RESEARCH RAP

Abstracts of Recent Working Papers From the Federal Reserve Bank of Philadelphia

Issue 2007

HOUSEHOLD TRADING AND SEGMENTED MARKETS

The authors examine a monetary economy where households incur fixed transactions costs when exchanging bonds and money and, as a result, carry money balances in excess of current spending to limit the frequency of such trades. Since only a fraction of households choose to actively trade bonds and money at any given time, the market is endogenously segmented. Moreover, because households in this model economy have the ability to alter the timing of their trading activities, the extent of market segmentation varies over time in response to real and nominal shocks. The authors find that this added flexibility can substantially reinforce both sluggishness in aggregate price adjustment and the persistence of liquidity effects in real and nominal interest rates relative to that seen in models with exogenously segmented markets.

Working Paper 07-1, "Inflation and Interest Rates with Endogenous Market Segmentation," Aubhik Khan, Federal Reserve Bank of Philadelphia, and Julia Thomas, Federal Reserve Bank of Philadelphia

SEPARATION RATES AND UNEMPLOYMENT VARIABILITY: A REASSESSMENT

In a recent influential paper, Robert Shimer uses CPS duration and gross flow data to draw two conclusions: (1) separation rates are nearly acyclic; and (2) separation rates contribute little to the variability of unemployment. In this paper, the authors assert that Shimer's analysis is problematic, for two reasons: (1) cyclicality is not evaluated systematically; and (2) the measured contributions to unemployment variability do not actually decompose total unemployment variability. The authors address these problems by applying a standard statistical measure of business cycle co-movement and constructing a precise decomposition of unemployment variability. Their results disconfirm Shimer's conclusions. More specifically, separation rates are highly countercyclical under various business cycle measures and filtering methods. The authors also find that fluctuations in separation rates make a substantial contribution to overall unemployment variability.

Working Paper 07-2, "Reassessing the Shimer Facts," Shigeru Fujita, Federal Reserve Bank of Philadelphia, and Garey Ramey, University of California, San Diego

OVERCONFIDENCE IN FINANCIAL MARKETS AND CONSUMPTION

Overconfidence is a widely documented phenomenon. Empirical evidence reveals two types of over-confidence in financial markets: investors both overestimate the average rate of return to their assets and underestimate the uncertainty associated with the return.

This paper explores implications of overconfidence in financial markets for consumption over the life cycle. The authors obtain a closed-form solution to the time-inconsistent problem facing an overconfident investor/consumer who has a CRRA utility function. They use this solution to show that overestimation of the mean return gives rise to a hump in consumption during the work life if and only if the elasticity of intertemporal substitution in consumption is less than unit. They find that underestimation of uncertainty has little effect on the long-run average behavior of consumption over the work life. Their calibrated model produces a hump-shaped work-life consumption profile with both the age and the amplitude of peak consumption consistent with empirical observations.

Working Paper 07-3, "Overconfidence in Financial Markets and Consumption over the Life Cycle," Frank Caliendo, Colorado State University, and Kevin X. D. Huang, Vanderbilt University (formerly Federal Reserve Bank of Philadelphia)

CAPITAL AND MACROECONOMIC INSTABILITY

The authors establish the necessary and sufficient conditions for local real determinacy in a discrete-time production economy with monopolistic competition and a quadratic price adjustment cost under forward-looking policy rules, for the case where capital is in exogenously fixed supply and the case with endogenous capital accumulation. Using these conditions, they show that (1) indeterminacy is more likely to occur with a greater share of payment to capital in value-added production cost; (2) indeterminacy can be more or less likely to occur with constant capital than with variable capital; (3) indeterminacy is more likely to occur when prices are modeled as jump variables than as predetermined variables; (4) indeterminacy is less likely to occur with a greater degree of steady-state monopolistic distortions; and (5) indeterminacy is less likely to occur with a greater degree of price stickiness or with a higher steady-state inflation rate. In contrast to some existing research, the authors' analysis indicates that capital tends to lead to macroeconomic instability by affecting firms' pricing behavior in product markets rather than households' arbitrage activity in asset markets even under forward-looking policy rules.

Working Paper 07-4, "Capital and Macroeconomic Instability in a Discrete-Time Model with Forward-Looking Interest Rate Rules," Kevin X. D. Huang, Vanderbilt University (formerly Federal Reserve Bank of Philadelphia), and Qinglai Meng, Chinese University of Hong Kong

CYCLICALITY OF JOB LOSS, JOB FINDING, AND HIRING RATES

Drawing on CPS data, the authors show that total monthly job loss and hiring among U.S. workers, as well as job loss hazard rates, are strongly countercyclical, while job finding hazard rates are strongly procyclical. They also find that total job loss and job loss hazard rates lead the business cycle, while total hiring and job finding rates trail the cycle. In the current paper the authors use information from the Survey on Income and Program Participation (SIPP) to reevaluate these findings. SIPP data are used to construct new longitudinally consistent gross flow series for U.S. workers, covering 1983-2003. The results strongly validate the authors' findings, with two important exceptions: (1) total hiring leads the cycle in the SIPP data, and (2) the job loss rate is substantially more volatile than the job finding rate at business cycle frequencies.

Working Paper 07-5, "The Cyclicality of Worker Flows: New Evidence from the SIPP," Shigeru Fujita, Federal Reserve Bank of Philadelphia; Christopher J. Nekarda, University of California, San Diego; and Garey Ramey, University of California, San Diego

CONSIDERING THREE POINTS ABOUT PATENTS

The author uses intuition derived from several of his research papers to make three points. First, in the absence of a common law balancing test, application of uniform patentability criteria favors some industries over others. Policymakers must decide the optimal tradeoff across industries. Second, if patent rights are not closely related to the underlying inventions, more patenting may reduce R&D in industries that are both R&D and patent intensive. Third, for reasons largely unrelated to intellectual property, the U.S. private innovation system has become far more decentralized than it was a generation ago. It is reasonable to inquire whether a patent system that worked well in an era of more centralized innovation functions as well for the more decentralized environment of today.

Working Paper 07-6, "Economics and the Design of Patent Systems," Robert M. Hunt, Federal Reserve Bank of Philadelphia

IMPLICATIONS OF URBAN DENSITY FOR LABOR MARKET SEARCH AND MATCHING

This paper generalizes and extends the labor market search and matching model of Marcus Berliant, Robert Reed, and Ping Wang (2006). In this model, the density of cities is determined endogenously, but the matching process becomes more efficient as density increases. As a result, workers become more selective in their matches, and this raises average productivity (the intensive margin). Despite being more selective, the search process is more rapid so that workers spend more time in productive matches (the extensive margin). The effect of an exogenous increase in land area on productivity depends on the sensitivity of the matching function and congestion costs to changes in density.

Working Paper 07-7, "Matching Externalities and Inventive Productivity," Robert M. Hunt, Federal Reserve Bank of Philadelphia

MEASURING THE PERSONAL SAVING RATE

Is it possible to forecast using poorly measured data? According to the permanent income hypothesis, a low personal saving rate should predict rising future income (John Y. Campbell, 1987). However, the U.S. personal saving rate is initially poorly measured and has been repeatedly revised upward in benchmark revisions. The authors use both conventional and real-time estimates of the personal saving rate in vector autoregressions to forecast real disposable income; using the level of the personal saving rate in real time would have almost invariably made forecasts worse, but first differences of the personal saving rate are predictive. They also test the lay hypothesis that a low personal saving rate has implications for consumption growth and find no evidence of forecasting ability.

Working Paper 07-8, "Mismeasured Personal Saving and the Permanent Income Hypothesis," Leonard I. Nakamura, Federal Reserve Bank of Philadelphia, and Tom Stark, Federal Reserve Bank of Philadelphia

BASEL II AND ITS POTENTIAL COMPETITIVE EFFECTS

The authors analyze the potential competitive effects of the proposed Basel II capital regulations on U.S. bank credit card lending. They find that bank issuers operating under Basel II will face higher regulatory capital minimums than Basel I banks, with differences due to the way the two regulations treat reserves and gain-on-sale of securitized assets. During periods of normal economic conditions, this is not likely to have a competitive effect; however, during periods of substantial stress in credit card portfolios, Basel II banks could face a significant competitive disadvantage relative to Basel I banks and nonbank issuers.

Working Paper 07-9, "Competitive Effects of Basel II on U.S. Bank Credit Card Lending," William W. Lang, Federal Reserve Bank of Philadelphia; Loretta J. Mester, Federal Reserve Bank of Philadelphia and The Wharton School, University of Pennsylvania; and Todd A. Vermilyea, Federal Reserve Bank of Philadelphia

FORGIVE AND FORGET?

In many countries, lenders are not permitted to use information about past defaults after a specified period of time has elapsed. The authors model this provision and determine conditions under which it is optimal. They develop a model in which entrepreneurs must repeatedly seek external funds to finance a sequence of risky projects under conditions of both adverse selection and moral hazard. They show that forgetting a default makes incentives worse, ex-ante, because it reduces the punishment for failure. However, following a default it is generally good to forget because pooling riskier agents with safer ones makes exerting high effort to preserve their reputation more attractive.

The authors' key result is that if agents are sufficiently patient and low effort is not too inefficient, the optimal law would prescribe some amount of forgetting — that is, it would not permit lenders to fully use past information. The authors also show that such a law must be enforced by the government — no lender would willingly agree to forget. Finally, they also use their model to examine the policy debate that arose during the adoption of these rules.

Working Paper 07-10, "Bankruptcy: Is It Enough to Forgive or Must We Also Forget?," Ronel Elul, Federal Reserve Bank of Philadelphia, and Piero Gottardi, Università Ca' Foscari di Venezia

USING STATE-LEVEL DATA TO GAUGE EMPLOYMENT GROWTH VOLATILITY

This study documents a general decline in the volatility of employment growth during the period of 1960 to 2002 and examines its possible sources. A unique aspect of the analysis is the use of state-level panel data. Estimates from a pooled cross-section/time-series model indicate that aggregate and state-level factors each explain an important share of the total variation in state-level volatility. Specifically, state-level factors have contributed as much as 29 percent, while aggregate factors are found to account for up to 45 percent of the variation. With regard to state-level factors, the share of state total employment in manufacturing and state banking deregulation each contributed significantly to fluctuations in volatility. Among the aggregate factors separately identified, monetary policy, changes in the inventory-to-sales ratio, changes in the ratio of total trade to GDP, and oil prices significantly affected state-level volatility, although to differing degrees.

Working Paper 07-11, "The Long and Large Decline in State Employment Growth Volatility," Gerald Carlino, Federal Reserve Bank of Philadelphia; Robert DeFina, Villanova University and Visiting Scholar, Federal Reserve Bank of Philadelphia; and Keith Sill, Federal Reserve Bank of Philadelphia

U.S. LABOR MARKET: JOB LOSS, JOB FINDING, AND VACANCIES

This paper establishes robust cyclical features of the U.S. labor market by estimating VAR models of the job loss rate, job finding rate, and vacancies. To identify the "aggregate business cycle shock," the author adopts the agnostic Bayesian identification approach developed by Harald Uhlig (2005) and others. His approach traces not only responses of transition rates and vacancies but also those of gross job losses and hires and thereby the stock of unemployment in one unified framework. The author finds that when a negative shock occurs, (1) both the job loss rate and gross job losses rise quickly and remain persistently high, (2) the job finding rate and vacancies drop in a hump-shaped manner, and (3) gross hires respond little initially but eventually rise. He argues that these results point to the importance of job loss in understanding U.S. labor market dynamics. The paper also considers the "disaggregate model," which uses data disaggregated by six demographic groups and incorporates transitions into and out of the labor force. The author finds that job loss continues to play a dominant role among prime-age male workers, while, for other groups, changes in the job finding rate are more important.

Working Paper 07-12, "Dynamics of Worker Flows and Vacancies: Evidence from the Agnostic Identification Approach," Shigeru Fujita, Federal Reserve Bank of Philadelphia

ESTIMATING POVERTY TRENDS AMONG WORKING FAMILIES

This study provides empirical evidence on recent trends in poverty among working families based on the headcount rate and a broader alternative that incorporates the headcount rate, the depth of poverty, and income inequality among the poor. Estimates reveal that the indexes produce significantly different trends. The headcount rate indicates a reduction in overall working poverty for the sample period, while the alternative index showed no statistically significant change. The same result was found for various population subgroups. Decompositions of the index changes show that tax changes contributed to lower values for both the headcount rate and the alternative index, largely due to recent expansions of the earned income tax credit. Changes in transfer payments added to measured poverty, mirroring the retrenchment of welfare and other transfer programs. Shifts in market-based income decreased both indexes.

Working Paper 07-13, "A Comparison of Poverty Trends and Policy Impacts for Working Families Using Different Poverty Indexes," Robert H. DeFina, Villanova University and Visiting Scholar, Federal Reserve Bank of Philadelphia

DEBTORS' REPAYMENT BEHAVIOR AND LOW-RISK INSURANCE STATUS

The authors present a theory of unsecured consumer debt that does not rely on utility costs of default or on enforcement mechanisms that arise in repeated-interaction settings. The theory is based on private information about a person's type and on a person's incentive to signal his type to entities other than creditors. Specifically, debtors signal their low-risk status to insurers by avoiding default in credit markets. The signal is credible because in equilibrium people who repay are more likely to be the low-risk type and so receive better insurance terms. The authors explore two different mechanisms through which repayment behavior in the credit market can be positively correlated with low-risk status in the insurance market. Their theory is motivated in part by some facts regarding the role of credit scores in consumer credit and auto insurance markets.

Working Paper 07-14, "A Finite-Life Private-Information Theory of Unsecured Consumer Debt," Satyajit Chatterjee, Federal Reserve Bank of Philadelphia; Dean Corbae, University of Texas at Austin; and José-Víctor Ríos-Rull, University of Pennsylvania

FIRM DYNAMICS AND THE MARKET FOR IDEAS

The authors propose a theory of firm dynamics in which workers have ideas for new projects that can be sold in a market to existing firms or implemented in new firms: spin-offs. Workers have private information about the quality of their ideas. Because of an adverse selection problem, workers can sell their ideas to existing firms only at a price that is not contingent on their information. The authors show that the option to spin off in the future is valuable, so only workers with very good ideas decide to spin off and set up a new firm. Since entrepreneurs of existing firms pay a price for the ideas sold in the market that implies zero expected profits for them, firms' project selection is independent of their size, which, under some assumptions, leads to scale-independent growth. The entry and growth process of firms in this economy leads to an invariant distribution that resembles the one in the U.S. economy.

Working Paper 07-15, "Spin-Offs and the Market for Ideas," Satyajit Chatterjee, Federal Reserve Bank of Philadelphia, and Esteban Rossi-Hansberg, Princeton University

IMPLICATIONS OF MEANS-TESTING IN CHAPTER 7 BANKRUPTCY

The authors study, theoretically and quantitatively, the general equilibrium of an economy in which households smooth consumption by means of both a riskless asset and unsecured loans with the option to default. The default option resembles a bankruptcy filing under Chapter 7 of the U.S. Bankruptcy Code. Competitive financial intermediaries offer a menu of loan sizes and interest rates wherein each loan makes zero profits. The authors prove the existence of a steady-state equilibrium and characterize the circumstances under which a household defaults on its loans. They show that their model accounts for the main statistics regarding bankruptcy and unsecured credit while matching key macroeconomic aggregates and the earnings and wealth distributions. They use this model to address the implications of a recent policy change that introduces a form of "means-testing" for households contemplating a Chapter 7 bankruptcy filing. They find that this policy change yields large welfare gains. (Revision published in *Econometrica*, 75(6), 2007, pp. 1525-89.)

Working Paper 07-16, "A Quantitative Theory of Unsecured Consumer Credit with Risk of Default," Satyajit Chatterjee, Federal Reserve Bank of Philadelphia; Dean Corbae, University of Texas at Austin; Makoto Nakajima, University of Illinois; and José-Víctor Ríos-Rull, University of Pennsylvania

EFFECTS OF TRADE LIBERALIZATION ON WELFARE, TRADE, AND EXPORTS

The authors study a variation of Marc Melitz's (2003) model, a monopolistically competitive model with heterogeneity in productivity across establishments and fixed costs of exporting. They calibrate the model to match the employment size distribution of U.S. manufacturing establishments. Export participation in the calibrated model is then compared to the data on U.S. manufacturing exporters. With fixed costs of starting to export about 3.9 times as large as costs of continuing as an exporter, the model can match both the size distribution of exporters and transition into and out of exporting. The calibrated model is then used to estimate the effect of reducing tariffs on welfare, trade, and export participation. The authors find sizable gains to moving to free trade. Contrary to the view that the gains to lowering tariffs are larger in models with export decisions, they find that steady-state consumption increases by less in their benchmark model of exporting than in a similar model without fixed costs. However, they also find that comparisons of steady-state consumption understate the welfare gains to trade reform in models with fixed costs and overstate the welfare gains in models without fixed costs. With fixed costs, tariffs lead to an overaccumulation of product varieties which can be used more effectively along the transition to the new steady state. Thus, following trade liberalizations economic activity overshoots its steady state, with the peak in output coming 10 years after the trade reform. Finally, the authors explore the impact of the key modeling assumptions in the theoretical literature for quantitative results.

Working Paper 07-17, "Establishment Heterogeneity, Exporter Dynamics, and the Effects of Trade Liberalization," George Alessandria, Federal Reserve Bank of Philadelphia, and Horag Choi, University of Auckland

THE RELATIONSHIP BETWEEN ESTABLISHMENT AGE AND EMPLOYMENT GROWTH

This paper presents new evidence on the relationship between a metropolitan area's employment growth and its establishment age distribution. The author finds that cities with a relatively younger distribution of establishments tend to have higher growth, as well as higher job and establishment turnover. Geographic variations in the age distribution account for 38 percent of the geographic differences in growth, compared to the 32 percent accounted for by variations in industry composition. Differences are disproportionately accounted for by entrants and young (five years or younger) establishments. Furthermore, the relationship between age and growth is robust to controls for urban diversity and education. Overall, the results support a micro-foundations view of urban growth, where the benefits of agglomeration affect firms not through some production externality but through a process that determines which firms enter, exit, and thrive at a given location.

Working Paper 07-18, "The Relationship Between the Establishment Age Distribution and Urban Growth," R. Jason Faberman, Federal Reserve Bank of Philadelphia

FLUCTUATIONS IN SEPARATION RATES AND UNEMPLOYMENT

This paper uses CPS gross flow data, adjusted for margin error and time aggregation error, to analyze the business cycle dynamics of separation and job finding rates and to quantify their contributions to overall unemployment variability. Cyclical changes in the separation rate lead those of unemployment, while the job finding rate and unemployment move contemporaneously. Fluctuations in the separation rate explain between 40 and 50 percent of fluctuations in unemployment, depending on how the data are detrended. The authors' results suggest an important role for the separation rate in explaining the cyclical behavior of unemployment.

Working Paper 07-19, "The Cyclicality of Separation and Job Finding Rates," Shigeru Fujita, Federal Reserve Bank of Philadelphia, and Garey Ramey, University of California, San Diego

STANDARD SETTING, PATENTS, INTELLECTUAL PROPERTY, AND ELECTRONIC PAYMENT SYSTEMS

For many reasons, payment systems are subject to strong network effects; one of those is the necessity of interoperability among participants. This is often accomplished via standard-setting organizations. The goal of the Single European Payments Area (SEPA) is to establish modern cross-boarder consumer payment systems for Europe. This too will require a standard-setting arrangement. But patents are also becoming an important feature of electronic payment systems and thus standard setting under SEPA should incorporate a policy to address the ownership and licensing of essential intellectual property. Using examples from the experience of European mobile telephony and financial patenting in the United States, the authors argue that the lack of a well-developed IP policy creates significant risks for participants in the new SEPA payment systems.

Working Paper 07-20, "Intellectual Property Rights and Standard Setting in Financial Services: The Case of the Single European Payments Area," Robert M. Hunt, Federal Reserve Bank of Philadelphia; Samuli Simojoki, Attorneys at Law Borenius and Kemppinen; and Tuomas Takalo, Bank of Finland

PATENTS ON BUSINESS METHODS

Nearly a decade after the Federal Circuit decision in State Street, patents on computer-implemented methods of doing business have become commonplace. To date, there is little evidence of any effect on the rate of innovation or R&D among firms in financial services. Indeed, measuring such effects presents difficult problems for researchers. We do know that some of these patents are successfully licensed and others are the subject of ongoing litigation. Looking ahead, a number of recent Supreme Court decisions are likely to have a significant effect on how business method patents are enforced. Congress is also considering significant reforms to U.S. patent law.

Working Paper 07-21, "Business Method Patents for U.S. Financial Services," Robert M. Hunt, Federal Reserve Bank of Philadelphia

DESIGNING AN EFFICIENT PAYMENT SYSTEM

The authors study the design of efficient intertemporal payment arrangements when the ability of agents to perform certain welfare-improving transactions is subject to random and unobservable shocks. Efficiency is achieved via a payment system that assigns balances to participants, adjusts them based on the histories of transactions, and periodically resets them through settlement. The authors' analysis addresses two key issues in the design of actual payment systems. First, efficient use of information requires that agents participating in transactions that do not involve monitoring frictions subsidize those that are subject to such frictions. Second, the payment system should explore the tradeoff between higher liquidity costs from settlement and the need to provide intertemporal incentives. In order to counter a higher exposure to default, an increase in settlement costs implies that the volume of transactions must decrease but also that the frequency of settlement must increase.

Working Paper 07-22, "A Dynamic Model of the Payment System," Thorsten Koeppl, Queen's University; Cyril Monnet, Federal Reserve Bank of Philadelphia; and Ted Temzelides, University of Pittsburgh

POPULATION DENSITY AND OCCUPATIONAL CHANGES

Using U.S. census micro-data, the authors show that, on average, workers change occupation and industry less in more densely populated areas. The result is robust to standard demographic controls, as well as to including aggregate measures of human capital and sectoral mix. Analysis of the displaced worker surveys shows that this effect is present in cases of involuntary separation as well. On the other hand, the authors actually find the opposite result (higher rates of occupational and industrial switching) for the sub-sample of younger workers. These results provide evidence in favor of increasing-returns-to-scale matching in labor markets. Results from a back-of-the-envelope calibration suggest that this mechanism has an important role in raising both wages and returns to experience in denser areas.

Working Paper 07-23, "Thick-Market Effects and Churning in the Labor Market: Evidence from U.S. Cities," Hoyt Bleakley, University of Chicago, and Jeffrey Lin, Federal Reserve Bank of Philadelphia

PLANT AND AGGREGATE INVESTMENT DYNAMICS

The authors study a model of lumpy investment wherein establishments face persistent shocks to common and plant-specific productivity and nonconvex adjustment costs lead them to pursue generalized (S,s) investment rules. They allow persistent heterogeneity in both capital and total factor productivity alongside low-level investments exempt from adjustment costs to develop the first model consistent with the cross-sectional distribution of establishment investment rates. Examining the implications of lumpy investment for aggregate dynamics in this setting, the authors find that they remain substantial when factor supply considerations are ignored but are quantitatively irrelevant in general equilibrium.

The substantial implications of general equilibrium extend beyond the dynamics of aggregate series. While the presence of idiosyncratic shocks makes the time-averaged distribution of plant-level investment rates largely invariant to market-clearing movements in real wages and interest rates, the authors show that the dynamics of plants' investments differ sharply in their presence. Thus, model-based estimations of capital adjustment costs involving panel data may be quite sensitive to the assumption about equilibrium. The authors' analysis also offers new insights about how nonconvex adjustment costs influence investment at the plant. When establishments face idiosyncratic productivity shocks consistent with existing estimates, the authors find that nonconvex costs do not cause lumpy investments but act to eliminate them.

Working Paper 07-24, "Idiosyncratic Shocks and the Role of Nonconvexities in Plant and Aggregate Investment Dynamics," Aubhik Khan, Federal Reserve Bank of Philadelphia, and Julia K. Thomas, Federal Reserve Bank of Philadelphia and NBER

ADAPTING TO INNOVATION: WHERE DOES NEW WORK GO?

Where does adaptation to innovation take place? The supply of educated workers and local industry structure matter for the subsequent location of new work — that is, new types of labor-market activities that closely follow innovation. Using census 2000 micro-data, the author shows that regions with more college graduates and a more diverse industrial base in 1990 are more likely to attract these new activities. Across metropolitan areas, initial college share and industrial diversity account for 50 percent and 20 percent, respectively, of the variation in selection into new work unexplained by worker characteristics. He uses a novel measure of innovation output based on new activities identified in decennial revisions to the U.S. occupation classification system. New work follows innovation, but unlike patents, it also represents subsequent adaptations by production and labor to new technologies. Further, workers in new activities are more skilled, consistent with skill-biased technical change.

Working Paper 07-25, "Innovation, Cities, and New Work," Jeffrey Lin, Federal Reserve Bank of Philadelphia

DESIGNING AN OPTIMAL CARD-BASED PAYMENT SYSTEM WHEN CASH IS AN ALTERNATIVE

Payments are increasingly being made with payment cards rather than currency—this despite the fact that the operational cost of clearing a card payment usually exceeds the cost of transferring cash. In this paper, the authors examine this puzzle through the lens of monetary theory. They consider the design of an optimal card-based payment system when cash is available as an alternative means of payment and derive conditions under which cards will be preferred to cash. The authors find that a feature akin to the controversial "no-surcharge rule" may be necessary to ensure the viability of the card payment system. This rule, which is part of the contract between a card provider and a merchant, states that the merchant cannot charge a customer who pays by card more than a customer who pays by cash.

Working Paper 07-26, "Optimal Pricing of Payment Services When Cash Is an Alternative," Cyril Monnet, Federal Reserve Bank of Philadelphia, and William Roberds, Federal Reserve Bank of Atlanta

IMPLEMENTATION ISSUES AND OPTIMAL MONETARY POLICY

Currently there is a growing literature exploring the features of optimal monetary policy in New Keynesian models under both commitment and discretion. With respect to time-consistent policy, the literature focuses on solving for allocations. Recently, however, Robert G. King and Alexander L. Wolman (2004) have examined implementation issues involved under time-consistent policy when the monetary authority chooses nominal money balances. Surprisingly, they find that equilibria are no longer unique under a money stock regime. Indeed, there exist multiple steady states. Dotsey and Hornstein find that King and Wolman's conclusion of nonuniqueness of Markov-perfect equilibria is sensitive to the instrument of choice. If, instead, the monetary authority chooses the nominal interest rate rather than nominal money balances, there exists a unique Markov-perfect steady state and point-in-time equilibria are unique as well. Thus, in King and Wolman's language, monetary policy is implementable using an interest rate instrument, while it is not implementable using a money stock instrument.

Working Paper 07-27, "Interest Rate Versus Money Supply Instruments: On the Implementation of Markov-Perfect Optimal Monetary Policy," Michael Dotsey, Federal Reserve Bank of Philadelphia, and Andreas Hornstein, Federal Reserve Bank of Richmond

INNOVATION AND LOCAL ECONOMIC CHARACTERISTICS

This paper extends the research by Gerald Carlino, Satyajit Chatterjee, and Robert M. Hunt (2007) to examine the effects of local economic characteristics on the rate of innovation (as measured by patents) in more than a dozen industries. The availability of human capital is perhaps the most important factor explaining the invention rate for most industries. The authors find some evidence that higher job market density is associated with more patenting in industries such as pharmaceuticals and computers. They find evidence of increasing returns with respect to city size (total jobs) for many industries and more modest effects for increases in the size of an industry in a city. This suggests that inter-industry spillovers are often at least as important as intra-industry spillovers in explaining local rates of innovation. A more competitive local market structure, characterized by smaller establishments, contributes significantly to patenting in nearly all industries. More often than not, specialization among manufacturing industries is not particularly helpful, but the authors find the opposite for specialization among service industries. Industries benefit from different local sources of R&D (academia, government labs, and private labs) and to varying degrees.

Working Paper 07-28, "Innovation Across U.S. Industries: The Effects of Local Economic Characteristics," Gerald A. Carlino, Federal Reserve Bank of Philadelphia, and Robert M. Hunt, Federal Reserve Bank of Philadelphia

VIOLATING PPP ACROSS COUNTRIES

The authors show that deviations from the law of one price in tradable goods are an important source of violations of absolute PPP across countries. Using highly disaggregated export data, they document systematic international price discrimination: At the U.S. dock, U.S. exporters ship the same good to low-income countries at lower prices. This pricing-to-market is about twice as important as any local nontraded inputs, such as distribution costs, in explaining the differences in tradable prices across countries. The authors propose a model of consumer search that generates pricing-to-market. In this model, consumers in low-income countries have a comparative advantage in producing nontraded, nonmarket search activities and therefore are more price sensitive than consumers in high-income countries. The authors present cross-country time-use evidence and evidence from U.S. export prices that are consistent with the model.

Working Paper 07-29, "Pricing-to-Market and the Failure of Absolute PPP," George Alessandria, Federal Reserve Bank of Philadelphia, and Joseph Kaboski, Ohio State University

CYCLICAL PROPERTIES OF THE PRIVATE RISK PREMIUM

This paper studies cyclical properties of the private risk premium in a model where a continuum of heterogeneous entrepreneurs are subject to aggregate as well as idiosyncratic risks, both of which are assumed to be highly persistent. The calibrated model matches highly skewed wealth and income distributions of entrepreneurs found in the Survey of Consumer Finances. The authors provide an accurate numerical solution to the model, even though the model is shown to exhibit serious nonlinearities that are absent in incomplete market models with idiosyncratic labor income risk. The model is able to generate the aggregate private risk premium of 2 to 3 percent and the low risk-free rate. However, it generates very little variation in these variables over the business cycle, suggesting that the model lacks the ability to amplify aggregate shocks.

Working Paper 07-30, "Private Risk Premium and Aggregate Uncertainty in the Model of Uninsurable Investment Risk," Francisco Covas, Board of Governors of the Federal Reserve System, and Shigeru Fujita, Federal Reserve Bank of Philadelphia

PERSONAL BANKRUPTCY FILINGS UNDER CHAPTER 13

By compiling a novel data set from bankruptcy court dockets recorded in Delaware between 2001 and 2002, the authors build and estimate a structural model of Chapter 13 bankruptcy. This allows them to quantify how key debtor characteristics, including whether they are experiencing bankruptcy for the first time, their past-due secured debt at the time of filing, and income in excess of that required for basic maintenance, affect the distribution of creditor recovery rates. The analysis further reveals that changes in debtors' conditions during bankruptcy play a nontrivial role in governing Chapter 13 outcomes, including their ability to obtain a financial fresh start. The authors' model then predicts that the more stringent provisions of Chapter 13 recently adopted, in particular those that force subsets of debtors to file for long-term plans, do not materially raise creditor recovery rates but make discharge less likely for that subset of debtors. This finding also arises in the context of alternative policy experiments that require bankruptcy plans to meet stricter standards in order to be confirmed by the court.

Working Paper 07-31, "The Anatomy of U.S. Personal Bankruptcy Under Chapter 13," Hülya Eraslan, University of Pennsylvania; Wenli Li, Federal Reserve Bank of Philadelphia; and Pierre-Daniel Sarte, Federal Reserve Bank of Richmond

ESTIMATING PAYMENT NETWORK SCALE ECONOMIES FOR EUROPE

The goal of SEPA (Single Euro Payments Area) is to facilitate the emergence of a competitive, intra-European market by making cross-border payments as easy as domestic transactions. With cross-border interoperability for electronic payments, card transactions will increasingly replace cash and checks for all types of payments. Using different methods, the authors estimate card and other payment network scale economies for Europe. These indicate substantial cost efficiency gains if processing is consolidated across borders rather than "piggybacked" onto existing national operations. Cost reductions likely to induce greater replacement of small value cash transactions are also illustrated.

Working Paper 07-32, "Payment Network Scale Economies, SEPA, and Cash Replacement," Wilko Bolt, De Nederlandsche Bank, and David Humphrey, Florida State University, and Visiting Scholar, Federal Reserve Bank of Philadelphia

NET WORTH AND HOUSING EQUITY AMONG RETIREES

This paper documents the trends in the life-cycle profiles of net worth and housing equity between 1983 and 2004. The net worth of older households significantly increased during the housing boom of recent years. However, net worth grew by more than housing equity, in part because other assets also appreciated at the same time. Moreover, the younger elderly offset rising house prices by increasing their housing debt and used some of the proceeds to invest in other assets. The authors also consider how much of their housing equity older households can actually tap, using reverse mortgages. This fraction is lower at younger ages, such that young retirees can consume less than half of their housing equity. These results imply that "consumable" net worth is smaller than standard calculations of net worth.

Working Paper 07-33, "Net Worth and Housing Equity in Retirement," Todd Sinai, The Wharton School, University of Pennsylvania, and NBER, and Nicholas Souleles, The Wharton School, University of Pennsylvania, NBER, and Visiting Scholar, Federal Reserve Bank of Philadelphia

CONSUMERS' RESPONSES TO THE 2001 TAX REBATES

The authors use a new panel data set of credit card accounts to analyze how consumers responded to the 2001 federal income tax rebates. They estimate the monthly response of credit card payments, spending, and debt, exploiting the unique, randomized timing of the rebate disbursement. They find that, on average, consumers initially saved some of the rebate by increasing their credit card payments and thereby paying down debt. But soon afterward their spending increased, counter to the canonical permanent-income model. Spending rose most for consumers who were initially most likely to be liquidity constrained, whereas debt declined most (so saving rose most) for unconstrained consumers. More generally, the results suggest that there can be important dynamics in consumers' response to "lumpy" increases in income like tax rebates, working in part through balance-sheet (liquidity) mechanisms.

Working Paper 07-34, "The Reaction of Consumer Spending and Debt to Tax Rebates: Evidence from Consumer Credit Data," Sumit Agarwal, Federal Reserve Bank of Chicago; Chunlin Liu, University of Nevada, Reno; and Nicholas S. Souleles, The Wharton School, University of Pennsylvania, NBER, and Visiting Scholar, Federal Reserve Bank of Philadelphia