Ferraz, Claudio and Frederico Finan. 2008. "Exposing Corrupt Politicians: The Effect of Brazil's Publicly Released Audits on Electoral Outcomes." *Quarterly Journal of Economics*. 123(2): 703—745.
- Frederico Finan and Claudio Ferraz, "Electoral Accountability and Corruption in Local Governments: Evidence from Audit Reports", *American Economic Review*, 2011, 101: 1274-1311.
- Mauro, P. (1995). "Corruption and Growth." *The Quarterly Journal of Economics*, 110(3): 681-712.

- John McMillan and Pablo Zoido, 2004, "How to Subvert Democracy: Montesinos in Peru", *Journal of Economic Perspectives*, Volume 18, Number 4, Pages 69-92.
- Bertrand, Marianne, Simeon Djankov, Rema Hanna and Sendhil Mullainathan. 2007. "Obtaining a Driving License in India: An Experimental Approach to Studying Corruption." *The Quarterly Journal of Economics*, 122(4): 1639-1676.
- Olken, Benjamin. 2007. "Monitoring Corruption: Evidence from a Field Experiment in Indonesia." *Journal of Political Economy* 115(2): 200-249.
- Olken, B. and Barron, P. (2009). "The Simple Economics of Extortion: Evidence from Trucking in Aceh." *Journal of Political Economy*, 117(3): 417-452.
- Rose-Ackerman, Susan. 1999. *Corruption and Government: Causes, Consequences, and Reform*. Cambridge: Cambridge University Press.
- Olken B., "Corruption Perceptions vs. Corruption Reality". *Journal of Public Economics*, 93 (7-8), pp. 950-964, August 2009.
- Hanna, R., Mullainathan S., and A. Banerjee, "Corruption," *The Handbook of Organizational Economics*. Ed. Robert Gibbons and John Roberts. Princeton University Press, 1109-1147, 2012.
- Fisman, Raymond. 2001. "Estimating the Value of Political Connections." *American Economic Review*, 91(4): 1095-1102.
- Fisman, Raymond, Florian Schulz and Vikrant Vig, "The Private Returns to Public Office", 2013.
- Fisman, Raymond and Yongxiang Wang, "The Mortality Cost of Political Connections", forthcoming, *Review of Economic Studies*, 2015.
- Hsieh, Chang-Tai, Edward Miguel, Daniel Ortega and Francisco Rodriguez. 2008. "The Price of Political Opposition: Evidence from Venezuela's Maisanta." *American Economic Journal: Applied Economics*.
- Khwaja, Asim I. and Atif Mian. 2005. "Do lenders favor politically connected firms? Rent provision in an emerging financial market." *Quarterly Journal of Economics*, 120 (4): 1371-1411.
- Frederico Finan and Laura Schechter, "Vote-buying and Reciprocity", *Econometrica*, 2012, 80(2): 863-882.
- Li, Hongbin, Lingsheng Meng, Qian Wang and Li-An Zhou. 2008. "Political connections, financing and firm performance: Evidence from Chinese private firms." *Journal of Development Economics*, 87(2): 283-299.
- Barbosa, Klenio, and Stéphane Straub. 2017. "The Value of Revolving Doors in Public Procurement." Mimeo.
- Straub, S., 2014, "Political Firms, Public Procurement, and the Democratization Process", TSE working paper 461.
- Auriol, Emmanuelle, Thomas Flochel and Stéphane Straub, 2016, "Public Procurement and Rent-Seeking: The Case of Paraguay", *World Development*, 77, 395-407.
- Jean-Marie Baland & James A. Robinson, 2008. "Land and Power: Theory and Evidence from Chile," *American Economic Review*, vol. 98(5), pages 1737-65, December.
- Krueger, A. (1974). *The political economy of the rent seeking society*. *American Economic Review*, 64, 291-303.

3) Infrastructure Impact, Policies, and Regulation

- Lipscomb, M., M. Mobarak and T. Barham, 2013, "Development Effects of Electrification: Evidence from the Topographic Placement of Hydropower Plants in Brazil", *AEJ: Applied Economics*, 5(2): 200--231.
- T. Dinkelman, 2011, "The effects of rural electrification on employment: New evidence from South Africa", *American Economic Review*, 101(7): 3078--3108.
- Duflo E. and R. Pande (2007), "Dams", *Quarterly Journal of Economics*, 122(2), 601-646.
- Galiani, S., P. Gertler and E. Schargrotsky (2005), "Water for Life: The Impact of Privatization of Water Services on Child Mortality", *Journal of Political Economy*, 113: 83-120.
- Gertler, P., O. Shelef, C. Wolfram, and A. Fuchs. (2016). "The Demand for Energy-Using Assets among the World's Rising Middle Classes," *American Economic Review*. Vol. 106, No. 6, pp. 1366-1401.
- Lee, K., Miguel, T., and C. Wolfram. (2016). "Experimental Evidence on the Demand for and Costs of Rural Electrification." Unpublished working paper.
- Jensen R. (2007), "The Digital Divide: Information (Technology), Market performance, and Welfare in the South Indian Fisheries Sector", *Quarterly Journal of Economics*, 122(3), 879-924.
- D. Donaldson, "Railroads of the Raj: Estimating the Impact of Transportation Infrastructure", forthcoming, *American Economic Review*.
- Bird, J. and S. Straub, 2014, "The Brasília Experiment: Road Access and the Spatial Pattern of Long-term Local Development in Brazil", *World Bank Policy Research Working Paper No.6964*.
- Abhijit Banerjee, Esther Duflo and Nancy Qian. "On the Road: Access to Transportation Infrastructure and Economic Growth in China". mimeo, February 2012.
- Allcott, Hunt, Allan Collard-Wexler, and Stephen D. O'Connell (2016). "How Do Electricity Shortages Affect Industry? Evidence from India." *American Economic Review*, Vol. 106, No. 3 (March), pages 587-624.
- J. Assunção, M. Lipscomb, A. M. Mobarak, D. Szerman. "Agricultural Productivity and Deforestation in Brazil", mimeo.
- Robin Burgess, Remi Jedwab, Edward Miguel, Ameet Morjaria and Gerard Padro-i-Miguel. "The Value of Democracy: Evidence from Road Building in Kenya", *NBER Working Paper No. 19398*, forthcoming, *American Economic Review*, June 2015
- Remi Jedwab and Alexander Moradi. "The Permanent Economic Effects of Transportation Revolutions in Poor Countries: Evidence from Africa", forthcoming, *Review of Economics and Statistics*.
- Bleakley, Hoyt, and Jeffrey Lin. 2012. "Portage and Path Dependence." *The Quarterly Journal of Economics*, 127(2): 587--644.
- Baum-Snow, N, L Brandt, V Henderson, M Turner and Q Zhang (2012), "Roads, Railroads and Decentralization of Chinese Cities", working paper.
- Ghani, E., Goswami, A. and W. Kerr, 2013, "Highway to success in India: the impact of the golden quadrilateral project for the location and performance of manufacturing", *Policy Research Working Paper Series 6320*, The World Bank.
- Saugato Datta. "The impact of improved highways on Indian firms". *Journal of Development Economics*, Volume 99, Issue 1, September 2012, Pages 46—57.

- Storeygard, A., 2016, "Farther on down the road: transport costs, trade and urban growth in sub-Saharan Africa", *Review of Economic Studies* 83(3): 1263-1295.
- Gilles Duranton and Matt Turner, 2011, "Urban growth and transportation", *Review of Economic Studies*, forthcoming
- Casaburi, L., Glennerster, R. and Suri, T., 2013, "Rural Roads and Intermediated Trade: Regression Discontinuity Evidence from Sierra Leone", mimeo.
- Jenny Aker and Marcel Fafchamps, 2013, "How does mobile phone coverage affect farm-gate prices? Evidence from West Africa." *World Bank Economic Review*.
- Jenny Aker and Isaac M. Mbiti. 2010. " Mobile Phones and Economic Development in Africa." *Journal of Economic Perspectives*. 24(3): 207-32.
- Jenny Aker. 2010. " Information from Markets Near and Far: The Impact of Mobile Phones on Grain Markets in Niger." *American Economic Journal: Applied Economics*. 2: 46-59.
- Jenny Aker, Christopher Ksoll and Travis Lybbert. 2012. "Can Mobile Phones Improve Learning? Evidence from a Field Experiment in Niger." 4(4), *American Economic Journal: Applied Economics*.
- Michael Greenstone, Rema Hanna and Esther Duflo "Up in Smoke: The Influence of Household Behavior on the Long-Run Impact of Improved Cooking Stoves," *American Economic Journal: Economic Policy*, 2016, 8(1): 80-114.
- Michael Greenstone, Esther Duflo, Raymond Guiteras, and Thomas Clasen, 2015, "Toilets Can Work: Short and Medium Run Health Impacts of Addressing Complementarities and Externalities in Water and Sanitation," Mimeograph.
- David Martimort et Stéphane Straub, « How to Design Infrastructure Contracts in a Warming World? A Critical Appraisal of Public-Private Partnerships », *International Economic Review*, vol. 57, n° 1, février 2016, p. 61–88.
- Jean-Jacques Dethier, Alex Moore et Stéphane Straub, « Regulation, Renegotiation and Capital Structure: Theory and Evidence from Latin American Transport Concessions », *Journal of Regulatory Economics*, vol. 45, n° 2, 2014, p. 209–232.
- Straub, S. (2011), "Infrastructure and Development: A Critical Appraisal of the Macro-Level Literature", *The Journal of Development Studies*, vol. 47, n°5, p. 683-708.
- Straub, S. (2008), "Infrastructure and Growth in Developing Countries: Recent Advances and Research Challenges", *World Bank Policy Research Working Paper No.4460*.
- Philippe Alby, Jean-Jacques Dethier et Stéphane Straub, « Firms Operating under Electricity Constraints in Developing Countries? », *The World Bank Economic Review*, vol. 27, n° 1, 2013, p. 109–132.
- Céline Bonnet, Pierre Dubois, David Martimort and Stéphane Straub, 2012, "Empirical Evidence on Satisfaction with Privatization in Latin America", *World Bank Economic Review*, Volume 26, Issue 1, Pp. 1-33.
- Martimort, D., and S. Straub. 2009. "Infrastructure Privatization and Changes in Corruption Patterns: The Roots of Public Discontent". *Journal of Development Economics* 90: 69–84.
- Rafael Di Tella, Sebastian Galiani, Ernesto Schargrodsky, 2012, "Reality versus propaganda in the formation of beliefs about privatization", *Journal of Public Economics*, Volume 96, Issues 5–6, June 2012, Pages 553–567.

Econometrics 2

Course title - Intitulé du cours	Econometrics 2
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Nour Meddahi
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Nour Meddahi Email: nour.meddahi@tse-fr.eu Office: MF 417 Office hours: By appointment

Course's Objectives - Objectifs du cours :

The main goal of the course is to be able to do time series analysis in both theory and applications.

Content:

- 1) Stationary and non-stationary processes; filters; smoothers; Wold decomposition, basic definitions
- 2) ARMA processes: Properties; estimation and inference; diagnostics; forecasting
- 3) State-Space Models: Properties; Kalman Filter
- 4) Non-stationary and Unit-root: definitions; testing; estimation
- 5) Volatility: GARCH, SV and Markov switching; basic properties; QMLE for GARCH
- 6) VARMA, co-integration and SVAR
- 7) Forecasting with many predictors
- 8) Panel Data

Prerequisites - Pré requis :

Econometrics 1

Grading system - Modalités d'évaluation :

3 homeworks (10% each), Mid-term exam (25%) and final exam (45%)

Practical information about the sessions - Modalités pratiques de gestion du cours :

Classes: Monday and Tuesday, 11-12.30

Bibliography/references - Bibliographie/références :

Time Series: Brockwell, P. and R. Davis: Introduction to Time Series and Forecasting, Springer. Diebold, F.: Elements of Forecasting, Thomson, South-Western. Hamilton, J. D.: Time Series Analysis, Princeton University Press. Kilian, L. and H. Lutkepohl: Structural Vector Autoregressive Analysis, Cambridge University Press. Pesaran, H.: Time Series and Panel Data Econometrics, Oxford University Press. Stock, J. and M. Watson: Introduction to Econometrics, Addison Wesley. Panel Data: Arellano, M.: Panel Data Econometrics, Oxford University Press. Wooldridge, J.: Econometric Analysis of Cross Section and Panel Data, MIT Press

Bertrand Gobillard
Toulouse School of Economics, Office MS 103
bertrand.gobillard@tse-fr.eu

Niccolò Lomys
Toulouse School of Economics, Office MH 208
niccolo.lomys@tse-fr.eu

Economic Theory

Master 2 ETE, Spring 2019

Teaching Hours: Thursday 11:00–12:30 and 15:30–17:00

Office Hours: To be determined

Course Language: English

Presentation: This is a course on economic theory taught by Niccolò Lomys (Parts I and IV) and Bertrand Gobillard (Parts II and III). Lectures will revolve around two main topics, (i) repeated interactions and (ii) bargaining and markets, and will be divided into four parts. Part I will focus on repeated games with perfect monitoring and imperfect public monitoring; this part will also introduce recursive methods useful to study other problems in economics. Part II will analyze models of bilateral bargaining, with both complete and (one-sided) incomplete information. Part III will be on “markets and the Walrasian outcome” under complete information and, depending on time, it may cover dynamic matching and bargaining games, price posting with imperfect information, and bilateral oligopolies. Part IV will focus on signaling games and reputations in repeated games.

Objective: The objective of the course is twofold. (i) To introduce students to some important topics in economic theory. (ii) To learn how to apply basic game theory tools and build rigorous reasoning using standard techniques in game theory.

Background: Basic knowledge of game theory (strategic form games, extensive form games, mixed strategies, Nash equilibrium, subgame perfect Nash equilibrium, Bayesian Nash equilibrium, perfect Bayesian Nash equilibrium) and a taste for rigorous analysis and theoretical thinking. *Remark:* Topics have been chosen so that, in order to follow the lectures, you don’t need to know the content of “Microeconomics 2” on the economics of information and incentives, which is taught in parallel to our course.

References: Lectures will be based on important papers in the literature and on lecture notes you will have access to. Background references are:

1. Part I: Mailath and Samuelson (2006), *Repeated Games and Reputations: Long-Run Relationships*, Oxford University Press; Fudenberg and Tirole (1991), *Game Theory*, MIT Press.

2. Part II: Fudenberg and Tirole (1991), *Game Theory*, MIT Press; Myerson (1997), *Game Theory: Analysis of Conflict*, Harvard University Press; Osborne and Rubinstein (1990), *Bargaining and Markets*, Academic Press.
3. Part III: Osborne and Rubinstein (1990), *Bargaining and Markets*, Academic Press; Gale (2000), *Strategic Foundations of General Equilibrium: Dynamic Matching and Bargaining Games*, Cambridge University Press.
4. Part IV: Mas-Colell, Whinston, and Green (1995), *Microeconomic Theory*, Oxford University Press; Mailath and Samuelson (2006), *Repeated Games and Reputations: Long-Run Relationships*, Oxford University Press; Fudenberg and Tirole (1991), *Game Theory*, MIT Press; Mailath and Samuelson (2015), *Reputations in Repeated Games*, Chapter 4 in the Handbook of Game Theory with Economic Applications.

Grading: Final exam.

Microeconomics 2

Course title - Intitulé du cours	Microeconomics 2
Level / Semester - Niveau / semestre	Master 2 / S2
School - Composante	École d'Économie de Toulouse
Teacher - Enseignant responsable	REY Patrick
Other teacher(s) - Autre(s) enseignant(s)	Sebastian Vergara
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	36
TA Hours - Volume horaire TD	15
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	English
TA and/or TP Language - Langue des TD et/ou TP	English

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Patrick Rey: patrick.rey@tse-fr.eu

Course's Objectives - Objectifs du cours :

This course focuses on the economics of information and incentives. It covers key notions and principles in situations of adverse selection and moral hazard, including mechanism design and its applications to auction theory.

Outline:

Chapter 1: Information economics

- I. Introduction
- II. Asymmetric information and market failures
 1. Lemons problem
 2. Screening
 3. Screening versus signaling
 4. Market disequilibrium
- III. Roadmap

Chapter 2: Adverse selection

- I. Introduction
- II. Simple example
 1. Price discrimination
 2. Complete information
 3. Incomplete information

- III. *A more general analysis*
 - 1. *Framework*
 - 2. *Implementation*
 - 3. *Optimization*
 - 4. *Examples*
- IV. *Variations*
 - 1. *Multiple agents*
 - 2. *Noisy observation*
 - 3. *Interim renegotiation*
 - 4. *Countervailing incentives*
 - 5. *Stochastic contracts*
 - 6. *Dynamics*

Chapter 3: Moral hazard

- I. *Introduction*
 - 1. *Efficiency versus risk-sharing*
 - 2. *Efficiency versus informational rent*
- II. *The role of statistical inference*
 - 1. *The inference problem*
 - 2. *Full inference*
 - 3. *Limited inference*
 - 4. *Valuable signals*
- III. *Effort levels*
 - 1. *A simple example*
 - 2. *Risk-sharing, incentives and participation constraint*
 - 3. *Multi-tasks*
- IV. *Applications*
 - 1. *Partial insurance*
 - 2. *Efficiency wage*
 - 3. *Credit rationing*
 - 4. *Group lending*
 - 5. *Moral hazard in teams*
 - 6. *Career concerns*
 - 7. *Commitment*

Chapter 4: Implementation

- I. *Introduction*
 - 1. *Problem*
 - 2. *Framework*
 - 3. *Revelation principle*
- II. *Implementation in dominant strategies*
 - 1. *Framework*
 - 2. *Revelation principle*
 - 3. *A Simple case: two alternatives*

- 4. *Negative result*
- 5. *Solutions*
- III. *Bayesian implementation*
 - 1. *Framework*
 - 2. *Quasi-linear utilities*
 - 3. *Correlation of types*
- IV. *Nash implementation*
 - 1. *Framework*
 - 2. *Strong Nash implementation*
 - 3. *Equilibrium refinement*

Chapter 5: Auctions

- I. *Introduction*
 - 1. *Different auctions*
 - 2. *Revelation principle*
 - 3. *Examples*
- II. *Independent values*
 - 1. *Framework*
 - 2. *Revenue equivalence theorem*
 - 3. *Bidding strategies*
 - 4. *Optimal auction*
 - 5. *Risk aversion*
 - 6. *Asymmetry*
- III. *Common value*
 - 1. *The Winner's curse*
 - 2. *Correlation*
 - 3. *Standard auctions*

Prerequisites - Pré requis :

Microeconomics 1 ; Game theory

Practical information about the sessions - Modalités pratiques de gestion du cours :

Two 1.5h lectures per week for 12 weeks; One tutorial per week for ?? weeks.

Lecture notes are available.

Grading system - Modalités d'évaluation :

Final exam.

Bibliography/references - Bibliographie/références :

Textbooks:

- . Bolton, P., and M. Dewatripont (2005), *Contract Theory*, MIT Press.
- . Fudenberg, D., and J. Tirole (1991), *Game Theory*, MIT Press, Cambridge.

- . Gibbons, R. (1992), *A Primer in Game Theory*, Harvester Wheatsheaf, N.Y.
- . Laffont, J.J. (1988), *Fundamentals of Public Economics*, MIT Press, Cambridge.
- . Laffont, J.J. (1986), *Economie de l'Incertain et de l'Information*, Economica, Paris. (English version: *The Economics of Unvertainty and Information*, MIT Press, Cambrigde).
- . Laffont, J.J., and D. Martimort (2002), *The Theory of Incentives: The Principal Agent Model*, Princeton University Press.
- . Mas-Colell, A., M.D. Whinston and J. Green (1995), *Microeconomic Theory*, Oxford University Press, New York and Oxford.
- . Salanié, B. (1994), *The Economics of Contracts: A Primer*, MIT Press, 1997.

Chapter 1: Information economics

Textbook: Mas-Colell, Whinston and Green, Chap. 13.

Articles:

- . Akerlof, G. (1970), "The market for Lemons: Quality uncertainty and the market mechanism," *Quarterly Journal of Economics*, 89:488-500.
- . Attar, A., Th. Mariotti and F. Salanié (2011), "Nonexclusive Competition in the Market for Lemons," *Econometrica*, 79(6):1869-1918.
- . Attar, A., Th. Mariotti and F. Salanié (2014), "Nonexclusive Competition under Adverse Selection," *Theoretical Economics*, 9(1):1-40.
- . Diasakos, Th. M., and K. Koufopoulos (2013), "Efficient Nash Equilibrium under Adverse Selection," Department of Economics Discussion Paper 1313, University of St. Andrews, available at <http://www.carloalberto.org/assets/working-papers/no.215.pdf>
- . Hirshleifer, J. (1971), "The Private and Social Value of Information and the Reward to Inventive Activity," *American Economic Review*, 61:561-574.
- . Miyazaki, H. (1977), "The rat race and internal labor markets," *Bell Journal of Economics*, 8:394-418.
- . Picard, P. (2014), "Participating insurance contracts and the Rothschild-Stiglitz equilibrium puzzle," *The Geneva Risk and Insurance Review*, 39:153-175.
- . Rothschild, M., and J. E. Stiglitz (1976), "Equilibrium in Competitive Insurance Markets," *Quarterly Journal of Economics*, 90:629-649.
- . Spence, M. (1973), "Job Market Signalling," *Quarterly Journal of Economics*, 87:355-374.
- . Wilson, C. (1977), "A Model of Insurance Markets with Incomplete Information," *Journal of Economic Theory*, 16:167-207.

. Wilson, C. (1980), "The Nature of Equilibrium in Markets with Adverse Selection," *Bell Journal of Economics*, 11:108-130.

Chapter 2: Adverse selection

Textbooks: Laffont 1991, Chap. 10; Laffont and Martimort Chap. 2-3; Bolton and Dewatripont, Chap. 2; Mas-Colell, Whinston and Green, Chap. 13-14.

General References:

. Baron, D. (1989), "Design of Regulatory Mechanisms and Institutions," Chapter 24, *Handbook of Industrial Organization*, R. Schmalensee and R. Willig eds, North Holland.

. Caillaud, B., R. Guesnerie, P. Rey, and J. Tirole (1988), "Government Intervention in Production and Incentives Theory: A Review of Recent Contributions," *Rand Journal of Economics*, Spring 19: 1-26.

. Hart, O., and B. Holmstrom (1987), "The Theory of Contracts," in *Advances in Economic Theory*, Fifth World Congress, T. Bewley ed., Cambridge University Press.

. Laffont, J.J., and J. Tirole (1993), *A Theory of Incentives in Procurement and Incentives*, MIT Press.

Articles:

. Baron, D., and R. Myerson (1982), "Regulating a Monopolist with Unknown Costs," *Econometrica*, 50: 911-930.

. Bester, H., and R. Strausz (2001), "Contracting with Imperfect Commitment and the Revelation Principle: The Single Agent Case," *Econometrica*, 69: 1077-1098.

. Chiappori, P.-A., I. Macho, P. Rey and B. Salanié (1994), "Repeated moral hazard: The role of memory, commitment, and the access to credit markets," *European Economic Review*, 38(8): 1527-1553.

. Guesnerie, G., and J.-J. Laffont (1984), "A Complete Solution of Principal-Agent Problems with an Application to the Control of a Self-Managed Firm," *Journal of Public Economics*, 25: 329-369.

. Maskin, E., and J. Riley (1984), "Monopoly with Incomplete Information," *Rand Journal of Economics*, 15: 171-196.

. Mussa, M., and S. Rosen (1978), "Monopoly and Product Quality," *Journal of Economic Theory*, 18: 301-317.

Chapter 3: Moral hazard

Textbooks: Laffont 1991, Chapter 11; Laffont and Martimort, Chapters 4-5; Bolton and Dewatripont, Ch. 4; Mas-Colell, Whinston and Green, Ch. 14.

General References:

. Baron, D. (1989), "Design of Regulatory Mechanisms and Institutions," Chapter 24, Handbook of Industrial Organization, R. Schmalensee and R. Willig eds., North Holland.

. Hart, O., and B. Holmstrom (1987), "The Theory of Contracts," in Advances in Economic Theory, Fifth World Congress, T. Bewley ed., Cambridge University Press.

Articles:

. Grossman, S., and O. Hart (1983), "An Analysis of the Principal-Agent Problem," *Econometrica*, 51: 7-45.

. Holmstrom, B. (1979), "Moral Hazard and Observability," *Bell Journal of Economics*, 10: 74-91.

. Rogerson, W. (1985), "The First-Order Approach to Principal-Agent Problems" *Econometrica*, 53: 1357-1368.

. Shavell, S. (1979), "Risk-Sharing and Incentives in the Principal and Agent Relationship," *Bell Journal of Economics*, 10: 55-73.

. Jewitt, I. (1988), "Justifying the First-Order Approach to Principal-Agent Problems," *Econometrica*, 56(5): 1177-1190.

. Poblete, J., and D. Spulber (2012), "The form of incentive contracts: Agency with moral hazard, risk neutrality and limited liability," *Rand Journal of Economics*, 43:215-234.

. Sappington, D. (1983), "Limited Liability Contracts between Principal and Agent," *Journal of Economic Theory*, 29: 1-21.

. Holmstrom, B., and P. Milgrom (1987), "Aggregation and Linearity in the Provision of Intertemporal Incentives," *Econometrica*, 55: 303-328.

. Holmstrom, B., and P. Milgrom (1991), "Multi-Task Principal-Agent Analyses: Incentives Contracts, Asset Ownership and Job Design," *Journal of Law, Economics and Organization*, 7: 26-52.

Chapter 4: Implementation

Textbooks: Laffont and Martimort, Ch. 1; Laffont 1988, Ch. 5; Fudenberg and Tirole, Ch. 7; Mas-Colell, Whinston and Green, Ch. 23.

Articles:

I. Introduction

. Dasgupta, P., P. Hammond and E. Maskin (1979), "The Implementation of Social Choice Rules: Some General Results on Incentive Compatibility," *Review of Economic Studies*, 46: 185-216.

. Green, J., and J.J. Laffont (1979), *Incentives in Public Decision Making*, North Holland, Amsterdam.

. Laffont, J.J., and E. Maskin (1982), "The Theory of Incentives: An Overview," in W. Hildenbrand (ed.), *Advances in Economic Theory*, Cambridge University Press.

. Myerson, R.B. (1979), "Incentive Compatibility and the Bargaining Problem," *Econometrica*, 47: 61-74.

II. Implementation in dominant strategies

. Clarke, E. H. (1971), "Multipart pricing of public goods," *Public Choice*, 17-33.

. Gibbard, A. (1973), "Manipulation of Voting Schemes: A General Result," *Econometrica*, 41: 587-601.

. Groves, T. (1973), "Incentives in Teams," *Econometrica*, 41: 617-631.

. Laffont, J.J., and E. Maskin (1980), "A Differential Approach to Dominant Strategy Mechanisms," *Econometrica*, 48: 1507-1520.

. Satterthwaite, M. (1975), "Strategy-Proofness and Arrow's Conditions: Existence and Correspondence Theorems for Voting Procedures and Social Welfare Functions," *Journal of Economic Theory*, 10: 187-217.

. Vickrey, W. (1961), "Counterspeculation, auctions and competitive sealed tenders," *Journal of Finance*, 8-37.

III. Bayesian implementation

Textbook: Fudenberg and Tirole, Ch. 8.

Articles:

. D'Aspremont, C., and L.A. Gérard-Varet (1979), "Incentives and Incomplete Information," *Journal of Public Economics*, 11: 24-45.

. Laffont, J.J., and E. Maskin (1979), "A Differentiable Approach to Expected Utility Maximizing Mechanisms," Chap. 16 in Laffont, J.J. ed., *Aggregation and Revelation of Preferences*, North-Holland, Amsterdam.

. Myerson, R., and M. Satterthwaite (1983), "Efficient Mechanisms for Bilateral Trading," *Journal of Economic Theory*, 28: 265-281.

. Palfrey, T. (1992), "Implementation in Bayesian Equilibria: The Multiple Equilibrium Problem in Mechanism Design," in *Advances in Economic Theory*, Vol. I, Laffont ed., Cambridge University Press.

IV. Nash implementation

. Maskin, E. (1977), "Nash Equilibrium and Welfare Optimality," published in 1999 in *Review of Economic Studies*, 66: 23-38.

. Maskin, E. (1985), "The Theory of Implementation in Nash Equilibrium: A Survey," *Social Goals and Social Organization*, Essays in memory of Elisha Pazner, L. Hurwicz, D. Schmeidler and H. Sonnenschein eds., Cambridge University Press.

. Moore, J. (1992), "Implementation, Contracts, and Renegotiation in Environments with Complete Information," in *Advances in Economic Theory*, Vol. I, Laffont ed., Cambridge University Press.

Chapter 5: Auctions

Textbook: Bolton and Dewatripont, Ch. 7.

Articles:

. Laffont, J.J. (1997), "Game Theory and Empirical Economics: The Case of Auction Data," *European Economic Review*, 41: 1-35.

. Klemperer, P. (2004), *Auctions: Theory and Practice*, Princeton University Press.

. McAfee, P., and J. McMillan (1987), "Auctions and Bidding," *Journal of Economic Literature*, 25: 699-738.

. Milgrom, P., and R. Weber (1982), "A Theory of Auctions and Competitive Bidding," *Econometrica*, 50: 1089-1122.

. Myerson, R. (1981), "Optimal Auctions Design," *Mathematics of Operations Research*, 6: 58-73.

. Riley, J., and W. Samuelson (1991), "Optimal Auctions," *American Economic Review*, 71: 381-392.

. Vickrey, W. (1961), "Counterspeculation, Auctions, and Sealed Tenders," *Journal of Finance*, 16: 8-37.

Quantitative techniques in economics

Course title - Intitulé du cours	Quantitative techniques in economics
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	KANKANAMGE SUMUDU - COLLARD FABRICE
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Sumudu KANKANAMGE Email: sumudu.kankanamge@tse-fr.eu

Office: MF501 Office hours: TBA Preferred mode of interaction: end of class/email

Fabrice COLLARD Email: TBA Office: TBA Office hours: TBA Preferred mode of interaction: TBA

Course's Objectives - Objectifs du cours :

This class aims at introducing students to standard computational techniques which are now commonly used to solve and evaluate quantitatively economic models. While many examples used in this course will be drawn from the field of macroeconomics, most techniques can also be used to solve, simulate and evaluate models from other fields. The course will cover both local and global solution techniques, and will show students how to deal with models featuring occasionally binding constraints. Lectures will cover:

1 - Perfect foresights methods, and their implementation in Dynare: The objective of this part of the class is to introduce students to the simulation of deterministic (dynamic) models with perfect foresights, and in particular to show how to compute the dynamics of a model after a transitory shock, or to compute the transitional dynamics from one steady state to another. The techniques used in this part will not require the model to be linear, and will actually allow for the presence of occasionally binding constraints.

2 - Local perturbation techniques and their implementation in Dynare: Local perturbation techniques are a basic tool of macroeconomists, as most of the so-called DSGE (Dynamic Stochastic General Equilibrium) models are solved using this approach. This part of the course will introduce students to these techniques, insisting on their limitations, and will show they can simply be implemented in Dynare.

3 - Applied dynamic programming: Dynamic programming is a very powerful tool that allows to formulate and solve, in a relatively simple way, models featuring non-linearities, shocks, binding constraints, potential discontinuities ... This part will introduce the student to these techniques and will also show under what conditions they can be used. We will cover value iteration techniques, policy functions iterations, endogenous grid methods, iteration on Euler equations, both in the deterministic and the stochastic case.

4 - Parameterized Expectations Algorithm: The PEA method offers a simple way to solve a rational expectations model by parameterizing the expectation function rather than a particular variable. This approach is a parametric approach which relies on simulations of the model to obtain information about its solution. We will show how to implement this method and will also draw the connection to estimation techniques.

5 - Spectral method: Spectral methods are another class of parametric solution method that aims at providing with a global solution of the model, provided this solution is smooth. We will cover both collocation and Galerkin techniques.

6 - Incomplete markets/heterogeneous agents' models: This last part of the class will give an example of application of these techniques that deals explicitly with heterogeneity. Two models will be covered, the Aiyagari model, that only features idiosyncratic heterogeneity, and the Krusell and Smith model that adds aggregate shocks to it. By the end of this course, students should be able to -set up a model -select and implement the relevant technique to obtain a numerical solution to the model -simulate the model, and hence generate relevant quantities for the question at stake

Prerequisites - Pré requis :

Although the basic knowledge of Matlab is an advantage, this is not a pre-requisite as it will be covered in class. Necessary (free) software will be distributed in class.

Practical information about the sessions - Modalités pratiques de gestion du cours :

-The class will be computer intensive and students are required to have their laptop or at least a laptop per two students. The computer language will mainly be Matlab and Dynare.

Grading system - Modalités d'évaluation :

The final grade for this part of the class will be a small home project. Additionally, there will be a few (non graded) weekly/bi-weekly assignments. No tutorials.

Bibliography/references - Bibliographie/références :

- Numerical Methods in Economics, by Kenneth L. Judd (Pearson Addison Wesley, 2nd edition, 2008),
- Dynamic General Equilibrium Modeling, by Heer and Maussner (Springer, 2009),
- Recursive macroeconomic theory, by Ljungqvist and Sargent (MIT Press, 2004),
- Computational methods for the study of dynamic economies, by Marimon and Scott (OUP, 2001),
- Dynamic economics, by Adda and Cooper (MIT Press, 2003),
- Recursive methods in economic dynamics, by Stokey and Lucas (Harvard U. Press, 1989)

Session planning - Planification des séances :

See class website and TBA.

Stochastic Optimal Control in Economics

Course title - Intitulé du cours	Stochastic Optimal Control in Economics
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Stephane VILLENEUVE
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

stephane.villeneuve@tse-fr.eu

MF 304 bis

Course's Objectives - Objectifs du cours :

This lecture is motivated by the conviction that stochastic control methods should be part of financial economists set of technical tools to study modern corporate finance. This course requires a taste for mathematical rigor and asks for skills in probability theory.

Contents

- Mathematical Preliminaries: Brownian motion and continuous martingales, Itô's calculus and stochastic integral.
- Examples of Stochastic Optimization problems: Portfolio Allocation, Optimal Investment timing, Optimal liquidity Management
- Solving Problems: Dynamic Programming and HJB equations.
- A primer on dynamic Moral Hazard.

Prerequisites - Pré requis :

Practical information about the sessions - Modalités pratiques de gestion du cours :

Grading system - Modalités d'évaluation :

Bibliography/references - Bibliographie/références :

Mathematics:

- Karatzas and Shreve: Brownian Motion and Stochastic Calculus (Graduate Texts in Mathematics), Springer.
- Oksendal: Stochastic Differential Equations: An Introduction with Applications, Springer
- Pham: Continuous-time Stochastic Control and Optimization with Financial Applications (Stochastic Modelling and Applied Probability), Springer

Economics:

- Stockey and Lucas: Recursive Methods in Economics Dynamics, Harvard University Press
- Moreno-Bromberg and Rochet: Continuous-Time Models in Corporate Finance: A User's Guide, Princeton University Press.
- Dixit and Pyndick: Investment under uncertainty, Princeton University Press.

The Public Economics of the Environment

Course title - Intitulé du cours	The Public Economics of the Environment
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Stefan Ambec, Helia Costa, Giulia Pavan
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Course's Objectives - Objectifs du cours :

Over the last two centuries, the development of the world economies, and the associated demographic changes, have led to profound impacts to the environment: resources are affected, in quantity and in quality, to such an extent that the whole functioning of our climate and of our ecosystems is changing, with important consequences for our health and our way-of-life. Environmental Economics is the branch of Public Economics that studies such phenomena.

The aim of this class is to introduce PhD students to the research frontier in environmental economics.

The class will cover the set of problems that environmental policies are trying to solve (market failures, asymmetric information, policy design), the theoretical properties of regulations (tax, quotas, standards, subsidies, nudges, ...); and the empirical tools that economists use in order to empirically evaluate the extent of the market failures and the effects of policies.

On each of these topics, we will present and discuss papers that are at the frontier of the literature and will discuss the remaining unanswered questions that could make nice topics for PhD dissertations in environmental economics.

At the end of the class, students should be able to formulate a research project at the frontier of the literature in environmental economics and to write a referee report on a paper submitted to a top journal.

COURSE OUTLINE:

- Pollution and policy instruments
- Environmental policy under asymmetric information
- Energy transition
- Political economy of environmental regulation
- Evaluating environmental regulation

- Monitoring and Enforcement
- Economic Impact of Climate Change
- Environmental policy and markets (automotive market, transportation policies, market power/competition/productivity).

Prerequisites - Pré requis :

Good knowledge of intermediate microeconomics, standard econometric methods (both reduced form and structural), and basic mathematics for economists.

Grading system - Modalités d'évaluation :

A two-pages referee report on a paper in the reference list provided in class (40%), and a research project (60%).

Bibliography/references - Bibliographie/références :

Lecture notes and papers will be posted on Moodle. Students will be expected to read the papers discussed in class in advance and to actively participate in the discussions.

Topics in Econometrics and Empirical Economics

Course title - Intitulé du cours	Topics in Econometrics and Empirical Economics
Level / Semester - Niveau /semestre	M2 ETE, second semester
School - Composante	Toulouse School of Economics
Teacher - Enseignant responsable	Matthew Gentry, Stéphane Gregoir, Cristina Gualdani, Thierry Magnac, François Poinas
Other teacher(s) - Autre(s) enseignant(s)	N/A
Other teacher(s) - Autre(s) enseignant(s)	N/A
Other teacher(s) - Autre(s) enseignant(s)	N/A
Other teacher(s) - Autre(s) enseignant(s)	N/A
Other teacher(s) - Autre(s) enseignant(s)	N/A
Lecture Hours - Volume Horaire CM	30 hours
TA Hours - Volume horaire TD	N/A
TP Hours - Volume horaire TP	N/A
Course Language - Langue du cours	English
TA and/or TP Language - Langue des TD et/ou TP	N/A

Teaching staff contacts - Coordonnées de l'équipe pédagogique:

Matthew Gentry, office MF412, m.l.gentry@lse.ac.uk
 Stéphane Gregoir, office MA001, stephane.gregoir@tse-fr.eu
 Cristina Gualdani, office MF408, cristina.gualdani@tse-fr.eu
 Thierry Magnac, office MF309, thierry.magnac@tse-fr.eu
 François Poinas, office MF426, francois.poinas@tse-fr.eu

Course's Objectives - Objectifs du cours:

See syllabus attached.

Prerequisites - Pré requis

Knowledge in Econometrics at the level of the Econometrics courses in M2 ETE first semester.

Practical information about the sessions - Modalités pratiques de gestion du cours:

Lectures on Wednesday 3.30pm-6.30pm, room MD002 (unless differently announced).

Grading system - Modalités d'évaluation:

- (1) There are two exams, one in week 6, organized by the first two teachers (Matt & Cristina) and one in the final week organized by the three others.
- (2) Exam 1 is worth 8 points (4+4) and takes 45 minutes. Exam 2 is worth 12 points (4x3) and takes an hour.
- (3) Exam questions are preferably relative to one specific paper. This paper should be one which was presented, not necessarily completely, during lectures. This specific paper is announced at the end of the two lecture weeks by every teacher.
- (4) Exam questions are marked as "close" or "open" and the grading schedule explicit.

Bibliography/references - Bibliographie/références:

See syllabus attached.

Econometric analysis of auctions

Course objectives

This sub-section of M2ETE provides a brief introduction to the methods used for structural analysis of bidding data, and the lessons learned from this analysis for practical mechanism design. We will begin with workhorse models of static auctions with independent private values, discussing identification and estimation in this (ideal) context. We will then discuss a number of extensions to this framework which have been shown to be important in practice, including unobserved heterogeneity, affiliated private values, common values, risk aversion, entry, multi-unit auctions, and dynamic bidding.

Plan of the course

The lecture presentation will build on the following recent survey, which may be a useful general reference:

Matthew L. Gentry, Timothy Hubbard, Denis Nekipelov, and Harry J. Paarsch (2018): “Structural Econometrics of Auctions: A Review.” *Foundations and Trends in Econometrics* 9:2-4.

We will also cover a selection of 5-6 papers from the reading list below in detail; the specific subset will be communicated closer to the start of the course. Students will be expected to read these papers prior to lecture.

References

- Susan Athey and Philip Haile. Identification of standard auction models. *Econometrica*, 70(6):2107–2140, 2002.
- Susan Athey, Jonathan Levin, and Enrique Seira. Comparing open and sealed bid auctions: Evidence from timber auctions. *The Quarterly Journal of Economics*, 126(1):207–257, feb 2011.
- J. Balat, P. Haile, H. Hong, and M. Shum. Nonparametric tests for common values in first-price sealed bid auctions. Working Paper, Yale University, 2016.
- Matthew Gentry and Tong Li. Identification in auctions with selective entry. *Econometrica*, 82(1):315–344, January 2014.
- E. Guerre, I. Perrigne, and Q. Vuong. Optimal nonparametric estimation of first-price auctions. *Econometrica*, 68(3):525–574, 2000.
- Emmanuel Guerre, Isabelle Perrigne, and Quang Vuong. Nonparametric identification of risk aversion in first-price auctions under exclusion restrictions. *Econometrica*, 77(4):1193–1227, July 2009.

- K. Hendricks and R. Porter. An empirical study of an auction with asymmetric information. *American Economic Review*, 78(5):865–883, 1988.
- A. Hortacsu and D. McAdams. Mechanism choice and strategic bidding in divisible good auctions: An empirical analysis of the turkish treasury auction market. *Journal of Political Economy*, 118(5), 2010.
- Y Hu, D McAdams, and M Shum. Identification of first-price auctions with non-seperable unobserved heterogeneity. *Journal of Econometrics*, 174(2): 186–193, 2013.
- Mireia Jofre-Bonet and Martin Pesendorfer. Estimation of a dynamic auction game. *Econometrica*, 71:1443–1489, 2003.
- E. Krasnokutskaya. Identification and estimation in highway procurement auctions under unobserved auction heterogeneity. *Review of Economic Studies*, 78:293–327, 2011.
- J.J. Laffont and Q. Vuong. Structural analysis of auction data. *American Economic Review, Papers and Proceedings*, 86:414420, 1996.
- T. Li, I. Perrigne, and Q. Vuong. Conditionally independent private information in ocs wildcat auctions. *Journal of Econometrics*, 98(1):129–162, 2000.
- Tong Li and Quang Vuong. Nonparametric estimation of the measurement error model using multiple indicators. *Journal of Multivariate Analysis*, 65 (2):139–165, 1998.
- Tong Li and Xiaoyong Zheng. Entry and competition effects in First-Price auctions: Theory and evidence from procurement auctions. *Review of Economic Studies*, 76(4):1397–1429, 2009. ISSN 1467-937X.
- Tong Li, Isabelle Perrigne, and Quang Vuong. Structural estimation of the affiliated private value auction model. *The RAND Journal of Economics*, 33 (2):171–193, 2002.
- V. Marmer, A. Shneyerov, and P. Xu. What model for entry in first-price auctions? a nonparametric approach. *Journal of Econometrics*, 176(1):46–58, 2013.
- Paul R. Milgrom and Robert J. Weber. A theory of auctions and competitive bidding. *Econometrica*, 50(5):1089–1122, 1982. ISSN 00129682.
- R. Myerson. Optimal auction design. *Mathematics of Operations Research*, 6: 58–73, 1981.
- J. Riley and W. Samuelson. Optimal auctions. *American Economic Review*, 71 (3):381–392, 1981.
- J. Roberts and A. Sweeting. When should sellers use auctions? *American Economic Review*, forthcoming, 2013.

Paulo Somaini. Identification in auction models with interdependent costs. Working paper, Stanford University, 2015.

Federico Zincenko. Nonparametric estimation of first-price auctions with risk averse bidders. *Journal of Econometrics*, 205(2):303–335, 2018.

Stéphane Gregoir

Asymptotics for test statistics: Some examples

This short course aims at introducing techniques and tools to analyse and derive asymptotic test statistics. It will complement parts of the econometrics 2 course. We will mainly illustrate these techniques in analyzing two questions: how to design an optimal unit root tests and how to test for conditional predictive ability.

ELLIOTT, G., T. ROTHENBERG, AND J. STOCK (1996): "Efficient Tests for an Autoregressive Unit Root," *Econometrica*, 64, 813-836.

MULLER U.K. AND G. ELLIOTT (2003) : "Tests for unit roots and the initial condition", *Econometrica*, 71, 1269-1286

WEST K.D. (1996) "Asymptotic inference about predictive ability", *Econometrica* 64, 1067-1084

GIACOMINI G. AND H. WHITE (2006) "Tests of conditional predictive ability", *Econometrica*, 74, 1545-1578

HANSEN P.R. AND A. TIMMERMANN (2015): "Equivalence between out-of-sample forecast comparisons and Wald Statistics", *Econometrica* 83, 2485-2505

Econometric Analysis of Games

1- Instructor: Cristina Gualdani

2- The course covers some of the leading methods for identifying and estimating the parameters governing agents' preferences in static discrete action games, possibly with multiple equilibria.

We will tackle the econometric analysis of the complete information entry games in Bresnahan and Reiss (1991) and Berry (1992) where point identification in the presence of multiple equilibria is achieved - mainly - by restricting the sign of interaction effects. We will also consider other papers adopting various assumptions on equilibrium selection helping to point identify parameters (e.g., Bjorn and Vuong, 1984; Kooreman, 1994; Bajari, Hong and Ryan, 2010). As economic theory rarely provides clear guidance on equilibrium selection, we will then move to examine what happens if the researcher remains agnostic about it and discuss the partial identification approach introduced by Tamer (2003), Ciliberto and Tamer (2009), Galichon and Henry (2006; 2011), and Beresteanu, Molchanov and Molinari (2011), together with some available inference techniques (e.g., Andrews and Soares, 2010; Andrews and Shi, 2013). A brief introduction on the econometric analysis of network formation games will follow. This last part will be the core of the DEEQA course next year.

3- References

- Andrews, D.W.K., and X. Shi (2013): "Inference Based on Conditional Moment Inequalities", *Econometrica*, 81(2), 609–666.
- Andrews, D.W.K., and G. Soares (2010): "Inference for Parameters Defined by Moment Inequalities Using Generalized Moment Selection", *Econometrica*, 78(1), 119–157.
- Bajari P., H. Hong, J. Krainer, and D. Nekipelov (2010): "Estimating Static Games of Incomplete Information". *Journal of Business and Economic Statistics*, 28, 469–482.
- Bajari, P., H. Hong, and S.P. Ryan (2010): "Identification and Estimation of a Discrete Game of Complete Information", *Econometrica*, 78(5), 1529–1568.
- Beresteanu, A., and F. Molinari (2008): "Asymptotic Properties for a Class of Partially Identified Models", *Econometrica*, 76(4), 763–814.
- Berry, S. (1992): "Estimation of a Model of Entry in the Airline Industry", *Econometrica*, 60(4), 889–917.
- Bjorn P., and Vuong Q. (1984): "Simultaneous Equations Models for Dummy Endogenous Variables:

- a Game Theoretic Formulation with an Application to Labor Force Participation”, Caltech Working Paper 537, available *here*.
- Bresnahan, T.F., and P.C. Reiss (1991): “Entry and Competition in Concentrated Markets”, *Journal of Political Economy*, 99(5), 977–1009.
 - Choo, E., and A. Siow (2006): “Who Marries Whom and Why”, *Journal of Political Economy*, 114(1), 175–201.
 - Ciliberto, F., and E. Tamer (2009): “Market Structure and Multiple Equilibria in Airline Markets”, *Econometrica*, 77(6), 1791–1828.
 - De Paula, A. (2013): “Econometric Analysis of Games with Multiple Equilibria”, *Annual Review of Economics*, 5(1), 107–131.
 - De Paula, A., S. Richards-Shubik, and E. Tamer (2018): “Identifying Preferences in Networks with Bounded Degree”, *Econometrica*, 86(1), 263–288.
 - Galichon, A., and M. Henry (2006): “Inference in Incomplete Models”, Working paper, available *here*.
 - Galichon, A., and M. Henry (2011): “Set Identification in Models with Multiple Equilibria”, *Review of Economic Studies*, 78(4), 1264–1298.
 - Galichon, A., and B. Salanié (2015): “Cupid’s Invisible Hand: Social Surplus and Identification in Matching Models”, Working paper, available *here*.
 - Kooreman, P. (1994): “Estimation of Econometric Models of Some Discrete Games”, *Journal of Applied Econometrics*, 9(3): 255–268.
 - Leung, M. (2015): “Two-Step Estimation of Network Formation Models with Incomplete Information”, *Journal of Econometrics*, 188(1), 182–195.
 - Leung, M. (2016): “A Weak Law for Moments of Pairwise-Stable Networks”, Working Paper, available *here*.
 - Mele, A. (2017): “A Structural Model of Dense Network Formation”, *Econometrica*, 85(3), 825–850.
 - Menzel, K. (2015): “Large Matching Markets as Two-Sided Demand Systems”, *Econometrica*, 83(3), 897–941.
 - Menzel, K. (2016): “Strategic Network Formation with Many Agents”, Working Paper, available *here*.

- Miyauchi, Y. (2016): “Structural Estimation of Pairwise Stable Networks with Nonnegative Externality”, *Journal of Econometrics*, 195(2), 224–235.
- Sheng, S. (2016): “A Structural Econometric Analysis of Network Formation Games”, Working Paper, available *here*.
- Tamer, E. (2003): “Incomplete Simultaneous Discrete Response Model with Multiple Equilibria”, *Review of Economic Studies*, 70(1), 147–167.

Topics in econometrics and empirical economics: Thierry Magnac

This small course aims at reviewing recent advances in panel data estimation in the linear and non-linear cases. The accent will be put on modelling and the consistency issues of estimates due to dynamics and non linearities.

Alvarez, J., & Arellano, M. (2003). The time series and cross-section asymptotics of dynamic panel data estimators. *Econometrica*, 71(4), 1121-1159.

Chernozhukov, V., Fernández-Val, I., Hahn, J., & Newey, W. (2013). Average and quantile effects in nonseparable panel models. *Econometrica*, 81(2), 535-580.

Graham, B. S., & Powell, J. L. (2012). Identification and estimation of average partial effects in “irregular” correlated random coefficient panel data models. *Econometrica*, 80(5), 2105-2152.

Dhaene, G., & Jochmans, K. (2015). Split-panel jackknife estimation of fixed-effect models. *The Review of Economic Studies*, 82(3), 991-1030.

Topics in Econometrics and Empirical Economics: François Poinas

Title of the section: Dynamic discrete choice models and subjective expectations

This section of the course will be an introduction to the estimation of structural models in the fields of labor economics and economics of education. It will focus on dynamic discrete choice models and introduce how elicited data on subjective expectations can be used in such models to avoid assuming agents form rational expectations.

Keane, M.P., P.E. Todd, and K.I. Wolpin. 2011. "The Structural Estimation of Behavioral Models: Discrete Choice Dynamic Programming Methods and Applications." *Handbook of Labor Economics*, 4a:331–461., section 3.1

Belzil, C., and J. Hansen. 2002. "Unobserved Ability and the Return to Schooling." *Econometrica*, 70:2075–2091.

Keane, M.P., and K.I. Wolpin. 1997. "The Career Decisions of Young Men." *The Journal of Political Economy*, 105:473–522.

Arcidiacono, P., V.J. Hotz, and S. Kang. 2012. "Modeling college major choices using elicited measures of expectations and counterfactuals." *Journal of Econometrics*, 166:3–16.