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Curriculum Vitae

ROBERT C. MARSHALL

PERSONAL

Age: 53; Citizenship: USA; Family Status: Married (two children); Member of Religious Society of Friends (Quaker)

Penn State contact information: Dept. of Econ., 613 Kern Graduate Building, Penn State University, University Park, PA 16802; 814-865-0030; Fax: 814-865-0013; rcm10@psu.edu

EDUCATION

Princeton University; A.B. (Economics), 1973 - 1977

University of California, San Diego; Ph.D. (Economics), 1979 - 1983

PROFESSIONAL EMPLOYMENT HISTORY

1977 to 1979 -- Private Industry (Staff Accountant -- Arthur Andersen; Machinery Dealer -- JEM Machinery Co.)

1983 to 1988 -- Assistant Professor of Economics, Duke University

1988 to 1995 -- Associate Professor of Economics (tenure), Duke University

9/89 to 8/91 -- Research Associate Professor of Statistics and Decision Sciences, Duke University (title awarded for participation in preparation of two proposals to the National Science Foundation for a Science and Technology Center in Decision Sciences)

1995 to present -- Professor of Economics (tenure), Penn State University

1995 to present -- Head, Department of Economics, Penn State University (The vast majority of tasks that I have performed as Department Head are not described in this vitae. Details can be provided upon request.)

2003 to present -- Partner, Bates White, LLC

2005 to present -- co-Director of *Center for the Study of Auctions, Procurements, and Competition Policy*, Penn State University

2006 to present -- Liberal Arts Research Professor, Penn State University

2008 to present -- co-Director of Center for Research in International Financial and Energy Security, Penn State University

PAPERS (published and forthcoming)

“A Micro-Econometric Analysis of Vacant Housing Units” (with R. F. Engle) in *The Urban Economy and Housing* (ed. Ronald Grieson), Lexington Press, 1983, p. 105-123.

“Occupancy Discounts in the Rental Housing Market” (with J. Luis Guasch), *Oxford Bulletin of Economics and Statistics* 4, 1983, p. 357-378.

“An Analysis of Vacancy Patterns in the Rental Housing Market” (with J. Luis Guasch), *Journal of Urban Economics*, 17, 1985, p. 208-229.

“Age of Rental Housing Units and Vacancy Characteristics: A Filtering Explanation” (with J. Luis Guasch), *Regional Science and Urban Economics*, 15, 1985, p. 403-419.

“Mobility Indices in Continuous Time Markov Chains” (with John Geweke and Gary A. Zarkin), *Econometrica*, 54, 1986, p. 1407-1423.

“Exact Inference for Continuous Time Markov Chain Models” (with John Geweke [principal author] and Gary A. Zarkin), *The Review of Economic Studies*, 53, 1986, p. 653-669.

“A Theoretical and Empirical Analysis of the Length of Residency Discount in the Rental Housing Market” (with J. Luis Guasch), *Journal of Urban Economics*, 22, 1987, p. 291-311.

“The Effect of Job Tenure on Wage Offers” (with Gary A. Zarkin), *Journal of Labor Economics*, 5, 1987, p. 301-324.

“Price-Tenure Regressions with Censored Data” (with Gary A. Zarkin), *Oxford Bulletin of Economics and Statistics*, 49, 1987, p. 335-342.

“Collusive Bidder Behavior at Single Object Second Price and English Auctions” (with Daniel A. Graham), *Journal of Political Economy*, 95, 1987, p. 1217-1239.

“Differential Payments within a Bidder Coalition and the Shapley Value” (with Daniel A. Graham and Jean-Francois Richard), *American Economic Review*, 80, 1990, p. 493-510.

“The Private Attorney General Meets Public Contract Law: Procurement Oversight by Protest” (with Michael J. Meurer and Jean-Francois Richard), *Hofstra Law Review*, Fall 1991, p. 1-71. Reprinted in "IRS Computer Modernization and Procurement", Hearings before the Committee on Governmental Affairs United States Senate, June 25, 1991 and April 2, 1992, S. Hrg. 102-1104, p. 397-458.

“Posterior Probabilities of the Independence Axiom with Non-Experimental Data” (with Jean-Francois Richard and Gary A. Zarkin), *Journal of Business and Economic Statistics*, 10, 1992, p. 31-44. "Reply to 'Comment'", p. 48-49.

“Incentive-Based Procurement Oversight by Protest” (with Michael J. Meurer and Jean-Francois Richard) in *Incentives in Procurement Contracting* (ed. James Leitzel and Jean Tirole), 1993, Westview Press.

“Litigation Settlement and Collusion” (with Michael J. Meurer and Jean-Francois Richard), *Quarterly Journal of Economics*, Vol. CIX, Issue 1, February 1994, p. 211-240.

“Curbing Agency Problems in the Procurement Process by Protest Oversight” (with Michael J. Meurer and Jean-Francois Richard), *RAND Journal of Economics*, Vol. 25, No. 2, Summer 1994, p. 297-318.

“Numerical Analysis of Asymmetric First Price Auctions” (with Michael J. Meurer, Jean-Francois Richard and Walter Stromquist), *Games and Economic Behavior*, 7, September 1994, p. 193-220.

“Multiple Litigants with a Public Good Remedy” (with Michael J. Meurer and Jean-Francois Richard), *Research in Law and Economics*, 16, 1994, p. 151-174.

“Lift-Lining” (with Daniel A. Graham and Jean-Francois Richard), *Advances in Applied Micro-Economics*, 6, 1996, p. 15-40.

“Bidder Collusion at Forest Service Timber Auctions” (with Laura H. Baldwin and Jean-Francois Richard), *Journal of Political Economy*, Vol. 105, No. 4, 1997, p. 657-699.

“Strategic Information Generation and Transmissions: The Evolution of Institutions in DoD Operational Testing” (with Eric Gaier), 1998, appeared in *Statistics, Testing, and Defense Acquisition: Background Papers* (ed. M. Cohen, J. Rolph and D. Steffey), National Academy Press, Washington, DC.

“The Economics of Bidder Collusion” (with Michael J. Meurer), 2001, *Game Theory and Business Applications* (ed. Kalyan Chatterjee and William Samuelson), Kluwer Press.

“Pattern Bargaining” (with Antonio Merlo), 2004, *International Economic Review*, Vol 45, No. 1. February, p 239-255.

“Bidder Collusion and Antitrust Law: Refining the Analysis of Price Fixing to Account for the Special Features of Auction Markets”, (with Michael J. Meurer), 2004, *Antitrust Law Journal*, Vol 72, Issue 1, p. 83-118.

"Inefficiency of Collusion at English Auctions," 2005, (with Lopomo, Guiseppe and Leslie M. Marx); *Contributions to Theoretical Economics*. Vol 5, No 1, Article 4.

"The Impact of Delivery Synergies on Bidding in the Georgia School Milk Market", 2006, (with Matthew E. Raiff, Jean-Francois Richard, and Steven P. Schulenberg), *Topics in Economic Analysis & Policy*: Vol. 6: No. 1, Article 5.
<http://www.bepress.com/bejeap/topics/vol6/iss1/art5>

“The Measurement of Economic Damages in Antitrust Civil Litigation”, 2006, (with Halbert White [primary author], and Pauline Kennedy), 2006, *Economics Committee Newsletter*, American Bar Association, Section of Antitrust Law, Spring, p. 17-22.

“Bidding Rings and the Design of Anti-Collusion Measures for Auctions and Procurements” (with William Kovacic, Leslie M. Marx, and Matthew E. Raiff), 2006, *Handbook of Procurement*, edited by N. Dimitri, G. Piga and G. Spagnolo, Cambridge University Press, p. 381-411.

“Lessons for Competition Policy from the Vitamins Cartel”, 2007, (with William E. Kovacic, Leslie M. Marx, and Matthew E. Raiff.), *The Political Economy of Antitrust*, edited by Vivek Ghosal and Johan Stennek, Elsevier, Chapter 6.

“Bidder Collusion”, 2007, (with Leslie M. Marx) *Journal of Economic Theory*, Vol 133, No 1, p. 374-402.

“Coordinated Effects in Merger Review: Quantifying the Payoffs from Collusion”, 2006, (with William E. Kovacic, Leslie M. Marx, Steven P. Schulenberg), *International Antitrust Law & Policy: Fordham Corporate Law 2006*, ed. B. Hawk. (Juris Publishing), Chapter 13.

“Cartel Price Announcements: The Vitamins Industry”, (with Leslie M. Marx and Matthew E. Raiff), 2008, *International Journal of Industrial Organization*. 26(3), 762-802.

“The Vulnerability of Auctions to Bidder Collusion” (with Leslie M. Marx) 2009, *Quarterly Journal of Economics*, vol 124, no. 2, p. 883-910..

“Cartels as Two-Stage Mechanisms: Implications for the Analysis of Dominant-Firm Conduct”, (with Randal D. Heeb, William E. Kovacic, and Leslie M. Marx) forthcoming *Chicago Journal of International Law*, vol. 10, no 1.

NOTES

“On High and Low R^2 Contributions” (with David F. Hendry), *Oxford Bulletin of Economics and Statistics*, 3, 1983, p. 313-316.

“The Effect of Size on Prices” (with J. Luis Guasch), *Economic Letters*, 13, 1983, p. 309-317.

“Risk, Discounts, and the Pricing of Indivisible Goods” (with J. Luis Guasch), *Economic Letters*, 17, 1985, p. 43-46.

“Phantom Bidding Against Heterogeneous Bidders” (with Daniel A. Graham and Jean-Francois Richard), *Economic Letters*, 32, 1990, p. 13-17.

UNPUBLISHED WORKING PAPERS

“Quantitative Analysis of Coordinated Effects”, (with William E. Kovacic, Leslie M. Marx, and Steven P. Schulenberg), under review *Antitrust Law Journal*.

“Numerical Analysis of the Impact of Reserve Prices at First Price Auctions with Asymmetric Bidders” (with Steven Schulenberg), 1997.

“A Model of Lifetime Employment in Academia” (with Kalyan Chatterjee), 2001, revised 2005.

GIFTS, GRANTS, AND FELLOWSHIPS (listed chronologically)

- University of California Regents Fellowship, 1979-1980
- Shell Graduate Aid Fellowship, 1981-1982
- University of California Doctoral Dissertation Fellowship, 1982-1983
- National Science Foundation, Grant #: SES-8509693, 9/85-8/87; Title: Collusive Behavior at Auctions
- National Science Foundation, Grant #: SES-8708615, 11/87-11/89; Title: Sellers and Heterogeneous Bidders at Auctions: Non-Cooperative and Collusive Strategic Behavior
- Pew Charitable Trusts: 12/88-12/90; Title: Procurement of Defense Systems and the Incentives to Innovate
- Ford Foundation, 10/89-10/91; Title: Supplier Influence in Defense Procurement: An Economic Analysis
- National Science Foundation, Grant #: SES-9012202, 8/90-7/92; Title: Monte Carlo Simulations - Applications in Econometrics and Economic Modeling
- Pew Charitable Trusts, 1/91-6/93; Title: Decentralized Oversight of Procurement and Pricing
- The Henry Luce Foundation, 1/97-12/2001; Title: Evolutionary Models of Economic and Social Behavior.
- IBM SUR Grant, 1999. (IBM awarded the PSU Economics Department approximately \$200k in its most advanced computer hardware.)
- Human Capital Foundation, 2007. (Gift to *Center for the Study of Auctions, Procurements and Competition Policy*), renewed 2008 and 2009.
- Human Capital Foundation, 2008. (Gift to *Center for Research in International Financial and Energy Security*).

TEACHING EXPERIENCE

- **Award Nominations**

1988 Nominee for the Alumni Undergraduate Teaching Award at Duke University (24 nominees in total).

1990 Nominee for the Alumni Undergraduate Teaching Award at Duke University (29 nominees in total - nomination was put forward by nine graduating seniors, each of whom took the course as a junior).

- **Other Distinctions**

By invitation of Major Speakers Committee at Duke University presented a "Legacy Lecture" on January 24, 1994. The instructions for the speaker are to address Duke undergraduates on any topic they wish, but to treat the lecture as if it were the last they would ever offer in their life.

Courses Taught and Ph.D. Supervision

- **Undergraduate - Duke University unless otherwise noted**

Microeconomic Principles (highest rated instructor in Department of Economics for all undergraduate courses in Fall '92)

Industrial Organization (highest rated instructor in Department of Economics for all undergraduate courses in Spring '89 and Spring '90, second highest in Fall '87)

Econometrics (highest rated instructor in Department of Economics for all undergraduate courses in Spring '85)

Introductory Economic Statistics

Economics of Organization and Management (third highest rated instructor in Department of Economics for all undergraduate courses in Fall '93)

Economics of Collusion (Penn State University, Spring 2004, Fall 2007; course approved by Faculty Senate as Economics 449W)

- **Graduate Ph.D. - Duke University unless otherwise noted**

Econometrics (core and topics)

Microeconomics (core and topics)

Industrial Organization (Department of Economics at both Duke University and University of Minnesota)

- **Graduate MBA**

Industrial Structure and Competitive Strategy (Northwestern's Kellogg Graduate School of Business)

- **Ph.D. Supervision (Chair of Committee) and Initial Placements**

Laura H. Baldwin, 1994, RAND

Brett Katzman, 1996, University of Miami (Economics Department)

Eric Gaier, 1997, Logistics Management Institute, now at Bates White LLC

Matthew Raiff, 1997, visiting position at Penn State University (Economics Department),
now at Bates White, LLC

Junfeng Qi, 1997, one year position at Research Triangle Institute

Steven Schulenberg, 2003, Bates White, LLC.

OTHER PROFESSIONAL ACTIVITIES

- **Congressional Testimony and Legislative Impact**

June 25, 1991 - Before the Senate Committee on Governmental Affairs regarding the Internal Revenue Service's Computer System Modernization Procurement.

My testimony addressed general procurement issues that had been raised by the Department of the Treasury regarding the bid protest mechanism at the General Services Administration Board of Contract Appeals. [“IRS Computer Modernization and Procurement”, Hearings before the Committee on Governmental Affairs United States Senate, June 25, 1991 and April 2, 1992, S. Hrg. 102-1104.]

Advised the House Government Operations Committee on legislative reform of the bid protest process. House Resolution 3161 contained elements of this advice, including the review of all protest settlements.

- **National Service**

Member of the “Panel on Statistical Methods for Testing and Evaluation Defense Systems” within the *Committee on National Statistics* of the *National Academy of Sciences* - three year term beginning 1/25/94. The study report is *Statistics, Testing and Defense Acquisition*, 1998 (ed. M. Cohen, J. Rolph and D. Steffey), National Academy Press, Washington, DC.

Member of “Panel to Study the Research Program of the Economic Research Service” within the *Committee on National Statistics* of the *National Academy of Sciences* - one year term beginning 9/1/97.

- **Professional Service**

External review of Department of Economics, University of Arizona, 1998

External review of Department of Economics, University of North Carolina, 1999

External review of Department of Economics, University of Illinois, 2008

- **Department/University Service - Duke University (notable subset)**

Initiated and ran recruitment of the following senior faculty to Duke University - Mark Machina (84/85 unsuccessful), Jean-Francois Richard (85/86, successful), David Hendry (85/86, visitor for one month in each of five consecutive years), and Herve Moulin (88/89, successful).

Placement Coordinator for Graduate Students, 1991-1995.

- **Department/University Service - Penn State University (senior recruitment only)**

Recruitment 1995/96 - Eric Ghysels (successful), Herman Bierens (successful), John Geweke (unsuccessful), Mike Keane (unsuccessful), Rao Aiyagari (unsuccessful).

Recruitment 1996-97 - Neil Wallace (successful), In-Koo Cho (unsuccessful), Roberto Serrano (unsuccessful), Rodolfo Manuelli (unsuccessful).

Recruitment 1997/98 - James Jordan (successful), Tomas Sjostrom (successful), Arthur Lewbel (unsuccessful), James Tybout (unsuccessful), Antonio Merlo (unsuccessful).

Recruitment 1998/99 – James Tybout (successful), Larry Ausubel (unsuccessful), Wilbert Van der Klaauw (unsuccessful)

Recruitment 1999/2000 – B. Ravikumar (successful), Chris Flinn (unsuccessful), Lung-fei Lee (unsuccessful), Arie Kapteyn (unsuccessful), Rafael Rob (unsuccessful)

Recruitment 2000/2001 – Hal White (unsuccessful), Yongmaio Hong (unsuccessful), Paul Rudd (unsuccessful), John Rust (unsuccessful), Deborah Minehart (unsuccessful), Rachel Kranton (unsuccessful)

Recruitment 2001/2002 – on sabbatical leave; (Joris Pinkse was successfully recruited by Jim Jordan as Acting Head)

Recruitment 2002/2003 – Quang Vuong (successful), Isabelle Perrigne (successful), Ed Green (successful), Ruilin Zhou (successful), Pat Bajari (unsuccessful)

Recruitment 2003/2004 – John Kennan (unsuccessful), Motty Perry (unsuccessful), Massimo Morelli (unsuccessful)

Recruitment 2004/2005 – Mike Keane (unsuccessful), Andres Rodriguez-Clare (successful)

Recruitment 2005/6 and 2006/7 – on formal study leave

Recruitment 2007/8 – Stephen Yeaple (successful), John Ham (unsuccessful), David McAdams (unsuccessful)

Recruitment 2008/9 – Jonathan Eaton (successful), Motty Perry (unsuccessful)

- **Visiting Positions**

1983 - Post-doctoral Researcher, Nuffield College, Oxford University (five months - hosted by David F. Henry)

1986 - Visiting Researcher, CORE (one month - hosted by Jean-Francois Richard)

1986 - Visiting Scholar, Federal Reserve Board of Governors (one week - hosted by Neil Ericsson)

1993 - Visiting Associate Professor, University of Pittsburgh Department of Economics (one month - hosted by Jean-Francois Richard and Alvin Roth)

1993 - Visiting Associate Professor, University of Minnesota Department of Economics (spring quarter)

1994 - Visiting Associate Professor, Northwestern University Kellogg Graduate School of Business - MEDS Department (spring quarter)

1995 - Visiting Professor, Institute for Empirical Macroeconomics, Minneapolis Federal Reserve (October)

- **Conferences Organized:**

Organized and ran a conference at the American Enterprise Institute in Washington, DC, entitled "Procurement Oversight". This one day conference (July 23, 1990) was attended by over 100 people including academics, federal procurement officials, and key policy figures. The central focus of the conference was on the protest process at the General Services Administration Board of Contract Appeals.

Organized and ran a conference at Penn State University (March 25-28, 1999) entitled "Evolutionary Models of Economic and Social Behavior". Presenters at this three day conference included anthropologists, biologists, economists, and zoologists.

Organized and ran a conference at Penn State University (April 3-6, 2008) concerning "Auctions, Procurements, and Empirical Industrial Organization". There were 14 papers presented. Nobel laureate Eric Maskin was honored at the opening dinner. There was a roundtable on Russian oil and gas auctions. Approximately 60 leading researchers in the field attended. The conference was hosted by the PSU Center for the Study of Auctions, Procurements, and Competition Policy along with its partner institution, the Institute for Financial Studies.

Organized and ran a conference at Penn State University (March 26-29, 2009) concerning "Auctions, Procurements, and Empirical Industrial Organization". Several papers were presented. Nobel laureate Robert F. Engle was honored at the opening dinner while Nobel Laureate Eric Maskin closed the conference. Approximately 60 leading researchers in the field attended. The conference was hosted by the PSU Center for the Study of Auctions, Procurements, and Competition Policy along with its partner institution, the Institute for Financial Studies.

- **Consulting**

World Bank; 1992-1994 (small projects)

General game theory instruction for a consortium of telecommunication bidders interested in bidding for FCC spectrum (small amount; directly related to ongoing research). 1995-1996.

Expert witness, litigation regarding an auction of a professional sports franchise, working on behalf of the Department of Justice, Tax Division. 1997-1998.

Federal Trade Commission – Independent Consultant to Bureau of Economics. Fall 2001.

Bates, White, Ballentine, LLC – consulting expert and testifying expert for vitamins anti-trust case. 12/1999-2/2003

Bates, White, LLC – partner. 2/2003-present

LEISURE ACTIVITIES

Golf, Carpentry