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New Model Proves Effective in Tracking Productivity Growth

Economists in the second half of the 1990s debated whether the productivity gains observed in that period represented a long-term change in productivity's underlying trend or merely a cyclical increase. Adherents of the "new economy" saw these gains as a shift to permanently higher productivity growth, while others viewed them as a transient feature of the larger economic expansion. It was not until 2001, when productivity growth remained relatively strong despite the downturn in the economy, that the notion of a trend change won widespread acceptance.

In a new study ("Tracking Productivity in Real Time," ***Current Issues in Economics and Finance***, vol. 12, no. 8), authors James Kahn and Robert Rich develop a model for monitoring productivity growth that could potentially resolve such uncertainties in a much more timely way. Noting that the difficulty in identifying trend changes in productivity stems from the volatile short-term movements of this series, the authors include in their model two other series—real consumption expenditure and real labor compensation—that move together with productivity and can thus help uncover the trend.

The model itself is a "regime-switching" model that, at each point in time, yields an estimate of the probability of being in a high-growth or a low-growth productivity regime. Kahn and Rich first use the model to produce retrospective assessments of postwar trend productivity growth based on all the information that is now available. The model puts productivity in a high-growth regime (nearly 3 percent) from 1947 until 1973, a low-growth regime (1.3 percent) from 1973 to 1996, and a high-growth regime thereafter.

Kahn and Rich then use the model to produce estimates of productivity growth that are based solely on real-time data—the data historically available at each point in time. The extent to which these estimates accord with the retrospective estimates provides a measure of the model's usefulness to policymakers, who must make judgments about productivity without the benefit of hindsight. Significantly, these real-time estimates track the retrospective assessments fairly closely. In particular, they capture the shift to higher trend productivity growth that occurred around 1997: "Our model could have provided at least a preliminary sign within a year of when the change occurred and a conclusive signal within two years—well before any consensus had emerged," the authors note.

The authors suggest that, going forward, the model provides a means of monitoring—in real time—the risk of a shift to lower trend productivity growth. The model's most recent estimates, however, show that productivity is hewing to the high-growth path of roughly 3 percent. ■

New Titles in the *Staff Reports* Series

The following new Staff Reports are available at **www.newyorkfed.org/research/staff_reports**.

MACROECONOMICS AND GROWTH

No. 264, October 2006
Was the New Deal Contractionary?
Gauti B. Eggertsson

Can government policies that increase the monopoly power of firms and the militancy of unions increase output? This paper studies this question in a dynamic general equilibrium model with nominal frictions and shows that these policies are expansionary when certain "emergency" conditions apply. Eggertsson argues that these emergency conditions—zero interest rates and deflation—were satisfied during the Great Depression in the United States. Therefore, the New Deal, which facilitated monopolies and union militancy, was expansionary, according to the model. This conclusion is contrary to the one reached by Cole and Ohanian, who argue that the New Deal was

Publications and Papers

The Research and Statistics Group produces a wide range of publications:

- ***The Economic Policy Review***—a policy-oriented journal focusing on economic and financial market issues.
- ***EPR Executive Summaries***—online versions of selected ***Economic Policy Review*** articles, in abridged form.
- ***Current Issues in Economics and Finance***—concise studies of topical economic and financial issues.
- ***Second District Highlights***—a regional supplement to ***Current Issues***.
- ***Staff Reports***—technical papers intended for publication in leading economic and finance journals, available only online.
- ***Publications and Other Research***—an annual catalogue of our research output.

contractionary. The main reason for this divergence is that the current model incorporates nominal frictions so that inflation expectations play a central role in the analysis.

No. 270, December 2006

Trend Inflation and Inflation Persistence in the New Keynesian Phillips Curve

Timothy Cogley and Argia M. Sbordone

Empirical research has shown that purely forward-looking versions of the New Keynesian Phillips curve (NKPC) generate too little inflation persistence. This study offers a resolution of the persistence problem. Hypothesizing that inflation is highly persistent because of drift in trend inflation, Cogley and Sbordone derive a version of the NKPC as a log-linear approximation around a time-varying inflation trend and examine whether it explains deviations of inflation from that trend. The authors estimate the NKPC parameters jointly with those that define the inflation trend by estimating a vector autoregression with drifting coefficients and volatilities; the autoregressive parameters are constrained to satisfy the restrictions imposed by the NKPC. The authors find that trend inflation has historically been quite volatile and that a purely forward-looking model incorporating these fluctuations approximates well inflation's short-run dynamics.

INTERNATIONAL

No. 267, December 2006

Deflationary Shocks and Monetary Rules: An Open-Economy Scenario Analysis

Douglas Laxton, Papa N'Diaye, and Paolo Pesenti

This paper considers the macroeconomic transmission of demand and supply shocks in an open economy under alternative assumptions about whether the zero interest rate floor (ZIF) is binding. It uses a two-country simulation model calibrated to the Japanese economy relative to the rest of the world. Negative demand shocks have more prolonged and conspicuous effects on the economy when the ZIF is binding than when it is not binding. Positive supply shocks extend the period of time over which the ZIF may be expected to bind. Economies that are more open hit the ZIF for a shorter time, and with less harmful effects. The implications of deflationary supply shocks depend on whether the shocks are concentrated in the tradables or the nontradables sector.

Website News

- The Research Group's *Productivity Data and Analysis* web page is a source of timely information on productivity. The page features articles and papers by New York Fed economists, data and charts on productivity growth, and links to key resources outside the Bank.

  In addition, the page now offers regular updates of a real-time productivity trend model developed by economists James Kahn and Robert Rich. The model provides the latest five-year forecast of nonfarm productivity growth as well as the latest assessment of whether the U.S. economy is currently in a high- or low-growth regime.

www.newyorkfed.org/research/national_economy/nationalproductive.html

No. 268, December 2006

Would Protectionism Defuse Global Imbalances and Spur Economic Activity? A Scenario Analysis

Hamid Faruqee, Douglas Laxton, Dirk Muir, and Paolo Pesenti

In the evolving analysis of global imbalances, the possibility that countries will resort to increased protectionism is often mentioned but rarely analyzed. This study attempts to fill that gap, examining the macroeconomic implications of a shift to protectionist policies through the lens of a dynamic general equilibrium model of the world economy that encompasses four regional blocs. Simulation exercises are carried out to assess the consequences of imposing uniform and discriminatory tariffs on trading partners as well as the consequences of tariff retaliation. The authors also discuss a scenario in which a "globalization backlash" lowers the degree of competition in import-competing sectors, and compare the implications of higher markups in the product and labor markets.

No. 271, December 2006

Borrowing without Debt? Understanding the U.S. International Investment Position

Matthew Higgins, Thomas Klitgaard, and Cédric Tille

Sustained large U.S. current account deficits have prompted concerns that future current account adjustment could occur through a sudden depreciation of the dollar and a sharp drop in consumption. Two factors that, to date, have offset such concerns are the stability of U.S. net external liabilities and the minimal net income payments made by the nation on these liabilities. The authors show that the stability of the external position reflects sizable capital gains from strong foreign equity markets and a weaker dollar—conditions that could be reversed in the future. They also show that while minimal net income payments reflect a much higher rate of return on U.S. foreign direct investment (FDI) assets than on U.S. FDI liabilities, ongoing borrowing may well overwhelm this favorable rate of return, pushing the U.S. net income balance more deeply into deficit.

MICROECONOMICS

No. 269, December 2006

Disagreement and Learning in a Dynamic Contracting Model

Tobias Adrian and Mark M. Westerfield

Adrian and Westerfield present a dynamic contracting model in which the principal and the agent disagree about the resolution of uncertainty, and illustrate the contract design in an application with Bayesian learning. The disagreement creates gains from trade that the principal realizes by transferring payment to states that the agent considers relatively more likely. The principal's value function is convex in the underlying belief differences because the more optimistic the agent, the greater the incentives and the smaller the agent's required compensation. Under risk neutrality, selling the firm to the agent does not implement the first-best outcome, because it precludes state-contingent trades.

BANKING AND FINANCE

No. 262, October 2006

Price Discovery in the Foreign Currency Futures and Spot Market

Joshua V. Rosenberg and Leah G. Traub

Rosenberg and Traub compare price discovery in the foreign exchange futures and spot markets during a period in which the spot market was less transparent but had higher volume than the futures market. They develop a foreign exchange futures order flow measure that is a proxy for the order flow observed by Chicago Mercantile Exchange pit traders and find that both foreign currency futures and spot order flow contain unique information relevant to exchange rate determination. When the authors measure contributions to price discovery, they obtain results consistent with their order flow findings. Taken together, their evidence suggests that the amount of information contained in currency futures prices is much greater than one would expect based on relative market size.

No. 263, October 2006

Payment Networks in a Search Model of Money

Antoine Martin, Michael Orlando, and David Skeie

In a simple search model of money, the authors study a special kind of memory that gives rise to an arrangement resembling a payment network. Specifically, they assume that agents can pay a cost to access a central database that tracks payments made and received. Incentives must be provided to agents to access the central database and to produce when they participate in this arrangement. Martin, Orlando, and Skeie also study policies that can loosen these incentive constraints. In particular, they show that a "no-surcharge" rule has good incentive properties. Finally, they compare their model with that of Cavalcanti and Wallace.

No. 265, October 2006

Empirical Evaluation of Asset Pricing Models: Arbitrage and Pricing Errors over Contingent Claims

Zhenyu Wang and Xiaoyan Zhang

In a 1997 paper, Hansen and Jagannathan develop two pricing error measures for asset pricing models. The first measure is the maximum pricing error on given test assets, and the second measure is the maximum pricing error over all possible contingent claims. Wang and Zhang develop a simulation-based Bayesian inference of the pricing error measures. Although linear time-varying and multifactor models are widely reported to have small pricing errors on standard test assets, the authors demonstrate that these models can have large pricing errors over contingent claims because their stochastic discount factors are allowed to be negative and thus offer arbitrage opportunities.

No. 266, November 2006

Y2K Options and the Liquidity Premium in Treasury Bond Markets

Suresh Sundaresan and Zhenyu Wang

Financial institutions around the world expected the millennium date change to cause an aggregate liquidity shortage. Responding to concerns about this liquidity shortage, the Federal Reserve Bank of New York auctioned Y2K options to primary dealers. The options gave the dealers the right to borrow from the Fed at a predetermined interest rate. The implied volatilities of Y2K options and the aggressiveness of demand for these instruments reveal that the Fed's action eased the fears of bond dealers, contributing to a drop in the liquidity premium of Treasury securities. The authors' analysis shows the link between the microstructure of government debt prices and the central bank's provision of liquidity. Y2K options and their effects on liquidity premiums broadly conform to the economic theory and practice of the public provision of private liquidity. ■

Recently Published

Leonardo Bartolini. 2006. **"Cross-Country Differences in Monetary Policy Execution and Money Market Rates' Volatility,"** with Alessandro Prati. *European Economic Review* 50, no. 2: 349-76.

Nicola Cetorelli and Linda Goldberg. 2006. **"Risks in U.S. Bank International Exposures."** In Gerard Caprio, Jr., Douglas D. Evanoff, and George G. Kaufman, eds., *Cross-Border Banking: Regulatory Challenges*, 65-86. Chicago: World Scientific Publishing Company.

Gauti Eggertsson. 2006. **"The Mistake of 1937: A General Equilibrium Analysis,"** with Benjamin Pugsley. Special issue, *Monetary and Economic Studies* 24, no. S-1 (December): 151-207. Proceedings of the Bank of Japan's 13th International Conference on Financial Markets and the Real Economy in a Low Interest Rate Environment.

Linda Goldberg and Cédric Tille. 2006. **"The International Role of the Dollar and Trade Balance Adjustment."** Group of Thirty *Occasional Papers*, no. 71.

Andrew Haughwout. 2006. **"Tax Policy and the Fiscal Cost of Disasters: New York and 9/11,"** with Howard Chernick. *National Tax Journal* 59, no. 3 (September): 561-78. Papers and Proceedings of the National Tax Association Symposium.

Antoine Martin. 2006. **"Currency Competition: A Partial Vindication of Hayek,"** with Stacey Schreft. *Journal of Monetary Economics* 53, no. 8 (November): 2085-111.

Antoine Martin. 2006. **"Suboptimality of the Friedman Rule in Townsend's Turnpike and Limited Communication Models of Money: Do Finite Lives and Initial Dates Matter?"** with Joydeep Bhattacharya and Joseph H. Haslag. *Journal of Economic Dynamics and Control* 30, no. 5 (May): 879-97.

Jonathan McCarthy and Charles Steindel. 2006. **"Housing Activity, Home Values, and Consumer Spending."** In *Innovations in Real Estate Markets: Risks, Rewards, and the Role of Regulation*, 78-89. Proceedings of the Federal Reserve Bank of Chicago's 42nd Annual Conference on Bank Structure and Competition.

Hamid Mehran. 2006. **"An Introduction to the Governance and Taxation of Not-for-Profit Organizations,"** with Patrick Bolton. *Journal of Accounting and Economics* 41, no. 3 (September): 293-305.

Donald Morgan. 2006. **"The Credit Cycle and the Business Cycle: New Findings Using the Loan Officer Opinion Survey,"** with Cara Lown. *Journal of Money, Credit, and Banking* 38, no. 6 (September): 1575-97.

Stavros Peristiani. 2006. "**Financial Sector Weakness and the M2 Velocity Puzzle,"** with Cara Lown and Kenneth Robinson. *Economic Inquiry* 44, no. 4 (October): 699-715.

Paolo Pesenti. 2006. **"Deflationary Shocks and Monetary Rules: An Open-Economy Scenario Analysis,"** with Douglas Laxton and Papa N'Diaye. *Journal of the Japanese and International Economies* 20, no. 4 (December): 665-98.

João Santos. 2006. **"Why Firm Access to the Bond Market Differs over the Business Cycle: A Theory and Some Evidence."** *Journal of Banking and Finance* 30, no. 10 (October): 2715-36.

Asani Sarkar. 2006. **"Fifteen Minutes of Fame? The Market Impact of Internet Stock Picks,"** with Peter Antunovich. *Journal of Business* 79, no. 6 (November): 3209-51.

Cédric Tille. 2006. **"On the Distributional Effects of Exchange Rate Fluctuations."** *Journal of International Money and Finance* 25, no. 8 (December): 1207-25.

Joseph Tracy. 2006. **"Using Home Maintenance and Repairs to Smooth Variable Earnings,"** with Joseph Gyourko. *Review of Economics and Statistics* 88, no. 4 (November): 736-47. ■

Other New Publications

- ***The Research Group of the Federal Reserve Bank of New York***: This online guide, updated for 2006-07, offers economists interested in joining the Group a fuller understanding of our activities, our research and policy work, and our staff, structure, and functions.

  www.newyorkfed.org/research/research_group/index.html

- ***Publications and Other Research***: The 2006 edition of our catalogue lists all of the papers published in our research series as well as many papers published by our economists in economic and finance journals, conference volumes, and scholarly books.

  www.newyorkfed.org/research/publication_annuals/por2006.pdf

Papers Presented by Economists in the Research and Statistics Group

"Monetary Tightening Cycles and the Predictability of Economic Activity," Tobias Adrian. Conference on the Relation between Monetary Policy and Financial Markets, cosponsored by the Deutsche Bundesbank and the ZEW, Mannheim, Germany, November 24.

"Monetary Policy," Roc Armenter. la Caixa Research Center seminar, Barcelona, Spain, December 17. With Martin Bodenstein.

"Of Nutters and Doves," Roc Armenter. Universitat Autònoma de Bellaterra seminar, Barcelona, Spain, December 13. With Martin Bodenstein.

"Monetary Policy under Sudden Stops," Vasco Curdia. Seventh Annual Bank of Finland–Centre for Economic Policy Research Conference, Helsinki, Finland, November 3.

"Personal Bankruptcy and Credit Market Competition," Astrid Dick. INSEAD Business School seminar, Fontainebleau, France, November 27. Also presented at an HEC School of Management seminar, Jouy-en-Josas, France, November 29.

"Great Expectations and the End of the Depression," Gauti Eggertsson. Econometric Society Summer Meeting, Minneapolis, Minnesota, June 22.

"A Tale of Two Countries: Fiscal Multipliers and Policy Coordination," Gauti Eggertsson. NBER Japan Project, Tokyo, Japan, September 15.

"Was the New Deal Contractionary?" Gauti Eggertsson. University of Tokyo, Tokyo, Japan, September 11. Also presented at a Rutgers University seminar, New Brunswick, New Jersey, October 2.

"Fiscal and Monetary Rules for a Currency Union," Andrea Ferrero. European Commission conference, Brussels, Belgium, October 13.

"The Global Economy, Dollar Depreciation, and Implications for the U.S. Economy," Linda Goldberg. Universidad del Sagrado Corazon conference, Puerto Rico, October 20.

"Commitment and Equilibrium Bank Runs," Todd Keister. 2006 Latin American Meeting of the Econometric Society, Mexico City, Mexico, November 4. With Huberto Ennis. Also presented at a University at Albany (SUNY) Department of Economics seminar, November 10.

"Liquidity Saving Mechanisms," Antoine Martin and James McAndrews. University of Rome, European Workshop in Monetary Theory, Rome, Italy, October 28. Also presented at a Bank of Canada conference, Ottawa, Canada, November 17.

"Financial Visibility and the Decision to Go Private," Hamid Mehran and Stavros Peristiani. London Business School accounting symposium, London, England, July 22. Also presented at MIT's Sloan School of Management, Cambridge, Massachusetts, October 4, and the Center for Research in Security Prices, CRSP Forum 2006, Chicago, Illinois, October 30.

"Bankruptcy Abuse Prevention and the Consumer Protection Act: Means-Testing or Mean Spirited?" Donald Morgan. University of Kansas, Lawrence, Kansas, November 17. With Adam Ashcraft and Astrid Dick. Also presented at the Norwegian School of Management, Oslo, Norway, November 22, and the Norwegian School of Economics and Business Administration, Bergen, Norway, November 23.

"The Global Economy Model (GEM): Theoretical Framework," Paolo Pesenti. International Monetary Fund workshop, Washington, D.C., October 20.

"Would Protectionism Defuse Global Imbalances and Spur Economic Activity? A Scenario Analysis," Paolo Pesenti. Conference on International Macroeconomics, cosponsored by the University of Houston and the Federal Reserve Bank of Dallas, Houston, Texas, November 4. With Hamid Faruqee, Douglas Laxton, and Dirk Muir.

"The Information Content of FOMC Minutes," Joshua Rosenberg. NBER Market Microstructure Meeting, Boston, Massachusetts, October 6. With Ellyn Boukus. Also presented at the Securities and Exchange Commission, November 30.

"Firms and Flexibility," Ayşegül Şahin. University of Virginia Department of Economics seminar, Charlottesville, Virginia, November 28.

"Does Banks' Corporate Control Benefit Firms? Evidence from U.S. Banks' Control over Firms' Voting Rights," João Santos. Conference on Corporate Finance of Financial Intermediaries, cosponsored by the Review of Financial Studies and the Wharton School, Philadelphia, Pennsylvania, September 29. With Kristin Wilson. Also presented at the Conference on Bank Regulation and Corporate Finance, cosponsored by the Journal of Financial Intermediation and the World Bank, Washington, D.C., October 27.

"The Informativeness of Customer Order Flow following Macroeconomic Announcements," Asani Sarkar. Conference on the Microstructure of Equity and FX Markets, cosponsored by the Bank of Canada and Norges Bank, Ottawa, Canada, October 20. With Albert Menkveld and Michel van der Wel.

"Liquidity Spillovers and Cross-Autocorrelations," Asani Sarkar. Center for Research in Security Prices, CRSP Forum 2006, Chicago, Illinois, October 30. With Tarun Chordia and Avanidhar Subrahmanyam.

"Inflation Persistence: Alternative Interpretations and Policy Implications," Argia Sbordone. Carnegie Mellon–Rochester University Conference on Public Policy, Pittsburgh, Pennsylvania, November 10.

"Evolving Complexity of the Financial System," Til Schuermann. Bank for International Settlements, Financial Stability Institute Risk Management Conference, Basel, Switzerland, November 8.

"Firm Heterogeneity and Credit Risk Diversification," Til Schuermann. University of Pennsylvania Econometrics Workshop, Philadelphia, Pennsylvania, November 27. With Samuel G. Hanson and M. Hashem Pesaran.

"The Nexus of Market and Credit Risk: Liquidity Risk," Til Schuermann. Risk Magazine, Risk USA 2006 Conference, New York City, November 14.

"Money and Modern Banking without Bank Runs," David Skeie. Conference on Bank Regulation and Corporate Finance, cosponsored by the Journal of Financial Intermediation and the World Bank, Washington, D.C., October 26.

"International Capital Flows with Incomplete Markets," Cédric Tille. International Monetary Fund seminar, Washington, D.C., October 10.

"Place of Work and Place of Residence: Informal Hiring Networks and Labor Market Outcomes," Giorgio Topa. Fifty–Third Annual North American Meetings of the Regional Science Association International, Toronto, Canada, November 16. With Patrick Bayer and Stephen L. Ross.

"How Do Financial Frictions Shape the Product Market? Evidence from the Market for Home Mortgages," James Vickery. University of New South Wales, Australian Finance and Banking conference, Sydney, Australia, December 7.

"Recent Trends in the U.S. Mortgage Market," James Vickery. Australian Prudential Regulatory Authority, Sydney, Australia, December 5. ■

Research and Statistics Group Publications and Papers: October-December 2006

Publications are available at **www.newyorkfed.org/research/publication_annuals/index.html**.

ECONOMIC POLICY REVIEW

Forthcoming
The Emergence of "Regular and Predictable" as a Treasury Debt Management Strategy
Kenneth D. Garbade

Financial Sector FDI and Host Countries: New and Old Lessons
Linda S. Goldberg

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Leonardo Bartolini and Amartya Lahiri

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James A. Kahn and Robert W. Rich

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Recycling Petrodollars
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