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Program Report

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The Changing Focus of Public Economics Research, 1980–2010

Raj Chetty and Amy Finkelstein*

The NBER's Program on Public Economics (PE) has covered a very wide range of topics since the last program report six years ago. Rather than attempting to summarize the entire corpus of work that has been done by this program in the past few years, this report provides a bird's eye view of some of the major changes in the field from two perspectives. First, we quantify the main trends in public finance research at the NBER over the last thirty years, drawing on statistics from the database of NBER Working Papers. Second, we qualitatively summarize some of the emerging themes of recent research, both in terms of topics and methods.

A Statistical Perspective

The Public Economics Program began as the Business Taxation and Finance Program, which held its first meeting under the direction of David Bradford in December 1977. It was renamed the Taxation Program in 1980, to reflect the broader research interests of its affiliated researchers. To recognize the importance of expenditure as well as tax research, the program was renamed "Public Economics" in 1991, when James Poterba succeeded David Bradford as Program Director.

In the last two decades, the research conducted by the Public Economics Program has changed dramatically in volume, methodology, and topics. To broadly characterize some of the main trends, we downloaded all of the Working Papers in the Taxation Program in 1990 and in the Public Economics Program in 2000 and 2010, and classified them in various ways, which we summarize in Table 1, on page 3.

**Chetty and Finkelstein direct the NBER's Program on Public Economics. Chetty is a professor of economics at Harvard University. Finkelstein is a professor of economics at MIT. They are grateful to Annetta Zhou for excellent research assistance. The numbers in parentheses throughout this report refer to NBER Working Papers.*

NBER Reporter

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The number of Public Economics (PE) papers per year has grown over time from 55 in 1990 to 183 in 2010. This appears to primarily reflect the growth in the number of Program members; over the same period, the total number of NBER affiliates has also increased; and the Public Economics share of NBER Working Papers has not shown any pronounced trend. However, the activities of the PE Program have branched out in part to related programs, including Children, the Economics of Education, Aging, Health Economics, and Health Care. The papers in these programs collectively account for over 40 percent of NBER Working Papers in 2010.

The typical methodology used in papers in the PE Program also has changed over time. In 1990, about 30 percent of papers listed in PE were purely empirical; by 2010 that number had grown to about 50 percent. Much of this growth is likely due to the greater availability of micro data that permit rigorous empirical analyses of questions that cannot be answered purely based on theory. We expect this growth to be even more rapid in the coming years, as researchers gain access to large administrative panel databases that permit even finer analysis.

The topics analyzed by public economists have changed as much as the methods used. Although public finance traditionally has been associated with government spending and taxation, our analysis of papers listed in the PE Program shows a marked trend over time toward a broader definition of what constitutes public finance. The share of papers listed in the PE Program that are not directly related to government spending or taxation rose from 30 percent in 1990 to over 60 percent in 2010. Common topics for these other papers include macroeconomics, regulation (environmental, housing, financial and so on), and papers on educational productivity and outcomes. Another metric of this broadening of focus is the increasing share of PE papers that are cross-listed in another field, from about 30 percent in 1990 to about 90 percent in 2010.

There also has been a marked shift in research from the analysis of taxation to the analysis of government expenditures. In 1990, less than 10 percent of PE papers on taxes or spending dealt exclusively with spending; in 2010 that number was about 55 percent. Part of this increase is related to the fact that the nature of government expenditure today is more amenable to economic analysis: economists have less

Table 1 — Overview

	1990	2000	2010
Total # of NBER Working Papers	398	665	1025
Total # of Working Papers in Public Economics	55	153	183
Share of Working Papers in Public Economics	13.8%	23.0%	17.9%
Public Economics Working Papers by Methodology			
	1990	2000	2010
Empirical	29.1%	46.4%	52.5%
Theory	38.2%	37.3%	30.1%
Both	29.1%	11.8%	5.5%
Other (survey of the literature, research methodology, etc)	3.6%	4.6%	12.1%
Public Economics Working Papers by Topic			
	1990	2000	2010
Tax	63.6%	28.1%	15.3%
Spending	5.5%	13.7%	20.8%
Tax and Spending	0.0%	7.8%	1.1%
Other (Education, Regulation, etc)*	30.9%	50.3%	62.8%
* WPs on education factors and their productivity, such as teachers' value added and school choice mechanisms, are categorized under "other" while WPs on the financing of public education are categorized under "spending".			
Public Economics Working Papers on Taxation: Corporate vs. Individual			
	1990	2000	2010
Individual	47.1%	79.2%	88.9%
Corporate	41.2%	13.2%	7.4%
Both	11.8%	7.5%	3.7%

to say about the best way to build bridges than about how to design social insurance programs. But another likely reason for the shift is that the varied nature of expenditure programs at the state and local level creates many important and interesting questions that researchers can investigate using modern quasi-experimental techniques.

There also have been important changes within the sub-field of taxation. Most notably, research has focused increasingly on issues of individual taxation. The share of tax-related papers that deal exclusively with individual taxation has risen from almost 50 percent in 1990 to about 90 percent in 2010. We believe that part of this trend is related to the availability of excellent microdata and identification strategies that are useful in analyzing individual tax and spending programs. Corporate tax-

ation is thus an area that appears ripe for additional work using modern theoretical and empirical methods.

A Qualitative Perspective

While the descriptive statistics above provide a broad sense of the major shifts in the field, there are many thematic and methodological changes that require a more nuanced reading of the literature. We briefly review what we view as some of the most important themes that have emerged over the past decade of work and highlight areas that are likely to be very active in the coming years. Naturally, the summaries below neglect a far larger fraction of research than they cover; no brief review could do justice to the breadth and depth of work done by the PE group over the past five years. For most of the major points we

make we try to list a few illustrative examples from recent working papers, but do not attempt a comprehensive reference list. We apologize to researchers whose work and topics of focus we have been unable to cover here because of space constraints.

Connecting Theory to Evidence

Prompted by the growth in empirical work documented above, researchers more recently have begun to seek methods of connecting empirical findings back to the theoretical models that formed the core of public finance research in the 1970s and 1980s. The explosion in empirical research in the 1990s and 2000s was largely driven by studies that documented the causal impacts of tax policies or expenditure programs on economic behavior. For instance, a large empirical literature estimated the

impacts of income taxation on labor supply and reported taxable income (7512, 15012, 15583). These studies generally have found significant impacts of taxes on reported taxable income, particularly for high income individuals and over longer horizons when individuals have had sufficient time to adjust labor supply. Estimates of the taxable income elasticity vary, but are generally between 0.25 and 0.5 excluding top income earners (15616). An equally large number of studies have measured the impacts of social insurance and welfare programs on many behaviors (12865, 14306, 15589, 17049). Again, there is consistent evidence that these government expenditure programs affect behaviors around labor supply, savings, and healthcare expenditures. Many of these studies used quasi-experimental methods that permit convincing identification of the causal impacts of policies under relatively weak assumptions.

This body of empirical work has advanced enormously (and continues to advance) our understanding of policy impacts. For instance, several studies have demonstrated convincingly that social security programs have significant effects on retirement decisions (7830, 8658, 17320). Yet in many cases, it has been difficult to translate these findings into assessments of the efficiency or other economic effects associated with social security programs. Theoretical studies on social security (10260, 16503) have characterized the efficiency consequences of program design under specific assumptions about various parameters. However, the implications of the empirical findings for the parameters that entered these theoretical models were often unclear.

Recent work in the PE group has connected the earlier theoretical literature with modern empirical evidence more directly. Researchers used two types of methodology to accomplish this goal. The first is to build structural models that are calibrated to match empirical estimates (9183, 13228, 13375, 17338) and then to analyze policy using these models. This structural approach offers a versatile tool for making quantitative predictions about how particular measures of household welfare could be affected

by policy changes in a variety of settings. The second is to derive formulas for policies that meet specified criteria—such as maximizing individuals’ utility or welfare—from standard theoretical models that can be expressed in terms of the high-level reduced-form parameters estimated in modern empirical work. This latter technique, which has come to be known as the “sufficient statistic” approach, is less dependent on the specification of a particular model of underlying behavior, but is more limited in the set of questions it can answer.

Both of these methodologies have allowed PE researchers to start to assess how various policies affect a number of criteria that might be used for policy analysis. For instance, researchers have provided numerical characterizations of how a utilitarian social welfare criterion would be affected by various degrees of progressivity of the income tax schedule (7628, 7708, 17616), of the level of unemployment benefits that maximizes individuals’ expected utility (12618, 13967), of the tax rate on capital gains that maximizes net surplus (17642), and of the welfare costs of adverse selection in health insurance and annuity markets (13228, 14414). These approaches have in turn helped to refocus the empirical literature on estimating the parameters that matter most for policy analysis. There are many areas of the field in which work connecting theory to data is only now beginning, such as the analysis of social security and disability insurance programs or the analysis of education policies. We expect much more research in these areas using the tools that have been developed in recent research.

Behavioral Public Finance

Public economics has been quick to draw upon the insights of other fields and to understand their implications for policy analysis. One of the most important transformations in public economics over the past decade has been the incorporation of lessons from behavioral economics. While traditional public economics often starts from potential market failures that might motivate government intervention—such

as asymmetric information or externalities due to incomplete markets—behavioral models open up a new class of potential motives and considerations for government policy. When individuals do not optimize, there may be a rationale for government intervention even in well-functioning markets, for instance by requiring that individuals who underestimate risks buy health insurance or by forcing myopic agents to save for retirement.

A key challenge in this nascent literature has been to understand how to do welfare analysis when agents do not optimize. Public economists have leaned very heavily upon the tools of revealed preference in order to analyze policy. By recovering individual preferences from choices, one can proceed to identify policies that maximize the individual’s welfare. But when individuals do not optimize, their choices no longer reveal their true preferences, and it becomes much less clear what the government’s objective should be. Recent work has made several productive strides in tackling this issue, ranging from defining welfare criteria when agents make specific mistakes (13976, 15328) to developing robust methods of welfare analysis that acknowledge choice inconsistencies (13330, 13737).

Partly because welfare analysis in behavioral models is complex, much of the growth in the behavioral public economics literature has been in positive empirical work. A recurring finding of these studies is that while traditional economic incentives do matter on the margin, other aspects of policies—such as framing, information, or the decision environment—often have much larger impacts. Researchers have demonstrated that behavioral considerations play a first-order role in an array of settings, including the role of defaults in retirement savings contributions (12009, 13352, 14859), the role of salience in tax policies (12924, 13330), and the impacts of information provision tax and transfer programs (14836, 17287).

While behavioral considerations play an increasingly important role in public finance research, much remains to be learned before researchers have a unified framework for policy analysis when

agents do not optimize. We expect to see much more research in this area in the coming years.

New Dynamic Public Finance

Just as public economists have drawn inspiration from work in behavioral economics, research on dynamic macroeconomic models also has had a significant influence on the field. While many of the theoretical models studied by public economists in the 1980s and 1990s were static, macroeconomists were developing dynamic models with forward-looking agents who anticipated changes in future government policies. This style of work now has informed research on public finance, with a large and robust literature dealing with policy problems such as capital income taxation and social insurance in dynamic models. These problems are technically very challenging, because dynamic models are generally much less tractable than static models.

Researchers have made considerable progress in facing these technical challenges and have begun to obtain some interesting findings. For example, several studies have suggested that there may be a role for capital taxation even in infinite-horizon economics, contrary to the results of classic papers that made stronger assumptions about the set of policy instruments available to the government (10792, 16619, 13720, 17642). Other work has shown that in an environment without liquidity constraints, the path of unemployment benefits that maximizes expected utility is constant over time (11689).

An interesting direction for further work in this area is combining the insights of behavioral models with dynamic models. Most dynamic models assume that agents are forward looking, rational agents, contrary to the lessons from the behavioral literature summarized above. One early example along these lines is work showing that constraining agent's savings decisions when individuals have self-control problems can increase utility (10151). Another interesting direction for further work will be to tie the new

dynamic models more closely to empirical evidence, as is now common in the analysis of static problems.

Lab and Field Experiments

While a great deal of the new empirical work in public finance exploits large observational datasets, public economists also run experiments and collect new data to use in analyzing economic policies. An active literature uses lab experiments to investigate economic decision making in a variety of domains. These include classic topics such as public goods (15967) and the endowment effect, and reference-dependent behavior (16715), as well as newer areas of inquiry such as the impact of matching grants on charitable giving (13728) and the effect of campaign finance regulations (17384). Other recent work has tested the internal consistency of economic choices and has attempted to explain which types of agents are most rational in their behavior (16791).

Researchers also have turned to field experiments to tackle a broad range of questions because of concerns about the external validity of lab experiments (12992, 14356). Field experiments have been used to analyze the role of ballot secrecy in voter turnout (17673), motives for charitable giving (17648), the long-term impacts of early childhood education (16381, 17533), the effects of information provision on Medicare Part D prescription drug insurance plan choices (17410), and the consequences of using various strategies to address the needs of poor individuals in developing countries (15980). The breadth of these studies, relative to traditional public finance topics, illustrates both the expansion of the field as discussed above and the fact that field experiments allow researchers to tackle questions that could not be answered with standard observational datasets.

As with empirical work using observational data, recent research has begun to integrate more closely the findings from experiments with theoretical models (17047). Several studies involve the design of experiments that directly test the predictions of standard models. For

instance, recent work has tested theoretical predictions about observational learning (13516), analyzed whether neoclassical models of tax evasion are good descriptions of taxpayer behavior (15769), and investigated whether individuals' utility depends upon absolute or relative income (16396). Other studies have estimated the parameters needed to calibrate models for policy analysis, such as the price elasticity of charitable giving (12338).

Social Insurance

The growth in research on expenditure programs documented above is driven primarily by research on major social insurance programs, particularly Social Security and Disability Insurance, Medicare and Medicaid, and Unemployment Insurance. These programs make up over half of federal expenditures and are expected to grow rapidly over the coming decades as the baby boomers age and medical costs continue to grow. In the 1980s and early 1990s, empirical work tended to focus on the distortionary consequences of social insurance programs, particularly for labor supply, but also for other behaviors such as savings and health expenditures. While important advances continue to be made in this area, we have also seen an increasing focus on formalizing and quantifying the benefits of these programs. For example, recent work has examined the potential benefits that unemployment insurance may provide by giving unemployed workers access to liquidity (11689, 11709, 13967); one of the central findings of this new vein of research is that access to liquidity during unemployment may be one of the most important functions of unemployment insurance. In the area of health insurance, while interest continues in the impact of Medicare and Medicaid on health spending, research also examines the potential benefits of these programs not only for health outcomes but, increasingly, for risk spreading (16155, 17190), where evidence suggests health insurance may play an important role in reducing the risk of large out-of-pocket medical expenditures or medical debts.

Another welcome development in this area has been the creation of compel-

ling research designs to use in investigating the impacts of uniform national programs. Historically, much of the empirical work on social insurance has focused on unemployment insurance or Medicaid, both of which are state level programs, therefore offering potential “natural experiments” as different states have adjusted these programs in different ways at different points in time. Much of the empirical work on important national social insurance programs—such as Social Security, Medicare, and Disability Insurance—was limited to time-series comparisons as the programs expanded or to cross-sectional comparisons about individuals whose incomes gave them access to different benefit levels. Increasingly, however, researchers have been able to draw on other empirical strategies—sometimes in other countries and often drawing on large administrative databases—to shed light on the impact of these important social insurance programs. In the United States, for example, recent studies have used the discontinuity in Medicare eligibility at age 65 to study the impact of Medicare on health care utilization and health outcomes (13668, 10365). One paper presented at the Spring 2011 NBER Public Economics Program Meeting uses the quasi-random assignment of disability applicants to examiners with different degrees of leniency in judging disability to examine the impact of disability insurance receipt on labor supply.¹ The authors find that the receipt of disability insurance reduces labor force participation more for those who are estimated to have less severe disabilities.

In addition to examining the impacts of social insurance, a growing body of empirical research has investigated some of the underlying economic rationales for these social insurance programs, focusing particularly on the existence and nature of selection in private insurance markets for annuities and health insurance (12289, 14414, 15326) as well as the impact of public policy in selection markets (16977). The emphasis on developing techniques for detecting selection and then applying them has generated interesting and at times surprising insights about the nature of selection and the implications for public policy in annuity and health insurance markets.

Several papers include examples in which rather than adverse selection—where those who have private information that they are at high risk select more insurance—there is evidence of advantageous selection—in which those who have private information that they are at low risk will select more insurance. This has raised the possibility that there may be insurance markets in which private information results in too much rather than too little insurance coverage.

Research influences from the financial crisis and current macroeconomic events

One of the strengths of the PE program is that the research it produces quickly responds to important economic events. Recently, the financial crisis has touched almost all aspects of American life and society. Thus, we have seen a remarkably quick and direct influence of the macroeconomic situation and the public policy questions it has generated on research in the PE program. Two topics in particular have generated such a concentrated burst of related research that we organized mini-symposia around the topics.

One research topic concerns the varying economic effects of unemployment insurance over the business cycle (16526, 17173, 17534), and the potential implications of such variation for program design. These studies have analyzed, among other things, the extent to which unemployment benefit extensions have increased unemployment rates, and whether this effect is smaller or larger in recessions. In the spring of 2011, we organized a symposium around this topic.

Another question concerns the nature, mechanism, and magnitude of the fiscal multiplier. One day of the July 2011 Summer Institute was devoted to six papers on this topic. Mankiw and Weinzierl (17029) provided a theoretical framework for analyzing the optimal response of monetary and fiscal policy to aggregate demand shocks. Nakamura and Steinsson (17391) provided empirical estimates of the impact of regional shocks

to public expenditures on economic activity, and a framework with which to use such estimates to try to inform one’s sense of the standard closed-economy aggregate multiplier. The program that day also featured several papers that estimated the fiscal multiplier using quasi-experimental designs, such as those induced by the stimulus bill (the American Reinvestment and Recovery Act), by the changes in federal spending in localities brought about by decennial updates to the population estimates, and by the performance of state pension fund investments. Other program meetings have featured NBER Working Papers related to the impact of fiscal stimulus as well, including an analysis of the impact of the “Cash for Clunkers” program on the economy (16351) which concluded that almost all of the additional car sales induced by this program represented moving forward sales that otherwise would have occurred within the year anyway.

The interest in analyzing fiscal stimulus is one example of a broader trend toward analyzing issues that have been tackled historically using macroeconomic approaches rather than microeconomic methods. Another example of the use of quasi-experimental methods is work estimating the marginal propensity to consume out of windfall cash grants (16684, 14753).

While the character of public economics research at the NBER has changed dramatically over the past three decades—as any healthy and active area of research should—the fundamental goals of the field remain much the same: to provide careful, rigorous economic analysis that bears on the most important government policy questions of the time. The NBER’s PE program has made significant contributions toward achieving this goal over the past decades and is well poised to continue to do so in the years to come.

¹ Nicole Maestas, Kathleen Mullen, and Alexander Strand, “Does Disability Insurance Receipt Discourage Work? Using Examiner Assignment to Estimate Causal Effects of SSDI Receipt”.

Private Health Insurance Markets

Leemore Dafny*

Private health insurance plays a pivotal role in the U.S. healthcare system. Private insurers account for one out of every three dollars spent on healthcare, and even this figure understates the importance of the sector: many public insurance programs now rely on private insurers to manage a substantial share of spending (for example, Medicaid managed care, Medicare Advantage), and private insurers heavily influence out-of-pocket spending by their enrollees.¹ Looking ahead, the Affordable Care Act will subsidize the purchase of private health insurance through state or local health exchanges beginning in 2014. The industry is expected to gain 16 million customers as a result.² Notwithstanding this prominent role, the private health insurance sector has garnered relatively little attention from academic researchers, primarily because high-quality data on insurance contracts is so limited.

To explore various issues associated with health insurance markets, I developed a relationship with a major benefits consulting firm that gathers an extensive dataset on the health plans offered by its clients. The firm generously agreed to share the data for my research, subject to strict confidentiality criteria. At present the data span the period from 1998–2009, and contain information on roughly 900 distinct firms covering around 10 million participants per year. Although the sample is not random, I have found that it is representative of large firms nationwide, and hence of the large group insurance

market, particularly for firms that operate at multiple locations.

I use these data—henceforth LEHID for “Large Employer Health Insurance Data”—to study the private insurance industry, focusing on local market structure, the economic conduct of insurance companies, and implications for health insurance premiums. I also use the insurance industry as a lens through which to examine the impact of potential policy reforms, such as tort reform and an expanded insurance exchange in which employees shop for a health plan using their employer subsidies.

The Economic Conduct of Health Insurers

Among the most striking facts I uncovered in my initial analysis of LEHID is that local health insurance markets are very concentrated. Moreover, many markets have become more concentrated over time. I pursued two different strategies to examine whether there is a causal link between insurance market structure and soaring health insurance premiums.

In a 2008 paper, I explore whether and where insurance carriers engage in direct price discrimination, charging higher premiums to firms (that is, their clients) with deeper pockets, as measured by operating profits.³ In a competitive industry, price (for a fixed product) would not vary based on customers’ ability to pay. I find that firms with increases in operating profits subsequently face larger premium increases. This relationship is strongest in geographic markets served by a small number of insurance carriers (particularly six or less). Therefore, a multisite firm with high profits in a given year (say, a large firm such as The Gap) will face higher premiums for its health plans, but

only at the sites served by a concentrated insurance market. I do not find any evidence that firms with high profits face higher premium increases because they increase benefits on some dimensions. Additional analyses reveal that firms with positive changes in operating profits are much less likely to make changes to their roster of health plans; this unwillingness to make changes in insurance offerings in good times facilitates higher pricing by incumbent carriers. Over the study period (1998 to 2005), the share of the sample residing in markets with six or fewer carriers increased from 7 to 23 percent, suggesting that more Americans are now residing in markets where insurers possess and exercise market power.

Another study, undertaken with Mark Duggan and Subramaniam Ramanarayanan, estimates the impact of changes in local market concentration on premium growth.⁴ We begin by examining whether premiums tend to rise more quickly in consolidating markets. We find that they do not, which may help to explain why consolidations have rarely encountered resistance from antitrust authorities and insurance commissioners. However, such an analysis fails to control for the fact that consolidations do not occur randomly across markets. To address this concern, we hone in on the effects of one particular mega-merger: the 1999 acquisition of Prudential Healthcare by Aetna. Both were national firms, active in most local insurance markets, and thus the merger had widespread impact. However, the pre-merger market shares of the two firms varied significantly across local markets, resulting in very different—and we argue, fairly random—“shocks” to post-merger competition. We quantify the impact of these shocks on premiums, and apply

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the resulting estimate to the total average change in market concentration over the period 1998–2006. We estimate that consolidation during this period raised premiums by around 7 percent. Although this is a small figure relative to the aggregate real premium increase during the same period (around 50 percent), it is large relative to typical operating margins of insurers, which were around 5 percent of premiums during our study period.⁵ We also find evidence that insurer consolidation depresses healthcare employment, and facilitates the substitution of nurses for physicians.

In another project on insurer conduct, Ramanarayanan and I focus on whether an insurer's ownership status affects its behavior.⁶ For-profits account for more than half of private health insurance in the United States. We assess the impact of local-area for-profit market share on premiums, medical-loss ratios (the share of premiums paid out in medical claims), and insurance coverage rates. Our analysis is longitudinal, focusing on changes in these outcomes and how they relate to plausibly exogenous changes in local for-profit market share induced by the conversions of Blue Cross Blue Shield (BCBS) affiliates to for-profit status in the years following 1994. A 1994 change in the BCBS Association bylaws permitted such conversions, and for-profit BCBS affiliates now operate in 14 states.

We find no significant effects of for-profit market share on any of these outcomes, on average. However, in geographic areas where the converting BCBS affiliate had substantial market share, premiums for employer plans increased, employer-sponsored coverage rates decreased, and Medicaid enrollment increased. Our results suggest that subsidies for new not-for-profit insurers, such as those in the Affordable Care Act, are only likely to create value if the insurers can achieve substantial market share.

Do Employers Offer the Plans that Employees Want?

Nearly 60 percent of nonelderly Americans purchase health insurance

through employer-sponsored plans. Although there are no legal impediments to offering a broad array of plans, in practice employers offer a very limited set of choices: a 2011 survey by the Kaiser Family Foundation/Health Retirement Education Trust finds 47 percent of employees are offered only one plan type (for example, HMO or PPO). Increased choice is frequently cited as an objective of healthcare reform, but its benefits have never been quantified. One of my papers, coauthored with Kate Ho and Mauricio Varela, evaluates how much employees would be willing to pay for the right to apply their employer subsidy to the plan of their choosing.⁷

We estimate the value of choice in three steps. First, we estimate a model of employee preferences using employees' choices from the set of plans they are offered. Second, we use the estimated parameters from this model to predict employees' choices in a hypothetical world in which all plans in a market are available to them on the same terms, that is, with equivalent subsidies and at large-group prices.⁸ Third, we calculate the welfare gain (in dollars) for each group of employees, that is, the dollar amount that employees would be willing to pay for the right to select their preferred plan from among all those available in their local market. We conservatively estimate this to be 13 percent of premiums, on average. A proper accounting of the costs and benefits of employer-sponsored insurance versus an individually-purchased insurance policy would include this nontrivial gain.

In a companion analysis, we show that welfare gains are negatively correlated with firm size and family size, and positively correlated with current premium levels.⁹ Relative to the plans offered by employers, most employees would prefer options that are similarly-priced, but with slightly different features, chiefly "Point of Service" plans—an HMO-PPO hybrid which provides coverage for services delivered by out-of-network providers, but at higher rates of cost-sharing.

Would Tort Reform Lower Insurance Premiums?

Tort reform, which encompasses a variety of legal reforms designed to limit the tort exposure of healthcare providers, has been implemented in some form in every state. There is substantial support for a uniform and stringent federal tort reform, but there are conflicting opinions on the impact such an initiative would have on healthcare costs. The direct costs associated with malpractice are fairly low (no more than 2 percent of healthcare spending), but the indirect costs associated with greater precautionary spending or "defensive medicine" practiced in an attempt to avert malpractice litigation are believed to be far more substantial. Most prior studies have focused on particular litigation-prone conditions, such as pregnancy¹⁰ or heart disease¹¹, with the exception of Baicker, Fisher, and Chandra (2007) who study the effect of malpractice premiums on Medicare spending.¹² By pairing the LEHID insurance data with a database containing the details and timing of state reforms over 1998–2006, Avraham, Schanzenbach, and I were able to estimate the impact of common tort reforms on a spending measure that incorporates the entire spectrum of healthcare.¹³ We studied responses separately by insurance type—self-insured (in which the employer bears the risk of realized medical spending by enrollees) and fully-insured (in which the insurance carrier bears this risk).

We find that three of the most common reforms (caps on non-economic damages, collateral source reform, and joint-and-several liability reform) reduce self-insured premiums by 1 to 2 percent each. The effect of each reform is somewhat attenuated if all three reforms are adopted simultaneously. These estimates far exceed savings from reducing direct liability costs, and hence they suggest that tort reform does alter provider behavior. However, the fact that our findings are not present for fully-insured

plans—which in our sample are primarily HMOs—suggests that managed care is similarly effective in discouraging defensive medicine, echoing a conclusion from prior research focused on heart disease.¹⁴ We conclude that federal tort reform is unlikely to have a large impact on spending because less than half of the privately-insured population is enrolled in self-insured plans, and several states have already implemented the three reforms associated with significant spending reductions.

Summary

The studies I have described collectively point to the following conclusions: 1) a consolidating insurance sector has contributed to price discrimination and higher premiums; 2) for-profit insurers behave similarly to not-for-profit insurers in areas where their market share is not too high—but otherwise they tend to raise premiums; 3) consumers purchasing employer-sponsored insurance place significant value on product variety in insurance, which is constrained by their employers' decisions to offer a limited array of choices; 4) a set of the most common tort reforms can reduce insurance premiums on the order of 1–2 percent in those states which have yet to enact them.

Clearly there are many fundamental questions related to the private insurance sector that remain unanswered. These include: would a “public option” available to all tend to promote competition among private insurers? What are the effects of limited insurer competition on other outcomes besides premium levels, for example, innovation in product lines, access to care, and of course the health of the population? In addition, my conclusions are based on studies of the employer-sponsored, large group market; additional research on small group and individual markets would be extremely valuable in light of the fact that the Affordable Care Act

reforms will have the greatest initial impact on these markets.

¹ Source: National Health Expenditure Accounts (2010), published by the Department of Health and Human Services and available for download at https://www.cms.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp#TopOfPage.

² Source: “CBO’s Analysis of the Major Health Care Legislation Enacted in March 2010,” March 30, 2011, available online at <http://www.cbo.gov/ftpdocs/121xx/doc12119/03-30-health-carelegislation.pdf>.

³ L. Dafny, “Are Health Insurance Markets Competitive?,” NBER Working Paper No. 14572, December 2008, and American Economic Review, September 2010, 100(4), pp. 1399–1431.

⁴ L. Dafny, M. Duggan, and S. Ramanarayanan, “Paying a Premium on Your Premium? Consolidation in the Health Insurance Industry,” NBER Working Paper No. 15434, October 2009, and American Economic Review, forthcoming.

⁵ Citing research by Sanford Bernstein, an investment research firm, The Economist reported that 2003 operating margins were 5.1 percent, “possibly an all-time high” as of the time of reporting (6/12/2004, p. 71). Insurers often earn additional profits by investing premium dollars before they are paid out to reimburse claims.

⁶ L. Dafny and S. Ramanarayanan, “Does it Matter if Your Health Insurer is For-Profit? Effects of Ownership on Premiums, Medical Spending, and Insurance Coverage,” mimeo, December 2011.

⁷ This hypothetical scenario is similar to the 2008 bipartisan proposal by Senators Ron Wyden (D-Oregon) and Bob Bennett (R-Utah), known as the “Healthy Americans Act.”

⁸ To predict the premium each set of employees would face for each plan, we

use a rich regression model that incorporates, among other things, the risk profile of each set of employees as reflected in pricing of their current plans.

⁹ L. Dafny, K. Ho, and Mauricio Varela, “An Individual Healthplan Exchange: Which Employees Would Benefit and Why?,” American Economic Review, Papers and Proceedings, May 2010, 100, pp. 485–89.

¹⁰ J. Currie and W. Bentley MacLeod, “First Do No Harm? Tort Reform and Birth Outcomes,” NBER Working Paper No. 12478, August 2006, and Quarterly Journal of Economics, 2008, 123(2), pp. 795–830.

¹¹ D. P. Kessler and M. B. McClellan, “Do Doctors Practice Defensive Medicine?,” NBER Working Paper No. 5466, February 1996, and Quarterly Journal of Economics, 1996, 111, pp. 356–90.

¹² K. Baicker, E. Fisher, and A. Chandra, “Malpractice Liability Costs and the Practice of Medicine in the Medicare Program,” Health Affairs, 2007, 26(3), pp. 841–52.

¹³ R. Avraham, L. Dafny, and M. Schanzenbach, “The Impact of Tort Reform on Employer-Sponsored Health Insurance Premiums,” NBER Working Paper No. 15371, September 2009, and Journal of Law, Economics, and Organizations, forthcoming.

¹⁴ We corroborate this conjecture by showing that cost reductions in our self-insured sample are concentrated outside of managed care plans. Kessler and McClellan (2002) also find that tort reform and managed care are partial substitutes. Using data on Medicare beneficiaries treated for heart disease, they find smaller effects of tort reform on medical spending in states with greater HMO penetration. D. P. Kessler, and M. McClellan, “Malpractice Law and Health Care Reform: Optimal Liability Policy in an Era of Managed Care,” NBER Working Paper No. 7537, February 2000, and Journal of Public Economics, 2002, 84(2), pp. 175–97.

The Transfer of Knowledge across Countries

Wolfgang Keller*

How does knowledge flow between firms in different countries? Without any doubt there are firms with vastly different capabilities, or knowledge, operating in the world today. These firm-level differences lead to aggregate effects in terms of production, trade, and income across countries. Knowledge does not seem to have an automatic tendency to flow from one country to another, quickly leading to equalization across locations. Can firms actually facilitate, or prevent, international knowledge transfers? While some knowledge transfers are between business partners, others are not, and such unintended knowledge transfers to other firms are externalities (called spillovers). One well-known fact is that knowledge is geographically localized.¹ Localization, it turns out, is a natural outcome when knowledge is difficult to describe in a self-contained way. In this setting, knowledge transfers require the movement of people, and localization arises simply because there are costs of moving people in geographic space.

More generally, in recent research with several coauthors I examine the idea that knowledge transfers can be linked to the economic engagement of firms and people across countries. I analyze the relationship between knowledge flows and international business travel, the role of both multinational firms and trade, and a theoretical framework that focuses on the different ways in which knowledge flows.

Innovation and International Business Travel

When does the need for in-person contacts arise? There are several possibili-

ties. Take the corporate downsizer played by George Clooney in the 2009 movie “Up in the Air”; his job is it to fire people in person. Or, take the common belief among corporate executives that in-person contacts are far more effective than anything else for closing business deals.² These in-person contacts are cost-effective because they have an element of non-codifiability (that is, they cannot be subject to programmed rules), be it to show appreciation for past work, or to establish trust, that cannot simply be had from a letter or phone call.

Non-codifiabilities may play a particularly important role in the transfer of new knowledge, the kind of knowledge that is needed to engage in innovation, and in that case, it may be best to demonstrate and explain the knowledge face-to-face.³ In work with Nune Hovhannisyan, I evaluate the idea that international business travel may affect the rate of innovation across countries.⁴

Empirical research on international service trade is still relatively rare, not only because services are often highly differentiated (so difficult to aggregate) but also because there is not yet much comparable information across countries. Specifically, in the case of air travel there is typically no information on whether the purpose of travel is business or non-business; much of the information, in fact, is collected by national tourism agencies. Data employed in our study is both unusually rich and consistent. We have information on more than 100,000 trips between the years 1993 and 2003, including whether the purpose of travel was business or not. All trips are from the United States to 36 other countries, both rich and poor. We do not know the identity of the traveler, or his knowledge level, but there is information on the state in the United States where the trip originated so that we can distinguish high-innovation (California)

from low-innovation (Wyoming) states.

We ask whether business travel from the United States has an impact on innovation rates across countries, which are measured by patenting rates computed from the NBER patent database. In order not to simply pick up positive shocks that increase innovation and business travel from the United States, we include, essentially, the ratio of business to family trips in the regression. Because family trips are not affected by changes in a country’s business climate, this helps to filter out spurious effects.

Our finding is that inward business travel raises a country’s rate of patenting. The increase is modest, but statistically significant. In two ways, these results point to the importance of the knowledge carried by each individual traveler. First, the impact on patenting is higher if the traveler came from a high-innovation rather than a low-innovation U.S. state. Second, U.S. business travel has a stronger impact on innovation for patents that have U.S. co-inventors, consistent with the idea that the traveler was associated with this patent application. In that case, of course, the knowledge transfer would cease to be a pure spillover.

Knowledge Spillovers through Multinational Activity

Governments all over the world spend large amounts of resources in order to attract multinational firms to their country, based on the assumption that such firms generate positive externalities, or foreign direct investment (FDI) spillovers, to domestic firms.⁵ At the same time, the evidence on substantial FDI spillovers is thin.⁶ In earlier work with Stephen R. Yeaple, I consider spillovers to U.S. firms from U.S.-based affiliates owned by foreign multinationals.⁷

Our choice of a country as highly

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developed as the United States might seem strange, but foreign-owned affiliates located in the United States are considerably more productive than the average U.S. firm, so that the scope for knowledge transfers from foreign firms is definitely there.⁸ Moreover, employment in foreign-owned affiliates in the United States has increased by 50 percent between 1987 and 1996 (from about 8 percent to 12 percent). We analyze knowledge transfers in terms of changes in firms' productivity and ask whether U.S.-owned firms in industries where foreign-owned firms are relatively prevalent have become more productive.

In a sample of about 1,300 U.S. manufacturing firms, the estimated FDI spillovers account for about 14 percent of U.S. manufacturing productivity growth between the years 1987 and 1996. We find that FDI spillovers materialize relatively quickly, within two years, and they benefit disproportionately relatively small U.S. firms.

These FDI spillovers are large enough to make it worthwhile asking whether there may be a role for FDI subsidies. Why are the estimates larger than those in earlier studies? First, we show that FDI spillovers do not exist sector-wide but are largely concentrated in high-tech, R and D-intensive sectors. Second, the U.S. FDI data tracks foreign affiliate activity better than in other countries.⁹ Knowing more precisely in which sectors foreign firms operate improves the signal-to-noise ratio in the empirical analysis and leads to higher FDI spillover estimates.

Technology Transfer through Imports

In the typical model of international trade, there are no knowledge flows between firms. One way of looking at it is that such knowledge flows are unnecessary because by importing from abroad, domestic consumers have in fact gained access to foreign production knowledge. Estimates of the gains from trade are typically quite small, however, and research has moved to explore the role of trade in transferring production knowledge

between firms when this generates economies of scale.

In a project with Ram C. Acharya, I trace out international knowledge flows by relating foreign R and D to domestic productivity via bilateral imports in a large sample of manufacturing industries for three decades (1973 to 2002).¹⁰ A good reason for studying relationships at the industry level is that R and D provides an explicit measure of knowledge; at the micro level across many countries, there is no consistent data on a broad knowledge measure such as R and D.

One question is whether productivity is affected only by domestic R and D or also by foreign R and D and imports. We find that the R and D of six major countries close to the world's technology frontier typically increases their productivity by about three times as much as does domestic R and D. This finding suggests that for most countries in the world, foreign sources of knowledge are more important than domestic sources, underlining the importance of spillovers. We also show that foreign R and D spillovers from Germany, France, and the United Kingdom are more strongly related to imports from these countries, while spillovers from the United States are less tied to imports from the United States. The magnitude of knowledge transfers also varies strongly across bilateral country-pairs. For example, Ireland benefits much more, by a factor of seven, from knowledge created in the United States than does South Korea.

The results point to a heterogeneous web of global knowledge transfer where knowledge flows are at times embodied in goods and at other times not. To go further, I develop and test a model of trade and FDI, together with Yeaple, that puts at the center the choice between embodied and disembodied knowledge transfer.

Knowledge and Gravity¹¹

Economists like to describe the trade between two countries by an equation analogous to the gravity equation in physics. Trade in iPads, for example, depends on the masses (or incomes) of both coun-

tries and on the trade costs for iPads—that is, their weight. How about the transfer of knowledge—does it defy gravity as one might expect from knowledge as an intangible? I cast the question in terms of the operations of multinational firms. Not only do they account for much of the world's R and D but they also have every incentive to supply offshore affiliates with their knowledge as efficiently as possible.

Based on the global operations of U.S. multinationals included in data at the Bureau of Economic Analysis (BEA), it turns out that individual multinational affiliates sell less the further away they are from their home country—just like gravity in trade. Moreover, the gravity effect is strongest for the most R and D-, or knowledge-intensive, goods. Why is gravity so strong for goods that have low weight-to-value ratios?

My explanation focuses on the difficulties of communicating knowledge from one person to another (disembodied transfer) versus the costs of moving knowledge in goods (embodied transfer). Because of its non-codifiability, communicating knowledge between the multinational parent manager and the offshore plant manager is prone to costly errors.¹² The relatively high costs of knowledge-intensive production lead to both lower affiliate sales and the multinational firm's shifting its mix from offshore production (FDI) to onshore production, followed by exports.

Empirical analysis using the BEA micro data shows that this mechanism generates the gravity patterns in the data, even in light of competing explanations. Moreover, the extent to which multinationals use trade that embodies knowledge rises in knowledge intensity, and switching to offshore production to avoid trade costs is harder for knowledge-intensive goods, as the relatively high communication costs would imply. Also, the effects are quantitatively important. In the pharmaceutical industry, for example, our estimates suggest that the costs of communicating knowledge abroad raise the costs of offshore production by roughly 9 percent relative to domestic production. This suggests that unless the sav-

ings in shipping and production costs from producing abroad exceed this level, the firm will choose to produce domestically. Most previous analyses of FDI, however, have focused only on the latter costs, thereby overstating the incentives for off-shore production in knowledge-intensive industries. Frictions in knowledge transfers make multinational firms far less foot-loose than is generally presumed

Summary and Outlook

Because knowledge is non-rival it is often presumed to be universally available. My research indicates that while this is not the case much can be learned about the location and scale of economic activity from examining the ways in which knowledge is transferred across countries. Within countries, knowledge transfer costs might be just as important as across countries, and might help to explain the structure and activity of multi-plant firms.¹³ Future work on which knowledge transfers occur in-house versus at arm's length seems to be also a promising area of research.

in W. Keller, "Geographic Localization of International Technology Diffusion," NBER Working Paper No. 7509, January 2000, and *American Economic Review* 92, 1(2002): pp. 120–42.

² See the surveys of business executives cited in N. Hovhannisyan and W. Keller, "International Business Travel: An Engine of Innovation?," NBER Working Paper No. 17100, May 2011.

³ See W. Keller, "International Trade, Foreign Direct Investment, and Technology Spillovers," *op. cit.*, pages 6–7. The idea that knowledge can be in part non-codifiable has been most fully explored in Polanyi (1958).

⁴ N. Hovhannisyan and W. Keller, "International Business Travel: An Engine of Innovation?," *op. cit.*

⁵ A frequently mentioned mechanism is labor turnover, where employees of the multinational quit and then join a domestic firm without having fully paid for the knowledge acquired in the multinational through lower wages.

⁶ H. Görg and D. Greenaway, "Much Ado about Nothing? Do Domestic Firms Really Benefit from Foreign Direct Investment?," *World Bank Research Observer* 19, 2 (2004), pp. 171–97; W. Keller, "International Trade, Foreign Direct Investment, and Technology Spillovers," *op. cit.*

⁷ W. Keller and S. R. Yeaple, "Multinational Enterprises, International Trade, and Productivity Growth: Firm-Level Evidence from the United States," NBER Working Paper No. 9504, February 2003, and Review of

Economics and Statistics, November 2009, 91(4), pp. 821–31.

⁸ See N. G. Howenstine and W. J. Zeile, "Characteristics of Foreign-Owned U.S. Manufacturing Establishments," *Survey of Current Business*, January 1994, pp. 34–9.

⁹ In most countries, foreign firms are only classified by their main industry (largest fraction of sales). In contrast, U.S. FDI data identifies the eight largest industries in which each foreign affiliate is active separately.

¹⁰ R. C. Acharya and W. Keller, "Technology Transfer Through Imports," NBER Working Paper No. 13086, May 2007, and *Canadian Journal of Economics* Vol.42, No.4 (2009), pp. 1411–48; this approach extends work by Zvi Griliches, "Issues in assessing the contribution of R and D to productivity growth," *The Bell Journal of Economics*, 10,1 (1979), pp. 92–116.

¹¹ See W. Keller and S. R. Yeaple, "The Gravity of Knowledge," NBER Working Paper No. 15509, November 2009, revision issued in April 2011.

¹² Arrow argues that knowledge transfer costs are mainly communication costs between teacher and student; see K. J. Arrow, "Classificatory Notes on the Production and Transmission of Technological Knowledge," *American Economic Review* 59, 2 (1969), pp. 29–35.

¹³ See evidence in A. Hortacsu and C. Syverson, "Why Do Firms Own Production Chains?," *mimeo*, University of Chicago, January 2012.

¹ W. Keller, "International Trade, Foreign Direct Investment, and Technology Spillovers," NBER Working Paper No. 15442, October 2009, and *Handbook of the Economics of Innovation*, Chapter 19, B. H. Hall and N. Rosenberg eds., North-Holland: Elsevier, 2010. The original finding is

Inflation Forecasting

James H. Stock and Mark W. Watson*

Forecasting inflation is one of the core responsibilities of economists at central banks and in the private sector, and models of inflation dynamics play a central role in determining monetary policy. In this light, it is not surprising that there is a long and rich literature on inflation dynamics and inflation forecasting.

A recurring theme in this literature is the usefulness—or not—of the Phillips curve as a tool for forecasting inflation. Phillips¹ originally documented an inverse relation between the rates of wage inflation and unemployment in the United Kingdom. Samuelson and Solow² extended “Phillips’ curve” to U.S. data and to price inflation. The Phillips curve remains at the core of modern specifications, which additionally include expectations of inflation, often use activity variables other than the unemployment rate, and incorporate sluggish inflation dynamics. Indeed, the central price determination equation in modern dynamic stochastic general equilibrium models, the New Keynesian Phillips Curve, is a direct descendant of the original Phillips curve, augmented to incorporate forward-looking inflation expectations and with a real activity measure serving as a proxy for real marginal cost.

This research summary reviews our work of the past fifteen years on inflation forecasting using small, stand-alone

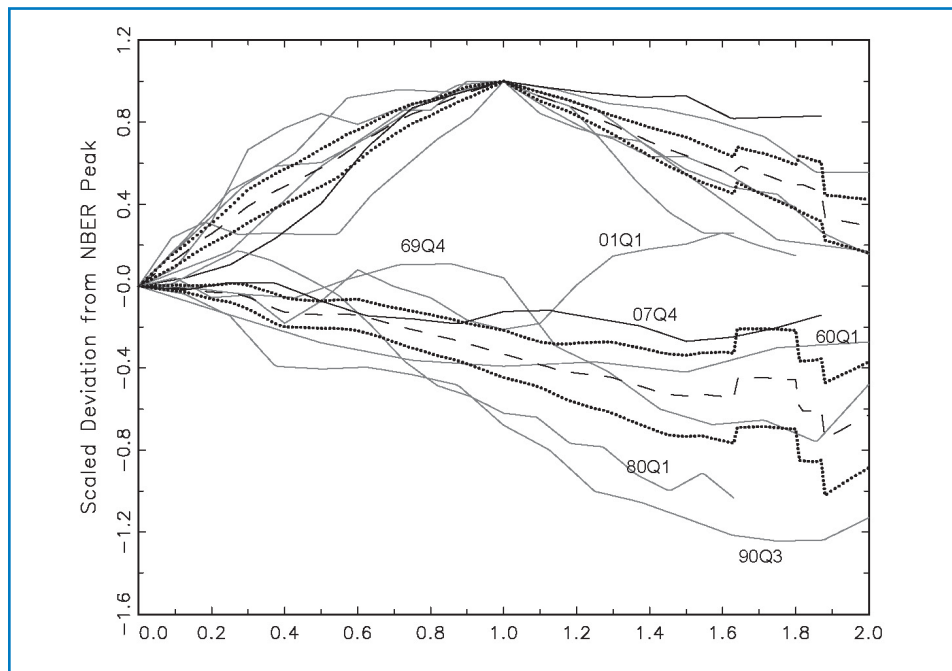


Figure 1—The rate of unemployment (upper lines) and the four-quarter rate of core PCE inflation (lower lines) over six U.S. slumps since 1960, with means (dashed lines) and \pm one standard deviation bands (dotted lines). The rates are expressed as deviations from their values at the NBER-dated peak. The horizontal axis is scaled so that the NBER-dated peak occurs at date 0 and the unemployment rate peaks at date 1. In the postwar U.S., recessions and their aftermath experience disinflation.

models. Most of this work revolves around the use of real economic activity to forecast inflation, to which we refer broadly as Phillips curve models, although other forecasting frameworks (such as incorporating monetary aggregates) are also considered.

Our research on inflation forecasting and inflation dynamics leads us to two broad conclusions. First, there are important regularities in the inflation-output relation. In particular, in the postwar United States, recessions are times of disinflation. This regularity was behind the deflation scares of 2002–3 and 2009–10. Figure 1 plots the rate of unemployment and the four-quarter rate of core PCE inflation for six U.S. slumps from 1960 to the present, labeled by the NBER-dated cyclical peak. The plotted rates are

deviated from their values at the respective NBER-dated peak; the vertical axis is scaled so that all recessions have the same increase in the unemployment rate; and the horizontal axis is scaled so that the total time span is twice the time between the start of the recession and the peak of the unemployment rate. The mean paths of the unemployment rates and inflation are shown as dashed lines, and the dotted lines are \pm one standard deviation bands³. Over these six recessions and recoveries, by the time the unemployment rate peaks, inflation has fallen on average by 0.37 percentage points for each percentage point increase in the rate of unemployment.

Second, we conclude that despite this evident regularity, inflation dynamics and inflation forecasting models exhibit considerable instability. Such

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instability is unsurprising, given the substantial changes in monetary policy, unionization, globalization, and other aspects of the U.S. economy that are relevant to price-setting. Indeed, Figure 1 suggests one important aspect of this instability: the rate of inflation fell by less following the NBER-dated peaks of 2001Q1 and 2007Q2 than it did on average during earlier the previous five recessions. A leading explanation for the more muted response of inflation over the two recent recessions is that monetary policy has succeeded in anchoring inflationary expectations. However, because both disinflationary episodes started at low levels, another candidate explanation is resistance to nominal wage declines.

Time Variation in Inflation Forecasting Models

The first step towards handling instability is admitting that you have a problem. Providing formal statistical evidence of instability entails the use of a variety of methods, including tests for in-sample breaks, tests for breaks at the end of the sample, and pseudo out-of-sample forecast comparisons. We have undertaken such analyses in a number of studies over the past fifteen years; while forecasting models for other macroeconomic variables also exhibit structural instability⁴, relations involving inflation are particularly problematic. This instability extends beyond Phillips Curve models, indeed models using asset prices⁵ or monetary aggregates⁶ appear even more unstable than ones based on aggregate activity.

In a 2008 paper, we showed that there are some meaningful patterns in the instability of the output-inflation relation⁷. In particular, the performance of Phillips curve forecasts is episodic: as Atkeson and Ohanian forcefully demonstrated⁸, it was quite difficult to best naïve univariate forecasting models during much of the Great Moderation period. But, as suggested by Figure 1, Phillips curve forecasts add value during recessions and their aftermath.

The Time-Varying NAIRU

In earlier work, we focused on time variation that entered through movements in the NAIRU (the non-accelerating inflation rate of unemployment).⁹ The NAIRU is the rate of unemployment at which there is no tendency for the inflation rate to increase or to decrease, and the unemployment gap is the deviation of the unemployment rate from the NAIRU. The NAIRU plausibly changes over time because of changes in demographics, in methods of job search, and in other features of the U.S. economy. A time-varying NAIRU can be estimated by introducing time variation into the intercept of a Phillips curve. In a series of papers, we developed methods for estimating a time-varying NAIRU^{10,11} and its standard error, and these methods were used and further developed by Robert J. Gordon¹² and others. One flexible method is to model the NAIRU as an unobserved, or latent, process that follows a random walk. In related methodological work, we developed methods for estimating the variance parameter governing the magnitude of the innovations for this random walk¹³.

Empirically, we found that there has been considerable variation in the NAIRU in the United States over the past fifty years. Confidence intervals for the NAIRU are quite wide, typically exceeding plus or minus one percentage point of unemployment. These intervals are widest towards the end of the sample because we do not have the data on future inflation needed to pin down today's NAIRU.

The unemployment rate is only one measure of economic activity. This observation raises the question of which of the many candidate measures of economic activity one should use for inflation forecasting. One approach is to use very many such predictors, but with statistical discipline that avoids over-fitting. To this end, we developed a dynamic factor model (a method for handling high-dimensional datasets particularly well suited to macro-

economic data) to construct an activity index for forecasting inflation¹⁴. The Chicago Fed currently produces and publishes this monthly index of 85 activity variables as the Chicago Fed National Activity Index (CFNAI)¹⁵.

Time-varying Expectations Anchoring

In addition to time variation arising from an evolving NAIRU, the persistence of U.S. inflation varies over time. This is consistent with the notion suggested by Figure 1 that inflation expectations have been better anchored over the past decade than earlier. We found that this changing persistence can be captured in a simple parsimonious univariate time-series model that performs well across different inflation regimes¹⁶. According to the model, unexpected changes in the rate of inflation during the 1970s and early 1980s were quickly incorporated into inflationary expectations. In contrast, during the past 15 years inflation expectations, and thus inflation itself, have responded far more sluggishly to an inflation surprise.

When this univariate model of time-varying expectations anchoring is merged with measures of economic activity, the result is a Phillips curve in which the dynamic effect on inflation of an exogenous change in activity depends on the degree of expectations anchoring. Figure 2 (which extends Figure 14 in Stock and Watson, 2010) shows a dynamic simulation of a Phillips curve model (dashed line) using a "recession unemployment gap" and a single standard error confidence band (dotted lines). The model parameters used to compute the predicted path and standard error bands date from August 2010, while the actual data are through 2011Q4 for unemployment and 2011Q3 for core PCE inflation, so the final five quarters of the plot in Figure 2 provide a true out-of-sample test of the model. In the published model, strong expectations anchoring leads to muted disinflation

during slumps. As can be seen in Figure 2, this model captures the modest disinflation we experienced subsequent to the 2007Q4 recession.

Ongoing Research Questions

Many important questions remain. One is how to develop a single Phillips curve forecasting model with explicit time variation, with the goal of outperforming univariate models during recessionary episodes and performing at least as well otherwise. In current work, Stella and Stock make some positive steps towards this goal¹⁷.

An important remaining question is whether we can ascertain why the disinflations following the 2001Q1 and 2007Q4 recessions were so muted. The easy answer is anchored expectations and greater confidence in the conduct of monetary policy. It is, however, incumbent on researchers to question the easy answers and to rule out other proximate, coincidental causes, such as exchange rate movements (as occurred in 2003–4) and energy price increases (as occurred in 2010–11). Our work on these and related issues of inflation forecasting and inflation dynamics is ongoing.

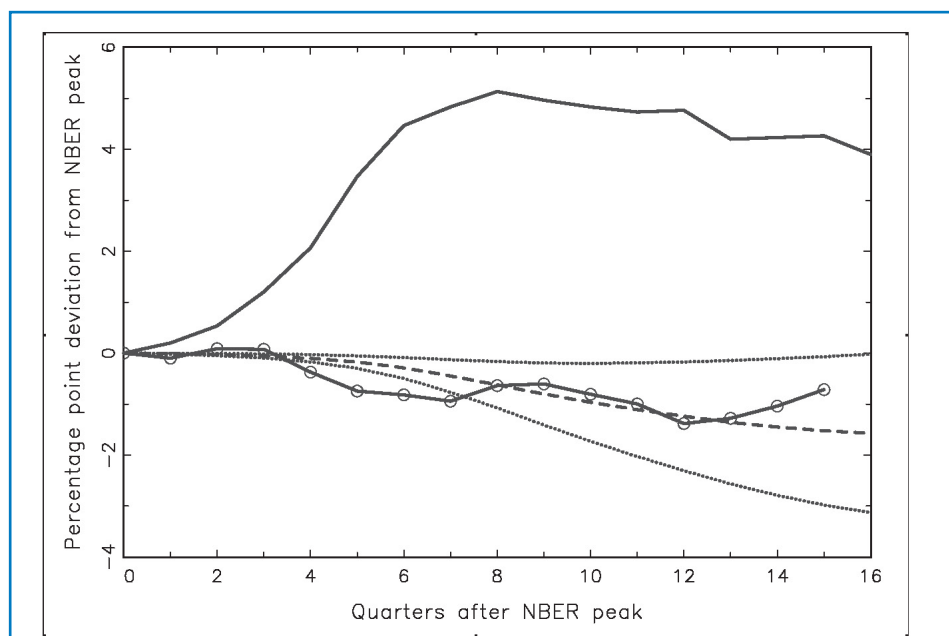


Figure 2—The rate of unemployment (upper line) and four-quarter rate of core PCE inflation (lower line) for 16 quarters following the 2007Q4 NBER-dated peak, deviated from their 2007Q4 value. The solid and dashed lines are the mean from a dynamic simulation of the model in Stock and Watson (2010) and a \pm one standard error band.

2 in J.H. Stock and M.W. Watson, “Modeling Inflation after the Crisis,” NBER Working Paper No. 16488, October 2010, and in “Macroeconomic Policy: Post-Crisis and Risks Ahead,” Proceedings of the Federal Reserve Bank of Kansas City, 2010 Jackson Hole Symposium.

⁴ J.H. Stock and M.W. Watson, “Evidence on Structural Instability in Macroeconomic Time Series Relations,” NBER Technical Working Paper T0164, September 1994, and Journal of Business and Economic Statistics, 14 (1996), pp. 11–30.

⁵ J.H. Stock and M.W. Watson, “Forecasting Output and Inflation: The Role of Asset Prices,” NBER Working Paper No. 8180, March 2001, and Journal of Economic Literature 41 (2003), pp. 788–829.

⁶ R. King, J.H. Stock, and M.W. Watson, “Temporal Instability of the Unemployment-Inflation Relation,” Economic Perspectives, Federal Reserve Bank of Chicago (May/June 1995), pp. 2–12.

⁷ J.H. Stock and M.W. Watson, “Phillips Curve Inflation Forecasts,” NBER

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⁸ A. Atkeson and L.E. Ohanian, “Are Phillips Curves Useful for Forecasting Inflation?” Federal Reserve Bank of Minneapolis Quarterly Review 25(1) (2001), pp. 2–11.

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¹³ J.H. Stock and M.W. Watson, “Median Unbiased Estimation of

Coefficient Variance in a Time Varying Parameter Model,” NBER Technical Working Paper No. 201, August 1996, and *Journal of the American Statistical Association*, 93 (1998), pp. 349–58.

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Wealth After Retirement

Steven Venti*

Over the past two decades, the aging of the “Baby Boomers” has focused attention on how members of this generation accumulated assets during their working years. Now that the leading edge of this group has passed into retirement, the focus of researchers — as well as policymakers and the financial services industry — is shifting to the draw-down of financial resources in later life. My recent research, much of which is co-authored with James M. Poterba and David A. Wise, focuses on the factors that shape the age profile of wealth after retirement. The goal of this work is to better understand what households do with their assets after retirement and, in particular, to understand how asset draw-down decisions are affected by health, education, and the structure of public and private annuities.

*Venti is a Research Associate in the NBER's Program on the Economics of Aging and the DeWalt Ankeny Professor of Economic Policy at Dartmouth College. His Profile appears later in this issue.

Wealth at Retirement

Retired households depend primarily on three sources of financial support in retirement: benefits from the Social Security system; payments from private defined benefit (DB) pension plans; and withdrawals from household savings, including withdrawals from personal retirement accounts (PRAs) such as IRAs, Keoghs, 401(k)s and similar defined contribution plans. Benefits from Social Security and DB pensions are in the form of annuities that provide a stream of payouts until death. Assets held in PRAs or financial assets held outside of retirement accounts are typically not annuitized and are instead spent or saved at the owners' discretion. In a recent paper, we describe the balance sheets for households headed by someone between the ages of 65 and 69 in the 2008 wave of the Health and Retirement Study (HRS).¹ To facilitate comparison of the various portfolio components, we capitalize Social Security and DB pension payouts. Averaged over all households, the capitalized value of Social Security ben-

efits accounts for about one-third of all household wealth and housing and other real estate account for another one-quarter of wealth. The capitalized value of DB pension benefits, assets held in PRAs, and financial assets held outside PRAs each account for an additional 10 to 15 percent of total wealth.

These averages hide substantial differences in both the level of total wealth and its composition. At the 90th percentile of the wealth distribution, financial assets (including PRAs) and DB pension wealth account for over half of all balance sheet wealth and Social Security is relatively unimportant. At the other extreme, in the lower part of the wealth distribution, many households have few assets outside of Social Security and housing. Half of all households headed by someone between 65 and 69 had total financial assets, including 401(k)s and IRAs, of less than \$52,000 in 2008. Thus, a large fraction of households have few assets, with the possible exception of housing equity, to supplement annuity income — primarily Social Security — in retirement. For example, only 47 percent of these households have sufficient finan-

cial assets to purchase a private annuity that would increase their life-contingent income by more than \$5,000 per year.² Thus it is perhaps not a surprise that we observe that in later years 19 percent of all persons die with zero financial assets and 46 percent of all persons have less than \$10,000 of financial assets at death.³

The Trajectory of Assets after Retirement

What happens to non-annuitized assets after retirement? The standard life-cycle model suggests that households will gradually draw down non-annuitized assets to finance consumption in retirement. In an earlier paper, Wise and I looked at the trajectory of home equity—the primary non-annuity asset for most households—in retirement.⁴ We found that most of the decline in home equity was accounted for by changes in health status (particularly nursing home entry) or the death of a spouse. Households that did not experience these shocks reduced housing equity little, if any. Thus households appear to conserve equity in homes to tap in the event of substantial expenses rather than to use this equity for day-to-day consumption needs. Indeed, when asked in surveys, most households plan, desire, and expect to die in their homes.

More recently we looked at how personal retirement accounts were drawn down in retirement.⁵ Unlike housing, which provides housing services while also being a store of wealth, personal retirement accounts are designed and promoted as a means of saving to finance retirement expenditure. We find a rather modest rate of withdrawal prior to age 70 1/2 when households are required to take minimum distributions. Only 17 percent of households between the ages of 60 and 69 who own a personal retirement account make any withdrawal in a typical year. The rate of withdrawal rises sharply after age 70 1/2, suggesting that many households in their early seventies would not make withdrawals if it were not for the distribution rules. Even after age 70 1/2, the percentage of assets withdrawn in

a typical year is less than the rate of return earned on PRA assets, generating an age profile of increasing personal retirement account balances for many households over the 1990s and the first half of the last decade.

In a subsequent paper, we broadened our analysis to consider the evolution of total non-annuitized assets after retirement.⁶ We found that the evolution of assets is strongly related to family status transitions. For both single individuals and married couples who do not experience death, separation or widowhood, average total assets increase well into old age. In contrast, married individuals that experience a family status transition exhibit much slower asset growth prior to the transition and often experience a large decline in asset values at the time of the transition.

The Role of Health

Health care costs are a major financial concern for elderly households. A substantial portion of these costs is paid for by Medicare. For some households Medicaid and private insurance are also important sources of payment. However, none of these programs cover all of the costs of poor health, particularly costs associated with long-term poor health rather than with specific health events. Such costs include expenditures associated with home relocation, home alterations, transportation, the need to hire a cleaning service, and the like. For these expenses, households must either pay out of current income or spend down assets.

A complete accounting of all of the costs associated with poor health is difficult to obtain. Surveys of out-of-pocket medical expenditures typically fail to elicit all of these costs, especially those that are tangentially related costs of poor health. Moreover, most survey questions focus on the costs of specific health events and do not capture the continuing effects of poor health on household expenditures that are likely to persist well after a specific event occurs. We attempt to infer the “full”

cost of poor health by estimating the cumulative effect on assets of all of the adverse consequences of poor health over a long period of time.⁷ Using data from the HRS, we compare the asset growth between 1992 and 2008 of persons with similar assets in 1992, but different levels of health. The analysis uses an index of health constructed from a large number of self-reported health questions concerning functional limitations and the presence of health conditions. The results indicate that the asset cost of poor health may be quite large, substantially larger than most survey-based estimates of out-of-pocket expenditures. For example, within each asset quintile, the healthiest individuals (those in the top third of the health distribution) accumulate at least 50 percent more assets by 2008 than do the least healthy (those in the bottom third of the distribution). The dollar differences in wealth accumulation associated with differences in health are substantial: for households near the median of the wealth distribution in 1992, the healthiest households accumulated \$135,000 more assets by 2008 than did the least healthy households. For households with similar assets who were in the top asset quintile in 1992, the gap between households in the top and bottom thirds of the health distribution was over \$470,000 by 2008.

Poor health can trigger asset drawdown in many ways. The most direct pathway is through greater health-related expenditures. However, the effect of poor health and associated expenditures may differ, even among persons with the same wealth. For example, we show that Social Security benefits and DB pension benefits can be “protective” of assets in retirement.⁸ Among households entering retirement with the same health and wealth, those households receiving higher annuity benefits have substantially lower rates of asset drawdown. The magnitude of these effects varies considerably by level of wealth, but on average an additional \$10,000 of Social Security benefits is associated with a \$10–15,000 increase

in assets over the two-year intervals between waves of the HRS.

There are also important differences in the post-retirement asset drawdown of households with different levels of education. Education clearly affects the level of assets a household accumulates *before* retirement through its effect on pre-retirement earnings and health. In another paper, we focus on two potential routes through which education may affect asset drawdown *after* retirement.⁹ One route is through the effect of education on the trajectory of health after retirement. The other is through the effect of education on asset allocation and investment returns. It is possible that persons with higher levels of education will earn greater returns on their investments, either because they will choose to allocate their assets differently, and to hold more risky but higher expected return assets, or they will hold assets within each asset class that generate higher returns, than their counterparts with lower levels of educational attainment. Analysis of data from several HRS cohorts indicates that effect of education on asset growth through both the health and asset return channels is substantial. The effect of education on the two-year change in assets varies by the initial level of assets and by marital status. For married persons, the two-year increase in assets is \$15,000 to \$36,000 greater for persons having a college degree than for persons without a high school diploma when both channels are combined.

Summary

There is substantial diversity in the financial circumstances of households entering retirement. This means that households in different parts of the wealth distribution face very different decisions concerning asset drawdown after retirement. We find that for most households in the bottom half of the wealth distribution, there is no drawdown decision to be made. Other than housing, these households hold few assets that could be drawn down

or annuitized to supplement other sources of income. Moreover, these households appear to treat their home equity as a source of reserve wealth to be tapped in extreme circumstances rather than as a source of income for day-to-day consumption. The meager level of non-housing assets among many households is also, in part, an explanation for low rates of participation in private annuity markets. Many annuity providers require a minimum investment. Forty-three percent of the households aged 65 to 69 would not be able to make a \$25,000 minimum investment even if they liquidated all of their financial assets, including personal retirement accounts.

For households that enter retirement with substantial assets, the late life financial planning problem is multifaceted. At least early in retirement, households appear reluctant to spend down assets as predicted by simple life-cycle models. Surprisingly, households are even reluctant to spend down assets held in IRAs, Keoghs, and 401(k) plans — perhaps the assets one might expect households to rely on first to meet consumption needs. Only 17 percent of persons between the ages of 60 and 69 make a withdrawal from a PRA, and even after required minimum distributions begin at age 70 and 1/2, balances in these accounts often continue to grow with age. For households with substantial assets that are observed to drawdown assets, most of the drawdown is associated with changes in family status, such as divorce or widowhood, and poor health. The long-term effect of health on the level of assets — what we call the “asset cost” of poor health — can be substantial. Among households with the same initial wealth in 1992, those in the top third of the distribution of health accumulate at least 50 percent more assets by 2008 than do those in the bottom third. But even among households with the same initial wealth, the asset cost of poor health varies substantially. The size of the asset decline clearly depends on the severity and nature

of the decline in health faced by each household, as well as on the presence of annuity income from Social Security or DB pensions that can substitute for asset withdrawals.

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² *Ibid.*

³ J. Poterba, S. Venti, and D. Wise, “Were They Prepared for Retirement? Financial Status at Advanced Ages in the HRS and AHEAD Cohorts,” NBER Working Paper No. 17824, January 2012, presented at an NBER Conference on Aging, Carefree AZ, May 2011.

⁴ S. Venti and D. Wise, “Aging and Housing Equity: Another Look,” NBER Working Paper No. 8608, November 2001, and *Perspectives in the Economics of Aging*, D. Wise, ed., University of Chicago Press, 2004.

⁵ J. Poterba, S. Venti, and D. Wise, “The Drawdown of Personal Retirement Assets,” NBER Working Paper No. 16675, January 2011.

⁶ J. Poterba, S. Venti, and D. Wise, “Family Status Transitions. Latent Health, and the Post-Retirement Evolution of Assets,” NBER Working Paper No. 15789, February 2010, and *Explorations in the Economics of Aging*, D. Wise, ed., University of Chicago Press, 2011.

⁷ J. Poterba, S. Venti, and D. Wise, “The Asset Cost of Poor Health,” NBER Working Paper No. 16389, September 2010.

⁸ J. Poterba, S. Venti, and D. Wise, “The Role of Social Security Benefits in the Asset Cost of Poor Health,” draft submitted to SSA, September 2011.

⁹ J. Poterba, S. Venti, and D. Wise, “Health, Education, and the Post-Retirement Evolution of Household Assets,” prepared for the RAND Conference on Health, Aging, and Human Capital, November 2011.

NBER Profile: *Leemore Dafny*

Leemore Dafny is a Research Associate in the NBER's Programs on Health Care and Aging and an Associate Professor of Management and Strategy at Northwestern University's Kellogg School of Management. She also co-directs Kellogg's Ph.D. Program in Managerial Economics and Strategy, and is a member of the Panel of Health Advisers to the Congressional Budget Office.

Dafny graduated summa cum laude from Harvard College and earned her Ph.D. in Economics from MIT. She teaches courses in healthcare strategy and empirical methods, and supervises doctoral dissertations in the industrial organization of healthcare. She

is an empirical economist whose research focuses on competition in healthcare markets and the impact of public health insurance on healthcare costs and quality. Her work has been published in journals such as the *American Economic Review*, *Journal of Law and Economics*, and the *New England Journal of Medicine*. She also has advised federal, state, and local officials on healthcare reform and antitrust matters related to healthcare.

Dafny lives with her husband and three children on Chicago's famed North Shore, which regrettably for the kids is the inspiration for Tina Fey's 2006 hit movie, "Mean Girls."



NBER Profile: *Wolfgang Keller*



Wolfgang Keller is a Research Associate in the NBER's Programs on Productivity and International Trade and Investment. He is also the Stanford Calderwood Chair of the University of Colorado at Boulder and its Economics Department. He works on the interface of international trade and the economics of technology, as well as on issues in growth and long-run development, most recently in China.

Keller joined Colorado in 2005, after having been on the faculty of the University of Wisconsin at Madison and the University of Texas at Austin, as well as holding visiting positions at

Brown, Princeton, and the International Monetary Fund's Research Department. Keller is also a research associate of the Centre for Economic Policy Research in London. Born and raised in Koblenz, Germany, Keller received his Diploma from Freiburg University in 1990 and his Ph.D. from Yale University in 1995, both in Economics.

Keller lives in the mountains near Boulder with his wife and frequent co-author Carol H. Shiue, also a professor at Colorado, and their children, Kai (6) and Mia (1). In his spare time, when he is not skiing or biking, Keller likes to eat foreign food in situ.

NBER Profile: *James H. Stock*

Jim Stock is a Research Associate in the NBER's Programs on Monetary Economics, Economic Fluctuations and Growth, and Asset Pricing. He is also a member of the NBER's Business Cycle Dating Committee.

Stock is currently the Harold H. Hitt Professor of Political Economy in the Economics Department at Harvard University, which he chaired from 2006–9. He previously served on the faculty of Harvard's Kennedy School of Government and the University of California, Berkeley. Stock received his B.S. in Physics from Yale University, and an M.A. in Statistics and Ph.D. in Economics from the University of California, Berkeley.

Stock's recent research includes studies of the Great Moderation and changes in the U.S. business cycle, empirical

methods for macroeconomics using very many time series, and econometric inference when identification is weak. He was elected Fellow of the Econometric Society in 1992, and is currently a co-editor of *Econometrica*.

His *Introduction to Econometrics*, coauthored with Mark Watson, is a leading undergraduate econometrics textbook. In 2010, they received the CIRET/FGV Isaac Kerstenstzky Scholarly Achievement Award.

Stock grew up in Minneapolis, Minnesota. He lives in Lincoln, Massachusetts with his wife, Anne Doyle, and two children, Chris and Corey. As a family, they enjoy outdoor activities including camping and cross-country skiing, and his hobby is coaching youth cross-country skiing.



NBER Profile: *Mark W. Watson*



Mark Watson is a Research Associate in the NBER's Programs on Economic Fluctuations and Growth and Monetary Economics and a member of the NBER's Business Cycle Dating Committee. He is also the Howard Harrison and Gabrielle Snyder Beck Professor of Economics and Public Affairs at Princeton University.

Watson did his undergraduate work at Pierce Junior College and California State University at Northridge, and completed his Ph.D. at the University of California at San Diego. Before joining Princeton's Economics and Public Affairs Department in 1995, he taught at Harvard University and Northwestern University, and spent one year as a Visiting Associate Professor at the University of Chicago. He has also served as

a consultant for the Federal Reserve Banks of Chicago and Richmond.

Watson's research focuses on time-series econometrics, empirical macroeconomics, and macroeconomic forecasting. He has published articles in these areas and is the author (with James Stock) of *Introduction to Econometrics*, a leading undergraduate textbook. He is also a fellow of the American Academy of Arts and Sciences and of the Econometric Society.

Watson and his wife Debbie have been married since 1976 and have two grown children: a daughter who is a teacher in New York City and a son who is a musician in Seattle. He has little time for hobbies, but has been trying to learn karate because, as he puts it, "economics can be a dangerous business."

NBER Profile: *Steven F. Venti*

Steven F. Venti is a Research Associate in the NBER's Program on Aging and the DeWalt H. Ankeny Professor of Economic Policy and Professor of Economics at Dartmouth College. He received his A.B. in economics from Boston College and his A.M. and Ph.D. in economics from Harvard University.

Before joining the Dartmouth faculty, Venti held positions in the Department of

Economics at Harvard University and at the Kennedy School of Government. Venti's research focuses on the relationship between tax policy and saving, the effectiveness of saving incentives, housing policy, and how households accumulate and draw down wealth.

Venti and his wife Nancy have two grown children. They enjoy summers on the lake and winters on the snow.



Conferences

Causes and Consequences of Corporate Culture

An NBER Conference on the "Causes and Consequences of Corporate Culture" took place in Cambridge on December 8–9, 2011. Luigi Zingales, University of Chicago and NBER, and James Poterba, MIT and NBER, organized the conference. These papers were discussed:

- **Serguey Braguinsky**, Carnegie Mellon University, and **Sergey V. Mityakov**, Clemson University, "Foreign Corporations and the Culture of Transparency: Evidence from Russian Administrative Data"
- **Yan-Leung Cheung** and **Aris Stouraitis**, Hong Kong Baptist University, and **Raghavendra Rau**, University of Cambridge, "Which Firms Benefit from Bribes, and by How Much? Evidence from Corruption Cases Worldwide"
- **Jason M. DeBacker**, Department of the Treasury, and **Bradley Heim** and **Anh Tran**, Indiana University, "Importing Corruption Culture from Overseas: Evidence from Corporate Tax Evasion in the United States"
- **Lee Biggerstaff** and **Andy Puckett**, University of Tennessee, and **David C. Cicero**, University of Delaware, "Unethical Executives and Corporate Misbehavior"
- **Robert Davidson**, Georgetown University; **Aiysha Dey**, University of Minnesota; and **Abbie Smith**, University of Chicago, "Executives' Off-The-Job Behavior, Corporate Culture, and Financial Reporting Risk"
- **Dhananjay Nanda** and **Peter Wysocki**, University of Miami School of Business, "The Relation between Trust and Accounting Quality"
- **Robert G. Eccles** and **George Serafeim**, Harvard University, and **Ioannis Ioannou**, London Business School, "The Impact of a Corporate Culture of Sustainability on Corporate Behavior and Performance"

- **Nicholas Bloom**, Stanford University and NBER; **Raffaella Sadun**, Harvard University and NBER; and **John Van Reenen**, London School of Economics and NBER, “The Organization of Firms across Countries”
- **Mary Margaret Frank** and **Luann Lynch**, University of Virginia; **Sonja Olhott Rego**, Indiana University; and **Rong Zhao**, Drexel University, “Are Aggressive Reporting Practices Indicative of an Aggressive Corporate Culture?”
- **Leonce Barger**, **Kenneth M. Lehn**, and **Jared Smith**, University of Pittsburgh, “Corporate Culture and M&A Activity”
- **Luigi Guiso**, European University Institute; **Paola Sapienza**, Northwestern University and NBER; and **Luigi Zingales**, University of Chicago and NBER, “The Value of Corporate Values”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/CCf11/summary.html>

Fiscal Policy after the Financial Crisis

An NBER Conference on “Fiscal Policy after the Financial Crisis” took place at Bocconi University in Milan, Italy on December 12–13, 2011. Organizers Alberto Alesina of NBER and Harvard University and Francesco Giavazzi of NBER and Bocconi University chose these papers for discussion:

- **Valerie A. Ramey**, University of California at San Diego and NBER, “Government Spending and Private Activity”
- **Alan J. Auerbach** and **Yuriy Gorodnichenko**, University of California at Berkeley and NBER, “Fiscal Multipliers in Recession and Expansion” (NBER Working Paper No. 17447)
- **Francesco Giavazzi**, and **Michael McMahon**, University of Warwick, “The Household Effects of Government Spending”
- **Mathias Trabandt**, European Central Bank, and **Harald Uhlig**, University of Chicago and NBER, “How do Laffer Curves Differ Across Countries?”
- **William Easterly**, New York University and NBER, “The Role of Growth Slowdowns and Forecast Errors in Public Debt Crises”
- **Richard Evans** and **Kerk Phillips**, Brigham Young University, and **Laurence J. Kotlikoff**, Boston University and NBER, “Game Over: Quantifying and Simulating Unsustainable Fiscal Policy”
- **Eric M. Leeper**, Indiana University and NBER, and **Todd B. Walker**, Indiana University, “Perceptions and Misperceptions of Fiscal Inflation”
- **Ruud de Mooij** and **Michael Keen**, International Monetary Fund, “Tax Reform and Fiscal Policy”
- **Pierre Cahuc**, Ecole Polytechnique, and **Stephane Carcillo**, OECD, “Can Public Sector Wage Bills Be Reduced?”
- **Axel H. Boersch-Supan**, Max Planck Institute for Social Law and Social Policy and NBER, “Entitlement Reforms in Europe: Policy Mixes in the Current Pension Reform Process”
- **Roberto Perotti**, Universita’ Bocconi and NBER, “The ‘Austerity Myth’: Gain without Pain?” (NBER Working Paper No. 17571)

- **Alberto F. Alesina; Dorian Carloni**, University of California, Berkeley; and **Giampaolo Lecce**, Bocconi University “The Electoral Effects of Large Fiscal Adjustments” (NBER Working Paper No. 17655)
- **Charles Wyplosz**, University of Geneva, “Fiscal Rules”

Summaries of these papers are available at: <http://www.nber.org/confer/2011/FPFCf11/summary.html>

Thirteenth Annual Conference in India

On December 16–18, 2011 the NBER, along with India’s National Council for Applied Economic Research (NCAER) and the Indian Council for Research on International Economic Relations (ICRIER), sponsored a meeting that included NBER researchers as well as economists from Indian universities, research institutions, and government departments. NBER Research Associates **Abhijit Banerjee** of MIT and **Raghuram Rajan** of the University of Chicago organized the conference jointly with **Parthasarathi Shome** of ICRIER.

The NBER participants, in addition to the organizers, were: **Martin Feldstein**, **Mark Melitz**, and **Rohini Pande**, Harvard University; **Marianne Bertrand** and **Anil K Kashyap**, University of Chicago’s Booth School of Business; **Anne O. Krueger**, Johns Hopkins University; **Rob Porter**, Northwestern University; **Karthik Muralidharan**, University of California, San Diego; and **Michael Woodford**, Columbia University.

The topics discussed at the meeting included the prospects for global economic growth and macroeconomic adjustment in the aftermath of the financial crisis, the state of the Indian economy and strategies for continued economic development, environmental policy and climate change, and the role of public policies in health and education.

Standards, Patents, and Innovation

An NBER Conference on Standards, Patents, and Innovation, organized by Timothy Simcoe, NBER and Boston University, Ajay K. Agrawal, NBER and University of Toronto, and Stuart Graham, U.S. Patent & Trademark Office, was held in Tucson, Arizona on January 20–21, 2012. These papers were discussed:

- **Emek Basker**, University of Missouri, “Raising the Barcode Scanner: Technology and Productivity in the Retail Sector”
- **Henry R. Delcamp**, Cerna, Mines ParisTech, and **Aija Leiponen**, Cornell University, “Innovating Standards through Informal Consortia: The Case of Wireless Telecommunications”
- **Marco Ceccagnoli**, **Christopher Forman**, and **Wen Wen**, Georgia Institute of Technology, “Patent Pools, Thickets, and the Open Source Software Entry by Start-Up Firms”
- **Joseph A. Clougherty**, University of Illinois at Urbana-Champaign, and **Michal Grajek**, European School of Management and Technology, “International Standards and International Trade: Empirical Evidence from ISO 9000 Diffusion”
- **Bernhard Ganglmair**, University of Texas at Dallas, and **Emanuele Tarantino**, University of Bologna, “Patent Disclosure in Standard Setting”
- **Kenneth Flamm**, University of Texas at Austin, “A Tale of Two Standards: Patent Pools and Innovation in the Optical Disk Drive Industry”

- **Catherine Tucker**, MIT and NBER, “Patent Trolls and Technology Diffusion”
- **Ryan L. Lampe**, DePaul University, and **Petra Moser**, Stanford University and NBER, “Do Patent Pools Encourage Innovation? Evidence from 20 Industries in the 1930s”
- **Hugo Hopenhayn**, University of California at Los Angeles and NBER, and **Matthew Mitchell**, University of Toronto, “Rewarding Duopoly Innovators: The Price of Exclusivity”
- **Bhaven Sampat** and **Scott Hemphill**, Columbia University, “Weak Patents Are a Weak Deterrent: Patent Portfolios, the Orange Book Listing Standard, and Generic Entry in Pharmaceuticals”
- **Fiona Murray**, MIT, and **Scott Stern**, MIT and NBER, “Learning to Live with Patents: Evolving Norms in Response to Legal Institutional Change”

Summaries of these papers may be found at: <http://www.nber.org/confer/2012/IPKE/summary.html>

Economics of Digitization

An NBER Conference on the Economics of Digitization took place at Stanford University on February 24, 2012. NBER Research Associates Shane Greenstein of Northwestern University’s Kellogg School of Management, Josh Lerner of the Harvard Business School, and Scott Stern of MIT’s Sloan School, organized the meeting. These papers were discussed:

- **Lesley Chiou**, Occidental College, and **Catherine Tucker**, MIT and NBER, “Copyright, Digitization, and Aggregation”
- **Monic Sun**, Stanford University, and **Feng Zhu**, University of Southern California, “Ad Revenue and Content Commercialization: Evidence from Blogs”
- **Joo Hee Oh**, MIT, and **Il-Horn Hann**, University of Maryland, “Piracy Propagation of Information Goods: Demand and Supply-side Dynamics in P2P Networks”
- **Susan Athey**, Harvard University and NBER, and **Markus Mobius**, Iowa State University and NBER, “The Effect of Localization on News Consumption”
- **Rachel Soloveichik** and **David Wasshausen**, Bureau of Economic Analysis, “Copyright-Protected Assets in the National Accounts”
- **Erik Brynjolfsson**, MIT and NBER, and **Joo Hee Oh**, MIT, “The Attention Economy: Measuring the Value of Free Goods on the Internet”

Summaries of these papers may be found at: <http://www.nber.org/confer/2012/EoDs12/summary.html>

2011 Awards and Honors

A number of NBER researchers received honors, awards, and other forms of professional recognition during 2011 and early 2012. A list of these honors, excluding those that were bestowed by the researcher's home university and listing researchers in alphabetical order, is presented below.

John M. Abowd was elected Second Vice-president (and will be President in 2014) of the Society of Labor Economists. He was also elected Chair-elect (to be Chair in 2013) of the American Statistical Association's Business and Economic Statistics Section.

Viral V. Acharya received the 2011 Inaugural TCFA (The Chinese Finance Association) Award for the Best Paper on Global Financial Markets. The paper, "The Seeds of a Crisis: A Theory of Bank Liquidity and Risk Taking over the Business Cycle", was co-authored by Hassan Naqvi.

Douglas Almond, Joseph Doyle, Amanda Kowalski, and Heidi Williams won the Garfield Economic Impact Award and the Healthcare Cost & Utilization Project (HCUP) Outstanding Article of the Year Award for their 2010 paper, "Estimating Marginal Returns to Medical Care: Evidence from At-Risk Newborns", which was published in the *Quarterly Journal of Economics*.

Lee J. Alston served as Vice-President of the Economic History Association in 2010–11.

James Andreoni was elected a Fellow of the Econometric Society.

Josh Angrist won the John von Neumann Award for 2011. The award is given annually by the Rajk László College for Advanced Studies (Budapest, Hungary) to an outstanding scholar in the social sciences whose works have had substantial influence over a long period of time on the studies and intellectual activity of the students of the college.

John Asker was awarded the prize for best paper published in the previous

year by the Association of Competition Economics for "A Study of the Internal Organization of a Bidding Cartel," which was published in the *American Economic Review*.

Orazio Attanasio has been elected Vice President of the European Economic Association. He will serve as President-Elect of the Association in 2013 and as President in 2014.

Alan Auerbach was awarded the Daniel M. Holland Medal by the National Tax Association in November 2011. The medal, first awarded in 1993, rewards outstanding contributions to the study and practice of public finance.

Malcolm Baker, Jessica Wachter, and Jeffrey Wurgler won the William F. Sharpe award for the best paper in the *Journal of Financial and Quantitative Analysis* (along with non-NBER coauthor Lubomir Litov.) **Baker** and **Wurgler** also won an Emerald Citation of Excellence Award for writing one of the top 50 highest-impact articles across 300 management publications.

Michael Baker delivered the Innis Lecture at the 2011 meetings of the Canadian Economics Association. His lecture "Universal Early Childhood Interventions: What is the Evidence Base?" was published in the *Canadian Journal of Economics* in 2011.

Katherine Baicker has been elected Chair of the Board of Directors of AcademyHealth. She was also elected to the Institute of Medicine.

Nathaniel Baum-Snow received the 2011 Geoffrey J.D. Hewings Award from the North American Regional Science Council. The award recognizes

distinguished contributions to Regional Science research by scholars who have recently completed doctoral studies.

Lucian Bebchuk received the 2011 Award for excellence in corporate governance from the International Corporate Governance Network (ICGN). He also was elected President-Elect of the Western Economic Association International; and his paper on "Self-Fulfilling Credit Market Freezes" won a 2011 Marshal Blum prize in financial research.

Bo Becker and **Victoria Ivashina** were awarded the Nordea Prize for best paper on corporate finance at the European Finance Association's 2011 meeting.

Roland Benabou was elected to the American Academy of Arts and Sciences.

Efraim Benmelech and **Nittai Bergman** won the Brattle Group's First Paper Prize award at the American Finance Association meetings for their article, "Bankruptcy and the Collateral Channel."

David G. Blanchflower received an Honorary Doctor of Letters (D.Litt), from the University of Sussex.

Alan Blinder was named a Distinguished Fellow of the American Economic Association. He was also the first Robert M. Solow Lecturer (other than Solow himself) at the Urban Institute in May 2011. Blinder is a Visiting Scholar at the Russell Sage Foundation in 2011–12.

Nick Bloom was elected a Fellow of the Econometric Society.

George J. Borjas was awarded the IZA (Institute for the Study of Labor) Prize in Labor Economics.

Axel Börsch-Supan became a member of the Max-Planck-Society and direc-

tor of the Max-Planck-Institute of Social Law and Social Policy in Munich.

Erik Brynjolfsson was selected as a Distinguished Fellow of the INFORMS Information System Society for his research contribution in the field of information systems.

John Y. Campbell delivered the keynote address to the European Finance Association meeting in Stockholm, Sweden and the Karl Borch Lecture at NHH, Bergen, Norway.

Murillo Campello received the award of "Distinguished Referee" from the *Review of Financial Studies*. He also received the best paper award at the European meetings of the Financial Management Association.

Gary Chamberlain was elected a Member of the National Academy of Sciences.

James Choi, David Laibson, and Brigitte Madrian received the TIAA-CREF Paul A. Samuelson Prize for outstanding scholarly writing on lifelong financial security for their paper "Why Does the Law of One Price Fail? An Experiment on Index Mutual Funds."

Dalton Conley was awarded a 2011 Guggenheim Fellowship to study "genoeconomics" and the problem of "missing heritability".

Janet Currie was the Ely Lecturer at the American Economic Association meetings in January 2011.

David Cutler and Dana Goldman received the first Silver Scholar Award from the Alliance for Aging Research in fall 2011. The award honors the important work of economists, demographers, and related researchers whose scholarship helps to better value healthy life after 65 and the medical innovations that help people live longer in good health.

Leemore Dafny was named a member of the Congressional Budget Office's Panel of Health Advisers.

Angus Deaton was awarded an honorary Doctorate of Science in Social Sciences by the University of Edinburgh.

Douglas W. Diamond was selected by the American Finance Association to receive the Morgan Stanley-American Finance Association Award for Excellence in Finance. This honor is given every two

years, based on "an individual's career achievements in outstanding thought leadership in the field of financial economics."

Esther Duflo won the David N. Kershaw Award from The Association for Public Policy Analysis and Management (APPAM). Also, she and **Abhijit Banerjee** received the *Financial Times* and Goldman Sachs Business Book of the Year Award for *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*.

Steven Durlauf was elected to the American Academy of Arts and Sciences.

Susan Dynarski has been elected to the Association for Public Policy Analysis and Management (APPAM) Policy Council. APPAM is dedicated to improving public policy and management by fostering excellence in research, analysis, and education.

William Easterly delivered the Distinguished Guest Lecture at the Southern Economics Association's Annual Conference on "Does Development Economics Cause Economic Development?"

Alex Edmans won the FIR-PRI Prize for the best paper in Finance and Sustainability.

Ronald G. Ehrenberg received the Jacob Mincer Award in April 2011 from the Society of Labor Economists for lifetime contributions to the field of labor economics. In May 2011, he was awarded an honorary doctor of humane letters degree from Pennsylvania State University.

Barry Eichengreen was selected by *Foreign Policy Magazine* as one of its 100 influential global thinkers for 2011. His book *Exorbitant Privilege: The Rise and Fall of the Dollar and the Future of the International Monetary System*, was short-listed for the *Financial Times*/Goldman Sachs finance and economics book of the year, and was selected as the China economics book of the year for 2011. He also served as president of the Economic History Association in 2010–11.

Amy Finkelstein was named a Young Global Leader by the World Economic Forum.

Richard G. Frank won the Distinguished Services Award from the Maryland Mental Health Association.

Roland Fryer, Jr. received a MacArthur Foundation Fellowship.

Don Fullerton was appointed to the AEA's Committee on the Status of Minority Groups in the Economics Profession (CSMGEP). He also was elected Vice President of the Association of Environmental and Resource Economists (AERE).

Xavier Gabaix won the Fischer Black Prize, awarded every two years by the American Finance Association to the person under 40 who contributed the most to the field of finance. He also received the Bernacer Prize for best European economist under 40 working in macroeconomics/finance, and the Best Young French Economist Prize from Le Cercle des Economistes / *Le Monde*. In addition, he was elected a Fellow of the Econometric Society.

Jordi Gali won the National Research Prize, awarded by the Government of Catalonia (Spain).

Alan M. Garber received a MERIT award from the National Institutes of Health.

Nicolae Garleanu, Leonid Kogan, and Stavros Panageas received the Best Paper Award at the 2011 Utah Winter Finance Conference for their paper on "The Demographics of Innovation and Asset Returns".

Linda S. Goldberg presented the Keynote Address on "Issues in International Banking: Research and Policy Initiatives" at the De Nederlandsche National Bank Conference on Banking and the Globalization of Finance in Frankfurt, Germany. She also gave a Keynote Lecture on "The International Role of the Dollar: Does It Matter if This Changes?" at CESifo's Venice Summer Institute and the keynote lecture "In Defense of Global Banking", at the Deutsche Bundesbank Workshop on "The Costs and Benefits of International Banking."

Claudia Goldin received the Doctorate Honoris Causa from Lund University in May 2011. She also was elected President-elect of the American Economic Association in October, assuming the post at the Society's Annual Meeting in January 2012.

Marvin Goodfriend was appointed as Honorary Advisor, Institute for Monetary and Economic Studies, Bank of Japan.

Gita Gopinath was chosen as a “Young Global Leader” by the World Economic Forum.

Robert J. Gordon was selected by Economists for Peace and Security as their annual dinner honoree at the ASSA meetings in Chicago in January 2012. He was also selected as the keynote speaker of a conference co-sponsored by the IMF and Danish State National Bank in Copenhagen in September 2011.

Yuriy Gorodnichenko won an NSF CAREER award for “Analysis of Prices, Informational Rigidities and Productivity Differences.”

Veronica Guerrieri was awarded a Sloan Research Fellowship.

Robert E. Hall completed his service as president of the American Economic Association (AEA) and became a Distinguished Fellow of the AEA.

Daniel Hamermesh received a Humboldt Research Prize from the German government, one of about 80 given to non-German researchers in all fields of endeavor each year.

Jeffrey E. Harris was awarded a grant by the Fulbright Foreign Scholarship Board and the Bureau of Education and Cultural Affairs of the U.S. Department of State to serve as a Fulbright Specialist at the University of the Republic, Uruguay. He is working with a core group of researchers from Uruguay on a formal evaluation of that country's tobacco control campaign.

Oliver D. Hart received an Honorary Doctorate of Science (Economics) from London Business School.

Eric Hilt was awarded a visiting scholar fellowship at the Russell Sage Foundation.

Yael Hochberg won the 2011 Emerald Citation of Excellence for “Whom You Know Matters: Venture Capital Networks and Investment Performance”, which was published in the *Journal of Finance*. This award recognizes this paper as one of the top 50 management business and economics articles with proven impact since publication in 2007.

Thomas J. Holmes was elected a

Fellow of the Econometric Society.

Takeo Hoshi received the Reischauer International Education Award from the Japan Society of San Diego and Tijuana. The award is given to one individual each year, honoring the outstanding efforts to promote educational interchange and understanding between Japan, San Diego, and Tijuana.

Erik G. Hurst and **Tobias J. Moskowitz** shared the Kauffman Prize Medal, which is awarded annually to recognize scholars under the age of 40 whose research has made a significant contribution to entrepreneurship.

Robert P. Inman was elected Foreign Member, The Royal Norwegian Society of Sciences and Letters, Humanities Division.

Takatoshi Ito received the Purple Ribbon Medal from the Emperor for his academic dedication and excellence.

Seema Jayachandran was awarded an Alfred P. Sloan Research Fellowship and an NSF CAREER Grant.

Michael Jensen won the 2011 Economics for Management Lecture Series ISES-Fundacion BBVA Prize in May 2011. He previously received the 2009 Morgan Stanley-AFA Award for Excellence in Financial Economics, and selected the NBER, Harvard Business School, and Simon School of Business at the University of Rochester as co-recipients of the associated cash grant.

Robert Kaestner earned the 2011 Article-of-the-Year honor from *AcademyHealth*.

Edward Kane received the Thomas Divine Award from the Association for Social Economics for lifetime contributions to social economics. He also gave a Keynote Address, “Constraining Growth in Financial Safety Nets: Lessons from Australia and Canada,” at the 9th Biennial Pacific Rim Conference of the Western Economic Association International in Brisbane, Australia.

Louis Kaplow won the Jerry S. Cohen award for antitrust scholarship for the article “Why (Ever) Define Markets?”

Lawrence F. Katz was elected the John Kenneth Galbraith Fellow of the American Academy of Political and Social

Sciences and First Vice-President of the Society of Labor Economists.

Samuel Kortum was named a Fellow of the Econometric Society.

Amanda Kowalski was selected the Okun Model Early Career Fellow in Economic Studies by the Brookings Institution.

Anne Krueger received an honorary doctorate from Aarhus University in Denmark. Also, her 1974 *American Economic Review* article on “The Political Economy of the Rent-Seeking Society” was named, in the February 2011 issue of the *AER*, as one of the twenty outstanding papers published in the first hundred years of that journal.

Per Krusell was selected as a Wallenberg Scholar, one of only ten Swedish researchers in all fields selected in the year. The award provides an unrestricted research grant.

Howard Kunreuther and his co-authors Dwight Jaffee and Erwann Michel-Kerjan received the Spencer L. Kimball Article Award, presented by the National Association of Insurance Commissioners, for their 2010 paper “Long-Term Property Insurance” in the *Journal of Insurance Regulation*. He and Michel-Kerjan also received the Kulp-Wright Book Award, presented by the American Risk and Insurance Association for the most influential text on the economics of risk management and insurance, for *At War with the Weather*.

David Laibson was elected a Fellow of the Econometric Society.

Jonathan Lewellen, **Stefan Nagel**, and **Jay Shanken** won the Fama/DFA best paper prize (second prize) for “A Skeptical Appraisal of Asset Pricing Tests.”

Christian Leuz and his co-authors Luzi Hall and Peter Wysocki received the AAA/Deloitte Wildman Medal, which recognizes research judged “to have made or likely to make the most significant contribution to the advancement of the practice of public accountancy, including audit, tax, and management services.” Leuz also won the Allen & Overy Law Prize for a paper in ECGI's Law working paper series which was deemed to have made the most substantial contribution

to the knowledge of corporate governance in Europe.

Frank R. Lichtenberg received an Outstanding Author Contribution Award at the Emerald Literati Network Awards for Excellence for his paper, "The Effect of Drug Vintage on Survival: Micro Evidence from Puerto Rico's Medicaid Program," which was published in *Advances in Health Economics and Health Services Research*.

Nuno Limao was the plenary session speaker at the European Trade Study Group (ETSG) Conference in September 2011. He also won the 2011 Chair Jacquemin prize for best paper for "Trade Policy and Heterogenous Firms."

Alexander Ljungqvist was the recipient of the 2011 Ewing Marion Kauffman Prize Medal for Distinguished Research in Entrepreneurship, awarded every two years to one scholar under age 40 whose research has made a significant contribution to the literature in entrepreneurship. He also received the Emerald Citations of Excellence Award.

Annamaria Lusardi was elected to the Board of Directors of the Council for Economic Education.

Lisa M. Lynch is president-elect of the Labor and Employment Research Association (formerly the Industrial Relations Research Association).

Jonathan Levin received the John Bates Clark Medal from the American Economic Association.

Ulrike Malmendier was selected into *Capital Magazine's* Young Elite ("Top 40 Researchers under 40").

Kalina Manova has received an Excellence Award in Global Economic Affairs from the Kiel Institute for the World Economy.

Christopher M. Meissner was the September 2011 winner of the Arthur H. Cole Prize, awarded by the Economic History Association for the best paper published in the *Journal of Economic History* during the previous year. The paper, co-authored with Michael Huberman, is "Riding the Wave of Trade: Explaining the Rise of Labor Regulation in the Golden Age of Globalization."

Olivia S. Mitchell was named one of *Investment Advisor Magazine's* "25 Most

Influential People in 2011" and "50 Top Women in Wealth."

Edward B. Montgomery was elected to the National Academy of Public Administration and appointed to the GAO Comptroller General's Educator Advisory Panel.

Randall Morck was named a Research Fellow at the Bank of Canada.

Dale T. Mortensen was awarded an honorary Doctor of Sciences degree by Willamette University.

Robert Novy-Marx and **Joshua D. Rauh** won the Smith Breeden Prize (first place) for the outstanding paper in the *Journal of Finance* in any area other than corporate finance, for "Public Pension Promises, How Big Are They, and What Are They Worth?" Novy-Marx also won the Spangler IQAM Best Paper Prize (first place), for the top paper published in the *Review of Finance*, for "Operating Leverage."

Nathan Nunn was awarded the 2011 Citation of Excellence Award for his paper "Relationship-Specificity, Incomplete Contracts, and the Pattern of Trade," published in the *Quarterly Journal of Economics*.

Maurice Obstfeld was the Richard T. Ely Lecturer at the American Economic Association's Annual Meeting in Chicago in January 2012. He also won the Tjalling C. Koopmans Asset Award from the Tilburg School of Economics and Management.

Lee Ohanian was elected a Senior Fellow at the Hoover Institution.

Daniel Paravisini, **Andrew Hertzberg**, and **Jose Liberti** won the Brattle Group's Distinguished Paper Prize for their paper "Public Information and Coordination: Evidence from a Credit Registry Expansion." The Brattle Group Prizes are awarded annually for the three best papers in the field of corporate finance, chosen by the associate editors of *The Journal of Finance*.

Mitchell Petersen had "Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches" (NBER Working Paper No. 11280) selected as an Editor's Choice paper in the *Review of Financial Studies*.

Luigi Pistaferri was awarded a European Research Council Starting Grant. He also became Co-Editor of the *American Economic Review*, was named the Bajola Parisani Visiting Chair in Economics and Institutions at EIEF, Rome, and gave keynote talks at the QED Frontiers of Macroeconomics Workshop (Queen's University), the CIREQ Macro Conference (University of Montreal), and the Stabilization Policies Conference (University of Copenhagen).

James Poterba was elected Vice-President of the Eastern Economic Association.

Giorgio Primiceri was selected as an Alfred P. Sloan Research Fellow.

Valerie Ramey and **Neville Francis** won the *American Economic Journal: Macroeconomics* Best Paper Prize in 2011 for "A Century of Work and Leisure."

Helene Rey was elected a Fellow of the British Academy.

Kenneth Rogoff was named the 2011 recipient of the Deutsche Bank Prize in Financial Economics for his pioneering contributions to the field of international finance and macroeconomics. The prize is awarded every other year by the Center for Financial Economics in Germany. He also received the National Association for Business Economics' Adam Smith Award in 2011. He and **Carmen Reinhart** received the Arthur Ross Book Award from the Council on Foreign Relations for their book, *This Time Is Different*.

Jesse Rothstein received the John T. Dunlop Outstanding Scholar Award, awarded by the Labor and Employment Relations Association, for outstanding academic contributions to research of national significance by a recent entrant to the field.

Jay Shanken won the Fama/DFA 2nd Prize for Capital Markets and Asset Pricing in the *Journal of Financial Economics'* best papers contest, 2010, for "A Skeptical Appraisal of Asset-Pricing Tests", coauthored by **Jonathan Lewellen** and **Stefan Nagel**.

Chris Sims and **Thomas Sargent** were awarded the Sveriges Riksbank Prize in Economics in Honor of Alfred Nobel in October 2011.

Richard H. Steckel was elected a

Fellow of the American Association for the Advancement of Science.

Paula Stephan became a fellow of the American Association for the Advancement of Science (AAAS). Stephan was honored “for distinguished professional service and for contributions to the economics of science, particularly the role of foreign-born researchers and the diffusion of scientific knowledge.”

Catherine Tucker was awarded a five-year NSF CAREER Award for her research on Digital Privacy and Regulation.

Dimitri Vayanos became a managing editor of the *Review of Economic Studies*, and was elected to the Board of Directors

of the American Finance Association.

John Van Reenen won the Arrow Prize from the International Health Economics Association for his 2010 *Journal of Political Economy* paper with Carol Propper on “Can Pay Regulation Kill? The Impact of Labor Markets on Hospital Productivity.” He also won an Excellence in Refereeing Award from the *American Economic Review*.

Edward J. Vytacil was elected a Fellow of the Econometric Society.

Neng Wang was the Carr and Stephanie Bettis Distinguished Scholar for the spring semester, 2011, in the Department of Finance of the W. P. Carey School of Business.

Eugene N. White received a Chaire d’Accueil (Visiting Chaired Professorship) in the Domaine d’Intérêt Majeur Sciences Economiques at the Paris School of Economics from the Government of the Ile de France.

David A. Wise was named a Distinguished Fellow of the American Economic Association.

Bobbi Wolfe delivered the Robert Lampman lecture at the meetings of the Low Income Workshop of the Institute for Research on Poverty and the Fred Gruen Public Lecture at Australian National University.

Program and Working Group Meetings

Entrepreneurship Group Meets

The NBER’s Working Group on Entrepreneurship met in Cambridge on December 2, 2011. Working Group Directors Josh Lerner of Harvard Business School and Antoinette Schoar of MIT chose these papers for discussion:

- **Ola Bengtsson**, University of Illinois; **Magnus Johannesson**, Stockholm School of Economics; and **Tino Sanandaji**, University of Chicago, “Do Women Have a Less Entrepreneurial Personality?”
- **Konrad Burchardi**, London School of Economics, and **Tarek Alexander Hassan**, University of Chicago and NBER, “The Economic Impact of Social Ties: Evidence from German Reunification” (NBER Working Paper No. 17186)
- **Luis Garicano**, London School of Economics; **Claire LeLarge**, SESSI; and **John Van Reenen**, London School of Economics and NBER, “Firm Size Distortions and the Productivity Distribution: Evidence from France”
- **Luis Cabral**, New York University, “Good Turnover and Bad Turnover: Barriers to Business and Productivity”
- **Thomas J. Chemmanur**, Boston College; **Elena Loutskina**, University of Virginia; and **Xuan Tian**, Indiana University, “Corporate Venture Capital, Value Creation, and Innovation”
- **Deepak Hegde**, New York University, and **Justin Tumlinson**, Ifo Institute at the University of Munich, “Can Birds of a Feather Fly Together? Evidence For the Economic Payoffs of Ethnic Homophily”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/ENTf11/summary.html>

International Trade and Investment

The NBER's Program on International Trade and Investment met at Stanford's Institute for Economic Policy Research on December 2 and 3, 2011. Program Director Robert C. Feenstra of the University of California, Davis organized the meeting. These papers were discussed:

- **James Harrigan**, University of Virginia and NBER, and **Ariell Reshef**, University of Virginia, "Skill Biased Heterogeneous Firms, Trade Liberalization, and the Skill Premium" (NBER Working Paper No. 17604)
- **Thomas Sampson**, London School of Economics, "Selection into Trade and Wage Inequality"
- **Ariel Burstein**, University of California at Los Angeles and NBER, and **Javier Cravino**, University of California at Los Angeles, "Measured Aggregate Gains from International Trade"
- **Costas Arkolakis**, Yale University and NBER; **Natalia Ramondo**, Arizona State University; **Andrés Rodríguez-Clare**, University of California, Berkeley and NBER; and **Stephen Yeaple**, Pennsylvania State University and NBER, "Innovation and Production in the Global Economy"
- **Ralph Ossa**, University of Chicago and NBER, "Trade Wars and Trade Talks with Data" (NBER Working Paper No. 17347)
- **Julian di Giovanni**, International Monetary Fund; **Andrei Levchenko**, University of Michigan and NBER; and **Jing Zhang**, University of Michigan, "The Global Welfare Impact of China: Trade Integration and Technological Change"
- **Jiandong Ju**, University of Oklahoma; **Kang Shi**, Chinese University of Hong Kong; and **Shang-Jin Wei**, Columbia University and NBER, "Trade Liberalizations and Global Current Account Imbalances"
- **Yue Ma**, Lingnan University; **Heiwai Tang**, Tufts University; and **Yifan Zhang**, Lingnan University, "Factor Intensity, Product Switching, and Productivity: Evidence from Chinese Exporters"

Summaries of these papers may be found at: www.nber.org/confer/2011/ITIf11/summary.html

Household Finance Working Group

The NBER's Working Group on Household Finance, directed by Brigitte C. Madrian of Harvard University's Kennedy School of Government and Nicholas S. Souleles of University of Pennsylvania's Wharton School, met in Cambridge on December 16, 2011. The group discussed these papers:

- **James J. Choi**, Yale University and NBER; **Emily Haisley**, Barclays Bank PLC; **Jennifer Kurkoski**, Google, Inc.; and **Cade Massey**, Yale University, "Small Cues Change Savings Choices"
- **Victor Stango**, University of California at Davis, and **Jonathan Zinman**, Dartmouth College and NBER, "Borrowing High vs. Borrowing Higher: Sources and Consequences of Dispersion in Individual Borrowing Costs"
- **Justine S. Hastings**, Brown University and NBER, and **Ali Hortacsu** and **Chad Syverson**, University of Chicago and NBER, "Advertising and Competition in Privatized Social Security: The Case of Mexico"
- **Raymond Fisman**, Columbia University and NBER; **Daniel Paravisini**, Columbia University and NBER; and **Vikrant Vig**, London Business School, "Social Proximity and Loan Outcomes: Evidence from an Indian Bank"
- **Manuel Adelino**, Dartmouth College; **Antoinette Schoar**, MIT and NBER; and **Felipe Severino**, MIT, "Credit Supply and House Prices: Evidence from Mortgage Market Segmentation"
- **Lee Lockwood**, University of Chicago, "Incidental Bequests: Bequest Motives and the Choice to Self-Insure Late-Life Risks"

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/HFf11/summary.html>

Market Microstructure Meeting

The NBER's Working Group on Market Microstructure met in Cambridge on December 16, 2011. Tarun Chordia and Amit Goyal, Emory University; Charles Jones, Columbia Business School; Bruce Lehmann, University of California, San Diego and NBER; and Avanidhar Subrahmanyam, University of California, San Diego, organized the program. These papers were discussed:

- **Albert Menkveld**, VU University Amsterdam, "High Frequency Trading and the New-Market Makers"
- **Paolo Pasquariello**, University of Michigan, and **Clara Vega**, Federal Reserve Board, "Government Intervention and Strategic Trading in the U.S. Treasury Market"
- **Zhiguo He**, University of Chicago, and **Konstantin Milbradt**, MIT, "Endogenous Liquidity and Defaultable Bonds"
- **James E. Upson**, University of Texas at El Paso, and **Thomas H. McInish**, University of Memphis, "Strategic Liquidity Supply in a Market with Fast and Slow Traders"
- **Lawrence Harris**, University of Southern California, "The Homogenization of U.S. Equity Trading"
- **Maureen O'Hara**, Cornell University, and **Mao Ye** and **Chen Yao**, University of Illinois, "What's Not There: The Odd-Lot Bias in TAQ Data"

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/MMf11/summary.html>

Economic Fluctuations and Growth Research Meeting

The NBER's Program on Economic Fluctuations and Growth met at the Federal Reserve Bank of San Francisco on February 3, 2012. NBER Research Associates Nir Jaimovich of Duke University and Guido Lorenzoni of MIT organized the meeting. These papers were discussed:

- **Gary B. Gorton**, Yale University and NBER, and **Guillermo Ordonez**, Yale University, "Collateral Crises" (NBER Working Paper No. 17771)
- **Elias Albagli**, University of Southern California; **Christian Hellwig**, Toulouse School of Economics; and **Aleh Tsyvinski**, Yale University and NBER, "A Theory of Asset Prices based on Heterogeneous Information" (NBER Working Paper No. 17548)
- **Francisco Buera**, Federal Reserve Bank of Minneapolis and NBER; **Joseph Kaboski**, University of Notre Dame and NBER; and **Yongseok Shin**, Washington University in St. Louis, "The Macroeconomics of Microfinance"
- **Cosmin Ilut**, Duke University, and **Martin Schneider**, Stanford University and NBER, "Ambiguous Business Cycles"
- **Ulrike Malmendier**, University of California, Berkeley and NBER, and **Stefan Nagel**, Stanford University and NBER, "Learning from Inflation Experiences"
- **Greg Kaplan**, University of Pennsylvania, and **Giovanni L. Violante**, New York University and NBER, "A Model of the Consumption Response to Fiscal Stimulus Payments" (NBER Working Paper No. 17338)

Summaries of these papers may be found at: <http://www.nber.org/confer/2012/EFgw12/summary.html>

Industrial Organization Program Meeting

The NBER's Program on Industrial Organization, directed by Nancy Rose of MIT, met in Stanford, CA on February 10 and 11, 2012. Timothy F. Bresnahan, Stanford University, and Jakub Kastl, NBER and Stanford University, organized the meeting. These papers were discussed:

- **Fernando Ferreira**, University of Pennsylvania and NBER, and **Amil Petrin** and **Joel Waldfogel**, University of Minnesota and NBER, "Trade and Welfare in Motion Pictures"
- **Jennifer Brown**, Northwestern University and NBER, and **Dylan B. Minor**, Northwestern University "Selecting the Best? Spillover and Shadows in Elimination Tournaments" (NBER Working Paper No. 17639)
- **Brian Viard**, Cheung Kong Graduate School of Business, and **Shihe Fu**, "The Effect of Beijing's Driving Restrictions on Pollution and Economic Activity"
- **Abe Dunn** and **Adam Hale Shapiro**, Bureau of Economic Analysis, "Physician Market Power and Medical-Care Expenditures"
- **Jason Allen**, Bank of Canada; **Robert Clark**, HEC Montreal; and **Jean-Francois Houde**, University of Wisconsin, Madison, "Price Negotiation in Differentiated Product Markets: The Case of Insured Mortgages in Canada"
- **Carlos E. Noton**, University of Warwick, "Revealing Bargaining Power through Actual Wholesale Prices"
- **Liran Einav**, Stanford University and NBER; **Theresa Kuchler**, Stanford University; **Jonathan D. Levin**, Stanford University and NBER; and **Neel Sundaresan**, eBay Research Labs, "Learning from Seller Experiments in Online Markets" (NBER Working Paper No. 17385)

Summaries of these papers may be found at: <http://www.nber.org/~confer/2012/IOs12/summary.htm>

Law and Economics

The NBER's Program on Law and Economics, directed by Christine Jolls of Yale Law School, met in Cambridge on February 10, 2012. These papers were discussed:

- **Zhiguo He**, University of Chicago, and **Gregor Matvos**, University of Chicago and NBER, "Debt and Creative Destruction: Why Could Subsidizing Corporate Debt Be Optimal?"
- **Alberto F. Alesina**, Harvard University and NBER; **Yann Algan**, Sciences Po; **Pierre Cahuc**, Ecole Polytechnique; and **Paola Giuliano**, University of California, Los Angeles and NBER, "Family Values and the Regulation of Labor" (NBER Working Paper No. 15747)
- **Ernst Fehr**, University of Zurich; **Oliver D. Hart**, Harvard University and NBER; and **Christian Zehnder**, University of Lausanne, "How Do Informal Agreements and Renegotiation Shape Contractual Reference Points?" (NBER Working Paper No. 17545)
- **Steven Shavell**, Harvard University and NBER, "A Fundamental Enforcement Cost Advantage of the Negligence Rule over Regulation"

Special Session on Consumer Finance

- **Santosh Anagol**, University of Pennsylvania, and **Shawn Cole** and **Shayak Sarkar**, Harvard University, “Understanding the Incentives of Commissions Motivated Agents: Theory and Evidence from the Indian Life Insurance Market”
- **Will Dobbie**, Harvard University, and **Paige M. Skiba**, Vanderbilt University, “Information Asymmetries in Consumer Credit Markets: Evidence from Payday Lending”
- **Dean Karlan**, Yale University and NBER, and **Jonathan Zinman**, Dartmouth College and NBER, “Borrow Less Tomorrow”

Summaries of these papers may be found at: <http://www.nber.org/confer/2012/LEs12/summary.html>

Labor Studies Program Meeting

The NBER's Program on Labor Studies, directed by David Card of the University of California, Berkeley, met at the Federal Reserve Bank of San Francisco on February 24, 2012. These papers were discussed:

- **Mary Daly** and **Bart Hobijn**, Federal Reserve Bank of San Francisco, and **Theodore Wiles**, The Analysis Group, “Aggregate Real Wages: Macro Fluctuations and Micro Drivers”
- **John M. Abowd**, Cornell University and NBER, and **Ian M. Schmutte**, University of Georgia, “Endogenous Mobility”
- **Johannes Schmieder**, Boston University; **Till M. von Wachter**, Columbia University and NBER; and **Stefan Bender**, Institute for Employment Research, “The Effect of Unemployment Insurance Extensions on Reemployment Wages”
- **Gregorio S. Caetano**, University of Rochester, and **Vikram Maheshri**, University of Houston, “School Segregation and the Identification of Tipping Points”
- **Thomas Buser** and **Hessel Oosterbeek**, University of Amsterdam, and **Muriel Niederle**, Stanford University and NBER, “Gender, Competition and Career Choices”
- **Ernesto Dal Bo**, University of California at Berkeley and NBER; **Frederico Finan**, University of California, Berkeley; and **Martin Rossi**, Universidad de San Andres, “Strengthening State Capabilities: The Role of Financial Incentives in the Call to Public Service”
- **Eric A. Hanushek**, Stanford University and NBER; **Ludger Woessmann**, University of Munich; and **Lei Zhang**, Tsinghua University, “General Education, Vocational Education, and Labor-Market Outcomes over the Life-Cycle” (NBER Working Paper No.17504)

Summaries of these papers may be found at: <http://www.nber.org/confer/2012/LSs12/summary.html>

Monetary Economics Program Meeting

The NBER's Monetary Economics Program met at the Federal Reserve Bank of New York on March 2, 2012. NBER Research Associates Ricardo Reis of Columbia University and Mark W. Watson of Princeton University organized this program:

- **Markus K. Brunnermeier**, Princeton University and NBER, and **Yuliy Sannikov**, Princeton University, “The I Theory of Money”

- **Jesus Fernandez-Villaverde**, University of Pennsylvania and NBER; **Pablo A. Guerrón-Quintana**, North Carolina State University; **Keith Kuester**, Federal Reserve Bank of Philadelphia; and **Juan Rubio-Ramírez**, Duke University, “Fiscal Volatility Shocks and Economic Activity”
- **Emmanuel Farhi** and **Gita Gopinath**, Harvard University and NBER, and **Oleg Itskhoki**, Princeton University and NBER, “Fiscal Devaluations”
- **Eric T. Swanson** and **John Williams**, Federal Reserve Bank of San Francisco, “Measuring the Effect of the Zero Lower Bound on Medium- and Longer-Term Interest Rates”
- **Fernando E. Alvarez**, University of Chicago and NBER, and **Francesco Lippi**, University of Sassari, “Price Setting with Menu Cost for Multi-product Firms”
- **Carola Frydman**, Boston University and NBER, and **Eric Hilt**, Wellesley College and NBER, “The Panic of 1907: JP Morgan, Trust Companies, and the Impact of the Financial Crisis”

Summaries of these papers may be found at: <http://www.nber.org/confer/2012/MEs12/summary.html>

International Finance and Macroeconomics Program Meeting

The NBER's Program on International Finance and Macroeconomics met in Cambridge on March 9, 2012. NBER Research Associates Kristin Forbes of MIT and Helene Rey of London Business School organized the meeting. These papers were discussed:

- **Jack Favilukis**, London School of Economics, and **Sydney C. Ludvigson** and **Stijn Van Nieuwerburgh**, New York University and NBER, “Foreign Ownership of U.S. Safe Assets: Good or Bad?”
- **Matteo Maggiori**, University of California, Berkeley, “Financial Intermediation, International Risk Sharing, and Reserve Currencies”
- **Gabriel Zucman**, Paris School of Economics, “The Missing Wealth of Nations: Are Europe and the U.S. Net Debtors or Net Creditors?”
- **Marcel Fratzscher**, **Marco Lo Duca**, and **Roland Straub**, European Central Bank, “Quantitative Easing, Portfolio Choice and International Capital Flows”
- **Viral V. Acharya**, New York University and NBER, and **Raghuram Rajan**, University of Chicago and NBER, “Sovereign Debt, Government Myopia and the Financial Sector”
- **Robin Greenwood**, Harvard University and NBER; **Augustin Landier**, Toulouse School of Economics; and **David Thesmar**, HEC Paris, “Vulnerable Banks”
- **Meghana Ayyagari**, George Washington University; **Asli Demirguc-Kunt**, The World Bank; and **Vojislav Maksimovic**, University of Maryland, “Do Phoenix Miracles Exist? Role of Financial Markets in Firm-Level Recovery from Financial Crises”

Summaries of these papers may be found at <http://www.nber.org/confer/2012/IFMs12/summary.html>

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The Intended and Unintended Effects of U.S. Agricultural and Biotechnology Policies

The Intended and Unintended Effects of U.S. Agricultural and Biotechnology Policies, edited by Joshua S. Graff Zivin and Jeffrey M. Perloff, is an NBER Conference Report that examines a wide range of policy issues that surround U.S. agriculture and the biofuel industry. Among the topics addressed are: how funds distributed by agricultural insurance programs were created to support

farmers but often benefit crop processors instead; how the demand for biofuel could create uncertainty around agricultural prices; the ways in which genetically engineered crops might affect the competing goals of energy production, environmental protection, and maintenance of the global food supply; and how the growing availability of genetically-engineering food products affects world food

markets. The volume is available from the University of Chicago Press for \$99.00.

Graff Zivin is an NBER Research Associate and Associate Professor of Economics at the University of California, San Diego. Perloff is a former member of NBER's Board of Directors and a Professor in the Agricultural and Resource Economics Department at the University of California, Berkeley.

The Rate and Direction of Inventive Activity Revisited

The Rate and Direction of Inventive Activity Revisited, edited by Josh Lerner and Scott Stern, is an NBER Conference Report that addresses a range of fundamental questions about the economics of innovation and technological change. Among the topics discussed are how institutions such as universities, the environment surrounding patent policy, and other factors together affect the

environment for innovation; the effect of public and private research funding on the rate of scientific progress; and how "open research" and the diffusion of information technology can influence knowledge accumulation more generally. The volume is available from the University of Chicago Press for \$120.00.

Lerner is a co-director of the NBER's Program on Productivity, Innovation,

and Entrepreneurship. Stern is director of the NBER's Innovation Policy Working Group; both Lerner and Stern are NBER Research Associates. Lerner is also the Jacob H. Schiff Professor of Investment Banking at Harvard Business School. Stern is Distinguished Professor of Technological Innovation, Entrepreneurship, and Strategic Management at MIT's Sloan School of Management.

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