

research review



Issue No. 1, January 2004 - August 2004

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research review

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Research Review provides an overview of recent research by economists of the Federal Reserve Bank of Boston. Included are summaries of scholarly papers, staff briefings, and Bank-sponsored research conferences, together with a list of articles, books, and speeches recently published externally by Bank economists.

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Research Papers Series of the Federal Reserve Bank of Boston

Working Papers present statistical or technical research. They are generally written for economists and others with strong technical backgrounds.

Public Policy Discussion Papers present research bearing on policy issues. They are generally written for policymakers, informed business people, and academics.

Public Policy Briefs summarize analyses of current economic topics originally prepared for the Bank's Board of Directors or for staff briefings in advance of Federal Open Market Committee (FOMC) meetings. They are written to be accessible to general audiences.



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New England Economic Review Articles

How Humans Behave: Implications for Economics and Economic Policy (conference overview)

by Richard W. Kopcke, Jane Sneddon Little, and Geoffrey M. B. Tootell

complete text: <http://www.bos.frb.org/economic/neer/neer2004/neer04a.pdf>

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Motivation for the Conference

Economic policymakers attempt to improve the welfare of their citizens based on assumptions about how people think, feel, and behave, and on what they view as welfare-improving. Economists usually describe economic agents as fully informed and model them as striving to maximize a set of stable preferences. While these assumptions provide a simple framework for analyzing economic activity, actual human behavior has proved more complex. As a result, economists have started looking to psychologists and others who study human behavior for guidance on the decision-making process, the roles of motivation and emotion, and the determinants and measurement of happiness.

The 48th economic conference sponsored by the Federal Reserve Bank of Boston brought together economists, behavioral scientists, and economic policymakers with the hope of applying insights from psychology and other behavioral disciplines to improve understanding of how people make decisions as individuals and, ultimately, in a macroeconomic setting. The goal of the conference was to help economists and policymakers discover new ways of improving their models, their forecasts, and their economic policy decisions.

Key Themes

- Because human brains have evolved to solve complex social problems, people's behavior tends to change as their circumstances change, undermining consistency across time and context; however, this lack of consistency is not a fault — rather, it is a defining capacity that enables us to engage in complex social situations.
- Although individuals perceive themselves to be unitary creatures, that impression is largely illusory; the brain consists of multiple subsystems, and, although the various subsystems do communicate, the dominant role shifts across subsystems according to context.
- Unconscious behaviors are the ones that are relatively predictable; it is consciousness that introduces the element of unpredictability in human behavior.
- Given the structure of the human brain, it is unlikely that humans will behave as if they are consistently maximizing any single utility function.
- Neural evidence distinguishes four different kinds of utility — anticipated, remembered, choice, and experienced.
- The role of fairness and trust in informal contractual relations is especially crucial for understanding the limits to markets and the roles of relational contracts.

Implications

Many presenters seemed to agree that utility and welfare should be based on a mix of experienced and remembered utility or on the preferences of the controlled deliberative system.

In simple cases, the concept of “libertarian paternalism” may be an acceptable way to help people make decisions they consider to be in their own best interest but often would not make on their own—for example, by setting defaults for retirement savings plans that are in an individual's best interest, while allowing the individual to override the default if he or she so chooses.

Money wage stickiness reflects intrinsic aspects of the human psyche and is, therefore, a normal characteristic of labor markets. Thus, behavioral economics may provide a micro-foundation for Keynesian economics and counter-cyclical fiscal policy and may explain the wage rigidities that underlie the Phillips Curve.

The conference revealed a need to remodel economic man to reflect what we know about the complexity of human behavior. It suggested that additional work in this area would likely yield significant benefits.

College Completion Gaps between Blacks and Whites: What Accounts for Regional Differences?

by Yolanda K. Kodrzycki

complete text: <http://www.bos.frb.org/economic/neer/neer2004/neer04b.pdf>

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Motivation for the Research

In the United States, the share of blacks who have completed four years of college is much smaller than the share of whites who have done so. A less known fact is that the size of this racial education gap differs across various regions of the nation. This paper explores the reasons for the differential college education gaps by region, focusing chiefly on adults between the ages of 25 and 34.

Research Approach

Two hypotheses are explored:

1. that in some regions black children have lagged far behind their white peers in factors determining access to a college education; and
2. that differences in location preferences of blacks versus whites drive regional differences in college completion gaps, via migration of college-educated adults of both races.

The approach is exploratory; that is, the research looks at whether or not plausible explanatory factors vary across different parts of the country in ways that may explain college completion patterns. If so, current information on differences in educational resources and opportunities for black and white children could foreshadow future differences in college completion rates between black and white adults by region. Moreover, future migration patterns could offset or reinforce regional education gaps by race, compared with what would be predicted on the basis of current indicators of family socioeconomic status, secondary school performance, and higher education opportunities.

The main data source is the U.S. Census Bureau, Census of Population. Additional data come from the U.S. Department of Education's National Center for Education Statistics (Common Core of Data, Integrated Postsecondary Education Data System, and additional sources), the U.S. Census Bureau's Current Population Survey, and prior research literature.

Key Findings

- Gaps have widened in all regions since 1970, although they are much wider in some regions than others.
- College completion shares have been growing for both blacks and whites in all regions; the wider gaps are caused by more rapid gains of whites, rather than by declines or stagnation in black shares of college completion.
- Variation across regions in college completion gaps between blacks and whites is a product

both of differences in past factors affecting access to college and of ongoing differences in location preferences of blacks and whites.

- Differential location preferences are especially important in explaining the widening college completion by race for New England and for the Pacific region, while serving to narrow the gap somewhat in the Midwest.
- Racial education gaps are likely to grow in the Northeast based on already observed differences in educational resources and opportunities for black and white students.

Implications

The existence of widening gaps provides an opportunity to understand better the mechanisms that drive differential educational achievement. Further research should focus on finer geographic units, such as states or metropolitan areas, in order to afford a closer look at educational policies. For example, exploring the following questions may yield answers that provide a sound foundation for policy intervention:

- What enabled whites in some areas to make such rapid gains in educational achievement?
- Why did these same factors not have the same impact in other areas?
- In any given area, why did these same factors not have the same effect for blacks as for whites?
- What are the determinants of differential inter-area migration flows of black and white college graduates?

Stock Prices and the Equity Premium during the Recent Bull and Bear Markets

by Richard W. Kopcke and Matthew S. Rutledge

complete text: <http://www.bos.frb.org/economic/neer/neer2004/neer04c.pdf>
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Motivation for the Research

After the sharp run-up in stock prices during the bull market of the late 1990s and their subsequent collapse in 2001-2002, the prices of equities as measured by the S&P 500 are once again uncommonly high relative to companies' current and prospective earnings. This raises the question,

Are stock prices too high relative to the underlying value of the companies they represent?

If this is the case, it implies that valuations may be destined to collapse, potentially derailing the recovery.

Research Approach

The authors summarize the performance of the stocks that comprised the S&P 500 index during the recent bull and bear markets, comparing their valuations with previous experience since the 1940s. They then employ an analytical model, substituting actual or estimated values for key variables to derive theoretical estimates for the risk premium on equity. Combining these estimates with the real rate of return on government bonds, they derive the real discount rate required of equity. Finally, the authors use the model of equity prices to explore the contributions of the factors that are likely to influence the price of equity in the future.

Key Findings

- Current valuations do not necessarily mark a bubble: Rapidly growing earnings and high returns on capital, consistent with a return to full employment, could justify prevailing prices.
- The results imply that shareholders' risk premium for equity rose during the 1990s; should this premium fall, as is likely with the recovery of business conditions, it could offset much of the negative effect of rising real interest rates on stock prices.
- If earnings grow at least half as fast as analysts expect, current prices might accommodate a one- or two-percentage-point increase in the real rate of interest. (Analysts' expectations of earnings growth are currently far higher than the projected growth of potential GDP.)
- Variations in the valuation of the largest companies can account for a very large share of the change in the value of the entire S&P 500 in both bull and bear markets, and the prices of stocks relative to earnings for the largest companies are also more volatile than those of smaller companies.

Implications

Because valuations of the largest companies are so important in determining the value of the S&P 500 index, the prospects for these companies' earnings growth are a key determinant of whether current valuation of the index is reasonable. Another key variable is the required equity premium, in turn influenced by earnings growth and the return on capital, especially for the largest companies in the index.

Public Policy Discussion Papers

p-04-1

Economic Policy and Prospects in Iraq

by Christopher L. Foote, William Block, Keith Crane, and Simon Gray

complete text: <http://www.bos.frb.org/economic/ppdp/2004/ppdp0401.pdf>

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Motivation for the Research

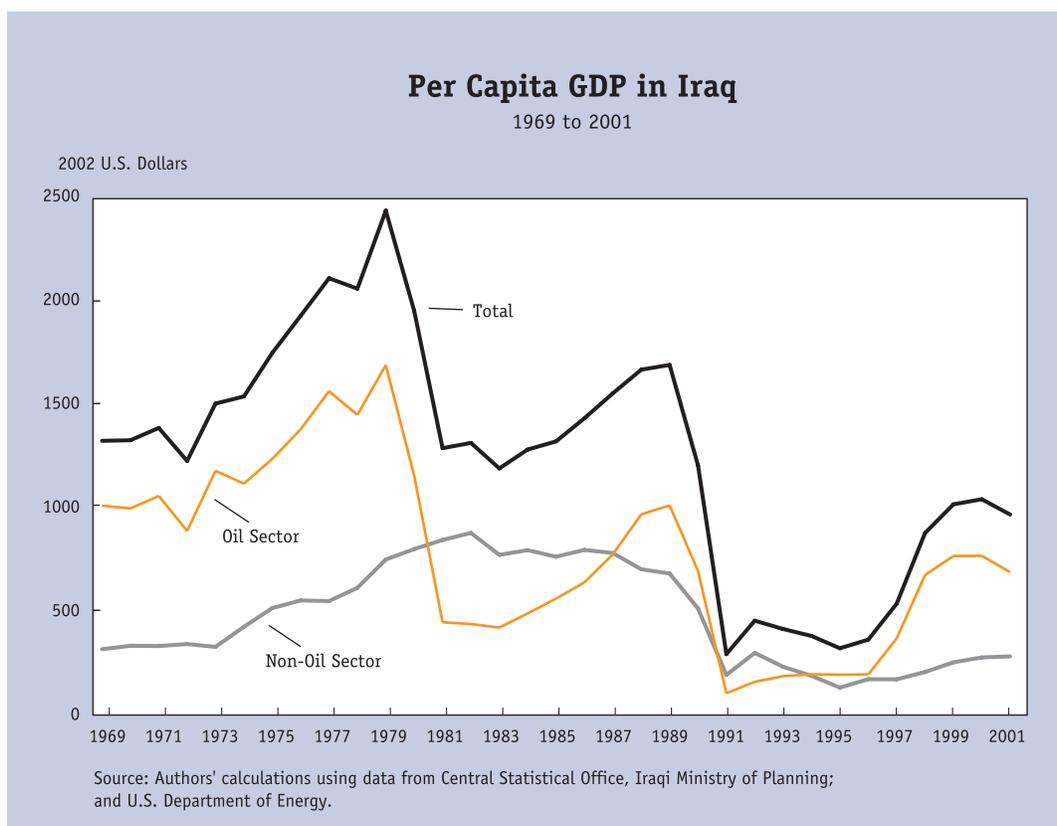
Economic reform was central to the Coalition Provisional Authority's attempts to rebuild Iraq. This paper describes the Coalition's attempts to stabilize and reform Iraq's economy along market lines.

Research Approach

The authors piece together, adjust, and analyze data from official and other sources to develop an overview of the performance of the Iraqi economy at the macro level over the past 35 years, as backdrop to the current situation. They then evaluate the impact of the steps undertaken by the Coalition to stabilize and restart the economy, and they assess the economy's future prospects.

Key Findings

- Iraq's economic meltdown has been the result of three wars: the nation's eight-year war with Iran, the Persian Gulf War, and the war to replace the Saddam Hussein regime.
- With respect to the current situation, while security concerns remain serious, Iraq's economy has not been crippled by violence.
- Since the end of the conflict, small businesses have been able to grow and thrive despite



domestic unrest, and a plurality of Iraqis believe that the employment situation in Iraq is better now than before the war.

- Unemployment remains high, and a large majority of Iraqis believe that improved job opportunities would reduce violence.

Implications

Sustained economic growth will depend on whether Iraq's future leaders pursue the pro-market approaches the Coalition has advocated. If the Iraqi economy is to reach its potential, Iraq's future government will need to go even further than the Coalition did, implementing reforms the Coalition did not pursue because of security concerns.

p-04-2

Eyes on the Prize: How *Did* the Fed Respond to the Stock Market?

by Jeff Fuhrer and Geoff Tootell

complete text: <http://www.bos.frb.org/economic/ppdp/2004/ppdp0402.pdf>
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Motivation for the Research

Both the actual and the appropriate roles for equity prices in monetary policy deliberations have been hotly debated for some time. This paper addresses the first part of that debate: How has the Federal Open Market Committee (FOMC) actually responded to movements in broad equity price indexes? The paper does not take a stand on whether it would be appropriate for the Federal Reserve to respond directly to asset prices; it only examines whether the FOMC *has*, in fact, responded directly to asset values.

Quantifying the Fed's response to equity prices is not as straightforward as it might seem. The correlation between stock price movements and future values of variables of universal concern to central banks — CPI inflation, the unemployment rate, GDP growth — has made the identification of the equity price effect problematic. The authors attempt to identify the extent to which the federal funds rate responds to movements in equity price indexes after taking into account the role of these indexes in forecasting “goal” variables for monetary policy.

Research Approach

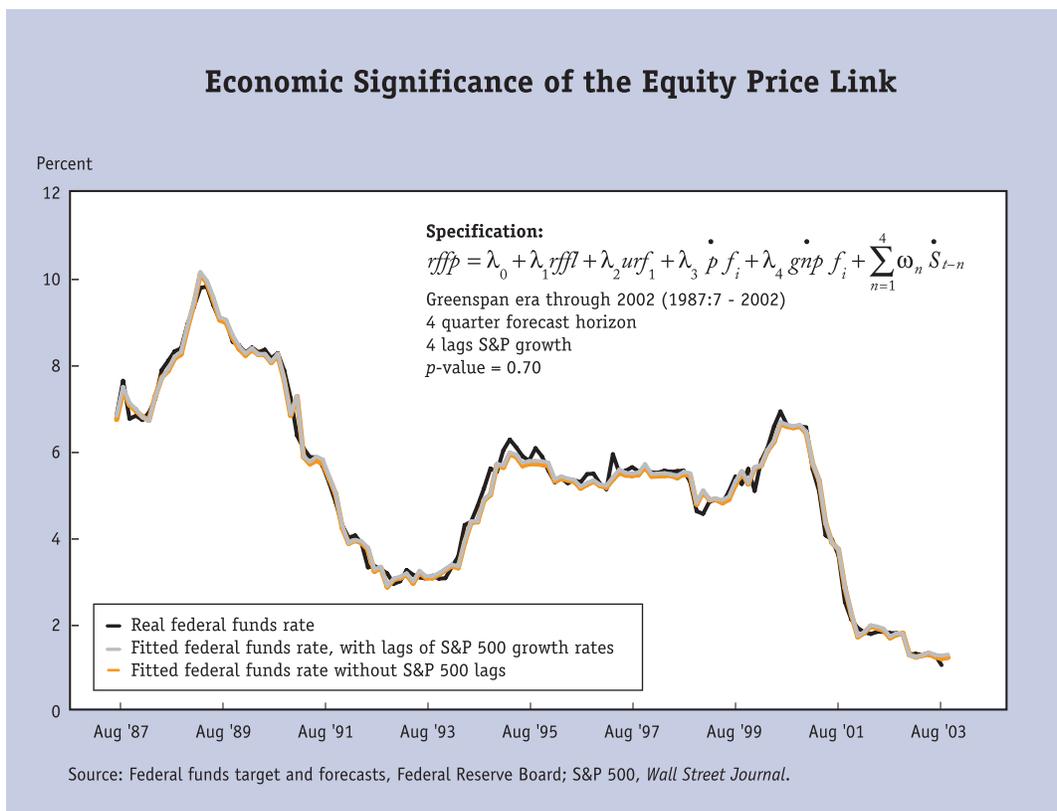
Previous attempts to account for the effect of equity prices on forecasts of these central bank goal variables have used forecasts that embody a different information set from the one used by the FOMC, which could bias the estimated effect of equity prices. The authors use the actual forward-looking variables the FOMC examines before each meeting. These forecasts are presented in the “Greenbook,” a document compiled by Federal Reserve Board staff in preparation for each FOMC meeting. Each issue of the Greenbook contains a detailed outlook of the economy, including forecasts of real GDP and its components, the unemployment rate, employment growth, and various measures of inflation.

The testing strategy begins by examining whether the Greenbook forecasts efficiently incorporate equity price information. If they do not, estimates of the independent effect of equity prices on monetary policy could, again, be biased. The next step is to “correct” the Greenbook forecasts using the results from the efficiency tests so that the outlook efficiently incorporates equity price information. The final step is to estimate the policy rule including these efficient forecasts and the recent movements in equity prices.

Key Findings

- Once the control variables the FOMC actually uses to determine its policy actions are included, there is little evidence that the FOMC overreacts to stock market information. The reaction is just what would be expected, given the effect of stock prices on the traditional variables of concern to the FOMC.
- Equity prices do not enter significantly in the Greenspan era, once one controls for the four-quarter-ahead forecasts of unemployment, GDP growth, and inflation.
- Just as important, the difference in the fitted values for the policy rules with and without equity prices is barely detectable. (See the chart, “Economic Significance of the Equity Price Link.”)

Almost all of the variation in the federal funds rate is well explained by forecasts of the goal variables that are mentioned in the Federal Reserve charter.



Implications

The authors' findings suggest that the only way that equity prices affect the FOMC's actions is through the impact of those prices on a forecast of accepted monetary policy goal variables. The paper does not address whether the FOMC *should* react in a more complicated way to changes in asset values. If, for example, these changes represent alterations in the other moments of the forecast, perhaps policy should respond “independently.” This is a question for additional research and discussion.

Wives' Work and Family Income Mobility

by Katharine Bradbury and Jane Katz

complete text; <http://www.bos.frb.org/economic/ppdp/2004/ppdp0403.pdf>

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Motivation for the Research

Over the past 30 years, married women in the United States have significantly increased their labor market participation, annual hours, and cumulative lifetime labor market experience, and have moved into higher wage occupations. The extent of this transformation of historical patterns indicates that women have become an increasingly integral factor in their families' ongoing economic well-being.

The transformation raises questions about the economic impact of having two-earner families become the norm. Do American families now need two earners — a working husband *and* a working wife — to have any hope of getting ahead or to keep from falling behind? How much does a wife's labor market activity (participation, hours, and earnings) matter in her family's ability to make income gains, hold its place relative to other families, or avoid losing ground?

Research Approach

The authors analyze data from the Panel Study of Income Dynamics (PSID), which has followed 5,000 American families, including their offspring families, since 1968. Information is extracted on total family income; work hours and earnings of head and spouse; age and presence of children; and other characteristics. Each family is observed at the start of one of three periods (1969, 1979, and 1988) and ten years later.

Families are ranked according to the ratio of their family income to the PSID's measure of needs, an indicator that reflects economies of scale for people living together, and classified into quintiles at the beginning and end of each decade. Family income mobility is defined as movement from one quintile to another during a decade and is quantified in a five-by-five matrix that reports the percentage of families in each beginning-of-decade quintile who end in each end-of-decade quintile.

The paper focuses on married-couple families in which both partners are under age 55 and compares the mobility outcomes of those with and without a working wife, with and without children and a working wife, or in which the wife has attained various levels of education. It also compares the average work hours and earnings of husbands and wives across mobility-outcome categories. These comparisons are aimed at highlighting the degree to which favorable mobility outcomes are (or are not) associated with greater wives' labor market activity.

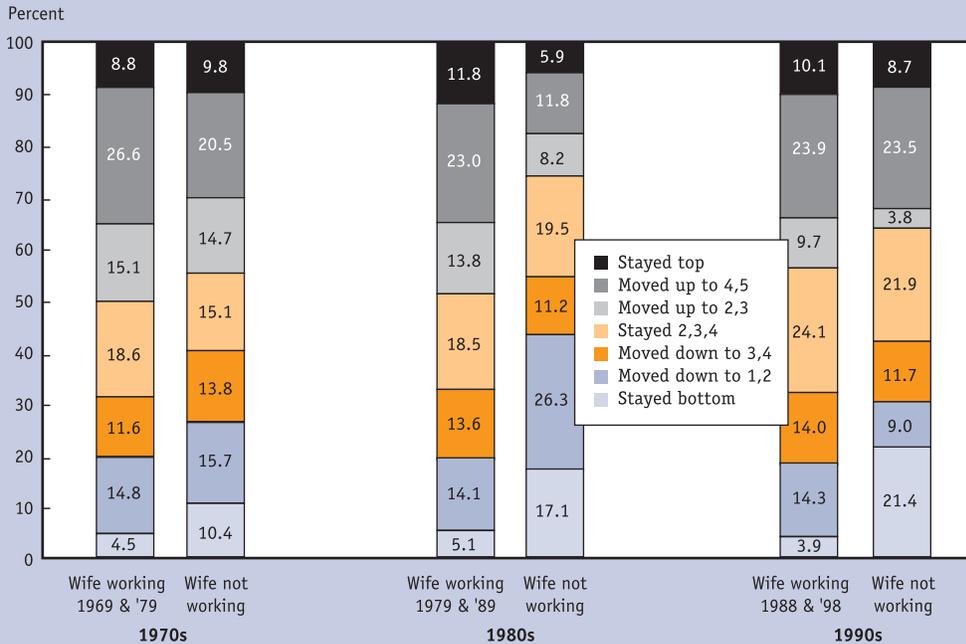
The chart on page 12 summarizes the information from the 25 cells of the mobility matrix into seven mobility-outcome categories, separating families with and without a working wife.

Key Findings

- While a working wife was not necessary for a family to move ahead, having one definitely helped: Wives in families that moved ahead or maintained their position had high and rising employment rates, work hours, and pay.
- The annual earnings of wives in upwardly mobile families increased relative to those of their husbands in all three periods, while in downwardly mobile families wives' labor earnings decreased as wives' employment rates and hours of work rose by only small amounts (or fell), and hourly pay dropped.
- Nevertheless, almost one-fifth of families with a working wife were stuck at the bottom or

Mobility Patterns for Under-55, Married-Couple Families

by Wife's Work Status



Source: Authors' calculations based on data from Panel Study of Income Dynamics (PSID).

moved down into the poorest or second-poorest quintile, while one-sixth to one-third of those without a working wife stayed in the richest quintile or moved up to the richest or next-to-richest quintile.

- The popular perception that families needed to work more hours to get ahead or hold their own is confirmed. Total family (husband+wife) work hours rose markedly over the three decades, with most of the increase coming from wives.

- Increases in work hours were especially pronounced for families with children. Families with children who held their own relative to other families increased their work hours substantially, and some families with children who lost ground did so despite added work hours.

- Both more-educated and less-educated wives expanded their earnings and thereby contributed to their families' gains, although for more-educated wives the effect of this change on family income was surpassed by an even greater increase in husbands' earnings.

Implications

Married couples accounted for over half of all U.S. households in 2000, and the ability of wives to engage in the paid labor force, increase their work hours, and earn reasonable pay is integral to their families' economic prospects.

By uncovering associations between wives' labor market involvement and married-couple families' moves up and down the income-to-needs distribution, this study can usefully inform discussions about government and private-sector policies on a range of issues related to women's work and family support. These might include income redistribution, tax policy, family leave and child care policies, employers' approaches to work flexibility and work-family balance, and efforts to increase investment in education.

Working Papers

w-04-1

The Timing of Monetary Policy Shocks

by Giovanni P. Olivei and Silvana Tenreyro

complete text: <http://www.bos.frb.org/economic/wp/wp2004/wp041.pdf>
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Motivation for the Research

Substantial empirical work has led to a broad consensus that monetary shocks have real effects on output. Moreover, the output response is persistent and occurs with considerable delay. A large class of theories points to the existence of contractual rigidities to explain why monetary policy might cause real effects on output. Theoretical models usually posit some form of nominal or real rigidity in wages or prices that is constant over time. For example, wage contracts are assumed to be staggered uniformly over time or subject to change with a constant probability at each point in time.

This convenient simplification, however, may not be a reasonable approximation of reality. As a consequence of organizational and strategic motives, wage contract renegotiations may occur at specific times of the calendar year. Anecdotal evidence supports the notion of “lumping” or uneven staggering of contracts.

If the staggering of wage contracts is not uniform, monetary policy can have different effects on real activity at different points in time. Specifically, other things being equal, monetary policy can be expected to have a smaller impact in periods of lower rigidity — that is, when wages are being reset — than in periods of higher rigidity.

The aim of this paper is to assess whether the effect of a monetary policy shock differs according to the quarter in which the shock occurs and, if so, whether such a difference can be reconciled with uneven staggering.

Research Approach

The paper provides an indirect test for the presence and importance of the lumping or uneven staggering of contracts by examining the effect of monetary policy shocks at different times of the year. To accomplish this, the authors introduce quarter-dependence in an otherwise standard structural VAR (vector autoregressive) model. To interpret the results, the authors then employ a simple stochastic dynamic general equilibrium model that allows for uneven staggering of wage contracts.

Key Findings

- There are significant differences in output impulse responses depending on the timing of the shock.
- After a monetary shock that takes place in the first quarter, the response of output is fairly rapid, with output reaching a level close to the peak effect four quarters after the shock. The response is even more front-loaded and dies out faster when the shock takes place in the second quarter.
- In both the first and the second quarters of the calendar year, the response of output to a monetary policy shock is economically relevant. An expansionary shock in either the first or the second quarter with an impact effect on the federal funds rate of minus 25 basis points raises output in the following eight quarters by an average of about one-quarter of one percent.
- In contrast, the response of output to a monetary shock occurring in the second half of the calendar year is small, both from a statistical and from an economic standpoint.

- The well-known finding that output takes a long time to respond and is quite persistent can be interpreted as the combination of these sharply different quarterly responses.
- In contrast to the dynamics of output responses, price and wage responses are delayed when the shock occurs in the first half of the year and occur more quickly when the shock occurs in the second half of the year.
- A modest amount of uneven staggering leads to significantly different output responses. This happens even if the cumulative effect of the monetary policy shock on wages and prices is not strikingly different across quarters, as appears to be the case empirically.

Implications

The authors propose that a potential explanation for the differential responses to monetary policy shocks depending on their timing is driven by contractual lumping and not by different types of monetary shocks nor by different “states” of the economy across quarters. Expanding the model to allow for adjustment costs and information lags should improve the ability of the model to match other features of the empirical impulse responses. Future research might fruitfully explore whether other seasonal factors beside time-varying contractual rigidity also contribute to the differences in impulse responses across quarters.

w-04-2

Estimating Forward-Looking Euler Equations with GMM Estimators: An Optimal Instruments Approach

by Jeffrey C. Fuhrer and Giovanni P. Olivei

complete text: <http://www.bos.frb.org/economic/wp/wp2004/wp042.pdf>

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Motivation for the Research

The basic framework for macroeconomic analysis has the structure of a simple model consisting of a demand or “IS” equation, an inflation or “AS” equation, and a monetary policy reaction function. Over time, this model has evolved from the static Keynesian model into a micro-founded, rational expectations model — often labeled the “New Keynesian” model — in which expectations play a dominant role in the structural equations. Expectations of current and future interest rates affect current aggregate demand, and expectations of current and future aggregate demand affect current inflation.

Different empirical studies have reached different conclusions concerning the importance of expectations regarding future interest rates and future demand in determining the dynamics of current output and inflation in applying the “New Keynesian” model to real-world analysis.

This paper aims to resolve the differences by providing an explanation for the disparate nature of the empirical results on forward-looking demand and inflation relations.

Research Approach

The authors compare different methods for estimating forward-looking output and inflation Euler equations and show that weak identification can be an issue in conventional Generalized Method of Moments (GMM) estimation. Weak instruments lead to GMM point estimates, hypothesis tests, and confidence intervals that are unreliable.

The authors then propose a GMM procedure that uses projections that impose the dynamic constraints implied by the forward-looking relation instead of instrumenting by means of simple lin-

ear projections on the instruments set. They label this procedure an “optimal” instruments approach.

Finally, the authors use Monte Carlo simulations to test the performance of the optimal instruments approach against conventional GMM estimation.

Key Findings

- The authors find weak identification in the GMM estimation of these macroeconomic relations (as in previous research), and they demonstrate that in a weak instruments context conventional GMM estimates may be biased.
- In contrast to conventional GMM estimation, GMM estimation with optimal instruments produces estimates that are properly centered around the true values.
- Estimates obtained by GMM with optimal instruments are comparable to the estimates obtained via maximum likelihood (ML), and, in contrast to ML estimation, GMM estimation does not require assumptions about the type of distribution for the structural shocks.

Implications

The authors argue that the disparate nature of the extant empirical findings is largely dependent on the estimation methodology. Since weak identification can be an issue in conventional GMM estimation of output and inflation forward-looking relations, it is important to employ methods that are more reliable than GMM when instruments are weak. Overall, the findings support the use of optimal instruments techniques when estimating output or inflation Euler relations. Optimal instruments methods also provide a tighter test of the Euler relation because they impose a constrained reduced form that is the rational-expectations solution to the relation at hand. In so doing, optimal instruments methods exploit the most distinguishing feature of dynamic rational-expectations models.

Public Policy Briefs

b-04-1

Understanding the “Job-Loss Recovery”

Contributors: David DeRemer, Jeffrey C. Fuhrer, Kristina Johnson, Jane Sneddon Little, Radoslav Raykov, Scott Schuh, Geoffrey M. B. Tootell, Robert Triest, and Anne van Grondelle

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This Public Policy Brief presents analysis of the labor market by several research staff members. It is based on materials originally presented to the Board of Directors of the Boston Fed on April 8, 2004, with selective updates incorporating data reported in early June.

Motivation for the Research

The recovery from the 2001 recession has been very unusual. The typical pattern of aggregate employment change over the business cycle is for employment to decrease during a recession, but then to rebound fairly rapidly during the subsequent recovery. In August 2003, 20 months following the latest recession's end, nonfarm payroll employment represented roughly 2.7 million fewer jobs than the pre-recession peak of employment. Despite improved employment growth since then, in early June nonfarm payroll employment stood roughly 1.3 million jobs below the pre-recession peak level, although the recession ended more than two-and-a-half years earlier. This Public Policy Brief examines possible causes of the “employment gap.”

Research Approach

The research looks at the issue from three separate but complementary perspectives. Section I describes the unusual characteristics of the current recovery to date, explains why it has been termed the “job-loss recovery,” examines the alternative data sources that are used to measure employment, and analyzes the magnitude of the “employment gap” and the rate at which employment must grow to close the gap by the start of 2006. Section II addresses outsourcing, which some have blamed for the job malaise. Section III explores the role of productivity and costs as possible explanations for sluggish employment growth.

Key Findings

- The recent data are encouraging, but we still have quite a way to go in closing the employment gap. Employment growth will need to average between 262,000 and 430,000 jobs per month between April 2004 and January 2006 in order to eliminate the employment gap.
- The anemic rate of net employment growth during much of the current economic expansion has been caused by a lack of job creation, not by an unusually high rate of job destruction.
- Although outsourcing of manufacturing jobs is nothing new, what is new is that outsourcing now involves services and the export of moderately high-skill, white-collar jobs. As many as 300,000 business and professional services jobs may have been lost to import competition and overseas job relocation over the past three years.
- According to BLS data on large, long-lasting layoffs, import competition and job relocation overseas explain just 2.4 percent of all such layoffs in 2001 through 2003. Although the estimated gross number of jobs lost to outsourcing overseas — 1.3 million — may seem large, it becomes quite small when seen in the context of the total job loss.
- While this country is running a huge trade deficit overall, the United States continues to enjoy a surplus in services trade — even a growing surplus in other private services vis-à-vis the rest

of the world and vis-à-vis developing Asia. In other words, U.S. workers remain highly competitive in high-value-added services — even in Asia.

- What about the jobs the United States failed to create because of outsourcing? Although the limited job creation data available do show that hiring rates in professional and business services have fallen more than hiring rates for the average U.S. industry since 2001, hiring rates have also fallen more than average in many industries not well suited to outsourcing, suggesting that it is domestic forces that have discouraged job creation.

- The impact of job relocation overseas is, and will likely remain, modest, in part because the trade and investment flows that facilitate foreign outsourcing trigger offsetting equilibrating forces. Moreover, the integration of dynamic new regions like Japan and Korea into the world economy has historically always benefited other countries.

- Productivity — output per worker — has essentially been the dominant engine of growth in nonfarm business output during the current recovery. From the recent recession trough through the end of 2003, productivity grew even faster than output — by 9.9 percent while output grew by 8.5 percent. The other components of output — hours per worker and employment — both declined. It is quite unusual for productivity to be the only growing component of output.

- In this recovery (through June), firms have chosen to respond to increasing demand for output entirely through higher productivity rather than by raising employment or hours per worker. While we are not certain of the reason for this, there appears to be some validity to the hypothesis that firms have been reluctant to hire workers because they are uncertain about the sustainability of recent growth.

- Recent gains in productivity occurred in all three components: higher trend productivity, higher cyclical productivity, and higher unexplained productivity. Higher trend productivity does not “explain” the “job-loss” recovery. However, it does help us understand why relatively strong recent GDP growth has not had a greater impact on employment and unemployment.

- The relatively high level of unexplained productivity remains a puzzle. This brief offers modest evidence suggesting that uncertainty about the economic recovery and growth may explain a piece of the puzzle.

Implications

If economic uncertainty continues to fade quickly and productivity growth reverts to trend, the long-awaited emerging recovery of employment may remain in a brisk “job gain” mode for the remainder of this year or so.

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The Federal Fiscal Outlook

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This Public Policy Brief presents recent forecasts of the U.S. federal government deficit and publicly held federal debt, along with brief commentary. Sources of the forecasts are the Congressional Budget Office, the Office of Management and Budget, and Global Insight Inc.

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