

Dr. Chris Doyle

Independent Consultant Economist &
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Expertise: Economist
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Qualifications

Date of birth	Education	Nationality
6 April 1960	<p>Secondary: Xaverian College, Manchester 1971-78, 7 O levels, 4 A levels</p> <p>University: University College Wales, Cardiff 1978-81, First Class honours, Economics – top grade in year</p> <p>University of Warwick 1981-984 MA and Ph.D. in Economics</p>	British

Current and past positions

Year	Current positions	Location
July 2004 - present	Associate Fellow, Department of Economics, University of Warwick and Centre for Management under Regulation, Warwick Business School	Warwick
May 2002- present	Independent consultant economist	

Year	Previous positions	Location
July 2004- February 2007	Senior Research Fellow, Centre for Management under Regulation, Warwick Business School	Warwick
May 2002-June 2004	Independent economic consultant Associate Fellow, Department of Economics, University of Warwick Associate Fellow, Centre for Management Under Regulation, University of Warwick	Warwick
August 2000 – April 2002	Vice President, Practice Head Telecoms, and Director of Charles River Associates (UK) Ltd.	London
October 1999 – July 2000.	Director of Telecoms, London Economics	London
January 1996 – September 1999	Senior Research Fellow, London Business School	London
October 1992 – December 1995	Senior Research Officer, Department of Applied Economics, University of Cambridge	Cambridge

October 1989 – September 1992	Research Officer, Department of Applied Economics, University of Cambridge	Cambridge
October 1986 – September 1991	Fellow, Gonville and Caius College, Cambridge	Cambridge
October 1985 – September 1987	Junior Research Officer, Department of Applied Economics, University of Cambridge	Cambridge
October 1984 – September 1985	Lecturer, Department of Economics, University of Essex	Colchester
Other previous positions		
January 2003 – June 2003	Visiting Lecturer, London School of Economics	London
January 1999 – March 1999	Adjunct Professor, INSEAD	Fontenbleau, France
September 1991 – March 1992	Visiting Professor, CERGE, Charles University	Prague, Czech Republic
October 1991 – September 1992	Assistant Director of Studies, Gonville and Caius College	Cambridge
January 1989 – May 1989	Visiting Assistant Professor, Queen's University	Kingston, Canada
October 1988 – September 1989	Affiliated Lecturer, Faculty of Economics and Politics, University of Cambridge	Cambridge
October 1985 – September 1986	College Supervisor, St. John's College	Cambridge

Consulting assignments (in reverse chronological order)¹

Independent economic consultant May 2002-present

Client: ComReg, March 2008

Task: Organize and present a series of training workshops on spectrum auctions.

Client contact: Niamh McEvoy, ComReg

Client: Gibraltar Regulatory Authority (GRA), January 2008 – February 2008

Task: Assistance on design and implementation of remedies in market reviews.

Client contact: Stewart Brittenden, GRA

Client: InfoDev World Bank, August 2007 – November 2007

Task: Lead Consultant and Team Leader for World Bank training programme on competition policy for COMESA members in Addis Ababa, Ethiopia.

Client contact: Boutheina Guermazi, InfoDev

Client: Gibraltar Regulatory Authority (GRA), August 2007 – November 2007

Task: Assistance on review of Market 16, mobile termination. Cost modeling.

Client contact: Stewart Brittenden, GRA

Client: HSL, August – October 2007

Task: Economic advice to private client in relation to a Chapter II 1998 Competition Act case before Ofcom. Issues: refusal to deal, excessive pricing and alleged abuse of dominance. Market: wholesale termination of SMS.

Client contact: Mark Hay, HSL

Client: Dublin Port Company, August – September 2007

Task: Independent report examining cost of Dublin city HGV exclusion zone.

Client contact: Michael Cleary

Client: Eircom, June 2007 – August 2007

Task: Academic policy paper on structural and functional separation.

Client contact: Victoria Ergus, Eircom

Client: Department of Communications, Information Technology and Arts, Australia, March 2007 – May 2007

Task: Contributor to report “The Analysis of Spectrum Policy Trends”.

Client contact: George Barker, ANU

¹ Shaded items denote live or future assignments.

Client: Jamaican Fair Trading Commission, April 2007 – February 2008

Task: Technical training provided to staff and economists in the Fair Trading Commission and the Office of Utilities Regulation on competition policy issues pertinent to network industries. On site workshops, seminars and one-on-one training; development of case study materials.

Lead consultant

Client contact: David Miller, JFTC

Client: Falklands Islands Government, December 2006 – present

Task: As part of the retainer arrangement with the Falkland Islands Government, providing advice on the reform and regulation of the telecommunications and communications sectors. In particular addressing where legislation requires revision and assisting the FIG in negotiations with Cable & Wireless Falkland Islands.

Lead consultant

Client contact: Pete King, Government Secretary, FIG

Client: Cable & Wireless Guernsey, December 2006 – February 2007

Task: Advice in relation to an appeal submitted by C&WG to the Utilities Appeal Tribunal in Guernsey regarding the denial of a 3G licence in a comparative selection contest in June 2006.

Client contact: Jane Langlois, Regulatory Manager, C&WG

Client: Major UK broadcaster, Confidential UK, January 2007 – March 2007

Task: Advice in relation to Ofcom's Digital Dividend Review. Working as part of a team led by David Lancefield at PricewaterhouseCoopers, London.

Client contact: Confidential

Client: EBRD for CRC in Mongolia, September 2006 – present

Task: One week training programme for regulatory staff in Mongolia on the following topics: (i) Competition policy – market definition and market analysis relevant to network industries (ii) Price regulation – price caps, price floors and margin squeeze (iii) Spectrum management policy – auctions, secondary trading and administrative incentive prices. Assessment of appropriate interconnection rates, framework and modeling, plus advice on application of dominance concept.

Client contact: Andrew Dymond, Intelecon (Canada)

Client: TCRA Tanzania, October 2006

Task: One week on site training programme for 20 communications regulatory staff in Tanzania on the following topics: (i) Competition policy – market definition and market analysis relevant to network industries (ii) Price regulation – price caps, price floors and margin squeeze (iii) Spectrum management policy – auctions, secondary trading and administrative incentive prices (iv) Interconnection – costs, forward looking LRIC, sender keeps all, ECPR (retail minus) (v) Numbering – economics of portability.

Lead consultant

Client contact: Goodluck Ole-Medeye, TCRA

Client: Associates for Research, September 2006

Task: Organization and presentation of training course on radio spectrum management policy for 20 executives from Thailand, Sweden, Tanzania, Kenya and Luxembourg. Course held at London School of Economics.

Client contact: Charles Opara, Associates for Research Ltd

Client: Home Shopping Network Inc. and iBuy TV Limited, July 2006 – August 2006

Task: Prepared expert economists report on market definition in a competition case involving an alleged abuse of dominance. The focus of the report was on two-sided markets. Worked closely with lawyers from Gibson Dunn & Crutcher.

Lead economic consultant

Client contact: James Ashe-Taylor, Gibson Dunn & Crutcher LLP, London

Client: ComReg, June 2006 – September 2006

Task: Organized and presented a series of training workshops on the new regulatory framework with the focus on market definition and market analysis. Wrote and supplied training manual to assist regulatory staff when conducting market reviews.

Client contact: Caoimhe Donnelly, ComReg

Client: Ofcom, May 2006 – February 2007

Task: Economist contributing to project assessing the dividend associated with fixed links and improved spectrally efficient technologies.

Client contact: Ofcom

Client: Gibraltar Regulatory Authority (GRA), May 2006 – March 2007

Task: Undertaking the 18 market reviews for the GRA in accordance with the 2002 EU Directives.

Client contact: Stewart Brittenden, GRA

Client: PriceWaterhouseCoopers, April 2006 – May 2006

Task: Advise on auction design for Iraq GSM licenses. Wrote report for financial advisors to the Interim Iraq Government.

Client contact: Jitesh Shah, Corporate Finance PWC London

Client: Montserrat Government and FCO, January 2006 – December 2006

Task: Report and site visit advising on the liberalization of the telecommunications sector in Montserrat. Undertook cost study to assess viability of network competition on Montserrat.

Client contact: Francis Kayada, FCO

Client: Anacom (Portuguese telecoms national regulatory authority), February 2006 – May 2006

Task: Advising on the competition implications of the bid submitted by Sonae for Portugal Telecom. Report submitted examining market analysis of the mobile and fixed

sectors in the context of the proposed merger. Prepared suggested remedies to address competition concerns.

Client contact: Pedro Duarte Neves, Director, Anacom

Client: TAIEX European Commission for the Lithuanian government, November 2005

Task: Prepare, organize and present workshop on the EU Regulatory Framework on Electronic Communications. This was held on 3 and 4 November 2005 in Vilnius, Lithuania. The focus was on competition policy and market reviews under the European regulatory framework. Course of seminars and lectures presented to members of the national regulatory authorities in telecommunications and energy, and to judges (presented jointly with Professor Martin Cave).

Client contact: Jurate Masiulionyte, RRT, Lithuania

Client: Associates for Research, November 2005

Task: Presentation of training course in the form of lectures and seminars on economic regulation of telecoms; regulation of pricing; joint dominance and the electronic communications regulatory framework in the EC.

Client contact: Charles Opara, Associates for Research

Client: British Virgin Islands Government, July 2005 – May 2006

Task: Retained advisor to the BVI Government on the liberalization of the telecommunications sector. Member of Government liberalization negotiation team. Undertook cost study analysis to assess viability of competition in the cellular market, tariff analysis, and other related issues.

Client contact: Neil Smith, Financial Secretary, BVI Government

Client: Public Electronic Communications Network (UK), June 2005 – June 2006

Task: Economic advice to private client in relation to a Chapter II 1998 Competition Act case before Ofcom. Issues: refusal to deal, excessive pricing and alleged abuse of dominance. Market: wholesale termination of SMS.

Client contact: Rod Kirwan, Denton Wilde Sapte, London

Client: Ascension Island Government, June 2005 – May 2006

Task: Advising on reform of the telecommunications sector. Wrote report for the Ascension Island Government on the status of telecommunications and its regulation in Ascension. One site visit for a week and meetings with local officials.

Lead consultant

Client contact: Michael Hill, the Administrator, Ascension Island

Client: European Commission Competition Directorate, June 2005 – December 2005

Task: Advice in relation to Statement of Objections regarding an Article 82 abuse of dominance case involving two mobile network operators in the UK. Market: national market for international roaming onto cellular networks. Alleged abuse relates to excessive pricing.

Client contact: Manuel Martinez-Lopez, European Commission

Client: ITU, May 2005 – September 2005

Task: Commissioned by the ITU to write a report on spectrum management harmonization in 15 West African states. The report submitted to the WATRA (West African Telecommunications Regulators Assembly) meeting in WATRA validation workshop, Accra, Ghana. Attending were CEOs of the 15 regulatory authorities attached to WATRA.

Client contact: Doreen Bogdan, ITU, Geneva

Client: Turks and Caicos Islands Government Attorney General's Chambers, March 2005 – December 2005

Task: Advising on liberalization of the telecommunications sector. Drafting new licenses and developing framework for competition regime. Three separate visits to assist government in preparation for liberalized telecommunications markets. Worked closely with legal counsel and external legal support. Helped draft legislation.

Lead economic consultant

Client contact: Kurt Defreitas, Attorney General, TCI Government Executive

Client: Falklands Islands Government, August 2004 – present

Task: Retained by the Falkland Islands Government to advise on the reform and regulation of the telecommunications and communications sectors.

Lead consultant

Client contact: Pete King, Government Secretary, FIG

Client: Independent Communications Authority for South Africa, July 2004 – January 2005

Task: Advising on the design and implementation of a price-cap (on and off-site). Assisting staff at ICASA and drafting consultation report and assisting Commissioners in the public hearings.

Client contact: Tracy Cohen, Councillor, ICASA, Johannesburg

Client: Commission for Communications Regulation, Ireland, April 2004 – December 2005

Task: Advice on the application of remedies, market definition and analysis in market reviews under the new regulatory framework. Drafting notices and assisting in appeals. Close involvement in the mobile access and call origination review and appeal, interconnection review, and retail minus consultation. Advise on the appeal involving Hutchison 3G Ireland and mobile termination.

Client contact: Isolde Goggin, former Chairperson, ComReg

Client: Ministry of Economic Affairs, Netherlands, June 2003 – January 2004

Task: Key economist on team undertaking work on providing a conceptual framework for the application of new spectrum charges in the Netherlands. With Quotient Associates and Tilburg University. Report available at: [Final Report](#).

Client: Digicel Aruba (New Millennium Telecommunication Services B.V.), October 2003

Task: Provide expert testimony in court on the concession fee.

Lead consultant

Client contact: Isaac Waincier, CEO, NMTS

Client: Radiocommunications Agency, United Kingdom, April 2003 – December 2003

Task: Review the economic methodology used to form spectrum prices in the UK, and develop extensions where necessary. Key economist on team. Wrote report submitted to Ofcom and subsequently implemented by Ofcom. With Indepen with Aegis Systems.

Client contact: Phillipa Marks, Indepen

Client: Radiocommunications Agency, April 2003 – December 2003

Project: Contributed as economist to study into the impact of reduced research into electromagnetic contamination. Project led by Quotient Associates with York EMC.

Client: ECTEL (Eastern Caribbean Telecommunications Authority), December 2002 – March 2003

Task: Advise ECTEL Board on the design of new retail price-cap for ECTEL member states. Completed report and made presentation to ECTEL Board in St. Lucia.

Client contact: Anderson Reynolds, ECTEL.

Client: Cellular operator in Middle East, November 2002

Task: Assess call termination charges and tariffs for SMS in Europe and elsewhere. Report for client and on site assistance in meetings with Ministry.

Lead consultant

Project manager: Confidential.

Client: New entrant cellular operator in the Caribbean, October 2002 – September 2003

Task: Provide expert testimony to court and advised on a range of issues connected with licence valuation and interconnection terms. Advising senior management during interconnect negotiations.

Client contact: Jarleth Burke, Jones, Day, Brussels.

Client: Hutchison 3G UK, October 2002

Task: Provide expert opinion and report on spectrum trading. Report submitted to Ofcom.

Project manager: Confidential.

Client: Major European ISP, June 2002 – January 2003

Task: Advice on competition issues related to alleged leverage of dominance by an incumbent telecommunications operator, and submit expert opinion.

Project manager: Confidential.

Client: Government of Anguilla, British West Indies, April 2002 – April 2003

Task: Member of government negotiation team. With Professor Martin Cave completed report “Costs, Price Rebalancing and Competition in the Anguilla Telecommunications Market”. Several on site visits and presentations to Government officials and Governor.

Client contact: Kenn Banks, Government of Anguilla.

At Charles River Associates UK Limited (August 2000 – April 2002)

Client: Energis plc, January 2002

Task: Completion of expert report submitted to Oftel, UK telecoms regulator.

I wrote an expert’s report “[xDSL interconnection at the ATM switch: Pricing methodology](#)” which was Annex 1 of the Energis submission to Oftel in response to the draft Directive “Interconnection with BT’s ATM network” published December 21, 2001.

Energis manager: Andrea Dworak.

Client: UK mobile network operator, December 2001

Task: Joint-Manager of Competition Commission inquiry on Calls to Mobile

Assisted the preparation during the early stage of submission by operator to Competition Commission. Counsel: Chris Watson at Allen & Overy.

Client: Goldman Sachs, June – July 2001

Task: Visit leading fund managers in the City.

Produced paper examining the consequences of the new EU telecoms directives for spectrum trading. Client was interested in possible ramifications for the German 3G market. Met with over twenty-five different leading fund managers to discuss spectrum trading and other telecoms issues. Goldman Manager: Louis Greig.

Client: Victor Chandler International, May 2001

Task: Modelling of new betting product.

Client required revenue analysis of new betting product. Work involved completion of report and simulations. Victor Chandler Manager: Matthew Avison (now with Littlewoods).

Client: Global telecoms equipment manufacturer, April – June 2001

Task: Expert testimony.

Completed expert report submitted to the US District Court for the Eastern District of Texas, Sherman Division. Provide expert testimony to the court arguing a case for Material Adverse Effect. The client who was a defendant in a class action case brought

by shareholders in a US company acquired by the client. The class action was dropped following submission of expert reports. Counsel: Chris Malloy at Skadden, Arps in New York.

Client: Partner Communications (Orange) Israel, January – December 2001

Task: Bid support and strategy in Israeli 2G and 3G spectrum auction.

Principal advisor to UMTS management team (Sharon Haran and Adi Biran) regarding bid strategy. Visited client on two separate occasions to prepare senior management (CEO and CFO) for auction – involved mock auctions and meetings. Completed several notes, and wrote responses to auction rules prepared by the Ministry of Communications (MoC). MoC implemented suggestions made regarding bid forms. Partner manager: Sharon Haran.

Client: Elektrim S.A., December 2000 – January 2001 (Polish energy group with telecoms interests)

Task: Expert Testimony.

Wrote and submitted an expert report to the International Court of Arbitration of the International Chamber of Commerce. Cross-examination took place in New York, January 30, 2001. The client was a respondent/counter-claimant in a dispute involving an acquisition. Testimony related to an alleged material adverse effect. Counsel: John Gardiner at Skadden, Arps in New York.

Client: Nigerian Communications Commission (with Radio Spectrum International), September 2000 – January 2001

Task: Design GSM spectrum and assist implementation.

Principal advisor and auction designer for world's first ascending clock spectrum auction. Liaising with leading auction academic Professor Peter Cramton, I specified the auction rules and wrote significant portions of the Information Memorandum. Led bidder workshops and bidder briefings, and worked with Executive Vice Chairman Ernest Ndukwe to determine auctioneer increments. NCC manager: Ernest Ndukwe.

Client: FirstMark Communications UK Limited, September 2000 – November 2000

Task: Bid support and strategy in UK BFWA spectrum auction.

Working with Professor Peter Cramton led a team that provided bid support to the client for the UK BFWA spectrum auction. A simple Bid Track Tool (BTT) was designed using Excel and visual basic programming. The BTT was designed to be used independently by the bid team, comprising the UK Senior VP (Keith Cornell) and other senior managers. Conducted mock auctions with staff and provided detailed guidance on strategy. FirstMark manager: Keith Cornell.

Client: Omnitel (Vodafone), September 2000 – October 2000

Task: Bid support and strategy in Italian 3G spectrum auction.

Working with Professor Peter Cramton led a small team that provided bid support to the client for the Italian 3G spectrum auction. A sophisticated yet user-friendly Bid Track Tool (BTT) was designed using Excel and visual basic programming. The BTT was

designed to be used independently by the bid team, comprising the CEO and other senior managers. Conducted mock auctions with the CEO and CFO, and provided detailed guidance on strategy. Omnitel manager: Giovanni Strocchi.

Client: British Horseracing Board (BHB), August 2000 – January 2001

Task: Write and submit report to the Gambling Review Body

Undertook detailed cost-benefit analysis investigating merits of allowing gambling in public houses in the UK. Work involved modelling and survey design. Results presented to the Board at the BHB, and subsequently submitted by the BHB to the Gambling Review Body, chaired by Professor Alan Budd. BHB manager: Tristram Ricketts, Secretary-General to the BHB.

Client: Energis plc, August 2000 – October 2000

Task: Advise on strategy in Bow Wave Process (local loop unbundling)

Undertook software modeling of strategic options for the bow wave process. Provided client with user-friendly software to analyse different scenarios for assessing local loop unbundling. Energis manager: Paul Roberts.

At London Economics Limited (October 1999 – July 2000)

Client: Meridian Communications Limited, March – July 2000

Task: Expert testimony.

Completion of report “The Economics of Mobile Telephony: Elements, Costs, Objective justifications, and Access Pricing”. This was submitted to the High Court in Ireland in a case presided by Justice O’Higgins. I was cross-examined in the High Court, Ireland on July, 15, 2000. Counsel: Dominic Dowling.

Client: GroupTrade.com, January – May 2000

Task: Quantifying the benefits of business to business e-procurement for small to medium sized enterprises in the UK.

Undertook detailed modeling to quantify the benefits of business to business e-procurement. Co-authored the report “[Business-to-Business e-procurement: Small and medium sized enterprises](#)” with Paul McShane. GroupTrade manager: Dominic Owens.

Client: Telecom New Zealand, January – April 2000

Task: Report submitted to Ministerial Inquiry into Telecoms, New Zealand.

I co-authored a report with Nick Carver (then at Quotient Communications) for the client entitled “[The Dynamics of Local Access: Telecommunications in New Zealand](#)”. The report examined in detail different access technologies and described likely evolutionary paths for market structure. The report was submitted to the New Zealand Ministerial Inquiry into the telecoms sector.

Client: Victor Chandler Business Services, April – July 2000

Task: Modelling of lottery style betting product.

Client required detailed modeling of a new lottery style betting product. Presentations made to interested parties. Statistical work undertaken in collaboration with Dr Michael Pitt at University of Warwick. Victor Chandler manager: Paul Pullinger.

Client: Worldcom, February – March 2000

Task: Expert report and submission to the European Commission.

Completion of report: “Pricing principles for call origination and access services” which was submitted to the European Commission. Detailed economic analysis of call origination services. Worldcom manager: Barney Lane.

Client: One.Tel UK Limited, January – April 2000

Task: Bid support for the UK 3G spectrum auction.

Client required bid support and market analysis to prepare and participate in the UK 3G auction. Work was carried out in close collaboration with joint Managing Directors Bradley Keeling and Jodee Rich. Software designed to aid bid team, and mock auctions and simulations undertaken. One.Tel manager: Jodee Rich.

Independent (November 1992 – September 1999)

Client: UUnet, September 1999

Task: Report.

“European telecommunications operators and internet access: market structure and economic issues”. UUnet manager: Sally Weatherall.

Client: Department of Telecommunications, Advanced Level Telecom Training Centre, Ghaziabad, India, July 1999

Task: Lectures on telecoms regulation.

With Dr Tim Kelly of the ITU presented a course of lectures to over twenty five managers. DoT manager: Mr. H.P. Meena.

Client: Telecom Italia, March 1999

Task: Report.

“A study on interconnection between fixed and mobile networks: developing strategy”. Presented to senior management in Rome. Telecom Italia manager: Giovanni Amendola.

Client: European Commission, December 1997 – June 1998

Task: Expert Report.

A report was produced looking at MVNOs with respect to a number of economic and regulatory issues associated with the implementation of the EU telecoms regulatory framework, especially with regard to interconnection and access. EU manager: Richard Crawley.

Client: OECD Competition and Consumer Policy Division, May 1995

Task: Report.

“[The economics of access pricing](#)” with Dr Mark Armstrong. Presented to OECD conference on Competition and Regulation in Network Infrastructure Industries, Budapest, May 1995.

Client: British Telecom, March 1995

Task: Report.

“Review of the UK telecommunications market structure” with Robert Browne and Ian Burnett.

Client: UNDP, May 1994

Task: Report.

“Telecommunications: privatization and regulation in the UK”.

Client: HM Treasury, December 1993

Task: Report.

“Network access pricing” with Mark Armstrong.

Client: Bell South Enterprises, November 1992

Task: Expert Report.

“The development of PCS in the UK: lessons for the FCC” appendix to submission to a FCC Docket on PCS.

Publications on telecommunications and related network industries

Contracting across separated networks: lessons from theory and practice
Communications and Strategies No 4, 2007 (with Martin Cave).

Essentials of Modern Spectrum Management [book]
Cambridge University Press, August 2007 (with William Webb and Martin Cave).

Market prices boost efficiency
Policy Tracker, Spectrum, pp. 10-12, March 2007

Collective Dominance, Market Analysis and the 2002 EU Framework Directive:
The case of mobile access and call origination in Ireland
Digital Economic Dynamics: Innovations, Networks and Regulations, edited by
Paul J.J. Welfens and Mathias Weske, chapter 7 pp. 141-170, Springer Press 2007.

Where are we going? Technologies, markets and long-range policy issues in European
communications
Information Economics and Policy, pp. 242-255, 2006
With Martin Cave and Luigi Prosperetti.

Convergence and Spectrum Licensing
Trends in Telecommunications Regulation, chapter 6, ITU Geneva, December
2004.

[On the design of the GSM auction in Nigeria – the world’s first ascending clock auction](#)
Telecommunications Policy, vol. 27 (5-6), 383-405, June-July 2003.
With Paul McShane.

[Licensing of 3G mobile systems: Chairman’s report](#)
ITU News, Issue 9, 2001, Geneva, September 2001.

[Local loop unbundling and regulatory risk](#)
Journal of Network Industries, vol. 1, no. 1, June 2000.

[Liberalisation of utilities and evolving European regulation](#)
Economic Outlook, vol. 24, no. 3, 18-26, April 2000.
With David Coen.

[London’s growth sectors: telecommunications – ahead but watch out for Amsterdam](#)
The New Statesman, April 10, 2000 (London Supplement).

[Vodafone-Mannesmann is just the beginning](#)

The Wall Street Journal, editorial features, February 11, 2000.

[Virtual moves in mobile markets](#)

Telecommunications, February pp. 55-57.

A European Market for Electricity?

Monitoring European Deregulation, Annual Report Number 2, published by CEPR/SNS, November 1999. Multi-author study. Introductory chapter.
With Martin Siner.

Bandwidth and minutes exchanges

European Telecommunications Intelligence Bulletin, vol. 1, no. 1, 12-13, November 1999.
With Toby Robertson.

Designing economic regulatory institutions for European network industries*

Current Politics and Economics of Europe, vol. 9, no. 4, 83-106, 1999.
With David Coen.

The Economics of the Media: The Convergence of the Transition Countries

with EU Member States, published by the Research Centre of the Slovak Foreign Policy Association, Bratislava, May 1999. (Book of 211 pages.)
With Martin Cave, Zdeněk Hrubý and Anton Marcincin.

[Market structure in mobile telecommunications: the receiver pays principle and qualified indirect access*](#)

Information Economics and Policy, vol. 10, no. 4, 471-488, December 1998.
With Jennifer C Smith.

Liberalizing Europe's network industries: ten conflicting priorities

Business Strategy Review, vol. 10, no. 1, 55-66, autumn 1998.
Reprinted in Italian in *Management Publications*, Ediciones PMP.

Europe's Network Industries: Conflicting Priorities (Telecommunications)

Monitoring European Deregulation, Annual Report Number 1, published by CEPR/SNS, September 1998. (Book of 258 pages, plus xxii.)
Lead author of Part 1 (140 pages), other authors: Lars Bergman, Damien Neven and Lars-Hendrik Röller. Co-author on part 2 with Jordi Gual, Lars Hultkranz and Len Waverman.

Social obligations and access pricing: telecommunications and railways in the UK

Chapter 8 in *Opening networks to competition: the regulation and pricing of access*, edited by David Gabel and David F. Weiman, Kluwer Academic Press, 1998.
With Mark Armstrong.

Programming in a competitive broadcasting market: entry, welfare and regulation
Information Economics and Policy, vol. 10, no. 1, 23-39, March 1998.

Self regulation and statutory regulation
Business Strategy Review, vol. 8, no. 3, 35-42, Summer 1997.

Promoting efficient competition in telecommunications
National Institute Economic Review, no. 159, 82-91, January 1997.

Sectoral regulation: telecommunications in the EU
Journal of European Public Policy, vol. 3, no. 4, 612-28, December 1996.

The access pricing problem: a synthesis
Journal of Industrial Economics, vol. XLIV, no. 2, 131-150, June 1996.
Reprinted in *Economic Regulation*, edited by Paul L. Joskow, Edward Elgar Publishing Limited, 1999, chapter 24, pp. 673-692.
With Mark Armstrong and John Vickers.

The pricing of access in networks: theoretical and practical issues
Rivista Internazionale di Scienze Sociali, vol. 103, no. 1, 27-38, 1995.

Some efficiency aspects of price regulation
European Transactions on Telecommunications, vol. 6, no. 4, 415-420, 1995.

British Telecom
Chapter 4 in *Welfare consequences of selling public enterprises: an empirical analysis*, edited by A. Galal, L.P. Jones, P. Tandon, and I. Vogelsang, Oxford University Press, 1994.
With Manuel Abdala, Ingo Vogelsang, Leroy Jones and Pankaj Tandon.

Access pricing in network utilities: theory and practice
Utilities Policy, vol. 4, no. 3, 181-189, 1994.
With Martin Cave.

Common carriage and the pricing of electricity transmission
The Energy Journal, vol. 13, no. 3, 63-93, 1992.
With Maria Maher.

Current teaching

The economics of competition policy

Ten lectures Intermediate economics of competition policy: theory and practice course for third year economics undergraduates at the University of Warwick, since 2003.

Seminar presentations since 2000

Vertical separation and value

Presentation to Telecom Separation – Regulatory & Financial Implications conference, Le Châtelain All Suite Hotel, Brussels 17 October, 2007

The Liberalisation of Spectrum Management: What needs to be done?

Presentation to GSM Association, June 19, 2007

Spectrum Policy changes in the UK and lessons for the Netherlands

Presentation to Trends en ontwikkelingen in de ether WTC Rotterdam, June 6, 2007

Pricing Radio Spectrum

Presentation to ARICEA meeting in Cairo for COMESA, Cairo, 22 May 2007

The Price of Radio Spectrum: Using Incentive Mechanisms to Achieve Efficiency

Presentation to ITU Workshop Market Mechanisms for Spectrum Management, Geneva, 22-23 January 2007

Review of EU Spectrum Policy

Presentation at Improving the Regulatory Framework for Electronic Communications: Challenges for the Next Decade, conference of CBKE (University of Wrocław), CIL (Hungarian Academy of Sciences), WIK, under auspices the Polish regulator UKE, University of Wrocław, Wrocław, 18-20 October 2006

Joint Dominance and the Electronic Communications Regulatory Framework in the EU

Presentation to JUS Forum Telecom (Norwegian Lawyers), Oslo, 5 November 2005

An Examination of Collective Dominance Under the New Electronic Communications Regulatory Framework

Presentation to Gibson Dunn Annual Competition Conference, Brussels, Belgium, 11 October 2005

The Implementation of Spectrum Trading in the UK

Presentation to National Communications Authority Annual Conference, Budapest, Hungary, 16 September 2005

EU Policy, Mobile and Broadband: Lessons for West Africa

Presentation to WATRA CEO Forum, Accra, 8 September 2005

Regulation and Competition: Price controls and other regulatory instruments in telecoms and water

Presentation, St. Andrews, 13 May 2005

Towards a New Era in Spectrum Management

Presentation to Global Symposium for Regulators, ITU, Geneva, 8 December 2004

Regulation and Competition in Telecoms and Water

Warwick Business School, 29 November 2004

The New Regulatory Framework in European Telecommunications: Paving the way for competition

LINK Centre, WITS Business School, Johannesburg, South Africa, 22 October 2004

The Economics of Spectrum Pricing

Department of Economics, University of Warwick, 16 January 2004

The Theory and Practice of Spectrum Pricing

London School of Economics, 3 November 2003

The New EU Regulatory Framework for Electronic Communications: Market Definition

Roundtable presentation to Faculdade Economia da Universidade Nova de Lisboa, Portugal

3 February 2003

Market Definition and Dominance

Presentation to the ITU Competition Policy Workshop, Geneva, 20-22 November 2002

Government Objectives for Broadband Access: Is Policy Consistent?

Presentation to CEPR/ECARES The Evolution of Market Structure in Network Industries Final Conference, Université Libre de Bruxelles, 8/9 November 2002

Spectrum Trading: Where, When and How?

Presentation to international conference on Convergence in Communications Industries, Warwick University, 2-4 November 2002

Mobile Telecommunications and Competition Policy: Comparing Australia and the United Kingdom

International Telecommunications Society, Madrid, 9 September 2002.

Spectrum fees, charges and auctions

On the move the CEPT 10th annual conference, Vienna, 17-19 April 2002

On the design of the GSM auction in Nigeria – the world’s first ascending clock auction, Competition in wireless: spectrum, service and technology wars conference, organized jointly by PURC, CIBER and PPRC (University of Florida) and the Global Communications Consortium (London Business School), Gainesville, Florida, 19-20 February 2002

Chairman of ITU Workshop on Licensing of Third-Generation Mobile, Geneva, 19-20 September 2001.

On the design of the GSM auction in Nigeria – the world’s first ascending clock auction International Telecommunications Society, Dublin, 2 September 2001.

European MVNOs

Wireless 2001, New York City, 13-14 June 2001.

Spectrum auctions

African Telecommunications Summit, Accra, Ghana, 26-29 April 2001.

Pricing mobile services and MVNOs

Phillips Tarifica 6th Global Pricing Congress, Barcelona, 15-16 February, 2001.

Telecommunications services location

Globalization and the Location of Economic Activities, organized by IESE, Barcelona, held in Sitges, Spain, 27-28 October 2000.

e-procurement: evaluating benefits for SMEs

Telecommunications Policy Research Conference, Alexandria, Virginia, USA, 23-25 September 2000.

Telecommunications: moving away from sector specific regulation

CEPR Policy Session on network industries, Royal Economics Society, St Andrews, July, 2000.

The microeconomics of the Internet

Presentation to the Society of Business Economists Annual Conference The Global Economy in a Wired World, 13 June, 2000.

General economic principles of deregulation of Europe’s network industries

Opening lecture in the Fortis Bank Chair series, FETEW, KU Leuven, 3 February, 2000.