

*edited by*

Eric Brousseau and  
Jean-Michel Glachant

The  
Economics  
of  
Contracts

Theories and Applications

CAMBRIDGE

# The Economics of Contracts

*Theories and applications*

---

*edited by*

Eric Brousseau and Jean-Michel Glachant



## Contributors

---

PHILIPPE AGHION is Professor of Economics at Harvard University. His main fields of interest are the theory of contracts and the theory of growth. Together, both theories allow a better understanding of the links between technical change and institutional evolutions. His most recent research focuses on the relationship between competition and growth, and he is currently starting a project on contracts and growth.

ASHISH ARORA is Associate Professor of Economics at Heinz School, and Research Director at the Carnegie Mellon Software Center, both at Carnegie Mellon University. Arora's research focuses on the economics of technological change, intellectual property rights, and technology licensing. He has published extensively on the growth and development of biotechnology and the chemical industry. His most recent book is *Markets for Technology* (MIT Press).

BENITO ARRUÑADA is Professor of Business Organization at Universitat Pompeu Fabra, Barcelona, Spain. In addition to retailing, his research deals with contractual practices in the franchising, auditing, healthcare, public administration, construction, trucking, fishing, and conveyancing industries, as well as the impact of different legal rules, such as those on payment delays, multidisciplinary professional firms, corporate governance, and land registration.

MATTHEW BENNETT received his PhD from the department of economics at the University of Warwick. His dissertation centered around competition and regulation policy. He is currently working in the University of Toulouse under a Marie Curie training grant, on the interaction of license auctions and optimal regulatory contracts.

ERIC BROUSSEAU is Professor of Economics at the University of Paris X. He works with two research centers: FORUM (University of Paris X), where he is the director of the department of industrial organization, and ATOM at the University of Paris (Panthéon-Sorbonne). His area of interest is the economics of coordination, mainly contractual and

institutional economics. His applied fields of research include the economics of intellectual property rights and the economics of the digital economy.

GÉRARD CHARREAUX is Professor in Management Science at the Université de Bourgogne. He is presently coordinator of the research program in finance, governance, and organizational architecture for the Laboratoire d'Analyse et de Techniques Economiques (Latec-Cnrs) and editor of the review *Finance Contrôle Stratégie*. His main fields of research are corporate governance and corporate finance.

RONALD COASE is Clifton R. Musser Professor Emeritus of Economics at the University of Chicago Law School. He was editor of the *Journal of Law and Economics* 1964–82. In 1991, he was awarded the Alfred Nobel Memorial Prize in Economic Sciences.

GODEFROY DANG-NGUYEN is Professor and Head of the Economics and Human Sciences Department, ENST Bretagne. He is currently doing research on the impact of information technology on corporations, institutions, and public policy. He is invited Professor at the College of Europe in Bruges.

M'HAND FARES is a research fellow at INRA, ESR-Montpellier (UMR MOISA) and member of the research center ATOM-GENI (University of Paris I). His major fields of interest are contracting and organization, law and economics, and organization of the agro-food industry.

OLIVIER FAVEREAU is Professor of Economics at the University of Paris X. He is also the head of FORUM, a research unit which develops an institutionalist program of research, in four fields: money and macroeconomics, industrial economics, employment systems, and transition and development studies. His own work deals with conventions and institutions on the labor market.

ANDREA FOSFURI is Assistant Professor at the Business Department of the University Carlos III, Madrid, and research affiliate at CEPR, London. He has published in several leading economics and management journals, and co-authored with Ashish Arora and Alfonso Gambardella the book *Markets for Technology: Economics of Innovation and Corporate Strategy* (MIT Press).

EIRIK G. FURUBOTN is Research Fellow at the Private Enterprise Research Center, Texas A&M University, College Station, Texas, USA. He is also Honorary Professor of Economics at the University of Saarland, Saarbrücken, Germany, and member of the Advisory Board of the *Journal of Institutional and Theoretical Economics*.

JACQUES GHESTIN is Professor Emeritus of Law at the University de Paris I (Panthéon-Sorbonne). He is the main author of several treatises dedicated to civil law and contractual law. He is also a lawyer, and practices international contracting and arbitration.

JEAN-MICHEL GLACHANT is Professor of Economics at the University of Paris Sud. He was formerly the director of the research center ATOM at the University of Paris Panthéon-Sorbonne, and currently heads the economics department of the research center ADIS at the University of Paris XI. He is also member of the Economic Advisory Council of the French electricity regulation commission (CRE).

MICHEL GLAIS is a Professor of Economics at the University of Rennes. He specializes in anti-trust and competition law, business strategy, and corporate finance and assessment. He lectures for several Universities in Europe and America: Herriot-Wyatt (Edinburgh); Boston College; University of New Hampshire; La Sapienza (Roma); Baltic Business School (Sweden). He is also a chartered expert at Court, and involved in private consultancy for several major corporations.

VICTOR P. GOLDBERG is the Thomas Macioce Professor of Law and the Co-Director of the Center for Law & Economic Studies at Columbia University. His current research focus is an application of economic reasoning to contract law cases and doctrine.

OLIVER HART is the Andrew E. Furer Professor of Economics at Harvard University, and a Research Associate of the National Bureau of Economic Research (NBER). He is also Centennial Visiting Professor at the London School of Economics. He works on the theory of the firm and financial contracting.

GUY L.F. HOLBURN is an Assistant Professor at the University of Western Ontario, Richard Ivey School of Business. Prior to joining Ivey, he completed his MA in Economics and PhD at the University of California, Berkeley. His research focuses on utility and regulation issues, particularly as applied to the electricity industry. He has also worked as a consultant for Bain and Co. and for the California Public Utilities Commission.

PAUL L. JOSKOW is the Elizabeth and James Killian Professor of Economics and Management at the Massachusetts Institute of Technology (MIT), Director of the MIT Center for Energy and Environmental Policy Research, and a Research Associate of the National Bureau of Economic Research.

CLAUDIA KESER is research staff member at the IBM T. J. Watson Research Center, Yorktown Heights, New York and associated fellow of the Centre Interuniversitaire de Recherche en Analyse des Organisations (CIRANO), Montreal.

BENJAMIN KLEIN is Professor of Economics at UCLA and President of Economic Analysis at LLC, an economic consulting firm based in Los Angeles. His research interests focus on the law and economics of contractual arrangements and anti-trust policy, including vertical distribution arrangements, vertical integration, and competitive marketing policies.

FRANCINE LAFONTAINE is Professor of Business Economics and Public Policy at the University of Michigan Business School. She is also a Faculty Research Fellow at the National Bureau of Economic Research (NBER). Her research focuses on incentives issues and contracting practices, with special emphasis on the franchise and trucking industries.

GARY D. LIBECAP is Anheuser Busch Professor and Professor of Economics and Law at the University of Arizona in Tucson. He also is Director of the Karl Eller Center and Research Associate in the National Bureau of Economic Research. His research interests focus on the issues of property rights, economic behavior, and resource use.

W. BENTLEY MACLEOD is Professor of Economics and Law at the University of Southern California, a Director of the Center for Law, Economics and Organization, and is currently visiting Professor of Economics and Law at the California Institute of Technology. His recent research concerns the theoretical and empirical implications of bounded rationality for contract form.

ERIC MALIN is Professor of Economics at the University of La Réunion. He is member of GREMAQ (Toulouse) and CERESUR (La Réunion). His main research interests include network economics, price discrimination, and health economics.

DAVID MARTIMORT is Professor at the University of Toulouse. He is also member of the Institut d'Economie Industrielle (IDEI) in Toulouse and CEPR, London. His work concerns collusion in organizations and mechanism design in multiprincipals' environment. He has authored a textbook with Jean-Jacques Laffont on incentives, *The Theory of Incentives: The Principal-Agent Model*. He has been invited to teach contract theory at Harvard, Pompeu Fabra, and Université de Montreal.

SCOTT E. MASTEN is Professor of Business Economics and Public Policy at the University of Michigan Business School. His research interests include contracting practices, contract law, and their relation to economic organization.

CLAUDE MÉNARD is Full Professor of Economics at the University of Paris Panthéon-Sorbonne and director of the Center for Analytical Theory of Organizations and Markets (ATOM). He is President (2001–02) of the International Society for New Institutional Economics (ISNIE). His fields of interest are mainly the economics of organization and the economics of regulation/deregulation.

THIERRY PÉNARD is Professor of Economics at the University of Rennes I and affiliated to CREREG. His fields of specialization include the economics of networks, game theory, and anti-trust policy. His current research focuses on the economics of telecommunications and the Internet.

EMMANUEL RAYNAUD is a researcher at INRA-SADAPT (National Institute of Agronomical Research) and a member of the Center for Analytical Theory of Organizations and Markets (ATOM) (University of Paris Panthéon-Sorbonne). His field of specialization includes the economics of contracts and organization. His current research focuses on product quality and vertical coordination in European agro-food industries and on franchising (design of contracts and dual distribution in franchise chains).

PATRICK REY is Professor of Economics at the University of Toulouse and Research Director at the Institut d'Economie Industrielle (IDEI). He has also been Associate Professor at the Ecole Polytechnique since 1991. His fields of interest cover industrial organization, public economics, competition law and policy, regulation of natural monopolies, corporate finance, banking and financial intermediation, contract theory, and theory of the firm and of organizations.

STÉPHANE SAUSSIER is Professor of Economics at the University of Nancy II. He is also Deputy Director of the Center for Analytical Theory of Organizations and Markets (ATOM) (University of Paris Panthéon-Sorbonne). Specializing in the economics of organizations and contracts, he has been working on several fields of application such as technology licensing agreements, water supply, coal contracts, and franchise contracts, focusing on contractual choices and make-or-buy decision.

ALAN SCHWARTZ is Sterling Professor of Law and Professor of Management, Yale University. He has been Editor of the *Journal of*

*Law, Economics and Organization*, President of the American Law and Economics Association, and Chair of the Section on Contracts of the Association of American Law Schools. He currently is Director of the Yale Law School Center for the Study of Corporate Law and serves on the boards of two publicly traded companies.

PABLO T. SPILLER is the Joe Shoong Professor of International Business and Public Policy, and chairs the Business and Public Policy Group, at the Haas School of Business of the University of California, Berkeley. Prior to joining Berkeley, he was on the faculties of the University of Pennsylvania, the University of Illinois, and the Hoover Institution at Stanford University. He has published more than eighty articles and five books, and has received numerous awards from the National Science Foundation, the Olin Foundation, the Bradley Foundation, the Ameritech Foundation, and the National Center for Supercomputer Applications.

CATHERINE WADDAMS PRICE is Professor of Regulation and Director of the Centre for Competition and Regulation, University of East Anglia, Norwich, United Kingdom. Her main research interests are in economic regulation of markets, the introduction of competition, and the distributional consequences. She formerly acted as an economic expert for the UK energy regulator, and is now a member of the UK Competition Commission.

BERNARD WALLISER is Professor of Economics at Ecole Nationale des Ponts et Chaussées and Director of Studies at the Ecole des Hautes Etudes en Sciences Sociales (Paris). Involved in economic methodology, he is now leading a program in "Cognitive Economics," concerned with the study of agents' beliefs, reasoning methods, and learning processes when these agents are involved in social networks.

OLIVER E. WILLIAMSON is the Edgar F. Kaiser Professor of Business, Professor of Economics, and Professor of Law at the University of California, Berkeley. He is the founding co-editor of the *Journal of Law, Economics and Organization* and a member of the National Academy of Science.

MARC WILLINGER is Professor of Economics at the University Louis Pasteur (Strasbourg, France). His current research activities contribute to the development of experimental economics, with applications to contract design, efficiency of environmental policy instruments, decision-making under uncertainty, and the dynamics of cooperation.



## Acknowledgments

---

This book draws partially from a special issue of the *Revue d'Economie Industrielle* entitled “The Economics of Contracts in Prospect and Retrospect,” (92, 2000) in which Eric Brousseau and Jean-Michel Glachant edited earlier versions of some of the chapters of that book.

The publishers and editors would like to thank Les Editions Techniques et Economiques for permission to publish revised or translated versions of the chapters 1–4, 6–8, 10, 13–22, and 24, which appeared in the special issue of *Revue d'Economie Industrielle* (2000, 92).

The editors are also grateful to the board of the *Revue d'Economie Industrielle*, and especially to its Editor in Chief Jacques de Bandt for having facilitated the publication of these chapters in that book.

The editors are also indebted to Marie-Line Priot (FORUM, University of Paris X) for secretarial support and to Paul Klassen for translation.

The publisher has used its best endeavours to ensure that the URLs for external websites referred to in this book are correct and active at the time of going to press. However, the publisher has no responsibility for the websites and can make no guarantee that a site will remain live or that the content is or will remain appropriate.

# Contents

---

|                             |           |
|-----------------------------|-----------|
| <i>List of figures</i>      | page viii |
| <i>List of tables</i>       | ix        |
| <i>List of contributors</i> | x         |
| <i>Acknowledgments</i>      | xvi       |

## **Part I Introduction**

|   |    |
|---|----|
| 1 The economics of contracts and the renewal of economics | 3  |
| ERIC BROUSSEAU AND JEAN-MICHEL GLACHANT                   |    |
| <i>Appendix: Canonical models of theories of contract</i> | 31 |
| M'HAND FARES  |    |

## **Part II Contracts, organizations, and institutions**

|   |    |
|---|----|
| 2 The New Institutional Economics   | 45 |
| RONALD COASE  |    |
| 3 Contract and economic organization  | 49 |
| OLIVER E. WILLIAMSON  |    |
| 4 The role of incomplete contracts in self-enforcing relationships          | 59 |
| BENJAMIN KLEIN  |    |
| 5 Entrepreneurship, transaction-cost economics, and the design of contracts | 72 |
| EIRIK G. FURUBOTN   |    |

## **Part III Law and economics**

|   |     |
|---|-----|
| 6 The contract as economic trade                      | 99  |
| JACQUES GHESTIN                                       |     |
| 7 Contract theory and theories of contract regulation | 116 |
| ALAN SCHWARTZ   |     |

|   |   |     |
|---|---|-----|
| 8   | Economic reasoning and the framing of contract law:<br>sale of an asset of uncertain value<br>VICTOR P. GOLDBERG  | 126 |
| 9   | A transactions-cost approach to the analysis of property<br>rights<br>GARY D. LIBECAP   | 140 |
| <b>Part IV Theoretical developments: where do we stand?</b>                 |   |     |
| 10  | Transaction costs and incentive theory<br>ERIC MALIN AND DAVID MARTIMORT  | 159 |
| 11  | Norms and the theory of the firm<br>OLIVER HART   | 180 |
| 12  | Allocating decision rights under liquidity constraints<br>PHILIPPE AGHION AND PATRICK REY   | 193 |
| 13  | Complexity and contract<br>W. BENTLEY MACLEOD   | 213 |
| 14  | Authority, as flexibility, is at the core of labor contracts<br>OLIVIER FAVEREAU AND BERNARD WALLISER   | 241 |
| 15  | Positive agency theory: place and contributions<br>GÉRARD CHARREAUX   | 251 |
| <b>Part V Testing contract theories</b>                                     |   |     |
| 16  | Econometrics of contracts: an assessment of<br>developments in the empirical literature on contracting<br>SCOTT E. MASTEN AND STÉPHANE SAUSSIÉ                        | 273 |
| 17  | Experiments on moral hazard and incentives: reciprocity<br>and surplus-sharing<br>CLAUDIA KESER AND MARC WILLINGER  | 293 |
| <b>Part VI Applied issues: contributions to industrial<br/>organization</b> |   |     |
| 18  | Residual claims and self-enforcement as incentive<br>mechanisms in franchise contracts: substitutes or<br>complements?<br>FRANCINE LAFONTAINE AND<br>EMMANUEL RAYNAUD | 315 |

## Contents

vii

|  |   |     |
|--|---|-----|
| 19   | The quasi-judicial role of large retailers: an efficiency hypothesis of their relation with suppliers<br>BENITO ARRUÑADA                          | 337 |
| 20   | Interconnection agreements in telecommunications networks: from strategic behaviors to property rights<br>GODEFROY DANG-NGUYEN AND THIERRY PÉNARD | 358 |
| 21   | Licensing in the chemical industry<br>ASHISH ARORA AND ANDREA FOSFURI   | 373 |
| <b>Part VII Policy issues: anti-trust and regulation of public utilities</b> |   |     |
| 22   | Inter-company agreements and EC competition law<br>MICHEL GLAIS   | 395 |
| 23   | Incentive contracts in utility regulation<br>MATTHEW BENNETT AND CATHERINE WADDAMS PRICE  | 416 |
| 24   | Contractual choice and performance: the case of water supply in France<br>CLAUDE MÉNARD AND STÉPHANE SAUSSIER                                     | 440 |
| 25   | Institutional or structural: lessons from international electricity sector reforms<br>GUY L.F. HOLBURN AND PABLO T. SPILLER                       | 463 |
| 26   | Electricity sector restructuring and competition: a transactions-cost perspective<br>PAUL L. JOSKOW   | 503 |
|  | <i>Bibliography</i>   | 531 |
|  | <i>Index of names</i>   | 570 |
|  | <i>Subject index</i>  | 579 |

# Figures

---

|      |  |         |
|------|--|---------|
| 1A.1 | Comparative efficiency of the three governance structures                | page 41 |
| 3.1  | Incentive intensity and administrative controls                          | 55      |
| 13.1 | Time line for agency relationship  | 218     |
| 13.2 | Time line for hold-up problem  | 220     |
| 13.3 | Time line for authority relationship                                     | 222     |
| 13.4 | Time line for <i>ex post</i> hold-up                                     | 224     |
| 14.1 | Highway construction   | 243     |
| 14.2 | Simon's model  | 247     |
| 15.1 | The building blocks of PAT   | 254     |
| 21.1 | Who was licensing chemical technologies, 1980s                           | 380     |
| 21.2 | Market for chemical technology as a function of investor's type          | 381     |
| 21.3 | Share of SEFs licensing, by size of product market                       | 382     |
| 21.4 | Market share of SEFs and licensing, by chemical producers                | 387     |
| 21.5 | Product differentiation and licensing                                    | 388     |
| 25.1 | US retail electricity rates, 1990–1999                                   | 471     |
| 25.2 | Unit spot price, California wholesale market, January 1999–November 2000 | 484     |
| 25.3 | Unit spot price, El Salvador wholesale market, January 1998–May 2000     | 490     |
| 26.1 | Competitive wholesale and retail markets                                 | 513     |

# Tables

---

|      |   |                |
|------|---|----------------|
| 1.1  | Schematic representation of the different approaches  | <i>page</i> 15 |
| 1A.1 | Efficiency under different property-rights allocations  | 37             |
| 5.1  | A comparison of models  | 78             |
| 13.1 | Cost of a complete state-contingent contract  | 226            |
| 13.2 | Contract payoffs  | 233            |
| 15.1 | PAT versus TCT: a revised comparative assessment  | 266            |
| 17.1 | Parameters of the experiment by Keser and Willinger (2000)  | 301            |
| 17.2 | Activity costs in the experiment by Keser and Willinger (2001)  | 303            |
| 19.1 | Average profit margin as a function of credit and payment periods in EU countries   | 343            |
| 19.2 | Correlation coefficients between country averages of credit and payment periods and causes of late payment in domestic transactions | 348            |
| 19.3 | Average payment periods, average delays, and economic developments  | 348            |
| 21.1 | Licensing strategies, selected chemical producers   | 385            |
| 24.1 | Permanent average population, by type of arrangement  | 443            |
| 24.2 | Distribution of contractual arrangements, by regional agencies  | 444            |
| 24.3 | Variables and their meaning   | 452            |
| 24.4 | Determinants of contractual choice  | 454            |
| 24.5 | Modes of organization and performance   | 458            |
| 25.1 | Organizational and ownership structure of competitive wholesale electricity markets   | 474            |

*Part I*

**Introduction**





# 1 The economics of contracts and the renewal of economics

---

*Eric Brousseau and Jean-Michel Glachant*

## 1 Introduction

To an economist, a contract is an agreement under which two parties make reciprocal commitments in terms of their behavior – a *bilateral coordination arrangement*. Of course, this formulation touches on the legal concept of the contract (a meeting of minds creating effects in law), but also transcends it. Over the course of the past thirty years, the “contract” has become a central notion in economic analysis (section 2), giving rise to three principal fields of study: “incentives,” “incomplete contracts,” and “transaction costs” (section 3). This opened the door to a revitalization of our understanding of the operation of market economies . . . and of the practitioner’s “toolbox” (section 4).

The goal of this chapter is to provide an overview of recent developments in these analytical currents, to present their various aspects (section 5), and to propose expanding horizons (section 6). The potential of these approaches, which have fundamentally impacted on many areas of economic analysis in recent decades, is far from exhausted. This is evinced by the contributions in this book, which draw on a variety of methodological camps and disciplines.

## 2 The central role of the notion of the contract in economic analysis

Even though the notion of the contract has long been central to our understanding of the operation of decentralized social systems, especially in the tradition of the *philosophie des lumières*, only recently have economists begun to render it justice. Following in the footsteps of Smith and Walras, they long based their analyses of the functioning of decentralized economies on the notions of market and price system. This application of Walrasian analysis, in which supply meets demand around a posted price, does not satisfactorily account for the characteristics of a decentralized economy (cf. Ronald Coase’s chapter 2 in