RESEARCH RAP

A Wrap-Up of Recent Working Papers From the Federal Reserve Bank of Philadelphia

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ABSORBING LOCAL SHOCKS IN LABOR SUPPLY

Immigration to the U.S. in recent decades has been substantial and geographically concentrated. Nevertheless, research consistently finds little evidence that it has a major impact on the wages and employment rates of the native population in areas where immigrants settle. Though some recent evidence suggests that immigration may depress wages nationally, the mechanism by which local labor markets in the U.S. adjust to immigration remains largely a mystery.

This paper evaluates two hypotheses that might explain the apparent lack of local impact of immigration. The first is that local markets adjust to immigration by specializing in traded industries that use immigrant skills — for example, apparel in low-skill immigrant areas. The second is that local markets adjust by adapting their production technology to the skills of the immigrants. Using detailed data, this paper tests these alternatives by examining how industries in U.S. metropolitan areas adapted to immigration-driven changes in the skill mix of their workers during the 1980s.

The author shows that there was little industry specialization in response to immigration. Instead, industries in high immigration areas hired proportionately more of the type of labor supplied by local immigrants than the same industries did in other markets. In addition, a measure of skilled technological change — on-the-job computer use — grew more quickly over the 1980s (among otherwise similar workers) in metropolitan areas experiencing larger increases in the share of skilled workers.

Working Paper No. 04-1, "Local Open Economies within the U.S.: How Do Industries Respond to Immigration?" Ethan Lewis, Federal Reserve Bank of Philadelphia

HUMAN CAPITAL AND THE GROWTH OF CITIES

Past research has found that an educated urban population is a predictor of future growth. Can we discover a causal relationship between education and growth? If so, how does education induce urban growth? Is a skilled population more productive? Does it demand more and better amenities, making the area more attractive to others?

In this paper, Edward Glaeser and Albert Saiz first test whether the skills-growth correlation is spurious and confirm that it is not. The authors find that higher skill levels increase metropolitan growth because higher human capital leads to higher productivity. Higher levels of education predict higher future wages and housing price growth. In small municipalities within metropolitan areas, a low level of human capital, as measured by the share of high school dropouts, predicts urban decline.

The authors then test two hypotheses that link human capital and productivity:

the Information City hypothesis and the Reinvention City hypothesis. According to the Information City view, cities exist to facilitate the flow of ideas, and skills should matter for growth among all types of cities. According to the Reinvention City view, cities survive only by adapting their economies to new technologies. In other words, cities must constantly reinvent themselves, and skills should matter for growth only among cities that have received some kind of negative shock. The authors find empirical support for the Reinvention City hypothesis, but not for the Information City hypothesis.

Working Paper No. 04-2, "The Rise of the Skilled City," Edward L. Glaeser, Harvard University and NBER, and Albert Saiz, University of Pennsylvania

ECONOMIC REACTION TO THE MARIEL BOATLIFT

A series of political events in 1980 led 100,000 Cubans to leave for the U.S. in what is commonly known as the Mariel boatlift. The Mariel immigrants settled primarily in Miami, leading to a significant expansion of the city's labor force. In a careful analysis, David Card (1990) found that the Mariel boatlift had surprisingly little impact on the wages and employment of Miami's existing less-skilled workers, though Cubans tended to compete with other minorities for similar jobs. These findings contradict the simple model of supply and demand for labor.

This paper investigates how Miami's labor market adapted to the boatlift, hoping to gain more general insight into how U.S. labor markets adapt to immigration. Lewis explores two competing theories. Trade theory posits that, in response to the boatlift, Miami industry may have become more specialized in traded sectors (like apparel) where less-skilled labor was commonly used in production. If this occurred, it would have effectively allowed Miami to "export" the impact of the boatlift to other cities. The technology theory, by contrast, supposes that Miami industry, regardless of sector, would respond to the boatlift by changing production methods to make productive use of less-skilled labor (for example, by failing to adopt new automated production technologies).

Using detailed annual data on the manufacturing sector, the author finds little evidence in favor of the trade theory: trends in manufacturing mix from the 1970s to the 1980s are quite similar in Miami and comparable cities. However, the boatlift appears to have reduced the growth in the use of computers in Miami workplaces, providing some preliminary evidence that the technology theory may be important.

Working Paper No. 04-3, "How Did the Miami Labor Market Absorb the Mariel Immigrants?" Ethan Lewis, Federal Reserve Bank of Philadelphia.

AN INTERNATIONAL TRADE PUZZLE

In the past three decades, developed countries have experienced increased manufacturing exports as a share of GDP, even as manufacturing output has declined as a share of GDP. In other words, these countries are exporting more and more of what they are producing less and less of. This paper looks at this puzzle through the lens of the monopolistic competition model, one of the workhorse models of international trade theory.

Within this model, the authors study three global changes: increased manufacturing productivity, increased nonmanufacturing productivity, and decreased barriers to international trade. Only with a decrease in trade barriers, coupled with a low responsiveness by households for manufactured goods when these goods' prices fall, does the model imply both increased manufacturing exports and a declining manufacturing sector.

While this scenario achieves qualitative success, the authors question whether it can explain the puzzle quantitatively. They point to the increased importance of vertical specialization (the "back-and-forth" of exports and imports as goods are being produced, countries specializing in different stages of a production sequence) and suggest that this phenomenon may help in the quantitative resolution.

Working Paper No. 04-4, "Why Is Manufacturing Trade Rising Even as Manufacturing Output Is Falling?" Raphael Bergoeing, University of Chile; Thomas J. Kehoe, University of Minnesota; Vanessa Strauss-Kahn, INSEAD; and Kei-Mu Yi, Federal Reserve Bank of Philadelphia.

BANKRUPTCY AND THE LABOR SUPPLY: TO WORK OR NOT TO WORK?

The key feature of modern U.S. law on personal bankruptcy is debt forgiveness. A debtor who files for bankruptcy can obtain a discharge from most of his existing debts after surrendering either some of his current assets or a portion of his future earnings. Since discharge not only releases the debtor from past financial obligations but also protects him from some of the adverse consequences that may otherwise result from that release, discharge is viewed as granting the debtor a financial fresh start.

The primary goal of the fresh-start policy is to preserve human capital by providing incentives to work. The belief that bankruptcy discharge fosters greater industriousness has long been held in the U.S. Despite the prominence of this belief, no formal economic study has examined this issue. In a recent working paper, economists Song Han and Wenli Li seek to bridge the gap in the literature and provide the first estimate of the effect of filing for personal bankruptcy on the labor supply. Their study sheds light on the efficiency consequences of the current bankruptcy system and indicates the extent of bias in those welfare studies of bankruptcy that do not account for bankruptcy-induced changes in the labor supply.

The authors use a simple static model to highlight forces that work either for or against the fresh-start logic. In particular, they look at positive wealth effects associated with personal bankruptcy and debtors who default on debt without filing for bankruptcy.

Han and Li's results suggest the current personal bankruptcy provisions do not offer any positive work incentives. Consequently, legislators and policymakers should not take for granted the validity of the fresh-start argument when evaluating the welfare consequences of the personal bankruptcy law or when proposing new changes. However, their analysis does not rule out the role of the personal bankruptcy law as a social insurance program. Indeed, the authors find that bankrupt households consumed more under bankruptcy filing than they would have if they had not filed, but this estimate is statistically insignificant.

Working Paper No. 04-5, "Fresh Start or Head Start? The Effect of Filing for Personal Bankruptcy on the Labor Supply," Song Han, Federal Reserve Board of Governors, and Wenli Li, Federal Reserve Bank of Philadelphia

TARGETING INFLATION: CPI OR PPI?

Stabilizing the variability in inflation and the output gap has been an important goal for many central banks around the world. Indeed, most studies of optimal monetary policy rules have viewed such stabilization as a central bank's objective. In both policy practice and academic research, the inflation target, either explicit or implicit, is almost uniformly measured by the consumer price index, even though the producer price index is also readily observable. Some researchers have argued that, by stabilizing fluctuations in CPI inflation, the central bank could effectively establish the variability of the output gap that measures the deviation of actual output from its natural rate. If the natural rate is close to optimal, such a policy would then be welfare improving and therefore desirable. An important insight from these previous studies, however, is that there generally exists a tradeoff between stabilizing fluctuations in CPI inflation and the output gap, and thus such a neutral policy may lead to a sub-optimal outcome.

Economists Kevin X.D. Huang and Zheng Liu analyze the design and implementation of optimal monetary policy in a model with multiple price indexes for the monetary authority to consider stabilizing. Their analysis reveals that, along with variations in CPI inflation and the output gap, the central bank should also care about variations in PPI inflation and the real marginal cost of producing intermediate goods.

Working Paper 04-6, "Inflation Targeting: What Inflation Rate to Target?" Kevin X.D. Huang, Federal Reserve Bank of Philadelphia, and Zheng Liu, Emory University

SOLVING THE PERSISTENCE PROBLEM: INTERMEDIATE GOODS AND SPECIFIC FACTORS

A central challenge to monetary business-cycle theory is to find a solution to the problem of persistence in the real effects of monetary shocks. Previous research has identified separately intermediate goods and specific factors as two promising mechanisms for generating persistence in a framework of staggered price setting. Models based on either of these two mechanisms have also been used in the design of optimal monetary policy.

By examining a staggered price model that features both intermediate goods and specific factors, economist Kevin X.D. Huang finds a negative interaction between the two individually promising mechanisms, which leads to a cancellation of much of the impact of each in propagating monetary shocks. This finding posits a further challenge to monetary business-cycle theory and the design of optimal monetary policy.

Working Paper 04-7, "Specific Factors Meet Intermediate Inputs: Implications for Strategic Complementarities and Persistence," Kevin X.D. Huang, Federal Reserve Bank of Philadelphia

INTERNATIONAL TRADE: EXPLAINING CROSS-COUNTRY CORRELATIONS IN OUTPUT AND CONSUMPTION

A central challenge to models of international business cycles is to explain the observed patterns in cross-country quantity correlations. While the data typically reveal significant cross-country correlations in consumption and in output, standard models typically fail to predict these patterns. Previous research shows that a one-sector international real business cycle model usually generates low or negative international correlations in output and near-perfect correlations in consumption. Incorporating multiple sectors into this class of models helps raise output correlations to be positive, but consumption correlations remain too high. Standard international monetary business cycle models fare no better. The resultant mismatch between the models' predictions and the data is often referred to as the "quantity anomaly" in the international business cycle literature.

In "Multiple States of Processing and the Quantity Anomaly in International Business Cycle Models," economists Kevin X.D. Huang and Zheng Liu propose a mechanism that may help resolve the quantity anomaly. Their model incorporates the observation that production of consumption goods in the modern world economy typically involves multiple stages of processing and intermediate goods that cross borders multiple times. The model considers monetary shocks as a driving force of the international quantity correlations, and the authors stress the role of multiple stages of processing and trade in propagating the shocks via local currency pricing and staggered price contracts.

The novelty of this research lies in the model's ability to propagate a monetary expansion in the home country to lower the foreign price level while containing a smaller rise in the home price level. Consequently, the model tends to amplify and align the movements in the countries real aggregate demand and real purchasing powers. Plus it dampens the efforts of the adjustment in the terms of trade. All of these factors help increase the international quantity correlations. Coupled with international labor immobility and imperfect separability between consumption and leisure, these factors also help put in right order the correlations in consumption and in output.

Working Paper No. 04-8, "Multiple Stages of Processing and the Quantity Anomaly in International Business Cycle Models," Kevin X. D. Huang, Federal Reserve Bank of Philadelphia, and Zheng Liu, Emory University.

A NEW MEASURE OF ECONOMIC ACTIVITY AT THE STATE LEVEL

In the late 1980s, economists James Stock and Mark Watson developed a coincident index for the U.S. economy as an alternative to the one published at that time by the Department of Commerce. State versions of the Stock-Watson type index have been developed for a limited number of states.

In "Consistent Economic Indexes for the 50 States," economists Ted Crone and Alan Clayton-Matthews expanded this earlier work to develop a consistent set of Stock-Watson coincident indexes for all 50 states. Besides their usefulness in monitoring state economies, these indexes are also useful in comparing the length, depth, and timing of recessions at the state level.

A number of economic indicators, including real gross state product (GSP), are commonly used to compare state economies. None, however, is completely satisfactory for business-cycle analysis. Some are not comprehensive enough, and others are released at only a quarterly or annual frequency. In contrast, the indexes developed in this paper can serve as a composite measure of monthly economic activity for the states.

Crone and Matthews' work provides researchers with a set of indexes that can be used to examine important state and regional issues, including the study of state business cycles, the effect of national economic forces on individual states, and the effect of the state's overall economic activity on state fiscal conditions.

Working Paper 04-9, "Consistent Economic Indexes for the 50 States," Theodore M. Crone, Federal Reserve Bank of Philadelphia, and Alan Clayton-Matthews, University of Massachusetts, Boston

LIFE INSURANCE AND HOUSEHOLDS' DECISIONS ABOUT CONSUMPTION

Consumption and hours worked are two central pieces of modern macroeconomic models. In recent years, economists have made an effort to construct models of the macroeconomy with a large number of people who choose how much to work and how much to consume. However, there is a problem in taking these models to the data because data on hours worked are available at the individual level, while consumption data are available only at the household level. To deal with this inconsistency, it is necessary to build models of multiple individuals per household and to show in the model how consumption will be shared among individuals.

Jay Hong and Jose-Victor Rios-Rull address this issue by using information on the changing nature of a household's composition and on households' purchases of life insurance. The authors note that life insurance claims are widely held and the event that triggers payment — the death of an individual — is very predictable and, to a large extent, free of moral hazard problems.

Using data on life insurance holdings by age, sex, and marital status, the authors examine how life insurance purchases indicate how people make decisions about consumption across different marital statuses. They then use these estimates to explore two policy changes: eliminating survivor's benefits from the Social Security program and totally eliminating Social Security. Hong and Rios-Rull find that eliminating survivor's benefits can be accommodated by larger life insurance purchases in the case of the death of the male. In addition, they find that Social Security itself plays no important insurance role and that there could be large benefits if it were eliminated.

Working Paper 04-10, "Life Insurance and Household Consumption," Jay H. Hong and Jose-Victor Rios-Rull, University of Pennsylvania

INVENTORIES AND THE BUSINESS CYCLE

Inventory investment is both procyclical and volatile. Changes in firms' inventory holdings appear to account for almost half of the decline in production during recessions. Moreover, the co-movement between inventory investment and final sales raises the variance of production above that of sales. Historically, such observations have often prompted researchers to emphasize inventory investment as central to an understanding of aggregate fluctuations. By contrast, modern business-cycle theory has been surprisingly silent on the topic of inventories.

Economists Aubhik Khan and Julia Thomas extend a basic business-cycle model to include fixed costs associated with the acquisition of intermediate goods for use in producing final goods. Given these costs, firms that produce final goods maintain inventories of intermediate goods, and they actively adjust these stocks only when they are sufficiently far from a target level. In Khan and Thomas's model, this target level varies with the aggregate state of the economy.

Khan and Thomas focus on the cyclicality and variability of inventories and the relative volatility of production and sales. They also examine their model's predictions of inventories' role in aggregate fluctuations. They find that the presence of inventories does not substantially raise the variability of production because it dampens movements in final sales. Similarly, when reductions in adjustment costs lower, but do not eliminate, average inventory holdings, the variability of GDP is essentially unchanged because the reduced costs cause an offsetting rise in the variability of final sales.

Working Paper, 04-11, "Inventories and the Business Cycle: An Equilibrium Analysis of (S,s) Policies," Aubhik Khan, Federal Reserve Bank of Philadelphia, and Julia K. Thomas, University of Minnesota

REDEFINING REGIONS IN THE U.S. BASED ON BUSINESS-CYCLE SIMILARITIES

Since the mid-19th century, the Bureau of the Census has aggregated state data into multi-state regions. Currently, the Bureau divides the 50 states into four regions that are further subdivided into nine divisions. In the 1950s, an interagency committee suggested regrouping states according to socioeconomic similarities. Even though the Census Bureau did not adopt the proposed changes, the Bureau of Economic Analysis (BEA) did adopt one of the committee's proposed groupings as its definition of multi-state regions. This division of the states into eight BEA regions has not been adjusted since its introduction in the 1950s. Economists have consistently used the BEA's definition of regions to examine many economic trends and issues at the regional level.

Economist Ted Crone argues that the BEA's definition of regions may not be the most appropriate one for certain types of regional studies. Crone focuses on similarities in the states' business cycles to group them into regions and uses cluster analysis to identify the regions. Crone's alternative definition of regions is likely to provide a better grouping of states for research on differences in the cyclical behavior of the economy across regions.

Working Paper 04-12, "A Redefinition of Economic Regions in the U.S.," Theodore M. Crone, Federal Reserve Bank of Philadelphia

EXPLAINING INVENTORIES' ROLE IN BUSINESS CYCLES

Macroeconomics has seen a reawakening of interest in inventories in recent years, largely in connection with research exploring changes in the severity of the overall business cycle. Many current models merely *assume* the existence of inventories. Consequently, such models can't be used to understand the cyclical role of inventories, nor how changes in inventory investment may affect other aggregate series.

In "Modeling Inventories Over the Business Cycle," economists Aubhik Khan and Julia K. Thomas seek useful models of aggregate fluctuations with inventory investment. The inventory literature offers three motives for holding these zero return assets: avoiding costs associated with changing production levels (the production-smoothing model); avoiding the risk implied by a delay between the commitment of inputs and the realization of shocks that affect firms' marginal costs or revenues (the stockout avoidance model); and avoiding costs associated with moving goods from firm to firm (the (S,s) model).

In their paper, Khan and Thomas examine the latter two models. They find that the (S,s) model is far more consistent with the behavior of aggregate inventories in the postwar U.S. when aggregate fluctuations arise from technology, rather than preference shocks. The converse is true for the stockout avoidance model.

Working Paper 04-13, "Modeling Inventories Over the Business Cycle," Aubhik Khan, Federal Reserve Bank of Philadelphia, and Julia K. Thomas, University of Minnesota and Federal Reserve Bank of Minneapolis

BANKRUPTCY LAW: PERSONAL EXEMPTIONS AND THEIR EFFECT ON THE MORTGAGE MARKET

In their recent paper, economists Souphala Chomsisengphet and Ronel Elul develop and test a model of mortgage underwriting that highlights the use of generic credit bureau scores to infer an applicant's quality. These scores — that is, the "FICO" scores produced by each of the three major credit bureaus — are an important feature of real-world credit underwriting.

Recent economic literature has developed conflicting theories — and found conflicting results — in seeking to explain how bankruptcy exemptions affect the mortgage market. Chomsisengphet and Elul show that their model has implications for this debate. In their model, when lenders use credit scores in a standardized manner, exemptions should be irrelevant to the mortgage-underwriting decision. Merging data from a major credit bureau with the Home Mortgage Disclosure Act (HMDA) data set, these authors confirm their model's prediction. Moreover, they also show that some of the previous literature's findings, in which generous exemptions are associated with difficulty in obtaining a mortgage, may reflect a failure to account for borrower credit quality.

Working Paper 04-14, "Bankruptcy Exemptions, Credit History, and the Mortgage Market," Souphala Chomsisengphet, Office of the Comptroller of the Currency, and Ronel Elul, Federal Reserve Bank of Philadelphia

IDIOSYNCRATIC SHOCKS AND (S,s) MODELS OF INVENTORIES

The substantial heterogeneity that characterizes (S,s) models of capital adjustment has largely dissuaded researchers from undertaking general equilibrium analysis. In earlier work, economists Aubhik Khan and Julia Thomas assumed that differences in capital were the sole source of heterogeneity across plants. In ignoring persistent differences in plant-specific productivity, however, the theory could not usefully address a richer set of recently documented facts at the establishment level.

In a new paper, Khan and Thomas extend their earlier analysis, allowing plants to differ both in their capital stocks and in their total factor productivity. They also allow plants to undertake low levels of investment without incurring adjustment costs. They find that idiosyncratic shocks reduce the aggregate effects of (S,s) policies.

Working Paper 04-15, "Idiosyncratic Shocks and the Role of Nonconvexities in Plant and Aggregate Investment Dynamics," Aubhik Khan, Federal Reserve Bank of Philadelphia, and Julia K. Thomas, University of Minnesota and Federal Reserve Bank of Minneapolis

INNOVATION AND METROPOLITAN AREAS: WHAT CAN WE LEARN FROM PATENT DATA?

In the U.S., patenting is a metropolitan phenomenon. During the 1990s, 92 percent of all patents granted to inventors with an address in the U.S. were granted to residents of metropolitan areas.

Recent work has identified an important link between national economic growth and the concentration of people and firms in cities. This concentration provides an environment in which ideas move quickly from person to person and from firm to firm. Dense locations may be more efficient in generating new ideas, facilitating innovation and growth. Theory suggests the underlying mechanism could be better matches between workers and employers that occur in dense labor markets. Yet the empirical relationship between local employment density (jobs per square mile) and invention is largely unexamined. More often, studies examine the effects of city size on innovative activity.

Using patents per capita (*patent intensity*) as a measure of innovation, economists Gerald Carlino, Satyajit Chatterjee, and Robert Hunt examine the role of knowledge spillovers on innovation in metropolitan areas. After controlling for other factors, they find that patent intensity is positively related to the number of jobs per square mile (employment density) of metropolitan areas. In addition, their research uncovers evidence of an optimal city size and employment density, plus evidence that local market structure affects the inventive productivity of cities. Moreover, they find that the effects of industrial specialization on a city's invention rate depend on its size and density.

These findings confirm the widely held view that the nation's densest locations play an important role in creating the flow of ideas that generates innovation and growth.

Working Paper 04-16, "Matching and Learning in Cities: Evidence from Patent Data," Gerald Carlino, Satyajit Chatterjee, and Robert Hunt, Federal Reserve Bank of Philadelphia

UNDERSTATING INFLATION: A LOOK AT THE CPI FOR RENTS

Until the end of 1977, the method used in the U.S. consumer price index (CPI) to measure rent inflation tended to omit rent increases when units had a change of tenants or were vacant. Since such units typically had more rapid increases in rents than average units, this response bias, in turn, biased inflation estimates downward.

Beginning in 1978, the Bureau of Labor Statistics (BLS) implemented a series of methodological changes that reduced response bias, but substantial problems remained until 1985, when the BLS adjusted the rental component of the CPI to correct for certain biases.

Although most studies of price mismeasurement have concentrated on upward biases in inflation measures, economists Theodore Crone, Leonard Nakamura, and Richard Voith discuss a case of downward bias in inflation measurement in an important part of the U.S. economy: tenant rents. Specifically, the authors look at nonresponse bias: what happens to data collected in the CPI survey when a tenant stops occupying a rental unit. Since a change in tenants usually coincides with an increase in rent, ignoring nonrespondents may result in a large downward bias in the data.

To see how such biases have historically affected the CPI for rents, the authors constructed a revised estimate of the U.S. CPI for tenant rents from 1940 to 2000. They developed and tested a model of response bias. The authors conclude that from 1940 to 1985, the CPI inflation rate for rent most likely was understated by 1.4 percentage points annually in U.S. data. Constructing an improved rental inflation series for 1940 to 2000, these authors show that in 1940, the revised index is 54 percent as large as the official CPI for rent.

Uncovering this case of inflation understatement is important for two reasons. First, housing services are an important component of consumption, and residential property is a large component of wealth. Housing services' historical growth rates have important implications for past living standards. If rental inflation is biased downward, housing services growth is biased upward. Second, the BLS has long argued that it has been more evenhanded about inflation than its critics have claimed — that is, its errors have not always resulted in an upward bias in inflation. Moreover, this is a case where the BLS removed an important source of bias without any prod from outsiders.

Working Paper 04-17, "The CPI for Rents: A Case of Understated Inflation," Theodore Crone and Leonard Nakamura, Federal Reserve Bank of Philadelphia; Richard Voith, Econsult Corporation, Philadelphia

LABOR MARKET REFORM IN EUROPE: INTERNATIONAL TRADE AND FIRING COSTS

Labor markets in continental Europe are characterized by a number of regulations that limit the willingness of firms to create and destroy jobs. These policies appear to contribute to the generally higher levels of unemployment in Europe relative to the U.S. Previous research has found that restrictions on firms' being able to fire workers generate significant welfare costs. Despite these costs, individual European economies maintain these policies.

Some recent discussions of reform have occurred within the European Union. In these discussions, the U.K., the country that least regulates job turnover, is the strongest proponent of reforming firing restrictions.

Following up on previous research, economists George Alessandria and Alain Delacroix extended those earlier analyses of the costs of restricting firms' ability to fire workers by introducing international trade into the model. Including international trade allows these authors to analyze the international transmission of domestic firing restrictions. Since European economies are tightly integrated through trade, this provides a more accurate measure of the welfare costs of removing firing restrictions for European economies. It also allows the authors to consider the role of trade in determining firing tax policies.

Alessandria and Delacroix find that international trade considerably weakens a country's incentive to undertake reform, since much, if not all, of the gains from reform are exported to its trading partners through worsened terms of trade. In fact, eliminating these firing restrictions actually lowers welfare in the reformed country. These results arise because firing restrictions substantially reduce output and employment and thus have strong effects on terms of trade.

Working Paper 04-18, "Trade and the (Dis)Incentive to Reform Labor Markets: The Case of Reform in the European Union," George Alessandria, Federal Reserve Bank of Philadelphia, and Alain Delacroix, Purdue University

WHAT MONEY CAN BUY: PURCHASING POWER PARITY AND THE LAW OF ONE PRICE

Absolute purchasing power parity (PPP) is one of the best known and most easily rejected ideas in economics. Across countries, there are substantial differences in the general price level so that the same basket of goods sells for a different price depending on the country in which it is sold. A well-documented feature of this dispersion in prices is that price levels are strongly positively correlated with real per capita GDP, so that people in low-income countries pay considerably less for the same basket of goods than people in high-income countries.

The dominant explanation for the relationship between income per capita and the price level is based on international differences in total factor productivity in the tradable goods sector. Research shows that rich countries are relatively more productive in tradable goods. If the law of one price holds — that is, the same good or asset sells for the same price in different markets — in the tradable sector, international relative wages are determined by productivity differences in the tradable goods sector. If productivity differences are relatively small in the nontradable sector, this implies that both nontradables and the common basket of goods are less expensive in low-income countries.

A central assumption of previous research is that the law of one price holds for tradable goods. This assumption is clearly violated in the data; substantial deviations from the law of one price exist for both tradables and nontradables.

Economists George Alessandria and Joseph Kaboski demonstrate that deviations from the law of one price are an important source of violations of absolute PPP across countries. They use U.S. export data to document evidence of systematic international price discrimination based on the local wage of consumers in the destination market. Furthermore, according to Alessandria and Kaboski, most deviations from PPP can also be explained by international differences in wages, not differences in income per capita.

Working Paper 04-19, "Violating Purchasing Power Parity," George Alessandria, Federal Reserve Bank of Philadelphia, and Joseph Kaboski, Ohio State University

MONITORING BORROWERS: CAN TRANSACTIONS ACCOUNT DATA BE USEFUL TO BANKS?

Does information from transactions accounts help financial intermediaries monitor borrowers? To answer this question, economists Loretta Mester, Leonard Nakamura, and Micheline Renault use a unique set of data that includes monthly and annual information on transaction account balances, accounts receivable, and inventories for small-business borrowers at an anonymous Canadian bank.

The authors come up with three main findings. First, monthly changes in accounts receivable are quite transparently perceivable in movements in the transaction account, when the borrower has an exclusive banking relationship with the lender. Second, borrowings not accounted for by inventory and accounts receivable are clear predictors of credit downgrades and loan write-downs, and the lender uses such information promptly. Third, the lender intensifies monitoring as loans deteriorate — loan reviews become lengthier and are more frequent.

Although Mester, Nakamura, and Renault's findings pertain to only one bank, their results, taken together, provide detailed micro-level evidence that transactions account data are useful for monitoring borrowers. While any asset-based lender with access to transaction account data, such as finance companies, could use the information for monitoring the borrowers' operating loans, commercial banks are likely to be the most efficient at doing so, since they offer the transaction accounts.

In addition, the authors show the direct mechanism through which an intermediary can use this information in monitoring and controlling moral hazard problems associated with a rising probability of bankruptcy. In fact, they believe that this paper presents the first direct empirical test of the usefulness of transactions account information in monitoring commercial borrowers.

Working Paper 04-20, "Transactions Accounts and Loan Monitoring," Loretta Mester and Leonard Nakamura, Federal Reserve Bank of Philadelphia; Micheline Renault, Université du Québec à Montréal

U.S. EMPLOYMENT GROWTH VOLATILITY

From the early 1950s to the mid 1990s, the volatility of state employment growth has declined. Within this overall trend is a good deal of variation in the volatility of employment among states. What explains these variations and how do they relate to the broader trend of declining volatility in the U.S. economy evidenced, for example, by the decline in the volatility of real output growth?

Essential to this study is the use of new detailed data showing variation within a state across time. These factors include the skill and gender composition of the population and a state's industrial structure. The study also allows for state-level variation in the effects of a number of national economic forces.

The study finds that in accounting for the volatility of employment growth, differing responses by states to shocks matter less than differing characteristics of the state, such as the degree of industrial specialization and the demographics of the population. There is also a spatial dependence in state volatility. An average of 20 percent of the shock of a state's employment growth volatility spills over into neighboring states. Another finding is that the decline in employment growth volatility does not simply reflect the broader national decline in volatility, since it was largely over by the late 1960s, before the drop in real output growth volatility began.

Working Paper 04-21, "On the Stability of Employment Growth: A Postwar View from the U.S. States," Gerald Carlino, Federal Reserve Bank of Philadelphia; Robert De Fina, Villanova University; and Keith Sill, Federal Reserve Bank of Philadelphia.

ESTIMATING THE COST OF HOUSING SERVICES

The cost of housing services is a major component of the U.S. consumer price index. To measure this cost, the Bureau of Labor Statistics has to account for both rental and owner-occupied units. Currently, the BLS measures rental increases by surveying a sample of renters. It measures increases in the cost of owner-occupied housing services by using increases in rents for units deemed comparable to units that are owner-occupied.

The main questions are whether increases in rental rates are measured accurately and whether rents on units deemed comparable to those that are owner-occupied reflect housing costs for homeowners.

Economists Ted Crone, Len Nakamura, and Dick Voith measure housing costs by estimating the value of the structural and neighborhood characteristics of the unit. This method is particularly useful in estimating the cost of owner-occupied units. These estimates suggest an increase in the cost of owner-occupied housing services between 1985 and 1999 that is about 9 percent less than the estimates reported by the BLS. For rental units, the change in rents was not found to vary greatly from the BLS's estimates.

Working Paper 04-22, "Hedonic Estimates of the Cost of Housing Services: Rental and Owner-Occupied Units," Theodore M. Crone and Leonard Nakamura, Federal Reserve Bank of Philadelphia, and Richard P. Voith, Econsult Corporation

VACANCY BEHAVIOR IN FRICTIONAL LABOR MARKET MODELS

This paper evaluates the quantitative performance of a widely-used model of frictional labor markets with particular attention to fluctuations in firms' desired hiring over the business cycle.

The standard model predicts that the hiring motivation of firms quickly recovers from recessions because increasing unemployment lessens the difficulty employers have finding appropriate workers to fill their job vacancies, even though an employer's reward for a filled vacancy is lower than usual. This quick recovery of job vacancies also implies that job creation rises promptly after a recessionary shock occurs.

Shigeru Fujita finds that these predictions of the model are not supported by the U.S. data. The data indicate that during economic downturns, job vacancies are persistently low, and job creation does not recover as much as the model predicts. His finding suggests that the search friction in the standard model cannot by itself account for important features of the U.S. labor market, and that some additional frictions involved in the job creation process, such as planning costs or the requirements of relation-specific investment, may be important elements to consider.

Working Paper 04-23, "Vacancy Persistence," Shigeru Fujita, Federal Reserve Bank of Philadelphia

PROMOTING GROWTH: MARKET-ORIENTED VS. BANK-ORIENTED FINANCIAL SYSTEMS

An important question related to both growth and finance theory is whether the financial system influences growth in the long run. In their paper "Financial Intermediaries, Markets, and Growth," economists Falko Fecht, Kevin X.D. Huang, and Antoine Martin build a model in which financial markets reduce the amount of risk-sharing that financial intermediaries can provide but promote investment in a productive technology. In their model, market-oriented financial systems yield more growth but provide less risk-sharing than bank-oriented systems.

Fecht, Huang, and Martin's model predicts that bank-oriented economies should grow slower than more market-oriented economies, given the overall level of financial development, a result that is consistent with recent empirical evidence. These authors show that the mix of intermediaries and market that maximizes welfare under a given level of financial development depends on economic fundamentals. They also show that the optimal mix of two structurally very similar economies can be very different.

Working Paper 04-24, "Financial Intermediaries, Markets, and Growth," Falko Fecht, Deutsche Bundesbank; Kevin X.D. Huang, Federal Reserve Bank of Philadelphia; and Antoine Martin, Federal Reserve Bank of Kansas City

Federal Reserve Bank of Philadelphia
Research Department Publications

Banking Brief

Analyzes recent trends in the tri-state region of Pennsylvania, New Jersey, and Delaware. Quarterly.

Banking Legislation & Policy

Summarizes and updates pending banking and financial legislation, regulation, and judicial activity at the federal level and for the Third District states. Published four times a year.

Business Outlook Survey

A survey of manufacturers located in the Third Federal Reserve District and having 100 employees or more. Monthly.

Business Review

Presents articles written by staff economists and dealing with economic policy, financial economics, banking, and regional economic issues. Quarterly.

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A summary of forecasts from business, government, and academic economists. Published in June and December.

Regional Highlights

Analyzes recent economic activity in the Third Federal Reserve District. Quarterly.

Research Rap

Presents summaries of recent Philadelphia Federal Reserve Bank Working Papers.

South Jersey Business Survey

A survey of business establishments located in the South Jersey region. Quarterly.

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