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Vita

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PROFESSIONAL POSITIONS:

Professor, Department of Economics, University of California, Santa Cruz: 1991–
Associate Professor, University of California, Santa Cruz: 1987–1991.
Senior Economist, Federal Reserve Bank of San Francisco: 1985–1987.
Assistant Professor, Princeton University: 1979–1985.
Lecturer, University of Auckland, New Zealand: 1976–1978.

ADMINISTRATIVE APPOINTMENTS:

Vice Provost, Silicon Valley Initiatives, UCSC, 2005 – 2007.
Faculty Assistant to the Chancellor for Silicon Valley Planning, UCSC, 2005.
Faculty Assistant to the Executive Vice Chancellor, UCSC: 1998–2001.
Associate Vice Chancellor for Planning and Programs, UCSC: 1995 – 1997.
Chair, Department of Economics, University of California, Santa Cruz: 1988–1991.

PROFESSIONAL ACTIVITIES:

Co-Editor, International Journal of Central Banking, 2008–
Associate Editor, Journal of Money, Banking, and Credit, 2001–
Member, Editorial Board, New Zealand Economic Papers, 2007–
Member, Board of Editors, American Economic Review, 1994–2000
Associate Editor, Journal of Economics and Business, 1998–
Member, Editorial Board, Journal of Macroeconomics, 1998–
Fellow, CESifo Research Network, 2000–
Executive Committee Member, UC Pacific Rim Research Program, 1990–1991.
Executive Committee Member, Institute of Business and Economic Research, UC,
Berkeley: 1986–1988.
Research Affiliate, National Bureau of Economic Research: 1985–1987.
Faculty Research Fellow, National Bureau of Economic Research: 1979–1985.

VISITING APPOINTMENTS:

Visiting Scholar, Federal Reserve Bank of San Francisco: 1987 –
Visiting Professor, Economics Department, Stanford University: Fall 1995.
Visiting Lecturer, School of Business, University of California, Berkeley: 1986 - 1987.
Visiting Assistant Professor, Dept. of Economics, University of California, Berkeley: 1985.
Visiting Senior Economist, Federal Reserve Bank of Philadelphia: 1984 - 1985.
Visiting Scholar, International Finance Division, Federal Reserve Board: July, 1984.
Visiting Scholar, Federal Reserve Bank of Kansas City: 1982 - 1983.
Visiting Lecturer, Department of Economics, University of California, Berkeley: 1979.

INVITED COURSES:

Gerzensee Study Center, Swiss National Bank, Aug. 11-15, 2008
 International Monetary Fund, IMF Institute, July 14-18, 2008
 Central Bank of Brazil, June 15-20, 2008
 Gerzensee Study Center, Swiss National Bank, Sept. 10-14, 2007
 International Monetary Fund, IMF Institute, July 9-13, 2007
 University of Rome “Tor Vergata”, March 26-30, 2007
 Gerzensee Study Center, Swiss National Bank, Sept. 11-15, 2006
 International Monetary Fund, IMF Institute, July 24-28, 2006
 International Monetary Fund, IMF Institute, Aug. 8-12, 2005
 Gerzensee Study Center, Swiss National Bank, June 20-24, 2005
 Norges Bank Training Program, Oslo, Oct. 18, 2004.
 Finish Doctoral Program in Economics, Helsinki, Aug. 9-13, 2004.
 International Monetary Fund, IMF Institute, July 12-16, 2004
 ZEI Summer School, Bonn, Germany, July 14-18, 2003
 Hong Kong Institute for Monetary Research, November 4-8, 2002
 Gerzensee Study Center, Swiss National Bank, Aug. 19-23, 2002
 International Monetary Fund, IMF Institute, July 15-19, 2002
 Bank of Portugal, Sept. 17-21, 2001
 Bank of England, Sept. 10-14, 2001
 University of Oslo, Aug. 7-18, 2001
 International Monetary Fund, IMF Institute, July 17-21, 2000
 Bank of Spain, June 19-23, 2000
 International Monetary Fund, IMF Institute, July 12-16, 1999

PUBLICATIONS:BOOKS:

Economics, 4th ed., with Joseph E. Stiglitz, W. W. Norton & Co., 2006.

Principles of Microeconomics, 4th ed., with Joseph E. Stiglitz, W. W. Norton & Co.

Principles of Macroeconomics, 4th ed., with Joseph E. Stiglitz, W. W. Norton & Co.

Economics, 3rd ed., with Joseph E. Stiglitz, W. W. Norton & Co., 2002.

Principles of Microeconomics, 3rd ed., with Joseph E. Stiglitz, W. W. Norton & Co.

Principles of Macroeconomics, 3rd ed., with Joseph E. Stiglitz, W. W. Norton & Co.

Monetary Theory and Policy, Cambridge, MA: The MIT Press

First edition, 1998, 528 pages.

Second edition, 2003, 612 pages.

Chinese translation, Shanghai University of Finance and Economics Press, 2004.

ARTICLES AND CHAPTERS:

Vacancies, Unemployment, and the Phillips Curve, with Federico Ravenna, European Economic Review, forthcoming.

Inflation targeting and the role of real objectives, Revista de Economía, Banco Central del Uruguay, 14(2), Nov. 2007, 5-36.

Optimal Economic Transparency, International Journal of Central Banking, 3(1), March 2007, 5-36.

The contribution of theory to practice in monetary policy: recent developments, in Monetary policy: A journal from theory to practice. An ECB colloquium held in honor of Prof. Otmar Issing, Frankfurt, March 16-17, 2006, 143-160.

Transparency, flexibility, and inflation targeting, in Frederic S. Mishkin and Klaus Schmidt-Hebbel (eds.), Monetary policy under Inflation Targeting, Central Bank of Chile 2007, 227-263.

Optimal monetary policy with the cost channel (with Federico Ravenna), Journal of Monetary Economics 53, 2006, 199-216.

Central Bank independence, The New Palgrave Dictionary of Economics, forthcoming 2006

Comment on “Levin, Onatski, Williams, and Williams,” NBER Macroeconomic Annual 2005, M. Gertler and K. Rogoff (eds.), Cambridge, MA: The MIT Press, 2XX-308.

Labor market search, sticky prices, and interest rate policies, Review of Economic Dynamics, 8(4), Oct. 2005, 829-849.

Market Discipline and Monetary Policy, a reply to Carvalho and Bugarin, Oxford Economic Papers. 57(4), Oct. 2005, 740-741.

Endogenous objectives and the evaluation of targeting rules for monetary policy, Carnegie-Rochester Conference Series on Public Policy, Papers in honor of Bennett McCallum, Journal of Monetary Economics, 52(5), July 2005, 889-911.

Economic Structure and Monetary Policy Design, in Macroeconomic Implications of Postcrisis Structural Change, Lee-Jay Cho, Dongchul Cho, and Yoon Hyung Kim (eds.), Korean Development Institute, May 2005, 189-225.

Comments on “Macroeconomic Implications of Financial Market Reforms in Korea,” in Macroeconomic Implications of Postcrisis Structural Change, Lee-Jay Cho, Dongchul Cho, and Yoon Hyung Kim (eds.), Korean Development Institute, May 2005, 178-181.

Robustly Optimal Instrument Rules and Robust Control: An Equivalence Result, Journal of Money, Credit, and Banking, 36(6), Dec. 2004, 1105-1113.

Implications of a Changing Economic Structure for the Strategy of Monetary Policy, in Monetary Policy and Uncertainty: Adapting to a Changing Economy, Jackson Hole Symposium, Federal Reserve Bank of Kansas City, 2003, 297-348.

Reprinted in The ICFAI Journal of Monetary Economics, 11(4), Nov. 2004, 45-80.

Labor Market Search and Monetary Shocks, in Dynamic Macroeconomic Analysis, S. Altuğ, J. Chadha, and C. Nolan, Cambridge University Press, 2003, 451-486.

Comment on: The zero-interest-rate bound and the role of the exchange rate for monetary policy

in Japan, Journal of Monetary Economics, 50 (5), July 2003, 1103-1110.

Accountability, Transparency, and Inflation Targeting, Journal of Money, Credit, and Banking, 35(5), October 2003, pp. 829-849.

Speed Limit Policies: The Output Gap and Optimal Monetary Policy, American Economic Review, 93(1), March 2003, 265-278.

Teaching Inflation Targeting: An Analysis for Intermediate Macro,” Journal of Economic Education, 33 (4), Fall 2002, 333-346.

Capital Movements: Curse or Blessing? (with Michael P. Dooley), in International Financial Markets: The Challenge of Globalization, L. Auernheimer (ed.), Chicago: University of Chicago Press, 2003, 79-102.

Commentary on “Are Contemporary Central Banks Transparent about Economic Models and Objectives and What Difference Does it Make?” Federal Reserve Bank of St. Louis Review, 84 (4), July/Aug. 2002, 37-45.

When Should Central Bankers Be Fired? Economics of Governance, 3 (1), 2002, 1-21.

Monetary Policy Design: Institutional Developments from a Contractual Perspective, International Finance, 3 (3), Nov. 2000, 375-389.

The Political Business Cycle after 25 Years: A Comment, Ben S. Bernanke and Kenneth Rogoff (eds.), NBER Macroeconomics Annual 2000, Cambridge, MA: The MIT Press, 124-135.

Credibilidad, desinflatión y contratos del Banco Central: qué se ha cumplido de la ley del Banco del la Reserva Federal en Nueva Zelands, (with Michael M. Hutchison), in Ensayos: sobre política económica. ¿Por qué es importante reducir la inflación y cómo lograrlo? Experiencias internacionales y lecciones para Colombia (Why is it Important to Reduce Inflation and How to Do it? The International Experience and Lessons for Columbia, Banco de la Republica, Columbia, Dec. 1999-June 2000, 105-135.

Academic Views of Capital Flows: An Expanding Universe, (with Michael P. Dooley), in Capital Flows and the International Financial System, David Gruen and Luke Gower (eds.), Reserve Bank of Australia, 1999, 89-108.

Market Discipline and Monetary Policy, Oxford Economic Papers, 52 (2000), 249-271.

Announcements, Inflation Targeting and Central Bank Incentives, Economica, 66 (1999), 255-269.

The Output-Inflation Tradeoff and Central Bank Reform: Evidence from New Zealand (with Michael M. Hutchison), The Economic Journal, 108, May 1998, 703-725.

Inflation and Central Bank Independence: Is Japan Really and Outlier? Bank of Japan Monetary and Economic Studies, 15 (1), May 1997, 89-117.

Financial Intermediaries and Business Cycles, in Encyclopedia of Business Cycles and

Depressions (with Peter Hartley), David Glasner (ed.), Garland Publishers, 1997, 231-233.

Central Bank Independence, Economic Behavior and Optimal Term Lengths (with Christopher J. Waller), American Economic Review, 86 (5), Dec. 1996, 1139-1153.

The Lender of Last Resort Function under a Currency Board: The Case of Argentina (with Gerard Caprio Jr., Michael P. Dooley and Danny Leipziger), Open Economy Review, vol. 7, 1996, 625-650. Reprinted in The Collapse of Exchange Rate Regimes: Causes, Consequences and Policy Responses, George S. Tavlas, editor, Boston: Kluwar Academic Publishers, 1997, 195-220.

How is Bank Lending Related to Output: Bank Credit and Economic Activity, with James A. Wilcox, in Is Bank Lending Important for the Transmission of Monetary Policy? J. Peek and E.S. Rosengren, editors, Federal Reserve Bank of Boston Conference Series, No. 39, June 1995, 83-112.

Price Stability as the Objective of Monetary Policy and Recent Central Bank Reforms, B. Bernanke and J. Rotemberg (eds.), NBER Macroeconomic Annual 1995, Cambridge: MIT Press, 237-252.

Is New Zealand's Reserve Bank Act of 1989 an Optimal Central Bank Contract?, Journal of Money, Credit and Banking, 27 (4), Nov. 1995, Part 1, 1179-1191.

Central Bank Independence and the Short-Run Output-Inflation Tradeoff in the EC, in Barry Eichengreen, Jeffrey Frieden and Jürgen von Hagan (eds.), Monetary and Fiscal Policy in an Integrated Europe, Springer Verlag, 1995, 12-37.

Optimal Contracts for Central Bankers, American Economic Review, 85 (1), March 1995, 150-167. Reprinted in Independent Central Banks and Economic Performance, S.C.W. Eijffinger (ed), volume 82 in the International Library of Critical Writings in Economics, series editor, M. Blaug, Edward Elgar Publishing, Ltd, 1997, 96-113. Reprinted in The Foundations of Monetary Economics, David Laidler (ed), Edward Elgar Publishing, Ltd, forthcoming.

Output Stability and Exchange Rate Regimes: the Japanese Experience, Kinyu Journal, (with Michael Hutchison), 1992 (4), 45-52.

Empirical Evidence on the Insulation Properties of Fixed and Flexible Exchange Rates: The Japanese Experience, Journal of International Economics, (with Michael Hutchison), 32, 1992, 241-263.

A Generalized Method of Moments Approach to Estimating a "Structural Vector Autoregression" (with Peter Hartley), Journal of Macroeconomics, 14 (2), Spring 1992, 199-232.

The New View of Banking, in: The New Palgrave Dictionary of Money and Finance, J. Eatwell, M. Milgate and P. Newman eds., London: The Macmillan Press, 1992, 31-33.

Base Drift, in: The New Palgrave Dictionary of Money and Finance, J. Eatwell, M. Milgate and P. Newman eds., London: The Macmillan Press, 1992, 183-184.

Inflation Inertia and Optimal Deflation, New Zealand Economic Papers, 25 (2), Dec. 1991, 141-150.

Neutrality Results for Government Asset Sales, New Zealand Economic Papers, 25 (2), Dec. 1991, 199-217.

Testing Intertemporal Budget Constraints: Theory and Applications to U.S. Federal Budget and Current Account Deficits (with Bharat Trehan), Journal of Money, Credit and Banking, 23 (2), May 1991, 206-223.

Debt Management, Price Stability and Monetary Policy, in: The Sesqui Conference Proceedings of the New Zealand Association of Economists, Vol. 2, 1991.

Inside Money and Monetary Neutrality (with Peter R. Hartley), Journal of Macroeconomics, 13 (3), Summer 1991, 395-416.

Reserve Bank's Approach Poses Risk, National Business Review, (New Zealand), September 19, 1990.

Issues in the Choice of Monetary Policy Operating Procedures, in Philip Cagan and William Haraf (eds.), Monetary Policy in a Changing Financial Environment, The AEI Press, Washington D.C., 1990, 8-37.

Seigniorage and Tax Smoothing in the United States: 1914 - 1986 (with Bharat Trehan), Journal of Monetary Economics, 25 (1), Jan. 1990, 97-112.

Testing for Real Effects of Monetary Policy Regime Shifts, Journal of Money, Credit and Banking, 20 (3), August 1988, Pt. 1, 393-401.

Common Trends, the Government's Budget Constraint, and Revenue Smoothing (with Bharat Trehan), Journal of Economic Dynamics and Control, 12 (1988), 425-444.

Financial Deregulation and Monetary Policy in New Zealand, in H. Cheng (ed.), Monetary Policy in the Pacific Basin, Kluwar Academic Press, 1988.

Real Interest Rates, Credit Markets, and Economic Stabilization, (with Paul Jenkins), Journal of Macroeconomics, 9 (1), Winter 1987, 95-108.

Portfolio Substitution and Recent M1 Behavior (with Bharat Trehan), Contemporary Policy Issues, 5 (1), January 1987, 54-63.

In Defense of Base Drift, American Economic Review, 76 (4), September 1986, 692-700.

Monetary Policy Regimes, Expected Inflation, and the Response of Interest Rates to Money Announcements (with V. Vance Roley), Quarterly Journal of Economics, 100, 1985, 1011-1039.

A Rational Expectations Model of Term Premia with Some Implications for Empirical Asset Demand Equations, Journal of Finance, 40 (1), March 1985, 63-83.

Unanticipated Money and Interest Rates (with V. Vance Roley), American Economic Review, 74 (2), May 1984, 49-54.

Interest Rate Volatility and Monetary Policy, Journal of Money, Credit, and Banking, 16 (2), May 1984, 133-150.

Taxation of Interest Income, Deregulation, and the Banking Industry, Journal of Finance, 38 (5), December 1983, 1529-1542.

Saving in Primitive Economies, American Anthropologist, 85 (3), September 1983, 644-650.

The Effects of Alternative Operating Procedures on Economic and Financial Relationships, in Monetary Policy in the 1980s, Proceedings of a Conference sponsored by the Federal Reserve Bank of Kansas City, 1983.

Asset Prices, Asset Stocks, and Rational Expectations, Journal of Monetary Economics, 11 (3), May 1983, 337- 349.

Asset Substitutability and Monetary Policy: An Alternative Characterization, Journal of Monetary Economics, 9 (1), January 1982, 59-71.

Unemployment in New Zealand: An Errors in Variables Approach to Estimating the Number of Unemployed -- A Reply, New Zealand Economic Papers, 1979, 196-201.

Unemployment in New Zealand: An Errors in Variables Approach to Estimating the Number of Unemployed, New Zealand Economic Papers, 1978, 12-48.

Reviews:

Interest and Prices—Foundations of a Theory of Monetary Policy: A Review Essay, Macroeconomic Dynamics 9, 2005, 462-468.

Central Bank Strategies, Credibility and Independence: A Review Essay, Journal of Monetary Economics, 32 (1993), 287-302.

Review of Monetarism and the Methodology of Economics, Journal of Economic Literature, 34, Sept. 1996, 1351-1353.

Review of Wealth Effects and Monetary Theory by Richard Sweeney, Journal of Economic Literature, 28, June 1990, 697-698.

Review of Monetary Policy and Rational Expectations by G. Macesich, Journal of Economic Literature, 27 (1), March 1989, 110-111.

FEDERAL RESERVE PUBLICATIONS:

What Caused the 1990 Recession?, Federal Reserve Bank of San Francisco Economic Review, 1993:2, 33-48.

Financial Intermediation, Monetary Policy, and Equilibrium Business Cycles (with Peter R. Hartley), Federal Reserve Bank of San Francisco Economic Review, Fall 1988, 19-28.

Three Questions Concerning Nominal and Real Interest Rates, Federal Reserve Bank of San

Francisco Economic Review, Fall 1987.

Monetary Targets and Inflation: 1976-1984, Federal Reserve Bank of San Francisco Economic Review, Winter 1987.

Policy Coordination and Financial Intermediaries: The 1986 Fall Academic Conference of the Federal Reserve Bank of San Francisco, (with Michael Keeley) Federal Reserve Bank of San Francisco Economic Review, Winter 1987, 31-45.

Revisions in the 'Flash' Estimates of GNP Growth: Measurement Error or Forecast Error?, Federal Reserve Bank of San Francisco Economic Review, Fall 1985, 31-45.

New Views of the Business Cycle: Has the Past Emphasis on Money been Misplaced?, Federal Reserve Bank of Philadelphia Business Review, Jan./Feb. 1986, 3-13. (reprinted in Readings in Macroeconomics, Ben Bernanke (ed.).)

Should the Federal Reserve Establish a Real Interest Rate Target?, Federal Reserve Bank of Kansas City Economic Review, June 1983, 22-33.

The Federal Reserve's Operating Procedures and Interest Rate Fluctuations, Federal Reserve Bank of Kansas City Economic Review, May 1982, 8-18.

FEDERAL RESERVE BANK OF SAN FRANCISCO ECONOMIC LETTERS:

- October 6, 1979, No 2004-35, December 2004.
 The Productivity and Jobs Connection: The Long and the Short-Run of It, No. 2004-18, July 16, 2004
 Precautionary Policies, No. 2004-05, Feb. 13, 2004.
 Minding the Speed Limit, No. 2003-14, May 30, 2003.
 The Role of Fiscal Policy, No. 2002-26, Sept. 6, 2002.
 The Changing Budget Picture, No. 2002-08, March 22, 2002.
 Transparency in Monetary Policy, No. 2001-26, September 2001.
 The Science (and Art) of Monetary Policy, No. 2001-13, May 4, 2001.
 Should Central Banks Stabilize Prices? No. 2000-24, August 11, 2000.
 Uncertainty and Monetary Policy, No. 2000-08, March 17, 2000.
 Projecting Budget Surpluses, No. 99-27, Sept. 10, 1999.
 Changes in the Business Cycle, No. 99-16, May 14, 1999.
 The Natural Rate, NAIRU, and Monetary Policy, No. 98-28, Sept. 18, 1998.
 U.S. Inflation Targeting: Pro and Con (with Glenn D. Rudebusch), No. 98-18, May 29, 1998.
 Central Bank Inflation Targeting (with Glenn D. Rudebusch), No. 98-17, May 22, 1998.
 The New Output-Inflation Trade-off, No. 98-04, Feb. 6, 1998.
 The Old Lady of Threadneedle Street Gets Her Independence, No. 97-25, Sept. 5, 1997.
 Nobel Views on Inflation and Unemployment, No. 97-01, January 10, 1997.
 Accountability in Practice: Recent Monetary Policy in New Zealand, No. 96-25, Sept. 9, 1996.
 Output-Inflation Tradeoffs and Central Bank Independence, No. 95-31, September 22, 1995.
 Unemployment, No. 95-29, September 8, 1995.
 A Primer on Monetary Policy Part II: Targets and Indicators, No. 94-28, August 19, 1994
 A Primer on Monetary Policy Part I: Goals and Instruments, No. 94-27, August 5, 1994

Is There a Cost to Having an Independent Central Bank?, No. 94-05, Feb. 4, 1994
 Federal Reserve Independence and the Accord of 1951, No. 93-21, May 28, 1993.
 EMU and the ECB, No. 92-23, June 5, 1992.
 Presidential Popularity, Presidential Policies (with Judy L. Newman), No. 92-05, Jan. 31, 1992.
 Public Preferences and Inflation, No. 91-29, August 30, 1991.
 The Credit Crunch and the Real Bills Doctrine, May 3, 1991.
 Credibility, Commitment and Inflation Policy, Nov. 23, 1990.
 Japan's Experience with Flexible Exchange Rates (with Michael Hutchison), May 4, 1990.
 Postwar Stability: Fact or Fiction?, October 13, 1989.
 Optimal Inflation (with Bharat Trehan), August 4, 1989.
 Do Deficits Cause Inflation (with Bharat Trehan), July 21, 1989.
 Interest Rate Smoothing, April 14, 1989.
 Monetary Policy in New Zealand, October 21, 1988.
 Deregulation in New Zealand, October 14, 1988.
 Do Deficits Matter?, January 15, 1988.
 Interest Rates and Exchange Rates, June 5, 1987.
 The Trade Balance and the Economic Outlook, March 6, 1987.
 Real Business Cycles, January 30, 1987.
 Forecasting Oil Prices, December 5, 1986.
 Projecting Deficits (with Jean Bursan), August 1, 1986.
 Tax Reform, July 11, 1986.
 Measuring Money, May 30, 1986.
 Selling Government Assets, May 16, 1986.
 Base Drift, February 7, 1986.
 Examining the Recent Surge in M1 (with Bharat Trehan), November 15, 1985.

AWARDS, AND GRANTS:

Listed in Who's Who in Economics, p. 867-868, 4th edition, M. Blaug and H. Vane (eds),
 London: Edward Elgar, 2003.
 Delegation of the European Commission in D.C. Conference on the Euro and the Dollar in a
 Globalized Economy.
 National Science Foundation Grant, "Contracting and Delegation in Monetary Policy Design,"
 1996-1998.
 Social Sciences Divisional Teaching Award, UCSC, 1995-96.
 National Science Foundation Grant, "The Contracting Approach to the Design of Monetary
 Policy," Grant SBR93-09518, 1993-1995.
 Center for German and European Studies, UC Berkeley, Political Economy of European
 Integration: Central Bank Independence and the Costs of Disinflation, 1994.
 Center for German and European Studies, UC Berkeley: Designing a European Central Bank,
 1992
 Fulbright Research Award: New Zealand Institute of Economic Research, 1990.
 UCSC Committee on Research: Real Business Cycles and Pacific Basin Linkages (with Michael
 Hutchison). 1988 - 1989.
 University of California Pacific Rim Research Program, "International Dimensions of Monetary
 Policy Experiences: Linkages Among Pacific Basin Nations," (with Sven Arndt, Maxwell Fry, and
 Michael Hutchison). 1987 - 1988.
 National Science Foundation Grant SES 84-08603, "Money and Interest Rates: The Role of
 Alternative Policy Regimes," (with V. Vance Roley). 1984 - 1987.

Social Science Research Council, Subcommittee on Economic Research. 1980.

EDUCATION:

1976 University of California, Berkeley. Ph.D., Economics.

1971 University of California, Berkeley. A.B., Mathematics and Economics.