MATTHEW D. SHAPIRO

Department of Economics
University of Michigan
Ann Arbor, MI 48109-1285
734 764-5419 FAX 734 764-2769
shapiro@umich.edu

Survey Research Center
University of Michigan
Ann Arbor MI 48106-1248

PRINCIPAL CURRENT POSITIONS

Lawrence R. Klein Collegiate Professor of Economics, University of Michigan
Research Professor, Survey Research Center, University of Michigan
Research Associate, National Bureau of Economic Research
Co-Director, Economic Measurement Research Institute, National Bureau of Economic Research

EDUCATION

B.A. *summa cum laude* with distinction in economics, Yale University, 1979

M.A. Yale University, 1979

Ph.D. Massachusetts Institute of Technology, 1984

EMPLOYMENT

Council of Economic Advisers, Executive Office of the President
- Junior Staff Economist, 1979-1980

Yale University
- Assistant Professor of Economics and Research Staff, Cowles Foundation for Research in Economics, 1984-1989

Council of Economic Advisers, Executive Office of the President
- Senior Economist, 1993-1994

University of Michigan
- Economics Department
  - Professor (since 1995), Lawrence R. Klein Collegiate Professor (since 2004), Chair (2003-2007), Associate Professor (1989-1995)
- Institute for Social Research
  - Survey Research Center, Director (2019-2023), Research Professor/Senior Research Scientist (since 2000), Faculty Associate (1992-2000)
  - Michigan Census Research Data Center, Senior Advisor (since 2002)
  - Population Studies Center, Research Affiliate (since 2002)

EDITORIAL

American Economic Review
Coeditor, Nov 1996-Mar 2000
Board of Editors, 1993-1996, 2000-2002
Excellence in refereeing citation, 2009, 2010

American Economic Journal: Economic Policy
Editor, Jan 2014-Dec 2019
Board of Editors, 2020-2022

Journal of Money, Credit and Banking
Associate Editor, 1994-2001

Referee for journals, presses, foundations, and governmental agencies

PROFESSIONAL AFFILIATIONS AND SERVICE

National Bureau of Economic Research,
Research Associate, since 1994
Faculty Research Fellow, 1986-1994

U.S. Census Bureau, Special Sworn Status, 1995-1998, since 2004

American Economic Association, Member; Executive Committee (by appointment), 2014-2019

Econometric Society, Member

Conference on Research in Income and Wealth, Member, since 1996; Executive Committee, 1996-2010

Brookings Panel on Economic Activity, 1986, 1989, 1996

National Science Foundation; National Institute on Aging, Review panels/Study sections

GOVERNMENTAL AND PROFESSIONAL ADVISORY ACTIVITIES—CURRENT

Federal Reserve Bank of Chicago, Academic Advisory Council, since 1995, external co-chair, since 2024

GOVERNMENTAL AND PROFESSIONAL ADVISORY ACTIVITIES—PREVIOUS

Federal Economic Statistics Advisory Committee (FESAC), 2000-2008, 2010-2022; chair, 2006-2008, 2010-2022

American Economic Association Committee on Statistics (AEAStat), 2005-2010; chair, 2009-2010

Committee on National Statistics (CNSTAT), National Academy of Science-National Research Council, 1999-2002

Panel on Nonmarket Accounts, National Academy of Science-National Research Council, 2002-2004

US Monetary Policy Forum (USMPF), 2007-2010

Board of Governors of the Federal Reserve System, Academic Consultant, 2010

Board of Governors of the Federal Reserve System, advisor on capacity utilization statistics, 1995-1996

VISITING APPOINTMENTS

National Bureau of Economic Research, Cambridge, MA, Olin Fellow, 1986-1987

Gadjah Mada University, Indonesia Second University Development Project, visiting scholar, February-March 1991

Board of Governors of the Federal Reserve System, visiting scholar, various

Federal Research Bank of Minneapolis, visiting scholar, September-December 1995

Reserve Bank of New Zealand and Victoria University of Wellington, visiting professor, January-April 2003

Reserve Bank of Australia, visiting scholar, January-March 2017

Australian National University, visiting scholar, February 2024

AWARDS AND HONORS

Phi Beta Kappa, 1978

Charles Herbert Dickerman Prize for the Outstanding Senior Essay in Economics, Yale University, 1979

Paul A. Samuelson Certificate of Excellence for Outstanding Scholarly Writing, Awarded by TIAA-CREF (jointly with R. Barsky, F.T. Juster, and M. Kimball), 1997

University of Michigan, LSA Excellence in Research Award, 2000-2001

Rackham Faculty Fellowship Enhancement Award, University of Michigan, 1991 and 2003

National Academy of Social Insurance, Member, since 2020

Certificate of Appreciation, US Census Bureau, US Bureau of Labor Statistics, and US Bureau of Economic Analysis, 2022

FELLOWSHIPS

Lyndon Baines Johnson Fellowship, U.S. Congress, 1976

National Science Foundation Graduate Fellowship, 1980-1983

National Bureau of Economic Research-Olin Fellowship (in residence in Cambridge, MA), 1986-1987

Sloan Research Fellowship, 1991-1993

Professorial Fellowship in Monetary Economics, Reserve Bank of New Zealand/Victoria University of Wellington (in residence in Wellington, NZ), 2003

UNIVERSITY OF MICHIGAN AFFILIATIONS (without budget)

Population Studies Center (PSC), ISR, Research Affiliate

Michigan Institute for Data Science (MIDAS), Affiliated Faculty; Leader, Social Science Challenge project

Center to Accelerate Population Research in Alzheimer's (CAPRA), Affiliated Faculty

Michigan Institute for Healthcare Policy and Innovation (IHPI), Affiliated Faculty

Program in Philosophy, Politics, and Economics (PPE), LSA, Affiliated Faculty

Program in Computing for Arts and Sciences, LSA, Affiliated Faculty

Training grants (mentor):

- Population Studies Center training grant, ISR (T32/NIH), ongoing
- Health Services Research training grant, SPH (T32/NIH), ongoing
- IGERT, School of Information/Economics (IGERT/NSF), completed

GRANTS—CURRENT SUPPORT

Alfred P. Sloan Foundation grant, "Census-Enhanced Health and Retirement Study (CenHRS)." (Margaret Levenstein, PI, Matthew D. Shapiro and others, co-PIs), 2011-2027

Alfred P. Sloan Foundation grant, "Re-Engineering Statistics using Economic Transactions (RESET)." (John Haltiwanger and Matthew D. Shapiro, co-PIs), 2021-2026

Alfred P. Sloan Foundation grant, "RESET Demonstration Project." (John Haltiwanger and Matthew D. Shapiro, co-PIs), 2025-2028

Alfred P. Sloan Foundation grant, "New Approaches to Constructing Economic Statistics." (Karen Dynan, PI; Matthew D. Shapiro, co-PI), 2025-2027

National Science Foundation grant, "Economic Measurement Research Institute." (Katharine Abraham and Matthew D. Shapiro, co-PIs), 2025-2028

National Institute on Aging, "The National Dementia Workforce Study (U54)." (Donavon Maust, PI; Matthew Shapiro and others, co-I), 2023-2029 (no effort 2025-2029)

GRANTS—PREVIOUS SUPPORT

Social Science Research Council, Subcommittee on Monetary Economics grant, 1983-1984

National Science Foundation grant, "The Dynamics of Output and Investment," 1986-1990

National Science Foundation grant, "Capacity and Macroeconomic Fluctuations," 1991-1996

National Institute on Aging program project grant (P01), "Wealth, Savings and Financial Security Among Older Households" (F. Thomas Juster, PD/PI; Matthew D. Shapiro and others, co-I), 1992-1997

Michigan Exploratory Center on the Demography of Aging pilot award (NIA), "Measuring the Price of Cataract Surgery," 1997-1998

National Science Foundation grant, "Capital Mismatch and Sectoral Reallocation," (Valerie A. Ramey and Matthew D. Shapiro, co-PIs), 1997-2002

National Institute on Aging program project grant (P01), "Wealth, Savings and Financial Security Among Older Households" (Matthew D. Shapiro, PI/PD), 1998-2003

Social Security Administration, "The Retirement Elasticity: Theory and Implications" (with Miles Kimball) Michigan Retirement Research Center, 2001-2002

Robert Wood Johnson Foundation Research Initiative on the Uninsured grant, 2001-2002

National Science Foundation grant, "Michigan Census Research Data Center," (Matthew D. Shapiro, PI), 2001-2004

National Science Foundation grant (ITR), "Information Technology Challenges for Secure Access to Confidential Social Science Data," (John Abowd, PI, Matthew D. Shapiro and others, co-PIs), 2004-2007

National Institute on Aging program project grant (P01), "Behavior on Surveys and in the Economy using the HRS," (Robert Willis, PI/PD, Matthew D. Shapiro and others, co-I), 2005-2009

Social Security Administration, "Buffering Shocks to Well-Being Late in Life" Michigan Retirement Research Center, 2008-2009

Social Security Administration, "The Financial Crisis and the Well-Being of Social Security Recipients" Michigan Retirement Research Center, 2009-2010

National Poverty Center, "The Polarization of Employment in the United States" (Michael Elsby and Matthew D. Shapiro, co-PIs), 2010

National Institute on Aging grant (R01), "Internet Interviewing and the HRS," (Robert Willis, PD, Matthew D. Shapiro and others, co-I), 2002-2007. Renewed, 2008-2013 (Arie Kapteyn, PD)

National Science Foundation grant, "Investment: Theory, Estimates, and Public Policy," (Christopher House, PI, Matthew D. Shapiro, co-PI), 2010-2014

Alfred P. Sloan Foundation grant, "Database Development Project," (Mathew D. Shapiro, PI; Daniel Silverman, Shachar Kariv, Steve Tadelis, co-PIs), 2012-2014

National Institute on Aging program project grant (P01), "Behaviors on Surveys and in the Economy: HRS and Beyond," (Robert Willis, PI/PD, Matthew D. Shapiro and others, co-I), 2010-2017

Social Security Administration grant, "Shocks and Transitions from Career Jobs to Bridge Jobs and Retirement: A New Approach," (Matthew D. Shapiro, PI; Pamela Giustinelli, co-PI), Michigan Retirement Research Center, 2016-2017

Social Security Administration grant, "Using Subjective Conditional Expectations Relating Health to Retirement," (Pamela Giustinelli, PI; Matthew D. Shapiro, co-PI), Michigan Retirement Research Center, 2016-2017.

National Science Foundation grant, "NCRN-MN: Linking Surveys to the World--Administrative Data, the Web, and Beyond," (Matthew D. Shapiro, PI; Margaret Levenstein, co-PI), 2011-2018

Alfred P. Sloan Foundation grant, “Database Development Project,” (Mathew D. Shapiro, PI; Daniel Silverman, Shachar Kariv, Steve Tadelis, co-PIs), 2014-2019

Michigan Institute for Data Science (MIDAS) grant, “Computational Approaches for the Construction of Novel Macroeconomic Data,” (Matthew D. Shapiro, PI; Michael Cafarella and Margaret Levenstein, co-PIs), 2017-2021

Economic and Social Research Council grant (UK), “Credit and Labour Market Foundations of the Macroeconomy” (Matthew D. Shapiro, co-PI; Collaborative research with University of Edinburgh, John Hardman Moore, PI, Michael Elsby, co-PI), 2015-2022

Alfred P. Sloan Foundation grant, “Reinventing Measurement of Key National Economic Indicators.” (John Haltiwanger and Matthew D. Shapiro, co-PIs), 2016-2022

National Science Foundation, “Convergence Accelerator Phase I (RAISE): Simultaneous Knowledge Network Programming and Extraction,” (Michael Cafarella, PI; Oren Etzioni and Matthew D. Shapiro, co-PIs), 2019-2021

National Science Foundation grant, “Knowledge Network Development Infrastructure with Application to COVID-19 Science and Economics,” (Michael Cafarella, PI; Oren Etzioni and Matthew D. Shapiro, co-PIs), 2020-2023

TIAA Institute, “Survey Development Project” (Matthew D. Shapiro, PI), 2022-2023

National Science Foundation grant, “Mid-scale RI-2: Research Data Ecosystem, a National Resource for Reproducible, Robust, and Transparent Social Science Research in the 21st Century.” (Margaret Levenstein, PI; Matthew D. Shapiro and others, co-I), 2022-2024

U.S. Census Bureau cooperative agreement, “New Methods to Support Census Bureau Record Linkage.” (Margaret Levenstein, PI, Matthew D. Shapiro and others, co-I), 2021-2025

TESTIMONY

U.S. House of Representatives, Committee on Small Business. Hearing on The Shutdown: Economic Impact on Small Businesses, February 6, 2019

U.S. House of Representatives, Committee on Government Reform and Oversight, Subcommittee on Human Resources. Hearing on the Bureau of Labor Statistics' Calculation of the Consumer Price Index, April 30, 1997

BOOKS

Scanner Data and Price Indexes. Eds. Robert C. Feenstra and Matthew D. Shapiro. Chicago: University of Chicago Press, 2003.

Big Data for 21st Century Economic Statistics. Eds. Katharine G. Abraham, Ron S. Jarmin, Brian Moyer, and Matthew D. Shapiro. Chicago: University of Chicago Press, 2022.

PUBLISHED PAPERS

The Permanent Income Hypothesis and the Real Interest Rate: Some Evidence from Panel Data. *Economics Letters* 14 (1984) 93-100.

Are Preliminary Announcements of the Money Stock Rational Forecasts? with N. Gregory Mankiw and David E. Runkle. *Journal of Monetary Economics* 14 (July 1984) 15-27.

An Unbiased Reexamination of Stock Market Volatility, with N. Gregory Mankiw and David Romer. *Journal of Finance* 40 (July 1985) 677-687.

Trends, Random Walks, and Tests of the Permanent Income Hypothesis, with N. Gregory Mankiw. *Journal of Monetary Economics* 16 (September 1985) 165-174.

Do We Reject Too Often? Small Sample Bias in Tests of Rational Expectations Models, with N. Gregory Mankiw. *Economics Letters* 20 (1986) 139-145.

News or Noise: An Analysis of GNP Revisions, with N. Gregory Mankiw. *Survey of Current Business* 66 (May 1986) 20-25.

Investment, Output, and Cost of Capital. *Brookings Papers on Economic Activity* (1:1986) 111-152.

Capital Accumulation and Capital Utilization: Theory and Evidence. *Journal of Applied Econometrics* 1 (July 1986) 211-234.

Risk and Return: Consumption Beta versus Market Beta, with N. Gregory Mankiw. *Review of Economics and Statistics* 68 (August 1986) 452-459.

The Dynamic Demand for Capital and Labor. *Quarterly Journal of Economics* 101 (August 1986) 513-542.

Personal Computers in the Economics Curriculum at Yale University. *IBM University AEP Conference Proceedings* (1986) 40-44.

Capital and Saving in a Share Economy. In The Share Economy: A Symposium, William Nordhaus and Andrew John, eds., *Journal of Comparative Economics* 10 (December 1986) 444-447.

Are Cyclical Fluctuations in Productivity Due More to Supply Shocks or Demand Shocks? *American Economic Review Papers and Proceedings* 77 (May 1987) 118-124.

Supply Shocks in Macroeconomics. *The New Palgrave*. London: MacMillan, 1987. [Revised version in *The New Palgrave Dictionary of Money and Finance*. London: MacMillan, 1992.]

Sources of Business Cycle Fluctuations, with Mark W. Watson, *NBER Macroeconomics Annual* 3 (1988) 111-148.

Forecasting the Depression: Harvard versus Yale, with Kathryn M. Dominguez and Ray C. Fair. *American Economic Review* 78 (September 1988) 595-612.

The Stabilization of the U.S. Economy: Evidence from the Stock Market. *American Economic Review* 78 (December 1988) 1067-1079.

Assessing Federal Reserve Measures of Capacity and Utilization. *Brookings Papers on Economic Activity* (1:1989) 181-225.

Capacity Utilization versus Capital Utilization: An Assessment Based on the 1982 Recession. *Conference on the Economics Outlook for 1991* (1990).

Market Value and Fundamental Value, with William C. Brainard and John Shoven. In *Money, Macroeconomics, and Economics Policy: Essays in Honor of James Tobin,* W.C. Brainard, W.D. Nordhaus, and H.W. Watts, eds. Cambridge: M.I.T. Press, 1991.

Stock Market Efficiency and Volatility: A Statistical Appraisal, with N. Gregory Mankiw and David Romer. *Review of Economic Studies* 58 (May 1991) 455-477.

Cyclical Productivity and the Workweek of Capital. *American Economic Review Papers and Proceedings* 83 (May 1993) 229-233.

Federal Reserve Policy: Cause and Effect. In *Monetary Policy*, N.G. Mankiw, ed. Chicago: University of Chicago Press, 1994.

Indicators of Monetary Policy: Lessons for 1994. *Conference on the Economics Outlook for 1995* (1994).

Consumer Response to the Timing of Income: Evidence from a Change in Tax Withholding, with Joel Slemrod. *American Economic Review* 85 (March 1995) 274-283.

Mismeasurement in the Consumer Price Index: An Evaluation, with David W. Wilcox. *NBER Macroeconomics Annual* 11 (1996) 93-142.

Macroeconomic Implications of Variation in the Workweek of Capital. *Brookings Papers on Economics Activity* (2:1996) 79-133.

Preference Parameters and Behavioral Heterogeneity: An Experimental Approach in the Health and Retirement Study, with Robert B. Barsky, F. Thomas Juster, and Miles S. Kimball. *Quarterly Journal of Economics* 112 (May 1997) 537-579. [Awarded Paul A. Samuelson Certificate of Excellence by TIAA-CREF.]

Alternative Strategies for Aggregating Prices in the CPI, with David W. Wilcox. *Federal Reserve Bank of St. Louis Review* 79 (May/June 1997) 113-125.

Costly Capital Reallocation and the Effects of Government Spending, with Valerie A. Ramey. *Carnegie-Rochester Conference Series on Public Policy* 48 (June 1998) 145-194.

Quality Improvements in Health Care: A Framework for Price and Output Measurement, with Irving Shapiro and David W. Wilcox. *American Economic Review Papers and Proceedings* 89 (May 1999) 333-337.

Measuring the Value of Cataract Surgery, with Irving Shapiro and David W. Wilcox. In *Medical Care Output and Productivity*, David M. Cutler and Ernst R. Berndt, eds. Chicago: University of Chicago Press, 2001.

Displaced Capital: A Study of Aerospace Plant Closings, with Valerie A. Ramey. *Journal of Political Economy* 109 (October 2001) 958-992.

Productivity Growth in the 1990s: Technology, Utilization, or Adjustment? with Susanto Basu and John G. Fernald. *Carnegie-Rochester Conference Series on Public Policy* 55 (2001) 117-165.

Labor and the Sustainability of Output and Productivity Growth, with Rebecca M. Blank. In *The Roaring Nineties: Can Full Employment Be Sustained?*, Alan B. Krueger and Robert M. Solow, eds. Russell Sage Foundation/New Century Foundation, New York: Russell Sage Foundation, 2002.

High-Frequency Substitution and the Measurement of Price Indexes, with Robert C. Feenstra. In *Scanner Data and Price Indexes*. Eds. Robert C. Feenstra and Matthew D. Shapiro. Chicago: University of Chicago Press, 2003.

Consumer Response to Tax Rebates, with Joel Slemrod. *American Economic Review* 93 (March 2003) 381-396.

Did the 2001 Tax Rebate Stimulate Spending? Evidence From Taxpayer Surveys, with Joel Slemrod. *Tax Policy and the Economy* 17 (2003).

Phased-In Tax Cuts and Economic Activity, with Christopher House. *American Economic Review* 96 (2006) 1835-1949.

Monetary Policy When Potential Output Is Uncertain: Understanding the Growth Gamble of the 1990s, with Yuriy Gorodnichenko. *Journal of Monetary Economics* 54 (2007) 1132-1162.

Why Do Computers Depreciate? with Michael Geske and Valerie Ramey. In *Hard-to-Measure Goods and Services: Essays in Memory of Zvi Griliches.* Ernst R. Berndt and Charles M. Hulten, eds. Chicago: University of Chicago Press, 2007.

Temporary Tax Incentives: Theory with Evidence from Bonus Depreciation, with Christopher House. *American Economic Review* 98 (2008) 737-768.

Imputing Risk Tolerance from Survey Responses, with Miles S. Kimball and Claudia Sahm. *Journal of the American Statistical Association* 103 (2008) 1028-1038.

Risk Preferences in the PSID: Individual Imputations and Family Covariation, with Miles S. Kimball and Claudia R. Sahm. *American Economic Review Papers and Proceedings* 99 (May 2009) 363-368.

Did the 2008 Tax Rebates Stimulate Spending? with Joel Slemrod. *American Economic Review Papers and Proceedings* 99 (May 2009) 374-379. http://dx.doi.org/10.1257/pol.4.3.216

Oil and the Macroeconomy: Lessons for Monetary Policy, with Ethan S. Harris, Bruce C. Kasman, and Kenneth D. West. US Monetary Policy Forum Report, 2009.

Household Response to the 2008 Tax Rebates: Survey Evidence and Aggregate Implications, with Claudia R. Sahm and Joel Slemrod. *Tax Policy and the Economy* 24 (2010) 69-110.

Why Does Trend Growth Affect Equilibrium Employment? A New Explanation of an Old Puzzle, with Michael W.L. Elsby. *American Economic Review* 102 (2012) 1378–1413. http://dx.doi.org/10.1257/aer.102.1.1378

Check in the Mail or More in the Paycheck: Does the Effectiveness of Fiscal Stimulus Depend on How It Is Delivered?" with Claudia R. Sahm and Joel Slemrod. *American Economic Journal: Economic Policy* 4 (2012) 216–250. DOI: 10.1257/pol.4.3.216

Forecasting the Recovery from the Great Recession: Is This Time Different? with Kathryn M.E. Dominguez. *American Economic Review Papers and Proceedings* 103 (2013) 147–152. http://dx.doi.org/10.1257/aer.103.3.147

Ringtail: Feature Selection for Easier Nowcasting. with Dolan Antenucci, Michael J. Cafarella, Margaret C. Levenstein, and Christopher Ré. *WebDB* 2013.

Harnessing Naturally Occurring Data to Measure the Response of Spending to Income. With Michael Gelman, Shahar Kariv, Dan Silverman, and Steven Tadelis. *Science* 345 (July 11, 2014) 212-215. http://dx.doi.org/10.1126/science.1247727

Reconsidering the Consequences of Worker Displacements: Firm versus Worker Perspective. With Aaron Flaaen and Isaac Sorkin. *American Economic Journal: Macroeconomics* 11(2) (2019) 193–227. https://doi.org/10.1257/mac.20170162

Effects of a Government-Academic Partnership: Has the NSF-Census Bureau Research Network Helped Secure the Future of the Federal Statistical System? with D. H. Weinberg, J.M. Abowd, R.F. Belli, N. Cressie, D.C. Folch, S.H. Holan, M.C. Levenstein, K.M. Olson, J.P. Reiter, J. Smyth. *Journal of Survey Statistics and Methodology* 7 (2019) 589-619. https://doi.org/10.1093/jssam/smy023

Minding Your Ps and Qs: Going from Micro to Macro in Measuring Prices and Quantities. with Gabriel Ehrlich, John Haltiwanger, Ron Jarmin, and David Johnson. *AEA Papers and Proceedings* 109 (2019) 438-443. DOI: 10.1257/pandp.20191004

Portfolio Rebalancing in General Equilibrium. with Miles S. Kimball, Tyler Shumway, and Jing Zhang. *Journal of Financial Economics* 135 (2020) 816-834.

Older Americans Would Work Longer If Jobs Were Flexible. with John Ameriks, Joseph Briggs, Andrew Caplin, Minjoon Lee, and Christopher Tonetti. *American Economic Journal: Macroeconomics* 12 (2020) 174-209. *DOI: 10.1257/mac.20170403*

How Individuals Respond to a Liquidity Shock: Evidence from the 2013 Government Shutdown. with Michael Gelman, Shachar Kariv, Dan Silverman, and Steven Tadelis. *Journal of Public Economics* 189 (2020). 128:6 (2020) 2375-2451.

Heterogeneity in Expectations, Risk Tolerance, and Household Stock Shares: The Attenuation Puzzle. with John Ameriks, Gábor Kézdi, and Minjoon Lee. *Journal of Business and Economic Statistics* 38 (2020) 633-646. https://doi.org/10.1080/07350015.2018.1549560

Long-Term-Care Utility and Late-in-Life Saving. with John Ameriks, Joseph Briggs, Andrew Caplin, and Christopher Tonetti. *Journal of Political Economy* 128:6 (2020) 2375-2451.

Reengineering Key National Economic Indicators. with Gabriel Ehrlich, John Haltiwanger, Ron Jarmin, and David Johnson. In *Big Data for 21st Century Economic Statistics* (pp. 25-68). Eds. Katharine G. Abraham, Ron S. Jarmin, Brian Moyer, and Matthew D. Shapiro. Chicago: University of Chicago Press, 2022.

Big Data for 21st Century Economic Statistics: The Future is Now. with Katharine G. Abraham, Ron S. Jarmin, and Brian Moyer. Introductory essay in *Big Data for 21st Century Economic Statistics* (pp. 1-22). Eds. Katharine G. Abraham, Ron S. Jarmin, Brian Moyer, and Matthew D. Shapiro. Chicago: University of Chicago Press, 2022.

Infrastructure for Rapid Open Knowledge Network Development. with Michael Cafarella, Michael Anderson, Iz Beltagy, Arie Cattan, Sarah Chasins, Ido Dagan, Doug Downey, Oren Etzioni, Sergey Feldman, Tian Gao, Tom Hope, Kexin Huang, Sophie Johnson, Daniel King, Kyle Lo, Yuze Lou, Dinghao Shen, Shivashankar Subramanian, Lucy Lu Wang, Yuning Wang, Yitong Wang, Daniel S. Weld, Jenny Vo-Phamhi, Anna Zeng, and Jiayun Zou. *AI Magazine* 43(1) (2022) 59-68.

Rational Illiquidity and Consumption: Theory and Evidence from Income Tax Withholding and Refunds. with Michael Gelman, Shachar Kariv, and Dan Silverman. *American Economic Review* 112 (2022) 2959-91.

Retirement Expectations. with Gábor Kézdi. In *Handbook of Economic Expectations*, Eds. Rüdiger Bachmann, Giorgio Topa, and Wilbert van der Klaauw. New York: Academic Press/Elsevier, 2023. https://doi.org/10.1016/C2019-0-00128-8

Implicates as Instrumental Variables: An Approach for Estimation and Inference with Probabilistically Matched Data. with Dhiren Patki. *Journal of Survey Statistics and Methodology* 11(3) (2023) 597-618. https://doi.org/10.1093/jssam/smad005

Cognitive Decline, Limited Awareness, Imperfect Agency, and Financial Well-being. with John Ameriks, Andrew Caplin, Minjoon Lee, and Christopher Tonetti. *American Economic Review: Insights* 5(1) (2023) 125-140.

The Response of Consumer Spending to Changes in Gasoline Prices. with Michael Gelman, Yuriy Gorodnichenko, Shachar Kariv, Dmitri Koustas, Dan Silverman, and Steven Tadelis. *American Economic Journal: Macroeconomics* 15(2) (2023) 129-160.

SeaTE: Subjective *ex ante* Treatment Effect of Health on Retirement. with Pamela Giustinelli. *American Economic Journal: Applied Economics* 16(2) (2024) 278-317.

The Wealth of Wealthholders. with John Ameriks, Andrew Caplin, Minjoon Lee, and Christopher Tonetti. *Review of Income and Wealth* 72(2) (2026) 1-19.

Quality-Adjusted Unit Value Index: Are Changes in Average Prices Inflation or Quality Change? (with John Haltiwanger, Ron Jarmin, and R. Benjamin Rodriguez). *AEA Papers and Proceedings* 116 (2026) 551-555.

Quality Adjustment at Scale: Hedonic versus Exact Demand-Based Price Indices. (with Gabriel Ehrlich, John Haltiwanger, Ron Jarmin, David Johnson, Ed Olivares, Luke Pardue, and Laura Yi Zhao). *American Economic Review* 116(6) (2026) 1955-1995.

SELECTED WORKING PAPERS

How Worker Productivity and Wages Grow with Tenure and Experience: The Firm Perspective. with Andrew Caplin, Minjoon Lee, Søren Leth-Petersen, and Johan Sæverud. Revised July 2025. (NBER WP 30342). *American Economic Journal: Macroeconomics*, conditionally accepted.

Using Machine Learning to Construct Hedonic Price Indices. with Michael J. Cafarella, Gabriel Ehrlich, Tian Gao, John Haltiwanger, and Laura Yi Zhao. July 2022. Revised May 2023. (NBER Working Paper 31315)

Finding Needles in Haystacks: Multiple-Imputation Record Linkage Using Machine Learning. with John M. Abowd, Joelle Abramowitz, Margaret C. Levenstein, Kristin McCue, Dhiren Patki, Trivellore Raghunathan, Ann M. Rodgers, Nada Wasi, and Dawn Zinsser. Revised July 2024.

The Long-Term-Insurance Puzzle: Modeling and Measurement. with John Ameriks, Joseph Briggs, Andrew Caplin, and Christopher Tonetti. November 2016. Revised June 2018. (NBER Working Paper 22726.)

Stimulus Effects of Investment Tax Incentives: Production versus Purchases. with Christopher L. House and Ana-Maria Mocanu. Revised February 2019. (NBER Working Paper 23391.)

Balance-Sheet Households and Fiscal Stimulus: Lessons from the Payroll Tax Cut and Its Expiration. with Claudia R. Sahm and Joel Slemrod. May 2015. Revised August 2016. (NBER Working Paper 21220)

Using Social Media to Measure Labor Market Flows. with Dolan Antenucci, Michael Cafarella, Margaret Levenstein, and Chistopher Ré. April 2013. Revised April 2014. (NBER Working Paper 20010.)

Using the Survey of Plant Capacity to Measure Capital Utilization. with Yuriy Gorodnichenko. U.S. Census Bureau. Center for Economic Studies Discussion Paper 11-18, July 2011.

The Effects of the Financial Crisis on the Well-Being of Older Americans: Evidence from the Cognitive Economics Study. Michigan Retirement Research Center Working Paper 2010-228, September 2010.

Buffering Shocks to Well-Being Late in Life. Michigan Retirement Research Center Working Paper 2009-211, September 2009.

Labor Supply: Are Income and Substitution Effects Both Large or Both Small? with Miles S. Kimball. July 2008. (NBER Working Paper 14208.)

PUBLISHED DISCUSSIONS

Comments on "Political vs. Currency Premia in International Real Interest Differentials" by J.A. Frankel and A.T. MacArthur. *European Economic Review* 32 (June 1988) 1114-1118.

Comments on "Inventories, Orders, Temporary and Permanent Layoffs: An Empirical Analysis" by J.C. Haltiwanger and L.J. Maccini. *Carnegie-Rochester Conference on Public Policy* 30 (Spring 1989) 367-374.

Discussion of "The Stock Market and Investment: Is the Market a Sideshow?" by R. Morck, A. Shleifer, and R.W. Vishny. *Brookings Papers on Economics Activity* (2:1990) 203-208.

Discussion of "Productivity and Real Wages: Is There a Puzzle?" by Barry Bosworth and George Perry. *Brookings Papers on Economic Activity* (1:1994).

Comment on "Do 'Shortages' Cause Inflation?" by Owen Lamont. In *Monetary Policy and Low Inflation*, C.D. Romer and D. Romer, eds. Chicago: University of Chicago Press, 1997.

Discussion of "Social Security Reform and National Saving in an Era of Budget Surpluses" by Douglas W. Elmendorf and Jeffrey B. Liebman. *Brookings Papers on Economic Activity* (2:2000) 53-58.

Comments on "Federal Government Debt and Interest Rates" by E. Engen and R.G. Hubbard. *NBER Macroeconomics Annual* 19 (2004) 148-156.

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