NBER Reporter

NATIONAL BUREAU OF ECONOMIC RESEARCH

Reporter OnLine at: www.nber.org/reporter

2009 Number 4

IN THIS ISSUE

Program Report

Corporate Finance 1

Research Summaries
Home Production … and Labor Supply 6
The Effects of Medicaid Expansions … 9
Insider Econometrics … 13

NBER Profiles 16
Conferences 18
NBER News 22
Program and Working Group Meetings 23
Bureau Books 33

Program Report

Corporate Finance

Raghuram G. Rajan*

The NBER's Program on Corporate Finance was founded in 1991, and has initiated some very promising avenues of research since then. Narrowly interpreted, corporate finance is the study of the investment and financing policies of corporations. Because firms are at the center of economic activity, and almost any topic of concern to economists — from microeconomic issues like incentives and risk sharing to macroeconomic issues such as currency crises — affects corporate financing and investment, it is however increasingly difficult to draw precise boundaries around the field.

The range of subjects that Corporate Finance Program members have addressed in their research reflects this broad scope. Rather than offering a broad brush survey of all the work currently being done, however, I thought it would be most useful to focus on what our researchers have contributed to the analysis of the ongoing financial crisis. Even here, I have had to be selective, given the large number of papers on this subject in the last two years. I should also note that even prior to the crisis, Corporate Finance Program members had done important work on such topics as credit booms, illiquidity, bank runs, and credit crunches. This work laid much of the foundation for the more recent analyses. In the interests of space, though, I will not survey that earlier work.

A number of papers offer an overview of the crisis (Brunnermeier, 14612; Diamond and Rajan, 14739; Gorton, 14398). There is some consensus on its proximate causes: 1) the U.S. financial sector financed low-income borrowers who wanted to buy houses, and it raised money for such lending through the issuance of exotic new financial instruments; 2) banks seemed very willing to take risks during this time, and a significant portion of these instruments found their way, directly or indirectly, into commercial and investment bank balance sheets; 3) these investments were largely

**Rajan directs the NBER's Program on Corporate Finance and is the Eric J. Gleacher Distinguished Service Professor of Finance at the University of Chicago's Booth School of Business. In this article, the numbers in parentheses refer to NBER Working Papers.*

NBER Reporter

The National Bureau of Economic Research is a private, nonprofit research organization founded in 1920 and devoted to objective quantitative analysis of the American economy. Its officers and board of directors are:

President and Chief Executive Officer — *James M. Poterba*
Controller — *Kelly Horak*

BOARD OF DIRECTORS

Chairman — *John S. Clarkeson*
Vice Chairman — *Kathleen B. Cooper*
Treasurer — *Robert Mednick*

DIRECTORS AT LARGE

Peter Aldrich
Elizabeth E. Bailey
Richard Berner
John Herron Biggs
John S. Clarkeson
Don R. Conlan
Kathleen B. Cooper
Charles H. Dallara
George C. Eads
Jessica P. Einhorn
Mohamed El-Erian
Jacob A. Frenkel
Judith M. Gueron
Robert S. Hamada
Karen N. Horn
John Lipsky
Laurence H. Meyer
Michael H. Moskow
Alicia H. Munnell
Rudolph A. Oswald
Robert T. Parry
James M. Poterba
John S. Reed
Marina v. N. Whitman
Martin B. Zimmerman

DIRECTORS BY UNIVERSITY APPOINTMENT

George Akerlof, *California, Berkeley*
Jagdish W. Bhagwati, *Columbia*
Glen G. Cain, *Wisconsin*
Ray C. Fair, *Yale*
Franklin Fisher, *MIT*
Mark Grinblatt, *California, Los Angeles*
Saul H. Hymans, *Michigan*
Marjorie B. McElroy, *Duke*
Joel Mokyr, *Northwestern*
Andrew Postlewaite, *Pennsylvania*
Uwe E. Reinhardt, *Princeton*
Nathan Rosenberg, *Stanford*
Craig Swan, *Minnesota*
David B. Yoffie, *Harvard*
Arnold Zellner, *Chicago*

DIRECTORS BY APPOINTMENT OF OTHER ORGANIZATIONS

Jean Paul Chavas, *Agricultural and Applied Economics Association*
Martin Gruber, *American Finance Association*
Timothy W. Guinnane, *Economic History Association*
Arthur B. Kennickell, *American Statistical Association*
Thea Lee, *American Federation of Labor and Congress of Industrial Organizations*
William W. Lewis, *Committee for Economic Development*
Robert Mednick, *American Institute of Certified Public Accountants*
Angelo Melino, *Canadian Economics Association*
Harvey Rosenblum, *National Association for Business Economics*
John J. Siegfried, *American Economic Association*

The NBER depends on funding from individuals, corporations, and private foundations to maintain its independence and its flexibility in choosing its research activities. Inquiries concerning contributions may be addressed to James M. Poterba, President & CEO, NBER 1050 Massachusetts Avenue, Cambridge, MA 02138-5398. All contributions to the NBER are tax deductible.

The *Reporter* is issued for informational purposes and has not been reviewed by the Board of Directors of the NBER. It is not copyrighted and can be freely reproduced with appropriate attribution of source. Please provide the NBER's Public Information Department with copies of anything reproduced.

Requests for subscriptions, changes of address, and cancellations should be sent to *Reporter*, National Bureau of Economic Research, Inc., 1050 Massachusetts Avenue, Cambridge, MA 02138-5398. Please include the current mailing label.

financed with short-term debt. But what were the more fundamental reasons for these proximate causes?

Why Low Income Borrowers?

Atif Mian and Amir Sufi (13936) offer persuasive evidence that it was an increase in the supply of finance to low-income borrowers — not an improvement in the credit quality of those borrowers — that drove lending, appreciation of house prices, and subsequent mortgage defaults. They argue that zip codes with high unmet demand for credit in the mid-1990s (typically dominated by low-income potential borrowers) experienced large increases in lending from 2001 to 2005. These increases occurred even though these zip codes experienced significantly negative relative income and employment growth over this time period, suggesting that improvements in demand did not drive lending. The increase in the supply of credit seemed to be associated with a sharp relative increase in the fraction of loans from these zip codes sold by originators for securitization. The increase in the supply of credit from 2001 to 2005 led to subsequent large increases in mortgage defaults from 2005 to 2007. Mian and Sufi conclude that originators selling mortgages were a main cause of the U.S. mortgage default crisis.

Why did supply increase? One possibility is that financial innovation— the process of securitization which spread risk — enabled the financial sector to lend to risky borrowers who previously were rationed. The reality, though, is that deep flaws in the process of securitization seem to have compromised quality. Efraim Benmelech and Jennifer Dlugosz (14878, 15045) offer some evidence on the extent to which low quality mortgage packages were transformed into highly rated securities. They suggest that "ratings shopping" by some issuers of mortgage backed securities (which refers to the process by which an issuer finds the rating agency that will offer the most favorable rating), as well as a fall in standards at some rating agencies, must have played a role in the deterioration in quality. Vasiliki Skreta and Laura Veldkamp (14761) argue that for complex products, where rating agencies could have produced a greater dispersion in ratings even if totally unbiased, the incentive for the issuer to shop for the highest rating may have been higher, and therefore the inherent bias in published ratings larger. It would be interesting

to see whether ratings shopping by issuers could come close to accounting for the size of the errors that were made.

Another possibility is raised by Charles Calomiris (15403) and Mian and Sufi (13936), all of whom argue that government pressure to expand housing to low-income segments, and government involvement through the Federal Housing Authority and mandates to Fannie Mae and Freddie Mac, may have caused the explosion in supply.

The effects of both flawed financial innovation and undue government pressure to lend may have been aggravated by household behavior. For instance, Mian and Sufi (15283) document the rise in home equity borrowing in areas that had substantial house price appreciation, with the borrowing seemingly going to finance additional consumption. Their estimates suggest an increase in home-equity borrowing of 2.8 percent of GDP every year from 2002 to 2006. Following the housing crash, home equity borrowing seems to account for at least 34 percent of the new defaults from 2006 to 2008. While all of these aggregate estimates are, by necessity, tentative, borrower repayment capacity may have deteriorated even after the initial mortgage origination because of the easy availability of credit.

Were banks more willing to take risks?

The large quantities of mortgage backed securities that were originated should have been sold to institutions that could bear the risk. Somehow, they landed up on bank balance sheets, or in off-balance sheet vehicles like conduits, all financed with very short-term debt. Why did banks take all this risk?

One set of explanations has to do with incentive structures. Douglas W. Diamond and I (14739) argue that given the competition for talent, traders have to be paid generously based on performance. But, many of the compensation schemes paid for short-term risk-adjusted performance. This gave traders an incentive to take risks that were not recognized by the system, so that they could generate income that appeared to stem from their superior abilities, even though it was in fact only a market-risk premium. The classic case of such behavior is to write insurance on infrequent events, such as defaults, taking on what is termed "tail" risk. If traders are allowed to boost their bonuses by treating the entire insurance premium as income instead of setting aside a significant fraction as a reserve for an eventual payout, then they will have an excessive incentive to engage in this sort of trade. Indeed, traders who bought AAA mortgage backed securities were essentially getting the additional spread on these instruments relative to corporate AAA securities (the spread being the insurance premium) while ignoring the additional default risk entailed in these untested securities. Regulators also seemed to ignore these risks in setting capital requirements.

Tail risk taking may not have been unprofitable for bank shareholders ex ante, especially if there were implicit guarantees from the authorities to bail out the system when a crisis occurred. Andrei Shleifer and Robert W. Vishny (14943) propose an explanation of booms and busts in lending where bank managers' interests are perfectly aligned with those of shareholders. The driving force in their model is investor sentiment — essentially a willingness by market investors to overpay for securitized debt in good times. Banks have to contribute some money of their own to securitizations so as to assure investors that they have "skin in the game." In good times (high sentiment), banks will use up all of their available financing capacity in order to create financing packages that can be sold. They thereby maximize their profits from the cheap funding available from markets. In bad times (low sentiment), banks may have to liquidate some of their portfolio at low fire sale prices. But the losses incurred then are more than made up for by the profits obtained by stretching the balance sheet in good times.

Finally, Veronica Guerrieri and Peter Kondor (14898) propose a model in which manager career concerns drive booms and busts. Good managers know the true state of the world next period — whether it will be the good state where risky projects will pay off in full so that risk taking makes sense or the bad state where they will default. Normal managers do not know the state — they only know probabilities. Normal managers would like to be seen by the market as good managers. When good times are likely and defaults are likely to be low, normal managers are likely to take on risky projects — reducing the overall risk premium for risky assets excessively. When bad times are likely and defaults are likely to be high, normal managers will take safe projects, increasing the overall risk premium for risky assets. Thus managerial career concerns could explain the changes in sentiment towards risky assets that Shleifer and Vishny allude to, and could explain the recent boom and bust.

The evidence on bank behavior is accumulating. Andrea Beltratti and Rene M. Stulz (15180) find that bank shares that had high stock market returns in 2006 fared very poorly in 2007–8. They also find that banks with more shareholder-friendly boards performed worse during the crisis. These findings are consistent with the notion that bank CEOs may have been maximizing shareholder value by taking on risk (or that the market did not realize the risk they were taking) — when the risk materialized, their share price tanked. Rudiger Fahlenbrach and Stulz (15212) find that CEOs like Richard Fuld of Lehman who had the highest equity holdings in their firms in 2006 performed the worst during the crisis. They suggest that monetary incentives seem not to have mattered in driving behavior in this crisis. The precise reason is unclear. Perhaps CEOs accumulated equity through risky behavior in the past, and did not realize that times had changed. Perhaps the probability of a tail event like the one that occurred in September 2008 was small enough that they ignored it. Or perhaps CEOs felt they had to take risk in order to shine or even survive in their jobs, an objective far more important than any expected monetary loss they might suffer.

Financing with Short-Term Debt

Why were the banks financed with short-term debt? Diamond and Rajan (14739) argue that given the complexity of bank risk-taking, and the potential breakdown in internal control processes, investors would have demanded a very high premium for financing a bank long term. By contrast, they would have been far more willing to hold short-term claims on the bank, since that would give them the option to exit — or get a higher premium — if the bank appeared to be getting into trouble. So, investors would have demanded lower premiums for holding short-term secured debt in light of potential agency problems at banks.

Of course, short-term debt carries refinancing or liquidity risk (the risk that financial market conditions will not be so favorable when it comes time to refinance). Indeed, Heitor Almeida, Murillo Campello, Bruno Laranjeira, and Scott Weisbenner (14990) show that firms that had debt maturing during the crisis reduced investment by about one third the pre-crisis level relative to their peers, suggesting a substantial cost of illiquidity. Perhaps one reason that bank managers paid less attention to illiquidity was that it too was a tail risk.

Another reason, though, might be that banks discounted the cost of illiquidity because of implicit promises made by the Fed. Diamond and Rajan (15197) argue that if the Fed is perceived as being accommodative in the future, or if it is viewed as unwilling to allow system-wide stress, then banks have an incentive to move to more illiquid assets financed with short-term debt. Authorities may want to commit to a specific policy of interest rate intervention to restore appropriate incentives. For instance, to offset incentives for banks to make more illiquid loans, authorities may have to commit to raising rates when low, to counter the distortions created by lowering them when high.

Marcin Kacperczyk and Philipp Schnabl (15538) argue that in the 1980s and early 1990s, the off-balance sheet conduits set up by banks to hold commercial paper tended to invest in short-term commercial paper while financing themselves with short-term issuances. It is only in the late 1990s and in this century that they moved to holding longer-term illiquid assets, thus incurring the liquidity mismatch. This suggests either that excessive risk taking, or great confidence in the Fed's willingness to pump in liquidity when needed, may have prompted the rise in asset-liability mismatches.

I have already described one rationale for the bank financing with very short-term debt: it reduced the risk that the lender would see his investment wasted by the bank. Another rationale is that short-term secured debt, because of its effective seniority in the normal course (overnight secured debt is effectively repaid every day before anyone else gets to assert their claim) is information-insensitive. So a large pool of uninformed investors (money market funds, pension funds, wealth funds) can hold these claims, unlike corporate debt or equity, because they are near riskless. The problem, of course, occurs when liquidity starts drying up in the markets. At such times, Gary Gorton and Andrew Metrick (15273) argue, investors will not lend against the full value of collateral — they will impose a "haircut" on the amount they are willing to lend against collateral, with the extent of the haircut signifying the extent to which there will be a price decline in the value of the collateral if it is sold conditional on default. A greater haircut obviously implies that the bank can raise less debt against its assets, which also means it either has to have more equity or sell assets. If it is hard to raise equity, then in an illiquid market there will be asset sales which further depress prices, raise haircuts, and so on.

The Panic and Fire Sales

A number of papers address the panic itself. Zhiguo He and Wei Xiong (15482) start with a model in which creditors are willing to roll over their loans to a bank only when current fundamentals provide a margin of safety. In figuring out this margin, today's maturing creditors have to guess what kinds of margins tomorrow's maturing creditors will demand. If today's maturing creditors anticipate that tomorrow's creditors will demand a high threshold of safety, today's creditors will demand an even higher threshold. This precipitates a dynamic rat race, such that if creditors anticipate a bad enough future scenario, lending could dry up today, even though fundamentals do not warrant it.

A related argument, but across creditor chains, underlies the work of Ricardo Caballero and Alp Simsek (14997, 15479). Essentially, the idea is that as asset prices fall, more banks are likely to become distressed. Banks now need to monitor not only their immediate borrowers, but also borrowers of their borrowers, and so on. As banks cut back on lending, more entities are forced to sell at fire sale prices, implying that still more banks become distressed, and increasing the complexity that each bank has to deal with. At some point, the environment could become so complex that all lending stops.

A number of papers thus argue that downward spirals in asset prices could occur, and they explain the various ways the spirals could become self-reinforcing. Arvind Krishnamurthy (15040) offers a nice overview of such models including his work with Caballero on models of Knightian uncertainty as applied to finance. Diamond and Rajan (14925) argue that if there is an "overhang" of impaired banks that may be forced to sell illiquid assets in the future, this can reduce the current price of illiquid assets sufficiently that the weak banks have no interest in selling them. Intuitively, if a bank today expects to fail in the future conditional on being forced to sell assets, then it has no interest in selling them today, even if that would assure it is solvent in all future states — the insurance it buys from current cash sales essentially is a direct transfer to the bank's creditors. At the same time, anticipating a potential future fire sale, cash rich buyers have high expected returns to holding cash, which also reduces their incentive to lock up money in term loans. Thus the prospect of future fire sales could impair current lending. The potential for a worse fire sale than necessary, as well as the associated decline

in credit origination, could make the crisis worse. That is one reason it may make sense to clean up the system and to deal with the "walking wounded" banks, even in the midst of the crisis.

Finally, Krishnamurthy (15542) offers a careful empirical overview of the kinds of problems that pervaded debt markets. He focuses on the provision of risk capital, the willingness to undertake "repo" financing without demanding huge haircuts, and the willingness to take on counterparty risk. He then shows how these problems can explain a variety of interesting anomalies during the panic, including seemingly large arbitrage opportunities in the markets. For instance, he explains why the 30-year swap rate being below the Treasury rate implies an almost certain money making opportunity, but only if the arbitrageur has the risk capital, can assure market participants of his own good standing (counterparty risk), and can absorb the haircuts in borrowing that are applied in such stressed times. Given that all of these attributes were in short supply during the crisis, the arbitrage persisted for a while, available only to the most solid market participants (who indeed made extraordinary profits over this interval).

The Rescue Efforts

We now turn to the rescue efforts (or the bailouts, as some would, perhaps correctly, characterize them). Takeo Hoshi and Anil K Kashyap (14401) summarize the experience of the Japanese financial crisis and draw lessons about the design and the timing of bank rescue programs. The conclude that to effectively rebuild the balance sheet of banks, some mix of recapitalization and asset purchase is probably necessary — neither step alone is likely to be powerful enough to achieve this goal. They call attention to the importance of rigorous bank inspections prior to recapitalization to evaluate the size of the problem, and they observe that if the goal is to prevent further deterioration of asset values, troubled assets need to be restructured swiftly. They emphasize that macroeconomic recovery can help, and be helped by, bank recovery.

Pietro Veronesi and Luigi Zingales (15458) calculate the costs and benefits of U.S. government intervention in September–October 2008. They conclude that on net the intervention increased the value of financial claims on the banks by about $131 billion, at a cost to taxpayers of between $25 and $47 billion. They conclude that a bankruptcy would have destroyed about 22 percent of failing banks' value (they do not compute what the loss to the economy would have been if the banks failed, only the cost to the claimants on the banks). Their calculations suggest that the rescue plan came at a cost to taxpayers, but benefited the economy overall.

What did not cause the panic?

We have many theories of what caused the panic and the subsequent credit crunch, but also some theories of what did not. Christian Laux and Christian Leuz (15515) argue that it is unlikely that fair value accounting — roundly criticized by bankers — was responsible for the crisis. First of all, market values rather than accounting values enter many market contracts (such as how much collateral to demand). These would have been unaffected by fair value accounting. Second, not all changes in fair value enter the computation of bank's regulatory capital. Indeed, the researchers argue that from about the third quarter of 2007, banks used cash-flow-based models to value mortgage related securities, and therefore it is a myth that marking-to-market pricing was widespread for mortgage related securities. Third, even where fair value was used, it appears that if anything, banks overvalued their assets, especially where they had discretion. More generally, in my view, to the extent that regulatory capital binds, it would seem that rather than making accounting less transparent, regulators should have the ability to weaken capital requirements if they so choose. Moreover, the real problem with accounting in the midst of a crisis is the wide discretion that banks have — which reduces the transparency of their balance sheets — rather than the fact that they mark assets to unrepresentative prices.

Other Issues

The crisis led to a "sudden stop" of international capital flows into a large number of emerging markets. Hui Tong and Shang-Jin Wei (15207) analyze whether the volume and composition of capital flows into a country affected the extent of the crunch faced by its manufacturing sector. They find that on average the decline in stock prices was more severe for firms that were more dependent on external finance to fund their working capital. Further, while the overall volume of the pre-crisis capital flow into a country was not related to the severity of the stock price decline for dependent firms, the composition of capital inflows mattered. Dependent firms in countries that got more non-FDI (Foreign Direct Investment) inflows pre-crisis were affected by the crunch, while the effect was reversed in countries that had more exposure to FDI inflows pre-crisis. This adds to the literature suggesting not all forms of foreign capital inflows are risky, and that FDI inflows might be preferable to portfolio inflows. Of course, because one does not quite know whether the countries that get FDI inflows are special in a particular way, the results are suggestive rather than conclusive.

Finally, an overarching issue is whether an overpaid financial sector, contributing little to overall economic welfare, got the rest of the economy into trouble. Certainly, this is behind many reform proposals. Thomas Phillipon and Ariell Reshef (14644) address this issue and find that before the 1929 stock market crash, and before the Crash of 2008, finance jobs were indeed highly paid relative to the rest of the economy. In part, they attribute this to the greater complexity of finance jobs, and to the greater skills they required during this period. They do relate the higher required skill levels to deregulation, which seemed to expand access to credit to more corporations (as measured by Initial Public Offerings) and the greater willingness of the financial

sector in taking credit risk. Finally, they conclude that people in the financial sector do seem to have been overpaid by between 30 and 50 percent over the most recent period, despite the more complex work they did. The natural conclusion from all this is that as regulation clamps down on risk taking, finance salaries will come back to earth, but so will access to credit. Making finance boring will have costs but, as this article suggests, regardless of the reforms that are carried out, research in corporate finance promises to be interesting for years to come!

Research Summaries

Home Production, Consumption, and Labor Supply

Mark Aguiar and Erik Hurst*

The way that consumers allocate consumption expenditures over the life cycle, or across states of nature, is a fundamental concern in economics. However, as Reid,[1] Mincer,[2] and Becker[3] noted in seminal contributions, consumption can be viewed as the output of "home production," which uses inputs purchased in the market as well as non-market time. This implies that the allocation of time and resources via market transactions cannot be understood fully without also understanding how time is allocated outside of the market. As the relative price of their time falls, individuals will substitute away from market expenditures and use more of their own time to produce consumption commodities. Since an individual's opportunity cost of time has a direct bearing on her total cost of consumption, market expenditures may be a poor proxy for actual consumption.

**Aguiar and Hurst are Research Associates in the NBER's Program on Economics and Growth and professors of economics at the University of Rochester and the University of Chicago's Graduate School of Business, respectively. Their profiles appear later in this issue.*

The opportunity cost of allocating more time to market work is having less time available for non-market activities. To understand shifts in labor market activity, which are reflected in market hours, it is important to know whether the alternative non-market activities are substitutes for or complements to time devoted to market activities. In a series of papers, we study the role of the allocation of non-market time in determining both the behavior of market expenditures over the life cycle and the changing patterns of market hours during the last four decades.

Framework

We adopt Becker's modeling framework, in which the consumption commodities that enter the utility function are produced with a combination of time and market goods. When time and market goods are good substitutes in production, then we consider the time spent as home production, but when the two are poor substitutes, we consider the time leisure. For example, "television watching" and "eating a meal" are both consumption goods. Both combine individual time with market expenditures. However, television watching time and market goods (the television itself, a cable subscription, and so on) will likely be complements. It is relatively hard to economize on one's television watching time by increasing market purchases. In the meal example, however, time (preparation, clean up, and so on) and goods (groceries, kitchen durables, and the like) are substitutes. The substitutability results from the fact that individuals have the option of purchasing food prepared by others. How market expenditures evolve over the life cycle, and how home production evolves over time, thus depend on whether time and expenditures are complements (as in the first example) or substitutes (as in the second).

This framework is useful for understanding why food expenditure falls at retirement, while non-durable entertainment expenditure increases at the same time. It also can shed light on why the increase in women's labor force participation since the 1960s was associated with an increase in women's leisure time.

Home Production and the Retirement Consumption Puzzle

We first use this framework to address the so called "retirement consumption puzzle."[4] Previous authors have documented a dramatic decline in food expenditures as households transition from working to retirement. The decline has been interpreted as evidence that the average household receives adverse news about its lifetime resources upon retirement[5] or that households do not plan sufficiently for retirement[6]. However, we show that the decline in expenditure is matched by an equally dramatic rise in the time spent shopping for and preparing meals. A decline in the opportunity cost of time results in a reduction in expenditure and an increase in home production time for those goods for which time and expenditures are substitutes. This is particularly relevant for food expenditure, which has low income elasticity but a high degree of substitutability with non-market time. The low income elasticity often has been used to interpret the decline in food expenditure as having large welfare consequences, while the high degree of substitutability allows a starkly different interpretation.

The key empirical question is whether the observed decline in food expenditure at retirement represents an unanticipated jump in the marginal utility of consumption or optimal time re-allocation. Using detailed data on actual food diaries for a large cross-section of U.S. households (collected by the U.S. Department of Agriculture) we show that neither the quality nor the quantity of food intake deteriorates with retirement status. In other words, the retirement consumption puzzle is no puzzle at all: households smooth the marginal utility of consumption between their working and retirement years even though expenditure falls. Households do switch the composition of inputs toward home production time, a point confirmed by detailed time use diaries. These results highlight how direct measures of consumption can help us to distinguish between anticipated and unanticipated shocks to income while measures of expenditures may obscure the distinction.

Shopping, Home Production, and Food Expenditures over the Entire Life Cycle

In a related paper, we use detailed data on shopping time, prices paid, and time allocated to other types of home production to estimate structural parameters of shopping and home production technologies.[7] Our key innovation is the use of detailed scanner data on prices paid by households for a constant quality consumption good (as measured by universal product codes, UPCs) that is linked with detailed demographic data. This dataset comes from the Neilson Homescan Panel. We find that there is substantial heterogeneity in prices paid across households for identical consumption goods in the same metropolitan area at a given point in time. In particular, we find that prices paid are lowest and shopping intensities are highest later in the life cycle. Additionally, we document that lower income households systematically shop more and pay lower prices. The increased time allocated to shopping by older households is associated with more frequent visits to the same store as well as by more extensive use of store and manufacturers discounts. The data suggests that a doubling of shopping frequency lowers prices paid for a given good by 7 to 10 percent. Using this elasticity and observed shopping intensity, we can impute the shopper's opportunity cost of time. Our imputed measure tracks the life-cycle profile of wages rather closely, particularly after middle age.

Combining our new measure of the price of time with data on time spent in home production, we estimate the parameters of a home production function for food. We find an elasticity of substitution between time and market goods in home production of roughly 1.8. Using these elasticities, we translate observed market expenditures and time spent shopping and in home production into actual consumption equivalents. Like the results for retirement, we find that actual food consumption differs markedly from observed food expenditures over the life cycle. Food expenditures fall dramatically after the age of 45 while our estimates of actual food intakes increase slightly after middle age. We find that roughly 10 percent of the decline in food expenditures after middle age is attributable to lower prices paid because of an increase in shopping time. The other 90 percent is the result of increased time allocated to home production more broadly (which is primarily composed of the increased time spent preparing meals). These results highlight the danger of interpreting life-cycle expenditure without acknowledging the changing demands on time and the available margins of substituting time for money.

Work Related Expenses and Life-Cycle Expenditures

In a third paper, we explore the extent to which non-market production and work related expenses can explain the life-cycle trajectory of total expenditures; we move beyond food expenditures to address the life-cycle pattern of all non-durables.[8] Specifically, we reconsider two prominent features of life-cycle consumption expenditures. The first is the fact that expenditures are "hump" shaped over the life cycle, peaking in middle age and then declining steadily thereafter.[9] The second is that cross-sectional consumption inequality increases as individuals grow older.[10] Both have had tremendous influence on economists' inferences about household preferences, the income process that households face, and the extent to which public and private insurance markets limit household exposure to risk. The main empirical contribution of our paper is to revisit these two familiar facts by disaggregating non-durable expenditures into more detailed consumption categories.

We find that three categories (food, non-durable transportation, and clothing) account for the entire decline in mean expenditure post-middle age and for a substantial amount of the increase in cross-sectional dispersion over the life cycle. No other non-durable categories that we study show a decline in

mean expenditure over the life cycle or an increase in cross-sectional dispersion, particularly after the age of 40. We provide evidence that the categories driving the patterns of life-cycle non-durable expenditure are either inputs into market work (clothing and non-durable transportation) or are amenable to home production (food at home and food away from home). For example, using time diaries we show that after middle age, the use of work related transportation falls sharply while non-work related transportation actually increases. To the extent that non-durable transportation expenditures are proportional to transportation times, the fall in transportation expenditures is the result of declining commuting costs associated with market work. Demand system estimates confirm that controlling for work hours eliminates most of the decline in spending for clothing, non-durable transportation, and food away from home.

These results reinforce our earlier results that changes in the opportunity cost of time will cause movements in expenditures on certain goods even if there is no change in lifetime resources. We show that such a mechanism is responsible for explaining both the decline in non-durable spending after middle age and the increase in the cross-sectional variance of expenditure over the life cycle. We then discuss how the patterns documented in the paper suggest that prior inferences from consumption data regarding discount factors, the ability to plan, or the extent of uninsurable risk faced by households are sensitive to the inclusion of these work related expenses and home produced goods. In the last part of the paper we also show that work related expenses and home production explain a substantial portion of the change in consumption inequality that has occurred within the United States since 1980.

Home Production Time, the Evolution of Leisure, and Leisure Inequality

In two additional papers, we examine how changes in home production can influence trends in leisure levels and leisure inequality for men and women during the last forty years.[11] Using detailed time diaries from the United States recorded in 1965, 1975, 1985, 1992–4, and 2003–5, we find that both men and women have dramatically increased the time they allocate to "leisure." We define leisure as time not spent engaged in market production (work), home production (cooking, cleaning, shopping, and so on), and child care. Basically, our measure of "leisure" includes time spent socializing, going to movies, reading, watching television, listening to music, playing golf, and so on. In terms of the model discussed earlier, we think of leisure as the time input into the production of commodities, where time and expenditures are complements.

In the first paper, we find that prime aged, non-retired men increased their time allocated to leisure by about five hours per week between 1965 and 2005, most of which occurred prior to 1985. This was facilitated by a decline in the time allocated to market work. The time that men allocated to non-market work and child care actually increased during this period (by 3.5 and 1.8 hours per week respectively). For non-retired prime age women, leisure increased by roughly 3.5 hours per week between 1965 and 2005. Again, all of the gains occurred prior to 1985, with some reversal during recent periods. For women, the increase in leisure occurred despite the increase in time allocated to market work. This was possible because women in 2005 spent nearly 11 hours less per week on home production than similar women during the mid-1960s. Again, thinking about the nature of home production is essential for fully understanding the trends in leisure, given observed patterns of market work, particularly for women.

We also document that since 1985, there has been a substantial increase in leisure inequality, particularly for men. Over the last twenty years, male high school dropouts and high school graduates have increased the time they allocated to leisure (by 8.1 and 0.6 hours per week, respectively) while male college graduates recorded a decrease in leisure time (of 6.1 hours per week). Less educated men also decreased the amount of time they devoted to market work, and to home production, over this period. Similar differences in time allocation by education were found after conditioning on employment status. For example, among both unemployed men and disabled men, the less educated men had higher levels of leisure than the more educated men in 2005, while all men had similar allocations of time (conditional on employment status) regardless of education in 1985. The 2005 differences are the result of less educated non-employed men doing less home production, less job search, and less child care than the more educated non-employed men.

Conclusion

Collectively, our work shows that understanding the nature of non-market work is important for interpreting trends in market outcomes, such as household expenditures and labor supply, both over time and over the life cycle. The decline in consumption expenditures and the increase in consumption inequality observed after middle age can be linked to the changing allocation of time over the life cycle. Similarly, the large increase in labor supply observed for women over the last 40 years was accompanied by an even larger decline in home production, resulting in a net increase in leisure time. However, the substitution of market time for home production did not reverse itself for the declining labor supply of less educated men. This latter phenomenon has resulted in a large increase in leisure for this demographic group, opening a large "leisure gap" between educational groups that did not exist twenty years ago.

---

[1] *M. Reid,* Economics of Household Production, *New York, NY: John Wiley and Sons, 1934.*

[2] *J. Mincer, "Labor Force Participation of Married Women: A Study of Labor Supply", in* Aspects of Labor Economics, *an NBER-Universities Research Conference Volume, H. Lewis, ed.*

Princeton, NJ: Princeton University Press, 1962.
[3] *G. Becker, "A Theory of the Allocation of Time,"* The Economic Journal, *75 (1965), pp. 493–517.*
[4] *M. Aguiar and E. Hurst, "Consumption vs. Expenditure," NBER Working Paper No. 10307, February 2004, and* Journal of Political Economy, *113 (5) (October 2005), pp. 919–48.*
[5] *See, for example, J. Banks, R. Blundell, and S. Tanner, "Is There a Retirement Savings Puzzle?"* American Economic Review, *88(4) (1998), pp. 769–88.*
[6] *See, for example, B.D. Bernheim, J. Skinner, and S. Weinberg, "What Accounts for the Variation in Retirement Wealth among U.S. Households?" NBER Working Paper No. 6227, October 1997, and* American Economic Review, *91(4) (September 2001), pp. 832–57.*
[7] *M. Aguiar and E. Hurst, "Life Cycle Prices and Production," NBER Working Paper No. 11601, September 2005, and* American Economic Review, *97(5) (December 2007), pp. 1533–59.*
[8] *M. Aguiar and E. Hurst, "Deconstructing Life Cycle Expenditure," NBER Working Paper No. 13893, March 2008.*
[9] *See, for example, J. Heckman, "Life Cycle Consumption and Labor Supply: An Explanation of the Relationship between Income and Consumption over the Life Cycle,"* American Economic Review, *64(1) (1974), pp. 188–94.*
[10] *See, for example, A. Deaton and C. Paxson, "Intertemporal Choice and Inequality," NBER Working Paper No. 4328 April 1993, and* Journal of Political Economy, *102 (3) (1994), pp. 437–67.*
[11] *M. Aguiar and E. Hurst, "Measuring Trends in Leisure: The Allocation of Time Over Five Decades," NBER Working Paper No. 12082, March 2006, and* Quarterly Journal of Economics, *122(3) (August 2007), pp. 969–1006; and "The Increase in Leisure Inequality: 1965–2005," NBER Working Paper No. 13837, March 2008, and Washington DC: The AEI Press, 2009.*

The Effects of Medicaid Expansions and Welfare Reform on Fertility and the Health of Women and Children

Robert Kaestner*

Medicaid Expansions

Expansion of publicly-financed health insurance programs has been an integral feature of recent efforts to reduce the number of uninsured, non-elderly persons in the United States. The origin of this approach was the creation of Medicaid in 1965. The expansion of Medicaid eligibility to near-poor, pregnant women who were not eligible for Aid to Families with Dependent Children, which took place between 1986 and 1989, solidified the use of this approach for reducing the number of non-elderly uninsured.

The expansion of Medicaid and the creation of the *State Children's Health Insurance Program (*SCHIP) resulted in a large increase in the number of women and children with publicly financed health insurance. For example, between 1987 and 2008 the proportion of children under age 18 (under age 3) with publicly financed health insurance increased from 16 to 30 percent (20 to 38 percent). Surprisingly, though, the proportion of children without health insurance coverage did not decline commensurately with these changes. Between 1987 and 2008, the proportion of children under age 18 (age 3) without any health insurance coverage decreased from 13 percent to 10 percent (12 percent to 9 percent). The large increase in publicly provided health insurance coverage and the relatively small decrease in rates of uninsured between 1987 and 2008 suggest that part of the increase in participation in public programs came at the expense of private insurance coverage. This substitution of public for private health insurance coverage — "crowd out" — continues to be an important part of the debate over how to reduce the number of uninsured.[1]

While estimates of the extent of crowd out vary, most studies find some level of crowd out, which differs by age of child and by family income. For example, Yazici and I [2] estimate that approximately 15 percent of the increase in Medicaid enrollment among children up to age 9 between 1988 and 1992 was at the expense of private insurance. Two other important findings emerge from this analysis. First,

**Kaestner is a Research Associate in the NBER's Programs on Health Economics and the Economic Well-being of Children. He is also a Professor of Economics at the University of Illinois at Chicago. His profile appears later in this issue.*

the expansions were associated with an increase in enrollment for those who were always eligible for Medicaid. This might be because the expansions increased the proportion of persons enrolled in Medicaid and, as a result, decreased the stigma associated with participation. Or, it could be because the expansions increased the number of providers who serve Medicaid patients, thereby making it easier to find a provider and increasing the benefit of Medicaid participation. Second, much of the switching from private to public insurance occurred among families that suffered employment and income losses. For this group, publicly provided insurance was a much needed backstop, not simply a desirable alternative to private insurance.

Given that the Medicaid expansions initially were targeted at pregnant women, it is notable that there has been very little study of the issue of crowd out for that group. In a recent paper, some colleagues and I address this research gap using confidential data from the National Hospital Discharge Survey, which provides information about the health insurance coverage of women giving birth.[3] This study too has several notable findings. First, the effects of the Medicaid expansions differed significantly by the level of eligibility. Eligibility expansions that occurred in the late 1980s and were targeted at the poorest women resulted in significantly larger declines in the proportion of uninsured pregnant women than later expansions that targeted higher income groups. The differential declines in the proportion uninsured are attributable to much smaller relative declines in private insurance among the poorest women, which is reasonable given that they were least likely to be covered by private insurance prior to the expansion. However, because the expansions increasingly focused on women from higher income groups who were more at risk of switching from private insurance, the extent of crowd out grew over time. Indeed, our estimates suggest that up to 80 percent of the growth in Medicaid enrollment among women in the highest income eligibility groups came at the expense of private insurance.

While Medicaid and other publicly provided health insurance programs focus on health insurance coverage, the ultimate purpose of these programs is to improve the health of previously uninsured persons by giving them the financial means to obtain the care required to maintain good health. This purpose is explicit with regard to the initial expansions of Medicaid that were focused on pregnant women and that were partly motivated by the 1985 Institute of Medicine Report entitled *Preventing Low Birthweight*, which concluded that more and timelier prenatal care could reduce infant mortality by preventing low birth weight.

Surprisingly, after twenty years of study, the jury is still out on the efficacy of Medicaid in improving infant and child health. In a recent paper, my colleagues and I re-examine the relationship between the Medicaid expansions and infant health using the National Hospital Discharge Survey.[4] We ask whether the Medicaid expansions for pregnant women were associated with shorter stays in the hospital at the time of delivery for both the mother and child; with deliveries by cesarean section; and with deliveries in a public versus private hospital. Our results indicate that the Medicaid expansions were not significantly associated with these outcomes except in the case of cesarean section: the rates of cesarean section increased significantly as Medicaid eligibility expansion increased, but that was probably attributable to factors other than just Medicaid expansions.

We also examine the association between birth weight and the Medicaid expansions. We include arguably more complete controls than earlier studies did for the non-random nature of the Medicaid expansions, and we allow for different effects of the expansions depending upon the level of eligibility — higher levels of income eligibility should have had smaller effects, given our previous findings that higher levels of Medicaid eligibility were associated with smaller decreases in the proportion of women uninsured. Our results largely confirm our earlier findings and those of other researchers in suggesting that Medicaid expansions had little effect on infant health.[5] However, our study, like most of the previous studies, did not actually examine the effect of being covered by Medicaid on infant health, but rather the effect of being eligible for Medicaid. The former effect remains largely unknown because of the absence of adequate data, although in one study I examine the association between Medicaid participation (versus being uninsured) on infant health, as proxied by birth weight. I find little evidence that Medicaid participation improved birth weight.[6]

There are few studies of the effect of Medicaid expansions on child health, presumably because of the lack of suitable data for conducting them. In one study, colleagues and I use data from hospital discharge records to assess whether Medicaid expansions were associated with a decrease in children's admission to the hospital for ambulatory-care-sensitive conditions, which are illnesses that arguably can be avoided by adequate primary care.[7] We find that the Medicaid expansions were associated with a relatively large decrease, on the order of 10 to 20 percent, in the incidence of ambulatory-care-sensitive discharges among young children in low-income families, although the results were not uniform.

The Medicaid income-eligibility expansions of the late 1980s also may have affected fertility decisions of newly eligible groups of women, because the availability of Medicaid reduces the cost of giving birth and the costs of medical care for children in families eligible to participate. My colleagues and I examine this possibility in two papers.[8] Using information from several states, we find that the Medicaid expansions were associated with an increase in the birthrate among white women, but did not influence that rate among black women. This increase in birthrate was consistent with our findings related to abortion in a subsample of states. In these states, the Medicaid expansions were associated with a significant decline in the abortion rate among white women. Based on these results, we conclude that, in the states examined, subsidized health care for low-income preg-

nant women may have encouraged some groups of women to have more children (and fewer abortions) than they would have had without such coverage. These results and this issue are again relevant to current health care reform efforts because these efforts include expansions in publicly financed health insurance, although to groups with higher incomes than those that we studied.

Welfare Reform

One of the most important social policy changes in the last 40 years was enactment of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), which has become known as welfare reform. A major goal of welfare reform was to change the provisions in the welfare system that were believed to encourage behaviors such as out-of-wedlock birth that make welfare receipt more likely. Accordingly, PRWORA placed time limits on benefits, withheld cash assistance for increases in family size (that is, family cap), and required recipients to work. In short, welfare reform eliminated the AFDC program's entitlement to long-term income support for unmarried women with children. The objective was to reduce the benefits of welfare and to encourage women to avoid non-marital childbearing by either reducing fertility or increasing marriage.

In several papers, my colleagues and I investigate whether welfare reform changed fertility and marriage decisions. The most comprehensive of these studies uses data from all 50 states to investigate whether state and federal welfare reform in the 1990s reduced rates of non-marital childbearing among women aged 19 to 39 who were at highest risk of welfare use.[9] We find little consistent evidence for an effect of welfare reform on marriage or on non-marital childbearing. This is similar to the results in an earlier literature of little, or mixed, evidence that more generous levels of cash assistance in the AFDC program affected fertility. If anything, we find that AFDC waivers, which predated welfare reform, were associated with a negative effect of 7 to 9 percent on Hispanic women's fertility, and that federal welfare reform was associated with a small positive effect of between 3 and 4 percent for white and black women. However, the absence of a consistent set of findings — or example, a similar effect of a given policy for women of all race/ethnic groups — and the predominance of insignificant effects lead us to conclude that, in general, state and federal reform did not affect fertility. In another study, we use birth and abortion information for 24 states to estimate the effects of the family cap provisions of welfare reform on birth and abortion rates.[10] In family cap states, birth rates fell more and abortion rates increased more among high-risk women with at least one previous live birth than for similar childless women, which is consistent with an effect of the family cap. However, this parity-specific pattern of births and abortions also occurred in states that implemented welfare reform without a family cap. Thus, the effects of welfare reform may have differed between mothers and childless women, but there is little evidence of an independent effect of the family cap.

One explanation for these findings is that there are strong cohort patterns in non-marital fertility; exposure during the early teen years to a policy regime without a welfare entitlement might produce large behavioral changes for such "entering" cohorts but little change among older cohorts. To investigate this possibility, we use data from the National Longitudinal Surveys of Youth 1979 and 1997 to compare welfare use, fertility, and marriage among teenage women in the years before and immediately following welfare reform.[11] We find significant differences between cohorts in welfare use and in outcomes related to welfare use. Welfare reform is associated with reduced welfare receipt, reduced fertility, and reduced marriage among young women who, because of a disadvantaged family background, are at high risk of welfare receipt.

The goal of PRWORA was to change behavior, to decrease dependence on government assistance and to increase economic self-sufficiency. While the evidence suggests that welfare reform did not have a significant effect on marriage and fertility, it was very successful at reducing the welfare rolls and increasing work. Notably, the decline in the welfare caseload and the increase in employment among low-income, unmarried women may have significantly reduced the prevalence of health insurance among this group. Health insurance coverage for these families may have been adversely affected, because those who left or were deterred from entering welfare may have found it difficult to obtain Medicaid coverage because of administrative hurdles, and because many of the jobs that low-skilled women typically obtain after leaving welfare did not offer private health insurance. In turn, the loss of health insurance may have adversely affected these women's ability to obtain health care for themselves and their children, and may have adversely affected their health. In a series of papers, colleagues and I study these possible consequences of welfare reform.

In the first paper, we examine whether welfare reform affected health insurance coverage.[12] Our results indicate that changes in the welfare caseload were associated with an increase in the proportion of low-educated women and their children who are without health insurance. Our estimates also suggest that the 42 percent decrease in the caseload between 1996 and 1999 was associated with: a decrease in Medicaid participation of between 3 and 4 percentage points (between 7 and 9 percent); an increase in employer-sponsored insurance coverage of 2 percentage points (6 percent); and an increase in the proportion uninsured of between 0.5 and 2.5 percentage points (2–9 percent). For children in these families, the decline in the caseload between 1996 and 1999 was associated with similar, but smaller effects. We also estimate the effect of changes in the caseload attributable to state and federal welfare reform policy. Because welfare policy was responsible for only part, perhaps one third, of the decline in the caseload, welfare reform per se had significantly smaller effects on the health insurance

status of low-income families. However, we find that changes in the caseload due to state and federal welfare policy had fewer adverse consequences on insurance status than changes in the caseload due to other factors. This latter finding is plausible, because women induced to leave or not enter welfare because of government policy may be much more likely to take advantage of transitional Medicaid benefits and to find jobs that provide health insurance than women induced to leave the program because of a strong economy.

Given that we find that welfare reform was associated with some loss of health insurance, my colleagues and I examine whether this affected health care use and health of these women and their children. We first study pregnant women and ask whether welfare reform affected their use of prenatal care and infant health.[13] Our findings indicate that welfare reform had at most relatively small effects on the prenatal care use and infant health of low-educated unmarried women. Among unmarried women with less than 12 years of education, decreases in the welfare caseload were associated with less prenatal care and lower weight infants. Decreasing the welfare caseload over the 1990s was associated with a 2 percent decrease in first trimester care; a 10 percent increase in last trimester care; a 1 percent decrease in the number of prenatal care visits; and virtually no change in birth weight. Among unmarried women with 12 years of education, our estimates indicate similarly small effects. The relatively small effects of changes in welfare policy and welfare caseload on the prenatal care use and birth weight of low-educated women are consistent with the relatively small effect of welfare reform on health insurance.

In another study, Elizabeth Tarlov and I examine the effect of welfare reform on the health behaviors and health of low-educated women.[14] The motivation for this study is that many other single mothers who, in the absence of reform, would have entered welfare were deterred from doing so. The switch from subsidized household work (welfare) to paid employment, and other transitions experienced by women for whom welfare was no longer an option, may have affected health insurance, financial resources, time constraints, daily activities and responsibilities, and levels of psychological distress. All of these may have effects on women's health behaviors and health. Accordingly, we estimate the association between the welfare caseload and welfare policies and four health behaviors — smoking, binge drinking, diet, and exercise — and four self-reported measures of health — body mass and obesity, days in poor mental health, days in poor physical health, and general health status. The results of our study suggest that the decline in welfare participation as a result of welfare reform was associated with a decline in the incidence of binge drinking of 25 percent or more. Welfare reform does not appear to be related to other health behaviors such as smoking, diet, and exercise, or with other measures of health such as days in poor mental and physical health, body mass and obesity, and general health status, although there is some limited evidence that welfare reform was associated with a decrease in smoking prevalence.

---

[1] *Crowd out was first studied by NBER researchers David M. Cutler and Jonathan Gruber. See D. M. Cutler and J. Gruber, "Does Public Insurance Crowd Out Private Insurance?" NBER Working Paper No. 5082, April 1995, published in* Quarterly Journal of Economics, *May 1996, 111(2), pp.391–430.*

[2] *E. Y. Yazici and R. Kaestner , "Medicaid Expansions and the Crowding Out of Private Insurance," NBER Working Paper No. 6527, April 1998, published in* Inquiry, *2000, 37 (1): pp. 23–32.*

[3] *D. M. Dave, S. Decker, R. Kaestner, and K.I. Simon, "Re-examining the Effects of Medicaid Expansions for Pregnant Women," NBER Working Paper No. 14591, December 2008.*

[4] *Ibid.*

[5] *See for example L. Dubay, T. Joyce, R. Kaestner, and G. Kenney, "Changes in Prenatal Care Timing and Low Birth Weight by Race and Socioeconomic Status: Implications for the Medicaid Expansions for Pregnant Women,"* Health Services Research, *2001, 36(2): pp.373–98, and R. Kaestner, A. Racine, and T. Joyce, "Did Recent Expansions in Medicaid Narrow Socioeconomic Differences in Hospitalization Rates of Infants?,* Medical Care, *2000, 38(2): pp. 195–206.*

[6] *R. Kaestner, "Health Insurance, the Quantity and Quality of Prenatal Care, and Infant Health,"* Inquiry, *1999, 36 (2): pp. 162–75.*

[7] *R. Kaestner, T. Joyce, and A. Racine, "Does Publicly Provided Health Insurance Improve the Health of Low-income Children in the United States?" NBER Working Paper No. 6887, January 1999, published as "Medicaid Eligibility and the Incidence of Ambulatory Care Sensitive Hospitalizations for Children,"* Social Science and Medicine, *2000, 52: pp. 305–13.*

[8] *T. Joyce and R. Kaestner, "The Effect of Expansions in Medicaid Income Eligibility on Abortion"* Demography, *1996, 33(2): pp.181–92. Also T. Joyce, R. Kaestner, and F.Kwan, "Is Medicaid Pronatalist? Effects of the Medicaid Eligibility Expansions on Abortions and Births,"* Family Planning Perspectives, *1998, 30(3): pp. 108–13.*

[9] *T. Joyce, R. Kaestner, and S. Korenman, "Welfare Reform and Non-marital Fertility in the 1990s: Evidence from Birth Records," NBER Working Paper No. 9406, December 2002, published in* Advances in Economic Analysis and Policy, *2003, 3(1): Article Number 6. Also see N. Kaushal and R. Kaestner, "From Welfare to Work: Has Welfare Reform Worked?"* Journal of Policy Analysis and Management, *2001, 20(4): pp. 740–61.*

[10] *T. Joyce, R. Kaestner, S. Korenman, and S. Henshaw, "Family Cap Provisions and Changes in Births and Abortions," NBER Working Paper No. 10214, January 2004, published in* Population Research and Policy Review *23, 2004, (5): pp. 475–511. Also see S. Korenman, T. Joyce, R. Kaestner, and J. Walper, "What Did the 'Illegitimacy Bonus' Reward?" NBER Working Paper No. 10699, August 2004, published in* Topics in Economic Analysis and Policy, *2006, 6(1): Article Number 3.*

[11] *R. Kaestner, S. Korenman, and J. O'Neill, "Has Welfare Reform Changed Teenage Behaviors?" NBER Working Paper No. 8932, May 2002, published in* Journal of Policy Analysis and Management, *Spring 2003, 22(2): pp. 225–48.*
[12] *R. Kaestner and N. Kaushal, "The Effect of Welfare Reform on Health Insurance Coverage of Low-income Women and Children." NBER Working Paper No. 10033, October 2003, published in* Journal of Health Economics, *November 2003, 22(6): pp. 959–81.*
[13] *R. Kaestner and W. Lee, "The Effect of Welfare Reform on Prenatal Care and Birth Weight," NBER Working Paper No. 9769, June 2003, published in* Health Economics, *2005, 14(5): pp. 497–511.*
[14] *R. Kaestner and E. Tarlov, "Changes in the Welfare Caseload and Health of Low-educated Mothers," NBER Working Paper No. 10034, October 2003, published in* Journal of Policy Analysis and Management, *Summer 2006, 25(3): pp. 623–44.*

Insider Econometrics: Modeling Management Practices and Productivity

Kathryn L. Shaw*

Which management practices raise the productivity of workers within firms and by how much? Why does this occur, and what types of firms benefit the most from adopting new management practices? While this line of research tests microeconomic models, the results are of interest to policymakers who wish to model economic growth, and to managers who seek evidence to support or refute their views.

Labor Management Innovations are Ongoing

Over time, firms have changed the ways they manage people. Firms are using more incentive pay or rewards, teamwork, training, careful hiring, flexible job assignment, information sharing, and greater delegation of authority to lower levels within the firm. Figure 1 shows the increased use of teamwork, training, and incentive pay within a longitudinal sample of firms in the U.S. and U.K. valve-making industry. Among these small manufacturing firms, workers now do more problem-solving in teams, they are more highly trained, and their performance-based pay replaces hourly pay. These trends seem to prevail across the U.S. economy.[1] According to Lemieux, MacLeod, and Parent (2008), from 1976 to 1998 the percent of workers who were classified as "working in performance pay jobs" grew from 33 percent to 40 percent.[2]

While there is only limited time-series data that measure management innovations into the current decade, it appears that significant people management innovations are ongoing. Case study examples provide extensive and impressive evi-

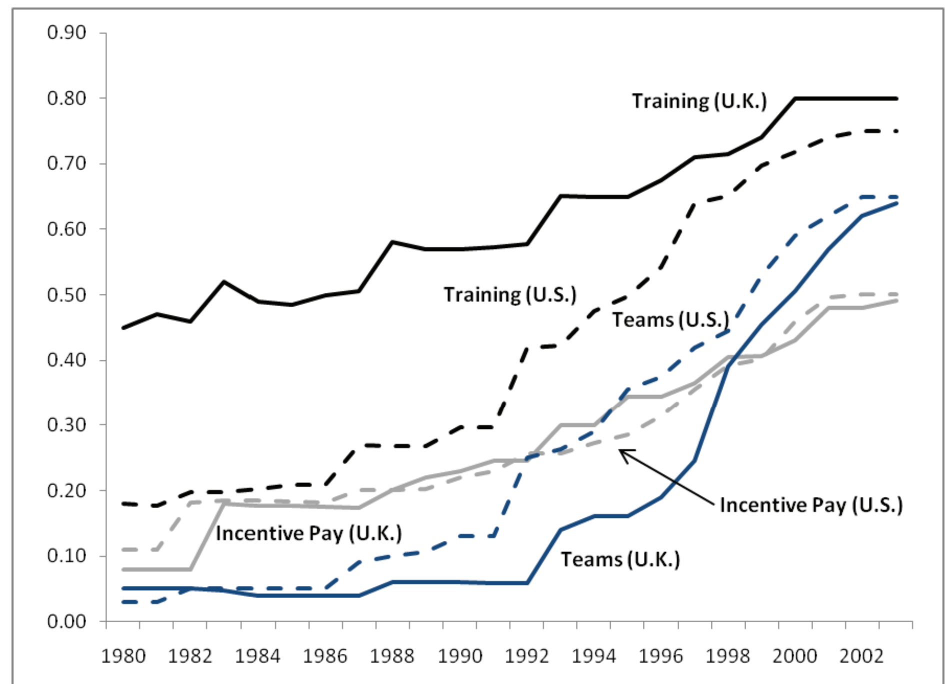

Figure 1. Management Practices Trends (U.K. and U.S.)
(Proportion of Valve-Making Plants with Practices)

* *Shaw is a Research Associate in the NBER's Productivity, Labor Studies, and Personnel Economics Programs. She is also Ernest C. Arbuckle Professor of Economics, Graduate School of Business at Stanford University. Her profile appears later in this issue.*

dence that firms continue to invest in new human resource (HR) management practices, and that many of these practices are combined with information technology innovations.[3]

Recent International Research on Management Practices

Over the last six years, the Alfred P. Sloan Foundation has sponsored an NBER project that delves deeply inside firms to examine the adoption and impact of innovative management practices, both within and across U.S. and European firms. Three NBER books summarize are the result of this project.[4]

In Freeman and Shaw (2009), the authors of the seven studies of multinationals conclude that even when multinational firms make similar products in similar plants across countries, any differences in capital or in the quality of their managers will result in different productivity levels across plants. There are country-specific differences in the rules and regulations of labor practices, but they have only modest effects on workers' productivity relative to the other sources of productivity differences. Across all countries, there is evidence that "new" HR practices are being adopted widely by firms. Also, when firms put in new practices, such as incentive pay, their workers respond in comparable ways across countries.

In Lazear and Shaw (2009), eleven teams of researchers from Europe and the United States examine the distributions of wages within and across firms, revealing international differences and similarities in the structure of wages.

Insider Econometrics is Used to Model the Impact of Management Practices on Performance

Researchers increasingly are using "insider econometrics" — that is, combining insights from "insiders" within firms and econometric modeling with microeconomic data — to estimate the impact of management practices on productivity, or to estimate why some firms adopt practices while others do not. The micro data describe the productivity of people, teams, and various units within firms (such as stores); increasingly, that data is available to economists, but not all of it lends itself to insider econometric analysis. What should researchers aim for in conducting such insider studies?

One set of key features of insider econometric research is described in Ichniowski and Shaw (2009).[5] In particular, the researcher must find a treatment — that is, a management practice that has either changed within the firm or changed across very similar firms. Researchers must then model why the management practice is effective, and why some firms or workers benefit more than others. The researcher also will aim to model fundamental economic behavior, so that the results of an insider study can be generalized to other firms or industries. And, the micro data gathered should balance homogeneity and heterogeneity. That is, the more homogeneous the units — such as the people or the stores — the more persuasively the researcher can argue about modeling the production function. Yet there must be heterogeneity, or variance, in the HR practice across people or stores, to enable an estimate of the effect of the HR practice on productivity.

How much do HR practices raise productivity, and why?

New HR management practices, like incentive pay, have the potential to substantially raise productivity. Consider the evidence from several insider studies; many more are reviewed in Ichniowski and Shaw (2009).[6] Using data from integrated steel mills, we find that productivity rises by 10 percent when incentive pay and a set of complementary HR practices are introduced. Using data on workers installing windshield in cars, Lazear (2000) shows that productivity increases by 44 percent when piece-rate pay is introduced. Using data on workers picking fruit, Bandiera, Barankay, and Rasul (2005) show that productivity rises by 58 percent when piece-rate pay is introduced.

These studies, and other similar insider studies, show not just how much productivity rises because of management innovations, but also *why* productivity rises. The reason for the change in productivity is often more important than the size of the gain. Consider the integrated steel industry: Figures 2 and 3 display the communications patterns among workers in that industry.[7] The steel mills with systems of innovative management practices (like teamwork and incentive pay) had workers who communicated daily with each other to solve problems (Figure 2).

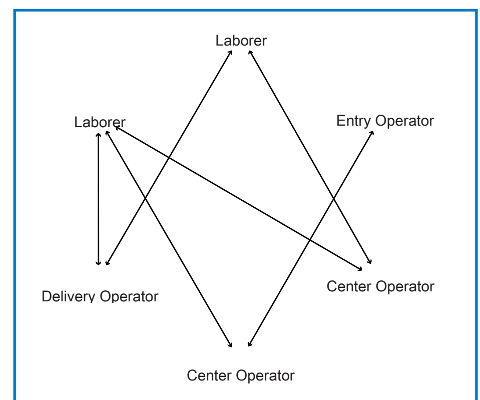

Figure 2. Communications problem-solving network for steel mills with innovative management practices.

The steel mills that had none of these innovative practices had little communication among their operators (Figure 3).

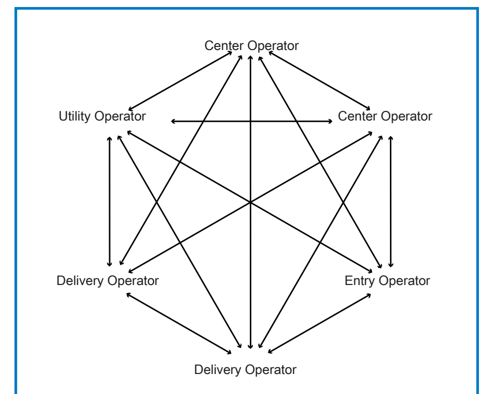

Figure 3. Communications problem-solving network for steel mills with traditional management practices.

While steel is not a big segment of our economy, the communications networks portrayed in these figures are likely repre-

sentative of the variety of social networks in many different types of firms. Firms don't just invest in the human capital of individual employees but also in the "connective capital" in which employees form communication links that support their problem-solving activities and teamwork.[8]

These studies identify three basic reasons why productivity rises. First, management practices induce workers to work harder or smarter. Incentive pay raises effort. Problem-solving through teamwork raises the quality and quantity of the output. Second, the firm's adoption of a management practice, like incentive pay, induces optimal sorting. Firms and workers are matched: the firms that have the biggest gains to incentive pay, in their production environment, will develop incentive pay plans that attract the workers who are most productive. Third, the firm can package together different HR practices to form a complementary systems of HR practices that together raise productivity. Adopting incentive pay is more effective when the firm also adds more on-the-job training or team problem solving.

Modeling "HR Technology Shocks"

If human resource management practices can raise performance, why haven't all firms found their optimal practices? It seems that there are three sources of disequilibrium. First, there are time-series "HR technology shocks" to optimal best practices. Knowledge of how to use HR practices evolves and improves over time.[9] Thirty years ago, hourly pay or promotions based on seniority were common HR practices; today, variable pay and promotions based on performance are increasingly standard practices. Second, there are cross-sectional shocks that cause firms to adjust their HR practices. Firms enter the market with new products or processes that cause existing firms to change product market strategies or processes. Third, firms may decide to experiment with new HR practices, because some have not yet found their optimal practices, or because their internal conditions are changing.

Which firms adopt innovative management practices?

If HR practices can significantly improve productivity, why do some firms adopt incentive pay while others do not? The firm's choice of its optimal HR practices depends on its choice of product market strategy. Therefore, optimal HR practices vary across firms, because of differences in firms' product markets, production processes, and labor markets. Consider the airline industry: Southwest Airlines offers low-cost service on short flights and uses team-based HR practices with high levels of incentive pay. United offers premium services and uses HR practices to complement those high-level services. There are common trends in the "best practices" in the industry — both of these airlines now pay for performance — but the set of HR practices that support Southwest Airlines are different from those that support United.

Because HR practices depend on the firm's product market strategy or production process, researchers must look within industries to understand the optimal use of HR practices and the productivity gains. We have considered in some depth, for example, the software industry (Andersson, Freedman, Haltiwanger, Lane and Shaw, 2008).[10] In most software companies, the employees are working on new-product innovations. But software companies differ markedly. In firms that produce products like video games, there are huge potential upside gains to producing a new big-selling game. In companies that produce software for large firms, like mainframe software, the potential upside gains are small. Software firms' HR practices reflect their product market strategy. The video game firms with the high potential upside gains use higher levels of pay and higher incentive pay to all employees, whether the firm actually succeeds or not.

Another example from within the valve-making industry, which I discussed earlier, shows that investments in management practices follow strategy. Figure 1 displayed the HR practices within this industry. Using data on 212 firms within the industry, Bartel, Ichniowski and Shaw (2007) show that new information technologies have raised productivity. However, new information technology (IT) is adopted most often by the firms that produce customized products, instead of commodities. And, when new IT is adopted, new HR practices are also more likely to be adopted.

In these cases, best practices for people management indeed have changed over time. However, but there remains tremendous variance in the adoption of practices across firms as product market strategy determines optimal practices. Insider econometric analysis models this variation in adoption across firms, uncovering results that would not be possible using aggregate industry-level or aggregate firm-level data.

---

[1] *E. P. Lazear and K.L. Shaw "Personnel Economics: The Economist's View of Human Resources," NBER Working Paper No. 13653, November 2007, and* Journal of Economic Perspectives, *21 (4), (Fall 2007), pp. 91–114; K. L. Shaw, "The Human Resources Revolution: Is it a Productivity Driver?" in* Innovation Policy and the Economy, *A. Jaffe, J. Lerner, and S. Stern, eds. Chicago, IL: University of Chicago Press for NBER, 2003, pp. 69–114.*

[2] *K. L. Shaw, "People Management Practices and Productivity," Briefing for the Federal Reserve Board, forthcoming as an NBER Working Paper.*

[3] The Analysis of Firms and Employees: Quantitative and Qualitative Approaches, *S. Bender, J. Lane, K. L. Shaw, F. Andersson, and T. Von Wachter, eds., Chicago, IL: University of Chicago Press for NBER, 2008.* The Structure of Wages: An International Comparison, *E.P. Lazear and K. L. Shaw, eds., Chicago, IL: University of Chicago Press for NBER, 2009. (This book was listed as one of the Noteworthy Books in Industrial Relations and Labor Economics for*

2009, by the Industrial Relations Section, Princeton University.) International Differences in the Business Practices and Productivity of Firms*, R.B. Freeman and K.L. Shaw, eds., Chicago, IL: University of Chicago Press for NBER, 2009.*

[4] *C. Ichniowski and K.L. Shaw, "Insider Econometrics: A Roadmap for Estimating Empirical Models of Organizational Design and Performance," forthcoming as an NBER Working Paper.*

[5] *The three studies are: C. Ichniowski, K.L. Shaw and G. Prennushi, "The Effects of Human Resource Management Practices on Productivity," NBER Working Paper No. 5333, and* American Economic Review, *86 (June 1997), pp. 291–313; E.P.Lazear, "Performance Pay and Productivity,"* American Economic Review, *90 (5) (2000), pp.1346–61; and O. Bandiera, I. Barankay, and I. Rasul, "Social Preferences and the Response to Incentives: Evidence from Personnel Data,"* Quarterly Journal of Economics, *120 (3) (2005), pp. 917–62.*

[6] *J. Gant, C. Ichniowski, and K. L. Shaw, "Social Capital and Organizational Change in High-Involvement and Traditional Work Organizations,"* Journal of Economics and Management Strategy, *11 (2) (Summer 2002), pp. 289–328.*

[7] *N. Bloom and J. Van Reenen, "Measuring and Explaining Management Practices Across Firms and Countries," NBER Working Paper No. 12216, May 2006, and* Quarterly Journal of Economics, *122 (4) (November 2007), pp. 1351–1408.*

[8] *C. Ichniowski, and K.L. Shaw, "Connective Capital: Building Problem-Solving Networks within Firms," forthcoming as an NBER Working Paper.*

[9] *Bloom and Van Reenen (2007) strikingly make this point — that best practices have evolved over time in manufacturing — for the U.S. and Europe, and for the rest of the world. See Shaw (2003) and Lazear and Shaw (2007) for a discussion of HR technology shocks.*

[10] *F. Andersson, M. Freedman, J .C. Haltiwanger, J.Lane, and K.L. Shaw, "Reaching for the Stars: Who pays for Talent in Innovative Industries?" NBER Working Paper No.12435, August 2006, and* Economic Journal, *Royal Economic Society, 119, (538) (2006), pp. F308–F332.*

NBER Profile: *Mark Aguiar*

Mark Aguiar is a Research Associate in the NBER's Program on Economic Fluctuations and Growth and the Program on International Finance and Macroeconomics. He is also a professor of economics at the University of Rochester.

Aguiar received his Ph.D. in economics from MIT in 1999. He began his academic career at the University of Chicago's Graduate School of Business before moving to the Federal Reserve Bank of Boston in 2004 and then to the University of Rochester in 2006.

Aguiar's research addresses issues in open- and closed-economy macroeconomics. He has studied emerging market business cycles, sovereign debt, the political economy of capital taxation, and growth. His recent research considers the implications of "sovereign debt overhang" for volatility and growth in developing economies.

Aguiar has also investigated life-cycle consumption, time allocation, and trends in labor supply. He is currently exploring recent trends in consumption and leisure inequality.

Aguiar is an associate editor at the *Review of Economic Dynamics* and is on the board of editors of the *AEJ: Macroeconomics*. He lives in Pittsford, NY with his wife, two daughters, and his dog.

NBER Profile: *Erik Hurst*

Erik Hurst is a Research Associate in NBER's Programs on Economic Fluctuations and Growth, Public Economics, and Aging. He is also the V. Duane Rath Professor of Economics at the University of Chicago's Booth School of Business.

Hurst received a B.A. in economics from Clarkson University in 1993, an M.A. from the University of Michigan in 1995, and a Ph.D. from the University of Michigan in 1999. He joined Chicago's faculty in 1999. He is also on the board of editors of the *AEJ: Macroeconomics*.

Hurst's main area of research is household financial behavior. He has studied, for example, the importance of signaling in explaining the conspicuous consumption patterns across races, and the role that parents play in shaping their children's saving propensities. Currently, Hurst is analyzing the role of neighborhood externalities in explaining house-price dynamics, and the extent to which reductions in labor supply barriers for Blacks and women have increased measured U.S. productivity.

Hurst lives in Chicago with his wife and two children. Outside of economics, he is a die-hard fan of the Miami Dolphins and a connoisseur of American television.

NBER Profile: *Robert Kaestner*

Robert Kaestner, who became an NBER affiliate in 1990 and a Research Associate in 1995, is a member of the NBER's Programs on Health Economics and on the Economic Well-Being of Children. He is also a Professor in the Institute of Government and Public Affairs of the University of Illinois and a Professor in the Department of Economics at the University of Illinois at Chicago.

Kaestner received both his B.A. in Political Science and History and his M.A. in Economics from the State University of New York at Binghamton. He received his Ph.D. in Economics from City University of New York. Prior to moving in Chicago, he taught at a number of New York-area colleges and universities, including Lehman College, Rider University, City University of New York, and Baruch College. He has also been a Visiting Professor at Princeton's Woodrow Wilson School and the University of Chicago's Harris School of Public Policy.

Kaestner's research focuses on health, labor, and social policy. His is currently studying a variety of topics including the consequences of minimum legal drinking age laws on adult alcohol use and traffic fatalities, the effects of urban sprawl on obesity over the last thirty years, the effect of child care quality on child development, the efficacy of inpatient spending on Medicare recipients' mortality, and the effects of immigrant nurses on the wages and employment of domestic nurses.

Kaestner lives in Chicago with his wife, Caren Rawlins, and daughter, Alessandra. When not at work, he enjoys cooking, fishing, hiking, and playing soccer with his daughter.

NBER Profile: *Kathryn L. Shaw*

Kathryn L. Shaw is a Research Associate in the NBER's Programs on Labor Studies and Productivity and the Ernest C. Arbuckle Professor of Economics at the Graduate School of Business, Stanford University. She completed her Ph.D. in economics at Harvard University in 1981. Before joining the Stanford faculty, she was a Member of President Clinton's Council of Economic Advisers (1999–2001). She was also the Ford Distinguished Research Chair and Professor of Economics at the business school at Carnegie Mellon University.

In 2008, Shaw was elected a Fellow of the Society of Labor Economists. She also has received several teaching awards, was the Trust Faculty Fellow at Stanford for 2005–6, and is the recipient of the Xerox Research Chair. She has served on a Research Panel of the NSF and is an editor of several academic journals.

Shaw lives in Palo Alto where the mountains, and biking, and running, and her family with three children are all "enjoyable distractions."

Conferences

Regulation and Litigation Conference

The NBER held a conference on "Regulation and Litigation" on September 11–12, 2009. The organizers, NBER Research Associates Daniel Kessler of Stanford University and Andrei Shleifer of Harvard University, chose the following papers for discussion:

- **Richard Posner,** United States Court of Appeals, "Regulation vs. Litigation: An Analytical Framework"
- **Andrei Shleifer,** "Efficient Regulation"
- **Frederick Schauer,** University of Virginia, and **Richard Zeckhauser,** Harvard University and NBER, "The Trouble with Cases" (NBER Working Paper No. 15279)
- **Joni Hersch,** Vanderbilt University, and **Kip Viscusi,** Vanderbilt University and NBER, "Tobacco Regulation through Litigation: The Master Settlement Agreement"
- **Philip Cook,** Duke University and NBER; **Jens Ludwig,** University of Chicago and NBER; and **Adam Samaha,** University of Chicago, "Gun Control after Heller: Litigating against Regulation"
- **John Coates,** Harvard University, "M&A Break Fees: U.S. Litigation vs. U.K. Regulation"
- **Dana Goldman,** RAND and NBER; **Tomas Philipson,** University of Chicago and NBER; and **Eric Sun,** RAND, "The Effects of Product Liability Exemption in the Presence of the FDA"
- **Stephen Parente,** University of Minnesota, "Exploring Ex Ante Regulatory Mechanisms for Detecting Prescription Drug Misuse"

- **Tom Chang,** University of Southern California, and **Mireille Jacobson,** RAND and NBER, "Using Cap-and-Trade to Regulate Hospitals' Provision of Essential Services"
- **Alison Morantz,** Stanford University, "Opting Out of Workers' Compensation in Texas: A Survey of Large, Multi-State Nonsubscribers"
- **Adam Gailey** and **Seth Seabury,** RAND, "The Impact of Employment Protection on Workers Disabled by Workplace Injuries"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/RLf09/summary.html

NBER's 24th Tax Policy and the Economy Conference Held in Washington

The NBER's 24th Conference on Tax Policy and the Economy took place at the National Press Club in Washington on September 24, 2009. NBER Research Associate Jeffrey R. Brown of the University of Illinois at Urbana-Champaign organized this year's meeting. The following papers were discussed:

- **Gilbert E. Metcalf**, Tufts University and NBER, "Investment in Energy Infrastructure and the Tax Code"
- **J. Karl Scholz**, University of Wisconsin, Madison and NBER, and **Robert A. Moffitt**, Johns Hopkins University and NBER, "Trends in the Level and Distribution of Income Support"
- **Alberto F. Alesina**, Harvard University and NBER, and **Silvia Ardagna**, Harvard University, "Large Changes in Fiscal Policy: Taxes versus Spending"
- **Mihir A. Desai** and **Monica Singhal**, Harvard University and NBER, and **Dhammika Dharmapala**, University of Illinois, "Tax Incentives for Affordable Housing: The Low Income Housing Tax Credit"
- **Matthew D. Shapiro** and **Joel B. Slemrod**, University of Michigan and NBER, and **Claudia A. Sahm**, Federal Reserve Board, "Household Response to the 2008 Tax Rebates: Survey Evidence and Aggregate Implications"
- **Bruce D. Meyer**, University of Chicago and NBER, "The Effects of the EITC and Recent Reforms"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/TPE09/summary.html

Frontiers in Health Policy Research

The NBER's 13th Annual Conference on "Frontiers in Health Policy Research" took place in Washington on October 14, 2009. David M. Cutler, NBER and Harvard University; Alan M. Garber, NBER and Stanford University; and Dana Goldman and William B. Vogt, NBER and RAND, jointly organized the conference. The following papers were presented:

- **Gabriel Aranovich**, University of California, San Francisco; and **Jay Bhattacharya**, **Alan M. Garber**, and **Thomas MaCurdy**, Stanford University and NBER, "Coping with Chronic Disease: Chronic Disease and Disability in the Elderly American Population 1982–1999"

- **Murray Aitken**, IMS Health; **Mark Trusheim**, MIT; and **Ernst R. Berndt**, MIT and NBER, "Characterizing Markets for Biopharmaceutical Innovation: Do Biologics Differ from Small Molecules?"

- **Gary Burtless**, Brookings Institution, and **Pavel Svaton**, Toulouse, France, "Health Care, Health Insurance, and the Distribution of American Incomes"

- **Kenneth Y. Chay**, Brown University and NBER, and **Daeho Kim** and **Shailender Swaminathan**, Brown University, "Medicare, Hospital Utilization, and Mortality: Evidence from the Program's Origins"

- **Tomas J. Philipson**, University of Chicago and NBER; **Eric Sun**, University of Chicago; **Dana Goldman;** and **Anupam B. Jena**, Harvard Medical School, "A Re-Examination of the Costs of Medical R&D"

- **Lindsey Leininger**, University of Wisconsin; **Helen Levy**, University of Michigan; and **Diane Whitmore**, University of Chicago and NBER, "Consequences of Public Health Insurance Expansions for Household Well-Being"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/FHf09/summary.html

Economics of Religion

An NBER Conference on the Economics of Religion, organized by Jon Gruber, NBER and MIT, and Daniel Hungerman, NBER and University of Notre Dame, took place in Cambridge on October 15 and 16, 2009. These papers were discussed:

- **Kaivan Munshi**, Brown University and NBER, and **Nicholas Wilson**, Williams College, "Identity, Parochial Institutions, and Occupational Choice: Linking the Past to the Present in the American Midwest" (NBER Working Paper No. 13717)

- **Shawn Kantor** and **Alexander Whalley**, University of California, Merced and NBER, "The Ascendancy of America's Colleges and Universities: Separating the Roles of Church and State"

- **Dan Benjamin**, Cornell University and NBER; **James Choi**, Yale University and NBER; and **Geoffrey Fisher**, Cornell University, "Religious Identity and Economic Behavior"

- **Gordon Hanson**, University of California , San Diego and NBER, and **Chong Xiang**, Purdue University and NBER, "Exporting Christianity: Governance and Doctrine in the Globalization of Protestant Denominations"

- **Robert Woodberry**, University of Texas at Austin, "Weber through the Back Door: Protestant Competition, Elite Dispersion and the Global Spread of Democracy"

- **Jay Hartzell**, University of Texas at Austin; **Christopher Parsons**, University of North Carolina; and **David Yermack**, New York University, "Is a Higher Calling Enough? Incentive Compensation in the Church"

- **Raphael Franck**, Bar Ilan University, and **Laurence Iannaccone**, George Mason University, "Why did Religiosity Decrease in the Western World during the Twentieth Century?"

- **Sascha Becker**, University of Stirling, and **Ludger Woessmann**, University of Munich, "Dead End: Protestants and Suicide"

- **Murat Iyigun**, University of Colorado, "Monotheism (From a Sociopolitical & Economic Perspective)"

- **Erik Meyersson**, Institute for International Economic Studies, "Islamic Rule and the Emancipation of the Poor and Pious"

- **Stelios Michalopoulos**, Tufts University; and **Alireza Naghavi** and **Giovanni Prarolo**, University of Bologna, "The Economic Origins of Islam: Theory and Evidence"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/ERf09/summary.html

Accelerating Energy Innovation: Lessons from Multiple Sectors

The NBER's Program on Environmental and Energy Economics and the Program on Productivity held a conference in Washington, DC on October 23, 2009 to present the findings of a forthcoming book titled *Accelerating Energy Innovation: Lessons from Multiple Sectors.* The volume was edited by NBER Research Associate Rebecca Henderson of Harvard University and Richard G. Newell of Duke University (on leave from NBER). The conference program was:

- Introduction and Keynote Speaker: **Steven E. Koonin**, Under Secretary for Science, U.S. Department of Energy

Agriculture, Chemicals and Pharmaceuticals/Biotechnology

- **Tiffany Shih** and **Brian Wright**, University of California at Berkeley, "Agricultural Innovation"

- **Ashish Arora**, Duke University and NBER, and **Alfonso Gambardella**, Bocconi University, "Implications for Energy Innovation from the Chemical Industry"

- **Iain Cockburn**, Boston University and NBER; **Scott Stern**, Northwestern University and NBER; and **Jack Zausner**, Northwestern University, "Finding the Endless Frontier: Lessons from the Life Sciences Innovation System for Energy R&D"

Semiconductors, Computers and the Internet

- **David Mowery**, University of California at Berkeley and NBER, "Federal Policy and the Development of Semiconductors, Computer Hardware, and Computer Software: A Policy Model for Climate Change R&D?"

- **Shane Greenstein**, Northwestern University and NBER, "Nurturing the Accumulation of Innovations: Lessons from the Internet"

- Panel: **Mary Bohman**, Division Director, Economic Research Service, U.S. Department of Agriculture; **Michael Holland**, Senior Advisor, Office of the Under Secretary for Science, U.S. Department of Energy; **Carl Shapiro**, Chief Economist, U.S. Department of Justice; **Bill Valdez**, Office of Science, U.S. Department of Energy; and **Jeannette Wing**, Assistant Director, National Science Foundatio

- **Rebecca Henderson**, Harvard University and NBER, "Summary"

Additional Chapters:

- **Joshua Lerner**, Harvard University and NBER, "Venture Capital and Innovation in Energy"

Summaries of these papers and more information on the book and the conference may be found at:
http://www.nber.org/confer/2009/EIf09/summary.html

Quantifying Systemic Risk

The National Bureau of Economic Research and the Federal Reserve Bank of Cleveland jointly organized a conference on Quantifying Systemic Risk which took place in Cambridge on November 6, 2009. Joseph Haubrich, Federal Reserve Bank of Cleveland, and Andrew Lo, NBER and MIT, organized the conference. These papers were discussed:

- **Sujit Kapadia, John Elliott,** and **Gabriel Sterne**, Bank of England, and **Matthias Drehmann** Bank of International Settlements, "A Quantitative Model of Systemic Liquidity Risk"
- **Gianni De Nicolo**, International Monetary Fund, and **Marcella Lucchetta**, University of Verona, "Systemic Risk and the Macroeconomy"
- **Jon Danielsson** and **Jean-Pierre Zigrand**, London School of Economics, and **Hyunsong Shin**, Princeton University, "Risk Appetite and Endogenous Risk"
- **Tobias Adrian**, Federal Reserve Bank of New York, and **Markus K. Brunnermeier**, Princeton University, "CoVar"
- **Romney B. Duffey**, Atomic Energy of Canada Limited, "The Quantification of Systemic Risk and Stability: New Methods and Measures"
- **Viral V. Acharya, Lasse Pedersen, Thomas Philippon**, and **Matthew Richardson**, New York University and NBER; and **Ashley Lester**, New York University, "Regulating Systemic Risk"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/QSR09/summary.html

NBER News

Former NBER President Dies in Cambridge

John R. Meyer, who served as President of the NBER from 1967 to 1977, died in Cambridge on October 20, 2009. Meyer, who was widely recognized for his pioneering contributions in transportation and urban economics, had retired as the James W. Harpel Professor of Capital Formation at Harvard's Kennedy School of Government in 1999.

Meyer was a tenured professor in Harvard's economics department from 1955 to 1968. After he became President of the NBER, then headquartered in New York City, he moved closer to its offices and began teaching in Yale University's economics department where he remained until 1973. He then returned to Cambridge and taught at the Harvard Business School from 1973 to 1983, at which time he joined the faculty of the Kennedy School of Government.

In addition to his research, teaching, and NBER roles, Meyer also served as vice chairman and board member of Union Pacific Railroad, and as an advisor to the U.S. Department of Transportation. At the time of his death, he was completing a manuscript on the forces that shaped the regulation of the American railroad industry in the twentieth century.

Program and Working Group Meetings

Market Microstructure

The NBER's Working Group on Market Microstructure met in Cambridge on October 2. Group Director Bruce Lehmann of University of California, San Diego along with Charles Jones, Stanford University Graduate School of Business, Eugene Kandel, Hebrew University, Jerusalem, and Avanidhar Subrahmanyam, University of California, Los Angeles, chose these papers for discussion:

- **Lawrence Glosten**, Columbia University, "Welfare Cost of Informed Trade"
- **Zhiguo He**, University of Chicago, and **Wei Xiong**, Princeton University and NBER, "Liquidity and Short-Term Debt Crises"
- **Terrence Hendershott**, University of California, Berkeley, and **Albert Menkveld**, VU University Amsterdam, "Price Pressures"
- **Albert Kyle** and **Anna Obizhaeva**, University of Maryland, "Market Microstructure Invariants"
- **Paul Tetlock**, Columbia University, "Does Public Financial News Resolve Asymmetric Information?"
- **Dimitri Vayanos**, London School of Economics and NBER, and **Jiang Wang**, MIT and NBER, "Liquidity and Asset Prices: A Unified Framework" (NBER Working Paper No. 15215)

Summaries of these papers may be found at: http://www.nber.org/confer/2009/MMf09/summary.html

International Finance and Macroeconomics

The NBER's Program on International Finance and Macroeconomics met in Cambridge on October 9, 2009. NBER Research Associates Charles Engel of the University of Wisconsin and Linda Tesar of the University of Michigan organized the meeting. These papers were discussed:

- **Andrew K. Rose**, University of California, Berkeley and NBER, and **Mark M. Spiegel**, Federal Reserve Bank of San Francisco, "Cross-Country Causes and Consequences of the 2008 Crisis: Early Warning" and "Cross-Country Causes and Consequences of the 2008: International Linkages and American Exposure" (NBER Working Paper No. 15357 and 15358)
- **Laura Alfaro**, Harvard University and NBER, and **Faisal Ahmed**, University of Chicago, "The Price of Capital: Evidence from Trade Data"
- **Eduardo Borensztein**, Inter-American Development Bank; **Olivier Jeanne**, Johns Hopkins University and NBER; and **Damiano Sandri**, IMF, "Macro-Hedging for Commodity Exporters"
- **Nicolas Coeurdacier**, London Business School, and **Pierre-Olivier Gourinchas**, UC, Berkeley and NBER, "When Bonds Matter: Home Bias in Goods and Assets"

- **Oscar Jorda**, University of California, Davis, and **Alan Taylor**, University of California, Davis and NBER, "The Carry Trade and Fundamentals: Nothing to Fear but FEER Itself"
- **Bernard Dumas**, INSEAD and NBER; **Karen Lewis**, University of Pennsylvania and NBER; and **Emilio Osambela**, Carnegie-Mellon University, "Differences of Opinion in an International Financial Market Equilibrium"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/ifmf09/summary.html

Household Finance

The NBER's Working Group on Household Finance met in Cambridge on October 16, 2009. Organizers Nicholas Souleles, NBER and Wharton School, and Peter Tufano, NBER and Harvard Business School, chose these papers to discuss:

- **Tomasz Piskorski**, Columbia University; **Amit Seru**, University of Chicago; and **Vikrant Vig**, London Business School, "Securitization and Distressed Loan Renegotiation: Evidence from the Subprime Mortgage Crisis"
- **Susan E. Woodward**, Sand Hill Econometrics, and **Robert E. Hall**, Stanford University and NBER, "The Equilibrium Distribution of Prices Paid by Imperfectly Informed Customers: Theory and Evidence from the Mortgage Market"
- **Motohiro Yogo**, University of Pennsylvania and NBER, "Portfolio Choice in Retirement: Health Risk and the Demand for Annuities, Housing, and Risky Assets" (NBER Working Paper No. 15307)
- **Bruce Ian Carlin**, University of California, Los Angeles and NBER, and **Simon Gervais**, Duke University, "Legal Protection in Retail Financial Markets"
- **Shawn Cole**, Harvard University; **Xavier Giné**, World Bank; **Jeremy Tobacman**, University of Pennsylvania and NBER; **Petia Topalova**, IMF; **Robert Townsend**, MIT and NBER; and **James Vickery**, Federal Reserve Bank of New York, "Barriers to Household Risk Management: Evidence from India"
- **Marianne Bertrand**, University of Chicago and NBER, and **Adair Morse**, University of Chicago, "Information Disclosure, Cognitive Biases, and Payday Borrowing"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/HFf09/summary.html

China Working Group Meets

The NBER's Working Group on China, directed by NBER Research Associate Shang-Jin Wei of Columbia University, met in Cambridge on October 16–17, 2009. These papers were discussed:

- **Raymond Fisman**, Columbia University and NBER, and **Yongxiang Wang**, Columbia University, "Corruption in State Asset Sales: Evidence from China"
- **Hongbin Cai** and **Qinghua Zhang**, Peking University, and **J. Vernon Henderson**, Brown University and NBER, "China's Land Market Auctions: Evidence of Corruption?"

- **Yi Lu** and **Zhigang Tao**, University of Hong Kong, and **Ivan Png**, National University of Singapore, "Do Institutions Not Matter in China? Evidence from Manufacturing Enterprises"

- **Joseph Fan**, Chinese University of Hong Kong; **Jun Huang,** Shanghai University of Finance & Economics; **Felix Oberholzer-Gee**, Harvard University; and **Mengxin Zhao**, University of Alberta, "Bureaucrats as Managers - Evidence from China"

- **Monica Martinez-Bravo**, MIT; **Gerard Padro-i-Miquel**, London School of Economics and NBER; **Nancy Qian**, Yale University and NBER; and **Yang Yao,** Peking University, "Village Democracy: The Effects of Increased Accountability on Inequality and Production"

- **Loren Brandt** and **Aloysius Siow**, University of Toronto, and **Carl Vogel**, NERA Economic Consulting, "Large Demographic Shocks and Small Changes in the Marriage Market"

- **Shang-Jin Wei**, and **Xiaobo Zhang**, IFPRI, "The Sexual Foundations of Economic Growth: Evidence from China"

- **Weili Ding**, Queen's University, Canada, and **Yuan Zhang**, Fudan University, China, "When a Son is Born: The Impact of Fertility Patterns on Family Finance in Rural China"

- **Jie Bai,** University of Pennsylvania, and **Joel Waldfogel**, University of Pennsylvania and NBER, "Movie Piracy and Sales Displacement in Two Samples of Chinese Consumers"

- **Catherine Thomas** and **Yongxiang Wang**, Columbia University, "The Role of Agency in Mitigating Expropriation: Firm-Level Evidence from Contract Renegotiations"

- **Kalina Manova**, Stanford University and NBER, and **Zhiwei Zhang**, HKMA, "Export Prices and Heterogeneous Firm Models"

- **JaeBin Ahn**, Columbia University; **Amit Khandelwal**, Columbia University and NBER; and **Shang-Jin Wei**, "The Role of Intermediaries in Facilitating Trade"

- **Karen Fisher-Vanden**, Pennsylvania State University; **Gary H. Jefferson**, Brandeis University; and **Yaodong Liu** and **Jinchang Qian**, China National Bureau of Statistics, "Open Economy Impacts on Energy Consumption: Technology Transfer and FDI Spillovers in China's Industrial Economy"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/CWGf09/summary.html

Economic Fluctuations and Growth

The NBER's Program on Economic Fluctuations and Growth held its fall research meeting at the Federal Reserve Bank of New York on October 23, 2009. NBER Research Associates Mark A. Aguiar of the University of Rochester and Jonathan Parker of Northwestern University organized the meeting. These papers were discussed:

- **Charles I. Jones**, Stanford University and NBER, "The Costs of Economic Growth"

- **John H. Cochrane**, University of Chicago and NBER, "Understanding Fiscal and Monetary Policy in 2008–9"

- **Lawrence Christiano**, **Martin Eichenbaum**, and **Sergio Rebelo**, Northwestern University and NBER, "When is the Government Spending Multiplier Large?" (NBER Working Paper No. 15394)

- **Craig Burnside**, Duke University and NBER, and **Alexandra Tabova**, Duke University, "Risk, Volatility, and the Global Cross-Section of Growth Rates" (NBER Working Paper No. 15225)
- **Marcus Hagedorn**, University of Zurich, and **Iourii Manovskii**, University of Pennsylvania and NBER, "Spot Wages over the Business Cycle?"
- **Mark Bils**, University of Rochester and NBER; **Peter J. Klenow**, Stanford University and NBER; and **Benjamin Malin**, Federal Reserve Board, "Reset Price Inflation and the Impact of Monetary Policy Shocks" (NBER Working Paper No. 14787)

Summaries of these papers may be found at: http://www.nber.org/confer/2009/EFGf09/summary.html

Labor Studies

The NBER's Program on Labor Studies met in Cambridge on October 23, 2009. Program Director David Card, University of California, Berkeley, organized the meeting. These papers were discussed:

- **Jennifer Hunt**, McGill University and NBER, "Why Do Women Leave Science and Engineering?"
- **Cecilia Machado**, Columbia University, "Selection, Heterogeneity, and the Gender Wage Gap"
- **Laura Giuliano**, University of Miami, "Effects of the 1996 Federal Minimum Wage Law on Employment, Substitution, and the Quality of Teenage Labor Supply: Evidence from Personnel Data"
- **Christopher Bollinger**, University of Kentucky, and **Barry Hirsch**, Georgia State University, "Wage Gap Estimation with Proxies and Nonresponse"
- **Kerwin Kofi Charles** and **Jonathan Guryan**, University of Chicago and NBER, and **Jessica Pan**, University of Chicago, "Sexism and Women's Labor Market Outcomes"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/LSf09/summary.html

Public Economics

The NBER's Program on Public Economics met in Cambridge on October 29 and 30, 2009. Program Co-Directors Raj Chetty of Harvard University and Amy Finkelstein of MIT organized the meeting. These papers were discussed:

- **Adam J. Cole**, U.S. Treasury Department, "Christmas in August: Prices and Quantities during Sales Tax Holidays"
- **BradleyT. Heim** and **Ithai Z. Lurie,** U.S. Treasury Department, "The Effect of Health Insurance Premium Subsidies on Entry into and Exit from Self-Employment
- **Alexander Gelber**, University of Pennsylvania and NBER, and **Joshua Mitchell**, Harvard University, "Taxes and Time Allocation"

- **James R. Hines Jr**., University of Michigan and NBER, and **R. Alison Felix**, Federal Reserve Bank of Kansas City, "Corporate Taxes and Union Wages in the United States" (NBER Working Paper No. 15263)

- **Henrik J. Kleven**, London School of Economics; **Martin B. Knudsen** and **Søren Pedersen**, Danish Inland Revenue; **Claus T. Kreiner**, University of Copenhagen; and **Emmanuel Saez**, University of California, Berkeley and NBER; "Unwilling or Unable to Cheat? Evidence from a Randomized Tax Audit Experiment in Denmark"

- **Fabian Duarte**, Yale University, and **Justine Hastings**, Yale University and NBER, "Fettered Consumers and Sophisticated Firms: Evidence from Mexico's Privatized Social Security Market"

- **Patrick Bajari**, University of Minnesota and NBER, and **Gregory Lewis**, Harvard University and NBER, "Procurement Contracting with Time Incentives: Theory and Evidence"

- **Mikhail Golosov** and **Aleh Tsyvinski**, Yale University and NBER, and **Matthew Weinzierl**, Harvard University, "Preference Heterogeneity and Optimal Commodity Taxation"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/PEf09/summary.html

Monetary Economics

The NBER's Program on Monetary Economics met in Cambridge on November 6, 2009. NBER Research Associates Nicholas Bloom of Stanford University and James Stock of Harvard University organized the meeting. These papers were discussed:

- **Glenn Rudebusch** and **Eric Swanson**, Federal Reserve Bank of San Francisco, "The Bond Premium in a DSGE Model with Long-Run Real and Nominal Risks"

- **Scott Borger**, Office of Immigration Statistics; **James Hamilton**, University of California, San Diego and NBER; and **Seth Pruitt**, Federal Reserve Board of Governors, "The Market-Perceived Monetary Policy Rule"

- **Francois Gourio**, Boston University and NBER, "Disaster Risk and Business Cycles"(NBER Working Paper No. 15399)

- **Manuel Adelino**, MIT; **Kristopher Gerardi**, Federal Reserve Bank of Atlanta; and **Paul Willen**, Federal Reserve Bank of Boston and NBER, "Why Don't Lenders Renegotiate More Home Mortgages? Re-defaults, Self-Cures, and Securitization"

- **John Driscoll** and **Ruth Judson**, Federal Reserve Board, "Sticky Deposit Rates: Data and Implications for Models of Price Adjustment"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/MEf09/summary.html

Asset Pricing

NBER's Program on Asset Pricing met in California on November 13, 2009. NBER Research Associates Leonid Kogan and Jiang Wang, both of MIT, organized the meeting. These papers were discussed:

- **Darrell Duffie**, Stanford University and NBER, and **Bruno Strulovici**, Northwestern University, "Capital Mobility and Asset Pricing"
- **Krista Schwarz**, University of Pennsylvania, "Mind the Gap: Disentangling Credit and Liquidity in Risk Spreads"
- **Viral V. Acharya**, New York University and NBER; **Douglas Gale**, New York University; and **Tanju Yorulmazer**, Federal Reserve Bank of New York, "Rollover Risk and Market Freezes"
- **Gerard Hoberg**, University of Maryland, and **Ivo Welch**, Brown University and NBER, "Better Factor Portfolios and Pricing Book-to-Market Characteristics with the Fama-French Factor Model"
- **Igor Makarov** and **Guillaume Plantin**, London School of Business, "Equilibrium Subprime Lending"
- **Stefan Nagel** and **Kenneth J. Singleton**, Stanford University and NBER, "Estimation and Evaluation of Conditional Asset Pricing Models"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/APf 09/summary.html

Political Economy

NBER's Program on Political Economy met in Cambridge on November 13, 2009. Pedro Dal Bo, NBER and University of California, Berkeley, and Romain Wacziarg, NBER and University of California, Los Angeles, organized the meeting. These papers were discussed:

- **Lauren Cohen** and **Joshua D. Coval**, Harvard University and NBER, and **Christopher Malloy**, Harvard University, "Do Powerful Politicians Cause Corporate Downsizing?"
- **Bard Harstad**, Northwestern University, "The Dynamics of Climate Agreements"
- **Kaivan Munshi**, Brown University and NBER, and **Mark Rosenzweig**, Yale University, "The Efficacy of Parochial Politics: Caste, Commitment, and Competence in Indian Local Governments"
- **Raquel Fernandez**, New York University and NBER, "Women's Rights and Development"
- **Fernanda Brollo, Tommaso Nannicini**, and **Guido Tabellini**, Bocconi University; and **Roberto Perotti**, Bocconi University and NBER, "The Political Resource Curse"
- **Jeffrey Butler**, Einaudi Institute for Economics and Finance; **Paola Giuliano**, University of California, Los Angeles and NBER; and **Luigi Guiso**, European University Institute, "The Right Amount of Trust"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/POLf09/summary.html

Education Program Meeting

The NBER's Education Program met in California on November 19 and 20, 2009. Program Director Caroline M. Hoxby of Stanford University organized the meeting. These papers were discussed:

- **Glenn Ellison**, MIT and NBER, and **Ashley Swanson**, MIT, "The Gender Gap in Secondary School Mathematics at High Achievement Levels: Evidence from the American Mathematics Competitions" (NBER Working Paper No. 15238)
- **Leah Platt Boustan**, University of California, Los Angeles and NBER, "Desegregation and Urban Change: Evidence from City Boundaries"
- **P. C. Winnie Chan**, Statistics Canada, and **Robert McMillan**, University of Toronto and NBER, "School Choice and Public School Performance: Evidence from Ontario's Tuition Tax Credit"
- **Jane Cooley, Salvador Navarro**, and **Yuya Takahashi**, University of Wisconsin, "A Framework for the Analysis of Time-varying Treatment Effects: How the Timing of Grade Retention Affects Outcomes"
- **Joshua Goodman**, Harvard University, "The Labor of Division: Returns to Compulsory Math Coursework"
- **Matthew Chingos**, Harvard University, and **Martin West**, Brown University, "Do More Effective Teachers Earn More Outside of the Classroom?"
- **Tahir Andrabi**, Pomona College; **Jishnu Das**, The World Bank; and **Asim Ijaz Khwaja**, Harvard University and NBER, "What Did You Do All Day? Maternal Education and Child Outcomes"
- **Rema Hanna**, Harvard University and NBER, and **Leigh Linden**, Columbia University, "Measuring Discrimination in Education" (NBER Working Paper No. 15057)
- **Ofer Malamud**, University of Chicago and NBER, and **Abigail Wozniak**, University of Notre Dame, "The Impact of College Education on Geographic Mobility: Identifying Education Using Multiple Components of Vietnam Draft Risk"
- **Louis-Philippe Morin**, University of Ottawa, "Gender and Competition: From the Lab into the Classroom"
- **Christopher Avery**, Harvard University and NBER, and **Sarah Turner**, University of Virginia and NBER, "Playing the College Application Game: Critical Moves and the Link to Socio-Economic Circumstances"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/EDf09/summary.html

Corporate Finance

The NBER's Program on Corporate Finance met in Cambridge on November 20, 2009. Christian Leuz, NBER and University of Chicago, and Morten Sorensen, NBER and Columbia University, organized the meeting. These papers were discussed:

- **Todd Gormley**, University of Pennsylvania, and **Bong H. Kim** and **Xiumin Martin**, Washington University of St. Louis, "Can Firms Adjust Their Opaqueness to Lenders? Evidence from Foreign Bank Entry into India"
- **Daniel Paravisini**, Columbia University, and **Hannah Lin**, International Monetary Fund, "What's Bank Reputation Worth? The Effect of Fraud on Financial Contracts and Investment"

- **Michael R. Roberts**, University of Pennsylvania, and **Mark Leary**, Cornell University, "Do Peer Firms Affect Corporate Financial Policy?"

- **Ivo Welch**, Brown University and NBER, and **Peter Iliev**, Pennsylvania State University, "How Quickly Do Firms Readjust Capital Structure?"

- **Itay Goldstein**, University of Pennsylvania, and **Emre Ozdenoren** and **Kathy Yuan**, University of Michigan, "Trading Frenzies and Their Impact on Real Investment"

- **Elena Simintzi**, **Vikrant Vig**, and **Paolo Volpin**, London Business School, "Labor and Capital: Is Debt a Bargaining Tool?"

- **Efraim Benmelech**, Harvard University and NBER, and **Nittai Bergman**, MIT and NBER, "Negotiating with Labor under Financial Distress"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/CFf09/summary.html

Organizational Economics

The NBER's Working Group on Organizational Economics met in Cambridge on November 20 and 21, 2009. Organizer Robert S. Gibbons of NBER and MIT chose these papers for discussion:

- **Björn Bartling** and **Ernst Fehr**, University of Zurich, and **Klaus Schmidt**, University of Munich, "Screening, Competition and Job Design"

- **Claudine Desrieux**, University of Paris 2 Pantheon; **Eshien Chong**, University of Paris XI; and **Stephane Saussier**, IAE - University of Paris I Sorbonne, "Putting All One's Eggs in One Basket: Relational Contracts and the Provision of Local Public Services"

- **Yuk-Fai Fong** and **Jin Li**, Northwestern University, "Relational Contracts, Limited Liability, and Employment Dynamics"

- **David McAdams**, Duke University, "Performance and Turnover in a Stochastic Partnership"

- **Ricard Gil** and **Justin Marion**, University of California, Santa Cruz, "The Role of Repeated Interactions, Self-Enforcing Agreements and Relational [Sub]Contracting: Evidence for California Highway Procurement Auctions"

- **Simon Board**, University of California, Los Angeles, "Relational Contracts and the Value of Loyalty"

- **Hideshi Itoh**, Hitotsubashi University, and **Hodaka Morita**, University of New South Wales, "Formal Contracts, Relational Contracts, and the Holdup Problem"

- **David Cooper**, Florida State University, and **Kai-Uwe Kühn**, University of Michigan, "Communication, Renegotiation, and the Scope for Collusion"

- **Pedro Dal Bó**, Brown University and NBER, and **Guillaume R. Fréchette**, New York University, "The Evolution of Cooperation in Infinitely Repeated Games: Experimental Evidence"

- **David A. Miller** and **Joel Watson**, University of California, San Diego, "A Theory of Disagreement in Repeated Games with Renegotiation"

- **Giacomo Calzolari**, University of Bologna, and **Giancarlo Spagnolo**, University of Rome 'Tor Vergata', "Relational Contracts and Competitive Screening"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/OEf09/summary.html

Behavioral Economics

The NBER's Working Group on Behavioral Economics met in Cambridge on November 21, 2009. Andrea Frazzini, AQR Capital Management, LLC, and Kent Daniel, Northwestern University, organized the meeting. These papers were discussed:

- **Victor Stango**, University of California, Davis, and **Jonathan Zinman**, Dartmouth College, "Limited and Varying Consumer Attention: Evidence from Shocks to the Salience of Penalty Fees"

- **Nicolae Garleanu**, University of California, Berkeley and NBER, and **Lasse Pedersen**, New York University and NBER, "Margin-Based Asset Pricing and the Law of One Price"

- **Mark Grinblatt**, University of California, Los Angeles; **Matti Keloharju**, Helsinki School of Economics; and **Juhani Linnainmaa**, University of Chicago, "Do Smart Investors Outperform Dumb Investors?"

- **Robin Greenwood**, Harvard University and NBER, and **Samuel Hanson**, Harvard University, "Catering to Characteristics"

- **Christopher Parsons** and **Joseph Engelberg**, University of North Carolina, "The Causal Impact of Media in Financial Markets"

- **Malcolm Baker**, Harvard University and NBER; **Xin Pan**, Harvard University; and **Jeffrey Wurgler**, New York University and NBER, "A Reference Point Theory of Mergers and Acquisitions"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/BEF09/summary.html

Technological Progress & Productivity Measurement

The NBER's Program on Technological Progress & Productivity Measurement met in Cambridge on December 4, 2009. Ajay K. Agrawal, NBER and University of Toronto, and Benjamin Jones, NBER and Northwestern University, organized the meeting. These papers were discussed:

- **Pierre Azoulay**, MIT and NBER; **Joshua Graff Zivin**, Columbia University and NBER; and **Gustavo Manso**, MIT, "Incentives and Creativity: Evidence from the Academic Life Sciences" (NBER Working Paper No. 15466)

- **Tim Simcoe**, Boston University and NBER, "What's in a (Missing) Name? Status Signals in Open Standards Development"

- **Erik Brynjolfsson**, MIT and NBER, and **Lynn Wu**, MIT, "The Future of Prediction: How Google Searches Foreshadow Housing Prices and Sales"

- **Alex Oettl**, Georgia Institute of Technology, "Productivity and Helpfulness: Implications of a New Taxonomy for Star Scientists"

- **Yuriy Gorodnichenko**, University of California, Berkeley and NBER, and **Monika Schnitzer**, University of Munich, "Financial Constraints and Innovation: Why Poor Countries Don't Catch Up"

- **Heidi Williams**, Harvard University, "Intellectual Property Rights and Innovation: Evidence from the Human Genome"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/PRf09/summary.html

International Trade and Investment

The NBER's Program on International Trade and Investment met at the Federal Reserve Bank of San Francisco on December 4–5, 2009. Program Director Robert C. Feenstra of University of California, Davis, organized the meeting. These papers were discussed:

- **Edward Leamer**, University of California, Los Angeles and NBER, "The Heckscher-Ohlin Framework and the Craft of Economics"

- **Ariel Burstein**, University of California, Los Angeles and NBER, and **Jonathan Vogel**, Columbia University and NBER, "Globalization, Technology, and the Skill Premium"

- **Costas Arkolakis**, Yale University and NBER; **Arnaud Costinot**, MIT and NBER; and **Andrés Rodríguez-Clare**, Pennsylvania State University and NBER, "New Trade Models, Same Old Gains?"

- **Mary Amiti**, Federal Reserve Bank of New York, and **David Weinstein**, Columbia University and NBER, "Exports and Financial Shocks"

- **Katheryn Russ**, University of California, Davis and NBER, and **Diego Valderrama**, Federal Reserve Bank of San Francisco, "Financial Choice in a Non-Ricardian Model of Trade"

- **Danielken Molina**, University of California, San Diego, and **Marc-Andreas Muendler**, University of California, San Diego and NBER, "Preparing to Export"

- **Ivan Cherkashin**, Pennsylvania State University; **Svetlana Demidova**, McMaster University; **Hiau Looi Kee**, World Bank; and **Kala Krishna,** Pennsylvania State University and NBER, "Firm Heterogeneity and Costly Trade: A New Estimation Strategy and Policy Experiments"

- **JaeBin Ahn**, Columbia University, and **Amit Khandelwal** and **Shang-Jin Wei**, Columbia University and NBER, "The Role of Intermediaries in Facilitating Trade"

Summaries of these papers may be found at: http://www.nber.org/confer/2009/ITIf09/summary.html

Bureau Books

The following volumes may be ordered directly from the University of Chicago Press Distribution Center, at

The University of Chicago Press
Chicago Distribution Center
11030 South Langley Avenue
Chicago, IL 60628
U.S.A.

Customer Service and Order Fulfillment
Telephone: (U.S. & Canada) 1-800-621-2736
(Rest of world) 773-702-7000
Fax: (U.S. & Canada) 1-800-621-8476
(Rest of world) 773-702-7212
Email: custserv@press.uchicago.edu

China's Growing Role in World Trade

China's Growing Role in World Trade, edited by Robert C. Feenstra and Shang-Jin Wei, is available from the University of Chicago Press for $110.00.

In less than three decades, China has grown from playing a negligible role in world trade to being one of the world's largest exporters. China is a substantial importer of raw materials, intermediate outputs, and other goods, and is both a recipient and a source of foreign investment. Not surprisingly, China's economic dynamism has generated considerable attention and concern in the United States and beyond. While some analysts have warned of the potential pitfalls of China's rise — the loss of jobs, for example — others have highlighted the benefits of less expensive Chinese goods and services available to U.S. consumers as well as new market and investment opportunities for U.S. firms.

Bringing together a group of expert contributors, *China's Growing Role in World Trade* investigates the effects of China's new status through essays that analyze the microstructure of China's trade, its macroeconomic implications, issues at the sector level, and the role of foreign direct investment.

Feenstra is the Director of the NBER's Program on International Trade and Investment and Distinguished Professor of Economics at the University of California, Davis. Wei is Director of the NBER's Working Group on the Chinese Economy. He is also the N.T. Wang Professor of Chinese Business and Economy and a Professor of International and Public Affairs at Columbia University, and a Professor of Finance and Economics at Columbia Business School.

Europe and the Euro

Europe and the Euro, edited by Alberto F. Alesina and Francesco Giavazzi, is available from the University of Chicago Press for $110.00

Countries rarely give up their currencies and relatedly their ability to influence such critical aspects of their economies as interest rates and exchange rates. Yet ten years ago a number of European countries did exactly that when they adopted the euro. A decade is an ideal time frame over which to evaluate the success of the euro and to ask whether it has lived up to expectations. *Europe and the Euro* thus looks at a number of important issues, including: the effects of the euro on the reform of goods and labor markets; its influence on business cycles and trade among members; and whether the single currency has induced convergence or divergence in the economic performance of member countries. This volume is an essential reference on the first ten years of the euro and the workings of a monetary union.

Alesina is the Director of NBER's Program on Political Economy and the Nathaniel Ropes Professor of Political Economy at Harvard University. Giavazzi is a Research Associate in the NBER's Program on International Finance and Macroeconomics and a professor of economics at Bocconi University in Milan, Italy. He is also president of the Innocenzo Gasparini Institute for Economic Research in Milan.

International Dimensions of Monetary Policy

International Dimensions of Monetary Policy, edited by Jordi Galí and Mark J. Gertler, will be available from the University of Chicago Press this winter for $120.00.

Traditionally, U.S. monetary policy was modeled under the assumption that the domestic economy was immune to international factors and external shocks. That assumption has become increasingly unrealistic in this age of integrated capital markets, tighter links between national economies, and reduced trading costs. This NBER Conference Volume addresses the various repercussions of the continuing evolution toward globalization for the conduct of monetary policy. The contributing authors examine both real and potential effects of increased openness and exposure to international economic dynamics. Their findings reveal that central banks continue to have a decisive influence on domestic economic outcomes, including inflation. Therefore, international factors may have a limited role in national performance.

Galí and Gertler are Research Associates in the NBER's Program on Monetary Economics. Galí is also Director and Senior Researcher at the Centre de Recerca en Economia Internacional (CREI) and a profesor of economics at Universitat Pompeu Fabra in Barcelona, Spain. Gertler is the Henry and Lucy Moses Professor of Economics at New York University.

Price Index Concepts and Measurement

Price Index Concepts and Measurement, edited by W. Erwin Diewert, John Greenlees, and Charles R. Hulten, will be available this winter from the University of Chicago Press. The NBER Conference Report is priced at $135.00.

Although inflation is much feared for its negative effects on the economy, the actual measurement of inflation is a matter of considerable debate, with important implications for interest rates, the money supply, and investment and spending decisions. *Price Index Concepts and Measurement* brings together leading experts to address some of the questions involved in conceptualizing and measuring inflation. The contributors evaluate the accuracy of the Cost-of-Living Index (COLI), a Cost-of-Goods Index, and a variety of other methodological frameworks as the bases for thinking about consumer prices.

Diewert and Hulten are Research Associates in the NBER's Program on Productivity. Diewert is a professor of economics at the University of British Columbia; Hulten is a professor of economics at the University of Maryland. Greenlees is a research economist in the Division of Price and Index Number Research at the Bureau of Labor Statistics.

Reforming the Welfare State: Recovery and Beyond in Sweden

Reforming the Welfare State: Recovery and Beyond in Sweden, edited by Richard B. Freeman, Birgitta Swedenborg, and Robert H. Topel, will be available from the University of Chicago Press this winter for $99.00.

During the twentieth century, Sweden developed a large and active welfare state with generous social programs. More recently, Sweden has been discussed as a model of how to deal with financial and economic crisis because it recovered from a banking crisis in the mid-1990s. *Reforming the Welfare State* examines Sweden's policies in response to that crisis and their implications for the subsequent recovery. Among the issues investigated in this volume are how labor market changes, tax and benefit policies, local government policy, industrial structure, and international trade all affected Sweden's recovery.

Freeman until recently directed the NBER's Program on Labor Studies; he and Topel are Research Associates in that Program. Freeman is also the Herbert Ascherman Chair in Economics at Harvard University. Swedenborg is an economist and former vice president and research director of the Center for Business and Policy Studies (SNS) in Stockholm, Sweden. Topel is also the Isidore Brown and Gladys J. Brown Professor in Urban and Labor Economics at the University of Chicago's Booth School of Business.

The following volume may be ordered directly from the University of Chicago Press Journals Division, at

The University of Chicago Press
Chicago Distribution Center
11030 South Langley Avenue
Chicago, IL 60628
773-702-7000

Order by telephone:
Order by phone Monday through Friday, 8 a.m.–5 p.m. (Central Time)
773-753-3347
or toll-free in U.S. & Canada: 877-705-1878

Innovation Policy and the Economy, Volume 10

Innovation Policy and the Economy, Volume 10, edited by Josh Lerner and Scott Stern, will be available from the University of Chicago Press Journals Division in early 2010. This annual volume is priced at $58.00 and is available electronically for $35.00.

The annual *Innovation Policy and the Economy* conferences provide a forum for the discussion of interactions among public policy, the innovation process, and the economy. Participants analyze policies that affect the ability of an economy to achieve scientific and technological progress, or that affect the impact of science and technology on economic growth. This tenth in the series includes discussions of file-sharing and copyright, the global location of biopharmaceutical knowledge activity, university licensing, and several other topics.

Lerner and Stern co-direct the NBER's Working Group on Innovation Policy and the Economy. In addition, Lerner co-directs the NBER Working Group on Entrepreneurship. Both Lerner and Stern are Research Associates in the NBER's Program on Productivity. Lerner is also the Jacob H. Schiff Professor of Investment Banking at the Harvard Business School. Stern is also the Joseph and Carole Levy Professor at Northwestern University's Kellogg School of Management.

NBER *Reporter*

NATIONAL BUREAU OF ECONOMIC RESEARCH

1050 Massachusetts Avenue
Cambridge, Massachusetts 02138-5398
(617) 868-3900

Change Service Requested

Nonprofit Org.
U.S. Postage
PAID
National Bureau of
Economic Research