Program Report

Labor Economics

Richard B. Freeman*

When the NBER instituted the Labor Studies Program some 20 years ago, labor economics was merely a tributary of economics. The main battleground of economic debate was macroeconomics, and most analyses focused on time-series data. Today, many of the big issues in economics are microeconomic labor problems, and their resolution requires analyses of large datasets. The topic that has attracted the greatest attention among NBER labor researchers is the change in the U.S. earnings distribution—the decline in the economic position of low-skilled workers relative to high-skilled workers—an area in which our colleagues in trade also have worked intensively. Many other labor issues, such as the effect of the minimum wage on employment and income, the effect of government training programs on worker skills, the relation between family background and the well-being of children, the return to schooling and even crime, can be viewed as part of a broad concern for the causes and consequences of inequality.

The high level of employment in the United States also has attracted much attention. Many Western Europeans look longingly on the "U.S. model" for its success in creating jobs. By the U.S. model, they do not mean U.S. macro or financial policy, or industrial organization, or trade policy; they mean our labor market. This is a significant change in thinking about the U.S. job market. Until the mid-1980s or so, the United States had higher unemployment rates than most European Union countries; the rate of joblessness in West Germany did not rise above the American rate until the 1990s. An Australian economist once remarked that when he was a student, he thought economic models based on the competitive U.S. labor market proved how badly economists understood labor markets. After all, Australia and Western Europe had markedly better unemployment records than the United States. But this

*The NBER Working Papers and Technical Papers cited in brackets by number throughout this report are listed, and their abstracts and in many cases full text are available, at the NBER World Wide Web Site.
is no longer the case. We may still misunderstand labor markets, but the facts that need explaining now are quite different.

NBER researchers have been examining foreign labor markets, and economic systems more broadly, in an effort to understand differences in outcomes across countries and to cast light on the virtues and vices of the U.S. labor market. They also have analyzed the organization of firms, asking what leads them to treat workers differently, and how labor relations and personnel policy, including compensation policy, contribute to firm performance.

Finally, mirroring the more central role of labor issues in economic analysis, the NBER Labor Studies Program has produced an extraordinarily large number of research papers since my last report (307 by my rough count), which made the preparation of this article more difficult than previous reports on the Program. Because of the plethora of papers, I have picked only some of the topics covered in the Program.

Further mirroring the increased importance of labor issues, the last two John Bates Clark Award medalists—David Card and Kevin M. Murphy—come from our ranks, of which we are proud.

Inequality and Related Issues

There is probably not a nook or cranny in the analysis of the rise in inequality in earnings in the United States that NBER researchers have not explored. They have contributed to documenting the facts [5202, 5832, 6213, 5823]; to examining the effects on immigration and how immigrants have fared in the economy [4972, 4955, 4966, 5454, 5763, 5927, 5388, 5837, 6195]; considered the role of trade [5924, 5940, 5621, 6209], unionization, technology [4255, 5534, 5956, 5107, 5941, 5606, 5657, 6166], in-
increases in the supply of women and the labor supply responses of the family [5236, 5459]; and looked at the effect of neighborhoods and ethnic capital on outcomes [6175, 6176]. Whereas in some parts of the profession, the inequality issue is posed solely in terms of the effects of trade versus technology, labor researchers have been looking at diverse institutional influences as well [4224, 4678, 4945, 5093]. A nutshell summary of this research is that there is convincing evidence that most things that we expect to matter do in fact matter; that no single factor can explain the pattern of rising inequality; and that consensus about the relative magnitudes of different factors has not been reached. As in much economic analysis that seeks to determine the "sources of...", there is a sizeable residual, leaving an open field for judgement calls. An important tool in these analyses has been the NBER's CD-ROM on the out-going rotation group of the Current Population Survey.

Women have been the "exception to the rule" of rising earnings differentials; they have improved their position in the job market, particularly at the higher skill levels. A significant number of researchers have explored the improved position of women in the job market and the particular problems they face. These researchers have sought new ways to assess issues relating to the determinants and consequences of childbearing [4911, 4224, 5664, 5406, 5778, 6047, 6034]; examined the effect of school content [5580] and faculty composition [4874] on female progress in the job market; and looked at the changing pattern of organizing careers and families [5188], and why women are underrepresented in the field of economics [5299]. Francine Blau and Lawrence Kahn have linked gender pay differentials to the overall wage structure across countries [5664], highlighting the exceptional progress of American women.

How much might additional schooling help the workforce prospects of persons from low income backgrounds? Does class size matter in student performance after graduation and in the job market? Researchers have used data on twins, sought distinct "natural experiments," and used cross-state data and diverse instruments to study the effects of these inputs on educational outcomes [4874, 5144, 5708, 5450, 6051, 5331, 5533, 5274, 5288, 5548]. One important finding is that the instrumented, or natural experiment, estimates of school effects on earnings show that they remain relatively high. The effect of class size and resources on schooling is more controversial; there is no consensus there. Cecilia Rouse has given a modestly positive assessment of the effects of the Milwaukee parental choice program on student achievement [5964].

How much might family background matter in economic differences? Joseph Altonji, working with various co-authors, has examined both the effects and mechanisms by which family characteristics influence the young [5072, 5378, 5522]. Derek Neal has presented evidence that "pre-market factors" are very important in black-white differences [5124]. Several researchers have examined childbearing issues [5807, 5781] and the effect of various programs and interventions on children's well-being [5805, 5985]. Janet Currie currently heads the NBER's Program on (the Economics of) Children.

What is the link between crime and economic problems? Several researchers have explored issues relating to crime, examining the distribution of crimes across cities [5430]; the relation between crime and wages [5983]; domestic violence [4939]; and employment and crime [4794, 4910, 5451].

Labor Institutions

Following the completion of the NBER's Comparative Labor Project in 1995, many NBER researchers have continued to study labor markets in countries outside the United States [5237, 5003]. Robert Topel and I, working with Birgitta Swedenborg of SNS, directed a major study of the Swedish welfare state, that paired Swedish and American researchers: The Welfare State in Transition: Reforming the Swedish Model published by the University of Chicago Press for the NBER in 1997. This project highlighted both the pluses of the Swedish model (conquering poverty) and the negatives (in the form of micro-economic inefficiencies and the inability to escape high levels of unemployment in the 1990s). John Abowd, working with Francis Kramarz, David Margolis, and others has exploited fairly unique data files from France that follow workers across firms [4917, 5077, T180, 5493, 5551, 6109, 6110], allowing the researcher to control for firm and worker effects and thus to learn more about how the job market functions. In 1995, Abowd helped organize an international conference on the use of matched employee-employer panel datasets. Other researchers have examined German institutions in some detail [5988, 4808, 4825, 5716, 5724, 6167, 5208, 5829] and have contrasted the United States, Canada, and France [5487]. In winter 1996 the NBER held a conference, organized by David Blanchflower and me, on youth labor markets. It contrasted the United States and Germany, the United Kingdom, and Sweden [6031, 6078, 6102, 6105, 6111, 6142, 6212].

Looking at U.S. institutions per se, Patricia Anderson and Bruce Meyer have focused on unemployment insurance, which has a surprisingly low take-up rate in this country [4787, 4960] while Kate Baicker, Claudia Goldin, and Lawrence Katz [5889]
have studied the development of that system over time. Jonathan Gruber, with co-authors, has examined the implications for labor supply of various social insurance programs [6041], while John Bound with co-authors has focused on disability insurance [5159, 5536, 5169].

**Labor Demand and Firm Behavior**

Many researchers have examined labor demand behavior and the internal organization of firms. Lawrence Katz has shown that wage subsidies can modestly improve the demand for disadvantaged workers [5679]. Daniel Hamermesh has examined the demand for hours of labor [4394, 5973]. Michael Kremer and Eric Maskin offered a demand-side analysis linking rising inequality to segregation by skill [5718]. Two studies have focused on worker characteristics, one on their impact on plant-level production [5626] and one on the effect of affirmative action on employee qualifications [5603].

Several researchers have looked at intrafirm issues, ranging from the theory of works councils and worker share ownership and worker cooperatives [4918, 5436, 6118] to other organizational issues [5705, 5802] to empirical studies of firm performance under alternative structures [6120, 5672]. Doug Kruse and Joseph Blasi have summarized what we know from many studies of the links among employee ownership and firm performance and employees’ attitudes [5277]. Casey Ichniowski, Katharine Shaw, and Giovanna Prennushi have provided evidence that packages of human resource practices add more to firm productivity than individual practices [5333].

Robert Gibbons and Henry Farber organized a 1996 NBER-Universities Research Conference around the issue of the internal structure of firms, and this promises to be a growing topic in future years.

**Econometric Issues**

Huge datasets raise new potential for statistical testing and open the door for new strategies for determining behavioral responses to economic incentives. A striking pattern in much empirical work is the search for appropriate "instruments" from which to infer behavior. What researchers do is seek out factors that shift supply or demand incentives without directly affecting the relevant outcomes. Joshua Angrist, Guido Imbens, and Don Rubins have greatly enhanced our understanding of the advantages and limitations of instrumental variable analyses with a set of papers developing the notion of a local average treatment effect, or LATE [T118, T127, T181, 5192]. Angrist, Krueger, and Imbens have examined different ways to use instrumental variables [T150, T181, T172] while John Bound and David Jaeger have pointed out problems when instruments are only weakly correlated with the explanatory variable [5835]. James Heckman and co-authors have provided insightful analyses of the problems with social experiments [T166, T184, 5525].

**What Next?**

A visitor to labor studies from the rest of economics will notice immediately that the field is strikingly empirically-oriented, with researchers reacting to ongoing social problems and devoted to the "facts, ma'am, just the facts." This is a huge strength, but also in some ways a weakness. In the future, I expect more attention to be paid to the effects of trade on the labor market and to the contribution of labor markets to the distinct macroeconomic performance of the United States, which some researchers have explored [5822, 5538, 5538] and to further work on firms and institutional differences among countries. As it is difficult to analyze trade, macro issues, firms, or country institutions without some (albeit very different) theoretical basis, perhaps we will see labor researchers contributing more along the theoretical than they have in the past.

**LIST OF SELECTED REFERENCES**

For the rising pay of higher level workers, see:

WP 6213, 10/97, Brian J. Hall and Jeffrey B. Liebman
"Are CEOs Really Paid Like Bureaucrats?"

For the contribution of institutions to the distribution of wages, see:

WP 5093, 4/95, John DiNardo, Nicole M. Fortin, and Thomas Lemieux

For the effect of institutions on productivity and firm performance, see:

WP 5333, 11/95, Casey Ichniowski, Kathryn Shaw, and Giovanna Prennushi
"The Effects of Human Resource Management Practices on Productivity"
WP 5436, 1/96, Edward P. Lazear and Richard B. Freeman
"Relational Investing: The Worker’s Perspective"

For the debate over the role of school resources on education, see:

WP 5708, 8/96, David Card and Alan Krueger
"School Resources and Student Outcomes: An Overview of the Literature and New Evidence from North and South Carolina"
WP 5288, 10/95, James Heckman, Anne Layne-Farrar, and Petra Todd
"The Schooling Quality–Earnings Relationship: Using Economic Theory to Interpret Functional Forms Consistent with the Evidence"
Research Summaries

Monetary Policy and Inflation Targeting

Lars E.O. Svensson*

In the 1990s, several countries shifted to a new monetary policy regime: an announced quantitative inflation target. The reason for this shift was the unsatisfactory performance under previous regimes. New Zealand, Canada, Australia, and Spain all introduced inflation targets under persistently high inflation; the United Kingdom, Sweden, and Finland did so after having abandoned fixed exchange rates, which had failed to achieve low and stable inflation and had been subject to dramatic speculative attacks. Inflation targeting has received much recent attention, both among policymakers and academics. In the United States and in Europe it is debated as a possible monetary policy strategy for the Federal Reserve System and the future European Central Bank, respectively. Academic research on inflation targeting, both theoretical and empirical, has grown quickly.1 My own research in the last few years has largely dealt with understanding inflation targeting in relation to other monetary policy regimes and investigating how practical monetary policy can best be conducted under inflation targeting.

Practical inflation targeting has several common characteristics: 1) an announced quantitative inflation target, varying across countries between 1.5 and 2.5 percent per year, in most countries with a tolerance band of plus/minus 1 percentage point around the target; 2) no explicit rule on how the central bank shall set its instrument; 3) a floating exchange rate (except for Finland and Spain, which are members of the Exchange Rate Mechanism, although the wide exchange rate bands there so far have not created any conflict between the inflation target and the exchange rate target); and 4) a high degree of transparency and accountability. Commentators also often describe inflation targeting as a regime without an intermediate target for monetary policy (instead, targeting inflation “directly”). I have argued in some of my research that this is misleading and that inflation targeting actually implies a particular intermediate target, namely the central bank’s inflation forecast.

Inflation Targeting as a Remedy Against High Inflation

Inflation targeting can be seen as a potential remedy for persistent high inflation. Other remedies discussed and suggested in the literature include: 1) accepting that the long-run Phillips curve is vertical and implicitly, or explicitly, setting any output or employment target equal to (rather than above) the “natural” level; 2) creating an independent and conservative central bank; and 3) setting up a performance contract (an “inflation contract”) for the central bank governor or governing board. In one of my papers, I examine the relation between inflation targeting and these remedies. Inflation targeting indeed can involve elements of all three remedies. By announcing a rather low inflation target and creating some degree of commitment to it, inflation targeting can help to reduce inflation, even if an inflationary bias remains, and if inflation more often exceeds than falls short of the target. This creates a “conservative” central bank in the sense of having a lower inflation target rather than, as is common in the literature since Rogoff’s classic 1985 article, identifying “conservatism” with a larger weight on a given inflation target.

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Incidentally, this interpretation of conservatism solves an empirical puzzle about independent central banks, inflation, and output variability. If independent central banks are more conservative in that they give more weight to a specific inflation target, then lower inflation should be correlated with higher variability of output. A large literature instead has stated that more independent central banks in industrialized countries are associated with lower inflation rates, but not with higher variability of output. This finding is instead consistent with independent central banks simply having lower inflation targets.\(^2\)

**Price-Level Targeting versus Inflation Targeting**

Inflation targeting implies "base drift" of the price level, even if the target is set at zero: if inflation overshoots its target, then the target for the next period is related to the new price level. This base drift means that the price level has a unit root; it also means that the variance of the future price level increases without bound with the horizon. Therefore, to say that (successful) inflation targeting leads to "price stability" is not quite correct. Nevertheless, the terminology has stuck.

Genuine price-level targeting is different: monetary policy then aims at keeping the price level constant, or around a steady increasing path. Price-level targeting need not imply zero inflation, if a positive inflation rate is deemed desirable. The big difference vis-a-vis inflation targeting is that the variance of the price level does not increase with the horizon. Thus, the uncertainty about the price level in the distant future is less than under inflation targeting, which should facilitate long-term decisions about savings and investment, and improve resource allocation.

The conventional wisdom is that price-level targeting would lead to increased inflation variability, as excessive inflation eventually would be followed by too little inflation in order to get the price level back in line. Such variability might then show up in increased output variability.

Closer study reveals that this issue is more complicated. In one of my papers, I show that price-level targeting very well may succeed in achieving lower variability of both the price level and inflation, when the different incentives for monetary policy under inflation and price-level targeting, as well as the different expectations of future inflation and price levels, are taken into account. Experiments in large empirical macro models also have produced this result.

At present, more than half a dozen countries practice explicit inflation targeting (and certainly quite a few practice implicit inflation targeting, including Germany, the United States, and Switzerland). But there is only one historical example of price-level targeting: the successful but short experiment in Sweden in the 1930s. In the next few years, a move to inflation targeting may be sufficiently challenging for central banks. In about another decade, when central banks hopefully master all the intricacies of inflation targeting, the time might be ripe for seriously considering the pros and cons of the potentially more demanding alternative: price-level targeting.\(^3\)

**Implementing Inflation Targeting**

How can inflation targeting overcome the major difficulty that central banks do not have perfect control over inflation? Inflation reacts with "long and variable lags" and with variable magnitude to changes in the monetary policy instrument. Inflation also is affected by factors other than monetary policy, and sometimes with a shorter lag than monetary policy.

Given these lags and imperfect control, the central bank necessarily must adopt a forward-looking perspective, attempting to control inflation one to two years ahead. Forecasts (projections) of crucial macrovariables become central, and inflation targeting becomes "inflation-forecast targeting": the bank's internal inflation forecast, conditional on current information and a given path for the monetary policy instrument, becomes the intermediate target. If the inflation forecast is above (below) the inflation target, monetary policy should become more restrictive (expansionary).

The effect on the conditional inflation forecast is also the main decision criterion when new information arrives. If the new information is deemed to shift the inflation forecast at a horizon of one to two years, the policy instrument should be adjusted to dampen or nullify that shift. If the new information has no effect on the forecast, there is no need to react to it. In practice, inflation-targeting central banks construct their forecasts partly from structural models, partly from forecasting models, but also from judgments and extraneous information. Thus, inflation targeting uses all relevant information.\(^4\)

Therefore, the implicit instrument rule that follows from inflation forecast targeting generally will differ from the well-known Taylor Rule, according to which the monetary policy instrument would react only to current inflation and output.

**Strict or Flexible Inflation Targeting?**

Under inflation targeting, what is the scope for stabilizing macrovariables other than inflation: for instance, output, employment, or the real exchange rate? Under "strict" inflation targeting, the central bank is only
concerned with achieving the inflation target; under "flexible" inflation targeting, the central bank is also, to some extent, concerned with the stability of output and/or the real exchange rate. If inflation has deviated from its target, under strict inflation targeting the bank tries to get inflation back to target as quickly as possible. This requires considerable instrument movements which also are likely to move output or real exchange rates. Under flexible inflation targeting, concern about output and real exchange rate variability would lead the bank to take inflation back to the target at a more gradual pace. Indeed, I find that concern about output and real exchange rate variability translates into targeting inflation at a longer horizon, say 2.5 years rather than 1.5 years.⁵

Concern about output and real exchange rate variability is not the only reason for a longer horizon and a more gradual adjustment of inflation towards the target. Uncertainty about the lags and magnitudes in the transmission mechanism, that is, model uncertainty, as well as concern about interest variability (central banks seem eager to avoid whip-sawing the interest rate and prefer considerable smoothing) produce the same results.⁶ Hence, strict inflation targeting is an extreme case. Indeed it appears that real-world central banks pursue flexible inflation targeting and to some extent, stabilize output and real exchange rates, or at least smooth interest rates. All inflation targeting economies are very open. In an open economy, the exchange rate provides an additional channel for the transmission of monetary policy. There is also a choice between targeting domestic inflation (in the GDP deflator, for instance) or CPI inflation (the latter also takes the prices of imported final goods into account). All inflation targeting countries have opted for targeting CPI inflation rather than domestic inflation (in most cases some specific components are excluded from the index, for instance mortgage costs). Flexible CPI-inflation targeting appears to be better than targeting domestic inflation when it comes to stabilizing both domestic inflation and real exchange rates.⁷

**Monitoring Inflation Targeting**

As mentioned earlier, inflation-targeting regimes may entail a high degree of transparency and accountability. Inflation-targeting central banks regularly issue "Inflation Reports," explaining and motivating their policy to the general public. In New Zealand, the Reserve Bank Governor's job is at risk if inflation is higher than 3 percent per year or lower than zero. In the United Kingdom, the Chancellor of Exchequer recently announced that if inflation deviates more than 1 percentage point from the inflation target, the Bank of England's Governor must explain in an open letter why the divergence has occurred and what steps the Bank is taking to deal with it. In the other inflation-targeting countries, the central bank's governor and board certainly suffer considerable embarrassment and criticism when inflation moves outside its designated tolerance interval.

An explicit inflation target and an informative inflation report make it relatively easy to monitor central-bank performance. The quality and results of the bank's analysis can be scrutinized by external experts and observers in order to discover biased arguments or wishful thinking. Even if the bank chooses to—or is not required to—publish any inflation report at all, interested observers can collect inflation forecasts from reputable external forecasters and can check whether they are in line with the inflation target at an appropriate horizon.⁸

Transparency allows the private sector to better assess both the competence of the central bank and its commitment to the inflation target. If the bank's competence and commitment are deemed adequate, its credibility improves, and it is easier for the bank to fulfill its target, since private sector price- and wage-setting then adapts to the target. At the time, a lack of transparency may give the bank more discretion to pursue any idiosyncratic goals. The incentive for the bank to make monetary policy more or less transparent thus depends on an intricate way on its competence and its commitment. Since transparency normally seems to be socially desirable, conflicts of interest between the bank and society cannot be excluded.⁹

**Still Too Early to Tell**

Explicit inflation targeting appears to have many advantages compared to the available alternatives. Monetary policy becomes goal-directed, incentive-compatible, and transparent. Yet, flexible inflation targeting allows some concern about stability of output, employment, and real exchange rates to influence policymaking. Inflation-targeting central banks are improving their ability to control inflation. More research adds to the understanding of the strong and weak sides of this regime, and to the central bankers' knowledge of how to best operate it. Still, these regimes are very young; the oldest one, in New Zealand, is barely 7 years of age. Any evaluation must be highly preliminary; we will have to wait for several more years of data, including several business cycles, until we can make a very reliable evaluation. Meanwhile, inflation targeting will provide ample opportunities for more research.

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5 These results are derived and discussed in "Inflation Forecast Targeting: Implementing and Monitoring Inflation Targets," European Economic Review 41, op. cit.


7 These and other preliminary results for an open economy are reported in L.E.O. Svensson "Open-Economy Inflation Targeting," mimeo, 1997.

8 These issues are further discussed in "Inflation Forecast Targeting: Implementing and Monitoring Inflation Targets," European Economic Review, op. cit.


Institutions for Fiscal Stability

Alberto Alesina*

The seventies and most of the eighties have been a period of fiscal profligacy in many countries around the world. Several OECD countries have accumulated debt/GDP ratios.

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which are unprecedented, except for the aftermath of major wars. Low public savings have been at the root of Latin America's "lost decade," the eighties. Currently, the goal of achieving and maintaining fiscal stability is the main macroeconomic issue in many parts of the world.

This evolution of fiscal policy raises many intriguing questions: Why have many but not all countries abandoned fiscal discipline? What explains the very large cross-country variance in fiscal stance? Why did large and persistent deficits appear in the mid-seventies and not before? What explains the likelihood of success of fiscal adjustments? Why did certain countries make swift and very successful fiscal consolidations, while others are still struggling?

The answers to all of these ques-
tions cannot rely purely on economic factors since economically similar countries exhibit very large differences in fiscal performance. In a series of recent papers, I have addressed these questions by considering politico-institutional explanations.

In a paper coauthored with Roberto Perotti, I identify two critical institutional variables as important determinants of the fiscal policy stance: the degree of government fragmentation, and the nature of budget institutions. In terms of the former variable, we argue that coalition governments are more likely to delay the adoption of stabilization policies, because of inter-coalition struggles leading to legislative deadlocks. Thus, after the oil shocks of the seventies, countries ruled by fragmented coalitions reacted more slowly and less decisively, letting budget deficits accumulate. In a second paper, we show that when coalition governments actually attempt to stabilize the budget, they often fail because they do not have the political strength to deal with structural budget cuts in social spending and government wages.

While this argument about government fragmentation is relatively well understood, the issue of budget institutions is more complex and multifaceted. In the last few years a vast research program to which I have contributed has investigated how different procedures influence fiscal outcomes, both in the OECD group of countries, and in a sample of Latin American countries and the American states. This research effort leads to the conclusion that budgetary institutions do matter as a determinant of fiscal outcomes, and therefore different choices about fiscal institutions may lead to a higher or lower propensity to run excessive deficits.

In a third paper, Perotti and I identify several theoretical and empirical issues which are central for the discussion of how institutions affect fiscal outcomes. We define budget institutions as all of the rules and regulations according to which budgets are drafted, approved, and implemented. We focus mainly on three issues: balanced budget rules, procedural and voting rules, and transparency.

**Balanced Budget Rules**

Well-known economic arguments suggest that balanced budget rules are not optimal, because they do not allow deficits to fluctuate over the cycle and in the event of major and temporarily high spending needs. However, since for many political reasons politicians may have incentives to run excessive deficits, balanced budget rules may serve the purpose of correcting a politically induced distortion in fiscal policy. However, an unpleasant consequence of balanced budget rules is that they generate incentives for circumventing them. In so doing, policymakers engage in tactics of creative accounting which make the budget less transparent, creating additional obstacles to an effective control on fiscal discipline.

For all of these reasons, balanced budget rules at the national level may be counterproductive. Instead, fiscal discipline can be enhanced by appropriate procedural rules (discussed later) which do not require a numerical target on the budget balance. The same argument, however, may not apply to subnational levels of government, such as American states. Local and state governments may need less flexibility because their budget are less cyclically sensitive. Several authors have investigated the effects of restrictions on budget deficits in American states: this literature concludes that more stringent balanced budget rules lead to more fiscal discipline. My own contribution to the literature includes a paper with Tamim Bayoumi of the IMF. In this article, we show that more stringent fiscal rules enforce fiscal discipline without any apparent negative effect on state output volatility.

**Procedural Rules**

One can identify three phases in the budget process: the formulation of a budget proposal within the executive; the approval of the budget in the legislature; the implementation of the budget within the bureaucracy. In my research I have focused almost exclusively on the first two points.

Voting procedures can be classified on a hierarchical-collegial dimension. Hierarchical procedures are those that, for instance, attribute strong prerogatives to the Prime Minister (or Treasury Minister) to overrule spending ministers in intragovernmental negotiations. Also, hierarchical institutions limit the latitude of legislative amendments on the budget. For instance, in some cases the legislature can change the proposed budget without affecting the balance. Even more stringent rules require the legislature not to increase either the level of spending or the deficit. Thus, in the latter case, the legislature can only change the budget allocation between spending programs. Collegial institutions have the opposite features: they emphasize "consensus" at every stage of the process, by enhancing the prerogative of all spending ministers in the government, the prerogative of the legislature vis-à-vis the government, and generally by upholding the right of the minority in every stage of the process.

One can identify a tradeoff between the two types of institutions. Hierarchical institutions are more likely to enforce fiscal restraint, to avoid large and persistent deficits, and to promote swift fiscal adjustments when needed. On the other hand, the same institutions are less respectful of the prerogative of the minority not in the government, and therefore are more likely to generate
budgets tilted in favor of the governmental coalition. Collegial institutions have the opposite features.

One related important issue concerns the order of voting. In some cases the budget procedures imply that the legislature first has to approve a balance, often in the context of a macroeconomic scenario for the coming fiscal year. Then, in later votes the allocation among different programs is decided. The alternative procedure implies that the balance of the budget is the residual of a series of votes on specific programs. The Budget Act of 1974 in the United States implied, among other things, a switch from the latter system to the former. Intuitively one would think that the system where the balance is voted first should promote more fiscal restraint. Indeed, this is what the cross-country empirical evidence seems to suggest. However, the theoretical underpinnings for this result are not very strong, if one assumes rational and forward looking behavior of legislators.

Transparency of the Budget

The budgets of modern economies are very complex, but sometimes they are more complex than they need to be. This complexity, partly unavoidable, partly artificial, makes it possible to hide the real status of public finances, in particular the current and future burden for the taxpayers of various spending decisions. Politicians have incentives to hide taxes, emphasize the benefits of spending programs, and hide government liabilities, equivalent to future taxes, by using various forms of creative accounting procedures. The more complex is a budget document, the easier it is to confuse the public.

The importance of lack of transparency cannot be overemphasized. A variety of tricks are used to strategically influence the information/beliefs of the taxpayers-voters: 1) Overestimation of the expected growth in the economy, so as to overestimate tax revenues, and to underestimate the level of interest rates so as to underestimate outlays. At the end of the fiscal year, the “unexpected” deficits can be attributed to “bad luck.” 2) Over optimistic forecasts of the budget effects of various policies. 3) Strategic use of what is kept in and out of the budget, often with a creative use of the budget of various public organizations. 4) Strategic use of multi-year budgets, to the effect that difficult policies are permanently postponed to year two or three of a multi-year program and always delayed.

Issues of transparency and creative accounting are, in fact, at the forefront of the fiscal debate in Europe. The discussion about which countries can join the European Monetary Union has paid much attention to how “real” or “creative” are the fiscal adjustments in many European countries that are reaching the required deficit target. Several observers have noted how Germany, France, and especially Italy in recent years have used various ingenious methods to make their deficits appear as low as possible.

In summary, this discussion suggests that “hierarchical-transparent” procedures should be associated with more fiscal discipline. Thus, difference in procedures can contribute to explaining the cross-country differences in fiscal policy stance that are documented here.

Empirical work on this issue shows the difficulty of measuring institutions. Work by von Hagen and his associates focused on European countries and concluded that fiscal institutions do matter in the expected direction. In my own work with co-authors, I have studied Latin American countries from this point of view. Using the answers from a survey distributed to the budget directors of all Latin American countries, and the text of the budget laws, we constructed a comprehensive index which summarizes several characteristics of fiscal procedures, along the “hierarchical transparent” to the “collegial non-transparent” dimensions. We then discussed the relationship between the index and various components of it, and the level and evolution of budget deficits in this region. We also examined cases of changes in procedures, namely whether one can detect a difference in the fiscal position of a country before and after a reform of its fiscal procedures. Our results confirm that budget procedures do matter. After controlling for several economic determinants of budget deficits, our index of procedures was still significantly correlated with budget deficits in the expected direction. A particularly important feature of such procedures is the one that requires a vote on the size of the deficit ex ante, in the context of the approval of the macroeconomic plan for the year, before the legislative discussion on the composition and allocation of the budget even begins.

Finally, evidence drawn from American States, European countries, and Latin American countries all points in the same direction: different budget procedures influence fiscal outcomes. Two critical issues then follow. What determines institutional choice? Why do different countries or states choose different fiscal institutions and, therefore, what determines institutional change? In other words, the research can be moved one step backward by looking at the determinants of institutions. The second issue is normative: this research can shed light on how to design institutions which contribute to maintaining fiscal stability and limit the extent of politically induced distortions.

The Economics of Cities

Edward L. Glaeser*

The fundamental questions of urban economics are: Why do cities exist? How does density—or agglomeration—affect people and firms? Why do some cities flourish and others decay? Why are social pathologies often more extreme in cities?

These questions address how spillovers actually operate. If the effects of agglomeration and local spillovers lie behind phenomena as important as economic growth, business cycles, and the formation of human capital (as many researchers now suspect), then urban economics has a special role to play in helping us to understand how these spillovers work in their rawest form. My work tries to use the evidence from cities both to understand urban density itself and to shed light on other topics that are hopefully of interest to the broader economics community.

The Causes and Extent of Agglomeration Economies

Cities now exist for three primary reasons: 1) they reduce transport costs for goods; 2) they eliminate the space between people; and 3) cities facilitate a faster flow of ideas. More precisely, dense agglomeration reduces the transport costs for goods, people, and ideas. These three different sources of “agglomeration economies” have equivalents in other literatures. For example, the role of reduced transport costs for goods in the formation of cities is similar to the idea that the comovement of output over the business cycle occurs because a productivity shock to one firm increases demand for other firms.

Albert Ades and I measure causes of urban agglomeration using cross-county evidence by looking at the extent to which countries’ populations are concentrated in a single city. We find that population is more spread out in countries where transport costs for physical goods are lower (measured by development of internal transport networks), and when external trade is smaller (which Paul Krugman and Raul Livas2 argue is a further implication of transport cost models of urban agglomeration). While transport costs do matter, our results suggest that political factors, for example dictatorship and instability, are far more important in explaining which countries have concentration in a single city. For example, dictatorships have 50 percent more of the population in their largest cities than do stable democracies. When political systems are not stable and democratic, politicians respond to the rent-seeking activities of people who live in their cities by transferring rents to those cities, and population flows follow these rents.

To understand why people in the United States may be more productive in cities, David Maré and I examine why workers are paid substantially higher wages in cities. The urban wage premium persists even after we control for a full battery of individual factors (education, race, age), job-related factors (industry and occupation dummies), and for differential selection into cities. Unless workers in cities were more productive, firms would leave. Thus, even though real wages seem to be constant over space (as evidence on real prices suggest that they are), we believe that there is a productivity premium in cities.

Surprisingly, and contrary to many theories of agglomeration, the urban wage premium does not immediately accrue to workers who come to the city, and it does not disappear immediately (or at all) for workers who leave the city. Instead, there appears to be a slow but steady increase in the rate of wage growth for workers in cities relative to workers outside cities (the urban wage premium is also higher among older workers). One possible interpretation is that the urban wage premium works through faster skill accumulation in cities which accrues over time, and stays with workers when they leave cities. I provide a theoretical analysis of this view and some suggestive evidence that shows that the individuals who choose to live in big cities are drawn disproportionately from groups who would presumably value the skill accumulation role of cities (that is, young, college educated persons).

Hedi Kallal, Jose Scheinkman, Andrei Shleifer, and I examine the

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connection between local area characteristics and the growth of particular "city-industries" (for example steel in Detroit or retail trade in New York). We find that employment growth is faster in city industries that are highly competitive (where competition is the number of firms relative to total employment), not concentrated (where concentration is measured by the share of the city-industry in the total city's employment), and in diverse cities (where diversity is measured by employment concentration of the city in its largest industries). We interpret these findings as a test of growth theories; they may imply that diversity and competition, not industrial concentration, inculcate growth, presumably through the generation of new ideas.

Scheinkman, Shleifer, and 16 extend this work and examine the connection between city-level characteristics, population growth, and income growth. Population growth and income growth have moved together at the city level over the past 40 years, and all of our results hold for either of these variables. Initial levels of schooling predict later growth. The connection between schooling and growth has increased since 1970, perhaps because the rise in returns to skill has made the intellectual spillovers that are available in high human capital cities more important. Cities with high unemployment levels that were concentrated in manufacturing have seen a substantial decline in both manufacturing and non-manufacturing employment. Few attributes of the public bundle (that is, the level of taxation, or types of spending) seem to influence the growth of particular cities.

Jess Gaspar and 17 ask whether information technology will make cities obsolete. Improvements in telecommunications will shift time away from face-to-face contacts towards electronic contacts within a relationship, but these improvements also increase the overall number of relationships, and many of these new relationships also will involve face-to-face contact. The theoretical effect of telecommunication on cities is ambiguous. Empirically, we find that across countries and across areas within countries, urbanization and telephone usage go together, even after controlling for costs and income. Telephone contact is higher between regions that are close spatially. Business travel (another form of face-to-face contact) has soared as information technology has improved. Silicon Valley, which should have the best access to the newest telecommunications technology, is the textbook example of geographic concentration of industry. Still, there doesn't seem to be persuasive evidence that the internet will destroy the city.8

Glenn Ellison and 19 attempt to measure agglomeration economies by developing an index of geographic concentration that measures the degree of concentration of particular industries. This index takes the overall concentration of manufacturing employment as given and corrects for the fact that the lumpiness of manufacturing will suggest geographic concentration whenever returns to scale dictate that production take place in a few large plants. We find that the famed geographic clusters of particular industries are exceptions rather than rules. While the famous examples are all quite observable in the data, the mass of industries display a statistically significant level of industrial concentration that appears (to us at least) to be relatively mild economically. The fact that industrial clusters appear to be relatively rare also can be interpreted as suggesting that many of the most important agglomeration economies occur across, rather than within, industries.

Guy Dumais, Ellison, and 10 extend this work and use the Longitudinal Research Database (which provides almost complete information on every manufacturing industry in the United States) to examine the dynamic components of geographic concentration. We find a large amount of movement of particular industries across space (even among the most concentrated industries) which casts doubt on the general applicability of anecdotes used by theorists to suggest that geographic location often is determined by decades-old happenstance. The longitudinal research database also suggests that the geographic concentration of manufacturing is a delicate balance of the creation of new manufacturing plants, the expansion and contraction of pre-existing plants, and plant closures. Plant openings occur away from pre-existing industrial centers and act to lower geographic concentration. Plant closures act to reinforce concentration, because they are much more likely away from pre-existing industrial centers (even after controlling for the fact that these peripheral areas are likelier to have newer plants). We also find that while industries that share input-output relationships locate together, these effects are small. The dominant force in determining which manufacturing industries locate together is that they hire the same kinds of workers.

Urban Pathologies

American cities are not just technological wonders. Many urban centers face extreme poverty, crime, and other social problems. Fundamentally, the social problems of cities appear to be the result of many of the same agglomeration economies that fuel urban productivity. The same intellectual spillovers that make Silicon Valley also may lead to the transmission of ideas (or norms) about crime within the inner city.

Bruce Sacerdote and 11 ask "Why
is there more crime in cities? The connection between city size and crime rates is pervasive and longstanding. We find that only 15 percent of the connection between city size and crime appears to come from lower probability of arrest in cities, and 25 percent appears related to higher financial returns from criminal activity in cities. Almost 50 percent of the urban crime premium is related to the fact that the disadvantaged (particularly female heads of household) end up in cities.

The connection between growing up with one parent and crime is not nearly as strong as the connection between living in areas with large numbers of single parents and the level of crime. While this difference could be explained by omitted area-level variables that are correlated with single-parent families, it may also come from spillovers within those areas. Having one parent may not induce a child to become a criminal, but growing up in an area where all one’s peers all have missing parents may create peer effects that lead to crime. Sacerdote, Scheinkman, and I create a methodology for measuring the extent of social interaction based on a simple local interactions model. We find large amounts of social interaction in criminal behavior, and we believe that these social interactions explain the wide diversity of crime rates across space.

To further examine the role of local spillover effects, David Cutler and I ask whether ghettos are good or bad. We document that young African-Americans growing up in segregated areas are more likely to be unemployed or idle (that is, neither at work nor in school), or to have a child out of wedlock, and are less likely to graduate from high school, than young African-Americans who grow up in less segregated areas. This is true even after controlling for city-specific characteristics and looking at the difference between white and African-American outcomes within cities. Furthermore, we use a variety of instruments (including number of governments and topographical barriers) in order to avoid the problem that individuals choose their neighborhoods. All of our results essentially confirm the striking negative effect of segregation on African-American outcomes in 1990. We suspect that the mechanism linking racial segregation with poor outcomes for non-whites is not physical access to jobs, but rather the intellectual and social isolation of disadvantaged communities which then works against the acquisition of human capital among youth.

Cutler, Jakob Vigdor, and I examine the roots of segregation and its current history. We find that segregation rose during every decade between 1890 and 1960, but that it has declined quite substantially in the twenty years since 1970. Segregation cannot be explained by many city-level characteristics except for city size: bigger cities are generally more segregated. We use housing prices and survey evidence to determine the extent to which segregation occurs: because of a greater willingness among whites to pay to live in white neighborhoods (in which case, whites should be paying more in more segregated cities) or because of “collective action racism,” where whites collude to force blacks to live in particular neighborhoods (in which case, we would expect African-Americans to be paying more to live in more segregated cities). We find that in 1940, segregation was driven primarily by collective action racism (supported by legal devices including restrictive covenants), but that by 1990, the remaining segregation is driven primarily by white tastes for white neighborhoods.

Denise DiPasquale and I examine a final form of urban pathology: riots. We find a strong connection between urbanization and rioting across countries, particularly among countries that are ethnically fragmented. Using a sample of race riots in the 1960s, we find regular evidence for basic economic hypotheses about rioting (higher unemployment increases rioting; police resources decrease rioting) and little evidence for more sociological hypotheses about relative poverty and deprivation. We do find, however, that ethnic diversity is deeply linked to conflict, both in the United States and around the world. The major role of ethnicity requires models that move beyond the cost of punishment and the opportunity cost of time into understanding the far-reaching effects of ethnic identity.

Some of my work has focused on policy responses to these problems. One paper published in 1996 suggests that property taxes provide better incentives for revenue maximizing local governments who would choose to maximize property values in an attempt to maximize total revenues. In a forthcoming paper, I argue that indexing transfer payments to local price levels could lead to pernicious results because of migration effects. In a work on my own and with Erzo Luttmer, I consider the effects of rent control on misallocating housing across consumers. Overall, though, my primary focus has been on the issues in the study of urban economies, not on the appropriate government response to these economies.

Conclusion

Cities are unique combinations of the best and worst features of modern society. Agglomeration effects appear to create faster learning and greater productivity, but they also seem to further crime, riots, segregation and ghetto poverty. Further
research on cities can play a role in helping us to both understand how to improve urban areas and how agglomeration economies actually operate.

NBER Profile: Alberto Alesina

Alberto Alesina is an NBER Research Associate in the Monetary Economics Program and a professor of economics and government at Harvard University. He holds an undergraduate degree in economics from the Universita Bocconi in Milan and a Ph.D. in economics from Harvard.

Alesina began his teaching career at Carnegie-Mellon University in 1986. He joined the Harvard faculty as an assistant professor of economics and government in 1988, was named the Paul Sack Associate Professor of Political Economy in 1991, and became a full professor in 1993. He teaches macroeconomics and political economics.

Alesina was also an NBER Olin Fellow in 1989–90. In addition, he has been a senior associate at Harvard’s Center for European Studies since July 1994. He is a consultant to the Italian Treasury Department, and has held visiting positions at the International Monetary Fund and the World Bank.

Alesina’s research has been published in many journals and books. In addition, he is the coauthor with Nouriel Roubini and Gerald Cohen of Political Cycles and the Macroeconomy, which is forthcoming from the MIT Press, and with Howard Rosenthal of Partisan Politics, Divided Government and the Economy, Cambridge University Press, 1995.

Alesina is single, and lives in Boston's Back Bay. His hobbies are rock climbing, skiing and mountaineering, and listening to opera.

NBER Profile: Carl F. Christ

Carl F. Christ has been a member of the NBER’s Board of Directors since 1975, and its Vice Chairman since 1996. He also served as chairman of the Universities-National Bureau Committee for Economic Research from 1967–74.

Christ was born in Chicago in 1923, and received his B.S. in physics from the University of Chicago. After working on the Manhattan Project from 1943–5 and being an instructor in physics at Princeton University from 1945–6, he “switched gears” and began graduate work in economics. He received his Ph.D. in economics from the University of Chicago in 1950.

Christ taught political economy at the Johns Hopkins University from 1950 through 1955, when he became an associate professor of economics at the University of Chicago. In 1961, he returned to Johns Hopkins as a professor of economics. He was named the Abram G. Hutzler Professor of economics in 1977, a position he held until he partially retired in 1989. He also chaired the economics department in 1961–6 and again in 1969–70.

Christ has half a century of publications in print spanning three areas—econometrics, macroeconomics, and economic policy. He has also taught and lectured in many countries. Christ has been elected a Fellow by the Econometric Society and by the American Statistical Association. He is a member of Phi Beta Kappa and Sigma Xi.

Christ is married and the father of three. Collectively, his children have one Ph.D. (in art history) and five children of their own. In his leisure time, he enjoys travel and windsurfing.
NER Profile: Edward L. Glaeser

Edward Glaeser, the Paul Sack Associate Professor of Political Economy at Harvard University, has been a Faculty Research Fellow in the NBER’s Program on Economic Fluctuations and Growth since 1993. He received his A.B. from Princeton in 1988 and his Ph.D. from the University of Chicago in 1992.

In 1994–5, Glaeser was the Arch W. Shaw National Fellow at Stanford University’s Hoover Institution. Glaeser is also a Faculty Associate at Harvard’s Institute for International Development, where he has worked on urban problems in Bolivia, and urban development in Chile. He does research on cities and other topics, ranging from usury laws to privatization to fairy tales.

Glaeser currently lives in Chicago with his wife, Jenny, and commutes into Boston during the week. During the winter and spring terms, he will be a Law and Economics Fellow at the University of Chicago Law School.

NER Profile: Lars E. O. Svensson

Lars E.O. Svensson is a professor of international economics at the Institute for International Economic Studies, Stockholm University, and a Research Associate in the NBER’s Programs on Asset Pricing, International Finance and Macroeconomics, and Monetary Economics. He received a M.Sc. in physics and applied mathematics from the Royal Institute of Technology, Stockholm, in 1971. Shifting fields, he received a B.A. in economics and economic history in 1973 and a Ph.D. in economics in 1976, both from Stockholm University. During his graduate studies, he benefited from a year as a Special Graduate Student at MIT in 1974–5.

His primary research interests have varied over the years, from intertemporal general equilibrium theory and monetary theory via international trade theory to international finance, open-economy macroeconomics, and monetary policy.

Svensson is a fellow of the Econometric Society, a member of the Prize Committee for the Alfred Nobel Memorial Prize in Economic Sciences, and a member of Academia Europae. He has been visiting scholar or visiting professor at universities in France, Israel, Italy, New Zealand, and the United States. He regularly consults for several international, U.S., and Swedish agencies and is active as advisor to Sveriges Riksbank (Bank of Sweden).

In his leisure time, he enjoys good food and wine with friends, traveling, reading (John Le Carré and David Lodge are among his favorite authors), rock climbing, and spending time with his teenage son, Erik.
Conferences

Tax Policy and the Economy

The NBER's 14th Annual Conference on Tax Policy and the Economy took place in Washington on November 17. As always, the speakers were leading economists and the participants represented a cross-section of government departments and agencies, corporations, foundations, and the press. This year, the following papers were discussed:

David M. Cutler, NBER and Harvard University, The Incentives of Cutting Medicare.

Jerry Hausman, NBER and MIT, Taxation of the Firm with Taxes on the Household: A Simple Equilibrium with Incomplete Information.

Caroline Minter Hoxby, NBER and Harvard University, Tax Incentives for Higher Education.

Jeffrey B. Liebman, NBER and Harvard University, The Impact of the Earned Income Tax Credit on Eligibility and Phased Distribution.


Cutler examines how reductions in hospital payments by Medicare affect hospital operations. He looks at two episodes of payment reductions—the late 1980s and the early 1990s—and finds a large difference in the impact of payment reductions in these two time periods. In the 1980s, reduced Medicare payments were offset dollar-for-dollar by increased prices to private insurers. In the 1990s, however, payment reductions result in lower hospital profits, which must ultimately reduce hospital costs. Hospitals have responded to the payment reductions by reducing the number of beds and nurses, and sometimes by closing entirely, but not by reduced acquisition of high-tech equipment.

Hausman analyzes the Congressional legislation which established a program for all U.S. public schools and libraries to receive subsidized service to the Internet. The cost of the program is currently estimated to be $2.25 billion per year, and the legislation directed all users of interstate telephone service to pay for the program. Using analytical methods from public finance, Hausman estimates the efficiency cost to the economy of the increased taxation of interstate telephone services to be at least $2.36 billion (in addition to the $2.25 billion of tax revenue). The efficiency loss to the economy for every $1 raised to pay for the Internet access discounts thus is an additional $1.05 to $1.25 beyond the money raised for the Internet discounts. This cost to the economy is extraordinarily high compared to other taxes used by the Federal government to raise revenues.

Hoxby investigates the economic effects of provisions in the Taxpayer Relief Act of 1997 related to higher education. She summarizes the major initiatives: Hope Tax Credits; Tax Credits for Lifelong Learning; Education IRAs; and tax deductibility of interest on student loans. She then describes the incentives that these provisions generate for attending college, and discusses whether the people who most need to attend college are the ones most likely to be induced to attend by the new initiatives. Then she synthesizes the existing literature on how federal government funds for higher education affect the tuition charged by colleges and universities, and assesses the likely consequences of the new provisions for tuition. Finally, she discusses the probable effects of the initiatives on family saving and on the degree of effort and planning that students put into college.

For more than three decades, economists have advocated the use of the tax system as a means of transferring income to low-income families. Studying the Earned Income Tax Credit (EITC) offers the opportunity to learn how well the tax system functions in roles traditionally handled by the welfare system. There are two features of the EITC that distinguish it from other U.S. income transfer programs. First, only taxpayers who work are eligible for the EITC. Second, the credit is administered through the tax system rather than through the welfare system, and is usually received as part of a taxpayer's annual tax refund. Liebman discusses these features of the EITC, and presents evidence that the EITC has increased labor force participation among single women with children, and has offset a significant share of recent increases in income inequality. The limited evidence available suggests that the labor supply impact of the phase out of the credit is minimal. Rates of noncompliance are falling, and are now similar to the overall rate of noncompliance for the
individual income tax. The Social Security earnings test reduces a 65–69 year old's benefits by one third and a 62–64 year old's benefits by one half, once earnings pass a threshold amount. These are among the highest marginal tax rates in the economy. Friedberg formulates a model of labor supply to incorporate the entire range of beneficiaries' responses to the earnings test. Her estimates imply substantial deadweight loss from older workers changing their labor supply in order to avoid taxation. She predicts a 5.3 percent boost to aggregate labor supply from eliminating the earnings test, and at a minimal fiscal cost. In contrast, only a slight decrease in labor supply is likely from the recently legislated increase in the exempt amount.

The papers and discussions from this conference will be published by the MIT Press in a conference volume. Its availability will be announced in a future issue of the NBER Reporter.

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Behavioral Approaches to Law and Economics

A group of economists and academic lawyers gathered in Cambridge on November 14 for the NBER's first Conference on Behavioral Approaches to Law and Economics. The conference was organized by Robert Wright and Richard H. Thaler of NBER and the University of Chicago, Christine M. Jolls, NBER and Harvard University, and Cass Sunstein, University of Chicago, the co-chairing program chairs.


Jolls, Sunstein, and Thaler offer a broad vision of how law and economics may be improved by increased attention to insights about actual human behavior. Their analysis falls into three categories: positive, prescriptive, and normative. Positive analysis of law focuses on how agents behave in response to legal rules, and how legal rules are produced; here, they suggest that a behavioral approach improves predictions. Prescriptive analysis deals with what rules should be adopted to advance agreed-upon ends; here, they offer alternatives to standard law and economics prescriptions based on behavioral insights into the seemingly pernicious or counterproductive effects of the standard proposals. Finally, normative analysis attempts to assess more broadly the ends of the legal system: for example, should the system always respect people's choices, and what is the appropriate domain of paternalism?

The rich law and economics literature on contract default rules—that is, terms that govern relationships between contracting parties only if those parties do not explicitly agree to other terms—presumes that the legal system's choice of such rules will not affect individual negotiators' underlying preferences for contract terms. The literature suggests that if
bargainers perceive default terms as part of the status quo, they will prefer the substantive content of those terms more than they would if other terms were the legal defaults. Korobkin presents a study designed to test this hypothesis: 151 law students were asked to provide advice to a client in a number of hypothetical contract negotiation scenarios, with the content of the default terms manipulated among experimental groups. The results suggest that the choice of legal default terms affects not only what terms contracting parties will agree upon but also what terms they actually prefer.

Rachlinski notes that past events frequently seem inevitable and predictable after they unfold, a tendency that cognitive psychologists have labeled the "hindsight bias." This bias affects judgments of liability in the legal system. For example, if adverse outcomes seem more predictable (and hence avoidable) than they really were, then defendants can be held liable for adverse outcomes that they could not have foreseen. In effect, judgments of liability made under a negligence standard thus resemble those made under a standard of strict liability. Courts, however, have historically shown an awareness of the hindsight bias and when possible, developed methods of making judgments that avoid reliance on it. These adaptations include barring from the decision-making process information acquired only later, and carefully enforcing any ex ante understanding about liability that parties may have had. When no such mechanisms are available, the courts choose sensibly among second-best solutions. The legal system thus incorporates and adapts to this limitation on human judgment.

Kahneman, Schkade, and Sunstein conducted an experimental study of punitive damage awards in personal injury cases, using jury-eligible respondents. There was substantial consensus on judgments of the outrageousness of a defendant's actions and of the appropriate severity of punishment. Judgments of dollar awards made by individuals and synthetic juries were much more erratic, though. These results are familiar characteristics of judgments made on scales of unbounded magnitude. The degree of harm suffered by the plaintiff and the size of the firm had a pronounced effect on awards.

In his first paper, Diamond develops a typology of different behaviors that might be viewed as outrageous by a jury and subjected to punitive damages. He then derives the level of punitive damages for achieving economic efficiency in four different situations: malice, and three settings where a jury might find reckless disregard—a rational response to insufficient compensatory damages; a nonrational disregard of risk; and a rational response when compensatory damages are adequate. In his second paper, Diamond explores the effects of punitive damages in situations of reckless disregard that might be viewed as outrageous. If the defendant were making a rational decision that reflected all of social costs, any level of punitive damages would lower efficiency. If there were inadequacies of compensatory damages, then costs borne by the defendant would be less than the full social costs. In that case, punitive damages might improve economic efficiency, as well as providing retribution.

A major issue in the current debate over litigation reform is whether to limit the amount of damages that plaintiffs can receive. In some jurisdictions in the United States, "damage caps" have been placed on payments for pain and suffering, punitive damages, and recovery of medical expenses. Babcock and Pogarsky present experimental evidence on the impact of these caps on the judgments and negotiating behavior of subjects assigned to be litigants in a pre-trial negotiation. Preliminary results from this experiment indicate that when the damage cap is relatively low, it causes the likelihood of settlement to increase. This is consistent with predictions of the standard legal-economic model of settlement. However, the legal-economic model offers an incomplete characterization of the settlement process by ignoring important psychological mechanisms of information processing and judgment formation.
Not-for-Profit Hospitals are Discussed

A seminar on NBER health economics and managed care was held on November 22, 1995 as part of a conference on for-profit hospitals. The conference was divided into five sessions, of which included two sessions on systems transition and managed care, one on the differential treatment of for-profit versus not-for-profit hospitals, and a session on the impact of not-for-profit status and the productivity of medical care. NBER Research Associate David M. Greenberg of Harvard University organized the program.

Dr. Sarah Feldman, Brigham and Women's Hospital; and David Scharstein, NBER and MIT, outlined managed care, quality, and volume.

David Meltzer, NBER and University of Chicago, implications of managed care on teaching hospitals: Comparisons of traditional and managed care medical services within a single institution.

Discussions: Lawrence Baker, NBER and Stanford University; and Alan Weil, The Urban Institute.

Tomas Philipson, NBER and University of Chicago; and Peter Schmookler, University of Michigan.

William M. Gentry, NBER and Columbia University; and John Penrod, Montefiore Hospital Research Institute, New York.

Discussions: Judith Halleran, NBER and University of Maryland; and William Voit, Carnegie-Mellon University.

Jonathan Skinner, NBER and Dartmouth College; and Jack Wennberg, Dartmouth College.

"On the Efficiency of Hospital Care in the Eastern United States, the Required Budgets of Non-Hospital Care, and the Mission of Non-Profit Hospitals." A Part of "The Hospitals and the Market: Essays in Honor of Elliott E. Honig.

Discussions: Laurence Baker, NBER and Stanford University; and Alan Weil, The Urban Institute.

Frank Sloan, NBER and Duke University; and William H. Taylor, III, and Christopher Conover, Duke University. Hospital Conversions as the Pursuit of Priceless.


Discussions: Kathy Kalyavan, Massachusetts General Hospital; and Bruce Feder, Case Western Reserve University.

Douglas O. Staiger, NBER and Harvard University; and Mark B. McClellan, NBER and Stanford University. Comparing Hospital Quality: A For-Profit and Not-for-Profit Hospitals.

Susan Athey and Scott Stern, NBER and MIT. Technology Adoption in Hospitals and in Public-Private Response Systems: Substitutes or Complements?

Discussions: Karen Norberg, NBER; and C. Peter Pyle, Children's Hospital, and Catherine Wolfram, NBER and Harvard University.

Feldman and Scharstein compare the quality of care received by cancer patients in fee-for-service and managed care plans. For the purposes of this analysis, they use provider volume as a proxy for quality: many previous studies have shown that the patients of high-volume physicians and hospitals have better clinical outcomes than do other patients. Their dataset contains all Massachusetts hospital discharges in 1995; they compare the experiences of patients with breast cancer, colorectal cancer, and gynecologic cancer, because all three types of cancer typically are treated surgically. The authors find that managed care plans tend to be treated by physicians who perform relatively fewer surgeries, and that these patients receive their treatment in lower-volume hospitals. The differences across the seven managed care plans are substantial, with one of the plans actually sending its patients to higher-volume providers than the fee-for-service plans.

Meltzer uses data on all admissions to a teaching hospital's internal medicine service over a year-and-a-half period to investigate the effect of the attending physician's financial incentives on the costs of care. Within the hospital, some "attendings" are employed by the managed care organization (MCO) while all others are employed by the hospital. The MCO attendings have much stronger financial incentives to reduce their patients' (almost all of whom are insured by the MCO) costs than do the physicians employed by the hospital. Meltzer finds that the patients of MCO attendings have significantly lower costs than do similar patients of hospital-employed physicians. The majority of this cost saving is accomplished through shorter lengths-of-stay. Physician workload also has a significant effect on patient discharge probabilities, and hospitals may increase their attending physicians' incentives to discharge patients.
quickly by reducing their house staff. Philipson uses data from the U.S. National Nursing Home Survey to determine whether not-for-profit nursing homes have significantly higher prices than similar for-profit facilities. In a cross-sectional analysis of firms in both 1985 and 1995, Philipson finds no support for the presence of a not-for-profit premium. Instead, he finds a 5 percent for-profit premium in 1985 and no significant difference in price in 1995. These results suggest that there is perfect substitution on the demand side between not-for-profit and for-profit production.

Gentry and Penrod estimate the magnitude of the tax benefits given to not-for-profit (NFP) hospitals. NFP hospitals are exempt from corporate income taxes (federal and state); property taxes (state and local); have access to tax-exempt bond financing; and can receive charitable donations which are tax-deductible for the donor. Using data from the Health Care Financing Administration's 1995 public use file of Medicare Cost Reports, the authors estimate that the income tax exemption is worth $4.6 billion to not-for-profit hospitals, while the value of their property tax exemption is $1.6 billion. Their results suggest, however, that the net benefit of access to tax-exempt bonds is quite small and does not significantly reduce the cost of borrowing for NFP hospitals. The authors do point out that, if NFP hospitals engage in tax arbitrage by borrowing at tax-exempt interest rates and investing in financial assets with greater returns, then the magnitude of this benefit could be substantial.

Skinner and Wennberg compare Medicare expenditures and physician visits in the last six months of life across U.S. communities to investigate the productive and allocative efficiency of end-of-life medical care. Initially, the authors focus on Miami and Minneapolis, and find that average Medicare costs are substantially higher (by approximately a two-to-one margin) in Miami. They ascribe this to the differences in treatments of the chronically ill in the two areas. Next, the authors conduct a cross-sectional analysis of the 306 U.S. hospital referral regions, and find that regions with relatively more hospital beds and physician specialists have significantly greater end-of-life Medicare expenditures. They also find that Medicare patients in areas with a greater penetration of for-profit hospitals have significantly higher end-of-life spending. This greater spending does not appear to lead to improved outcomes, though, since mortality rates are not significantly related to intensity of care near the end of life.

Frank and Salkever explore the causes and effects of the diversification of activities by not-for-profit hospitals. The authors cite the recent reduction in the demand for inpatient care as an important reason for the increase in diversification and joint ventures by not-for-profit hospitals. Based on the results of three focus group discussions with executives from 14 (mainly NFP) hospitals in Boston and Chicago, they find that non-teaching, NFP hospitals diversify their activities and enter into joint ventures not only to offset reductions in inpatient revenues but also to gain market share, strengthen ties with physicians, and reduce the uncertainty in demand. Philanthropy constitutes a very small share (approximately 1 percent) of a typical not-for-profit hospital's budget, and these private donations fall when a hospital's financial performance improves. Finally, they find no evidence that diversification or a decline in private donations has reduced the provision of charity care by NFP hospitals.

Analyzing ten hospital conversions which occurred in North and South Carolina since 1981, Sloan, Taylor, and Conover investigate whether communities receive a "fair" price when selling a hospital. For their analysis, the authors obtained detailed information about hospital purchase prices, the use of the funds received, and the commitments made by the buyers to the local communities. They calculate appropriate prices under different assumptions about future cash flows, and take into account any community benefits which are not reflected in the transaction price. Their results suggest that communities which deal with a for-profit hospital corporation receive a price substantially above the fair price. Interestingly, the authors find the reverse when communities deal with not-for-profit or government organizations. Finally, they find that hospitals which convert to for-profit status do not reduce their provision of community benefits.

Cutler and Horwitz consider why two large not-for-profit hospitals converted to for-profit status, and what effects these conversions have had. For their analysis, the authors use several sources of information, including interviews with hospital personnel, newspaper articles, Medicare cost reports, and legal documents. Their results suggest two primary motivations for conversions to not-for-profit status: to gain access to cheaper sources of capital; and the culture of the NFP hospital, since hospitals run by businessmen may be much more likely than religious-affiliated or physician-run hospitals to convert. The conversions appear to have improved the financial performance of these hospitals by cutting hospital costs and increasing public sector reimbursement. The authors suggest that this second factor is attributable to the more skillful exploitation of Medicare loopholes by for-profit hospitals.

McClellan and Staiger compare quality at for-profit and not-for-profit hospitals using a dataset which contains all elderly Medicare beneficiaries who are hospitalized from 1984
through 1994 following their first heart attack, or hospitalized with ischemic heart disease from 1984 through 1991. They find a strong negative relationship between hospital volume and mortality rates. Also, not-for-profit hospitals have lower mortality than both for-profit and government hospitals. Further, differences in mortality rates between not-for-profit and for-profit hospitals increased between 1985 and 1994. The authors conclude that, within a specific market, for-profit hospitals actually have higher quality than do not-for-profit hospitals.

Athey and Stern explore the causes and effects of differences across communities in emergency services. Initially, the authors use a dataset with every ambulance ride in Pennsylvania during 1995 to explore the direct productivity benefits of a community's adopting a basic or advanced 911 system. Focusing on cases of cardiac incident, they find that both the time to reach an emergency site and the time elapsed from the site to the hospital is decreasing with the adoption of advanced 911 services. However, there is little evidence to suggest that mortality rates from cardiac incidents are related to the adoption of 911 services. The authors also find that a hospital's level of cardiac technology has an important impact on its share of cardiac patients within a market, but there is little evidence that the 911 system influences hospitals' technology investments. Finally, using a national-level dataset on the adoption of 911 technologies across communities, they find that places with a more conservative political orientation are less likely to adopt advanced 911 systems, and that state legislation governing the adoption of 911 has an important effect on communities' adoption decisions.

This article was prepared in large part by Mark Duggan of Harvard University, who also attended the conference. It is expected that these papers and the conference discussions will be published in a conference volume by the University of Chicago Press. Its availability will be announced in a future issue of the NBER Reporter.

Conference on Market Microstructure

The second formal event of the NBER's Market Microstructure Research Group, organized by Mark Honig, John L. H. Andrews, and Andew Lo, was held at the University of Chicago on December 1. The discussion focused on the following papers:

Michael J. Fleming and El Remolona, Federal Reserve Bank of New York, Price Formation in a Real Estate Market: The Influence of Public Information, Discussant: Richard Green, Northwestern University;


Fleming and Remolona note that the arrival of public information in the U.S. Treasury securities market induces striking adjustment patterns for prices, trading volume, and bid-ask spreads. The release of a major macroeconomic announcement occasions a sharp and immediate price change with little trading volume, suggesting that price reactions to public information do not require trading. The bid-ask spread widens dramatically at announcement, and narrows shortly thereafter, apparently driven by inventory control rather than asymmetric information concerns. After the initial sharp price change, trading volume surges and persists with high price volatility and a slightly higher bid-ask spread, suggesting a sluggish process of price formation as the market reconciles investors differential private views.

Gehrig and Jackson examine the prices quoted by specialists (or dealers) who have monopoly power to set prices (bids and asks) for a given
asset, but who face indirect competition from other specialists who trade in related assets. They compare the equilibrium spreads as the number (and factor structure) of the assets that each specialist controls varies. For some constellations of initial portfolio holdings and asset covariance, it is socially preferable to have competing specialists, while for others it is socially preferable to have actions coordinated (or to have one specialist control several assets). In some situations it is beneficial to have specialist power concentrated within industries; in other situations, across industries; and in other situations, not to be concentrated at all.

Evans studies the high frequency behavior of the interbank foreign exchange market with a newly created dataset that provides a comprehensive picture of activity across the market. His analysis indicates that trade activity within the interbank market is distinct from the posting of indicative quotes. Trading and quote-making decisions are linked, but the links are complicated and poorly understood. He also documents the existence of a strong relationship between exchange rate movements and a measure of excess dollar demand. Empirically, this effect appears important in the determination of exchange rates at both high frequencies and over the longer time spans that are relevant in international macroeconomics.

Traders in security markets take into account the actions of their peers in making their own trade decisions. In this paper, Chakrabarti and Roll compare a market in which traders "learn" from one another with a market in which they ignore each other’s actions. The authors measure volatility, volume, and the accuracy of market price as a forecast of value in the "learning" and the "no learning" cases. While bubbles and cascades do arise some times, on average "learning" reduces price and return volatility and volume, and improves the accuracy of the market price as an indicator of value. The authors examine the marginal effects of different parameters on these market characteristics, and find that the "learning" process has a complex and nonlinear impact.

To enhance their understanding of emerging markets, Ghysels and Cherkaoui study an unusual dataset containing all the transaction records of a market over a long span. The market, which was included in 1996 in the International Finance Corporation database, operated under a dual trading system, consisting of an upstairs market for large block trades and a trading floor exchange. Transactions were recorded separately for both segments of the market. The authors: assess the quality of the market through the various stages of reform; examine the effect of microstructure reforms on the emergence of the market; and consider the price impact of large block trades. They also test whether the costs of trading have changed significantly since the stock market reforms. Their results show that the effective spreads and costs of trading have, if anything, increased except for the most actively traded stock.

Neal and Wheatley examine the performance of two commonly used empirical models for estimating the adverse selection component of a firm’s bid-ask spread. They use the models to estimate the adverse selection components of a sample of closed-end funds and a matched sample of common stocks. In contrast to the stocks, closed-end funds report their net asset values weekly, all but eliminating uncertainty about their current liquidation values. Thus the authors expect the adverse selection component to be much smaller for the funds than for the stocks. Estimates of the component, however, are large and significant for both samples. This suggests that either adverse selection arises primarily from factors other than current liquidation value or that the empirical models are misspecified.
Competition and Organization in Technology Intensive Industries

Ashish Arora, Carnegie Mellon University; Andrea Fosfuri, Università del Piemonte Orientale; and Alfonso Gambardella, University of Urbino, "Division of Labor and Transmission of Growth"

Discussants: Adam Jaffe, NBER; and Brandeis University, and Sam Koumar, NBER and Boston University

Joshua Lerner, NBER and Harvard University; and Robert Merges, Boalt Hall Law School, "The Control of Technology Alliances: An Empirical Analysis of the Biotechnology Industry"

Discussants: David Audretsch, Georgia State University; and Alfonso Gambardella.


Discussants: Lee Branstetter, NBER and University of California, Davis; and Bronwyn Hall, NBER and University of California, Berkeley

Eugenio J. Miravete, INSEAD, and Jose C. Pernias, Universidad Jaime I, "Innovation Complementarities and Scale of Production"

Discussants: Rebecca Henderson, NBER and MIT; and Hamuni Itt, NBER and Brown University

Eric Brynjolfsson, MIT, and Lorin Hitt, University of Pennsylvania, "Information Technology and Organizational Design: Some Evidence from Micro Data"

Discussants: Susan Alley, NBER and MIT; and Tom Hubbard, NBER and University of California, Los Angeles

George Delios and Eleftherios Zacharias, University of Illinois, Urbana-Champaign, "Pacing Dispersion over the Product Cycle: The Transition from the 486 to the Pentium Processor"

Discussants: Iain Cockburn, NBER and University of British Columbia; and Nancy Rose, NBER and MIT

Sangin Park, State University of New York at Stony Brook, "Quantitative Analysis of Network Externalities in Competing Technologies: The VCR Case"

Discussants: Neil Gandal, Tel Aviv University; and Andrea Shepard, NBER and Stanford University

Louis Thomas, University of Pennsylvania, "Adopting Order of New Technologies in Evolving Markets"

Discussants: Steven Berry, NBER and Yale University; and Anita McGahan, Harvard University

Arora, Fosfuri, and Gambardella study how an independent, upstream capital good sector in a technology based industry can act as a mechanism for the transmission of growth across countries. Since the number of specialists is determined by the size of the downstream sector, the growth of the downstream sector in leading countries has beneficial effects for the growth of the downstream sector in follower countries (less developed countries, or LDCs). Using a comprehensive dataset of investments in chemical plants in the developing countries during the 1980s, the authors find that one additional specialized supplier in a given process technology would have increased the expected investment in LDCs by $100 million to $200 million, with the increases greater in more mature technologies, and for larger LDCs.

Lerner and Merges examine the determinants of control rights in technology alliances involving biotechnology firms. They undertake three case studies and a quantitative analysis of 200 alliances. Consistent with the framework they use, the allocation of control rights to the firm performing R and D increases with its financial resources. The empirical evidence is much more ambiguous on the relationship between the stage of the project at the time the alliance is signed and control rights.

Economic analysis of high-technology industries often assumes that firms' abilities to survive depend on their own internal R and D efforts. Blonigen and Taylor argue that high-technology firms may choose to specialize either in this internal growth (through R and D) strategy or in an external growth strategy of acquiring other firms or firms operations. Using a panel of 214 U.S. electronics firms over nine years to test the relationship between R and D intensity and the probability of acquisition, and controlling for traditional determinants of acquisition activity which include financial constraints, they find a strong and significant negative correlation between R and D intensity and the probability of acqui-
sition. This suggests that electronics firms may be specializing in one activity or the other. Their results also suggest that firms with greater intangible assets, higher profitability, and lower debt-to-asset ratios are more likely to acquire.

Miravete and Pernias study the existence of strategic complementarity between product and process innovation for numerous firms in a wide range of industries. They show that general innovative strategies of Spanish firms can be considered mutually complementary and robust to the significant existence of firms unobservable heterogeneity. Their empirical evidence is consistent with small firms having a comparative advantage in successfully implementing flexible manufacturing methods.

Brynjolfsson and Hitt examine the influence of organizational design on the demand for information technology (IT) and the productivity of IT investments using data from approximately 380 U.S. firms. They find greater demand for IT in firms with greater decentralization of decision rights (especially the use of self-managing teams), and greater investments in human capital, including training and screening by education. In addition, the output elasticity of IT is higher in firms that adopt a more decentralized and human capital-intensive work system. This relationship is robust to alternative productivity specifications and measures of work systems. These findings support the idea that organizational practices are important determinants of IT demand and productivity.

Using a high frequency dataset of advertised prices in the personal computer industry, Deltas and Zacharias find, after adjusting for all observable product characteristics, that firms which were late in introducing Pentium-based computers command a higher price premium as compared to early entrants. This is true even among firms which have the same price premium for their 486-processor-based computers. Over time, the difference in the Pentium price premiums of the late versus the early entrants declines to the level of the difference in the corresponding 486 price premiums. One explanation for these results might be that the late entrants reap short-run rents from consumers who are loyal enough to have waited for their entry into the market in order to purchase. This suggests that firm identity matters over and above any other product characteristics in determining consumer willingness to pay for the product.

Park develops a model of consumers' choices among incompatible technologies and producers' pricing in the presence of network externalities. He then applies the model to analyzing the extent to which network externalities and installed bases contributed to de facto standardization of the VHS format in the U.S. home VCR market. His results imply that: 1) the network advantage of VHS became increasingly important during 1981–3, and although there was a push of Betamax in 1983, the network advantage was the key reason that VHS has outsold Betamax since 1986; 2) the expected sales advantage was more important than the installed base advantage in the adoption of the VHS format, however, the installed base advantage became increasingly important as time passed; and 3) the increase in the network advantage of VHS, especially through the accumulation of a larger installed base, was an engine of tipping toward and de facto standardization of the VHS format.

Thomas empirically examines the order in which firms adopt new technologies in the computer disk drive industry. He finds that large firms and incumbents are more likely to adopt earlier than small ones and new entrants when innovation does not rapidly make obsolete existing technology and products. He also finds, in some cases, that small firms and new entrants adopt earlier than large ones and incumbents when innovation rapidly makes obsolete existing products. These results are consistent with the economics and strategy literatures on innovation.
Bureau News

Merton Shares ’97 Nobel

Robert C. Merton, a Research Associate in the NBER’s Program on Asset Pricing and professor of economics at Stanford Business School, and Myron S. Scholes, a professor emeritus at Stanford Business School and a former NBER Research Associate, won the Nobel Prize in Economics this year.

The Royal Swedish Academy of Sciences awarded the prize to Merton and Scholes for helping to devise a mathematical formula aimed at measuring the worth of an option. “Thousands of traders and investors now use this formula every day to value stock options in markets throughout the world,” the Academy said in its announcement. Options are contracts that allow, but do not require, an investor to buy an asset, like a stock or oil, at a fixed price during a specified period of time.

Robert E. Lucas, Jr. and Robert W. Fogel, both NBER Research Associates and professors of economics at the University of Chicago, won the prize in 1995 and 1993, respectively. Other researchers who have been affiliated with the NBER over the years and won the Nobel Prize in Economics are Simon S. Kuznets, Milton Friedman, Theodore W. Schultz, George J. Stigler, and Gary S. Becker.

NBER Researcher is Newest Member of CEA

President Clinton recently named NBER Research Associate Rebecca M. Blank to be a member of his Council of Economic Advisers. Her nomination is subject to Senate confirmation.

Professor Blank is on leave from Northwestern University, where she teaches economics and directs the Northwestern/University of Chicago Joint Center for Poverty Research. She is also a member of the NBER’s Program in Labor Studies and the Program on Children.

Blank holds a doctorate in economics from MIT, and has written extensively about government anti-poverty programs.

Research Meeting of Economic Fluctuations and Growth Program

Daron Acemoglu, NBER and MIT
Why Do New Technologies Complement Skills? Data and Research on
Productivity and Wage Determination

Michael F. D. Alessie, NBER and University of Pennsylvania
Are R&D, Productivity, and Wages Cyclic?

Maarten van den Berg, NBER and University of Amsterdam
Empirical Evidence for the Role of R&D in Technological Change

Weijia He, NBER and University of California, Los Angeles
Business Cycles and the Dynamics of US Manufacturing

Discussant: F. Thomas Cooley, NBER and University of Chicago

Terry M. Mills, NBER and MIT

John H. Cochrane, NBER and University of Chicago

(Continued on next page)
Diebold, Ohanian, and Berkowitz propose a framework for assessing whether dynamic equilibrium models and data agree. They evaluate the significance of deviations between the models and the data, and use goodness-of-fit criteria to produce estimators that optimize economically-relevant loss functions. They provide a detailed illustrative application to modeling the U.S. cattle cycle.

In an economy where skilled and unskilled workers use different technologies, the rate of improvement of each technology is determined by a profit-maximizing R and D sector. When there is a high proportion of skilled workers in the labor force, the market for skill-complementary technologies is larger, and more effort will be spent in upgrading the productivity of skilled workers. One implication of this theory is that when the relative supply of skilled workers increases, the skill premium decreases in the short run, but then increases, possibly *even above its initial value*, because the larger market for skill-complementary technologies has changed the direction of technical change. This suggests that the rapid increase in the proportion of college graduates in the U.S. labor force may have been causal in both the decline in the college premium during the 1970s and the large increase in inequality during the 1980s. Acemoglu also derives implications of directed technical change for residual wage inequality, and shows that calculations of the impact of international trade on inequality that ignore the change in the direction of technical progress may be misleading.

Adda and Cooper study the effects of subsidies on durable goods markets. In particular, they consider a recent policy in France in which the governments of Balladur and Juppe subsidized the replacement of old cars with new ones. They find that these policies do stimulate the automobile sector in the short run but, through the induced changes in the cross-sectional distribution of car ages, they create the basis for subsequent low activity. Further, while these policies increase government revenues in the short run, revenues in the long run are lower relative to a baseline without intervention.

A large recent literature shows that strategic interactions among actors with conflicting objectives can produce inefficient political decisions. Romer investigates an alternative explanation of such decisions: if individuals' errors in assessing the likely effects of proposed policies are correlated, then democratic decisionmaking can produce inefficient outcomes even in the absence of distributional conflicts or heterogeneous preferences. Choosing candidates from among the best informed members of the population does not remedy the problems created by such errors, but subsidizing information and exposing representatives to information after their election do. Concentration of power has ambiguous effects. Finally, the presence of correlated errors tends to create multiple equilibriums in political institutions.

Den Haan, Ramey, and Watson develop and quantitatively implement a dynamic general equilibrium model with labor market matching and endogenous job destruction. The model produces a close match with data on job creation and destruction. Cyclical fluctuations in the job destruction rate serve to magnify the effects of productivity shocks on output, as well as making the effects much more persistent. Interactions between household savings decisions and separation decisions in employment relationships play a key role in propagating shocks.

The most important event in a recession is a sharp drop in employment. At the same time, firms liquidate inventories; employment and production fall by more than sales. Hall interprets recessions in the following way: episodes of financial stress result in abnormally high discount rates for business decisions. At the same time, possibly for unrelated reasons, profitability falls in some important industries. An increase in the discount rate shifts the decision toward shutdown because the firm realizes immediate cash from liquidating inventories and other capital upon shutdown, whereas the foregone profit lies well into the future. A decline in profit also shifts the decision toward shutdown if it lowers profit in relation to liquidation value. The burst of job destruction and inventory decumulation that occurs during the sharp part of the typical contraction results from profit-maximizing decisions to shut down units in firms throughout the economy. The concentration of recessions during brief episodes is increased as a result of the heterogeneity of productive units. If an adverse shock hits at a time when there has been a buildup of units near the borderline of shutdown, the burst of job destruction and inventory liquidation will be more severe.
Faculty Research Fellows for 1997–8

Yacine Ait-Sahalia  Patricia DeVries  Ann Harrison
Rosanne Altshuler  Francis X. Diebold  Judith Hellerstein
Patricia A. Anderson  Kathryn M.E. Dominguez  Igal Hendel
Patrick K. Asea  Steven N. Durlauf  Caroline Minter Hoxby
Susan Athey  Janice C. Eberly  Hilary W. Hoynes
Orazio Attanasio  Aaron Edlin  Thomas Hubbard
Laurence C. Baker  Matthew Eichner  Jennifer Hunt
Susano Basu  Nada Eissa  Guido Imbens
Paul Beaundry  Eduardo M. Engel  Hanum Ito
Geert Bekaert  Jonathan Feinstein  Urban Jermann
Dan Ben-David  Christopher Foote  Christine M. Jolls
Roland Benabou  Leora Friedberg  Charles I. Jones
Eli Berman  Rachel M. Friedberg  Larry E. Jones
Andrew Bernard  Jordi Gali  Chinhui Juhn
Giuseppe Bertola  David Genesove  Thomas J. Kane
Timothy J. Besley  William M. Gentry  Wolfgang Keller
Gordon Bodnar  Alec I. Gershberg  Daniel Kessler
†Lael Brainard  Robert Gertner  Sukkoo Kim
Lee G. Branstetter  Simon Gilchrist  Michael W. Klein
Moshe Buchinsky  Donna B. Gilleskie  Peter J. Klenow
Jose M. Campa  Edward L. Glaeser  Michael M. Knottner
Jeffrey R. Campbell  Sherry A. Glied  Samuel S. Koterm
Andrew Caplin  William N. Goetzmann  Michael Kremer
Christopher D. Carroll  †Linda Goldberg  Saul Lach
Kenneth Chay  Paul Goldfarb  Francine Lafontaine
Judith A. Chevalier  Paul Gompers  David Laibson
Menzie D. Chinn  Austan Goodbe  Robert J. LaLonde
Stephen Coate  Jeffrey Grogger  Owen Lamont
Dora Costa  †Jonathan Gruber  Jenny Lanjouw
Kent D. Daniel  Brian Hall  Thomas Lemieux
Sanjiv Ranjan Das  Maria J. Hanraty  Josh Lerner
Donald R. Davis  Gordon H. Hanson  Margaret Levenstein
Sandra Decker  †James Harrigan  Phillip B. Levine
Wouter J. Den Haan

†On leave for government service

John P. Rust  Arik Levinson  Steven D. Levitt
Xavier Sala-i-Martin  Jeffrey A. Liebman  Jeffrey B. Liebman
Andrew Samwick  Florencio Lopez-de-Silanes  Robin L. Lumsdaine
†John Carl Scholz  Brigitte Madrian  Nachum Sicherman
John Shea  Rodolfo Manzelli  Hilary Sigman
Nashun Sicherman  Mark B. McClean  Matthew J. Slaughter
Natalie Sicherman  Kathleen M. McGarry  Jeffrey Smith
Mathew Slaughter  David Meltzer  Kathryn E. Spier
Douglas O. Staiger  Rebecca Menes  Douglas O. Staiger
Scott Stern  Carolyn Moehling  Scott Stern
Ann Huff Stevens  Fiona Scott Morton  Deborah L. Swenson
Deborah L. Swenson  Casey Mulligan  Scott Taylor
Scott Taylor  Wallace Mullin  Alan M. Taylor
Alan M. Taylor  Derek Neal  Linda Tesar
Linda Tesar  Thomas J. Nechyba  Aaron Tornell
Aviv Nevo  Steven Olley  Daniel Trelfer
Steven Olley  Rosalie Liccardo Pacula  Peter Tufano
Martin Pesendorfer  Paolo A. Pesenti  Dimitrios Vayanos
Tomás Philipson  Tomas Philipson  Andreas Vayanos
†Joel Waldfogel  Anne Piehl  Joel Waldfogel
James R. Walker  Jorn-Steffen Pischke  Shang-Jin Wei
Shang-Jin Wei  Canice Prendergast  David Weinstein
Ingrid M. Werner  Thomas J. Prusa  Matthew White
Matthew White  Daniel Raff  Holger C. Wolf
Holger C. Wolf  Sergio Rebelo  Catherine Wolfram
Catherine Wolfram  Paul Rhode  Aaron Yelowitz
Aaron Yelowitz  Matthew P. Richardson  Alwyn Young
Alwyn Young  Nouriel Roubini  Luigi Zingales
Cecilia E. Roese

28. NBER Reporter Winter 1997/8
Wage Inflation and Unemployment

On November 4, the NBER held a meeting on "Wage Inflation and Unemployment" in its Cambridge office, which was usual in that it brought together NBER researchers with government officials to discuss this important topic. In the morning session on "Measurement Issues and Market Evidence," NBER Research Associates Lawrence F. Katz and Alan B. Krueger, both members of the Labor Studies Program and former Chief Economists at the U.S. Department of Labor, presented their thoughts and questions on wage statistics. Then John Ruser of the Bureau of Labor Statistics explained how that agency constructs its compensation statistics, and what the numbers show.

In the afternoon discussion of "The Unemployment-Inflation Relation," NBER Research Associate Robert J. Gordon, a member of the Program on Economic Fluctuations and Growth, talked about the "Sectoral Origins of the Recent Decline in the NAIRU." His remarks were followed by a presentation by Roger Brinner of DRI/McGraw Hill, an economic consulting firm, and by a more general discussion that included: NBER macroeconomists Olivier J. Blanchard of MIT, Bureau President Martin Feldstein and James H. Stock, both of Harvard; members of the NBER's Program on Monetary Economics Steven G. Cecchetti (currently on leave from the NBER at the Federal Reserve Bank of New York), former Program Director Benjamin M. Friedman and current Program Director N. Gregory Mankiw, both of Harvard; Richard B. Freeman, Director of the NBER's Program on Labor Studies; as well as Steven Braun of the President's Council of Economic Advisers; David Stockton and William Wascher of the Federal Reserve Board of Governors; Daniel Sullivan of the Federal Reserve Bank of Chicago; and Francis Harris of the Bureau of Labor Statistics.

Public Economics Program Meeting

Members of the NBER's Program on Public Economics, directed by James M. Poterba of NBER and MIT, met in Cambridge on November 4 and 5. They discussed the following topics:

Alberto Alesina, NBER and Harvard University
Gary Becker, University of Chicago and Case
and Harvard University
Gary Becker, University of Chicago and Case
Mugan, NBER and University of Chicago

Bretton Woods, Nixon, and the East
Policies of NBER and MIT, Working Paper

Jerry Hausman, NBER and MIT

"Taxation by Political Pressure: Regulation of the Tax Policy Conference earlier this month.

Discussion: William D. Nordhaus, NBER and Yale University

David A. Wise, NBER and Harvard University and Jonathan Gruber, NBER and MIT

Social Security Programs and Retirement Around the World (NBER Working Paper 16831)

Discussion: Peter Diamond, MIT

Thomas J. Nechyba, NBER

and Stanford University's Social

Armstrong, in LACOCA, American Association of the Urban

Economists

Discussion: Hilary G. Hoyt and

Alesina, Baqir, and Easterly present a model that links differences in preferences across ethnic groups in a city to the amount and type of public good the city supplies. They test the model with three related datasets: U.S. cities, U.S. metropolitan areas, and U.S. urban counties. They find that productive public goods—education, roads, libraries, sewers, and trash pickup—in U.S. cities (metro areas/urban counties) are inversely related to the city's (metro area's/county's) ethnic fragmentation. Ethnic fragmentation is related negatively to the share of local spending on welfare. The results are driven mainly by observations in which

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majority whites are reacting to varying sizes of minority groups. The authors conclude that ethnic conflict is an important determinant of local public finances.

Goolsbee reexamines the responsiveness of taxable income to changes in marginal tax rates using detailed compensation data on several thousand corporate executives from 1991 to 1995. The data confirm that the higher marginal rates of 1993 led to a significant decline in taxable income. Indeed, this small group of executives can account for as much as 20 percent of the aggregate change in wage and salary income for the one million richest taxpayers, and one person alone can account for more than 2 percent. The decline, however, is almost entirely a short-run shift in the timing of compensation rather than a permanent reduction in taxable income. The short-run elasticity of taxable income with respect to the net-of-tax share exceeds one, but the elasticity after one year is at most 0.4, and is probably closer to zero. Disaggregating the data by source of income shows that the shift comes from a large increase in the exercising of options in the year before the tax change, followed by a decline in exercising in the year of the tax change, and is concentrated among executives at the top of the income distribution. Executives without stock options show six times less responsiveness to taxation. Other types of compensation, such as salary and bonus or nontaxed income, are either not responsive to tax rates or not large enough to make a difference. The estimated elasticities indicate that the dead weight loss of recent tax increases was at most one quarter of the revenue generated.

Becker and Mulligan provide a model for analyzing the effects of the tax system and spending programs on the determination of government spending and taxpayer welfare. They show that a tax system or spending program which is not optimal from one point of view still can improve taxpayer welfare, because the system creates additional political pressure for suppressing the growth of government. Relevant examples include the use of inflation taxes, capital taxes, excise taxes, deficit financing, and income taxes with many "loopholes." They show that in a broad sample of countries for 1972–90, "more efficient" tax systems—that is, systems that rely on broad-based taxes with fairly flat rate structures—are associated with larger governments. An analysis of defense spending—especially wartime spending—and oil shocks suggests that the cause and effect is not from spending to tax structures.

Auerbach and his coauthors compare the equity, efficiency, and macroeconomic effects of five alternatives to the current U.S. federal income tax: a proportional income tax; a proportional consumption tax; a flat tax; a flat tax with transition relief; and a progressive variant of the flat tax called the "X tax." Their model predicts major macroeconomic gains (including an 11 percent increase in long-run output) from replacing the federal tax system with a proportional consumption tax. Future middle- and upper-income classes gain from this policy, but initial older generations are hurt by the policy's implicit capital levy. Poor members of current and future generations also lose. The flat tax, which adds a standard deduction to the consumption tax, makes all members of future generations better off, but at a cost of halving the economy's long-run output gain and harming initial older generations. Insulating these older generations through transition relief further reduces the long-run gains from tax reform. Switching to a proportional income tax without deductions and exemptions hurts current and future low lifetime earners, but helps everyone else. It also raises long-run output by over 5 percent. The X tax makes everyone better off in the long run and also raises long-run output by 7.5 percent. But it harms initial older generations who bear its implicit wealth tax.

The populations in all industrialized countries are aging rapidly and individual life expectancies are increasing. Yet older workers are leaving the labor force at younger and younger ages. In some countries, the labor force participation rates of 60- to 64-year-old men have fallen by 75 percent over the past three decades. This decline in labor force participation magnifies population trends, further increasing the number of retirees relative to the number of persons who are working. Together these trends have put enormous pressure on the financial solvency of social security systems around the world. Ironically, the provisions of the social security systems themselves typically contribute to the labor force withdrawal.

Gruber and Wise summarize the evidence presented in a number of papers on eleven industrialized countries, and distill the key conclusions from the collective findings. They note a strong correspondence between the age at which benefits are available and departure from the labor force. In addition, the provisions of social security programs often imply large financial penalties on labor earnings beyond the social security early retirement age. Furthermore, in many countries disability and unemployment programs effectively provide early retirement benefits before the official social security early retirement age. Gruber and Wise conclude that provisions of social security programs indeed have contributed to the decline in the labor force participation of older persons, substantially reducing the
potential productive capacity of the labor force.

Nechyba models the fertility decisions of individuals who differ in their wage rate and their preferences toward rearing children. More precisely, each type of person chooses her amount of leisure and whether to have a child out-of-wedlock. Children are considered "consumption goods," yielding utility but costing leisure time. Furthermore, how much utility individuals receive from having a child out-of-wedlock depends on the level of "social approval" that is associated with having out-of-wedlock children. This social approval is a function of the fraction of individuals in all previous generations who chose to have children out-of-wedlock, and the effect of each generation diminishes with time. Nechyba calculates a steady-state level of social approval in the absence of welfare programs, and then introduces a program similar to AFDC, and calculates a transition path to the new steady state. He demonstrates that along the transition path, observed cases of illegitimacy are rising both among the poor and the non-poor despite the fact that AFDC payments are constant or even falling. He then performs policy simulations of welfare reform proposals, from the steady state and at different points on the transition path. While the model is successful in replicating the stylized facts on AFDC and illegitimacy and establishes a link between the two through a government induced change in "values," it also demonstrates that welfare reform aimed at reducing the incentives for poor women to have out-of-wedlock births may not be as effective as policymakers who believe in a causal link between AFDC and illegitimacy might suspect. Finally, a spatial extension of the model could explain not only the stylized aggregate trends, but also the empirically important concentration of out-of-wedlock births in some communities.

**Program Meeting on Asset Pricing**

The NBER's Program on Asset Pricing met on November 7 in Philadelphia. A Clay, MacKinlay of the Wharton School, organized the program, at which these papers were discussed:


**Discussant: Francis X. Diebold, NBER and University of Pennsylvania.**

**Michael Brennan and Avinash Subrahmanyan, University of California, Los Angeles, and Tarun Chordia, Vanderbilt University.** "A Re-Examination of Security Return Anomalies" (NBER Working Paper No. 6078).

**Discussants: Josef Lakonishok, NBER and University of Illinois.**

**George M. Constantinides, NBER and University of Chicago, John Donaldson, Columbia University, and Fajnesh Mehr, University of California, Santa Barbara.** "Junior Cant Borrow. A New Perspective on the Equity Premium Puzzle" (NBER Working Paper No. 6080).

**Discussant: Domenico Quicco, University of Pennsylvania.**


**Discussant: David Backus, NBER and New York University.**


**Discussant: Robert J. Hodrick, NBER and Columbia University.**

**Stefano Athanasoulis, Iowa State University, and Robert J. Shiller, NBER and Yale University.** "The Significance of the Market Portfolio" (NBER Technical Paper No. 6097).

**Discussant: Jesu Santo, University of Chicago.**

Volatility permeates modern financial theories and decisionmaking processes. As such, accurate measures and good forecasts of future volatility are critical for the implementation and evaluation of asset and derivative pricing theories, as well as for trading and hedging strategies. In response to this, a voluminous literature has emerged for modeling the temporal dependencies in financial market volatility at the daily and lower frequencies. Most of these studies find highly significant in-sample parameter estimates and pronounced intertemporal persistence of volatility. Meanwhile, when judged by standard forecast evaluation criteria, standard volatility models seemingly provide poor forecasts. Andersen and Bollerslev demonstrate that, contrary to this contention, in empirically realistic situations the models actually produce strik-
ingly accurate interdaily forecasts for the latent volatility factor that is of interest in financial applications. They also present new methods for construction of more accurate and meaningful ex-post interdaily volatility measurements extracted from high-frequency intradaily data.

Brennan, Chordia, and Subrahmanyam re-examine the relationship between stock returns, measures of risk, and a set of other (non-risk) characteristics of securities, including the book-to-market ratio, firm size, the stock price, the dividend yield, and lagged returns. Their primary objective is to determine whether these other characteristics have marginal explanatory power relative to the APT benchmark. They use, in turn, the Connor and Korajczyk 1988 (CK) and the Fama and French 1993 (FF) approaches. Fama-MacBeth type regressions using risk adjusted returns provide evidence of return momentum, size, and book-to-market effects, together with a significant and negative relation between returns and trading volume, even after accounting for the CK factors. When the analysis is repeated using the FF factors, they find that the size and book-to-market effects are attenuated, and their significance is weakened as well, while the other effects persist. In addition, after adjusting for risk using either method, Nasdaq stocks show significant underperformance.

In the context of a stationary, overlapping generations economy in which consumers are subject to a borrowing constraint, Constantinides, Donaldson, and Mehra address ongoing questions on the historical mean and standard deviation of the return on equities and bonds and on the equilibrium demand for these securities. The constraint turns out to be binding for the young consumers and plays a different role than in models with infinitely-lived consumers. The model also highlights the function of equity as a hedge against future wage uncertainty, a property that has diminishing value as investors age.

Grossman and Zhou develop a simple dynamic general equilibrium model to explain the excessive dependence of a country's consumption on its own income, the home equity bias, and the foreign exchange risk premium. These "anomalies" are seen to be a direct consequence of the fact that a country cannot completely equitize the future income derivable from its natural and human resources.

In an integrated world capital market, the same pricing kernel is applicable to all securities. If the kernel is excessively volatile, as has been found in some studies, it should translate into an excessive degree of correlation in the returns of different stock securities. Dumas, Harvey, and Ruiz apply this idea mostly to the stock returns of different countries. They determine first, for a given measured degree of commonality in country outputs, what should be the degree of correlation of stock returns. They then match the second moments of the combined model containing the statistical multivariate model for output and the financial model for stock returns. They find that, far from being excessive, the actual correlations fall below what they should be in a unified market. By way of comparison, they then study purely domestic data. They close the investigation with an examination of the hypothesis of market segmentation.

The market portfolio (world portfolio) is in one sense the least important portfolio to provide to investors; there is always a better portfolio for social planners to make available to them. In a J-agent one-period stochastic endowment economy, where preferences are quadratic, the market portfolio is never spanned by the optimal markets a social planner would create. With identical preferences, the market portfolio is orthogonal to all J-1 portfolios which achieve a first best solution. These conclusions rely on the assumption that the social planner has perfect information about agents utilities. Athanasoulis and Shiller also show that as the contract designer's information about agents utilities becomes more imperfect, the optimal contracts will approach contracts that weight individual endowments in proportion to elements of eigenvectors of the variance matrix of endowments. If there is a substantial market component to endowments then a social planner, for reasons of robustness and simplicity, may conclude that creating a contract to allow trading the market portfolio would be a significant innovation.
Program Meeting on Children

On November 15, the NBER’s Program on Children, directed by Janet Currie of NBER and University of California, Los Angeles, in concert with Work and Family Structure: Do Higher Benefits Cause Teenagers to Leave the Nest.

Thomas S. Deo, University of California, Los Angeles; Welfare and Family Structure: Do Higher Benefits Cause Teenagers to Leave the Nest.

Hu tests whether teenagers’ decisions to leave or stay in welfare families respond predictably to welfare benefits. He uses a unique dataset that is particularly attractive in two ways: 1) variation in welfare benefits arises from a controlled social experiment in California; and 2) the longitudinal survey provides information on the whereabouts of all children, including those who have left the household. Hu finds that teenagers with children of their own respond to higher benefits by moving out of their parents’ households. These findings imply that increasing income through welfare benefits has a perverse destabilizing effect on poor families and alters the share of income received by different family members.

Recent research has suggested that one of the important, life-cycle consequences of teen drinking is reduced scholastic achievement. Furthermore, it has been argued that state excise taxes on beer and minimum legal drinking ages (MLDA) can have a positive impact on educational attainment. Dec and Evans use the increases in the state MLDA during the late 1970s and 1980s as a source of variation in teen drinking, and data from the 1977–92 Monitoring the Future surveys, to demonstrate that teens who faced an MLDA of 18 were substantially more likely to drink than teens who faced a higher drinking age. Then using data from over 1.3 million respondents who belong to the 1960–9 birth cohorts in the 1990 Public-Use Microdata Sample, they find that changes in the MLDA had small and statistically insignificant effects on measures of educational attainment such as high school completion, college entrance, and college completion. The authors conclude that teen drinking does not have an independent effect on educational attainment.

Hotz and Sanders have been engaged in a series of research projects that attempt to exploit a “natural experiment” associated with human reproduction to measure the causal effects and costs of early childbearing. In these papers, they compare the behavior of teen mothers with that of women who became pregnant as teenagers but suffered a miscarriage. The results do not support the common belief that childbearing during adolescence places the young mothers on a path permanently fraught with adversity, although they do suggest that a young woman’s life changes in substantial ways. Although failure to delay childbearing significantly reduces the likelihood that women will obtain a high school diploma, teen mothers have a higher probability than others of obtaining a general equivalency diploma. Teenage childbearing does not lead to a reduction in self-sufficiency or to an increase in dependence on government-sponsored public assistance programs, they find. While teenage childbearing does reduce earnings and increase welfare use for a few years after the birth of the first child, later in life, as her children age and as women who delayed childbearing begin to have children of their own, a teen mother becomes more likely to work, will earn more income, and is less likely to participate in government-sponsored public assistance programs. In fact, by her early thirties, a teenage mother has worked thousands more hours, and as a consequence has substantially higher wages, than if she had delayed childbearing. The authors find that very little of the approximately $11.3 billion the gov-
ernment spends on various forms of public assistance for teen mothers could be saved if all women who bore their first child as a teen were to delay that birth by three to four years. Furthermore, once one takes account of the increased tax revenues that teenage mothers provide through greater work effort, government would have higher net public assistance costs if all teen births were postponed.

One current educational reform seeks to reward the “value added” by teachers and schools based on the average change in pupil test scores over time. A key assumption of this policy is that socioeconomic outcomes are a linear function of test scores. Using the National Longitudinal Survey of Youth, Cawley, Heckman, and Vytlacil find a nonlinear relationship between test scores and (log) wages. They find no consistent pattern in the curvature of log wage returns to test scores. This implies that, used alone, the average gain in test scores is an inadequate measure of school performance.

Joyce, Kaestner, and Korenman investigate the causal link between unintended pregnancy and child health and development, and parental behaviors related to child health and development. Their primary motivation is that past studies may not have controlled adequately for the confounding effects of family and social background. To address this problem, they include an extensive set of controls. In addition, they exploit information on siblings to control for unobserved factors related to both child outcomes and pregnancy intentions. An interesting finding of the analysis is that unwanted pregnancy is associated with less healthy prenatal and postpartum behaviors, but has little association with infant health or child cognitive outcomes. Women whose pregnancies are unwanted are more likely to delay prenatal care, smoke during pregnancy, and are less likely to breast feed than women whose pregnancies are wanted. Despite these associations, women whose pregnancies are unwanted have infants of similar birth weight, and children that experience no apparent cognitive deficits as compared to children from wanted pregnancies.

Norberg gave an overview of the features of a large number (40+) of publicly available, nationally representative databases which have information pertaining to children’s health. (This information is now available on the NBER web page: from the NBER home page, click on “online data,” and from the online data page, select “links to child health data sets”; this will take you to a table which presents general features of the available surveys. The table also includes active links to websites containing more information: variable lists, ordering information, and the like for each dataset.) She also discussed the use of vital statistics in assessing newborn health. For example, many studies continue to use “low birth weight” as an indicator of newborn health and the quality of medical care. However, improved medical care may increase the survival of extremely premature infants, thus lowering average birthweight of “liveborn” infants. Improved medical care also may improve the nutritional status of newborns of any given gestational age, thus increasing average birthweight. Prematurity and weight-for-gestational-age are separable newborn health characteristics, with different causes and different health and developmental consequences. (The “child health” web page will also include access to a downloadable SAS file which will allow researchers to use birthweight, gestational age, gender and ethnicity to classify children’s nutritional status at birth.)

Blau estimates the effect of group size, staff-child ratio, training, and other characteristics of child care on the behavioral and mental development of children using data from the National Longitudinal Survey of Youth. In contrast to the data used in most previous research on this subject, the sample of children is large and nationally representative, the data contain good measures of the home environment, and there are repeated measures of the child development outcomes of interest. The results show that child care characteristics have little association with child development on average. Associations are found for some groups of children, but they are as likely to be of the “wrong sign” as they are to be of the sign predicted in the developmental psychology literature.
Program Meeting on Labor Studies

Fifty members and guests of the NBER’s Program in Labor Studies met in Cambridge on November 18 to discuss the role of labor market research. Program Director, Richard B. Freeman, and Research Associate Lawrence F. Katz of Harvard University organized the meeting at which the following papers were discussed:

Lawrence F. Katz, Jeffrey Kling, MIT, and Jeffrey Liebman, NBER and Harvard University, "Do Housing Mobility Programs Work?"

The impact of moving to opportunity on Boston families.

Bruce D. Meyer, NBER and Northwestern University, and Dan T. Rosenbaum, Northwestern University, "The NBER’s Women’s Labor Supply.

Eli Berne, NBER and Boston University, and Zaur Rzakhov, Brandeis University, "Migration and Gender.

David Card, NBER and University of California, Berkeley, and Abigail Payne, University of Toronto, "School Finance Reform, the Distribution of School Spending, and the Distribution of SAT Scores.

James J. Heckman, NBER and University of Chicago, "Lance Toch, University of Chicago, and Christopher Taber, Northwestern University, "Rising Wage Inequality and the Effectiveness of Diverting Subsidy Policies: Explorations with a Dynamic General Equilibrium Model of Labor Earnings."

Katz, Kling, and Liebman examine the short-run impacts of a change in residential neighborhood on the well-being of low-income families. They look at the experiences of 540 families at the Boston site of Moving To Opportunity (MTO), a demonstration program currently underway in five cities. Families in eligible public housing projects in high poverty Census tracts can apply to MTO and are assigned by lottery to one of three groups. The Experimental group receives some counseling assistance and a Section 8 rental subsidy that can be used to move to a Census tract that had a poverty rate of less than 10 percent in 1990. The Section 8 Comparison group receives a geographically unrestricted rental subsidy. The Control group continues in public housing and receives no new rental assistance or services. The authors find that one to three years after participants enter the program, both Experimental and Section 8 Comparison families are fairly successful in using their subsidies to move out of high poverty neighborhoods: 48 percent of Experimental and 58 percent of Section 8 Comparison families move through the program. The Experimental group is much more likely to move to suburban and other wealthier communities, while regular Section 8 assistance is modestly more effective in getting a larger share of families out of the most distressed communities. Families in all groups report that the primary reason they want to move out of public housing is fear of crime. The Experimental program appears to have been rather successful in addressing this major concern of the participants: participants surveyed from one to three years after program enrollment indicate much lower criminal victimization rates and much higher neighborhood safety than members of the Control group. The Section 8 program group shows somewhat more modest improvements in safety and reductions in criminal victimization. Further, employment rates and earnings levels of household heads in all groups have essentially doubled from 1994 to 1997. Also, children in the Experimental and Section 8 Comparison groups attend schools with substantially higher test scores, but there appears little difference among groups on reported attendance from school or hours spent on homework.

In recent years, there have been enormous changes in welfare and tax policy. In particular, there have been large expansions of the Earned Income Tax Credit (EITC) and Medicaid, changes in the Aid to Families with Dependent Children program, and in related training and child care programs. Many of the changes were intended to encourage low income women to work. Meyer and Rosenbaum examine the effects of these changes on the employment of single mothers. They find that a large share of the sharp increase in work by single mothers in recent years can be attributed to the EITC, with smaller shares for welfare benefit reductions and other changes in welfare programs.

Why do countries have large, persistent differences in fertility that are not explained by income levels or by women’s labor force participation? Applying Becker’s intergenerational utility function to an analysis of migration as investment, Berman and Rzakhov argue that migration costs and differences in altruism induce positive selection. They compare members of a single birth cohort who migrated in different periods from Eastern Europe to Israel. Migrants in the early period when migration was more costly average 0.9 more children over their lifetime. A comparison with women migrating...
after their fertile years shows that positive selection accounts for about two thirds of this large difference in fertility rates.

Card and Payne study the effects of school finance reforms on the distribution of school spending across richer and poorer districts, and the consequences of spending equalization for the distribution of SAT scores across children from different family backgrounds. Using school district data from the 1977 and 1992 Censuses of Governments to measure the correlation between state funding per pupil and median family income in each district, they find that states where the school finance system was declared unconstitutional in the 1980s increased the relative funding of low-income districts. Using micro samples of SAT scores from this same period, they find some evidence that the equalization of spending across districts leads to a narrowing of test score outcomes across family background groups.

Heckman, Lochner, and Taber develop and estimate a model of labor earnings, skill formation, and physical capital accumulation with different levels of human capital. The model analyzes both schooling choices and post-school on-the-job investment in skills in a framework in which different schooling levels serve as an index for different skills. They find that immigration of low skill workers contributes little to rising wage inequality. When they extend their model to account for the Baby Boom generation, they find that the same estimates of the supply of human capital that can explain the wage history of the last 15 years also explain the last 35 years of wage inequality.

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NBER Monetary Economists Meet

Nearly 50 members and guests of the NBER's Program on Monetary Economics, directed by N. Gregory Mankiw, of NBER and Harvard University, met in Cambridge on November 11 to discuss the following papers:

*Lawrence Christiano and Martin S. Eichenbaum, NBER and Northwestern University, and Charles Evans, Federal Reserve Bank of Chicago, "Modeling Money."
*Valerie Ramey, NBER and University of California, San Diego, and Matthew D. Shapiro, NBER and University of Michigan, "Costly Capital Reallocation and the Effects of Government Spending."
*Frederic S. Mishkin, NBER and Columbia University, and Adam Posen, Institute for International Economics, "Inflation Targeting: Lessons from Four Countries."
*Michael Woodford, NBER and Princeton University, "Do We Need 'Without Money' Policies? Controlling Inflation in a 'Post-Monetary World'."
*Cassie Bucher, University of Bern, "Monetary Policy and Macroeconomic Stability."
*Cassie Mulligan, NBER and University of Chicago, and Xavier Sala-I-Martin, NBER and Columbia University, "The Demand for Money."
*Anna J. Schwartz, NBER, "The Demand for Money."

Changes in government spending often lead to significant shifts in demand across sectors. Ramey and Shapiro estimate the effects of military buildup on a variety of macroeconomic variables using a new measure of military shocks. The behavior of macroeconomic aggregates is consistent with the predictions of a multi-sector neoclassical model. In particular, consumption, real product wages and manufacturing productivity fall in response to exogenous military buildups in the post-World War II United States.

In recent years, a number of central banks have announced numerical inflation targets as the basis for their monetary strategies. After outlining the reasons why such strategies might be adopted in the pursuit of price stability, Mishkin and Posen examine the adoption, operational design, and experience of inflation targeting as a framework for monetary policy in the first three countries to undertake such strategies: New Zealand, Canada, and the United Kingdom. They also analyze the operation of the long-standing German mone-
tary targeting regime, which incorporated many of the same features as later inflation-targeting regimes. The key challenge for all these monetary frameworks has been the appropriate balancing of transparency and flexibility in policymaking. This study finds that all of the targeting countries examined have maintained low rates of inflation and increased the transparency of monetary policymaking without harming the real economy through policy rigidity in the face of economic developments. A convergence of design choices on the part of targeting countries with regard to operational questions emerges from this comparative study, suggesting some lines of best practice for inflation-targeting frameworks.

Woodford shows that it is possible to analyze equilibrium inflation determination without any reference to either money supply or demand, as long as one specifies policy in terms of a "Wicksellian" interest-rate feedback rule. His central result is a theorem that shows the existence, for a simple monetary model, of a well-behaved "cashless limit" in which the money balances held to facilitate transactions become negligible. The determination of equilibrium inflation in the cashless limit also provides a useful approximation of the case of an economy in which monetary frictions are present, but small, or in which monetary frictions vary over time, which may result in substantial instability of money demand in percentage terms. Inflation in the cashless limit is a function of the gap between the "natural rate" of interest, determined by the supply of goods and opportunities for intertemporal substitution, and a time-varying parameter of the interest-rate rule indicating the tightness of monetary policy. Inflation can be completely stabilized, in principle, by adjusting the policy parameter so as to track variation in the natural rate.

Mulligan and Sala-I-Martin argue that the relevant decision for the majority of U.S. households is not the fraction of assets to be held in interest-bearing form, but whether to hold any such assets (we call this "the decision to adopt" the financial technology). They show that the key variable governing this decision is the product of the interest rate times the total amount of assets. The implication is that, instead of studying money demand using time series and looking at historical interest rate variations, one can look at a cross-section of households and analyze variations in the amount of assets held. The authors find that the elasticity of money demand is very small when the interest rate is low; the probability that a household holds any amount of interest bearing assets is related positively to the level of financial assets; and the cost of adopting financial technologies is related positively to age and negatively to the level of education. The finding that the elasticity is very small for interest rates below 5 percent suggests that the welfare costs of inflation are small. At interest rates of 6 percent, the elasticity is close to 0.5, and roughly one half of this elasticity can be attributed to the Baumol-Tobin or intensive margin, and half of it can be attributed to the new adopters or extensive margin. The intensive margin is less important at lower interest rates and more important at higher interest rates.

Behavioral Macroeconomics Discussed in Cambridge

Members and guests of the NBER's Project on Behavioral Macroeconomics gathered in Cambridge on December 14 to discuss a number of papers, the meeting organized by George A. Akerlof of the University of California, Berkeley, and Robert J. Shiller of NBER and Yale University.

B. Douglas Bernheim, NBER, and Stanford University; Jonathan Skinner, NBER and Brown University; Steven Weinberg, Brown University; and Donald West, University of Michigan, spoke about "The Budgeting Behavior of Households." (NBER Working Paper No. 6227)


Edward C. Prescott, University of Minnesota; and Johnфа́н, NBER and University of Maryland; and Robert J. Shiller, Institute of Economic Sciences; and Christina D. Romer, Yale University, spoke about "The Macroeconomic Implications of Financial, Wealth, and Labor Market Changes." (NBER Working Paper No. 6226)