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Program Report

Asset Pricing

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The NBER's Asset Pricing Program was created in 1991. Today, it has more than 130 members who present and discuss their research findings at three annual meetings. These meetings take place in the Midwest in the spring, on the east coast in the summer, and on the west coast in the fall. It has been my honor to serve as Program Director for the past three years, which have been particularly interesting as the financial crisis has challenged some of the conventional wisdom about the workings of asset markets. During this time, the Program's members have produced an impressive collection of more than 300 NBER Working Papers.

This report focuses specifically on quantitative structural asset pricing models. In recent years, the AP members have been researching models that can provide unified explanations of a wide range of phenomena in financial markets. Even before the financial crisis, some of these models provided an important base for understanding financial institutions, frictions in financial markets (such as credit constraints), liquidity, investor heterogeneity, and the potential presence of investor irrationality in some markets. Of course, since the crisis, AP Program members have intensified their analysis of models with such features.

Understanding Returns on Average and over Time

A well-known stylized fact about financial markets is that average returns on stocks, long government bonds, and corporate bonds are higher than the return on short bonds. Why do investors demand high compensation for such investments? In a frictionless model with optimizing investors, there are two possible answers: either households are highly risk averse, or they perceive these investments to be very risky.

Another well-documented stylized fact is that the returns on certain long-short strategies are predictable: low current stock valuations relative

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Correction

In a previous NBER Reporter article on the first of three NBER conferences on "African Development Successes," which took place in Cambridge on December 11–12, 2009, two of the early-stage projects were inadvertently omitted. They are: "Misallocation, Property Rights, and Access to Finance: Evidence from Within and Across Africa", **Sebnem Kalemli-Ozcan,** University of Houston and NBER, and **Bent Sorensen,** University of Houston; and "Food Security and Infant Mortality", **Nathan Nunn,** Harvard University and NBER, and **Nancy Qian,** Yale University and NBER. The final version of the first paper will be presented at a research conference in the summer of 2011, while the final version of the second paper will be presented at a research conference in July 2010.

to fundamentals (for example, dividends or earnings) tend to be followed by high subsequent returns. The returns on currency carry trades are predictable based on interest rate differentials. The carry trade involving only domestic bonds is predictable based on the slope of the term structure.

Why don't investors simply borrow and buy some more stocks when expected returns on stocks are high? An economic explanation of return predictability needs a mechanism that discourages investors from doing just that. If investors were to buy stocks in anticipation of high returns, then these purchases would drive up stock prices today, destroying return predictability.

There are two ways to discourage investors from buying in a frictionless setting with rational expectations. First, investors may be more risk *averse* in times when expected returns are high. In bad times, when stocks are trading at low prices, investors could be well aware that prices are likely to go up, but they may worry about taking on the extra risk associated with holding more stocks. Second, investors may be facing more *risk* in times when expected returns are high. During the financial crisis, for example, the Dow dropped below 7000, and still households did not want to buy more stocks. A plausible explanation is that they were worried about losing their jobs and preferred holding cash.

The early work on quantitative asset pricing asked whether models could explain one or maybe even a few of the above stylized facts in isolation. Over the last couple of years, the focus has been on whether the models can explain a wide variety of phenomena in financial markets simultaneously. This recent research has made important progress: we now have a much more consistent explanation of the size and time variation of risk premiums across different asset classes. By carefully documenting dimensions along which existing models don't perform as well, we also have made significant progress in understanding where the theory needs improvement.

Some of the analysis of financial market equilibrium is done in a frictionless setting, where standard optimization conditions ("Euler equations") describe household behavior, but there are many reasons to believe that these Euler equations do not hold. For example, rich households may have financial advisors who manage their money for them, in which case the advisors' incentives may play important roles. Or, frictions

such as credit constraints may be preventing households from borrowing precisely when they need the extra cash. For example, during the financial crisis, it may have been harder to get a new car loan or mortgage. In that case, optimality conditions may lead to Euler inequalities. Finally, households may not have rational expectations. As a consequence, Euler equations may hold, but under beliefs that do not represent a rational assessment of past evidence. In particular, households may not be aware when expected returns on stocks are high, and so they have no reason to buy them. I describe recent work on models with such features later in this report.

Time-Varying Risk Aversion

John Y. Campbell and John H. Cochrane[1] develop a model in which investors have time-varying risk aversion. The key assumption in their model is that investors' utility functions depend on the past history of aggregate consumption, so they capture a "Catching up with the Joneses" motive. Investors are more risk averse in recessions, when their consumption is low relative to past aggregate consumption. They are less risk averse in booms, when their consumption is high, and so gambling feels less threatening. These countercyclical movements in risk aversion make investors want to be compensated more for holding risky assets (such as stocks) in recessions. Thus, the model generates expected returns that are high in recessions.

More recent papers have studied the performance of the Campbell-Cochrane model in other asset markets. Jessica Wachter[2] shows that a quantitative implementation of a model with time-varying risk aversion can simultaneously explain the predictability of stock returns (as in Campbell-Cochrane) and long-term government bonds. Her paper provides a unified explanation of pricing for stocks and bonds. Further, the real rate is countercyclical, so long-term real bonds are assets with low payoffs in recessions. As a consequence, investors demand positive average compensation for holding these bonds, generating an upward sloping real yield curve (which helps the model generate an upward nominal yield curve as well.)

Long Chen, Pierre Collin-Dufresne, and Robert Goldstein[3] apply the Campbell-Cochrane model to corporate bond markets. A challenge in these markets is that yields on Baa-rated corporate bonds are much higher than those on Aaa-rated bonds, despite the fact that the default probabilities of Baa bonds are only slightly higher than those of Aaa bonds. A model with time-varying risk aversion can account for high Baa-Aaa spreads, because investors are sensitive to the timing of defaults: defaults of Baa bonds are more likely to happen in recessions, when risk aversion is high. Therefore, investors want to be compensated with high yields for a small average amount of exposure to default.

Adrien Verdelhan[4] explores a model with two countries that are populated by investors with risk aversion that depends on past aggregate domestic consumption. The model also has a pro-cyclical real interest rate. When domestic consumption is low, domestic investors are more risk averse and demand higher compensation for investing in risky strategies. At the same time, the domestic real interest rate is low. This mechanism explains why expected returns on the currency carry trade are high when domestic rates are low.

All of these papers have made important progress in our understanding of what models with time-varying risk aversion imply for asset pricing. Along the way, the researchers have uncovered a number of implications of these models that require more research. It has became clear, for example, that we need to settle the (empirical) question of whether real rates are pro-cyclical or countercyclical, and then modify the models to explain both bond and currency markets simultaneously.

Another implication of the Campbell-Cochrane model, pointed out by Martin Lettau and Wachter[5], is that the strong time variation in risk premiums and thus discount rates make assets with "'backloaded" dividends — assets that pay dividends far in the future rather than close to the present — appear riskier than assets with "'frontloaded" dividends. Tano Santos and Pietro Veronesi[6] show that growth stocks have backloaded dividends, so habits tend to generate a "growth premium"' rather than the "value premium"' that we observe in the data.

Long-Run Risk

Ravi Bansal and Amir Yaron[7] pursue the idea that investors worry about long-run risks, defined as small but persistent changes in expected consumption growth. They consider investors who demand compensation for assets that have low payoffs when bad news about future consumption growth arrives — such investors are said to have "Epstein-Zin" utility functions. Bansal and Yaron apply this model to stocks and provide a new story for the equity premium.

Recently, a large number of papers have applied this model to a variety of markets. Several of the studies investigate the model's implications for the cross-section of stock returns. Bansal, Robert Dittmar, and Christian Lundblad[8] document that the cash flows of "value stocks," stocks of companies with high book values relative to their market values, vary more with news about future consumption growth than the cash flows of "growth stocks," stocks of companies with low book-to-market values. In the long-run-risk model, this larger covariance makes investors perceive value stocks as more risky. They therefore demand a higher compensation for holding them, explaining the value premium. Lars-Peter Hansen, John Heaton, and Nan Li[9] document that the covariance between cash flows and news shocks will depend on how the estimation deals with time trends.

Long-run risk provides interesting new interpretations of average premiums, but by itself implies constant premiums. Therefore, long-run risk does not explain the predictability of asset returns, or the high volatility of returns. I will discuss later some recent attempts at combining long-run risk with time variation in risk.

Most papers on long-run risk treat expected consumption growth as unobservable — that is, a latent variable. As a consequence, it can be difficult to esti-

mate the amount of long-run risk in the data. To get a sense of the amount of long-run risk in the Bansal and Yaron (2004) model, Jason Beeler and Campbell[10] simulate data from the model and run forecasting regressions of future consumption growth based on current price-dividend ratios. They can explain more than 30 percent of the variation in the simulated data at the 5-year horizon, and so they conclude that the amount of long-run risk in this particular quantitative implementation is too large.

Martin Schneider and I[11] investigate the implications of a model with Epstein-Zin utility for nominal government bond prices. We estimate the joint dynamics of consumption growth and inflation and document that higher inflation today is bad news for future consumption growth. Since long-term bonds are assets with low payoffs in states when inflation is surprisingly high, investors demand compensation for holding long bonds. The model thus predicts that long bonds pay higher returns on average than short bonds — hence it can explain positive slope in the nominal term structure of interest rates.

Disaster Risk

In 1984, Thomas Rietz advanced the idea that rare disasters in consumption make investors worry more about holding stocks and thus may explain a large equity premium. Disasters are rare, so their frequency, size, and duration are difficult to measure. One approach is to calibrate these disasters to well-known crisis events, like the Great Depression, as I did in a 2004 paper written with Francis Longstaff. Another possibility is to treat them as peso problems, which investors fear, but which are not observed in the data sample.

Like long-run risk, disasters provide new interpretations of average premiums, but they do not provide any mechanism for volatility in stock valuations. To generate volatility, or predictability of returns, the probability of a disaster has to vary over time, so that consumption growth is heteroskedastic. I will discuss recent research later in this article that combines disasters with such time-varying risk.

Disasters often affect the returns on both stocks and bonds (for example, in most countries, stock and bond values crashed during the two World Wars). This means that they may affect the average level of returns on these assets, but not their difference — the equity premium. There are few examples in history where disasters affect only stocks (for example, the Great Depression, or Argentina in 1998-2001.) Robert Barro[12] documents these historical disasters and develops a model that allows disasters to affect stocks and bonds.

Consumption data from other countries is difficult to obtain. Many studies therefore use the more easily available GDP data to measure disasters. This is problematic, because GDP consists of consumption and investment, and what comes down most during an economic disaster is investment, not consumption (which enters the Euler equation and thus matters for pricing.) During the Great Depression, for example, real GDP fell by 30 percent but consumption only dropped by 10 percent. During the recent financial crisis, consumption fell by roughly 3 percent. Barro and Jose Ursua[13] have now put together an impressive dataset on international consumption and documented historical disasters — including their duration — observed in various countries.

Barro's 2006 paper has inspired a substantial body of follow-up work on disaster risk. Several papers have measured the importance of disaster risk from data on options. Craig Burnside, Martin Eichenbaum, and Sergio Rebelo[14]; Jakub Jurek[15]; and Emmanuel Farhi, Samuel Fraiberger, Xavier Gabaix, Romain Ranciere, and Verhelhan[16] each use a different approach to study the evidence in currency options. David Backus, Mikhail Chernov, and Ian Martin[17] measure the frequency and size of disasters in consumption from options on U.S. equity indexes.

Along the way, the literature has come up with new techniques that are helpful in solving models with disasters. Ian Martin[18] uses higher order cumulants to derive asset prices and returns in a model of disasters. Gabaix[19] develops a class of linearity-generating processes that lead to closed-form solutions for bond and stock prices[20].

Time-Varying Risk

Another reason why returns may be predictable is that the amount of risk in the economy varies over time. Shmuel Kandel and Robert Stambaugh[21] document such time variation in the variance ("heteroskedasticity") of aggregate consumption growth data and evaluate its asset-pricing implications with Epstein-Zin utility.

A number of papers have looked jointly at long-run risk and heteroskedasticity. For example, Ravi Bansal and Amir Yaron[22] show that such a model can account for a number of facts in stock returns, including the observed predictability of returns. Hui Chen[23] shows that time-varying risk makes firm defaults more likely in recessions and more painful for claimholders, which explains both high credit spreads in corporate bond markets and low leverage ratios by firms.

Another set of papers has investigated time-varying disaster probabilities, which also capture heteroskedasticity in consumption. Francois Gourio[24] and Wachter[25] specify the disaster probability to be an autoregressive process and calibrate the parameters to match return data on stocks and bonds.

Intermediation

Motivated by recent events, members of the AP group have further explored models with financial institutions. In these models, the Euler equations of households do not necessarily hold because households delegate their portfolio management to institutions, such as mutual funds and hedge funds. The assumption in these models is that households cannot participate directly in these markets, but must participate through financial intermediaries.

Zhiguo He and Arvind Krishnamurthy[26] analyze a model with both

stocks and bonds in which households can invest in bonds directly but not in stock. Instead, households invest with intermediaries who manage a portfolio of stocks and bonds. They further assume that the total amount of funds that households can invest with intermediaries is constrained to be less than a multiple of the intermediaries' internal funds. This "intermediation constraint" is assumed to always bind. In response to a negative shock to the cash flows of stocks, the wealth of intermediaries falls. Because of the intermediation constraint, households have to reduce their investments with intermediaries and thus have a smaller portfolio weight on stocks. The only way for markets to clear is for intermediaries to increase their portfolio weight on stocks, which in turn increases the intermediaries' consumption exposure to the stock market. As a consequence, risk premiums in the stock market rise in bad times.

Dimitri Vayanos and Paul Woolley[27] consider a model with a bond and many different stocks. Households can buy a passive index of these stocks or they can invest with an active portfolio manager. There are also "buy and hold" investors who hold stocks in proportions different from the passive index. The portfolio manager can generate higher returns than the passive index by buying stocks that are in low demand by these "buy and hold" investors and are thus undervalued. A key assumption is that portfolio managers can be good or bad (that is, manage money at low or high costs), and that households learn about their ability. If households receive high returns on their actively managed portfolios, then they will update their information about the manager's ability and invest more. The model can thus explain why high past returns on an active fund will generate higher future inflows into the fund.

In papers that will be presented at the 2010 NBER Summer Institute, In Gu Kang, He, and Krishnamurthy[28] document changes in balance sheets of financial institutions over the recent financial crisis. Tobias Adrian, Emanuel Moench, and Hyun Shin[29] document that these balance sheets are informative about risk premiums in financial markets. In particular, they show that an expansion of balance sheets – higher growth rates of leverage or assets by financial institutions – predicts higher future economic activity (for example, GDP growth) and lower future excess returns (on a variety of stock portfolios, corporate bonds, and government bonds.) Of course, because the regressions involve endogenous variables, we are not sure whether these are causal relationships.

Heterogeneous Expectations

Schneider and I[30] use evidence from the Michigan survey to document that young households were forecasting higher inflation rates than older households during the late 1970s and early 1980s. Since mortgages are nominal contracts, younger households perceive real mortgage rates to be lower than older households, creating gains from trade across generations. As a consequence, young households borrow and buy houses, which are the only asset that can be used as collateral, and thereby drive up house prices. This effect is further reinforced by mortgage subsidies that increase in times of high expected inflation and also make housing more attractive than stocks as an investment. Taken together, these mechanisms help explain the house price boom and stock price decline of the late 1970s and early 1980s.

In a later paper[31] we again use Michigan survey data to document expectations about future house prices. Before the boom, a small fraction (10 percent) of households thought that now was a good time to buy a house because house prices would go up in the future. This fraction doubled towards the end of the housing boom, during the years 2004–5, when 20 percent of households believed that buying a house was attractive because house prices would go up further. We then ask whether in a model with search frictions — like the housing market — a small fraction of optimists is enough to drive up house prices. The answer is yes, because prices are measured in a small number of housing transactions. In these transactions, the most optimistic buyers are matched with sellers.

Ulrike Malmendier and Stefan Nagel[32] document that investor expectations depend on their lifetime experiences. Based on data from the Survey of Consumer Finances, they show that investors who experienced low stock returns are more pessimistic about future returns, participate less in the stock market, and invest a smaller share of their portfolio in stocks.

Other Heterogeneity

Heterogeneous agent models may do a good job in matching the heterogeneity in the data on household portfolios, but this heterogeneity may not matter for aggregates such as asset prices. For example, Dirk Krueger and Hanno Lustig[33] provide various examples of economies in which uninsurable income shocks do not matter for the equity premium. Nobuhiro Kiyotaki, Alexander Michaelides, and Kalin Nikolov[34] show that in their heterogeneous agent model, more lax collateral constraints do not lead to higher house prices.

However, there has been some research by AP Program members that has found encouraging evidence about incorporating heterogeneity. For example, Jonathan Parker and Annette Vissing-Jorgensen[35] document that the consumption of rich households is over five times more volatile than aggregate consumption, which may help to explain average premiums in financial markets. Yi-Li Chien, Harold L. Cole, and Lustig[36] build a model in which a large fraction of households do not rebalance their portfolios in response to aggregate shocks. As a consequence, households who do rebalance need to sell more stocks in good times and buy more stocks in bad times. This mechanism generates time variation in risk premiums.

Concluding Remarks

The financial crisis has had many negative effects on the economy, but it has had positive effects in stimulating a range of new research in asset pricing. Asset Pricing Program members have begun to evaluate whether conventional models can make sense of the experience in financial mar-

kets during the crisis. Many of the assumptions and mechanisms in these models are being questioned. To borrow from the title of Malmendier and Nagel's paper, we will see a lot more interesting research by "Crisis Babies" over the coming years.

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Research Summaries

International Trade and Organizations

Pol Antràs*

The three central primitives of international trade theory are consumer preferences, factor endowments, and the production technologies that allow firms to transform factors of production into consumer goods. A limitation of traditional trade theory, however, is that the specification of technology treats the mapping between factors of production and final goods as a black box. In practice, the decisions of agents in organizations determine this mapping. Recently, international trade economists have incorporated insights from the field of Organizational Economics into their theories, thereby shedding new light on the mapping between factors of production and consumer goods. This research agenda is important for at least three reasons. First, it provides an explanation for phenomena that standard trade theory is unable to explain (such as the boundaries and hierarchical structure of multinational firms, or the determinants of intrafirm trade). Second, this literature illustrates how considering the endogenous response of organizations to changes in the economic environment (such as falling trade costs, declining communication costs, or improvements in contract enforcement) can dramatically affect or even overturn some predictions of standard models. Third, this line of models leads to a revision of key aspects of the design of efficient international trade agreements.

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What follows is a brief account of some of my own contributions to the literature on international trade and organizations. In my joint survey article with Esteban Rossi-Hansberg,[1] we have attempted to provide a more balanced overview of this literature.

Property Rights and the International Organization of Production

In my Ph.D. dissertation, I studied different aspects of the recent increase in the globalization of production. I stressed the fact that in developing their global sourcing (or offshoring) strategies, firms not only decide on where to locate the different stages of the value chain, but also on the extent of control they want to exert over these processes. Firms may decide to keep the production of intermediate inputs within firm boundaries, thus engaging in foreign direct investment (FDI) and intrafirm trade, or they may choose to contract with arm's length suppliers for the procurement of these components, thus engaging in foreign outsourcing and arm's-length trade. In order to understand systematic patterns in these firm decisions, models of the international organization of production that combine elements from international trade models and from theory-of-the-firm models are needed. In early work, I built on the influential incomplete-contracting, property-rights theory of the firm of Grossman, Hart, and Moore.[2]

In a first paper,[3] I unveil two systematic patterns in the intrafirm component of U.S. trade and show that an incomplete-contracting version of the Helpman and Krugman (1985) framework can successfully explain them. More specifically, I start out by demonstrating the existence of 1) a positive cross-industry correlation between capital intensity and the share of intrafirm imports in total U.S. imports, and 2) a positive cross-country correlation between an exporting country's relative capital abundance and the share of intrafirm trade. The theoretical model establishes that these correlations can easily be rationalized in a world in which property rights are allocated in an efficient manner across producers worldwide. The key partial equilibrium result in the paper is that vertical integra-

tion of foreign suppliers is optimal only when the elasticity of output (or sales) with respect to the final-good producer's noncontractible investments is large relative to the elasticity of output (or sales) with respect to the supplier's noncontractible investments. Because the noncontractible investments carried out by final-good producers are generally more capital-intensive than those undertaken by supplying firms (see the paper for evidence), the rationale for integration is much stronger in capital intensive sectors.

In a second paper,[4] I develop a theoretical framework showing that the incompleteness of international contracts leads to the emergence of product cycles, with new goods being initially manufactured in the rich North and only later in the less developed South. My framework also features the emergence of "organizational cycles," by which manufacturing is shifted abroad, first within firm boundaries and only at a later stage to independent foreign firms. I also use the model to interpret several findings of the empirical literature on the product cycle.

Finally, in a paper co-authored with Elhanan Helpman,[5] we introduce incomplete contracting and offshoring in the intraindustry heterogeneity model of Melitz[6] and study the effects of within-sectoral heterogeneity and variations in industry characteristics on the relative prevalence of different organizational forms. In a subsequent paper,[7] we extend our model to accommodate varying degrees of contractual frictions across inputs and countries. Our theoretical framework has become the basis for an active empirical literature attempting to shed light on the determinants of the global sourcing decisions of firms. The preliminary results of this empirical research agenda seem broadly consistent with the predictions of our theory, although future work is needed to better discriminate our model from alternative theoretical explanations of the evidence. The increasing availability of firm-level data on the sourcing decisions of firms should facilitate this task.

Contractual Frictions and the International Organization of Production

Contractual frictions are not only crucial in determining the optimal allocation of control within organizations, but also affect other important decisions of firms. Why do firms appear to be so much more efficient in certain countries than in others? In joint work with Daron Acemoglu and Elhanan Helpman,[8] we show that the quality of contractual institutions may play an important role in shaping cross-country income differences through its effect on the technology adoption decisions of firms. By exploring the endogenous determination of the equilibrium mapping between factors of production and final goods, we are able to show that the effect of contractual frictions on productivity is more pronounced when there is greater complementarity among the intermediate inputs used in production. We show that this differential effect has important consequences for industrial structure and for understanding variation in comparative advantage across countries. Our framework also has clear implications for how firms react to variation in contractual environments in shaping their global sourcing strategies.

Financial Frictions and the International Organization of Production

The bulk of the literature on offshoring and FDI generally ignores the financial side of these transactions. Mihir Desai, C. Fritz Foley,[9] and I study how FDI flows and patterns of multinational firm activity are jointly determined in a world with frictions in financial contracting. In our joint work, we develop a model in which multinational firm activity does not arise to avoid risk of technological expropriation by local partners, but rather because of the demands of external funders who require the participation of multinational firms to ensure value maximization by local entrepreneurs. The main novel predictions of the model are that weak investor protection increases the attractiveness of deploying technology abroad through FDI rather than arm's length technology transfers, and it increases the share of activity abroad that is financed by capital (FDI) flows from the multinational parent. We test the predictions of the model using detailed firm-level data on U.S. outbound FDI and find support for the empirical relevance of our theory. Consistent with the model, we find that these effects of weak investor protection are most pronounced for technologically advanced firms.

Empirical evidence suggests that cross-country variation in investor protection not only affects the geography of FDI flows and multinational activity, but also shapes the pattern of international trade across countries. In joint work, Ricardo Caballero and I[10] revisit the robustness of one of the classical results in neoclassical trade theory to the introduction of heterogeneity in investor protection across countries. In particular, we find that the mere introduction of heterogeneous financial frictions in the Heckscher-Ohlin model overturns the classical substitutability between trade and capital mobility in the standard model. More precisely, we find that in less financially developed economies, trade and capital mobility are complements, in the sense that trade integration increases the return to capital and thus the incentives for capital to flow to the South. An important implication of our framework is that increased protectionism can aggravate the so-called "global imbalances" around the world.

Knowledge and the International Organization of Production

Another important friction in the international fragmentation of production is related to the costly communication of information between members of cross-border production teams. Luis Garicano, Esteban Rossi-Hansberg, and

I[11] develop models of international offshoring in economies in which agents have heterogeneous abilities and sort into teams competitively. In these models, an important role of the organizational structure of firms is to facilitate efficient communication of knowledge within teams. Our models illustrate how the quantity, quality, and effects of international offshoring are related to the distribution of skills in the population and to the state of communication technologies. They also shed light on the role of host-country management skills (that is, middle management) in bringing about the emergence of international offshoring. In particular, we show that by shielding top management in the source country from routine problems faced by host country workers, the presence of middle managers improves the efficiency of the transmission of knowledge across countries.

Implications for Trade Policy

Although the bulk of the papers discussed above focus on positive issues, they also bear on important policy questions. A potentially fruitful avenue of research concerns the role of trade policy in a world where firms make organizational decisions under incomplete contracts. Robert Staiger and I provide a first attempt in this direction.[12] We study the implications of the fact that, in transactions involving significant lock-in effects (perhaps because of ex-ante customization of goods, or search frictions), prices tend to be negotiated bilaterally and are not fully disciplined by market-clearing conditions, as in traditional theory. In the paper, we show that trade policy changes in local prices can have spillover effects in other countries, even when they hold constant international (untaxed) prices, thus leading to predictions quite distinct from those of the traditional terms-of-trade theory of trade agreements. As a consequence, we argue that the growing prevalence of offshoring and service trade (which are often associated with lock-in effects) is likely to make it increasingly difficult for governments to rely on traditional GATT/WTO concepts and rules (such as market access, reciprocity, and nondiscrimination) to help them solve their trade-related problems.

In recent work,[13] Arnaud Costinot and I explore the implications of search frictions and bilaterally negotiated prices for the worldwide distribution of the gains from international trade. Our models illustrate the potentially crucial role of intermediaries in bringing to life the gains from international exchange, but they also suggest that active policies might ensure that the margins charged by these middlemen allow the potential benefits from international integration to materialize. Although caps on foreign intermediaries' margins (for example, "fair" prices) can be welfare improving in certain scenarios, we show that they typically reduce the benefits of international trade.

Next Steps: Dynamics

Combining trade theories with organizational theories sheds new light on international trade phenomena and has sparked empirical and normative work attempting to better understand these facts. Nevertheless, much remains to be done. For instance, most of the work in this area is static in nature. In dynamic environments, organizations might be able to adjust to contractual or financial frictions in subtle ways that are not captured by the available frameworks. An important branch of organizational economics is concerned with these dynamic effects, but these developments thus far have only had a small impact in the trade and organizations field.

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Bubbles, Liquidity, and the Macroeconomy

Markus K. Brunnermeier*

The recent financial crisis has shown that financial frictions, such as asset bubbles and liquidity spirals, have important consequences, not only for the financial sector but also more generally for the macroeconomy. This forces economists to reevaluate firmly held beliefs about market efficiency, the appropriate regulation of financial markets, and approaches to macroeconomic policymaking. The subsequent paragraphs summarize my ongoing research in these domains.

Asset Price Bubbles

Under the efficient market hypothesis, bubbles burst before they even have a chance to emerge. Hence, an asset's market price should correctly reflect its underlying fundamental value. However, bubbles historically have emerged as investors were willing to hold assets, even when their prices exceeded their fundamental value — they hoped to sell these assets at an even higher price to some other investor in the future. In a setting in which a single investor alone cannot bring down a bubble, it can be rational for an individual to ride the bubble. In other words, the uncertainty of not knowing when other investors will start trading against the bubble makes each individual rational investor anxious about whether he can afford to be out of (or short) the market until the bubble finally bursts. Consequently, each investor is reluctant to lean against the bubble and might even prefer to ride it. Thus price corrections only occur with delay, and often abruptly.[1] My empirical research with Stefan Nagel studies hedge funds' holdings of technology stocks during the internet bubble, and it confirms that even sophisticated investors were riding the bubble rather than leaning against it.

The second important message of this line of research is that small, fundamentally unimportant news can trigger large price swings. Such information can serve as a synchronization device that triggers the attack on a bubble. This explains why most large asset price movements are not associated with important news announcements.[2] It also suggests that communication by central bankers and regulators is a very important policy tool.

The bubble-riding hypothesis also provides a different view of risk measures. Even though risk seems to be tamed while the bubble is inflating, risk and imbalances are building up below the surface, and volatility suddenly spikes when the bubble bursts. This is in contrast to the efficient market view, which asserts that contemporaneous risk measures appropriately capture current risk exposure.

Credit Bubbles and Liquidity Spirals

One important lesson from the current crisis is that credit bubbles, like the recent housing bubble or the stock market bubble in the 1920s, can be much more detrimental than the bubbles that are not financed with debt, such as the internet bubble. The reason is that during the bursting of a credit bubble, amplification effects exacerbate initial shocks and impair the financial system.

My paper "Deciphering the Liquidity and Credit Crunch"[3] describes the transformation of the banking system to one that increasingly relied on wholesale funding and the emergence of the

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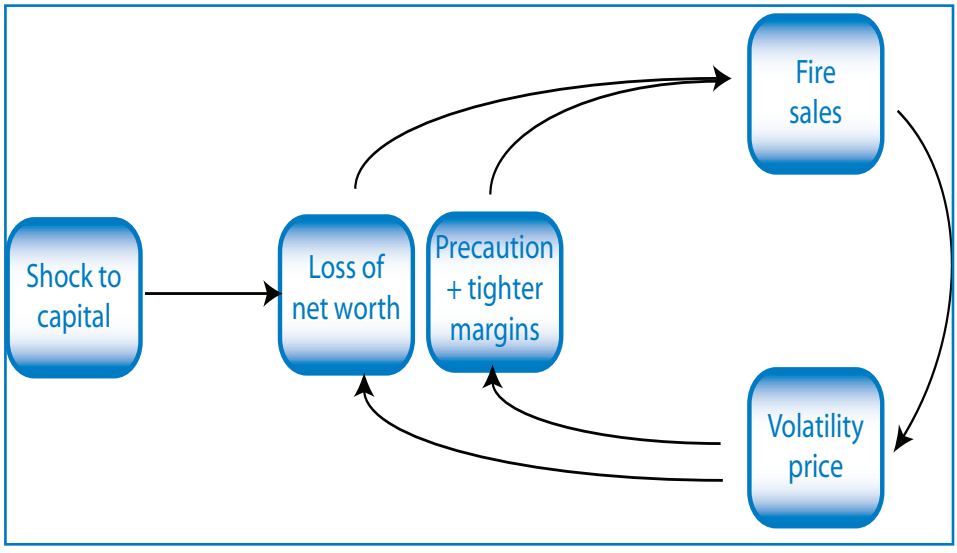
"shadow banking system." What made the shadow banking especially unstable was that it excessively relied on short-term financing. As a result, a large fraction of credit had to be rolled over each day. Note that collateral loans, which are subject to daily increases in margins or haircuts, are essentially only overnight loans. The amplification effects can be described by two liquidity spirals: the loss spiral (outer spiral) and the margin/haircut spiral (inner spiral shown in Figure 1 below).

The loss spiral arises for leveraged investors. A decline in assets' values erodes these investors' net worth much faster than their gross worth (because of their leverage), and the amount that they can borrow consequently falls, which forces further liquidation. This in turn leads to further price drops. For example, consider an investor who buys $100 million worth of assets on 10 percent margin. This investor finances only $10 million with his own capital and borrows $90 million. The leverage ratio is therefore 10. Now suppose that the value of the acquired asset declines temporarily to $95 million. The investor, who started out with $10 million in capital, has lost $5 million and has only $5 million of his own capital remaining. Holding the leverage ratio constant at 10, this investor is forced to reduce the overall position to $50 million — which means selling assets worth $45 million exactly when the price is low. These sales depress the price further, inducing more selling and so on.

The margin/haircut spiral reinforces the loss spiral. Margins and haircuts spike in times of large price drops, leading to a general tightening of lending. As margins or haircuts rise, the investor has to sell even more than he would have because of the loss spiral alone, because he needs to reduce his leverage ratio (which was held constant in the loss spiral). Pedersen and I (2009)[4] show that a vicious cycle emerges, whereby higher margins and haircuts force de-leveraging and more sales, which increase margins further and force more sales, leading to the possibility of multiple equilibriums. In addition, borrowers' demand decreases: because of higher volatility, they are afraid that they will not be able to roll over their debt in the future and will be forced to sell their assets exactly when the price level (market liquidity) is depressed. They are therefore less willing to hold risky assets in the first place.

Figure 1: The two liquidity spirals: loss spiral and margin spiral.



Note: Funding problems force leveraged investors to unwind their positions causing 1) more losses and 2) higher volatility leading to precautionary hoarding, higher margins and haircuts, which in turn exacerbates the funding problems and so on.

On the Macroeconomy

More generally, while the financial system makes the economy more efficient, it also can be the reason for macroeconomic instability. My recent work with Yuliy Sannikov incorporates these financial frictions into macroeconomic models. In this line of research, productive agents borrow from less productive households, partially through intermediaries such as banks. We show that the economy is prone to instability and occasionally enters volatile episodes. While in existing models like Bernanke-Gertler-Gilchrist (1998)[5] and Kiyotaki-Moore (1995)[6], financial frictions amplify the initial shock and lead to persistent reduced economic activity, we identify a channel that emphasizes the importance of the precautionary motive by investors. This channel significantly dampens prices and economic activity. Interestingly, the stationary distribution of the dynamic system in our model is bimodal, implying that (without government intervention) the dynamic system can be stuck in the crisis state for a significant amount of time. Log-linear approximations that are popular in much of the existing macroeconomic literature fail to capture these important non-linear effects.

Most importantly from a policy perspective, we show that financial experts impose a negative externality on each other and on the labor sector by not maintaining adequate capital cushions and a sustainable funding structure. These externalities are a major source of market failure. The problem is that although it can be socially costly, it can be individually optimal to expose oneself to the risk of getting caught in a liquidity spiral by holding highly leveraged positions with a mismatch in asset-liability maturities. Each individual speculator takes future prices as given and hence does not take into account the fact that unloading assets will cause some adverse effects on other speculators, forcing them to sell their positions as well. My work with Yuliy Sannikov also shows that the financial sector does not fully internalize the externalities it causes on

the labor market because workers prefer a more conservative bonus-and-dividend policy than financial experts.

Systemic Risk Measure — CoVaR — Financial Stability

My paper "CoVaR",[7] written with Tobias Adrian, attempts to measure the spillover effects that the failure of one financial institution has on the aggregate system. We propose a dramatic shift away from measuring the risk of a financial institution in isolation (like the Value-at-Risk does) towards macro-prudential measures of systemic risk. Our approach recognizes that splitting one large, individually systemic institution into many small identical clones does not increase financial stability, because all the clones co-move perfectly with each other and thus are "systemic as part of a herd". Therefore, simply regulating financial institutions based on their size ultimately cannot reduce the risk of a financial crisis. Rather, regulatory regimes must be designed to recognize that the financial system is heterogeneous. It is well known in systems and complexity theory that systems of heterogeneous entities are much more stable than homogenous systems.

The second challenge is that financial regulation, which is directly based on risk measures, introduces an element of pro-cyclicality, even if it is based on systemic risk measures. Any risk measure declines during a boom, even though risk is building up in the background, only to materialize when an adverse shock hits. Immediately following the first shock, risk measures shoot up and cause financial regulation to tighten just when it should be loosened. Hence, it is important for regulatory policy to take into account variables and characteristics of financial institutions that are both easily observable and forecast future spillover effects. The CoVaR approach provides one method for identifying these characteristics and determining how much weight should be assigned to each of them. Relying on data that encapsulates the major crises of the last 23 years, the CoVaR method calibrates the relative importance of various characteristics. For example, our estimates show that financial institutions' spillover risk increases more than proportionally with its size and gives precise estimates of the reduction of leverage that is needed in order to offset increased maturity mismatch.

Price and Financial Stability

Recent events have highlighted the close connection between (non-conventional) monetary policy and financial stability — the two cannot be divorced. My most recent work with Yuliy Sannikov shows how an ailing financial system can lead to deflationary pressure. In our model, agents are subject to productivity shocks. Consequently, some agents are productive while others are not. If there were no money, even the unproductive agents would accumulate physical capital, wanting to hold capital when they face a positive productivity shock. Introducing (fiat) money leads to large efficiency gains, because unproductive agents can then sell their physical capital for money. Hence, physical capital is held only by productive agents, while less productive agents hold money. However, productive agents' borrowing and leverage is limited because private lenders have only limited monitoring technology. In contrast, banks are better at monitoring borrowers. Therefore, they extend bigger loans. By issuing short-term debt, banks create (inside) money. Overall, this leads to higher leverage and further enhances productivity in the economy. However, banks monitoring activity depends on how well they are capitalized. After a negative shock, they cut back on their lending activities for precautionary hoarding reasons. As a consequence, their (inside) money creation shrinks. Consequently, the value of (outside) money rises, causing deflationary pressure, which can be mitigated either by a redistribution of resources towards banks or by expanding the outside money supply. Overall, our model strives to provide an integrated framework for studying the simultaneous regulation of the financial sector and monetary policy. Importantly, money arises endogenously in our setting, and since financing frictions are the driving force in our model, we do not need to rely on price rigidity to derive our results.

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Labor Market Flows, Business Dynamics, and Unemployment

Steven J. Davis*

Measured from establishment-level data on employment gains and losses, job creation and destruction average nearly 8 percent of employment per quarter in the U.S. private sector. Worker flows in the form of establishment-level hires and separations are more than twice as large.[1] These facts summarize the remarkable extent of job and worker flows in U.S. labor markets. They provide powerful motivation for theories of frictional unemployment.

In recent research with several coauthors, I explore the relationship of job flows to worker flows, develop methods to improve the measurement of worker flows, investigate job loss and business volatility trends, and provide new evidence on the determinants of long-term movements in the unemployment rate.

Job Flows and Worker Flows in the Cross Section

Data from the Job Openings and Labor Turnover Survey (JOLTS) display a very tight link between job flows and worker flows in the cross section of employers. In Figure 1 we see that hires rise a bit more than one-for-one with establishment-level job creation. Separations rise a bit more than one-for-one with job destruction.[2] Further investigation reveals that layoffs are the main margin of employment adjustment for establishments with high job destruction rates, while both quits and layoffs are important margins at moderate destruction rates. Many studies find, not surprisingly, that layoffs are much more likely than quits to result in unemployment spells.[3] Thus, higher rates of job destruction bring higher layoff rates and greater worker flows into unemployment.

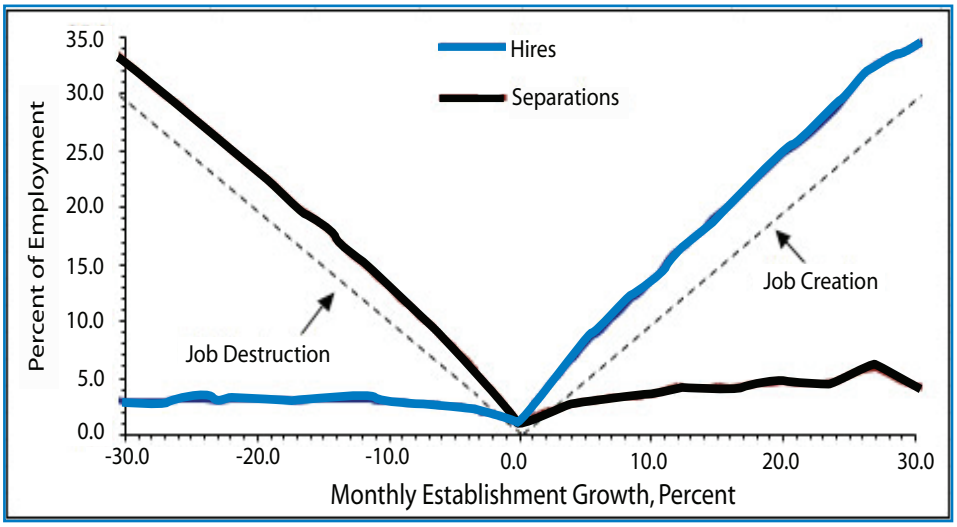
Pitfalls in Measuring Worker Flows from Employer Survey Data

A striking feature of Figure 1 is the highly nonlinear relationship of hires and separations to employer growth rates. These relations exhibit pronounced kinks at zero, steep slopes moving away from zero in one direction, and mild slopes with an opposite sign in the other direction. Similar patterns hold for quits and layoffs.

These highly nonlinear relations create potential pitfalls in the measurement of worker flows from survey data. To see the issue, observe that aggregate hires, for example, are the weighted sum of hires at establishments with different growth rates, with weights given by the amount of employment at each growth rate. In order to accurately measure aggregate worker flows, it is necessary to combine good estimates for the type of cross-sectional relations in Figure 1 with an accurate measure of the (weighted) cross-sectional distribution of employer growth rates.

Using survey data to construct an accurate measure of the growth rate distribution is challenging for two reasons. First, employer surveys typically capture new establishments with a considerable lag. Entrants account for a disproportionate share of hires and, more generally, newer establishments exhibit a *much* higher incidence of extreme growth rates.[4] Second, survey response rates are correlated with employer growth rates in the cross section. More to the point, and borrowing a line from Robert Hall: the first employee let go from a declining establishment is the person who fills out government surveys. For both reasons, employer surveys tend to produce growth rate distributions with too little mass in the tails. Inspecting Figure 1, it is easy to see why missing tail

Figure 1 — The Relationship of Hires and Separations to Establishment Growth



Source: JOLTS micro data from 2001 to 2006

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mass generates a downward bias in worker flow estimates.

My coauthors and I study this issue in the JOLTS program, a leading source of information about worker flows and job openings for the U.S. economy.[5] We verify that the growth rate distribution generated by the JOLTS sample has much less tail mass than that implied by the comprehensive Business Employment Dynamics (BED) database. We also develop a method to correct the problem. The key idea is to reweight the cross-sectional distributions of employment *growth rates* in JOLTS to match the corresponding distributions in the comprehensive BED.

Our adjusted statistics for hires and separations exceed the published statistics by about one third. The adjusted layoff rate is more than 60 percent greater than the published layoff rate. Our adjustments significantly alter time-series properties as well. Aggregate hires are 50 percent more variable than separations in published JOLTS statistics, as measured by the variance of quarterly rates, but 20 percent less variable according to our adjusted statistics. Quarterly quit rates are more than twice as variable as layoffs in published statistics but equally variable according to our adjusted statistics.

Secular Declines in Job-Loss Rates before the Great Recession

American workers faced lower risks of job loss in the years leading up to the Great Recession of 2007–9 than ten, twenty, or thirty years earlier. I review some of the evidence for this claim in "The Decline of Job Loss and Why It Matters."[6] There, my attention centers on "unwelcome" job loss: employer-initiated separations that lead to unemployment, temporary or persistent drops in earnings, and other significant costs for job losers. Since there is no fully satisfactory statistic for the incidence of job loss, I consider several measures and data sources.

New claims for unemployment benefits as well as employment-to-unemployment flows in the Current Population Survey show dramatic declines in the risk of job loss since the 1970s and early 1980s. Job destruction measures from various sources also point to large declines in the risk of job loss, with a generally downward drift since the 1970s.[7] The much-studied Displaced Worker Survey is an outlier in suggesting that essentially the entire long-term decline in the risk of job loss reflects a recovery from the deep recession of the early 1980s. Other measures point to continuing declines in the risk of unwanted job loss long after the early 1980s. All of this evidence pertains to the period before the Great Recession. Whether job loss rates will return to relatively quiescent levels in the near future remains to be seen.

Business Volatility Trends: Privately Held Versus Publicly Traded Firms

Declining rates of job destruction in the decades leading up to the Great Recession appear puzzling when set against evidence that publicly traded firms became more volatile over the same period.[8] My coauthors and I tackle this puzzle using the Longitudinal Business Database (LBD).[9] This comprehensive database contains annual employment observations for all nonfarm establishments and firms in the U.S. private sector. The LBD enables us to extend the study of business volatility to privately held firms and, together with COMPUSTAT data, to distinguish publicly traded from privately held firms.

We first use LBD employment data to confirm that business-level volatility trended upward for publicly traded firms, rising more than 50 percent from 1978 to 2001. Our central finding, however, is a large secular decline in the cross-sectional dispersion of business growth rates and in the average magnitude of business volatility. This result holds whether we define "businesses" in terms of firms or establishments. Using the same measure as in previous research, the employment-weighted mean volatility of firm growth rates fell by more than 40 percent from 1982 to 2001.

Resolution of the puzzle turns on a remarkable finding: the large upward trend in volatility among publicly traded firms is overwhelmed by a large downward trend in volatility among privately held firms. It turns out that widespread perceptions of deteriorations in employment stability placed too much weight on developments at publicly traded firms. Privately held firms, hitherto little studied in this context, account for more than two-thirds of U.S. private-sector employment, and they dominate the overall volatility trends.

Digging deeper, we find that two basic patterns hold across major industry groups. First, the volatility and dispersion of business growth rates are much greater among privately held firms. As of 1978, the average standard deviation of firm-level employment growth rates is 3.7 times larger for privately held than for publicly traded firms. This volatility ratio ranges from 2.3 in Services to 6.3 in Transportation and Public Utilities. Second, volatility and dispersion decline sharply among privately held businesses in the period covered by the LBD, and they rise sharply among publicly traded firms. The overall private-public volatility ratio falls to 1.6 by 2001, and it drops sharply from 1978 to 2001 in every major industry group. In other words, there was a pronounced "volatility convergence" between privately held and publicly traded firms.

Employment shifts toward older businesses account for more than a quarter of the volatility decline among privately held firms. The story for publicly traded firms is very different. There was a large influx of newly listed firms after 1979, with about 10 percent of listed firms new each year from 1980 to 2001. Newly listed firms are much more volatile than seasoned listings. Moreover, firms newly listed in the 1980s and 1990s exhibit greater volatility on an age-adjusted basis than earlier cohorts.

These observations point to a major evolution in the economic selection process governing entry into the set of publicly traded firms. Indeed, we find that simple cohort dummies for the year of first listing account for 67 percent of the volatility rise among publicly traded firms from 1978 to 2001. Other researchers find that later cohorts of publicly traded

firms are riskier in terms of equity return variability, profit variability, time from IPO to profitability, and business age at time of first listing.[10]

Implications for Unemployment

In the canonical equilibrium model of search and matching in the labor market, less job destruction means fewer job-losing workers, smaller unemployment inflows, and lower unemployment rates.[11] It is natural to ask — motivated by the trend declines in business volatility and job destruction — whether this simple mechanism played a significant role in the downward drift of U.S. unemployment rates after the early 1980s.

To address this question, my coauthors and I investigate the low-frequency relationship of unemployment inflows to job destruction and business variability measures.[12] At the aggregate level, the secular decline in these measures roughly coincides with a marked decline in the magnitude of unemployment flows. Inflows, for example, fell from 4 percent of employment per month in the early 1980s to about 2 percent per month by the mid-1990s, and they remained low until the Great Recession.

While suggestive, this aggregate relationship is confounded by other factors that affect the evolution of unemployment flows, including the aging of the workforce.[13] Thus, we turn to industry-specific movements in unemployment flows and their relationship to industry-specific movements in business variability and job destruction. Unlike previous research on unemployment flows, ours focuses on low-frequency relationships and interprets the evidence in light of steady-state properties of a frictional unemployment model.

The industry-level data provide strong evidence that job destruction and business variability measures can explain large changes in the incidence of unemployment. For example, we estimate that a decline of 100 basis points in an industry's quarterly job destruction rate lowers its monthly unemployment inflow rate by 28 basis points with a standard error of 4 basis points. This estimate reflects a specification that controls for industry and time fixed effects. Ignoring time aggregation, the estimate indicates that the response of unemployment inflows over one quarter is 84 percent (three months times 28 basis points per month), as large as the movement in the number of jobs destroyed.

To put this result in perspective, the quarterly job destruction rate for the private sector fell 174 basis points from 1990 to 2005. Multiplying this fall by its estimated effect in the industry-level analysis yields a decline of 48 basis points in the unemployment inflow rate. This response amounts to 55 percent of the drop in the unemployment inflow rate from 1990 to 2005 and 22 percent of its average value. Analogous estimates and calculations based on a different data source imply that falling job destruction rates account for 28 percent of the larger drop in unemployment inflow rates from 1982 to 2005. In short, secular declines in job destruction rates were a major factor behind the long-term drop in unemployment inflows.

What do these results say about the determinants of long-term movements in the rate of unemployment? The average unemployment rate fell by 43 log points from the period 1976–1985 to 1996–2005. Simple accounting shows that this decline is almost entirely attributable to a drop in the inflow rate. This accounting result, when combined with our estimates, implies that the secular fall in job destruction explains about a quarter to one half of the long-term decline in the aggregate unemployment rate. In terms of the canonical equilibrium model of search and matching, this result is consistent with a significant downward trend in the intensity of idiosyncratic labor demand shocks in the quarter century before the Great Recession.

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[1] *See S.J. Davis, R.J. Faberman, and J. Haltiwanger, "The Flow Approach to Labor Markets: New Evidence and Micro-Macro Links," NBER Working Paper No. 12167, April 2006, and* Journal of Economic Perspectives, *20(3) (Summer 2006) pp. 3–24; and S.J. Davis and J. Haltiwanger, "Measuring Gross Worker and Job Flows," NBER Working Paper No. 5133, May 1995, and* Labor Statistics Measurement Issues, *J. Haltiwanger, M. Manser, and R. Topel, eds., University of Chicago Press, 1999.*

[2] *Figure 1 is reproduced from S.J. Davis, R.J. Faberman, J. Haltiwanger, R. Jarmin, and J. Miranda, "Business Volatility, Job Destruction, and Unemployment," NBER Working Paper No. 14300, September 2008, and* American Economic Journal: Macroeconomics, *2(2) (April 2010), pp. 259–87.*

[3] *See the discussion on pages 7–8 of Davis, Faberman, and Haltiwanger (2006).*

[4] *See, for example, S.J. Davis and J. Haltiwanger, "Gross Job Creation, Gross Job Destruction and Employment Reallocation," NBER Working Paper No. 3728, June 1991, and* Quarterly Journal of Economics, *107(3) (August, 1992), pp. 819–63; and S.J. Davis et al., "Measuring the Dynamics of Young and Small Businesses," NBER Working Paper No. 13226, July 2007, published in* Producer Dynamics: New Evidence from Micro Data, *T. Dunne, J.B. Jensen, and M.J. Roberts, eds., University of Chicago Press, 2009.*

[5] *S.J. Davis, R.J. Faberman, J. Haltiwanger, and I. Rucker, "Adjusted Estimates of Worker Flows and Job Openings in JOLTS," NBER Working Paper No. 14137, June 2008, forthcoming in* Labor in the New Economy, *K. Abraham, M. Harper, and J. Spletzer, eds.*

[6] American Economic Review: Papers and Proceedings, *98(2) (May 2008), pp. 263–67. See also Figures 2 and 3 of Davis, Faberman, and Haltiwanger, 2006; Figure 4 of R. Shimer, "Reassessing the Ins and Outs of Unemployment," NBER Working Paper No. 13421, September 2007; Figure 2 of M. Elsby, R. Michaels, and G. Solon, "The Ins and Outs of Cyclical Unemployment," NBER Working Paper No. 12853, January 2007, and* American Economic Journal: Macroeconomics *1(1) (January 2009), pp. 84–110.*

[7] *See Davis, Faberman, and Haltiwanger (2006); Davis et al., "Business Volatility, Job Destruction, and Unemployment"; and R.J. Faberman, "Job Flows, Jobless Recoveries, and the Great Moderation," Federal Reserve Bank of Philadelphia Working Paper No. 08–11 (June 2008).*

[8] *See, for example, J.Y. Campbell et al., "Have Individual Stocks Become More Volatile?" NBER Working Paper No. 7590, March 2000, and* Journal of Finance *56(1) (February 2001), pp. 1–43; and D. Comin and S. Mulani, "A Theory of Growth and Volatility at the Aggregate and Firm Level," NBER Working Paper No. 11503, August 2005, and* Review of Economics and Statistics *88(2) (May 2006), pp. 374–83.*

[9] *S.J. Davis, J. Haltiwanger, R. Jarmin, and J. Miranda, "Volatility and Dispersion in Business Growth Rates: Publicly Traded versus Privately Held Firms," NBER Working Paper No. 12354, July 2006, and* NBER Macroeconomics Annual 2006, *Volume 21 2007.*

[10] *See, for example, E. Fama and K. French, "New Lists: Fundamentals and Survival Rates,"* Journal of Financial Economics, *73(2) (August 2004), pp. 229-69; and G. Brown and N. Kapadia, "Firm-Specific Risk and Equity Market Development,"* Journal of Financial Economics, *84(2) (May 2007), pp. 358–88.*

[11] *The literature is vast. A seminal contribution is D.T. Mortensen and C.A. Pissarides, "Job Creation and Job Destruction in the Theory of Unemployment,"* Review of Economic Studies *61(3) (July 1994), pp. 397–415.*

[12] *S. J. Davis et al., "Business Volatility, Job Destruction, and Unemployment," op. cit.*

[13] *See R. Shimer, "Why Is the U.S. Unemployment Rate So Much Lower?"* NBER Macroeconomics Annual 1998, *Volume 13, 1999.*

The Great Society, Food and Nutrition Programs, and Family Well Being

Hilary Hoynes *

Food and nutrition assistance programs are an important part of the U.S. safety net. In 2009, the Food Stamp Program (FSP) served about 34 million persons at a total cost of $56 billion and the Supplemental Program for Women, Infants and Children (WIC) served 9 million people at a cost of $6.5 billion dollars.[1] The goal of these two programs is to improve the nutritional well-being and health of low-income families. In the post-welfare-reform era, the FSP increasingly has become the central safety net program in the United States. It is the only program that is universal — provided to all ages and family types whose income and assets make them eligible — and, unlike other cash or near-cash assistance programs, it is adjusted each year for changes in the cost of food. From 2008 to 2009, food stamp caseloads increased almost 20 percent.[2]

Both FSP and WIC were developed in the Great Society period of the 1960s and 1970s. They were introduced in direct response to policy recommendations highlighting health deficits among low-income individuals that might be reduced by improved access to food. It was further recognized that by providing food at "critical times" to pregnant and lactating women and young children, it might be possible to prevent a variety of health problems.[3]

Throughout the history of the FSP and WIC, the program parameters were set by the U.S. Department of Agriculture; they are uniform across states. This is unusual, because U.S. states play an important role in setting the generosity of most means-tested transfer programs. Without the state-level variations that economists often use to evaluate transfer programs, the earlier research on FSP and WIC typically relied in some way on comparing program participants to non-participants.[4] Recently, this approach has come under question. For example, a number of researchers have pointed out that if pregnant women who participate in WIC are healthier, more motivated, or have better access to health care than other eligible women, comparisons between the children of WIC participants and non-participants could produce positive estimates for the program's results, even if there were none. Conversely, if WIC participants are more disadvantaged than other mothers, then such comparisons may understate the program's impact.[5] Similar arguments apply to the FSP; in fact several studies find that food stamp participation leads to a *reduction* in nutritional intake. These unexpected results are almost certainly driven by negative selection into the program.[6]

In a series of studies, my coauthors and I have estimated the impact of these food and nutrition programs by exploit-

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ing a novel research design. Specifically, we exploit considerable variation across *counties* in the geographic rollout of food stamps and WIC. FSP was introduced across U.S. counties over a 15-year period: the earliest programs were established in 1961 and the last ones in 1975. WIC was established first as a pilot program in 1972, it became permanent in 1975, and it reached near universal coverage by the end of the 1970s. The cross-county variation in the initiation of these two programs over time forms the basis for our estimation strategy. This research strategy has also been used to study other social programs similarly rolled out during the 1960s and 1970s, including Head Start, Medicare, and family planning services.[7] Using this county-by-county program rollout, my coauthors and I estimate the impact of FSP on food spending, labor supply, infant health, and adult economic and health outcomes, as well as the impact of WIC on infant health. This article briefly describes that work and possible future work in the area.

Food Stamps and Family Expenditures on Food

One project, with Diane Whitmore Schanzenbach, uses the geographic rollout of the FSP to examine how food stamps affect family expenditures.[8] Food stamp benefits are not distributed as cash payments, but instead are vouchers which can be used to purchase a wide range of food products. However, the typical economic model predicts that vouchers should lead to the same outcome as a similar sized cash transfer. As a result, depending on consumer preferences, providing in-kind transfers (relative to cash) may have little or no impact on purchases of the actual goods being subsidized. With this background, we examine two aspects of the introduction of food stamps. First, we ask how the introduction of food stamps affects family spending on food. Second, we consider how this change in food spending compares to the change that would have occurred if the benefits were provided in cash, rather than vouchers.

We use data from the Panel Study of Income Dynamics (PSID) from 1968-78 to examine the impact of the FSP on expenditures on food spent at home, meals eaten out, and total food spending. Our strategy takes advantage of the sharp timing of the county-by-county rollout of the FSP, initially constrained by congressional funding authorizations but finally available in all counties by 1975. Specifically, we use a difference-in-difference setting and information on the month that the FSP began operating in each of the roughly 3,100 U.S. counties. Our results indicate that people behave just as the theory predicts: the introduction of FSP leads to a decrease in out-of-pocket food spending and an increase in overall food expenditures. We are not able to determine the effect of FSP on the propensity to eat meals at restaurants, for which we find mixed and statistically insignificant results. Further, we learn that the marginal propensity to consume food out of food stamp income is close to the marginal propensity to consume food out of cash income. Therefore, providing food stamp benefits in voucher form leads to a minimal distortion of the consumption choice relative to what it would be if the benefit were provided in cash.

Food Stamps and Infant Health

In a second study, Douglas Almond, Schanzenbach, and I examine the impact of food stamps on infant health.[9] As one of the largest anti-poverty programs in the United States — comparable in cost to the Earned Income Tax Credit (EITC) and substantially larger than Temporary Assistance for Needy Families (TANF) — FSP's effects are important to understand both in their own right and for what they reveal about the relationship between income and health.

Interestingly, while the goal of the FSP is to increase the nutrition of the poor, few researchers have examined its impact on health outcomes. Thus, our first motivation was to quantify a potential health benefit of the FSP and, in so doing, to broaden our thinking about the benefits of the program. Our second aim, building on the work described above in which we find that the introduction of food stamps represents an exogenous increase in income for the poor, was to provide more general evidence on the impact of income on health. This is an important topic with little convincing evidence to date because of problems with endogeneity and reverse causality.

Again, we used the natural experiment afforded by the nationwide roll-out of the modern Food Stamp Program during the 1960s and early 1970s. We also looked at national Vital Statistics data on births and deaths in order to estimate the impact of FSP rollout on mean birth weight, low birth weight, gestation, and neonatal infant mortality. Infant health is of particular interest for this program because over 60 percent of food stamp households include children, and one-third of them have at least one pre-school age child.

We find that infant outcomes improve with FSP introduction. Changes in mean birth weight are small, increasing roughly half a percent for blacks and whites (averaged among the population participating in the program). The impacts are larger at the bottom of the birth-weight distribution, reducing the incidence of low birth weight among FSP recipients by 7 percent for whites and between 5 and 11 percent for blacks. Changes in this part of the birth-weight distribution are important because they are closely linked to other measures of newborn health.

We also find that FSP introduction leads to a reduction in neonatal infant mortality, although these results rarely reach statistical significance. Finally, we find very small (but precisely estimated) affects of FSP on fertility, suggesting that the results are not biased by simultaneous changes in the composition of women giving birth.

Early Life Interventions and Adult Economic and Health Outcomes

The availability of food stamps also may have an impact on individuals' health beyond infancy. For example, to the

extent that improved maternal nutrition improves birth outcomes, later-life health outcomes of children born to mothers receiving food stamps may also benefit.[10] In addition, the availability of food stamps throughout childhood may affect adult health and economic outcomes. Almond, Schanzenbach, and I use the county rollout of the food stamp program to specifically examine how availability of food stamps in childhood affects adult health and economic outcomes.[11]

We use the Panel Study of Income Dynamics and take advantage of its longitudinal structure. With this data, we can start with a cohort of children that we initially observe in 1968, follow them into adulthood, and observe their completed education, earnings, and such detailed health outcomes as general health status, height and weight, presence of chronic conditions, and work/activity limitations. Our results show that in utero exposure to FSP predicts later body weight outcomes, including lower obesity and more "healthy weight" ranges. We also find that in utero exposure to FSP is associated with lower rates of heart disease. Economic outcomes are also improved, with increases in high school completion and total years of education. We are currently extending this work to model one's exposure to food stamps throughout childhood.

Work Disincentive Effects of Food Stamps

The food stamp program takes the form of a typical income support program — it provides some guaranteed benefit that is "taxed" away as a household's earnings and income increase. As such, standard labor supply theory suggests that food stamps should lead to a reduction in work. This result stems from the income transfer nature of the program, as well as the reduction in marginal net earnings from taxing away the benefit. While this predicted work disincentive has been analyzed in other income support programs, such as Aid to Families with Dependent Children (AFDC)/TANF, far fewer studies have examined the effect of the food stamp program on labor supply.

Schanzenbach and I use the PSID and Census to examine the impact of the county food stamp rollout on the family head's employment, annual hours and earnings, as well as family income and poverty.[12] Across all outcomes and samples, our evidence uniformly shows that the introduction of food stamps leads to reductions in employment, earnings, and income. However, the estimates are relatively modest and few of them are statistically significant. Together, these results suggest that there is a small, negative impact on income and work associated with the food stamp program.

The relatively modest size of these effects is perhaps not surprising given the low (for income support programs) benefit reduction rate of 30 percent in the food stamp program. In the AFDC/TANF program, where the work disincentive effects are estimated to be much larger, the benefit reduction rate is closer to 100 percent.[13] To gauge the magnitude of the expected labor supply effects of the food stamp program, we simulate the impact of the program on annual hours worked in our PSID sample using estimated labor supply elasticities from the literature. These simulations yield very similar predictions to those estimated in our sample. We take this as a useful exercise which corroborates our estimates of modest work incentive effects in the food stamp program.

WIC and Infant Health

Another project with Marianne Page and Ann Huff Stevens exploits the variation in WIC program introduction across geographic areas and over time to examine its impacts on infant health as shown in the U.S. Vital Statistics data.[14] We start with information that we collect on the year each WIC office opened across cities and counties. We then use a difference-in-difference model to relate birth outcomes to the availability of WIC benefits at the time the mother was pregnant.

We find that when WIC is made available by the third trimester of pregnancy, average birth weight in the county increases by approximately 2 grams. This estimated effect is driven by women with low levels of education and by women living in high poverty counties — precisely those women who are most likely to be eligible for program benefits. Among women with low levels of education, WIC increases average birth weight by 7 grams and reduces the fraction of births that are classified as low birth weight by 1.4 percent. Using estimates of WIC participation rates, we find that low educated women experience a 10 percent increase in average birth weight for children born to WIC participants. Since we find no evidence that WIC affects fertility, our estimates are unlikely to be generated by indirect effects on selection into birth.

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[1] *Program information available on USDA website, see http://www.fns.usda.gov/pd/SNAPsummary.htm and http://www.fns.usda.gov/pd/wisummary.htm.*

[2] *See http://www.fns.usda.gov/pd/SNAPsummary.htm.*

[3] *For example, see V. Oliveira, E. Racine, J. Olmsted, and L. Ghelfi, "The WIC Program: Background, Trends, and Issues," in* Food Assistance and Nutrition Research Report Number 27*, USDA Economic Research Service, 2002.*

[4] *For reviews of the literature, see J. Currie, "U.S. Food and Nutrition Programs," in* Means-tested Transfer Programs in the U.S., *R. Moffitt ed., Cambridge, MA: NBER, 2003, and T. Fraker, "Effects of Food Stamps on Food Consumption: A Review of the Literature,"* Mathematica Policy Research, *1990.*

[5] *For example, see M. Bitler and J. Currie, "Does WIC Work? The Effects of WIC on Pregnancy and Birth Outcomes,"* Journal of Policy Analysis and Management, *Vol. 24, No. 1, (2005), pp.73–91, and L. Kowaleski-Jones and G. Duncan, "Effects of Participation in the WIC Program on Birth Weight: Evidence from the National Longitudinal Survey of Youth,"* American Journal of Public Health, *92(5), (2002), pp.799–804.*

[6] *For a discussion of these studies, see J. Currie, 2003.*

[7] *See J. Ludwig and D. Miller, "Does Head Start Improve Children's Life*

Chances? Evidence from a Regression Discontinuity Design," Quarterly Journal of Economics, *Vol. 122, (2007), pp. 159–208; A. Finkelstein and R. McKnight, "What Did Medicare Do (And Was It Worth It?),"* Journal of Public Economics, *Vol, 92, (2008), pp. 1644–68; and M. Bailey, "The Impact of U.S. Family Planning Programs on Fertility and Mortality:Evidence From the War On Poverty and Title X."*

[8] *H. Hoynes and D. Schanzenbach, "Consumption Reponses to In-Kind Transfers: Evidence from the Introduction of the Food Stamp Program," NBER Working Paper No. 13025, April 2007, and* American Economic Journal: Applied Economics *Vol. 1, No. 4, (2009), pp. 109–39.*

[9] *D. Almond, H. Hoynes, and D. Schanzenbach, "Inside the War on Poverty: The Impact of the Food Stamp Program on Birth Outcomes," NBER Working Paper No. 14306, September 2008, and forthcoming,* Review of Economics and Statistics.

[10] *See, for example, S. Black, P. Devereux, and K. Salvanes, "From the Cradle to the Labor Market: The Effect of Birth Weight on Adult Outcomes,"* Quarterly Journal of Economics, *(2007), and H. Royer, "Separated at Girth: Estimating the Long-Run and Intergenerational Effects of Birthweight Using Twins,"* American Economic Journal: Applied Economics, *(2009).*

[11] *D. Almond, H. Hoynes, and D. Schanzenbach, "Childhood Exposure to the Food Stamp Program: Long-run Health and Economic Outcomes."*

[12] *H. Hoynes and D. Schanzenbach, "The Food Stamp Program and Labor Supply."*

[13] *For a review of the research on the work disincentive effects of AFDC, see R. Moffitt, "Incentive Effects of the U.S. Welfare System: A Review," in* Journal of Economic Literature *(1992).*

[14] *H. Hoynes, M. Page, and A. H. Stevens, "Is a WIC Start a Better Start? Evaluating WIC's Impact on Infant Health Using Program Introduction," NBER Working Paper No. 15589, December 2009.*

NBER Profile: *Pol Antràs*

Pol Antràs is a Research Associate in the NBER's Programs in International Trade and Investment and Economic Fluctuations and Growth and a Professor of Economics at Harvard University. A native of Spain, Antràs received his B.A. and his M.Sc. in Economics from Universitat Pompeu Fabra. He holds a Ph.D. in Economics from MIT.

Antràs joined the Harvard economics faculty in 2003 as an Assistant Professor and was promoted to Professor in 2007. During 2007–9, he directed the NBER Working Group on International Trade and Organizations.

In 2009, Antràs received the Fundación Banco Herrero Prize, which is awarded annually to a Spanish social scientist under age 40. He is also a Member of the Editorial Board of the *Quarterly Journal of Economics*, the *American Economic Review*, and the *Journal of the European Economic Association.*

Antràs lives in Belmont with his wife, Lucia, and his newborn daughter, Daniela. In his spare time, he enjoys traveling and following his beloved F.C. Barcelona.

NBER Profile: *Markus K. Brunnermeier*

Markus K. Brunnermeier is a Research Associate in the NBER's Program on Asset Pricing and the Edwards S. Sanford Professor of Economics at Princeton University. He is affiliated with Princeton's Bendheim Center for Finance and International Economics Section as well.

Brunnermeier is also a research associate of the Centre for Economic Policy Research in London, CESifo in Munich, and a visiting scholar at the Federal Reserve Bank of New York. He holds a Ph.D. from the London School of Economics, where he was a member of the Financial Markets Group. His research focuses on financial crises, bubbles, and significant mispricings caused by institutional frictions, strategic considerations, and belief distortions.

Brunnermeier is a Sloan Research Fellow and is an associate editor of the *American Economic Review*, the *Journal of the European Economic Association*, and the *Journal of Finance.* The recipient of the Bernácer Prize for outstanding contributions in the fields of macroeconomics and finance, he recently was awarded a Guggenheim Fellowship to study the implications of financial frictions on the macroeconomy.

He lives in Princeton with his wife, Smita, and his two young daughters, Anjali and Priya.

NBER Profile: *Steven J. Davis*

Steven J. Davis is a Research Associate in the NBER's Programs on Labor Studies, Economic Fluctuations and Growth, and Energy and Environmental Economics. He is also the William H. Abbott Professor of International Business and Economics at the University of Chicago's Booth School of Business.

Davis grew up mostly in Portland, Oregon, the oldest of five boys. Like his father, he attended Central Catholic High School and Portland State University, from which he received his B.A.in Economics. He holds an M.A. and a Ph.D. in Economics from Brown University.

Davis has taught at the University of Chicago, MIT, the University of Maryland, and Brown University. His work on employment and wage behavior, worker mobility, job loss, the effects of labor market institutions, business dynamics, industrial organization, economic fluctuations, national economic performance, public policy, and other topics has been published in the *American Economic Review* and other leading journals. He is also currently Editor of the *American Economic Journal: Macroeconomics,* published by the American Economic Association.

Davis is married with four wonderful children — Sophie, Scott, Max, and Tiffany — ranging in age from 14 to 26. His wife, Akiko, is a naturalized US citizen originally from Japan.

NBER Profile: *Hilary Hoynes*

Hilary Hoynes is a Research Associate in the NBER's Programs on Aging, Children, Labor Economics, and Public Economics. She is also a Professor of Economics at the University of California, Davis, and the co-editor of the *American Economic Journal: Economic Policy*. She joined the UC Davis faculty after eight years at the University of California, Berkeley.

Hoynes received her undergraduate degree from Colby College and her Ph.D. from Stanford University. She specializes in the study of poverty, inequality, and the impacts of government tax and transfer programs on low-income families. She is currently working on evaluating policy expansions in the Great Society period, using tax data to examine the intensive margin impacts of the Earned Income Tax Credit, and evaluating the safety net in the United States in the post-welfare reform era.

Hoynes lives in Berkeley with her husband Tom and her daughters, Sarah and Erin.

NBER Profile: *Monika Piazzesi.*

Monika Piazzesi directs the NBER's Program on Asset Pricing and is the Jean Kenney Professor of Economics at Stanford University. She is also a Research Associate in NBER's Programs on Monetary Economics and Economic Fluctuations and Growth, and is an Affiliated Professor at the Ludwig-Maximilians-Universität München.

Prior to joining the Stanford faculty, she taught at the University of Chicago's Graduate School of Business and at UCLA's Anderson School of Business. She holds a diploma in economics from the University of Bonn in Germany and Ph.D. in economics from Stanford University.

In 2007–8, Piazzesi served as a monetary advisor to the Federal Reserve Bank of Minneapolis. Her research focuses on financial economics, macroeconomics, and applied time series, and she has developed influential models of the yield curve for bonds. She is also co-editor of the *Journal of Political Economy*.

Conferences

Fiscal Federalism

Julie Berry Cullen and Roger Gordon, both of the University of California at San Diego and NBER, organized a "Conference on Fiscal Federalism" that took place in California on March 26–27, 2010. These papers were discussed:

- **Katherine Baicker** and **Monica Singhal**, Harvard University and NBER, and **Jeffrey Clemens**, Harvard University, "Fiscal Federalism in the United States"
- **David N. Figlio**, Northwestern University and NBER, and **Deborah Fletcher**, Miami University, "Suburbanization, Demographic Change, and the Consequences for School Finance"
- **Roberton C. Williams III**, University of Texas at Austin and NBER, "Growing State-Federal Conflicts of Interest in Environmental Policy: The Role of Market-Based Regulation"
- **Hilary W. Hoynes**, University of California at Davis and NBER, and **Erzo F.P. Luttmer**, Harvard University and NBER, "Insurance Benefits from Progressive Taxes and Transfers"
- **Therese J. McGuire**, Northwestern University, and **Nathan B. Anderson**, University of Illinois at Chicago, "Do States Practice Benefit Taxation? School Finance Reform and the Distribution of State Taxes"
- **Julie Berry Cullen** and **Roger Gordon**, "Income Redistribution in a Federal System of Governments"
- **Rajashri Chakrabarti**, Federal Reserve Bank of New York, and **Joydeep Roy**, Economic Policy Institute, "Effect of Constraints on Tiebout Competition: Evidence from School Finance Reforms in the U.S."
- **Patrick Bayer**, Duke University and NBER, and **Robert McMillan**, University of Toronto and NBER, "Tiebout Sorting and Neighborhood Stratification"
- **Robin Boadway**, Queen's University, and **Jean-Francois Tremblay**, University of Ottawa, Canada**,** "Reassessment of the Tiebout Model"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/FFs10/summary.html

25th Annual Conference on Macroeconomics

The NBER's Twenty-fifth Annual Conference on Macroeconomics, organizer by Research Associates Daron Acemoglu of MIT and Michael Woodford of Columbia University, took place in Cambridge on April 9 and 10. These papers were discussed:

- **Rong Qian,** University of Maryland; **Carmen Reinhart**, University of Maryland and NBER; and **Kenneth Rogoff**, Harvard University and NBER, "On Graduation from Default, Inflation and Banking Crises: Elusive or Illusion?"
- **Gauti Eggertsson**, Federal Reserve Bank of New York, "What Fiscal Policy is Effective at Zero Interest Rates"
- **Adam Ashcraft**, Federal Reserve Bank of New York; **Nicolae Garleanu**, University of California, Berkeley and NBER; and **Lasse Heje Pedersen**, New York University and NBER, "Two Monetary Tools: Interest Rates and Haircuts"

- **Diego A. Comin**, Harvard University and NBER, and **Bart Hobijn**, Federal Reserve Bank of San Francisco, "Technology Diffusion and Postwar Growth"

- **Gita Gopinath**, Harvard University and NBER, and **Oleg Itskhoki**, Princeton University, "In Search of Real Rigidities"

- **Valerie A. Ramey**, University of California, San Diego and NBER, and **Daniel Vine**, Federal Reserve Board, "Oil, Automobiles, and the US Economy: How Much Have Things Really Changed?"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/Macro10/summary.html

Innovation Policy and the Economy

The NBER's eleventh annual Conference on Innovation Policy and the Economy took place in Washington on April 20. The conference was organized by NBER Research Associates Joshua Lerner of Harvard University and Scott Stern of Northwestern University. The following papers were discussed:

- **David M. Cutler**, Harvard University and NBER, "Where are the Health Care Entrepreneurs? The Failure of Organizational Innovation in Health Care"

- **Raymond Fisman**, Columbia University and NBER, and **Eric Werker**, Harvard Business School, "Innovations in Governance"

- **Joshua S. Gans**, University of Melbourne, "When is Static Analysis a Sufficient Proxy for Dynamic Consequences? Reconsidering Antitrust and Innovation"

- **Suzanne Scotchmer**, University of California, Berkeley and NBER, "Cap and Trade, Emissions Taxes, and Innovation"

- **Benjamin F. Jones**, Northwestern University and NBER, "As Science Evolves, How Can Science Policy?"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/IPEs10/summary.html

The Design and Implementation of U.S. Climate Policy

NBER Research Associates Don Fullerton of the University of Illinois and Catherine Wolfram of the University of California, Berkeley organized a conference on "The Design and Implementation of U.S. Climate Policy" which took place in Washington, DC on May 13–14, 2010. These papers and topics were discussed:

- **Lawrence H. Goulder**, Stanford University and NBER, and **Robert Stavins**, Harvard University and NBER, "Interactions of State and Federal Climate Change Policies"

- **Frank A. Wolak**, Stanford University and NBER, "Regulating a Global Carbon Market"

- **Matthew E. Kahn**, University of California, Los Angeles and NBER, "Urban Policy Effects on Carbon Mitigation"

- **Lucas W. Davis**, University of California, Berkeley and NBER, "Evaluating the Slow Adoption of Energy Efficient Investments: Are Renters Less Likely to Have Energy Efficient Appliances?"
- **Matthew J. Kotchen**, Yale University and NBER, "Climate Policy and Voluntary Initiatives: An Evaluation of the Connecticut Clean Energy Communities Program"
- **Christopher R. Knittel**, University of California, Davis and NBER, and **Ryan Sandler**, University of California, Davis, "Carbon Prices and Automobile Greenhouse Gas Emissions: The Extensive and Intensive Margins"
- **Kevin A. Hassett** and **Aparna Mathur**, American Enterprise Institute, and **Gilbert E. Metcalf**, Tufts University and NBER, "Distributional Impacts in a Comprehensive Climate Policy Package"
- **Arik Levinson**, Georgetown University and NBER, "Interactions among Climate Policy Regulations"
- **Hilary Sigman**, Rutgers University and NBER, "Monitoring and Enforcement of Climate Policy"
- **Meredith Fowlie**, University of California, Berkeley and NBER, "Updating the Allocation of Greenhouse Gas Emissions Permits in a Federal Cap-and-Trade Program"
- **Roberton C. Williams III**, University of Maryland and NBER, "Setting the Initial Time-Profile of Climate Policy"
- **Erin T. Mansur**, Yale University and NBER, "Upstream versus Downstream Implementation of Climate Policy"
- **Stephen P. Holland**, University of North Carolina, Greensboro and NBER, "Spillovers from Climate Policy"
- **Olivier Deschenes**, University of California, Santa Barbara and NBER, "Climate Policy and Labor Markets"
- **Charles D. Kolstad**, University of California, Santa Barbara and NBER, "Price, Quantities and Innovation"
- **Kala Krishna**, Pennsylvania State University and NBER, "Limiting Emissions and Trade: Some Basic Ideas"
- **James B. Bushnell**, Iowa State University and NBER, "The Economics of Carbon Offsets"
- **Severin Borenstein**, University of California, Berkeley and NBER, "Markets for Anthropogenic Carbon within the Larger Carbon Cycle"
- **V. Kerry Smith**, Arizona State University and NBER, "How Can Policy Encourage Climate Adaptation?"
- **Wolfram Schlenker**, Columbia University and NBER, "Agriculture and Forestry"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/DICPs10/summary.html

Trans-Atlantic Public Economics Seminar

The NBER's Trans-Atlantic Public Economics Seminar took place on June 14–16, 2010 in Varenna (Lake Como), Italy. Roger H. Gordon, NBER and University of California, San Diego and Roberto Perotti, IGIER (Bocconi University), organized this year's conference, which focused on fiscal policy. These papers were discussed:

- **Karel Mertens**, Cornell University, and **Morten Ravn**, University College London, "Empirical Evidence on the Aggregate Effects of Anticipated and Unanticipated U.S. Tax Policy Shocks"

- **Alan J. Auerbach** and **Yuriy Gorodnichenko**, University of California, Berkeley and NBER, "Measuring the Output Responses to Fiscal Policy"
- **Eric M. Leeper, Alexander Richter**, and **Todd B. Walker**, Indiana University, "Quantitative Effects of Fiscal Foresight"
- **Jeff Clemens and Stephen Miran**, Harvard University, "The Effects of State Budget Cuts on Employment and Income"
- **Joshua D. Rauh**, Northwestern University and NBER, and **Robert Novy-Marx**, University of Chicago, "Fiscal Imbalances and Borrowing Costs: Evidence from State Investment Losses"
- **Marco Battaglini**, Princeton University and NBER, and **Stephen Coate**, Cornell University and NBER, "Fiscal Policy over the Real Business Cycle: A Positive Theory"(NBER Working Paper No. 14047)
- **Agustin S. Benetrix** and **Philip R. Lane**, Trinity College Dublin, "International Differences in Fiscal Policy during the Global Crisis"
- **Ethan Ilzetzki**, London School of Economics, and **Enrique G. Mendoza** and **Carlos A. Vegh**, University of Maryland and NBER, "How Big (Small?) Are Fiscal Multipliers?"
- **Mathias Dolls**, University of Cologne; **Clemens Fuest**, Oxford University; and **Andreas Peichl**, University of Bonn, "Automatic Stabilizers and Economic Crisis: US vs. Europe"
- **James Feyrer** and **Jay Shambaugh**, Dartmouth College and NBER, "Global Savings and Global Investment: The Transmission of Identified Fiscal Shocks" (NBER Working Paper No. 15113)
- **Carlo Favero** and **Francesco Giavazzi**, IGIER, Bocconi University, "VAR-Based and Narrative Measures of the Tax Multiplier"
- **Roberto Perotti**, "The Effects of Tax Shocks: Negative and Large"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/TAPES10/summary.html

Market Institutions and Financial Market Risk

An NBER Conference on Market Institutions and Financial Market Risk took place in New York City on June 17–18, 2010. Conference organizers were: Mark Carey of the Federal Reserve Board, and NBER Research Associates Anil K Kashyap and Raghuram Rajan, University of Chicago, and René Stulz, Ohio State University. These papers were discussed:

- **Alberto Manconi** and **Massimo Massa**, INSEAD, and **Ayako Yasuda**, University of California, Davis, "The Behavior of Intoxicated Investors: The Role of Institutional Investors in Propagating the Financial Crisis of 2007–2008"
- **Gary B. Gorton** and **Andrew Metrick**, Yale University and NBER, "Securitized Banking and the Run on Repo" (NBER Working Paper No. 15223)
- **Monica Billio** and **Loriana Pelizzon**, University of Venice; **Mila Getmansky**, University of Massachusetts, Amherst; and **Andrew W. Lo**, MIT and NBER, "Measuring Systemic Risk in the Finance and Insurance Sectors"
- **Franklin Allen**, University of Pennsylvania; **Ana Babus**, University of Cambridge; and **Elena Carletti**, European University Institute, "Financial Connections and Systemic Risk"

- **Nicola Gennaioli**, CREI; **Andrei Shleifer**, Harvard University and NBER; and **Robert W. Vishny**, University of Chicago and NBER, "Financial Innovation and Financial Fragility" (NBER Working Paper No. 16068)

- **Ing-Haw Cheng**, University of Michigan; and **Harrison Hong** and **Jose A. Scheinkman**, Princeton University and NBER, "Yesterday's Heroes: Compensation and Creative Risk-Taking"

- **Andrew Ellul** and **Vijay Yerramilli**, Indiana University, "Stronger Risk Controls, Lower Risk: Evidence from U.S. Bank Holding Companies"

- **Kalina Manova**, Stanford University and NBER, and **Davin Chor**, Harvard University, ""Off the Cliff and Back: Credit Conditions and International Trade during the Global Financial Crisis"

- **Edie Hotchkiss**, Boston College; **David C. Smith**, University of Virginia; and **Per Stromberg**, Stockholm School of Economics and NBER, "Private Equity and the Resolution of Financial Distress"

- **Mark Mitchell** and **Todd Pulvino**, CNH Partners, "Arbitrage Crashes and the Speed of Capital"

- **Richard Stanton** and **Nancy Wallace**, University of California, Berkeley, "CMBS Subordination, Ratings Inflation, and the Crisis of 2007–2009"

- **Antje Berndt** and **Burton Hollifield**, Carnegie Mellon University; and **Patrik Sandas**, University of Virginia, "The Role of Mortgage Brokers in the Subprime Crisis"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/Risks10/program.html

33rd International Seminar on Macroeconomics

NBER's 33rd International Seminar on Macroeconomics (ISOM) took place on June 18 and 19, 2010. NBER Research Associates Richard H. Clarida of Columbia University and Francesco Giavazzi of Bocconi University organized this year's program, which was hosted by the Dutch National Bank. The following papers were discussed:

- **Morten O. Ravn**, European University Institute, and **Karel Mertens**, Cornell University, "Technology-Hours Redux: Tax Changes and the Measurement of Technology Shocks"

- **S. Boragan Aruoba**, University of Maryland; **Francis X. Diebold**, University of Pennsylvania and NBER; and **M. Ayhan Kose** and **Marco Terrones**, International Monetary Fund, "Globalization, the Business Cycle, and Real-Time Macroeconomic Monitoring"

- **Thomas Laubach**, Goethe University Frankfurt, "Fiscal Policy and Interest Rates: The Role of Sovereign Default Risk"

- **Wouter J. den Haan** and **Matija Lozej**, University of Amsterdam, "Pigou Cycles in Closed and Open Economies with Matching Frictions"

- **Michael W. Klein**, Tufts University and NBER, and **Linda S. Goldberg**, Federal Reserve Bank of New York and NBER, "Establishing Credibility: Evolving Perceptions of the European Central Bank" (NBER Working Paper No. 11792, revised in 2006)

- **Stijn Claessens**, **M. Ayhan Kose**, and **Marco Terrones**, International Monetary Fund, "Financial Cycles: What? How? When?"

NBER News

Duflo Receives John Bates Clark Medal

NBER Research Associate Esther Duflo is the recipient of the American Economics Association's John Bates Clark Medal for 2010. This now annual award is presented to the economist under the age of 40 who has made the most substantial contribution to economic thought and knowledge. The prize citation highlights Esther's work in development economics. It notes in particular her creative analysis of a range of questions, including education policy, infrastructure development, and electoral reform, using both evidence from randomized field experiments and data from non-experimental settings.

Esther is a faculty member at MIT, one of the directors of the Jameel Poverty Action Lab at MIT, and a Research Associate in the NBER's Aging, Children's, and Education Programs. She joined the NBER as a Faculty Research Fellow in 1999.

Other current NBER Research Associates who have received the Clark Medal include Daniel McFadden, Martin Feldstein, Joseph Stiglitz, James Heckman, Jerry Hausman, Sanford Grossman, Paul Krugman, David Card, Kevin Murphy, Andrei Shleifer, Steven Levitt, Daron Acemoglu, Susan Athey, and Emmanuel Saez. Gary Becker, who was an NBER affiliate from 1957 until 1979, and Lawrence Summers, who is currently a Research Associate on leave, also won the Clark Medal, as did the late Milton Friedman and Zvi Griliches, both of whom were NBER affiliates for substantial parts of their careers.

NBER Closes Palo Alto Office

In March 2010, the NBER closed its Palo Alto office after 36 years of operation The office, which opened in June 1974, was housed in a leased building on the Stanford University campus. Victor Fuchs, of NBER and Stanford University, and Sherman Maisel, of NBER and the University of California at Berkeley, were the inaugural co-directors of "NBER-West." Their leadership launched a long tradition of conferences, seminars, and academic visitors to this facility. John Shoven of NBER and Stanford University has recently been the director of the Palo Alto office and Rosannah Reeves, who managed the office from 1978 until it closed this year, was a great contributor to its success. In the last decade, the number of researchers who spent substantial amounts of time in the NBER's Palo Alto office had declined. Even without a dedicated facility, the NBER expects to continue its practice of holding various research meetings in West Coast locations.

Program and Working Group Meetings

Health Care Program Meets in Cambridge

The NBER's Program on Health Care met in Cambridge on March 12, 2010. Program Director Jonathan Gruber of MIT organized the meeting. These papers were discussed:

- **Eric Helland**, McKenna College; **Darius N. Lakdawalla**, University of Southern California and NBER; **Anup Malani**, University of Chicago and NBER; and **Seth A. Seabury**, Rand Corporation, "Tort Liability and the Market for Prescription Drugs"

- **Cory Capps**, Bates White LLC.; **Dennis W. Carlton**, University of Chicago and NBER; and **Guy David**, University of Pennsylvania, "Antitrust Treatment of Nonprofits: Should Hospitals Receive Special Care?"

- **Jacob Glazer**, Tel Aviv/Boston University, and **Thomas G. McGuire**, Harvard University, "Gold and Silver Health Plans: Accommodating Demand Heterogeneity in Managed Competition"

- **Louise Sheiner**, Federal Reserve Board, "Geographic Variation in Health Spending: Is Medicare a Good Proxy?"

- **Anirban Basu** and **Tomas J. Philipson**, University of Chicago and NBER, "The Impact of Comparative Effectiveness Research on Health and Health Care Spending"

- **Tomas J. Philipson**; **Seth A. Seabury**; **Lee Lockwood**, University of Chicago; **Dana Goldman,** University of Southern California; and **Darius N. Lakdawalla**, "Regional Variations in Health Care: The Role of Private Markets"

- **David Chan**, MIT, and **Jonathan Gruber**, "Charging Low Income Families for Health Insurance: How Does It Impact Choices?"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/HCs10/summary.html

International Finance and Macroeconomics

The NBER's Program on International Finance and Macroeconomics met in Cambridge on March 12, 2010. NBER Research Associates Roberto Chang of Rutgers University and Kristin Forbes of MIT organized the meeting. These papers were discussed:

- **G. Andrew Karolyi**, Cornell University, and **Rose C. Liao**, Rutgers University, "What is Different about Government-Controlled Acquirers' Cross-Border Acquisitions?"

- **Cosmin Ilut**, Duke University, "Ambiguity Aversion: Implications for the Uncovered Interest Rate Parity Puzzle"

- **Kalina Manova**, Stanford University and NBER; **Shang-Jin Wei**, Columbia University and NBER; and **Zhiwei Zhang**, International Monetary Fund, "Firm Exports and Multinational Activity under Credit Constraints"

- **Sebnem Kalemli-Ozcan**, University of Houston and NBER; **Herman Kamil**, International Monetary Fund; and **Carolina Villegas-Sanchez**, University of Houston, "What Hinders Investment in the Aftermath of Financial Crises: Balance-Sheet Mismatches or Access to Finance?"

- **Olivier Jeanne**, John Hopkins University and NBER, "The Global Liquidity Trap"

- **Martin Bodenstein**, **Christopher J. Erceg**, and **Luca Guerrieri**, Federal Reserve Board, "The Effects of Foreign Shocks when Interest Rates are at Zero"

- **Fabrizio Perri**, University of Minnesota and NBER, and **Vincenzo Quadrini**, University of Southern California and NBER, "International Recessions"

- **Steven B. Kamin** and **Laurie Pounder**, Federal Reserve Board, "How Did a Domestic Housing Slump Turn into a Global Financial Crisis?"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/IFMs10/summary.html

Law and Economics

The NBER's Program on Law and Economics, directed by Christine Jolls of Yale Law School, met in Cambridge on March 19, 2010. These papers were discussed:

- **Nicola Persico**, New York University and NBER; **Edoardo di Porto**, EQUIPPE, USTL Lille; and **Nicolas Sahuguet**, HEC Montréal, "Tax Auditing Without Commitment, With an Application to Labor Tax Evasion in Italy"
- **Wei Jiang**, Columbia University, and **Vikas Agarwal**, **Yuehua Tang**, and **Baozhong Yang**, Georgia State University, "Do Institutional Investors Have an Ace up Their Sleeves? Evidence from Confidential Filings of Portfolio Holdings"
- **Viral V. Acharya**, New York University and NBER; **Stewart C. Myers**, MIT and NBER; and **Raghuram Rajan**, University of Chicago and NBER, "The Internal Governance of Firms" (NBER Working Paper No. 15568)
- **Stefania Albanesi**, Columbia University and NBER, and **Claudia Olivetti**, Boston University and NBER, "Gender and Dynamic Agency: Theory and Evidence on the Compensation of Top Executives"
- **Max Schanzenbach**, Northwestern University School of Law; **Ronen Avraham**, University of Texas School of Law; and **Leemore S. Dafny**, Northwestern University and NBER, "The Impact of Tort Reform on Employer-Sponsored Health Insurance Premiums" (NBER Working Paper No. 15371)
- **Bruce I. Carlin**, University of California, Los Angeles, and NBER, and **Simon Gervais**, Duke University, "Legal Protection in Retail Financial Markets" (NBER Working Paper No. 14972)
- **Christopher Snyder**, Dartmouth College, and **Wallace P. Mullin**, George Washington University, "Deterring Nuisance Suits through Employee Indemnification"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/LEs10/summary.html

International Trade and Investment

The NBER's Program on International Trade and Investment met in Cambridge on March 26–27, 2010. Program Director Robert C. Feenstra of the University of California, Davis, organized the meeting and chose these papers to discuss:

- **Jonathan Eaton**, Pennsylvania State University and NBER; **Sam Kortum** and **John Romalis**, University of Chicago and NBER; and **Brent Neiman**, University of Chicago, "Trade and the Global Recession"
- **Daniel Berger** and **Shanker Satyanath**, New York University; **William Easterly**, New York University and NBER; and **Nathan Nunn**, Harvard University and NBER, "Commercial Imperialism? Political Influence and Trade During the Cold War"
- **James E. Anderson**, Boston College and NBER, and **Yoto V. Yotov**, Drexel University, "Specialization: Pro- and Anti-Globalizing, 1990–2002"
- **Douglas A. Irwin**, Dartmouth College and NBER, "Do Tariffs Affect the Terms of Trade? Evidence from U.S. Tariff Shocks"
- **Xiaobo Lü** and **Kenneth F. Scheve**, Yale University, and **Matthew J. Slaughter**, Dartmouth College and NBER, "Envy, Altruism, and the International Distribution of Trade Protection"(NBER Working Paper No. 15700)

- **Gianmarco Ottaviano**, Bocconi University; **Giovanni Peri**, University of California, Davis and NBER; and **Greg C. Wright**, University of California, Davis, "Immigration, Offshoring, and American Jobs"

- **José Fillat**, Federal Reserve Bank of Boston, and **Stefania Garetto**, Boston University, "Risk, Returns, and Multinational Production"

- **Kalina Manova**, Stanford University and NBER; **Shang-Jin Wei,** Columbia University and NBER; and **Zhiwei Zhang**, Hong Kong Monetary Authority, "Firm Exports and Multinational Activity under Credit Constraints"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/ITIs10/summary.html

Labor Studies

The NBER's Program on Labor Studies met at the Federal Reserve Bank of San Francisco on April 2, 2010. Program Director David Card of the University of California, Berkeley, organized the meeting. These papers were discussed:

- **Catherine Weinberger**, University of California, Santa Barbara, "The Increasing Complementarity between Cognitive and Social Skills"

- **Michael F. Lovenheim**, Cornell University, and **Kevin J. Mumford**, Purdue University, "Do Family Wealth Shocks Affect Fertility Choices? Evidence from the Housing Market Boom and Bust"

- **Alexander M. Gelber**, University of Pennsylvania and NBER, and **Joshua W. Mitchell**, Harvard University, "Taxes and Time Allocation: Evidence from Single Women" (NBER Working Paper No. 15583)

- **Rucker C. Johnson**, University of California, Berkeley, "Long-Run Impact of School Desegregation and School Quality on Adult Health"

- **Nicholas Bloom**, Stanford University and NBER; **Carol Propper,** CMPO University of Bristol**; Stephen Seiler,** London School of Economics; and **John Van Reenen,** London School of Economics and NBER, "The Impact of Competition on Management Quality: Evidence from Public Hospitals"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/LSs10/summary.html

Cohort Studies

The NBER's Working Group on Cohort Studies met in Chicago on April 2–3, 2010. The group's Director Dora L. Costa of the University of California, Los Angeles, organized the meeting. These papers and topics were discussed:

- "The Developmental Origins of Longevity" — **David Barker**, Southampton General Hospital

- "Early Life Family and Socioeconomic Conditions and Cause-Specific Mortality in Finland" — **Irma T. Elo**, University of Pennsylvania; **Pekka Martikainen,** University of Helsinki; and **Mikko Myrskylä,** Max Planck Institute for Demographic Research

- "Estimating the Technology of Cognitive and Noncognitive Skill Formation" (NBER Working Paper No. 15664) — **Flavio Cunha**, University of Pennsylvania and NBER; **James Heckman**, University of Chicago and NBER; and **Susanne Schennach**, University of Chicago

- "The Ostrich Effect: Selective Attention to Financial News by Investors" — **George Loewenstein** and **Duane Seppi**, Carnegie Mellon University; **Nachum Sicherman**, Columbia University; and **Stephen Utkus**, Vanguard

- "Growing Up in a Recession: Beliefs and the Macroeconomy"(NBER Working Paper No. 15321) — **Paola Giuliano**, University of California, Los Angeles and NBER, and **Antonio Spilimbergo,** International Monetary Fund

- "Environmental and Socioeconomic Influences on Health over the Millennia: a P01 Proposal with a Global Perspective" — **Richard H. Steckel**, Ohio State University and NBER

- "Cohort Modeling" – **Kenneth Manton**, Duke University

- "Recent Advances in Econometrics" — **Edward Vytlacil**, Yale University and NBER

- "Son Preference, Sex Selection, and Economic Development: Theory and Evidence from South Korea" — **Lena Edlund**, Columbia University, and **Chulhee Lee**, Seoul National University

- "In the Name of the Father: Marriage and Intergenerational Mobility in the United States, 1850-1930" — **Claudia Olivetti** and **M. Daniele Paserman**, Boston University and NBER

- "Shocking Behavior: Land Lotteries in 1832 Georgia and 1901 Oklahoma and Later Life Outcomes" — **Hoyt Bleakley**, University of Chicago and NBER, and **Joseph P. Ferrie**, Northwestern University and NBER

Summaries of these papers may be found at: http://www.nber.org/confer/2010/CS10/summary.html

Public Economics

The NBER's Program on Public Economics met in Cambridge on April 8–9, 2010. NBER Research Associates Raj Chetty of Harvard University and Wojciech Kopczuk of Columbia University organized the meeting. These papers were discussed:

- **Mikhail Golosov** and **Aleh Tsyvinski**, Yale University and NBER, and **Maxim Troshkin**, University of Minnesota, "Optimal Dynamic Taxes"

- **Brian G. Knight**, Brown University and NBER, and **Nathan Schiff**, University of British Columbia, "Spatial Competition and Cross-Border Shopping: Evidence from State Lotteries"

- **Roger H. Gordon** and **Julie Berry Cullen**, University of California, San Diego and NBER, "Income Redistribution in a Federal System of Governments"

- **James Sallee**, University of Chicago, and **Joel Slemrod**, University of Michigan and NBER, "Car Notches"

- **Michael Anderson**, University of California, Berkeley; **Carlos Dobkin**, University of California, Santa Cruz and NBER; and **Tal Gross**, University of Miami, "The Effect of Health Insurance Coverage on the Use of Medical Services" (NBER Working Paper No. 15823)

- **Till Von Wachter**, Columbia University and NBER; **Jae Song**, Social Security Administration; and **Joyce Manchester**, Congressional Budget Office, "Trends in Employment and Earnings of Allowed and Rejected Applicants to the Social Security Disability Insurance Program"

- **Vivi Alatas**, World Bank; **Abhijit Banerjee** and **Benjamin A. Olken**, MIT and NBER; **Rema Hanna**, Harvard University and NBER; and **Julia Tobias**, Stanford University, "Targeting the Poor: Evidence from a Field Experiment in Indonesia"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/PEs10/summary.html

The Economics of Household Saving

NBER Research Associate Erik Hurst of the University of Chicago and NBER President James Poterba of MIT, who co-direct an NBER project on "The Economics of Household Saving", organized a meeting of that project on April 16, 2010. The following papers were discussed:

- **Bruce Meyer**, University of Chicago and NBER, and **James Sullivan**, University of Notre Dame and NBER, "Income and Consumption Volatility over Time"

- **Michael D. Hurd**, RAND Corporation and NBER, and **Susann Rohwedder**, RAND Corporation, "Wealth Dynamics and Active Saving at Older Ages: Do They Add Up?"

- **Karen Dynan**, Brookings Institution, "Wealth Effects and the Changing Economy"

- **J. Karl Scholz**, University of Wisconsin and NBER, and **Ananth Seshadri**, University of Wisconsin, "Health and Wealth in a Lifecycle Model"

- **Mariacristina De Nardi**, Federal Reserve Bank of Chicago and NBER; **Eric French**, Federal Reserve Bank of Chicago; and **John Bailey Jones**, State University of New York, Albany, "The Effects of Medicaid and Medicare Reforms on the Elderly's Savings and Medical Expenditures"

The authors of each of these papers have prepared short research summaries that describe their findings and the broader implications of their work. These summaries may be found at: http://www.nber.org/confer/2010/HFs/summary.html

Asset Pricing

The NBER's Program on Asset Pricing met at the University of Chicago's Gleacher Center on April 23, 2010. Nicolae B. Garleanu and Martin Lettau, NBER and University of California, Berkeley, organized the meeting. These papers were discussed:

- **Jules H. Van Binsbergen**, Stanford University; **Michael W. Brandt**, Duke University and NBER; and **Ralph S. J. Koijen**, University of Chicago, "On Timing and Pricing of Cash Flows"

- **Gregory R. Duffee**, John Hopkins University, "Sharpe Ratios in Term Structure Models"

- **Tarek A. Hassan**, University of Chicago, and **Thomas M. Mertens**, New York University, "The Social Cost of Near-Rational Investment: Why We Should Worry About Volatile Stock Markets"
- **Juhani T. Linnainmaa**, University of Chicago, "Reverse Survivorship Bias"
- **Hui Chen, Scott Joslin**, and **Ngoc-Khanh Tran**, MIT, "Rare Disasters and Risk Sharing with Heterogeneous Beliefs"
- **Maxim Ulrich**, Columbia University, "Observable Long Run Ambiguity and Long Run Risk"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/APS10/summary.html

Corporate Finance

The NBER's Program on Corporate Finance met at the University of Chicago's Gleacher Center on April 23, 2010. Efraim Benmelech, NBER and Harvard University, and Nittai Bergman, NBER and MIT, organized the meeting. These papers were discussed:

- **Martin Oehmke**, Columbia University, and **Patrick Bolton**, Columbia University and NBER, "Credit Default Swaps and the Empty Creditor Problem"
- **Ali Hortacsu** and **Chad Syverson**, University of Chicago and NBER; **Gregor Matvos**, University of Chicago; and **Sriram Venkataraman**, Emory University, "Are Consumers Affected by Durable Good Makers' Financial Distress? The Case of Auto Manufacturers"
- **Gara Afonso** and **Anna Kovner**, Federal Reserve Bank of New York, and **Antoinette Schoar**, MIT and NBER, "Stressed, not Frozen: The Federal Funds Market in the Financial Crisis"
- **Jeremy C. Stein**, Harvard University and NBER, "Monetary Policy as Financial-Stability Regulation"
- **Douglas W. Diamond**, University of Chicago and NBER, and **Zhiguo He**, University of Chicago, "A Theory of Debt Maturity: The Long and Short of Debt Overhang"
- **Viral V. Acharya**, New York University and NBER; **Philipp Schnabl**, New York University; and **Gustavo Suarez**, Federal Reserve Board, "Securitization without Risk Transfer"
- **Nicola Gennaioli, CREI; Andrei Shleifer,** Harvard University and NBER**;** and **Robert C. Vishny**, University of Chicago and NBER, "Financial Innovation and Financial Fragility"
- **Shawn Cole** and **Thomas Sampson**, Harvard University, and **Bilal Zia**, The World Bank, "Prices or Knowledge? What Drives Demand for Financial Services in Emerging Markets?"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/CFs10/summary.html

Political Economy

The NBER's Program on Political Economy, directed by Alberto Alesina of Harvard University, met in Cambridge on April 23, 2010. These papers were discussed:

- "Kosher Pork" — **Allan Drazen**, University of Maryland and NBER, and **Ethan Ilzetzki**, London School of Economics
- "The 'Out of Africa' Hypothesis, Human Genetic Diversity, and Comparative Economic Development" — **Quamrul Ashraf** and **Oded Galor**, Brown University
- "War and Relatedness" — **Enrico Spolaore**, Tufts University and NBER, and **Romain Wacziarg**, University of California, Los Angeles and NBER
- "A Test of Racial Bias in Capital Sentencing" — **Alberto Alesina**, and **Eliana La Ferrara**, Bocconi University
- "A Fistful of Dollars: Lobbying and the Financial Crisis" — **Deniz Igan, Prachi Mishra**, and **Thierry Tressel**, IMF
- "Attitudes, Policies, and Work" — **Francesco Giavazzi**, Bocconi University and NBER; **Fabio Schiantarelli**, Boston College; and **Michel Serafinelli,** University of California, Berkeley

Summaries of these papers may be found at: http://www.nber.org/confer/2010/POLs10/summary.html

Behavioral Economics Working Group

The NBER's Behavioral Economics Working Group met at the University of Chicago's Gleacher Center on April 24, 2010. NBER Research Associates Nicholas C. Barberis of Yale University and Wei Xiong of Princeton University organized the meeting. These papers were discussed:

- **Steven Malliaris** and **Hongjun Yan**, Yale University, "Reputation Concerns and Slow-Moving Capital"
- **Zhi Da** and **Pengjie Gao**, Notre Dame University, and **Joseph Engeleberg**, University of North Carolina, "The Sum of All FEARS: Investor Sentiment, Noise Trading, and Aggregate Volatility"
- **David Hirshleifer**, University of California, Irvine, "Self-Enhancing Transmission Bias and Active Investing"
- **Pedro Bordalo**, Harvard University; **Nicola Gennaioli**, Universitat Pompeu Fabra; and **Andrei Shleifer**, Harvard University and NBER, "Salience Theory of Choice under Risk"
- **Alok Kumar** and **Jeremy Page**, University of Texas, and **Oliver Spalt**, Tilburg University, "Religious Beliefs, Gambling Attitudes, and Financial Market Outcomes"
- **Robin Greenwood**, Harvard University and NBER, and **David Thesmar**, HEC Paris, "Stock Price Fragility"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/BEs10/summary.html

Securitization Working Group

The NBER's Securitization Working Group met in Chicago on April 24, 2010. Research Associates Darrell Duffie and Kenneth Singleton, both of Stanford University, organized the meeting. These papers were discussed:

- **Patrick Bolton**, Columbia University and NBER, **Xavier Freixas**, Universitat Pompeu Fabra; and **Joel Shapiro**, Oxford University (UK), "The Credit Ratings Game"
- **Andrew Kimball**, Moody's, "Ratings and the Demand for Structured Products"
- **Adam Ashcraft**, Federal Reserve Bank of New York; **Nicolae B. Garleanu**, University of California, Berkeley and NBER; and **Lasse H. Pedersen**, New York University and NBER, "Two Monetary Tools: Interest Rates and Haircuts"
- **John Geanakoplos**, Yale University, "Solving the Present Crisis and Managing the Leverage Cycle"
- **Viral V. Acharya**, New York University and NBER; **Philipp Schnabl**, New York University; and **Gustavo Suarez**, Federal Reserve Board, "Securitization without Risk Transfer"
- **Zhiguo He**, University of Chicago; **In Gu Khang**, Northwestern University; and **Arvind Krishnamurthy**, Northwestern University and NBER, "Balance Sheet Adjustments in the 2008 Crisis"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/SECs10/summary.html

Children's Program

The NBER's Program on Children met in Cambridge on April 29, 2010. Program Director Janet Currie of Columbia University organized the meeting. These papers were discussed:

- **Orazio Attanasio**, University College London and NBER, and **Katja Kaufmann**, IGIER, "Educational Choices and Subjective Expectations of Returns to Schooling: Evidence on Intra-Household Decisions and Gender Differences"
- **Carlos Chiapa** and **José Luis Garrido**, El Colegio del Mexico, and **Silvia Prina**, Case Western Reserve University, "The Effect of Social Programs and Exposure to Professionals on the Educational Aspirations of the Poor"
- **Jorge M. Agüero** and **Maithili Ramachandran**, University of California, Riverside, "The Intergenerational Effects of Increasing Women's Schooling: Evidence from Zimbabwe"
- **David Deming**, Harvard University, "Better Schools, Less Crime?"
- **Philip Oreopoulos**, University of Toronto and NBER, and **Kjell G. Salvanes**, Norwegian School of Economics and Business Administration, "How Large are the Returns to Schooling? Hint: Money isn't Everything"(NBER Working Paper No. 15339)
- **Jason M. Lindo**, University of Oregon, "Parental Job Loss and Infant Health"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/CHEDs10/summary_ch.html

Education Program Meeting

The NBER's Program on Education met in Cambridge on April 30. Program Director Caroline M. Hoxby of Stanford University organized the meeting. These papers were discussed:

- **David N. Figlio**, Northwestern University and NBER, and **Cassandra M. D. Hart**, Northwestern University, "Competitive Effects of Means-Tested School Vouchers"
- **Adalbert Mayer**, Texas A&M University, "Empirical Evidence on the Role of Social Networks in Job-Search"
- **Nicholas Turner**, University of Californai, San Diego, "Who Benefits from Student Aid? The Economic Incidence of Tax-Based Federal Student Aid"
- **C. Kirabo Jackson**, Cornell University and NBER, "A Stitch in Time: The Effects of a Novel Incentive-Based High-School Intervention on College Outcomes"(NBER Working Paper No. 15722)
- **Simon Burgess, Ellen Greaves, Anna Vignoles** and **Deborah Wilson**, University of Bristol, "What Parents Want: School Preferences and School Choice"
- **Atila Abdulkadiroglu**, Duke University; **Joshua Angrist** and **Parag Pathak**, MIT and NBER; **Susan Dynarski**, University of Michigan and NBER; and **Thomas J. Kane**, Harvard University and NBER, "Accountability and Flexibility in Public Schools: Evidence from Boston's Charters and Pilots"(NBER Working Paper No. 15449)

Summaries of these papers may be found at: http://www.nber.org/confer/2010/CHEDs10/summary.html

Health Economics

The NBER's Program on Health Economics met in Cambridge on May 7, 2010. Program Director Michael Grossman of City University of New York and NBER Research Associate Ted Joyce of Baruch College organized the meeting. These papers were discussed:

- **Ted Joyce**, and **Ruoding Tan** and **Yuxiu Zhang**, City University of New York, "Changes in Teen Fertility Following Access to the Pill and Abortion in the Early 1970s"
- **Anna Aizer,** Brown University and NBER, and **Laura Stroud**, Brown University, "Education, Knowledge and the Evolution of Disparities in Health" (NBER Working Paper No. 15840)
- **Joshua Graff Zivin**, University Of California, San Diego and NBER, and **Matthew Neidell**, Columbia University and NBER, "The Impact of Environmental Conditions on Worker Productivity"
- **William N. Evans**, University of Notre Dame and NBER, and **Timothy J. Moore**, University of Maryland, "The Short-Term Mortality Consequences of Income Receipt"
- **Christopher Carpenter**, University Of California, Irvine and NBER, and **Sabina Postolek** and **Casey Warman**, Queen's University, "Public-Place Smoking Laws and Exposure to Environmental Tobacco Smoke (ETS) in Public Places" (NBER Working Paper No. 15849)

- **Gautam Gowrisankaran**, University of Arizona and NBER; **Karen Norberg**, Washington University in St. Louis and NBER; **Steven Kymes, Dustin Stwalley** and **William Peck,** Washington University in St. Louis; and **Michael Chernew**, Harvard University and NBER, "The Impact of Insurance-Based Wellness Incentives on Hospitalizations and Medical Care Use"

Summaries of these papers may be found at: http://www.nber.org/confer/2010/HEs10/summary.html

Insurance Project Workshop

The NBER's Working Group on Insurance, directed by Research Associates Ken Froot of Harvard Business School and Howard Kunreuther of the University of Pennsylvania, met in Cambridge on May 21, 2010. These papers were discussed:

- **Martin F. Grace**, Georgia State University, and **J. Tyler Leverty**, University of Iowa, "How Tort Reform Affects Insurance Markets"
- **Brian Cheyne** and **Greg Nini,** University of Pennsylvania, "Creditor Mandated Purchases of Corporate Insurance"
- **Francis Ghesquiere** and **Olivier Mahul**, World Bank, "Financial Protection of the State against Natural Disasters"
- **Anastasia Kartasheva**, University of Pennsylvania, and **Sojung Park**, California State University, Fullerton, "Rating Standards for Catastrophic Risks and the Insurers' Capital Structure"
- **John A. Major**, Guy Carpenter & Company, Inc., "Information Asymmetry in the M-Curve Model"
- **Daniel Schwarcz**, University of Minnesota, "Regulating Consumer Demand in Insurance Markets"
- **Liran Einav**, Stanford University and NBER; **Amy Finkelstein**, MIT and NBER; **Iuliana Pascu**, MIT; and **Mark R. Cullen**, Yale University School of Medicine, "How General are Risk Preferences? Choices under Uncertainty in Different Domains" (NBER Working Paper No. 15686)

Summaries of these papers may be found at: http://www.nber.org/confer/2010/INSS10/summary.html

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Freeman is the former Director of the NBER's Program on Labor Studies, an NBER Research Associate in that Program, and the Herbert Ascherman Professor of Economics at Harvard University. Kruse and Blasi are both NBER Research Associates in the Labor Studies Program and professors of economics in the School of Management and Labor Relations at Rutgers University.

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Clotfelter is an NBER Research Associate in the Education Program and the Z. Smith Reynolds Professor of Public Policy Studies and Professor of Economics and Law at Duke University.

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Lerner and Schoar are Research Associates in the NBER's Program on Corporate Finance. Lerner also co-directs the NBER's Working Groups on Entrepreneurship and on Innovation Policy and the Economy. He is the Jacob H. Schiff Professor of Investment Banking at Harvard Business School. She is the Michael Koerner '49 Professor of Entrepreneurial Finance at Sloan School, MIT.

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Reichlin teaches at the London Business School. West is a Research Associate in the NBER's Programs on Monetary Economics and Asset Pricing and the John D. MacArthur and Ragnar Frisch Professor of Economics at the University of Wisconsin.

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