

## **Course Regulation and Competition Policy**

Academic Year: 2014/2015

Semester: 1<sup>st</sup>

Instructor(s): Aníbal Santos

### Course Description:

Introduction to public utility economics: theory (fundamentals, economic regulatory models and pricing).  
Public utility liberalization and privatization (energy, telecommunications, water supply).

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### Course Content:

#### **I. PUBLIC INTERVENTION IN A MARKET ECONOMY: An INTRODUCTION**

- I.1. Economic Regulation: An Introduction
- I.2. Market Failures. Why Regulate?
- I.3. Principles of Economic Regulation
  - I.3.1. The Fundamental Economic Goal of Regulation
  - I.3.2. The Competitive Ideal
  - I.3.3. Factors that Preclude a Competitive Outcome: Natural Monopoly
    - I.3.3.1. Introduction
    - I.3.3.2. Technological Definition of Natural Monopoly
  - I.3.4. The Regulator's Pricing Challenge
  - I.3.5. Objectives of Regulation and Specific Controls
- I.4. Privatization, Liberalization and Economic Regulation: The Case of Public Utilities

#### **II. PRIVATE MONOPOLIES AND ECONOMIC REGULATION**

- II.1. Private Monopolies and Economic Regulation. Regulation of State -Owned Companies
- II.2. Rate of Return Regulation
  - II.2.1. Regulated Company vs Non Regulated Company
  - II.2.2. The Averch-Johnson Model
  - II.2.3. Impact of Economic Regulation on Global Welfare: Optimal Rate of Return
  - II.2.4. Graduated Rate of Return



- II.3. Price-Cap Regulation
  - II.3.1. Price-Caps: A General Approach
  - II.3.2. Rate of Return vs Price-Caps
  - II.3.3. Information Problems and Yardstick Competition
- II.4. Incentive Regulation and Efficiency
- II.5. Finance and Regulation
  - II.5.1. Cost of Capital and Capital Structure
  - II.5.2. Regulatory Risk and the Cost of Capital

### III. PUBLIC UTILITY ECONOMICS (PRICING)

- III.1. Price Regulation by a Fully Informed Regulator
- III.2. Linear Tariffs
  - III.2.1. Marginal Cost Pricing
  - III.2.2. Ramsey – Boiteux Pricing
  - III.2.3. Fully Distributed Cost Pricing
  - III.2.4. Distributional Issues and Ramsey – Boiteux Pricing
  - III.2.5. Peak–Load Pricing:
    - III.2.5.1. Introduction
    - III.2.5.2. Single Technology
    - III.2.5.3. Peak–Load Pricing: Boiteux-Steiner Model and Extensions
    - III.2.5.4. Peak–Load Pricing and Technology
      - III.2.5.4.1. Fixed-coefficient production technologies
      - III.2.5.4.2. Diverse Technology
- III.3. Nonlinear Tariffs
  - III.3.1. Introduction
  - III.3.2. Motivations, Practical Outcomes and Basic Concepts
  - III.3.3. Two-Part Tariffs: Concepts and Models (Schmalensee and Oi)
    - III.3.3.1. Introduction
    - III.3.3.2. Two-Part Tariffs: Basic Model
      - III.3.3.2.1. The Rationale for two part tariffs
      - III.3.3.2.2. Two-part Tariffs (Schmalensee)
      - III.3.3.2.3. Two-part Tariffs (Oi)



- III.3.4. Uniform Pricing vs Nonlinear Pricing
  - III.3.4.1. Introduction with Examples
  - III.3.4.2. A General Formulation

#### **IV. ECONOMICS OF PRIVATIZATION**

- IV.1. Privatization and Market
- IV.2. Arguments on Privatization
- IV.3. Positive Theory of Privatization
  - IV.3.1. Introduction
  - IV.3.2. Efficiency and Privatization
  - IV.3.3. Partial Privatization
  - IV.3.4. Privatization and Pricing
- IV.4. Privatizing Network Utilities
  - IV.4.1. Privatization, Restructuring and Regulation
  - IV.4.2. Privatization and Liberalization
  - IV.4.3. Determinants of Successful Utility Privatization
  - IV.4.4. Lessons Learned

#### **V. LIBERALIZATION AND ECONOMIC REGULATION OF NETWORK UTILITIES: COMPLEMENTARY TOPICS**

- V.1. **Introduction**
  - V.1.1. Main Economic Characteristics of Network Utilities
  - V.1.2. Network Utilities and Ownership: Competition and Liberalization
  - V.1.3. Introducing Competition in Network Utilities
- V.2. Access Pricing Rules
  - V.2.1. Vertically Related Markets
  - V.2.2. Complementarities and Interconnecting policy
  - V.2.3. Access Pricing: One Way Access
    - V.2.3.1. Introduction
    - V.2.3.2. ECPR (Efficiency Component Pricing for Access)
    - V.2.3.3. EAP (Efficient Access Pricing: A General Model and Relationship to the ECPR)
    - V.2.3.4. Application: Second-Degree Price Discrimination in the Retail Segment
- V.3. Externalities and Ramsey-Boiteux Pricing
- V.4. The Budget-Constrained Public Enterprise



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Grading:

Final Grade = 0.80 Exams (Average) + 0.20 Homework

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Bibliography:

**Note:** References with "\*" can be found in the selected compilation

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**BIBLIOGRAPHY**

**I. PUBLIC INTERVENTION IN A MARKET ECONOMY: AN INTRODUCTION**

- BRAEUTIGAM, R.**, "Optimal Policies for Natural Monopolies" in *Handbook of Industrial Organization*, vol II, North-Holland, 1989
- CONFRARIA, J.** "Condicionamento Industrial - Uma Análise Económica", 25 - 49, DGI, 1992 (in portuguese)
- COOK, P** and **C. KIRKPATRICK**, eds "*Privatization Policy and Performance*", Prentice Hall, 1995.
- JOSKOW, P.**, ed. "*Economic Regulation*" Critical Ideas in Economics. Edward Elgar Pub., 2000
- LAFFONT, J.J.** and **J. TIROLE**, "*A Theory of Incentives in Procurement and Regulation*", the MIT Press, 1994.
- MILGROM, P.** and **J. ROBERTS**, "*Economics, Organization and Management*", Prentice-Hall, 1992.
- NISKANEN, W.**, "Bureaucrats and Politicians", "*Journal of Law and Economics*", December 1955.
- \*NOLL, R.** "Economic Perspectives on the Politics of Regulation", in *Handbook of Industrial Organization*, Vol. II, Cap. 22, North - Holland, 1989
- PELTZMAN, S.**, "The Economic Theory of Regulation after a Decade of Deregulation" in M. Levine e R. Noel, *Brookings Papers on Economic Activity: Microeconomics*", 1989.
- POSNER, R.** - "Theories of Economic Regulation", *Bell Journal of Economics*, Spring, 1974
- POSNER, R.**, "The Social Costs of Monopoly and Regulation" *Journal of Political Economy*, 1975, August, pg. 807-17.
- SANTOS, A.**, "Política de Regulação da Concorrência no período pós-privatização", in *Política Económica para as Privatizações em Portugal*", VERBO, 1990 (in portuguese)
- \*SANTOS, A.**, "Privatization and State Intervention - An Economic Approach", in *Deregulation or Re-Regulation? Regulatory Reform in Europe and The United States*", ed. G. Majone, Pinter Pub., London, 1990
- SANTOS, A.**, "O Alcance da Noção de Serviço Público", *Anuário do Economista*, 1997 (in portuguese)



**SHAPIRO, C.** and **R. WILLIG**, "Economic Rationales for the Scope of Privatization", in Ezra Suleiman e J. Waterbury eds, *The Political Economy of Public Sector Reform and Privatization*, Westview Press 1990

**SCHMALENSSEE, R.**, "*The Control of Natural Monopolies*", Lexington Books, 1979

**SPULBER, D.**, "*Regulation and Markets*", the M.I.T. Press, 1989

\***STIGLER, G.** "The Theory of Economic Regulation", *Bell Journal of Economic and Management Science*, Spring 1971.

**UTTON, M.**, "*The Economics of Regulating Industry*", Basil Blackwell, 1986

**WORLD BANK**, "*Bureaucrats in Business*", Oxford University Press, 1995

## II. PRIVATE MONOPOLIES AND ECONOMIC REGULATION

**AMSTRONG, M.**, **S. COWAN** and **J. VICKERS**, "*Regulatory Reform: Economic Analysis and British Experience*", the MIT Press, 1994.

\***AVERCH, H.** and **L. JOHNSON**, "Behavior of the Firm under Regulatory Constraint", *American Economic Review*, Dez. 1962

**BARON, D.**, "Design of Regulatory Mechanisms and Institutions", in *Handbook of Industrial Organization*, Vol. II, Chap. 24, North-Holland, 1989

**BAUMOL, W.** and **A. KLEVORICK**, "Input Choices and Rate of Return Regulation: An overview of the discussion", *Bell Journal of Economics*, Autumn 1970

\***BEESELEY, M.** and **S. LITTLECHILD**, "The Regulation of Privatized Monopolies in the U.K." *Rand Journal of Economics*, Autumn 1989.

**BERG, S** and **J. TSCHIRHART**, "Natural Monopoly Regulation", Cambridge University Press, 1988.

**BOS, D.**, "*Privatization: A Theoretical Treatment*", Clarendon Press Oxford, 1991

**BRAEUTIGAM, R.** and **J. PANZAR**, "Effects of the change from rate-of-return to price-cap regulation", *American Economic Review*, May 1993, 191-198

**CHURCH, J.** and **R. WARE**, "*Industrial Organization: A Strategic Approach*", Mc Graw-Hill, 2000.

**CURIEN, N.** and **M. GENSOLLEN**, "*Economie des Télécommunications*" Economica, 1992

\***GROUT, P.**, "The Cost of Capital in Regulated Industries", in M. Bishop, J. Kay e C. Mayer eds., "*The Regulatory Challenge*", Oxford University Press, 1995

**JOSKOW, P.**, ed. "*Economic Regulation*" Critical Ideas in Economics. Edward Elgar Pub., 2000

**LAFFONT, J.J.** and **J. TIROLE**, "*A Theory of Incentives in Procurement and Regulation*", the MIT Press, 1995.

**KHAN, A.**, "*The Economics of Regulation*", Vol. II, John Wiley & Sons, 1971

**KLEVORICK, A.**, "The Optimal Fair Rate of Return", *Bell Journal of Economics*, Spring 1971

**KLEVORICK, A.**, "The Graduated Fair Return: A Regulatory Proposal", *American Economic Review*, June 1966



- KOLBE, A., J. READ Jr. and G. HALL**, "*The Cost of Capital: Estimating the Rate of Return for Public Utilities*", MIT Press, 1985
- PHILLIPS, C.F.** "*The Regulation of Public Utilities*", Public Utilities Reports, 1993
- \*REES, R. and J. VICKERS**, "RPI-X Price-Cap Regulation" in M. Bishop et al, *The Regulatory Challenge*, Oxford University Press, 1995
- ROBICHECK, A.**, "Regulation and Modern Finance Theory", *The Journal of Finance*, June 1978
- SANTOS, A.** "Models of Privatization and Market Structure", in *ECONOMIA*, Jan 1989
- SANTOS, A.**, "A Regulação Económica de Monopólios Naturais: Uma Nota sobre a Regulação da Indústria da Água em Portugal", in *Indústria da Água*, Oct/Dec 1995 (in portuguese)
- SHERMAN, R.**, "*The Regulation of Monopoly*", Cambridge University Press, 1989
- SHERMAN, R.**, "Market Regulation" Addison Wesley, 2008.
- SPIEGEL, Y. e D. SPULBER**, "The Capital Structure of a Regulated Firm" *Rand Journal of Economics*, 25,3, Autumn 1994.
- TRAIN, K.**, "*Optimal Regulation*", The MIT Press, 1994
- VISCUSI, W, J. VERNON e J. HARRINGTON, Jr.**, "*Economics of Regulation and Antitrust*", 2<sup>nd</sup> ed., MIT Press, 1995.

### III. PUBLIC UTILITY ECONOMICS (PRICING)

- \*BAUMOL, W e D. BRADFORD**, "Optimal Departure from Marginal Cost Pricing", *American Economic Review*, 1972
- BAUMOL, W., J. PANZAR and R. WILLIG**, "*Contestable Markets and the Theory of Industry Structure*", Harcourt Brace Jovanovich, 1982
- BOITEUX, M.**, "Sur la Gestion des Monopoles Publics astreints à l'Équilibre Budgetaire", *Econometrica*, 1956
- BOS, D.**, "*Pricing and Price Regulation*," North – Holland, 1995
- \*BRAEUTIGAM, R.** "Optimal Policies for Natural Monopolies" in "*Handbook of Industrial Organization*" R. Schmalensee e R. Willig eds, vol II., chap. 23. North Holland, 1989
- BROCK, W and EVANS, D.**, "Creamskimming" in D. Evans, ed; "*Breaking Up Bell*", North-Holland, 1983
- BROWN, S e D. SIBLEY**, "*The Theory of Public Utility Pricing*", Capº 3, Cambridge University Press, 1986
- CREW, M e P. KLEINDORFER**, "*The Economics of Public Utility Regulation*", The MIT Press, 1986 (I e II)
- \*CREW, M and P. KLEINDORFER**, "*Public Utility Economics*", Chap 4, the MacMillan Press, Ltd, 1979
- FAULHABER, G.**, "Cross-Subsidization : Pricing in Public Enterprise", *American Economic Review*, 1975
- FELDSTEIN, M.**, "Distributional Equity and the Optimal Structure of Public Prices", *American Economic Review*, 1972
- LAFFONT, J.J. e J. TIROLE**, "*A Theory of Incentives in Procurement and Regulation*", The MIT Press, 1994



- MITCHELL, B.** e **I. VOGELSANG**, “*Telecommunications Pricing: Theory and Practice*”, Cambridge University Press, 1991
- REES, R.**, “*Public Enterprise Economics*”, Weidenfeld and Nicolson, 1976
- SPENCE, M.**, “Nonlinear Prices and Welfare”, *Journal of Public Economics*, 1977
- VARIAN, H.**, “Price Discrimination”, in “*Handbook of Industrial Organization*”, R. Schmalensee e R. Willig eds, vol. I, chap. 10
- WILSON, R.**, “*Nonlinear Pricing*”, Oxford University Press, 1993

#### **IV. ECONOMICS OF PRIVATIZATION**

- AMARAL, L. MIRA** and **ANÍBAL SANTOS**, “*Privatização e Reestruturação dos Sectores Industrial e Energético*”, Estudos DGI, Lisboa, 1995 (in portuguese)
- \***BEESELEY, M.** and **S. LITTLECHILD**, “Privatization: Principles, Problems and Priorities”, in *Privatization & Economic Performance*, M. Bishop et al., Oxford University Press, 1994
- BOARDMAN, A.** e **A. VINING**, “Ownership and Performance in Competitive Environments: A Comparison of the Performance of Private, Mixed and State-Owned Enterprises”, *Journal of Law and Economics*, April 1989
- BOS, D.**, “*Privatization: A Theoretical Treatment*”, Clarendon Press Oxford, 1991
- BOS, D.**, “Theoretical perspectives on privatization: some outstanding issues”, in “*Privatization in the European Union: theory and Policy Perspectives*”, Routledge, 1998
- \***BOS, D.**, “Privatization of Public Enterprises”, *European Economic Review*, 1987
- COASE, R.**, “*The Firm, The Market and the Law*”, University of Chicago Press, 1988
- DE ALESSI, L.**, “The Economics of Property Rights: A Review of Evidence”, *Research in Law and Economics*, 1980
- DOMBERGER, S.** e **J. PIGGOTT**, “Privatization Policies and Public Enterprise: A Survey”, in M. Bishop et al, *Privatization & Economic Performance*, Oxford University Press, 1994
- FLORIO, M.**, “*The Great Divestiture*”, MIT Press, 2004.
- FURUBOTN, E.**, e **S. PEJOVICH**, “Property Rights and Economic Theory: A Survey of Recent Literature”, *Journal of Economic Literature*, Dez. 1972
- HART, O.** e **J. MOORE**, “Property Rights and the Nature of the Firm”, *Journal of Political Economy*, Dec. 1990
- JENSEN, M.** e **W. MECKLING**, “Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure”, *Journal of Financial Economics*, 1976
- JONES, L. P. TANDON** e **I. VOGELSANG**, “Selling State-Owned Enterprises: A Cost Benefit Approach”, in R. Ramamurti e R. Vernon, eds, *Privatization and Control of State-Owned Enterprises*, EDI Development Studies, 1991
- MOLHO, I.**, “*The Economics of Information*”, Blackwell, 1997
- \***PARKER, D.**, “Privatization in The European Union: an overview”, in “*Privatization in The European Union Theory and Policy Perspectives*”, Routledge, 1998



- ROSS, S., "The Economic Theory of Agency: The Principal's Problem", *American Economic Review*, 1973
- SANTOS, A., "Empresas Públicas, o Comportamento dos Gestores e a Decisão de Privatizar", *Anuário do Economista* 1996 (in portuguese)
- SANTOS, A., "O Alcance da Noção de Serviço Público", *Anuário do Economista*, 1997 (in portuguese)
- SAPPINGTON, D and J. STIGLITZ, "Privatization, Information and Incentives", *Journal of Policy Analysis and Management*, 1987
- SCHMIDT, K and M. SCHNITZER, "Methods of Privatization: Auctions, Bargaining and Giveaways", in *Privatization at the End of the Century*, H. Giersch ed., Springer, 1997
- VICKERS, J. and G. YARROW, "Privatization and the Natural Monopolies", *Public Policy Centre*, London, 1985
- VICKERS, J. e G. YARROW, "*Privatization: An Economic Analysis*", The MIT Press, 1988
- YARROW, G, "Privatization in Theory and Practice", *Economic Policy*, April 1986

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- AMARAL, L. MIRA e SANTOS, Anibal, "*Privatização e Reestruturação dos Sectores Industrial e Energético*", Estudos DGI, Lisboa, 1995, (in portuguese)
- \*AMSTRONG, M., "Telecommunications", in D. Helm e T. Jenkinson, eds., *Competition in Regulated Industries*, Oxford University Press, 1998.
- CAVE, M. et al, "*Handbook of Telecommunications Economics*", vol 1, North-Holland, 2002
- \*COWAN, S., "Privatization and Regulation of the Water Industry in England and Wales", in M. Bishop, et al "*Privatization & Economic Performance*", O.U.P., 1997
- GILBERT, R. and E. Kahn, eds. "*International Comparisons of Electricity Regulation*", Cambridge University Press, 1996.
- HUNT, S., "*Making Competition Work in Electricity*", J. Wiley & Sons, 2002.
- LAFFONT, J.J. and J. TIROLE, "*Competition in Telecommunications*" The M.I.T. Press, 2000.
- NEWBERY, D., "*Privatization, Restructuring and Regulation of Network Utilities*", The M.I.T. Press, 2000.
- TURVEY, R., "Optimal Pricing and Investment in Electricity Supply", M.I.T. Press, 1968.
- PEITZ, M., and P. de BIJL, "*Regulation and Entry into Telecommunications Markets*", Cambridge University Press, 2002.
- PRICE, C., "Gas Regulation and Competition: Substitutes or Complements?", in M. Bishop et al, "*Privatization & Economic Performance*", O.U.P., 1997
- SANTOS, A., "A Regulação Económica na Europa. Algumas Preocupações de Ordem Institucional", Seminário "*Liberalização e Regulação dos Mercados Energéticos*" APE, Lisboa 27.11.2002 (in portuguese)
- \*SANTOS, A., "A Reestruturação da Indústria da Água em Portugal", *Anuário da Economia Portuguesa*, 2003 (in portuguese)





\***SANTOS, A.**, "*Models of Privatization and Market Structure*", *Economia*, Jan. 1989

\***SANTOS, A.**, "Mercado de Electricidade: O Primeiro Mercado Ibérico", *Cadernos da Economia*, 2005 (in portuguese)

**TONINELLI, P.A.** ed., "*The Rise and Fall of State-Owned Enterprise in the Western World*", Cambridge University Press, 2000.

\***YARROW, G.**, "Privatization, Restructuring and Regulatory Reform in Electricity Supply" in G. Bishop et al. "*Privatization & Economic Performance*", O.U.P., 1997.

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