

**CURRICULUM VITAE**  
**March 2008**



**I. Personal Information**

Name : Ricardo Jorge Raineri Bernain  
Office address : Casilla 306, Correo 22  
Santiago - Chile  
Phone : (56-2) 354-4272 Office  
Fax : (56-2) 552-1608  
E-MAIL : [rraineri@ing.puc.cl](mailto:rraineri@ing.puc.cl)  
Web Page : [www.ricardoraineri.cl](http://www.ricardoraineri.cl)  
[www.ricardoraineri.com](http://www.ricardoraineri.com)  
Position and Institution : Associate Professor  
Industrial and Systems Engineering Department  
Engineering School  
Pontificia Universidad Católica de Chile

**II. Education**

**Profession:**

1987 Business Engineer, Economics  
Pontificia Universidad Católica de Chile.

**Academic degrees:**

1993 Doctor of Philosophy (PhD), Economics.  
University of Minnesota.  
Thesis advisor Edward C. Prescott, 2004 Nobel Prize in Economics,  
and Richard Rogerson  
(Minors in Industrial Organization, Regulation and Monetary Economics)  
1991 Master of Arts (M.A.), Economics  
University of Minnesota.  
1987 Master in Economics  
Pontificia Universidad Católica de Chile.  
Thesis advisor Felipe Morandé Lavín  
1985 Bachelor in Economics.  
Pontificia Universidad Católica de Chile.

### **III. Research area**

Industrial Organization, Economics of Regulation, Contracts and Incentives, with a special interest in energy, electricity, telecommunication, water supply and sewage sectors and Corporate Governance issues.

### **IV. Honors and awards**

2002 2<sup>nd</sup> International Finance Congress, Santiago - Chile, distinguished by the best paper in the field of Institutional Investors.

1988-1990 President of the Republic Scholarship for studies in the United States.

1985-1986 Pontificia Universidad Católica de Chile Scholarship for graduated studies.

### **V. Teaching experience**

Since 1993 lecturer and researcher of the Industrial and Systems Engineering Department, Engineering School, Pontificia Universidad Católica de Chile (PUC).

#### **Teaching experience in PUC**

- ICS-2512 Microeconomics
- IND-3760 Industrial Organization
- ICS-3762 Advanced Topics in Industrial Economics and Regulation
- ICS-3952 Dynamic Macroeconomic Theory
- ICS-3012 Industrial and Systems Engineering Seminar

#### **Teaching experience in other institutions**

- “The Executive Program for the Americas”, MIT, Sloan School of Management. Program organized by MIT, Sloan School of Management, with the collaboration of Pontificia Universidad Católica de Chile, Pontificia Universidad Católica de Argentina, Instituto Tecnológico y de Estudios Superiores de Monterrey and Universidad de Sao Paulo. October 1999.
- 1990 - 1993. Teaching Associate and Teaching Assistant, Economic Department, University of Minnesota. Courses: Macroeconomic Principles and Public Finances.
- 1987 - 1988. Teaching Associated, Economic Department, Universidad Gabriela Mistral. Courses: Welfare Economics and Resource Allocation, and Microeconomic Principles.
- 1987. Teaching Associated, Economic Department, Universidad de Santiago. Course: Intermediate Microeconomics.
- 1983. Teaching Assistant, Economic Department, Pontificia Universidad Católica de Chile. Course Intermediate Microeconomic.

As part of my teaching experience at the PUC I have been thesis advisor for undergraduate engineers, Master and PhD students of the Industrial and System Engineering Department, Engineering School.

## VI. Publications and some work in progress

- “From a bundled energy - capacity pricing model to an energy - capacity - ancillary services pricing model”, with R. Arce, S. Ríos, and C. Salamanca. Forthcoming in **Energy Policy**, Vol. 36/8 pp 2,868-2,876.
- “Chronicle of a Crisis Foretold: Energy Sources in Chile”, **IAEE Newsletter** (International Association for Energy Economics Newsletter), pg. 27-30, Fourth Quarter 2007.
- “Cargos de acceso y simultaneidad tarifaria” (Access Charges and simultaneous pricing), forthcoming in a book about the Chilean Telecommunication Industry. Subtel - Universidad de Chile. Editor Aldo Gonzalez.
- “Field Simultaneous Measurements, Modeling and Simulation of Harmonic Components in a Small Generation-Transmission Network”, with S. Ríos, J. Fuster, A. Dán, y Z. Czira. **European Transaction on Electrical Power**. Vol 17, pp. 37-46, 2007.
- “Global Corporate Governance and Takeovers in Electric Utilities: The Case of ENERSIS, ENDESA, and DUKE Energy”, **International Journal of Global Energy Issues**, in a **Special Issue on Advances in Energy Finances**. Vol. 26, Nos. 1/2, pp. 170-212. 2006.
- Chapter 3 in Book **Electricity Market Reform: An International Perspective**, Fereidoon P. Sioshansi and Wolfgang Pfaffenberger editors. Chapter 3: “Chile: Where it all started”. pp. 77-108. Series: Global Energy Policy and Economics, Elsevier 2006.
- “Technical and Economic Aspects on Ancillary Services Markets in the Electric Power Industry: An International Comparison”, with S. Ríos, and D. Schielle. **Energy Policy**. Vol. 34, pp. 1540-1555, 2006.
- “Dynamic Performance and Resource Mix Modification in Competitive Environment”, with S. Ríos and M. Roca. **IEE Proceedings in Generation, Transmission and Distribution**. Vol. 152, N° 6, pp. 770-779, November 2005.
- “Price and Access Charge Discrimination in Electricity Distribution: An Application to the Chilean Case”, with P. Giaconi. **Energy Economics**. Vol. 27, N° 5, September 2005, pp. 771-790.

- “*Business Opportunities and Dynamic Competition through Distributed Generation in Primary Electricity Distribution Networks*”, with S. Ríos and R. Vasquez. ***Energy Policy***. Vol. 33., N° 17, pg. 2191-2201, November 2005.
- “*Secondary Market and Futures Markets for the Provision of Gas-pipeline Transportation Capacity*”, with A. Kuflick. ***The Energy Journal***, Vol. 24, No. 1, pg. 23-47. 2003.
- “*Propiedad Privada, Estado Empresario y Principio de Subsidiariedad: Las Ideas de Antaño con Herramientas de Hoy*” (Private Property, Entrepreneur State and Subsidiary Principle: Old Ideas with New Tools). ***Revista Chilena de Derecho***, Vol. 28, No. 2, pp. 311-344. 2001.
- ***Management en Administración de la Información***, 2000. Diario Financiero - Financial Times:
  - “*La atención: la siguiente frontera de la información*” (*The attention: the next information frontier*);
  - “*El turno de las empresas grandes pero pequeñas*” (*The time of the big but small companies*);
  - “*Mercados para todo en la economía en red*” (*Markets for everything in the network economy*);
  - “*Fundamentos esenciales de la administración de la información*” (*Ground rules of information administration*).
- “*Competition through Liberalization: The Case of Chile*”. With Nicolás Majluf. In ***Competition Policy, Deregulation, and Modernization in Latin America***, Joseph Taulchin and Moisés Naim editors, The Woodrow Wilson Center, Washington D.C. U.S.A. Rienner Publishers. Chapter 5, pp. 73 - 93, 1999.
- “*Restructuring the Chilean Electric Industry: From Monopoly to Competition*”. With Hugh Rudnick. ***Power Economics***. Vol. 2, No. 7, pp. 41-43, September 1998.
- “*Restructuring Chilean Electric and Gas Industries: From Monopolies to Competition*”. With Hugh Rudnick. In ***International Energy Markets, Competition and Policy***. James L. Sweeney Editor. United States Association for Energy Economics and International Association for Energy Economics. pp. 390-399, 1997.
- “*Transmission Pricing Practices in South America*”. With Hugh Rudnick. ***Utility Policy***. Vol. 6, No. 3, pp. 211-218, September 1997.
- “*Analysis of Service Quality Standards for Distribution Firms*”. With Hugh Rudnick, in ***(De)Regulation and Competition: The Electric Industry in Chile***. Pp. 259 - 294, Ilades-Georgetown University. Felipe Morandé and Ricardo Raineri Editors, 1997.

- “Chilean Distribution Tariffs: Incentive Regulation”. With Hugh Rudnick, in ***(De)Regulation and Competition: The Electric Industry in Chile***. Pp. 223 - 257, Ilades-Georgetown University. Felipe Morandé and Ricardo Raineri Editors, 1997.
- “Importance of Entry Barriers to the Electrical Generation Industry”. ***(De)Regulation and Competition: The Electric Industry in Chile***. pp. 137 - 192, Ilades-Georgetown University. Felipe Morandé and Ricardo Raineri Editors, 1997.
- “Importance of Entry Barriers to the Electrical Generation Industry” (in Spanish). ***La Industria Eléctrica en Chile: Aspectos Económicos***. Ilades-Georgetown University. Felipe Morandé Editor. pp. 143-194, 1997.
- “Why We Should Regulate Quality in Electric Distribution Utilities, or Why We Should Not”. In ***(De)Regulation of Energy: Intersecting Business, Economics and Policy***. Michael C. Lynch Editor. United States Association for Energy Economics and International Association for Energy Economics, pp. 20-29, 1996.
- “Industrial Organization Implications of Gas Pipeline Technology”. In ***Into the Twenty-First Century: Harmonizing Energy Policy, Environment, and Sustainable Economic Growth***, Hillard G. Huntington editor, International Association of Energy Economics, Washington D.C. pp. 111-117, 1995.
- “Gas Pipeline Transportation: Competing within Ex-ante Increasing Return to Scale and Sunk Costs”. ***Revista de Análisis Económico***, Vol. 12, N° 1, pp. 85-116, 1997.
- “Modeling an Export Function with input prices as independent variables: a note” (in Spanish). With Felipe Morandé. In ***Estudios de Economía***, Universidad de Chile, Vol. 16, N° 1, pp. 155-175, 1989.
- “An Economic Policy Case: Colombia 1973-1984” (in Spanish). Carlos F. Cáceres y Francisco Rosende Directors. ***Tinker Foundation - Escuela de Negocios de Valparaíso, Fundación Adolfo Ibáñez***. 1986.

## Books

- ***Buscando el Control de la Corporación: El Ingreso de Endesa España a la Propiedad de Enersis*** (*Searching Corporate Control: The entry of Endesa Spain in Enersis Ownership*). Universidad S.A. and M.N. Consulting Ltda. Publisher. Author Ricardo Raineri. 1999.
- ***(De)Regulation and Competition: The Electric Industry in Chile***. Ilades-Georgetown University. Felipe Morande and Ricardo Raineri Editors. 1997.

- ***La Industria Eléctrica en Chile: Aspectos Económicos (The Electric Industry in Chile: Economic Issues)***. Ilades-Georgetown University. Felipe Morandé Editor. Rafael Charún G., Ricardo Raineri B., Raimundo Soto M. Associate Editors. 1996.

## VII. Conferences and Seminars

- **27<sup>th</sup> Annual North American Conference of the USAEE/IAEE**, September 2007, Houston - Texas. Title of the Presentation: “*Asset Life and pricing the use of infrastructure: the case of Electricity Transmission in Chile*”.
- **Conference “Energy and its' future development model”**, October 2007, Facultad de Economía y Negocios UDD, Invited speaker. Title of the Presentation: “*Theoretical models of Energy*”.
- **Conference “Telecommunication in Chile, + market or + regulation?”**, August 2007, Centro de Políticas Públicas Pontificia Universidad Católica de Chile, Invited speaker. Title of the Presentation: “*Telecommunication in Chile, + market or + regulation?*”.
- **Conference “Regulatory Telecommunications Conference: Convergence and new challenges”**, May 2007, Facultad de Economía y Negocios, Universidad de Chile, Invited speaker. Title of the Presentation: “*Access Charges and Simultaneous Pricing in Telecommunications*”.
- **29th IAEE - GEE International Conference**, 7-10 June 2006 in Potsdam - Germany, Electricity Reform Round Table I Chile: Where it all started, IAEE - GEE.
- **Energy Week 2006, Clean Energy for Development. World Bank**. March 6-9, 2006. Washington D.C.-USA.
- **25<sup>th</sup> Annual North American Conference of the USAEE/IAEE**, September 2005, Denver, Colorado - USA. Title of the Presentation: “*Technology Adoption and Reliability in Electricity Distribution: Pricing Distributed Generation*”.
- **Conference “Unbundling Telecommunication Network”**, Chilean Engineering Professional Association (Colegio de Ingenieros de Chile A.G.). Telecommunication Board, Invited Speaker. April 2005.
- **Conference on Natural Gas: “Natural Gas Supply, Short and Medium Term Projections”**. Pontificia Universidad Católica de Chile. Presentation: “*Natural Gas Market Structure: Present and Feasible Future*”. April 2005.
- **SUBTEL - MINECON, “Two decades of regulation in the telecommunication industry: It's time for a change?”**, December 2004.
- **Conference Liquefied Natural Gas: “LNG: projections and Options for Chile”**. Pontificia Universidad Católica de Chile and Gas Technology Institute. Presentation: “*Feasible Financing Sources in Chile*”. December 2004
- **Conference “Two decades of regulation in the telecommunication industry: It's time for a change?”**, Chilean Engineering Professional Association (Colegio de Ingenieros de Chile A.G.). Telecommunication Board, Invited Speaker. October 2004.

- **LACEA, Latin American Meeting of the Econometric Society, Santiago - Chile**, “*Telecommunication Network Competition: An Equilibrium Analysis*”. July 2004.
- **2° National Telecommunication Conference** (Bogotá - Colombia) “**La Competitividad de los Servicios**”, Organized by Unión Javeriana, Federación de Asociaciones de Profesionales Javerianos, with the support of Facultad de Ingeniería and the Asociación de Ingenieros Javerianos, Pontificia Universidad Javeriana, Invited as Distinguished International Speaker to give the presentation “*International Experience: The Case of Chile*” (in Spanish). June 2004.
- **Seminar in the Facultad de Ingeniería of the Pontificia Universidad Javeriana**, Bogotá - Colombia, “*Telecommunication Industry Projection*”. June 2004.
- **Seminar in the Facultad de Ciencias Económicas y Administrativas of the Pontificia Universidad Católica de Chile**, “*Telecommunication Network Competition: An Equilibrium Analysis*”. June 2004.
- **Conference “Projection of the Telecommunication Industry”**, Chilean Engineering Professional Association (Colegio de Ingenieros de Chile A.G.). Telecommunication Board, Invited Speaker for a panel on “*Telecommunication Industry Projection*”. 2003.
- **23<sup>th</sup> Annual North American Conference of the USAEE/IAEE**, Mexico City - Mexico. Title of the Presentation: “*Business Opportunities in the Use of Distributed Generation in Primary Electricity Distribution*”. 2003.
- **Chilean Annual Economist Meeting**. Title of the presentation: “*Telecommunication Network Competition: A General Equilibrium Analysis*”. Punta de Tralca - Chile. 2003.
- **III International Finances Conference**. Title of the presentation “*Public Stock Buy Offers and Dual Stock in Chile*”. Santiago - Chile. 2003.
- **VII Annual Conference of the Latin America and Caribbean Law and Economics Association**, ALACDE, Invited as speaker. Title of the presentation: “*Law, Innovation and Competivity*”. Santiago - Chile. 2002.
- **Economics Seminar Universidad Alberto Hurtado**. Invited as speaker. Title of the presentation: “*The Telecommunication Industry*”, Santiago - Chile. 2002.
- **22<sup>nd</sup> Annual North American Conference of the USAEE/IAEE**. Title of the Presentation: “*Free, Regulated, and Simulated Markets in the Diagnosis of Chilean Electricity Crises*”. Vancouver - Canada. 2002.
- **Conference “Telecommunications: The Challenge of a regulation for Competition”**, University of Chile Law School, Invited speaker. Title of the presentation: “*Conflicts and complaints resolution procedures with the authority*”. Santiago - Chile. 2002.
- **Chilean Annual Economist Meeting**. Title of the presentation: “*Price and access charge discrimination in electricity distribution: an application to the Chilean case*”. Punta de Tralca - Chile. 2002.
- **2002, Conference “Tariff Models”**, Chilean Engineering Professional Association (Colegio de Ingenieros de Chile A.G.). Telecommunication Board, Invited Speaker for a panel on Tariff Models. Santiago - Chile.
- **Engineering Seminar Universidad Diego Portales**. Invited as speaker. Title of the presentation: “*The Telecommunication Industry*”, Santiago - Chile. 2002.

- **2<sup>nd</sup> World Congress Corporate Governance.** Title of the presentation: “*A Case Study of Endesa Spain*”. Mumbai - India. 2002.
- **II Finance Conference.** Title of presentations: “*Becoming Global: The Entry of ENDESA Spain in the Property of ENERSIS and the DUKE Energy Contest*”; “*The value of business conglomerates in the Chilean Companies Performance (1990-2000)*”; “*The Market for Corporate Control in Chile*”. Santiago - Chile. 2002.
- **Seminar Tariff regulation in the Telecommunication Sector.** Organized by the Chilean Chamber of Commerce, Fundación Pacífico, Pontificia Universidad Católica de Chile, Universidad de Chile. Title of the presentation: “*Access Charges*”. Santiago - Chile. 2001.
- **First International Conference of Commercial Engineering and Business Administration Students,** Universidad de Tarapacá. Title of the Presentation: “*Private Property, Entrepreneur State, and Subsidiary Principle: From the Classics to the Growth with Equality*”. Arica - Chile. 2001.
- **Chilean Annual Economist Meeting.** Title of the Presentation: “*Secondary Market and Futures Markets for the Provision of Gas-pipeline Transportation Capacity in Developing Markets*”, Punta de Tralca - Chile. 2001.
- **First Meeting of Electricity Law advocated to the analysis of the Institutions and Electricity Management,** Pontificia Universidad Católica de Chile Law School. Title of the presentation: “*Free, Regulated and Simulated Markets in the Diagnosis of Electricity Crises*”. Santiago - Chile. 2001.
- **“Multidisciplinary Seminar on Constitutional Guarantees: Commemoration of the 20 Years of the Constitution, in Honor to Professor Enrique Evans de la Cuadra”,** Pontificia Universidad Católica de Chile Law School. Title of the Presentation: “*Private Property, Entrepreneur State and Subsidiary Principle: Ideas from the Past with Today Tools*”. Santiago - Chile. 2001.
- **United States Association for Energy Economics (USAEE) and International Association for Energy Economics (IAEE).** Title of the presentation: “*Secondary Market and Futures Markets for the Provision of Gas-pipeline Transportation Capacity in Developing Markets*”. Philadelphia, Pennsylvania - USA. 2000.
- **Chilean Annual Economist Meeting.** Title of the presentation: “*Public Stock Buy Offers and Corporate Governance*”. Presentation made in the context of a panel that analyzed the new Chilean Law on “Public Stock Buy Offers and Corporate Governance of year 2000”. 2000.
- **The Executive Program for the Americas,** MIT - Sloan Business School. Title of the presentation: “*Doing Business in Chile: The Entry of ENDESA Spain in the Property of ENERSIS and the DUKE Energy Contest*”. Cambridge, Massachusetts. 1999.
- **United States Association for Energy Economics (USAEE) and International Association for Energy Economics (IAEE).** Title of the presentation: “*Becoming Global: The Entry of ENDESA Spain in the Property of ENERSIS and the DUKE Energy Contest*”. Orlando, Florida - USA. 1999.
- **United States Association for Energy Economics (USAEE) and International Association for Energy Economics (IAEE).** Title of the presentation: “*Controlling a Natural Monopoly:*

*The Pricing Rule for Chilean Electric Distribution Utilities.*" Albuquerque, New Mexico - USA. 1998.

- **Strategic Management Society**, Panel: "*Business Strategies for Coping with Competitive Liberalization: The Case of Chile*", Panelists: Patricio del Sol, Nicolas Majluf and Ricardo Raineri. Barcelona - Spain. 1997.
- **United States Association for Energy Economics (USAEE) and International Association for Energy Economics (IAEE)**. Title of the presentations: "*Auction, Strategy and Deregulation: Sequential and Simultaneous Bidding for a Divisible Good*"; and "*Restructuring Chilean Electric and Gas Industries: From Monopolies to Competition*". San Francisco California - USA. 1997.
- **Energy Modeling Forum, 15 Working Group**, with Hugh Rudnick. Title of the presentation: "*Emerging Issues on Market Design in the Latin-American Electricity Market*". Stanford California - USA. 1997.
- **Energy Modeling Forum, 15 Working Group**, with Hugh Rudnick. Title of the presentation: "*Transmission Pricing Practices in South America*". Stanford California - USA. 1997.
- **Power Markets and Resource Management**, with Hugh Rudnick. Title of the presentation: "*Has Yard Stick Competition Proved a Reasonable Approach for Distribution Pricing in South America*". USA. 1996.
- **United States Association for Energy Economics (USAEE) and International Association for Energy Economics (IAEE)**. Title of the presentation: "*Why We Should Regulate Quality in Electric Distribution Utilities, or Why We Should Not*". Boston Massachusetts - USA. 1996.
- **International Association for Energy Economics (IAEE)**. Title of the presentation: "*Industrial Organization Implications of Gas Pipeline Technology*". Washington D.C. - USA. 1995.
- **CLAIO, VII Latin - Ibero American Conference on Operations Research and Systems Engineering**. Title of the presentation: "*Heterogeneity, Schooling and Cohort Size Effects: A General Equilibrium Analysis*". Santiago - Chile. 1994.
- **Econometric Society, XIII Latin American Meeting**. Title of the presentation: "*Gas Pipeline Transportation: Ex-ante Increasing Return to Scale with Sunk Costs*". Caracas - Venezuela. 1994.
- **Chilean Annual Economist Meeting**. Title of the presentation: "*Heterogeneity, Schooling and Cohort Size Effects: A General Equilibrium Analysis*"; and "*Gas Pipeline Transportation: Ex-ante Increasing Return to Scale with Sunk Costs*". Santiago - Chile. 1994.
- **Econometric Society, XI Latin American Meeting**. Title of the presentation: "*Schooling and Cohort Size Effects: An Equilibrium Approach*". Mexico City - Mexico. 1992.
- **Society for Economics Dynamics and Control**. Title of the presentation: "*Schooling and Cohort Size Effects: An Equilibrium Approach*". Montreal - Canada. 1992.

### VIII. Other activities

- 2006-2007. Member of the Energy Commission of the Chilean Engineering Institute.

- 2007. Member of the Telecommunication Commission of the Chilean Engineering Association (Colegio de Ingenieros de Chile A.G.).
- 2006-2007. Chosen as Expert between Compañía de Telecomunicaciones de Chile S.A. and VTR Banda Ancha (Chile) S.A. to provide an opinion to Court with respect to the discrepancies on pricing and traffic measures on the 800 number calls.
- 2006-2007. Chosen as Expert between Compañía de Telecomunicaciones de Chile S.A. and Empresa Nacional de Telecomunicaciones S.A., Micarrier Telecomunicaciones S.A., y Entel Telefonía Local S.A. to provide an opinion to the Arbitration Judge Mr. Gabriel Villarroel Barrientos with respect to the discrepancies on the application of Compañía de Telecomunicaciones de Chile S.A. access charges.
- 2005. Invited to be part of the CNAP (Chilean Universities Accrediting Institution) Accrediting Committee to evaluate the Industrial and System Engineering program of Universidad Técnica Federico Santa María.
- 2004. Chosen as Expert Arbitrator between the Chilean telecommunication company Manquehue Net S.A. and the Telecommunication Subsecretary (SUBTEL) to solve controversies on access charge.
- 2004. Chosen by the Central bank of Chile to be part of a list of three candidates from where the President of Chile chooses an economist to integrate the Free Market Defense Court.
- 2004. Member of the Academic Board of the International Conference “LNG: projections and Options for Chile”, December 2004, organized by Pontificia Universidad Católica de Chile and Gas Technology Institute
- 2004. Member of the Academic Board of the Fifth International Finances Conference to be done in Santiago - Chile, January 2005
- 2003. Member of the Academic Board of the Fourth International Finances Conference to be done in Viña del Mar - Chile, January 2004
- 2002. Member of the Academic Board of the Third International Finances Conference to be done in Santiago - Chile in 2003
- 2002. Member of the Organizing Board of the Chilean Economist Annual Meeting.
- 2002. Invited as Expert Witness by the Mining and Energy Board of the Chilean Chamber of Deputies to comment on the economic aspects of the Electric Law Project to modify the 1982 Chilean Electric Law.
- 2001. Member of the Board that organized the seminar “Tariff Regulation in the Telecommunication Industry” Organized by the Chilean Chambers of Commerce, Fundación Pacífico, Pontificia Universidad Católica de Chile, Universidad de Chile, Santiago - Chile.
- 2001. Founder Member of the Chilean Economist Association.
- 2001. Member of the Organizing Board of the Chilean Economist Annual Meeting.
- 2001. Advisor for the Hungarian Government for the Licensing - Monitoring - Competition Committee of the Electricity Regulatory Regional Association, on electricity regulation issues.
- 2000. Member of the Organizing Board of the Chilean Economist Annual Meeting.
- 1999. Member of the Board that evaluated the projects presented at the contest on Management Innovation within the Chilean Government.

- 1998. In two opportunities chosen as Expert Arbitrator between the Chilean Transportation and Telecommunication Sub secretary (SUBTEL) and the mobile telephone company CTC-STARTEL S.A. to solve controversies on access charge regulation.
- 1997. Invited to participate in the Energy Modeling Forum (EMF), Stanford University.
- 1996. Economist in charge of the Electricity Distribution Added Value Studies for Chilectra S.A.
- 1995. Participate in the Experts Board that determines the Chilectra S.A. investments new replacement values used to set electricity distribution tariffs.
- Referee for The Energy Journal; Energy Policy; IEE Proceeding in Generation, Transmission and Distribution; The Encyclopedia of Energy Engineering and Technology; The International Journal of Global Energy Issues; Revista de Análisis Económico; Cuadernos de Economía; and Estudios de Economía.
- Referee for Fondecyt projects (Chilean National Science Foundation).

#### **IX. Professional experience in Pontificia Universidad Católica de Chile**

- 1 Director of the Industrial and Systems Engineering Department, April 1998 - April 2002.
- 2 Teaching Director of the Industrial and Systems Engineering Department. March 1994 - October 1995.

#### **X. Professional experience in consulting and related research activities**

- Project: “Analysis of the Mobil Telecommunication Market and Incumbent Incentives upfront of the 3G frequency band contest in Chile”. Work done for Nextel S.A. 2007-2008.
- Project: “Technology Convergence and compared experience: regulatory update propositions for the XXI century”. Work done for Telefónica del Sur S.A. 2006-2007.
- Project: “Pole attachment pricing for telecommunication service providers”. Work done for VTR Globalcom S.A. 2006-2007.
- Project: “The Aysén Hydropower Project and its effects on the competitiveness of the generation - transmission sector”. Work done for Colbún S.A. 2006-2007.
- Project: “Criteria to define economic lifetime of main electricity transmission investments”. Work done for Transelec S.A. 2006-2007.
- Project: “Capital Asset Price for Gasco Magallanes” (a natural gas distribution company). Work done for Gasco S.A. 2005-2006.
- Project: “Natural gas supply form Argentina to Chile: records and history up to 2004”. Work done for Nestle Chile S.A. 2005.
- Project: Expert Witness chosen by agreement between the Chilean Telecommunication Sub secretary and Manquehue Net (Fixed Telephone Company) to solve controversies on key parameters used for the determination of access charges. November 2004.
- Project: “Network unbundling and resale of telecommunication services: extension of the mandate to non dominant operators” (in Spanish). Work done for VTR-GlobalCom S.A. 2004.

- Project: “Impact of a Change on Access Charges on Mobil Telecommunications and Fixed Telecommunications” (in Spanish). Work done for Quiñenco S.A. (Head quarters of VTR S.A.). 2003.
- Project: “Price Discrimination in the Access to the Network of a Dominant Company in Local Telecommunications Vertically Integrated into Potentially Competitive Markets: A Note” (in Spanish). Work done for VTR-GlobalCom S.A. 2003.
- Project: “Monopoly, Dynamic Competition and Access Charges in Telecommunications” (in Spanish). Work done for VTR-GlobalCom S.A. 2002-2003.
- Project: “A Benchmark Study of Interconnection Charges in Mobile Telecommunication” (in Spanish). Work done for ATELMO A.G. (Gremial Association of Chilean Mobil Operators). 2002.
- Project: “Access Charges for Telecommunication Companies in the presence of a Dominant Operator in Local Telecommunications” (in Spanish). Work done for VTR-GlobalCom S.A. 2001-2002.
- Project: Fondecyt No. 1010750 (Chilean National Sciences Foundation). “Development of Dynamic Metrics to Measure the Quality of Service for a Generation and Transmission System and their Economic Evaluation” (in Spanish), researcher. 2001-2002.
- Project: “Contracts and Quality of Electricity Supply in the SING - Northern Chilean Interconnected Electricity Supply System-” (in Spanish). Work done for Electroandina S.A. 2001.
- Project: "Failure Cost and Prices to Value Energy Transfers in the CDEC - Chilean Main Interconnected Electric System Operator-". Work done for Endesa S.A. 1998.
- Project: Expert Witness chosen by agreement between the Chilean Telecommunication Sub secretary and CTC-STARTEL (Mobile Telephone Company) to solve the controversies on key parameters used for the determination of mobile phone access charges. December 1998.
- Project: Expert Witness chosen by agreement between the Chilean Telecommunication Sub secretary and CTC-STARTEL (Mobile Telephone Company) to solve controversies on the technical - economic conceptual formulation used for the determination of mobile phone access charges. March 1998.
- Project: “The Sistema Interconectado del Norte Grande and the Gas Atacama Project”. Work done for Credit Suisse First Boston of New York and Chase Manhattan Bank of New York. 1997-1998.
- Project: “Analysis of the Impact of the Incorporation of Ralco Hydropower Plant and Alternative Gas Combined Cycle Power Plants” (in Spanish). Work done for Endesa S.A. 1997.
- Project: “Electricity Distribution Value Added Study” (in Spanish). 1996. Work done for Chilectra S.A.
- Project: “Electricity Sub Transmission Pricing” (in Spanish). Work done for Chilectra S.A. 1996-1997.
- Project: “Relevance of Entry Barriers in the Electricity Generation Industry” (in Spanish). Work done for Enersis S.A. 1996.

- Project: Fondecyt # 1960397 (Chilean National Science Foundation). “Industrial Organization on Natural Gas and Electricity Transportation” (in Spanish). Main researcher. 1996-1997.
- Project: Fondecyt # 1971265 (Chilean National Science Foundation). “Development of Distribution Electricity Systems - Optimization and Pricing” (in Spanish). Researcher. 1997-1998.
- Project: “Corporate Management: Incentive Structure” (in Spanish) Work done for Comercial Modo Ltda., Chilean Corporation of Americanino, Unlimited, Made in Europe, and AM. J. Publicidad. 1996.
- Project: “Service Quality and Pricing of Electric Distribution Systems in Chile” (in Spanish). Work done for Chilectra S.A. 1995-1997.
- Project: “Strategic Evaluation of an Industrial Laundry for a Leader Jeans Company” (in Spanish). Work done for Comercial Modo LTDA. 1995-1996.
- Project: "Natural Gas Transportation Technology Implications on the Sector's Industrial Organization " (in Spanish). Work whose objective was the review of the Law project to account for the entry of imported natural Gas in Chile, work done for the Chilean National Energy Commission (CNE). 1993-1994.
- Project: “The Process of Modernization of the Chilean Economy”. Work done for The Woodrow Wilson Center, Latin American Program. 1995.
- Project: “Scale Economies, Monopoly, Regulation and Competition in the Transmission Sector and its Relation with the Current Legislation” (in Spanish). Work done for Transelec, and Endesa S.A. company. 1994-1995.

## **XI. Professional Affiliations**

Member of the following Professional Associations:

- International Association for Energy Economics (IAEE).
- Latin American and Caribbean Economic Association (LACEA).
- Econometric Society
- Corporate Governance Network
- Member of the Energy Commission of the Chilean Engineering Institute.
- Member of the Telecommunication Commission of the Chilean Engineering Association (Colegio de Ingenieros de Chile A.G.).