



# RESEARCH UPDATE

These working papers present preliminary findings of research conducted by Philadelphia Fed economists, analysts, and visiting scholars. Visit our website for more **abstracts** and **papers**.

## THE PERILS OF NOMINAL TARGETS

A monetary authority can be committed to pursuing an inflation, price-level, or nominal-GDP target yet systematically fail to achieve the prescribed goal. Constrained by the zero lower bound on the policy rate, the monetary authority is unable to implement its objectives when private-sector expectations stray far enough from the target. Low-inflation expectations become self-fulfilling, resulting in an additional Markov equilibrium in which the monetary authority falls short of the nominal target, average output is below its efficient level, and the policy rate is typically low. Introducing a stabilization goal for long-term nominal rates can implement a unique Markov equilibrium without fully compromising stabilization policy.

*Working Paper 16–30. Roc Armenter, Federal Reserve Bank of Philadelphia Research Department. Supersedes Working Paper 14–02/R.*

## REGULATING A MODEL

The authors study a situation in which a regulator relies on models produced by banks in order to regulate them. A bank can generate more than one model and choose which models to reveal to the regulator. The regulator can find out the other models by monitoring the bank, but, in equilibrium, monitoring induces the bank to produce less information. The authors show that a high level of monitoring is desirable when the bank's private gain from producing more information is either sufficiently high or sufficiently low (e.g., when the bank has a very little or very large amount of debt). When public models are more precise, banks produce more information, but the regulator may end up monitoring more.

*Working Paper 16–31. Yaron Leitner, Federal Reserve Bank of Philadelphia Research Department; Bilge Yilmaz, University of Pennsylvania Wharton School.*

## AGGREGATE LIQUIDITY MANAGEMENT

It has been largely acknowledged that monetary policy can affect borrowers and lenders differently. This paper

investigates whether the distributional effects of monetary policy are an inherent feature of monetary economies with private credit instruments. In the authors' framework, both money and credit instruments can potentially be used as media of exchange to overcome trading frictions in decentralized markets. Entrepreneurs have access to productive projects but face credit constraints due to limited pledgeability of their returns. Monetary policy affects the liquidity premium on private credit and thereby influences the cost of borrowing and the level of investment, but any attempt to ease borrowing constraints results in suboptimal decentralized-market trading activity. The authors show that this policy trade-off is not an inherent feature of monetary economies with private credit instruments. If they consider a richer set of aggregate liquidity management instruments, such as the payment of interest on inside money and capital requirements, it is possible to implement an efficient allocation.

*Working Paper 16–32. Todd Keister, Rutgers University; Daniel Sanches, Federal Reserve Bank of Philadelphia Research Department.*

## EXCESS RESERVES AND MONETARY POLICY IMPLEMENTATION

In response to the Great Recession, the Federal Reserve resorted to several unconventional policies that drastically altered the landscape of the federal funds market. The current environment, in which depository institutions are flush with excess reserves, has forced policymakers to design a new operational framework for monetary policy implementation. The authors provide a parsimonious model that captures the key features of the current federal funds market along with the instruments introduced by the Federal Reserve to implement its target for the federal funds rate. They use this model to analyze the factors that determine rates and volumes under the new implementation framework and to study the effects of changes in the policy rates and other shocks to the economic environment. The authors also calibrate the

model and use it as a quantitative benchmark for applied analysis, with a particular emphasis on understanding the role of the overnight reverse repurchase agreement facility in supporting the federal funds rate.

*Working Paper 16–33. Roc Armenter, Federal Reserve Bank of Philadelphia Research Department; Benjamin Lester, Federal Reserve Bank of Philadelphia Research Department. Supersedes Working Paper 15–35/R.*

### **FAMILY JOB SEARCH AND WEALTH: THE ADDED WORKER EFFECT REVISITED**

The authors develop and estimate a model of family job search and wealth accumulation. Individuals' job finding and job separations depend on their partners' job turnover and wages as well as common wealth. They fit this model to data from the Survey of Income and Program Participation (SIPP). This dataset reveals a very asymmetric labor market for household members, who share that their job finding is stimulated by their partners' job separation, particularly during economic downturns. The authors uncover a job search-theoretic basis for this added worker effect and find that this effect is stronger with more children in the household. They also show that excluding wealth and savings from the analysis and estimation leads to underestimating the interdependency between household members. Their analysis shows that the policy goal of supporting job search by increasing unemployment transfers is partially offset by a partner's lower unemployment and wages.

*Working Paper 16–34. J. Ignacio García-Pérez, Universidad Pablo de Olavide and FEDEA; Silvio Rendon, Federal Reserve Bank of Philadelphia Supervision, Regulation, and Credit.*

### **A TRACTABLE MODEL OF THE DEMAND FOR RESERVES UNDER NONLINEAR REMUNERATION SCHEMES**

The author proposes a tractable model of the demand for reserves under nonlinear remuneration schemes that can encompass quota systems and voluntary reserve target frameworks, among other possibilities. He shows how such remuneration schemes have several favorable properties regarding interest-rate control by the central bank. In particular, wider tolerance bands can reduce rate volatility due to variations in the supply of reserves, both large and small, although they may curtail trading in the inter-bank market.

*Working Paper 16–35. Roc Armenter, Federal Reserve Bank of Philadelphia Research Department.*

### **INCUMBENCY DISADVANTAGE IN U.S. NATIONAL POLITICS**

The authors document that postwar U.S. national elections show a strong pattern of “incumbency disadvantage”: If the presidency has been held by a party for some time, that party tends to lose seats in Congress. A model of partisan politics with policy inertia and elections is presented to explain this finding. The authors also find that the incumbency disadvantage comes sooner for Democrats than Republicans. Based on the observed Democratic bias in Congress (Democrats, on average, hold more seats in the House and Senate than Republicans), the model also offers an explanation for the second finding.

*Working Paper 16–36. Satyajit Chatterjee, Federal Reserve Bank of Philadelphia Research Department; Burcu Eyigungor, Federal Reserve Bank of Philadelphia Research Department.*

### **ENDOGENOUS POLITICAL TURNOVER AND FLUCTUATIONS IN SOVEREIGN DEFAULT RISK**

A sovereign default model in which the sovereign derives private benefits from public office and contests elections to stay in power is developed. The economy's growth process is modeled as a Markov switching regime, which is shown to be a better description of the data for the authors' set of emerging economies. In the model, consistent with evidence, the sovereign is less likely to be reelected if economic growth is weak. In the low-growth regime, there is higher probability of loss of private benefits due to turnover, which makes the sovereign behave more myopically. This growth-linked variation in effective discount factor is shown to be important in generating volatility in sovereign spreads.

*Working Paper 17–01. Satyajit Chatterjee, Federal Reserve Bank of Philadelphia Research Department; Burcu Eyigungor, Federal Reserve Bank of Philadelphia Research Department.*

### **MODELING THE REVOLVING REVOLUTION: DEBT COLLECTION CHANNEL**

The authors investigate the role of information technology (IT) in the collection of delinquent consumer debt. They argue that the widespread adoption of IT by the debt collection industry in the 1990s contributed to the observed expansion of unsecured risky lending such as credit cards. The authors' model stresses the importance of delinquency and private information about borrower solvency. The prevalence of delinquency implies that the costs of debt collection must be borne by lenders to sustain incentives to repay debt. IT mitigates informational asymmetries,

allowing lenders to concentrate collection efforts on delinquent borrowers who are more likely to repay.

*Working Paper 17–02. Lukasz A. Drozd, Federal Reserve Bank of Philadelphia Research Department; Ricardo Serrano-Padial, Drexel University.*

*Supersedes Working Paper 13–12.*

### **NATURAL AMENITIES, NEIGHBORHOOD DYNAMICS, AND PERSISTENCE IN THE SPATIAL DISTRIBUTION OF INCOME**

The authors present theory and evidence highlighting the role of natural amenities in neighborhood dynamics, suburbanization, and variation across cities in the persistence of the spatial distribution of income. Their model generates three predictions that they confirm using a novel database of consistent-boundary neighborhoods in U.S. metropolitan areas, 1880–2010, and spatial data for natural features such as coastlines and hills. First, persistent natural amenities anchor neighborhoods to high incomes over time. Second, naturally heterogeneous cities exhibit persistent spatial distributions of income. Third, downtown neighborhoods in coastal cities were less susceptible to the widespread decentralization of income in the mid-20th century and experienced an increase in income more quickly after 1980.

*Working Paper 17–03. Sanghoon Lee, University of British Columbia; Jeffrey Lin, Federal Reserve Bank of Philadelphia Research Department.*

*Supersedes Working Paper 15–46.*

### **OPTIMAL DOMESTIC (AND EXTERNAL) SOVEREIGN DEFAULT**

Infrequent but turbulent episodes of outright sovereign default on domestic creditors are considered a “forgotten history” in macroeconomics. The authors propose a heterogeneous-agents model in which optimal debt and default on domestic and foreign creditors are driven by distributional incentives and endogenous default costs due to value of debt for self-insurance, liquidity, and risk-sharing. The government’s aim to redistribute resources across agents and through time in response to uninsurable shocks produces a rich dynamic feedback mechanism linking debt issuance, the distribution of government bond holdings, the default decision, and risk premia. Calibrated to Spanish data, the model is consistent with key cyclical comovements and features of debt-crisis dynamics. Debt exhibits protracted fluctuations. Defaults have a low frequency of 0.93 percent, are preceded by surging debt and spreads, and occur with relatively low external debt. Default risk limits the sustainable debt, and yet spreads are zero most of the time.

*Working Paper 17–04. Pablo D’Erasmus, Federal Reserve Bank of Philadelphia Research Department; Enrique G. Mendoza, University of Pennsylvania, National Bureau of Economic Research, Penn Institute for Economic Research.*