

M. CHRISTOPHER ROEBUCK

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DATE: September 20, 2011

EDUCATION

Ph.D. Candidate in Public Policy with Concentration in Economics; expected Fall, 2011.
University of Maryland, Baltimore County, Baltimore, MD
Dissertation Title: “Three Essays on the Economics of Prescription Drugs.”
Committee: M. Goldfarb (chair), N. Miller, D. Salkever, M. Stuart, R. Kaestner.

M.B.A. in Finance, University of Miami, School of Business, Coral Gables, FL, 1997.

M.M. in Music Business, University of Miami, School of Music, Coral Gables, FL, 1996.

B.A. in Economics, University of Pennsylvania, The College, Philadelphia, PA, 1994.

PROFESSIONAL AND ACADEMIC POSITIONS

2011 to date *Principal*
RxEconomics LLC, Sparks, MD

Consulting expertise:

- Comparative effectiveness research
- Applied health econometric methods
- Retrospective claims database analysis
- Pharmacy benefit design and drug pricing
- Value and determinants of medication adherence

2007 to 2011 *Director, Strategic Research- Health Economist*
CVS Caremark, Hunt Valley, MD

Areas of work:

- Management of researchers and data analysts
- Insurance coverage, benefit design and drug pricing
- Medicare Part D, health policy and legislation analysis
- Advanced econometric modeling and research methods
- Medication adherence, health services utilization and cost

2005 to 2007 *Manager, Predictive Modeling and Forecasting*
Caremark, Hunt Valley, MD

Areas of work:

- Pharmacy budget impact modeling
- Predictive modeling and risk adjustment

- Time-series forecasting and data mining methods
- Monte Carlo simulation and decision tree techniques

2002 to 2005

Consulting Research Analyst

Caremark (formerly AdvancePCS), Hunt Valley, MD

Areas of work:

- Pharmacoeconomics and outcomes research
- Advanced econometric modeling and program evaluation
- Return-on-investment analysis of direct-to-consumer advertising

1998 to 2002

*Senior Research Associate in Health Economics*Department of Epidemiology, Health Services Research Center
School of Medicine, University of Miami, Miami, FLAreas of work:

- Economic evaluation of substance abuse treatment programs
- Relationships between substance abuse, labor and education
- Advanced econometric analysis for health services research
- Development of cost and outcomes collection instruments

PUBLICATIONSBooks and Monographs

Alexandre, P.K., **M.C. Roebuck**, M.T. French, D.D. Chitwood, and C.B. McCoy. 2001. "Problem Drinking, Health Services Utilization, and the Cost of Medical Care." In *Recent Developments in Alcoholism, Volume 15, Services Research in the Era of Managed Care*, Section III, Chapter 13, pp. 285-298. M. Galanter (Ed.). Kluwer Academic/Plenum Press, New York.

Juried or Refereed Journal Articles

Roebuck, M.C., J.N. Liberman, M. Gemmill-Toyama, and T.A. Brennan. 2011. "Medication Adherence Leads to Lower Health Care Use and Costs Despite Increased Drug Spending." *Health Affairs* 30(1):91-99.

Roebuck, M.C. and J.N. Liberman. 2009. "Impact of Pharmacy Benefit Design on Prescription Drug Utilization: A Fixed Effects Analysis of Plan Sponsor Data." *Health Services Research* 44(3): 988-1009.

Roebuck, M.C., M.T. French, and M.L. Dennis. 2004. "Adolescent Marijuana Use and School Attendance." *Economics of Education Review* 23(2): 145-153.

Roebuck, M.C., M.T. French, and A.T. McLellan. 2003. "DATStats: Results from 85 Studies Using the Drug Abuse Cost Analysis Program (DATCAP)." *Journal of Substance Abuse Treatment* 25(1): 51-57.

Alexandre, P.K., **M.C. Roebuck**, M.T. French, and M.J. Barry. 2003. "The Cost of Residential

- Addiction Treatment in Public Housing.” *Journal of Substance Abuse Treatment* 24(4): 285-290.
- Dennis, M.L., T.F. Babor, **M.C. Roebuck**, and J. Donaldson. 2002. "Changing the Focus: The Case for Recognizing and Treating Cannabis Use Disorders." *Addiction* 97(S1): 4-15.
- Dennis, M.L., J.C. Titus, G. Diamond, J. Donaldson, S.H. Godley, F. Tims, C. Webb, Y. Kaminer, T.F. Babor, **M.C. Roebuck**, M.D. Godley, N. Hamilton, H. Liddle, C.K. Scott, and the CYT Steering Committee. 2002. “The Cannabis Youth Treatment (CYT) Experiment: Rationale, Study Design, and Analysis Plans. *Addiction* 97(S1): 16-34.
- French, M.T., **M.C. Roebuck**, and P.K. Alexandre. 2004. “To Test or Not to Test: Do Workplace Drug Testing Programs Really Discourage Employee Drug Use?” *Social Science Research* 33(1): 45-63.
- French, M.T., **M.C. Roebuck**, and P.K. Alexandre. 2001. “Illicit Drug Use, Employment, and Labor Force Participation.” *Southern Economic Journal* 68(2): 349-368.
- French, M.T., **M.C. Roebuck**, M.L. Dennis, G. Diamond, S.H. Godley, F. Tims, C. Webb, and J.M. Herrell. 2002. “The Economic Cost of Outpatient Marijuana Treatment for Adolescents: Findings from a Multi-Site Field Experiment.” *Addiction* 97(S1): 84-97.
- French, M.T., **M.C. Roebuck**, M.L. Dennis, S.H. Godley, H.A. Liddle, and F.M. Tims. 2003. “Outpatient Marijuana Treatment for Adolescents: Economic Evaluation of a Multi-Site Field Experiment.” *Evaluation Review* 27(4): 421-459.
- French, M.T., **M.C. Roebuck**, K.A. McGeary, D.D. Chitwood, and C.B. McCoy. 2001. “Using the Drug Abuse Screening Test (DAST-10) to Analyze Health Services Utilization and Cost for Substance Abusers in a Community-Based Setting.” *Substance Use and Misuse* 36(6): 927-947.
- French, M.T., **M.C. Roebuck**, and A.T. McLellan. 2004. “Cost Estimation When Time and Resources are Limited: The Brief DATCAP.” *Journal of Substance Abuse Treatment* 27(3): 187-193.
- French, M.T., **M.C. Roebuck**, A.T. McLellan, and J.L. Sindelar. 2001. “Can the Treatment Services Review (TSR) Be Used to Estimate the Costs of Addiction and Ancillary Services?” *Journal of Substance Abuse* 12(4): 341-363.
- Ketcham, J., C. Lucarelli, E. Miravete, and **M.C. Roebuck**. Forthcoming. “Sinking, Swimming, or Learning to Swim in Medicare Part D.” *American Economic Review*.
- Knealing, T.W., **M.C. Roebuck**, C.J. Wong, and K. Silverman. 2008. “Economic Cost of the Therapeutic Workplace Intervention Added to Methadone Maintenance.” *Journal of Substance Abuse Treatment* 34(3): 326-332.
- Liberman, J.N. and **M.C. Roebuck**. 2010. “Prescription Drug Costs and the Generic Dispensing Ratio.” *Journal of Managed Care Pharmacy* 16(7): 502-506.
- Mundt, M.P., M.T. French, **M.C. Roebuck**, L.B. Manwell, and K.L. Barry. 2005. “Brief Physician Advice for Problem Drinking among Older Adults: An Economic Analysis of Costs and

Benefits.” *Journal of Studies on Alcohol* 66(3): 389-394.

Powers, C.A., C.M. Meyer, **M.C. Roebuck**, and B. Vaziri. 2005. “Predictive Modeling of Total Healthcare Costs Using Pharmacy Claims Data: A Comparison of Alternative Econometric Cost Modeling Techniques.” *Medical Care* 43(11): 1065-1072.

Other Works Completed or in Progress

Roebuck, M.C. In Preparation. “Canadian Border Crossing for Prescription Drugs: Evidence from Claims Data on American Seniors.” CVS Caremark.

Roebuck, M.C., G.S. Carls, T.B. Gibson, J.A. Slezak, J.N. Liberman, and T.A. Brennan. In Preparation. “Impact of Medication Adherence on Worker Productivity: An Instrumental Variables Analysis in Five Chronic Diseases.” CVS Caremark.

Roebuck, M.C., D. Esposito, M.W. Lewis, and J. Berger. “Dollars to Doughnuts: Predicting Prescription Drug Costs of Enrollees and the Medicare Program under Part D.” CVS Caremark, executive summary.

French, M.T. and **M.C. Roebuck**. 2002. “Economic Cost Analysis of the Strengthening Families Program.” University of Miami, executive summary.

French, M.T. and **M.C. Roebuck**. 2000. “The Incremental Cost of In-Prison TCs and Aftercare Treatment for Mentally Ill Chemical Abusers in Colorado.” University of Miami, executive summary.

Frick, K.D., **M.C. Roebuck**, J.I. Feldstein, C.A. McCarty, and L.L. Grover. In Review. “Health Services Utilization and Cost of Retinitis Pigmentosa.” *Archives of Ophthalmology*.

Lee, P.J., **M.C. Roebuck**, and A. Flowers. “Impact of Titration Trend and Dosage Ranges on Adherence to Quetiapine Therapy in the Treatment of Bipolar Disorder.” CVS Caremark, unpublished manuscript.

Polinski, J.M., W.H. Shrank, R.J. Glynn, H.A. Huskamp, **M.C. Roebuck**, and S. Schneeweiss. In Review. “Absence Makes the Heart Grow Weaker: Beneficiaries with Cardiovascular Disease and the Part D Coverage Gap.” *Circulation*.

Polinski, J.M., W.H. Shrank, R.J. Glynn, H.A. Huskamp, **M.C. Roebuck**, and S. Schneeweiss. In Review. “The Part D Coverage Gap and Adverse Health Outcomes.” *Journal of the American Geriatrics Society*.

Sacks, S., J. Peters, J. Sacks, H. Wexler, **M. C. Roebuck**, and G. DeLeon. “Modified Therapeutic Community for MICA Offenders: Description and Interim Findings.” National Development and Research Institutes, unpublished manuscript.

Yoo, L., **M.C. Roebuck**, A.S. Flowers, M. Jay, T.J. Herron, and T. Vo. In Preparation. “Potential Financial Impacts of Aspirin as Primary Preventative Care.” CVS Caremark.

PROFESSIONAL

Funded Research Performed

“Economic Evaluation of Adolescent Drug Services” (National Institutes of Health, National Institute on Drug Abuse, Grant No. 1 R01 DA13298-01A1, \$375,145 from 4/2001 to 8/2002, **Project Director**)

“Cannabis Youth Treatment Coordinating Center: Benefit-Cost Analysis” (Public Health Service, Center for Substance Abuse Treatment, Grant No. UR4 TI11320 through Chestnut Health Systems, \$75,000 from 10/1/2000 to 9/30/2001, **Project Director**)

“The Impact of Workplace Drug Testing Programs on Employee Drug Use” (The Robert Wood Johnson Foundation, Grant No. 035152, \$163,368 from 9/1998 to 8/2001, **Project Director**)

“Coordinating Center for the Study of Treatment Effectiveness for Adolescent Marijuana Dependence” (Public Health Service, Center for Substance Abuse Treatment, Grant No. UR4 TI11320, \$355,000 from 10/1997 to 9/2000, **Project Director**)

Conference Presentations

Roebuck, M.C., G.S. Carls, T.B. Gibson, J.A. Slezak, J.N. Liberman, and T.A. Brennan. “Impact of Medication Adherence on Worker Productivity: An Instrumental Variables Analysis of Five Chronic Diseases.” Presented at the Academy Health 2011 Annual Research Meeting, Seattle, WA, June 13, 2011.

Roebuck, M.C. and T.B. Gibson. “Measurement and Modeling Issues with Adherence to Pharmacotherapy.” Presented at the Academy of Managed Care Pharmacy 2010 Educational Conference, St. Louis, MO, October 14, 2010.

Roebuck, M.C., J.N. Liberman, M. Gemmill-Toyama, and T.A. Brennan. “Value of Medication Adherence in Chronic Vascular Disease: Fixed Effects Models of Health Services Utilization and Cost.” Presented at the Academy Health 2010 Annual Research Meeting, Boston, MA, June 28, 2010.

Roebuck, M.C., J.N. Liberman, M. Gemmill-Toyama, and T.A. Brennan. “Value of Medication Adherence in Chronic Vascular Disease: Fixed Effects Models of Health Services Utilization and Cost.” Presented at the 3rd Biennial Conference of the American Society of Health Economists, Cornell University, Ithaca, NY, June 21, 2010.

Roebuck, M.C., J.N. Liberman, M. Gemmill-Toyama, and T.A. Brennan. “Impact of Depression Medication Adherence on Health Services Utilization and Cost.” Presented at the Johns Hopkins Bloomberg School of Public Health, Health Economics Seminar, Baltimore, MD, December 10, 2009.

Roebuck, M.C., J.N. Liberman, M. Gemmill-Toyama, and T.A. Brennan. “Impact of Depression Medication Adherence on Health Services Utilization and Cost.” Presented at the Western Economic Association International 84th Annual Conference, Vancouver, BC, June 30, 2009.

Roebuck, M.C. and Y. Wang. “Canadian Border Crossing for Prescription Drugs: Evidence from

Medicare Drug Discount Card Data.” Presented at the 2nd Biennial Conference of the American Society of Health Economists, Duke University, Durham, NC, June 23, 2008.

Roebuck, M.C. and J.N. Liberman. “Prescription Benefit Design, Generic Dispensing and Mail Service Utilization: A Panel Analysis of Plan Sponsor Data.” Presented at the Academy Health 25th Annual Research Meeting, Washington, DC, June 9, 2008.

Roebuck, M.C. and J.N. Liberman. “Medication Adherence, Health Services Utilization and Cost.” Presented at the Ingenix Symmetry User Conference, San Francisco, CA, May 17, 2007.

Roebuck, M.C., D. Esposito, M.W. Lewis, and J. Berger. “Dollars to Doughnuts: Predicting Prescription Drug Costs of Enrollees and the Medicare Program under Part D.” Presented at the Academy Health 23rd Annual Research Meeting, Seattle, WA, June 26, 2006.

Roebuck, M.C. and J.N. Liberman. “More Predictive Modeling of Total Healthcare Costs Using Pharmacy Claims Data: Adherence Dimension and Boosted Regression.” Presented at the American Society of Health Economists Inaugural Conference, University of Wisconsin, Madison, WI, June 6, 2006.

Roebuck, M.C., M.T. French, and A.T. McLellan. “DATStats: Results from 85 Studies using the Drug Abuse Cost Analysis Program (DATCAP).” Presented at the Academy Health 20th Annual Research Meeting, Nashville, TN, June 29, 2003.

Roebuck, M.C., M.T. French, and M.L. Dennis. “Adolescent Marijuana Use and School Attendance.” Presented at the Academy Health 20th Annual Research Meeting, Nashville, TN, June 27, 2003.

Roebuck, M.C., M.T. French, M.L. Dennis, S.H. Godley, H.A. Liddle, and F.M. Tims. “Outpatient Marijuana Treatment for Adolescents: Economic Evaluation of a Multi-Site Field Experiment.” Presented at the Academy for Health Services Research and Health Policy 2002 Annual Research Meeting, Washington, DC, June 25, 2002.

Roebuck, M.C. “Adolescent Drinking and School Attendance.” Presented at the Costs and Benefits of Alcohol Services and Interventions (National Institute on Alcohol Abuse and Alcoholism, Grant No. 1 R01 AA13167) Year 1 Advisory Board Meeting, Miami Beach, FL, December 13, 2001.

Roebuck, M.C. “Benefit-Cost Analysis of Outpatient Marijuana Treatment for Adolescents: Findings from a Multi-Site Field Experiment.” Presented at the Economic Evaluation Methods: Development and Applications (National Institute on Drug Abuse, Grant No. 1 R01 DA11506) Year 3 Advisory Board Meeting, Miami Beach, FL, February 22, 2001.

Roebuck, M.C., M.T. French, and M.L. Dennis. “Chronic Marijuana Use and School Dropout.” Presented at the American Public Health Association 128th Annual Meeting, Boston, MA, November 16, 2000.

Roebuck, M.C. and M.T. French. “The Economic Cost of Outpatient Marijuana Treatment for Adolescents: Findings from a Multi-Site Field Experiment.” Presented at the Cannabis Youth Treatment Steering Committee Meeting, Bloomington, IL, February 21, 2000.

Roebuck, M.C. and M.T. French. "Using the Treatment Services Review (TSR) to Estimate the Cost of Addiction and Ancillary Services." Presented at the Economic Evaluation Methods: Development and Applications (National Institute on Drug Abuse, Grant No. 1 R01 DA11506) Year 1 Advisory Board Meeting, Coral Gables, FL, April 8, 1999.

Consulting Services Performed

Alcohol Research Group, Public Health Institute- *Economic Cost Analysis*

American Enterprise Institute- *Reimbursement Rate Setting*

Association of Floral Importers of Florida- *Economic and Statistical Analysis*

Basketcase.com- *Financial Analysis and Strategic Planning*

Center for Applied Value Analysis- *Health Economic Markov Modeling*

Chestnut Health Systems- *Economic Evaluation and Econometric Analysis*

Colombia Flower Council- *Economic and Statistical Analysis*

Hamilton Beach/Proctor-Silex- *Statistical Analysis*

Harvard Medical School- *Economic Evaluation*

Health Analytics, LLC- *Econometric Analysis*

Johns Hopkins University/Medical Institutions- *Economic Cost Analysis*

Key West Housing Authority- *Economic Cost Analysis*

MicroMass Communications, Inc.- *Predictive Modeling*

Research Institute on Addictions- *Economic Evaluation and Econometric Analysis*

State of New Jersey, Department of Human Services- *Reimbursement Rate Setting*

State of Oklahoma, Department of MH & SAS- *Economic Cost Analysis*

Treatment Research Institute- *Economic Cost Analysis*

Two World Media/Two World Entertainment- *Financial Analysis and Strategic Planning*

University of Vermont- *Economic Cost Analysis*

Workshops and Trainings Attended

"Economic Evaluation of Drugs, Devices and other Medical Interventions." Hay, J., Instructor, 3rd Biennial Conference of the American Society of Health Economists, Cornell University, Ithaca, NY, June 20, 2010.

"Modeling Health Care Costs and Counts." Deb, P., W. Manning, and E. Norton, Instructors, 2nd Biennial Conference of the American Society of Health Economists, Durham, NC, June 22, 2008.

"CVS Caremark Foundational Leadership." 2006-2008.

"Health Econometrics of Health Cost, Expenditure, and Utilization Data." Deb, P. and W. Manning,

Instructors, American Society of Health Economists Inaugural Conference, Madison, WI, June 4, 2006.

“Risk and Decision Assessment Training Using @Risk, Part II.” Palisade Corporation, Ithaca, NY, October 31-November 1, 2005.

“Risk and Decision Assessment Training Using @Risk, Part I.” Palisade Corporation, Ithaca, NY, October 20-21, 2005.

“Old and New Utility Measures in Health Economics and Outcomes Research.” Johnson, F.R., B. Hauber, and J. Mausekopf, Instructors, International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 9th Annual International Meeting, Arlington, VA, May 16, 2004.

“Bayesian Analysis: Overview.” Luce, B., C.S. Hollenbeak, and E. Fenwick, Instructors, International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 9th Annual International Meeting, Arlington, VA, May 16, 2004.

“Modeling Health Care Costs and Counts.” Deb, P., W. Manning, and E. Norton, Instructors, 4th International Health Economics Association (IHEA) World Congress, San Francisco, CA, June 15, 2003.

“Playing by New Rules: HIPAA Privacy and Health Services Research.” Academy Health, Herndon, VA, April 29, 2003.

“SAS Programming I: Essentials.” SAS Institute, New York, NY, February 5-7, 2003.

Honors and Awards

2006 Best Abstract Award, Academy Health 23rd Annual Research Meeting, Seattle, WA

1996 Emery Means Findley, Jr. Graduate Fellowship, University of Miami, Coral Gables, FL

1996 Award of Academic Merit, University of Miami, Coral Gables, FL

1992 New Jersey Bell Scholarship, Atlantic Community College, Mays Landing, NJ

Professional Affiliations

Academy Health

Member, 1998-2011

Health Services Research Reviewer, 2008-2011

Health Affairs Reviewer; 2011

Academy of Managed Care Pharmacy

Associate Member, 2010-2011

Journal of Managed Care Pharmacy Reviewer, 2010-2011

American Economic Association

Member, 1998-2011

American Public Health Association

Member, 1998-2004

American Society of Health Economists

Member, 2005-2011

Scientific Review Committee Member, 2005-2011

Association for Public Policy Analysis and Management

Member, 2005-2011

Eastern Economic Association

Member, 2005-2011

International Health Economics Association

Member, 1998-2011

Scientific Review Committee Member, 2006-2011

International Society for Pharmacoeconomics & Outcomes Research

Member, 2005-2011

Review Committee Member, 2006-2011

Journal of General Internal Medicine Reviewer, 2011

Western Economic Association International

Member, 2009-2011