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## **FIRM DYNAMICS, PRIVATE INFORMATION, AND THE GENERATION OF NEW TECHNOLOGY**

The authors present a theory of spinoffs in which the key ingredient is the originator's private information concerning the quality of his new idea. Because quality is privately observed, by the standard adverse-selection logic, the market can at best offer a price that reflects the average quality of ideas sold. This gives the holders of above-average-quality ideas the incentive to spin off. The authors show that only workers with very good ideas decide to spin off, while workers with mediocre ideas sell them. Entrepreneurs of existing firms pay a price for the ideas sold in the market that implies zero expected profits for them. Hence, firms' project selection is independent of firm size, which, under some additional assumptions, leads to scale-independent growth. The entry and growth process of firms leads to invariant firm-size distributions that resemble the ones for the U.S. economy and most of its individual industries.

*Working Paper 08-26, "Spinoffs and the Market for Ideas," Satyajit Chatterjee, Federal Reserve Bank of Philadelphia, and Esteban Rossi-Hansberg, Princeton University, and Visiting Scholar, Federal Reserve Bank of Philadelphia*

## **TESTING FOR DATA RATIONALITY**

Rationality of early release data is typically tested using linear regressions. Thus, failure to

reject the null does not rule out the possibility of nonlinear dependence. This paper proposes two tests that instead have power against generic nonlinear alternatives. A Monte Carlo study shows that the suggested tests have good finite sample properties. Additionally, the authors carry out an empirical illustration using a real-time data set for money, output, and prices. Overall, they find strong evidence against data rationality. Interestingly, for money stock, the null is not rejected by linear tests but is rejected by the authors' tests.

*Working Paper 08-27, "Information in the Revision Process of Real-Time Data Sets," Valentina Corradi, University of Warwick; Andres Fernandez, Rutgers University and Universidad de Los Andes; and Norman Swanson, Rutgers University, and Visiting Scholar, Federal Reserve Bank of Philadelphia*

## **NONRESPONSE BIAS IN CPI MEASURES FOR RENTS**

Until the end of 1977, the U.S. consumer price index for rents tended to omit rent increases when units had a change of tenants or were vacant, biasing inflation estimates downward. Beginning in 1978, the Bureau of Labor Statistics (BLS) implemented a series of methodological changes that reduced this nonresponse bias, but substantial bias remained until 1985. The authors set up a model of nonresponse bias, parameterize it, and test it

using a BLS micro-data set for rents. From 1940 to 1985, the official BLS CPI-W price index for tenant rents rose 3.6 percent annually; the authors argue that it should have risen 5.0 percent annually. Rents in 1940 should be only half as much as their official relative price; this has important consequences for historical measures of rent-house-price ratios and for the growth of real consumption. (Revision forthcoming in *Review of Economics and Statistics*.)

*Working Paper 08-28, "Rents Have Been Rising, Not Falling, in the Postwar Period," Theodore Crone, Swarthmore College; Leonard I. Nakamura, Federal Reserve Bank of Philadelphia; and Richard Voith, Econsult Corporation*

### DESIGNING MONETARY POLICY FOR THE EURO AREA

In this paper, the authors aim to design a monetary policy for the euro area that is robust to the high degree of model uncertainty at the start of monetary union and allows for learning about model probabilities. To this end, they compare and ultimately combine Bayesian and worst-case analysis using four reference models estimated with pre-EMU synthetic data. The authors start by computing the cost of insurance against model uncertainty, that is, the relative performance of worst-case or minimax policy versus Bayesian policy. While maximum insurance comes at moderate costs, they highlight three shortcomings of this worst-case insurance policy: (i) prior beliefs that would rationalize it from a Bayesian perspective indicate that such insurance is strongly oriented toward the model with highest baseline losses; (ii) the minimax policy is not as tolerant of small perturbations of policy parameters as the Bayesian policy; and (iii) the minimax policy offers no avenue for incorporating posterior model probabilities derived from data available since monetary union. Thus, the authors propose preferences for robust policy design that reflect a mixture of the Bayesian and minimax approaches. They show how the incoming EMU data may then be used to update model probabilities and investigate the implications for policy.

*Working Paper 08-29, "Insurance Policies for Monetary Policy in the Euro Area," Keith Kuester, Federal Reserve Bank of Philadelphia, and Volker Wieland, Goethe University of Frankfurt*

### CHOOSING THE OPTIMAL MONETARY POLICY INSTRUMENT

Currently there is a growing literature exploring the features of optimal monetary policy in New Keynesian models under both commitment and discretion. This literature usually solves for the optimal allocations that are consistent with a rational expectations market equilibrium, but it does not study how the policy can be implemented given the available policy instruments. Recently, however, King and Wolman (2004) have shown that a time-consistent policy cannot be implemented through the control of nominal money balances. In particular, they find that equilibria are not unique under a money stock regime. The authors of this paper find that King and Wolman's conclusion of non-uniqueness of Markov-perfect equilibria is sensitive to the instrument of choice. Surprisingly, if, instead, the monetary authority chooses the nominal interest rate, there exists a unique Markov-perfect equilibrium. The authors then investigate under what conditions a time-consistent planner can implement the optimal allocation by just announcing his policy rule in a decentralized setting.

*Working Paper 08-30, "On the Implementation of Markov-Perfect Interest Rate and Money Supply Rules: Global and Local Uniqueness," Michael Dotsey, Federal Reserve Bank of Philadelphia, and Andreas Hornstein, Federal Reserve Bank of Richmond*

### BUSINESS CYCLE COSTS AND FLUCTUATIONS IN UNEMPLOYMENT

This paper develops a real business cycle model with labor market search and matching frictions, which endogenously links both the cyclical fluctuations and the mean level of unemployment to the aggregate business cycle risk. The key result of the paper is that business cycles are costly for all consumers, regardless of their wealth, yet that unemployment fluctuations themselves are not the source of these costs. Rather fluctuations over the cycle induce higher average unemployment rates as employment is non-linear in job-finding rates and past unemployment. The authors first show this result analytically in special cases. They then calibrate a general equilibrium model with risk-averse asset-holding and liquidity-constrained workers to U.S. data. Also

under these more general circumstances, business cycles mean higher unemployment for all workers. The ensuing costs of cycles rise further for liquidity-constrained agents when replacement rates are lower or when workers' skills depend on the length of (un)employment spells.

*Working Paper 08-31, "The (Un)Importance of Unemployment Fluctuations for Welfare," Philip Jung, Mannheim University, and Keith Kuester, Federal Reserve Bank of Philadelphia*

### **DOES RESTRICTING ACCESS TO EXPENSIVE CREDIT HARM CONSUMERS?**

Many policymakers and some behavioral models hold that restricting access to expensive credit helps consumers by preventing overborrowing. The author examines some short-run effects of restricting access, using household panel survey data on payday loan users collected around the imposition of binding restrictions on payday loan terms in Oregon. The results suggest that borrowing fell in Oregon relative to Washington, with former payday loan users shifting partially into plausibly inferior substitutes. Additional evidence suggests that restricting access caused deterioration in the overall financial condition of the Oregon households. The results suggest that restricting access to expensive credit harms consumers, on average.

*Working Paper 08-32, "Restricting Consumer Credit Access: Household Survey Evidence on Effects Around the Oregon Rate Cap," Jonathan Zinman, Dartmouth College, and Visiting Scholar, Federal Reserve Bank of Philadelphia*

### **IS EFFICIENCY IMPORTANT IN UNDERSTANDING INSTITUTIONAL DEVELOPMENT?**

Are efficiency considerations important for understanding differences in the development of institutions? The authors model institutional quality as the degree to which obligations associated with exchanging capital can be enforced. Establishing a positive level of enforcement requires an aggregate investment of capital that is no longer available for production. When capital endowments are more unequally distributed, the bigger dispersion in marginal products makes it optimal to invest more resources in enforcement. The optimal allocation of

the institutional cost across agents is not monotonic and entails a redistribution of endowments before production begins. Investing in enforcement benefits primarily agents at the bottom of the endowment distribution and leads to a reduction in consumption and income inequality. Efficiency, redistribution, and the quality of institutions are thus intricately linked and should be studied jointly.

*Working Paper 08-33, "Efficient Institutions," Thorsten Koeppl, Queen's University; Cyril Monnet, Federal Reserve Bank of Philadelphia; and Erwan Quintin, Federal Reserve Bank of Dallas*

### **LABOR MARKETS' ROLE IN EURO AREA MONETARY POLICY**

In this paper, the authors explore the role of labor markets for monetary policy in the euro area in a New Keynesian model in which labor markets are characterized by search and matching frictions. They first investigate to which extent a more flexible labor market would alter the business cycle behavior and the transmission of monetary policy. They find that while a lower degree of wage rigidity makes monetary policy more effective, i.e., a monetary policy shock transmits faster onto inflation, the importance of other labor market rigidities for the transmission of shocks is rather limited. Second, having estimated the model by Bayesian techniques, the authors analyze to which extent labor market shocks, such as disturbances in the vacancy posting process, shocks to the separation rate, and variations in bargaining power, are important determinants of business cycle fluctuations. Their results point primarily towards disturbances in the bargaining process as a significant contributor to inflation and output fluctuations. In sum, the paper supports current central bank practice which appears to put considerable effort into monitoring euro area wage dynamics and which appears to treat some of the other labor market information as less important for monetary policy.

*Working Paper 09-1 "The Role of Labor Markets for Euro Area Monetary Policy," Kai Christoffel, European Central Bank, Frankfurt; Keith Kuester, Federal Reserve Bank of Philadelphia; and Tobias Linzert, European Central Bank, Frankfurt*

## LONG-TERM SOVEREIGN DEBT: ARGENTINA AS A TEST CASE

The authors present a novel and tractable model of long-term sovereign debt. They make two sets of contributions. First, on the substantive side, using Argentina as a test case they show that unlike one-period debt models, their model of long-term sovereign debt is capable of accounting for the average spread, the average default frequency, and the average debt-to-output ratio of Argentina over the 1991-2001 period without any deterioration in the model's ability to account for Argentina's cyclical facts. Using their calibrated model the authors determine what Argentina's debt, default frequency, and welfare would have been if Argentina had issued only short-term debt. Second, on the methodological side, the authors advance the theory of sovereign debt begun in Eaton and Gersovitz (1981) by establishing the existence of an equilibrium pricing function for long-term sovereign debt and by providing a fairly complete set of characterization results regarding equilibrium default and borrowing behavior. In addition, they identify and solve a computational problem associated with pricing long-term unsecured debt that stems from nonconvexities introduced by the possibility of default.

*Working Paper 09-2, "Maturity, Indebtedness, and Default Risk," Satyajit Chatterjee, Federal Reserve Bank of Philadelphia, Burcu Eyigungor, Koç University*

## WHOLESALE FUNDS, MARKET DISCIPLINE, AND LIQUIDITY RISKS

Commercial banks increasingly use short-term wholesale funds to supplement traditional retail deposits. The existing literature mainly points to the "bright side" of wholesale funding: sophisticated financiers can monitor banks, disciplining bad ones but refinancing solvent ones. This paper models a "dark side" of wholesale funding. In an environment with a costless but imperfect signal on bank project quality (e.g., credit ratings, performance of peers), short-term wholesale financiers have lower incentives to conduct costly information acquisition and instead may withdraw based on negative but noisy public signals, triggering inefficient liquidations. The authors show that the "dark side" of wholesale funding dominates the "bright side" when bank assets are more arm's length and tradable (leading to more relevant public signals and lower liquidation costs): precisely the attributes of a banking sector with securitizations and risk transfers. The results shed light on the recent financial turmoil, explaining why some wholesale financiers did not provide market discipline ex-ante and exacerbated liquidity risks ex-post.

*Working Paper 09-3, "The Dark Side of Wholesale Funding," Rocco Huang, Federal Reserve Bank of Philadelphia, and Lev Ratnovski, International Monetary Fund*