Editors’ Introduction

Jonathan A. Parker, MIT and NBER
Michael Woodford, Columbia and NBER

The twenty-ninth edition of the NBER Macroeconomics Annual continues with its tradition of featuring theoretical and empirical research on central issues in contemporary macroeconomics. This volume’s papers not only address recent central developments, but also take up important policy-relevant questions and open new debates that we expect to continue in the years to come. Accompanying each paper are two excellent discussions, each written by a leading scholar in the area. Finally, following our recent tradition, this volume also contains the text of an invited speech by an NBER researcher who has been influential beyond the world of research, through public service and/or contribution to public policy debates.

Two papers in this year’s issue deal with recent economic performance, with one paper analyzing the evolution of aggregate productivity before, during, and after the Great Recession, and another characterizing the poor economic performance following the Great Recession. Another pair of papers tackles the role of information in business cycles, with one paper studying the dynamic properties of model economies with dispersed information, and the other addressing the extent to which news about future productivity causes business cycles in the present. Our final two contributions address central issues in monetary policy and labor markets—the robustness of the implications of different monetary policy rules to alternative models of sluggish nominal price adjustment, and the role of business cycles in the long-run decline in the share of employment in middle-wage jobs.

Perhaps the central question following the Great Recession is why the growth of the US economy, and the growth of aggregate productivity in particular, is so low. “Productivity and Potential Output Before, During,
and After the Great Recession,” by John G. Fernald is a careful study of the dynamics of aggregate productivity through this volatile period. The paper shows that productivity growth slows to a new lower trend in 2005, well before the start of the Great Recession and even before the beginnings of the financial crisis. This 2005 slowdown is evident in the official measure of total factor productivity—which declines during the Great Recession—as well as a utilization-adjusted measure that is a better measure of productivity of factors in use—which booms during the recession. Further, and contradicting much popular opinion, the paper documents that after adjusting for utilization and local trends, productivity growth following the recession is typical of other recessions. That is, while this recession may have been special in many ways, it has not been associated with an unusually slow recovery in the productivity of employed factors. The paper then tackles the deeper question: If the Great Recession or its fallout did not cause the slowdown in growth rate of productivity, what did? The paper marshals evidence from different industries and from different US states that address specific hypothetical causes, such as the boom and bust in house prices and the growth and collapse of finance. On balance, the evidence suggests that the slowdown in productivity growth is due to technology and the waning of the information technology boom that began in the mid-1990s. Finally, most speculatively and provocatively, the paper extrapolates from its analysis to the implications for the future rate of US economic growth over the next decade.

Our second paper also seeks to clarify the reasons for the US economy’s poor performance in the aftermath of the recent crisis. In “Quantifying the Lasting Harm to the US Economy from the Financial Crisis,” Robert E. Hall offers a decomposition of the 13% shortfall of real gross domestic product (GDP) (as of 2013) from the economy’s apparent trend prior to the crisis into parts due to each of four sources—below-trend growth of capital, of the labor force, of hours worked per member of the labor force, or of total factor productivity—through a standard growth-accounting approach, examines the quantitative importance of each of these factors and discusses the most likely reasons for departures from the prior trend of each kind. While continuing slack utilization of the labor force has been part of the problem, and one emphasized in much public policy debate, Hall argues that this factor accounts for only a relatively small part (only about one-sixth) of the GDP shortfall remaining in 2013; each of the other three factors accounts for a larger share, with below-trend growth of the capital stock (accounting for 30% of the total shortfall) the most important.
The paper is particularly concerned with the implications of its analysis of the sources of the persistent shortfall for the likelihood that the lost ground will be regained eventually. Hall expresses optimism that the part of the shortfall due to slower growth of the capital shock should eventually be corrected—even if not too rapidly, even under the most optimistic scenario—as he finds little ground to attribute the recent low rate of investment to factors that should permanently change the long-run capital/output ratio. He also argues that the part due to higher unemployment should eventually be eliminated, though the rate at which this can occur should continue to be slowed by a reduction in the efficiency of job matching that he attributes to a crisis-induced change in the composition of the pool of unemployed workers. He argues that there is no reason to expect the shortfall in total factor productivity (TFP) growth to be later reversed, even if reduced innovation has been caused by the crisis—that much of the below-trend growth of the labor force may be permanent as well. Hence the paper is relatively pessimistic about the ease with which the continuing output shortfall can be reduced; much of it should be expected to change only slowly, and some of it should not be reversible at all, even with aggressive demand stimulus policies.

An important recent development in macroeconomic theory has been a revival of interest in the role of information heterogeneity and the resulting differences in beliefs across market participants in generating and propagating fluctuations in economic activity. Much of this work, however, has offered purely qualitative results in the context of fairly stylized theoretical models; the quantitative significance of the effects under realistic assumptions is seldom addressed, largely because models with heterogeneous information have seemed intractable except under highly special assumptions. In “Information Aggregation in a DSGE Model,” Tarek A. Hassan and Thomas M. Mertens make important progress in the development of a more quantitative literature, by first incorporating a noisy rational expectations model of partial information aggregation in financial markets into a quantitative dynamic stochastic general equilibrium (DSGE) model of fluctuations in aggregate economic activity, and second by showing how an approximation method can be used to solve for the dynamics implied by the model.

Hassan and Mertens consider a real business-cycle model that has been extended in directions that allow it to match certain basic asset-pricing facts, such as the average returns on both riskless short-term assets and on the aggregate stock market, in addition to the facts about cyclical variation in aggregate quantities that were the focus of the clas-
sic real business cycle literature. These include assuming an exogenous process for aggregate productivity that includes both long-run and short-run risk components, and Epstein-Zin preferences for the representative household, as in the finance literature that attributes the equity premium to long-run consumption risk. Moreover, each household is assumed to receive a noisy private signal about the coming month’s shock to the long-run component of productivity; these signals are the source of belief heterogeneity in the model. Finally, as in the noisy rational expectations literature in finance, “noise traders” are also introduced into the equity market in order to prevent the price of stocks from fully revealing the aggregate productivity shock; hence, beliefs about future productivity remain heterogeneous in their model.

The paper sets out a methodology for assessing the consequences of such heterogeneity for the business cycle. The paper finds that allowance for dispersed information affects the quantitative predictions of this model in a number of respects. The risk-free rate falls while the predicted equity premium rises, thus helping to account for two basic facts that have been problematic for many macrofinance models. Many business-cycle predictions are modified as well; notably, even a moderate degree of heterogeneity of expectations substantially increases the predicted correlation between fluctuations in aggregate consumption and aggregate investment spending, again better matching the quantitative properties of observed business cycles. The model fails, however, to simultaneously match all of the data moments that are considered; notably, it is difficult for the model to account for the degree of dispersion in individual forecasts of GDP growth indicated by the Survey of Professional Forecasters. This suggests that the particular way of modeling belief heterogeneity considered here is not sufficiently noisy, but movement of the literature to a discussion of quantitative realism seems to us an important step forward.

Over the past decade, a number of papers have considered the possibility that some economic fluctuations may be driven not by innovations in policies or technologies today, but rather by changes in expectations today about policies or technologies in the future. In “Whither News Shocks?” Robert B. Barsky, Susanto Basu, and Keyoung Lee use identified vector autoregressions (VARs) to delineate the importance of these Pigouvian fluctuations for business cycles and then use a DSGE model to interpret their results. The first question that the paper addresses is whether, given minimal assumptions used to identify news shocks, these shocks account for a quantitatively important share of
the fluctuations observed in the US economy. One might suspect that this answer is yes, given both the paucity of other measurable drivers of business cycles and the interpretation of recent fluctuations as expectations-driven, an interpretation in which expectations amplified growth before the Great Recession and, when determined to be overly optimistic, contributed to the severity of the downturn. But on the other hand, structural shocks identified by previous researchers have mostly been unable to account for much of the variance of output associated with the business cycle.

Barsky, Basu, and Lee show that there are quantitatively important movements in expected future total factor productivity that are unrelated to movements in current productivity, and moreover, that these innovations generate predictable movements in productivity that account for roughly half the variation in productivity at a horizon of five years. These identified news shocks track consumer confidence, are followed by lower inflation, and have prolonged real effects on productivity that differ from those commonly assumed in DSGE models.

The paper then uses structural macroeconomic models to help delineate and interpret the observed dynamics that follow a news shock. While consistent with previous research, there is evidence that news shocks increase consumption and reduce labor, as in the textbook neoclassical growth model and unlike in the typical business cycle. That said, this evidence is statistically weak and limited to the period immediately following a news shock. At the same time, the longer term dynamics exhibit comovement between consumption and labor, and the paper investigates the extent to which a New Keynesian model can account for these dynamics. In sum, this paper reinvigorates the literature on news shocks, and the discussions take up the debate.

Our fifth paper considers an issue that has been prominent in recent macroeconomic policy debates, both in the United States and a number of other countries: the way in which the effects of policy should be expected to be different when monetary policy is constrained by the zero lower bound (ZLB) on interest rates. A number of influential papers have argued, on the basis of analyses using New Keynesian DSGE models, that commitments to maintain future monetary policy looser in the future than would otherwise be justified by conditions at the time can be an effective source of aggregate demand stimulus, even when the current interest-rate target cannot be lowered. Analyses using similar models have also found that government purchases can be expected to have a larger stimulative effect on aggregate activity in the case of
an economy at the ZLB, suggesting a more important role for countercyclical fiscal policy under such circumstances.

In “Effective Monetary Policy Strategies in New Keynesian Models: A Reexamination,” Hess Chung, Edward Herbst, and Michael T. Kiley consider the extent to which the conclusions obtained in these studies are robust to alternative specifications of the macroeconomic model used to predict the effects of alternative policies. They point out that all of the best-known analyses are based on fairly similar New Keynesian models, but argue that sounder conclusions can be reached by also considering the predictions of alternative models. The paper focuses in particular on the role of the New Keynesian Phillips curve specification, in which the short-run trade-off between inflation and the output gap depends on current expectations regarding future inflation, in generating the rather striking conclusions obtained in the ZLB literature. Chung and colleagues present evidence indicating that an alternative specification, a variant of the “sticky information” Phillips curve proposed by Greg Mankiw and Ricardo Reis, fits historical US data as well or better than a standard New Keynesian Phillips curve specification. The alternative Phillips curve makes relatively little difference for predictions about the effects of monetary policy under a policy rule of the kind estimated to describe US policy before reaching the ZLB; yet, they find that substitution of the sticky-information Phillips curve specification into an otherwise identical DSGE model makes a significant difference to quantitative predictions about the effects of policy at the ZLB.

In particular, they find that under the alternative Phillips curve specification the effects on current economic activity of an announced tightening or loosening of monetary policy several quarters in the future are only a fraction of the size of those predicted by a model using the more standard specification. This suggests that explicit statements about future policy may not be as powerful a policy tool as the New Keynesian analysis would imply. Nonetheless, their alternative model still implies that a change in anticipated future policy can influence economic activity at the ZLB, and it still implies that an optimal policy in response to a shock that causes the ZLB to bind would involve committing to keep interest rates lower for longer than would occur under a reversion to historical policy as soon as this was allowed by the ZLB, and would involve allowing inflation to temporarily overshoot its long-run target value as a result of the prolonged stimulus. A number of other conclusions about effective policy stressed in the New Keynesian literature are also found to be robust to use of the alternative model. In particular, they find that highly inertial interest rate rules that respond to devia-
tions of the level of nominal GDP (or the price level) from a target path have desirable properties, both when the economy is hit by adverse supply shocks and when an unusually large demand shock causes the ZLB to bind. Thus, while the paper illustrates the value of checking the robustness of policy analyses to alternative model specifications, it suggests that the DSGE literature has yielded policy insights of some degree of robustness.

The final research paper in the volume, “Labor Market Polarization over the Business Cycle” by Christopher L. Foote and Richard W. Ryan, uses a wealth of labor market data to examine the role of macroeconomic fluctuations in the long-run decline of jobs in the middle of the wage distribution. The literature on the polarization of the labor market has shown that jobs in the middle of the wage distribution are disproportionately characterized by routine tasks like those performed on assembly lines or in traditional clerical work. As such it has been hypothesized that these jobs are more easily displaced by automation or international trade, and the share of such jobs, defined as those in occupations primarily requiring routine manual work, has declined from nearly half of all employment to less than a quarter from 1950 to 2010. These losses are concentrated at the start of recessions, suggesting that middle-skill workers reallocate themselves to other jobs when aggregate productivity is low.

But Foote and Ryan demonstrate that there is a simple alternative explanation with a set of interesting implications. First, the middle of the wage distribution consists disproportionately of jobs in disproportionately cyclical industries like manufacturing and construction. Manufacturing in particular has both a procyclical employment share and a declining employment share. The procyclicality of middle-skill employment is quite stable over time, even as labor market polarization has become more firmly established. Thus the observed relationship is due to cyclical demand in industries that have made heavy use of middle-skill workers and have declining employment shares, suggesting not reallocation but a trend decline buffered by the business cycle. Second, the paper shows that these “polarization” job losses are permanent: cyclical job losses due to polarization are associated with declines in labor-force participation among middle-skill workers. The decline in participation associated with polarization actually accounts for a large fraction of the total decline in labor-force participation since the late 1970s. In conclusion, the paper argues that these results imply a more nuanced view of both the cyclical employment fluctuations and labor market polarization than contained in most current models. In particular, the participa-
tion margin is important for quantitative models of polarization and the concentration of cyclicality implies an important role for industry dynamics and recall unemployment in quantitative accounts of labor market fluctuations.

The final chapter is a speech by Kenneth Rogoff, longtime NBER member, former Chief Economist and Director of Research at the International Monetary Fund, author of This Time Is Different: Eight Centuries of Financial Folly (with Carmen M. Reinhart), and a former editor of the NBER Macroeconomics Annual. In his talk, Ken Rogoff discussed the advantages and disadvantages of the elimination of physical currency. As a value-weighted share of total transactions, actual currency is now seldom used to make payment in transactions. Most purchases use checks, credit cards, debit cards, and so forth. The long-standing trend away from cash transactions has been highlighted by the advent of digital currencies. Rogoff considers the costs and benefits of the elimination of physical currency—notes and coins—entirely. While noting that this idea is provocative from the standpoint of symbolism and perhaps trust in a currency, Rogoff argues that the existence of physical currency facilitates crime and hinders negative nominal interest rates. On the other hand, there is demand for physical currency so that eliminating it would reduce revenues from seigniorage, and issuance of physical currency funds the central bank, facilitating its independence. The published text of the talk provides a quantitative consideration of the costs of eliminating currency and contrasts them with the likely benefits.

Finally, the authors and the editors would like to take this opportunity to thank Jim Poterba and the National Bureau of Economic Research for their continued support for the NBER Macroeconomics Annual and the associated conference. We would also like to thank the NBER conference staff, particularly Rob Shannon, for his continued excellent organization and support. Financial assistance from the National Science Foundation is gratefully acknowledged. Mariana Garcia Schmidt and Ben Hebert provided invaluable help in preparing the summaries of the discussions. And last but far from least, we are grateful to Helena Fitz-Patrick for her invaluable assistance in editing and producing the volume.

Endnote

For acknowledgments, sources of research support, and disclosure of the authors’ material financial relationships, if any, please see http://nber.org/chapters/c13406.ack.