1.0


Total population, indexed to 1.0 starting in 1919

The Division of Germany and Population Growth
West German cities close to the East-West border declined in relative size after division

<table>
<thead>
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<th>Year</th>
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<th>West German cities (excluding the East-West German border)</th>
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</thead>
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<tr>
<td>2000</td>
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Janet Currie and Anna Aizer*

U.S. public programs that are targeted to children and youth have grown rapidly in recent decades. This trend has generated a substantial volume of research devoted to program evaluation. At the same time, researchers have developed an expanded conception of human capital and how it develops over the life course. This has drawn attention to children’s physical and mental health, as well as to factors such as environmental exposures and maternal stress that influence the development of both non-cognitive and cognitive skills. Researchers in the Program on Children have been active contributors both to the evaluation of programs for children and to our developing understanding of the roots of human capital formation. This review provides a partial summary of this work. The number of research studies in the last eight years unfortunately makes it impossible to discuss all of the relevant contributions.

Long Run Consequences of Conditions in Early Life

The original “fetal origins” hypothesis held that poor nutrition during the fetal period could have persistent effects on metabolism that could lead to adult disease. Economists in the children’s group have broadened the scope of inquiry beyond a narrow focus on fetal nutrition to examine factors beyond prenatal nutrition, shocks in early childhood as well as the fetal period, and a much broader array of outcomes. Douglas Almond, Bhashkar Mazumder, and Reyn Van Ewijk show, for example, that nutritional restriction due to Ramadan fasting is associated with lower child test scores at age seven.¹ Joseph Ferrie

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* Janet Currie and Anna Aizer are the codirectors of the NBER Program on Children. Currie is the Henry Putnam Professor of Economics and Public Affairs at Princeton University and the codirector of Princeton’s Center for Health and Wellbeing. Aizer is an associate professor of economics and public policy at Brown University.

¹ Joseph Ferrie
and Karen Rolf show that socioeconomic status in a household when children are ages 0 to five is historically associated with longevity and health in high school.6 Anna Aizer, Shari Ela, Ferrie, and Adriana Lleras-Muney show that cash transfers to poor families at the early decades of the 20th century led to increases in the income and longevity of children in those households.7 Similarly Fredrik Andersson, John Hallwanger, Mark Katz, Giordano Punti, Horney, Paulkowasky, and Daniel Weinberg show that, once the endogeneity of public housing use is accounted for, childhood residence in supported housing, which has a large cash value, has positive effects on young adult earnings and reduces the probability of incarceration.8 A possible cautionary: Gordon Dahl, Andreas Ravndal Kostoi, and Magne Mogstad show that family welfare participation can increase the probability that children grow up to participate themselves.9 Neighborhood conditions while young are another important determinant of longer-term outcomes. Jennie, Lucile, Duncan, and Lisa Gennetian, Lawrence Katz, Ronald Kesler, Jeffrey Kliger, and Lisa Szombart summarize long-term effects of the Moving to Opportunity experiment, which enabled some poor families to move to less-poor neighborhoods and find relatively little effect on children in those families.10 However, Raj Chetty, Nathaniel Hendren, and curly focus on different datasets and find positive effects on low residential segregation, less mobility including both K–12 and college. Today, these topics remain important.11

Many of the first economic studies concerning the well-being of children focused either on family formation and parental behavior or on formal education, including both K–12 and college. Today, these topics remain important. Roughly one quarter of the studies that are part of the Program on Children fall under the auspices of the NBER Education Program. Roughly as many studies concern children’s well-being in developing countries, and fall within the purview of the Development Economics Program. This review does not summarize either of these active research areas.

The Program on Children

The Program on Children, which was launched in 1993 as the program on the Economic Well-Being of Children, has 134 affiliated researchers. It has produced about 600 NBER Working Papers since the last review in The NBER Reporter, which former program director Jonathan Gruber prepared in 2008.

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Expansions of Medicaid and the Value of Medical Care

One of the most important policies that affected children born in the late 20th century was the expansion of public health insurance under the Medicaid program. State governments were first incentivized to expand coverage to children in poor families, and many states expanded coverage to children with family incomes up to 200 percent of the federal poverty line. Because the expansions occurred at different times in different states and affected some age groups and not others, it is possible to identify the effect of insurance.

Currie, Sandra Decker, and Wanchun Lin,14 Bruce Meyer and Laura Wherry,15 David Brown, Amanda Kowalski, and Thais Lurie,16 and Wherry, Sarah Miller, Robert Kasten, and Meyer17 all examine the long-term effect of these expansions on individuals who gained coverage as young children. They focus on different datasets and find positive effects on

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The Impact of Additional Childhood Medicaid Eligibility

**Hospitalization data for 21- to 28-year-old blacks in 2009**

![Graph showing hospitalization data for 21- to 28-year-old blacks in 2009. The x-axis represents the age of childhood, and the y-axis represents hospitalizations, logarithmic scale. The graph indicates a reduction in hospitalizations for children who were eligible for Medicaid.](image)

**Figure 3**

The state of the statistical cost of saving a very low birth weight's life was about $550,000 in 2006 dollars. At the same time, Currie and Bentley MacLeod and Erin Johnson and Marit Rehavi study the incidence of C-sections, and conclude that many are probably unnecessary.

**Stress and Mental Health**

Researchers in the Program on Children have moved from focusing only on cognitive skills, to thinking about non-cognitive skills (such as social skills) and physical health, to explicitly studying mental health and its role in promoting positive future outcomes.

Using a sibling fixed effects design, Jason Fletcher examines ADHD, one of the most prevalent childhood mental health conditions and finds large negative impacts on employment, welfare use, and earnings. While this finding would seem to argue that treatment of ADHD should have large positive effects, Currie, Mark Stabile, and Lauren Jones find that increases in drug treatment that accompanied an expansion of drug coverage in Quebec had little positive effect on educational outcomes or emotional functioning, suggesting that drug therapy alone may not be enough to improve outcomes. Susan Busch, Erza Golberstein, and Ellen Meara examine the use of antidepressants among adolescents and find that FDA “black box” warnings — the most stringent warnings used in prescription drug labeling — discouraged antidepressant use and led to increases in risky behaviors and small reductions in grade point averages. Mark Anderson, Resul Cesar, and Erdal Tekin further argue that depression increases adolescent propensity to engage in property crime, though not violent crime or selling drugs. Together these papers suggest that many children suffer from poor mental health and that more research into how it can be treated appropriately is needed.

Acute stress, both among mothers and among children, may be one root cause of poor mental health. Aizer, Laura Stround, and Stephen Buka exploit unique data on maternal cortisol levels during pregnancy and find, using sibling comparisons, that children exposed to high levels of this “stress hormone” suffer negative effects on their cognitive functioning and motor development. Moreover, mothers of lower socioeconomic status have higher cortisol levels, suggesting one mechanism for the intergenerational transmission of poverty. This is consistent with work by William Evans and Craig Garthwaite showing that Earnings Income Tax Credit (EITC) payments are associated with improved maternal mental health and a reduction of certain biomarkers for stress.

A source of stress that is more common among mothers of lower socioeconomic status is the death of a family member. Petra Persson and Maya Rossin-Slater compare children whose mothers experienced loss of a family member while the children were in utero to those who experienced such a loss in the first year after birth; they find that the former group were more likely to suffer from mental health problems including ADHD, anxiety, and depression. In later life, Sandra Black, Paul Devereux, and Kjell Salvanes also investigate the long-term effects of the mother experiencing a death in the family. They find that lower pollution levels in the year of birth are associated with higher employment levels and higher earnings at age 30. Adam Isen, Rossin-Slater, and Walker follow children born in counties that were required to reduce air pollution because of the 1970 Clean Air Act. They find that lower pollution levels in the year of birth are associated with higher employment levels and higher earnings at age 30. Aizer, Currie, Peter Simon, and Patrick Viove document the tremendous positive effects of measures to reduce lead exposure by targeting old lead paint in Rhode Island. They show that in areas that implemented a “lead safe” certificate program, preschool blood lead levels declined rapidly and children’s later test scores improved. They present evidence that builds on previous work by Jessica Reyes showing that cohorts of young children who benefited from the elimination of lead in gasoline when they were young had lower levels of behavior problems, aggression, and delinquency as adolescents and less crime as young adults. Currie, Lucas Davis, Michael Greenstone, and Walker find that manufacturing plants that emitted toxic pollutants reduced infant health within a one-mile radius. Currie, Greenstone, and Enrico Moretti find that Superfund hazardous waste site cleanups improved birth outcomes among infants born to mothers who lived nearby compared to mothers who lived a little further away. Claudia Persico, Figlio, and Roth show that children prenatally exposed to Superfund sites are more likely to repeat a grade or be suspended from school and have lower test scores than their younger siblings who benefited from later cleanups of these sites.

**Additional Immediate or Short-Term Impacts of Policy on Children**

In addition to tracking long-term effects, researchers in the Program on Children continue to study the immediate impacts of a wide variety of policies affecting children and their families. These include cash transfer programs, preschool enrichment, and nutrition programs. Hoynes, Douglas Miller, and David Simon show that expansions of the EITC reduced the incidence of low birth weight and that the impact was greater for African-American mothers (Figure 5). In keeping with the finding of heterogeneous program effects, Marianne Bitler, Hoynes, and Thurston Domina estimate quantile treatment effect models of the Head Start preschool program for disadvantaged children and find the largest and most persistent effects on the most disadvantaged children. This is consistent with work by Kline and Chris Walters showing that the impact of Head Start is greatest for those children without access to any other preschool programming.

Sara Markowitz, Karleigh Adams, Patricia Dietz, Vij Kanna, and Van Tong study state increases in cigarette taxes and find that smoking and show that both policies reduced the rate of premature births. Aizer and Stroud show that the initial Surgeon General’s report about the dangers of smoking had a much greater impact on American mothers (Figure 6). Isen, Rossin-Slater, and Walker find that the implementation of E-ZPass improved birth outcomes among infants born to mothers who lived nearby compared to mothers who lived a little further away. Claudia Persico, Figlio, and Roth show that children prenatally exposed to Superfund sites are more likely to repeat a grade or be suspended from school and have lower test scores than their younger siblings who benefited from later cleanups of these sites.

**Figure 5**

**Environmental Policy**

Pollution from toxic chemicals like lead can also have important long-term effects on children’s health. The combination of large administrative datasets measuring both pollution levels and health outcomes, and environmental policies that have greatly reduced pollution exposures, have allowed us to better identify the harmful effects of exposures. Karen Clay, Joshua Lewis, and Edson Severini show that emissions from coal-fired electricity generation plants were responsible for 3,500 infant deaths per year in the early 1960s. Currie and Reed Walker find that the implementation of E-ZPass improved birth outcomes in the neighborhood of highway toll plazas by reducing tailpipe pollution (Figure 4). Adam Isen, Rossin-Slater, and Walker follow children born in counties that were required to reduce air pollution because of the 1970 Clean Air Act. They find that lower pollution levels in the year of birth are associated with higher employment levels and higher earnings at age 30. Aizer, Currie, Peter Simon, and Patrick Viove document the tremendous positive effects of measures to reduce lead exposure by targeting old lead paint in Rhode Island. They show that in areas that implemented a “lead safe” certificate program, preschool blood lead levels declined rapidly and children’s later test scores improved. They present evidence that builds on previous work by Jessica Reyes showing that cohorts of young children who benefited from the elimination of lead in gasoline when they were young had lower levels of behavior problems, aggression, and delinquency as adolescents and less crime as young adults. Currie, Lucas Davis, Michael Greenstone, and Walker find that manufacturing plants that emitted toxic pollutants reduced infant health within a one-mile radius. Currie, Greenstone, and Enrico Moretti find that Superfund hazardous waste site cleanups improved birth outcomes among infants born to mothers who lived nearby compared to mothers who lived a little further away. Claudia Persico, Figlio, and Roth show that children prenatally exposed to Superfund sites are more likely to repeat a grade or be suspended from school and have lower test scores than their younger siblings who benefited from later cleanups of these sites.

**Figure 4**

**Figure 5**

**Source:** L.R. Wherry, S. Miller, R. Kaestner, and B.D. Meyer, NBER Working Paper No. 20929

**Source:** J. Currie and R. Walker, NBER Working Paper No. 15413

**Source:** J. Currie and R. Walker, NBER Working Paper No. 15413
impact on smoking among more-educated women, that initially the gap in smoking rates grew.\textsuperscript{55} Schanzenbach and Mary Zaki focus on an expansion in the school breakfast program and some evidence of improvements in health and behavior in some subgroups, though not overall.\textsuperscript{56} Hoynes, Marianne Page, and Ann Huff Stevens focus on the initial roll out of the Supplemental Nutrition for Women, Infants and Children (WIC) Program across U.S. counties and show that it had positive effects on infant health and no evidence that these effects were driven by fertility.\textsuperscript{57} Ishita Rajani examine WIC in New York City and find that even comparing siblings born full term, WIC reduces low birth weight.\textsuperscript{48} John Cawley, David Frivold, and Chad Meyerhoefer examine state physical education mandates and find that they lower body mass index and reduce the probability of obesity among fifth graders, especially boys.\textsuperscript{58} Conversely, differences in fertility and childhood health among younger teens and African Americans.\textsuperscript{59}

Fertility and Parental Behaviors

Parental choices, beginning with the choice to have a child, are driven under what circumstances, shape every aspect of a child’s life. One of the most important demographic changes of the late 20th and early 21st centuries has been the decrease in the rate of non-marital childbirth.\textsuperscript{60} Not only has the overall rate increased, but Shelby Lundberg, Robert Pollak, and Jenna Stearns document a widening divide between parents with college education and those without, with the latter more likely to marry and remain married.\textsuperscript{61} They argue that college educated parents marry in order to facilitate the increasingly intense investments that they will jointly make in their children.

Martha Bailey provides a history of the impact of the introduction of federally funded family planning programs for 1946 to 1973 on fertility, linking them to both delays in childbearing and decreases in the number of children per woman.\textsuperscript{46} Michael Lovenheim, Randall Reback, and Leigh Wedenoja focus on teens and show that school-based health centers can lower teen fertility, especially among younger teens and African Americans.\textsuperscript{62} Mike Lovenheim, Randall Reback, and Ishita Rajani examine WIC in New York City and find that even comparing siblings born full term, WIC reduces low birth weight.\textsuperscript{48} John Cawley, David Frivold, and Chad Meyerhoefer examine state physical education mandates and find that they lower body mass index and reduce the probability of obesity among fifth graders, especially boys.\textsuperscript{58} Conversely, differences in fertility and childhood health among younger teens and African Americans.\textsuperscript{59}

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Fertility decisions can have a direct impact on the parental resources available for children, as Chin-Hui John, Yona Rubinstein, and Andrew Zuppann emphasize in their re-examination of the so-called child quantity-quality tradeoff.\textsuperscript{60} Black, Devereux, and Salvanes find evidence of complicated patterns of parental investment by birth order, showing, for example, that mothers, who are more likely to breastfeed when their first children are born but also are more likely to invest quality resources available for children, as Chin-Hui John, Yona Rubinstein, and Andrew Zuppann emphasize in their re-examination of the so-called child quantity-quality tradeoff.\textsuperscript{60} Black, Devereux, and Salvanes find evidence of complicated patterns of parental investment by birth order, showing, for example, that mothers, who are more likely to breastfeed when their first children are born but also are more likely to invest

Figure 6

Kohlin, Philip Oreopoulos, and Sebastian Gallegos conduct a field experiment designed to increase the time parents spend reading to their children, using behavioral tools such as text reminders, goal setting, and social rewards; they find large positive effects relative to simply providing information about the importance of reading to children.\textsuperscript{74}

Research Focusing on Adolescents

Much about adolescents is predictive of their incipient adult outcomes. It is during adolescence that many risky or antisocial behaviors emerge or intensify, in addition to height, and severity, often with long term consequences. Miguel Sarzosa and Sergio Urzua estimate significant long term costs associated with being bullied in one’s youth.\textsuperscript{72} Aizer and Doyle point out that 130,000 juveniles are detained each year. Using randomly assigned judges with different propensities to incarcerate, they find that incarceration in adolescence greatly increases the probability of incarceration in adulthood.\textsuperscript{73} The importance of mental health is highlighted by Anderson, Cesar, and Tekin who show using school and school based health records that adolescent depression predicts future property crime.\textsuperscript{74} Fletcher finds further that adolescent depression predicts lower employment and earnings.\textsuperscript{75} While much of the previous work examining the impact of programs or policies that aim to curb risky behaviors among adolescents has not found them to be particularly effective, more recent work suggests that interventions can be effective.\textsuperscript{76} For example, among youths who are involved with the justice system but not incarcerated, Alson Cuellar and Dhaval Dave find that intensive mental health treatments can help keep youth in school.\textsuperscript{77} In contrast, adolescent behavior seems to be less responsive to prices and sanctions. Anderson, Hansen, and Daniel Ries examine the impact of neglect that may be associated with different mandates to increase the time parents spend reading to their children, using behavioral tools such as text reminders, goal setting, and social rewards; they find large positive effects relative to simply providing information about the importance of reading to children.\textsuperscript{74}

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Stephen Redding’s research interests include international trade, economic geography, and productivity growth. Recent work has been concerned with heterogeneous firms and comparative advantage, multi-product firms, and the contribution of agglomeration forces to the spatial distribution of economic activity.

He is currently the Harold T. Shapiro Professor at Columbia University from and the Wesley Clair Mitchell Visiting Professor at Harvard University during fall 2007, Affairs Prize from the Kiel Institute for Economic Growth and a Global Economic at the London School of Economics Centre for Economic Policy Research. Investment Program, an international Development Programs.

Research Summaries

Quantifying Agglomeration and Dispersion Forces

Stephen J. Redding

Economic activity is highly unevenly distributed across space. In the United States, the 2,000 counties with the lowest employment densities account for over 75 percent of land area but less than 12 percent of employment. By contrast, the 100 counties with the highest employment densities make up around 40 percent of employment but less than 2 percent of land area. A fundamental research question in economic geography is the extent to which this uneven distribution of economic activity reflects differences in location fundamentals, such as natural resources, mountains and navigable water, or agglomeration forces, such as knowledge externalities.

Understanding the strength of agglomeration forces and of corresponding dispersion forces is central to a range of economic and policy questions. These forces influence economic efficiency, the size distribution of cities, and the causal ordering of economic activity within cities. They have implications for the location and distribution of income and for local and aggregate productivity. They also determine the impact of public policy interventions, such as transport infrastructure investments, local taxation, and regional development programs.

Although the literature on economic geography and urban economics dates back at least to the work of Alfred Marshall in the late 19th century, separating agglomeration and dispersion forces from variation in location fundamentals remains challenging. While high land prices and levels of economic activity in a group of neighboring locations are consistent with strong agglomeration forces, they are also consistent with shared amenities that make these locations desirable places to live or common natural advantages that make these locations attractive for production.

This challenge has both theoretical and empirical dimensions. From a theoretical perspective, to develop tractable models of location choice, much existing research makes simplifying assumptions such as a small number of symmetric locations, which ignores the important differences in location fundamentals that are observed in practice and limits the usefulness of these models for empirical work. From an empirical perspective, the challenge is to find exogenous sources of variation in the surrounding concentration of economic activity to help disentangle agglomeration and dispersion forces from variation in location fundamentals. Part of my research program has sought to overcome these challenges and quantify the magnitude of agglomeration and dispersion forces.

The Costs of Remoteness

In the presence of trade costs, the location of agents relative to one another in geographic space determines their access to one another’s markets, which in turn affects consumption, production, and income. Anthony Venables and I used a theoretical model of economic geography to derive theoretically consistent measures of market access that can be structurally estimated using observed bilateral trade data between locations. As predicted by economic geography models, these measures of market access are strongly correlated with the observed cross-sectional distribution of economic activity.

We provide evidence for a causal role of market access, Daniel Sturm and I used the division of Germany after the Second World War and the reunification of East and West Germany in 1990 as a source of exogenous variation. The key idea behind our empirical approach is that the decision caused West German cities close to the former border between East and West Germany —“treatment cities” within 75 kilometers of the border — to experience a disproportionate loss of market access relative to other West German cities, our “control cities.” The reason is that West German cities close to the East-West border lost nearby trading partners with whom they could interact at low transport costs prior to division. In contrast, the effect on West German cities further from the East-West border was more muted, because they were more remote from the trading partners lost, and therefore only faced higher transport costs prior to division.

In line with the predictions of a standard new economic geography model, the imposition of the East-West border led to a sharp decline in population growth of West German cities close to the border relative to their further-from-the-border counterparts. Over the course of the decade following the division, border cities experienced a relative decline in their annualized rate of population growth of 0.75 percentage points. This resulted in a relative shrinkage of these cities by about one-third over the four decade division, as shown in Figure 1. In the new economic geography model, the impact of division is determined by two parameter combinations: the strength of agglomeration and dispersion forces, and the elasticity of trade with respect to distance. We show that for plausible values of these parameter combinations, the model can account quantitatively for both the average estimated treatment effect of division and the larger estimated treatment effect for smaller cities that are more dependent on markets in other cities. We also provide evidence against a range of potential alternative explanations, such as differences in industrial structure, differences in the degree of disruption during and in the aftermath of the Second World War, Western European integration, and fear of further armed conflict.

My more recent research has explored how factor mobility across locations influences the welfare gains from trade in goods. In an entire class of trade and geography models, I show that the impact of division is determined by two parameter combinations: the strength of agglomeration and dispersion forces, and the elasticity of trade with respect to distance. We show that for plausible values of these parameter combinations, the model can account quantitatively for both the average estimated treatment effect of division and the larger estimated treatment effect for smaller cities that are more dependent on markets in other cities. We also provide evidence against a range of potential alternative explanations, such as differences in industrial structure, differences in the degree of disruption during and in the aftermath of the Second World War, Western European integration, and fear of further armed conflict.

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The division of Berlin severed all local economic interactions between East and West Berlin, which corresponds to the model's prohibitive trade and commuting costs and no production and residential externalities between these two parts of the city. Our analysis makes use of a remarkable and newly collected dataset for Berlin on around 15,000 city blocks, which includes data on land prices, employment by place of work, and employment by place of residence covering the pre-war, division, and reunification periods. We first present reduced-form evidence in support of the model's qualitative predictions without imposing the full structure of the model. We show that division leads to a reorientation of the gradient in land prices and employment by place of work, which includes data on land prices, employment by place of work, and employment by place of residence covering the pre-war, division, and reunification periods.

Broader Research Agenda

My broader research agenda remains concerned with quantifying the magnitude and implications of spatial interactions between locations. Past research with Sturm and Wolf has provided evidence of the role of such interactions in generating path dependence or multiple steady-states in location choices. Current research with Ferdinando Monte and Ernesto Rossi-Hansberg demonstrates the importance of spatial interaction between locations, in particular through commuting, for understanding the local economic impact of labor demand shocks. Ongoing work with Pablo Fajgelbaum quantifies the role of internal geography in shaping the effects of external integration, using the natural experiment of Argentina's integration into the world economy in the late-19th century. All of these papers are part of a broader, developing literature on quantitative spatial models, which are rich enough to incorporate first-order features of the data and also tractable enough to be amenable to counterfactual analysis. In a recent survey paper with Rossi-Hansberg, we review this rapidly-growing literature and the many exciting areas for further research.

Income Risk over the Life Cycle and the Business Cycle: New Insights from Large Datasets

Fethi Guvenen

Millions of young men and women enter the labor market annually. Over the next 40 years, each of them goes through a unique journey that involves surprises as well as disappointments: searching for the dream career, finding and losing jobs, getting promotions, salary raises, or demotions, and experiencing the recessions and booms of the macro economy.

In recent research, I try to understand the nature of the uncertainty that major labor market events generate for workers. There are three main dimensions of this research, which studies how individuals’ income uncertainty and risk vary across the business cycle and over the life cycle, and how they have changed over time and across decades. The answers to these questions are of immediate relevance for both deepening our knowledge of labor market dynamics and for informing social insurance debates, such as those surrounding Social Security reform, unemployment insurance policy, the degree of job protection, and the progression of the tax system. Each of these policies seeks to moderate various types of individual risk.

In this summary, I discuss in detail my colleagues’ and my findings on the variation of income risk over the business cycle. I also briefly describe our findings about life cycle risk and changes in risk over time.

Because of its central role for policy questions, the nature of individual income uncertainty has received significant attention from academics since the 1970s, when panel datasets on individual incomes started to become available. However, during those decades — as well as the majority of the newer ones — were overwhelmingly based on surveys and therefore suffered from the same limitations: the combination of data issues and restrictive methods and assumptions often yielded a wide range of answers to these questions, resulting in wide disagreements. My earlier research on these topics also relied on these survey-based datasets and methods; I became increasingly uncomfortable about their use and this motivated the current work.

My research on income uncertainty builds on two main elements. First, it makes extensive use of large administrative panel datasets on individuals from various countries, some of which have become more available in the last decade. Second, because these datasets suffer from the shortcomings of survey data such as small sample, attrition, and measurement error, my research relies much on the econometric assumptions made in prior literature. For example, my collaborators and I relax the strong focus in earlier work on just the variance — the second moment — as a measure of risk and uncertainty. We find that most of the interesting and substantively important variation happens in “higher-order moments”, in particular in the third- and fourth-order moments. The risk from these components, “higher-order risk”, matters a great deal for a range of substantive economic questions.

The Datasets

One dataset my coauthors and I have used in this research comes from the Master Earnings File (MEF) of the U.S. Social Security Administration (SSA). The MEF currently covers the entire U.S. population with a Social Security number from 1978 to 2013. It contains data on each individual’s labor earnings (wage/salary income from W-2 forms and self-employment income from Schedule SE), as well as some key demographic variables and employer identifiers. The substantial sample size, 600 million individual-year observations in a 10 percent subsample, allows us to employ fully parametric methods and take what amounts to high-resolution pictures of individual earnings histories. The relaxation of parametric assumptions is a key part of this research agenda.

In addition, we use data from Swedish, German, and French administrative records (Linda, IAB, and DADS, respectively) and complement them with various survey-based datasets (PSID for the U.S. and GSOEP for Germany) as well as firm-level datasets (Compustat Global, OESIRIS, and ORBIS).

Income Risk over the Business Cycle

Conventional wisdom among economists was that income shocks become much larger in recessions, and that this property was captured by a rise in the variance of such shocks. The most widely cited papers on this question used survey-based data from the Panel Study of Income Dynamics (PSID), applied parametric specifications for income dynamics, and concluded that the variance of persistent income shocks roughly tripled in recessions relative to expansions.1 However, the hypothesis of countercyclical income risk, “matters a great deal for a range of substantive economic questions.”

1 While the hypothesis of countercyclical income risk is consistent with the plausible idea that many individuals experience large negative shocks in recessions, it also implies, less plausibly, that a large fraction of people experience large positive shocks in recessions than in expansions. In fact, typical estimates in the literature imply that about 40 percent of individuals receive larger positive shocks in recessions than they do in expansions.
losses for the top 1 percent and 0.1 per- cent were more severe during the 2000–
01 recession and just as bad during the
1989–94 period. These changes are not likely to be the result of wage declines; our labor earnings measure includes bonuses, restricted stock units at time of vesting, and exercised stock options.

Is this upward-sloping factor structure specific to recessions or does it also emerge in expansions? The answer is a partial “no.” Expansions display a more complex pattern. This can be seen in the right panel of Figure 2, which plots the analogous graphs for the three expansions.

In particular, workers who entered each expansion above the 70th percentile of the income distribution experienced an upward-sloping factor structure, which further stretched the income distribution at the top end. The opposite happens at the lower end, where those with lower pre-expansion income see larger increases in their income during the subsequent expansion and catch up to the rest of the workers. This catching up was very strong during the 1992–2000 expansion and weaker during the other two expansions, which is only partly due to the longer duration of the 1990s recession.

An important corollary to these findings is that a large part of the well-documented rise in income inequality during recessions and its partial reversal during expansions is due to this predictable factor structure and not from larger shocks.

Social Insurance Policy

The analysis in the preceding paper raises three questions. First, are the business cycle patterns we observe specific to the United States, or do they hold more broadly in other developed economies? Second, since these findings were documented for male earnings, do the results extend to household earnings, which might benefit from within-household insurance? And three, how are these patterns affected by government social insurance policies, in the form of unemployment benefits, welfare, and the tax policy?

To provide a broad perspective on these questions, my paper with Christopher Busch, Daniel Devereux, and Rocio Madera studies panel data on income dynamics in Germany and Sweden, covering roughly the same time period as the project described above.4 We supplement these with U.S. data from the PSID. These datasets provide information not only on household income but also on income taxes and a broad range of government transfers.

The cyclical behavior of both individual and household income is remarkably similar across many countries. Table 1 compares the U.S. results with those from Germany and Sweden. In particular, we see that the 1979–83 period was much weaker during the other two expansions, which is somewhat surpris- ing given that both Germany and Sweden, covering roughly the same time period as the project described above,4

To sum up, studying the higher-order moments of individual income dynamics seems to be a key step for better under- standing the nature of the idiosyncratic risk facing workers. Precise estimation of these higher-order moments and docu- mentation of how they vary over the busi- ness cycle and life cycle, as well as across the population, require large and clean panel datasets, which are rapidly becom- ing more available. This move towards big data holds great promise for the future of empirical work in this area, and will hopefully allow researchers to correct old misconceptions, reveal new and interest- ing findings, and push economic research further.


What Can Housing Markets Teach Us about Economics?

Johannes Stroebel

Housing is a unique asset. Both an investment and a consumption good, it is traded in markets that are subject to significant search frictions and information asymmetries. In addition, housing accounts for a large share of wealth in the economy. As a result, changes in house prices can have large effects on aggregate economic activity. In combination with the availability of excellent microdata on housing transactions, this makes housing an ideal asset for the study of a range of questions of broader economic interest. In this piece, I summarize a number of findings that have emerged from my empirical research on housing markets.

Housing and Long-Run Discount Rates

Long-run discount rates play a central role in economics and public policy. For example, decisions about how much to invest in climate change abatement depend crucially on the trade-off between the immediate costs and the very long-term benefits of efforts to reduce global warming. Yet, despite their importance, there are few, if any, reliable estimates of the discount rates households attach to payoffs that accrue over horizons exceeding 30 years. This is, in large parts, due to the absence of finite, long-maturity assets necessary to estimate these discount rates. In a set of papers with Stefano Giglio and Matteo Maggiori, I take advantage of a unique feature of housing markets in the UK and Singapore to provide direct estimates of long-run discount rates for housing cash flows that materialize hundreds of years in the future. In both countries, property ownership takes the form of either a leasehold or a freehold. Leaseholds are temporary, pre-paid, and tradable ownership contracts with initial maturities ranging from 99 to 999 years, while freeholds are perpetual ownership contracts. This contract structure allows us to infer households’ mortality-specific valuations of cash flows over horizons spanning hundreds of years. In particular, the price difference between leaseholds and freeholds for otherwise identical properties captures the present value of perpetual rental income starting at leasehold expiry, and is thus informative about households’ discount rates over extremely long and previously unexplored horizons.

We estimate the price difference between leaseholds and freeholds of different maturities with hedonic regressions, using data on the universe of housing transactions and associated property characteristics since 1994. Our findings show that, in both the UK and Singapore, 100-year leaseholds are valued at 10 to 15 percent less than otherwise identical freeholds; the price difference is smaller for leaseholds with higher maturities, and goes to zero for leaseholds with remaining maturities of 700 years or more. Figure 1 shows the term-structure of leasehold discounts for the United Kingdom.

Leasehold Discounts Relative to Freeholds

Apartments sold in England and Wales, 2004–2013

Figure 1

A native of Darmstadt, Germany, Stroebel lives in New York City with his wife and one-year-old son, Konrad.
We show that these price discounts of leaseholds are not driven by institutional features of the contracts. We also introduce a large dataset on rents toorns to show that, conditional on observable control variables, leaseholds of different combinations of terms and deal amounts. This suggests that differences in unobservable property characteristics across leaseholds and freeholds do not confound our findings. Our interpretation of our results is that households attach a relatively high value to housing cash flows arising far in the future. This implies that their corresponding discount rates have to be low—according to our calculations, below 2.6 percent for housing cash flows more than 100 years in the future.

In related work together with Andreas Weber, we explore the implications of these findings for the appropriate discount rates to value investments in climate change abatement. We begin by providing new empirical evidence on the shape of the future term structure of housing discount rates. In particular, we find the average return to real estate to be above 6 percent. In combination with the low long-run discount rates estimated above, this implies that the term structure of housing discount rates is steeply downward-sloping. This implies that the present value of a payment occurring infinitely far in the future is zero. Such a bubble is often called a classic rational bubble. Other, more behavioral models of bubbles do not require this condition. Therefore, our findings highlight that any study of the positive and normative implications of classic rational bubbles will benefit from distinguishing the robustness of its conclusions to considering other, more empirically plausible models of bubbles. Indeed, I believe that the best way to study bubbles is to run simulations and then testing such alternative models of asset price bubbles is an exciting research agenda.

Social Networks and Housing Markets

Understanding how house prices are determined is a motivating question in some of my other work. In particular, in joint work with Michael Bailey, Rachel Moon, and David Card, we explore the effects of social interactions on individual house prices. In this work, we combine anonymized social network information from Facebook with housing transaction data and a survey. Variation in the geographic spread of social networks combined with time-varying regional house price changes induces heterogeneity in the house price experiences of different individuals' friends that is not systematically related to other factors that might also affect those individuals' investment decisions. We find that individuals whose geographically distant friends experienced larger recent house price moves were more likely to transition from renting to owning. They also buy larger houses, and pay more for a given house. Similarly, when home-owners' friends experienced less positive house price changes, these homeowners are more likely to become renters, and more likely to sell their property at a lower price. These relationships appear to be driven by the effect of social interaction on individuals' housing market expectations. Indeed, survey data show that individuals whose geographically distant friends experienced larger recent house price movements are more likely to consider local property a more attractive investment, with larger effects for individuals who regularly discuss such investments with their friends.

Our findings suggest that differences in social networks can be a key driver of disagreement about the value of housing assets. They also show that social interactions can play an important role in propagating house price shocks across different regions: a fundamental demand shock in one part of the United States might make people in other regions more optimistic, and drive up house prices in those regions, purely as a result of increased speculative demand. Much work remains to be done to better understand the role of social networks in economic and social decision making. Indeed, my research suggests the potential of using newly emerging data from online social networks to help overcome some of the pervasive measurement challenges in this type of work. In ongoing research with various coauthors, I continue to use data from Facebook to analyze the effect of social interactions on a broad range of outcomes, from mortgage refinancing, to the adoption of new products, to patent citations and migration.

House Prices and Consumer Demand

In the United States, housing is the largest asset of most households. Consequently, variation in house prices can create large shocks to households' wealth, and, through home equity extraction, to households' liquidity position. An emerging literature has started to explore the effects of changes in house prices on household consumption behavior and real economic activity. In joint work with Joseph Vavra, I contribute to this research effort, and study cross- regional variation in house price movements to better understand how local retail prices and markups respond to local demand shocks. This response of markups to demand shocks provides a key amplification mechanism in many New Keynesian macro models, but evidence on the magnitude and behavior of markups from aggregate time-series data has proved inconclusive.

We use a large dataset of retail store scanner data to construct local retail price indices at the zip code and Metropolitan Statistical Area (MSA) levels. We then show that local retail prices respond to local house price movements. For example, Figure 2 shows that the retail price level between 2001 and 2011 in MSAs that were in the top versus the bottom quintile of house price growth over the period experiences significantly lower die- sis uncovers elasticities of retail prices to house price changes of about 15 to 20 percent across housing booms and busts. We argue for a causal response by exploiting the local housing supply elasticity as an instrument for house price changes, and by showing that the response differs by the local homeownership rate: In areas with many homeowners, the evidence suggests that higher house prices lead to higher retail prices, while in areas with fewer homeowners we find, if anything, a negative response. We provide evidence that this channel through which house price responses are driven by changes in markups rather than by changes in local costs. We then argue that markups rise with house prices, particularly in high homeownership locations, because greater household wealth reduces homeowners' demand elasticity, and firms raise markups in response. Data from Nielsen Homescan provides further evidence for this explanation: I show that house price increases cause home owners to spend more, and to buy fewer goods on sale or with a coupon; we find the opposite effect in low homeownership areas.

Taken together, our empirical results provide evidence of a novel and important link between changes in household wealth, shopping behavior, and firms' price-setting. Positive shocks to wealth cause households to become less price-
sensitive and firms respond by raising markups and prices. We hope that follow-on research to include this mechanism in business cycle models will allow researchers to better match inflation patterns in the data.

Information and Search Frictions in Housing Markets

Asymmetric information is a pervasive feature of many asset and credit markets. However, testing the empirical implications of models with asymmetric information is often challenging because of the difficulties in observing the identities of different trading parties, as well as their relative information sets. In the U.S., details about housing transactions, including the identity of buyers, sellers, and lenders, is public information. I exploit the availability of these data in a number of research papers to better understand the role of asymmetric information in housing and mortgage markets.

In the first project, I empirically analyze credit market outcomes when competing mortgage lenders are differentially informed about the expected return on a loan.1 I study the residential mortgage market where property developers often cooperate with vertically-integrated mortgage lenders to offer financing to buyers of new homes. These integrated lenders might have more information about both the value of the mortgage collateral and borrower characteristics. By conditioning on their interest rate offers on such superior information, integrated lenders can submit less-informed competitors to adverse selection.

To analyze the magnitude and implications of such asymmetric information, I construct a dataset of all housing transactions and associated mortgages in Arizona between 2000 and 2010. I find that houses financed by an integrated lender outperform houses financed by non-integrated competitors by 40 basis points annually. They are also financed by the integrated lender’s superior information about collateral quality, not borrower characteristics. For example, I show that those houses initially financed by an integrated lender continue to outperform during the ownership period of the second owner of the house, the identity of whom was unknown to all lenders at the time the original mortgage was made. This is most likely explained by differences in collateral quality, which remains constant across ownership spells. I also show that the better performance of the integrated lenders’ collateral is particularly large for houses built on expansive soil, for which subsequent house prices are more sensitive to the initial construction quality. Non-integrated lenders respond to the adverse selection by charging higher interest rates for similar mortgages when they compete against a better-informed integrated lender. This raises the average financing cost of borrowers by about 10 basis points annually.

From a policy perspective, the identification of collateral values as a key source of asymmetric information in mortgage lending helps to develop and assess regulatory proposals to improve the functioning of this market. In particular, a stronger focus on providing independent and reliable property assessments to all market participants might play an important role in mitigating the impact of asymmetric information.

In a related project, Pablo Kurlat and I study equilibrium outcomes in housing markets with asymmetric information among both buyers and sellers.2 We document that hard-to-observe neighborhood characteristics are a key source of information heterogeneity in housing markets: Sellers are usually better informed about neighborhood values than buyers, but there are some sellers and some buyers who are better informed than their counterparts. To empirically test the effects of such information asymmetry, we combine data on all housing transactions in Los Angeles County since 1994, including the identities of home buyers and sellers, with information on all real estate licenses issued in Los Angeles County. We propose that real estate agents are better informed than other households about matters such as neighborhood-level demographic trends. Consistent with theoretical predictions, we find that changes in the seller composition toward more informed sellers and sellers with a greater elasticity of sale predict subsequent house-price declines and demographic changes in a neighborhood. This effect is larger for houses whose value depends more on neighborhood characteristics, and smaller for houses bought by more informed buyers. Our findings suggest that homeowners have superior information about important neighborhood characteristics, and exploit this information to time local market movements.

A second major friction in housing markets derives from the heterogeneous nature of different houses, which means that prospective buyers do not know ex ante which houses will maximize their utility. As a result, buyers and sellers must search for high-quality matches. This search friction can have quantitatively important effects on equilibrium housing market outcomes.

Monika Piazzesi, Martin Schneider, and I empirically examine the consumer search process in the housing market, and its effect on house prices, inventories, and time on market.3 In particular, rather than considering one integrated housing market, where all home buyers potentially look at all vacant houses, we analyze housing search, trading and valuation in interconnected housing market segments with heterogeneous buyers.

We use a novel dataset on online housing search from the online real estate website Trulia to measure buyer search ranges for the San Francisco Bay Area. We use these data to split the Bay Area into its 576 unique market segments along the dimensions suggested by the search queries, and represent each search query as the subset of the segments that a particular buyer is interested in. We identify over 10,000 unique search patterns within our data. We then analyze the cross-section of turnover, inventory, and search activity across our segments, and relate these measures of market activity to the observed housing search behavior. We find, for example, that search activity and inventory co-vary positively within cities and zip codes, but negatively across these units.

We propose a new search model with many segments and heterogeneous searchers to capture the impact of the interaction of broad and narrow searchers within and across segments. This model, while high-dimensional, can be estimated given our data; it shows how market activity at different levels of aggregation depends on the interaction of heterogeneous clientele. For example, this model can explain the difference in slopes of Beveridge curves computed within cities over time, and across cities at a point in time. Within a city over time, there are “broad searchers” who are willing to buy in a given area should new inventory come on the market. This causes those segments within that city that have more inventory to attract more search activity. Across cities, however, there is variation in which cities are attractive on various dimensions. Those cities that are less attractive see less search activity and generally also have more inventory sitting on the market. The model is also informative about the transmission of shocks across segments, which depends on the presence of households that search across two segments and therefore connect them. It also shows how search frictions induce significant liquidity discounts in house prices that vary widely across market segments.

Overall, these papers highlight the ability of housing market data to shed light on the effect that various market frictions, such as search frictions or asymmetric information, have on equilibrium market outcomes.

Economists have long realized the importance of education for the well-being of individuals and the productivity of society. Over the past few decades, the economic returns to education have risen dramatically, increasing the importance of this issue. Yet researchers have made only limited progress in understanding how various policies can influence educational outcomes. My research in education economics has focused on three areas: standards and accountability, teacher policies, and measurement of individual ability.

### Standards and Accountability

One approach to school reform involves holding schools accountable for student performance. In 2002, President Bush signed the No Child Left Behind Act (NCLB), which dramatically expanded federal influence over the nation’s public schools. NCLB is arguably the most far-reaching education policy initiative in the past four decades. The legislation compelled states to conduct annual student assessments, calculate and report the fraction of students deemed at least proficient in key subjects, and institute an increasingly severe set of sanctions for schools that did not show sufficient progress toward having all students proficient. In a series of papers, Thomas Dee and I study how NCLB affects school practices and student outcomes. We identify the impact of NCLB by comparing changes across states that already had school accountability policies in place prior to NCLB and those that did not. To examine student achievement, we utilize a state-year panel of student achievement scores from the National Assessment of Educational Progress (NAEP), a common metric that was low-stakes for schools.

Our results indicate that NCLB increased per-pupil spending by nearly $600, which was funded primarily through increased state and local revenue. We find that NCLB increased teacher compensation and the share of elementary school teachers with advanced degrees but had no effect on class size. We also find that NCLB did not influence overall instructional time in core academic subjects, but did lead schools to devote time for teacher training in the science and social studies and toward the tested subject of reading.

As states have implemented school accountability systems, they have also raised standards. Since the 1970s, states have slowly increased standards, but did lead schools to devote time for teacher training in the science and social studies and toward the tested subject of reading.

### Math Achievement Increased after No Child Left Behind Act

[Figure 1](#)

<table>
<thead>
<tr>
<th>Year</th>
<th>Students meeting standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>50%</td>
</tr>
<tr>
<td>2002</td>
<td>55%</td>
</tr>
<tr>
<td>2003</td>
<td>60%</td>
</tr>
<tr>
<td>2004</td>
<td>65%</td>
</tr>
<tr>
<td>2005</td>
<td>70%</td>
</tr>
</tbody>
</table>

Source: T. S. Dee and B. A. Jacob, NBER Working Paper No. 15531

Our results indicate that NCLB increased per-pupil spending by nearly $600, which was funded primarily through increased state and local revenue. We find that NCLB increased teacher compensation and the share of elementary school teachers with advanced degrees but had no effect on class size. We also find that NCLB did not influence overall instructional time in core academic subjects, but did lead schools to devote time for teacher training in the science and social studies and toward the tested subject of reading.

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### Differences in Probability of Teacher Dismissal by Performance Ranking

[Figure 2](#)

<table>
<thead>
<tr>
<th>Performance Ranking</th>
<th>Probability of Dismissal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>+4.3 percentage points</td>
</tr>
<tr>
<td>Good</td>
<td>+2.2 percentage points</td>
</tr>
</tbody>
</table>

Source: B. A. Jacob, NBER Working Paper No. 15715

### Teachers, Schools, and Student Performance

Brian A. Jacob

Brian A. Jacob is the Walter H. Annenberg Professor of Education Policy and professor of economics in the University of Michigan’s Gerald R. Ford School of Public Policy. His primary fields of interest are labor economics, program evaluation, and the economics of education.

Jacob’s research on education covers a wide variety of topics, from school choice to teacher labor markets to standards and accountability. His work has appeared in leading economics journals, including the American Economic Review, the Quarterly Journal of Economics, and the Review of Economics and Statistics. Earlier in his career, he served as a policy analyst in the Office of the Mayor of New York City and taught middle school in East Harlem.

Jacob is a research associate in the NBER’s Program on Education and Program on Education, and the NBER’s Program on Children in the University of Michigan’s Ford School of Public Policy and professor of economics in the University of Michigan’s Gerald R. Ford School of Public Policy. He received his B.A. from Harvard College and his Ph.D. from the University of Chicago. In 2008 he was awarded the Association for Public Policy Analysis & Management’s David N. Kershaw Prize for distinguished contributions to public policy and management by an individual under the age of 40.
on applicant quality to principals. Specifically, the district assigned each applicant a letter “grade” that corresponded to our measures of predicted effectiveness. We are currently in the process of studying how this change affected teacher hiring and student performance.

Measurement of Student Ability

Most recently I have written about how individual ability is measured in modern assessment systems. Economists use test scores to measure human capital in explaining wages and other employment outcomes and, increasingly, as outcome measures in evaluations of programs or policies aimed at improving human capital formation. Applied researchers typically take cognitive test scores from pre-existing surveys or data sets without exploring how they are constructed. These test scores often reflect non-trivial decisions about how to measure and scale student achievement.

Jesse Rothstein and I discuss several programs or policies aimed at improving student performance of black students. For example, the NAEP test depend not only on the examinees’ responses to test items, but also on their background characteristics, including race and gender. As a consequence, if a black student and a white student respond identically to questions on the NAEP assessment, the reported ability for the black student will be lower than for the white student—reflecting the lower average performance of black students.

Even when reported scores are unbiased measures of student ability, they are often transformed to scale scores. This undermines many of the purposes for which researchers use test scores, such as measuring the magnitude of a treatment effect or quantifying the difference in ability between two demographic groups. Rothstein and I currently are working on a project to characterize the magnitude of biases that arise in common applications.


Oliver Hart, Bengt Holmström Win Nobel Prize in Economic Sciences for Research on Contract Theory

Oliver Hart of Harvard and Bengt Holmström of MIT, who both have been NBER research associates for more than two decades, were awarded the 2016 Nobel Prize in Economic Sciences for their contributions to analyzing incentives, institutions, and organizations in the field of economics known as “contract theory.”

“Contract theory provides us with a general means of understanding contract design. One of the theory’s goals is to explain why contracts have various forms and designs. Another goal is to help us work out how to draw up better contracts, thereby shaping better institutions in society,” the Royal Swedish Academy of Sciences said in a statement announcing the award. “The contributions of this year’s laureates are invaluable in helping us understand real-life contracts and institutions, as well as the potential pitfalls when designing new contracts.”

The Academy cited a range of contexts in which contract theory provides key insights for understanding economic behavior and the associated institutions. These include the tradeoff between providing insurance against adverse outcomes and maintaining incentives to take care, designing executive pay contracts that depend in part on corporate performance, deciding how to allocate property rights, and choosing between public and private provision of basic services.

Hart is the Andrew E. Furer Professor of Economics at Harvard, and a research associate in two NBER programs—Corporate Finance and Law and Economics. He has been an NBER affiliate since 1990.

Holmström is the Paul A. Samuelson Professor of Economics at MIT, and a research associate in the NBER Corporate Finance program, which he joined in 1996. Between 1984 and 1986, he was also a research associate in the Labor Studies Program. Both have been active in the NBER Working Group on Organizational Economics. Hart and Holmstrom join a group of twenty-four current or past NBER research affiliates who have received the Nobel Prize: Angus Deaton, 2015; Lars Hansen and Robert Shiller, 2013; Alvin Roth, 2012; Thomas Sargent and Christopher Sims, 2011; Peter Diamond, 2010; Paul Krugman, 2008; Edward C. Prescott and Finn Kydland, 2004; Robert F. Engle, 2003; Joseph E. Stiglitz, 2001; James J. Heckman and Daniel L. McFadden, 2000; Robert C. Merton and Myron S. Scholes, 1997; Robert E. Lucas, Jr., 1995; the late Dale Mortenson, 2010; Robert W. Fogel, 1993; Gary S. Becker, 1992; George J. Stigler, 1982; Theodore W. Schultz, 1979; Milton Friedman, 1976; and Simon Kuznets, 1971. In addition, six current or past members of the NBER Board of Directors have received the Nobel Prize: George Akerlof, 2001; Robert Solow, 1987; the late William Vickrey, 1996; Douglass North, 1993; James Tobin, 1981; and Paul Samuelson, 1970.
Conferences

Entrepreneurship and Economic Growth

An NBER Conference, "Entrepreneurship and Economic Growth," supported by the Ewing Marion Kauffman Foundation, took place in Durham, North Carolina, on October 14–15. Manuel Adelino and Research Associate David T. Robinson, both of Duke University, organized the meeting. These researchers' papers were presented and discussed:

- Chuck Eesley and Yong Suk Lee, Stanford University, "The Effects of University Entrepreneurship Initiatives on Entrepreneurship and Innovation"
- Sabrina T. Howell, New York University, "Learning in Entrepreneurship"
- Titan M. Alon, Northwestern University; David W. Berger, Northwestern University and NBER; and Robert C. Dent and Benjamin Pugsley, Federal Reserve Bank of New York, "Older and Slower: The Startup Deficit’s Lasting Effects on Productivity Growth"
- Mark Curtis, Wake Forest University, and Ryan Decker, Federal Reserve Board, "Entrepreneurship and State Policy"
- Konrad B. Burchardi, Stockholm University; Thomas Chaney, Sciences Po (Paris); and Tarek A. Hassan, University of Chicago and NBER, "Migrants, Ancestors, and Investments" (NBER Working Paper No. 21847)

Summaries of these papers are at: http://www.nber.org/conf/confer/2016/EEGf16/summary.html

Public Policies in Canada and the United States

"Public Policies in Canada and the United States," an NBER conference supported by the Alfred P. Sloan Foundation and Employment and Social Development Canada, took place in Gatineau, Quebec, on October 27–28. Research Associates Philip Oreopoulos of the University of Toronto and David Card of the University of California, Berkeley, organized the meeting. These researchers' papers were presented and discussed:

- Hilary Hoynes, University of California, Berkeley, and NBER, and Mark Stabile, INSEAD (Fontainebleau) and NBER, "Small Differences that Matter: Differences in the Social Safety Net and the Implications for Women and Children"
- Kevin S. Milligan, University of British Columbia and NBER, and Tammy Schirle, Wilfrid Laurier University (Ontario), "Push and Pull: Disability Insurance, Regional Labor Markets, and Beneft Generosity in Canada and the United States"

- Michael Baker, University of Toronto and NBER; Janet Currie, Princeton University and NBER; and Hannes Schwandt, University of Zurich, "Inequality in Mortality over the Life Course: A Comparison of the U.S. and Canada"
- Marc Frenette, Statistics Canada; Judith Scott-Clayton, Columbia University and NBER; Philip Oreopoulos; and Carolyn Tao, Harvard University, "Why are Community College Completion Rates So Different between Canada and the United States and Does It Lead to Differences in Earnings?"
- Michael Kottelenberg, Huron University College (Ontario), and Steven F. Lehrer, Queen's University (Ontario) and NBER, "New Evidence on How Skills Influence Human Capital Acquisition and Early Labour Market Return to Human Capital between Canada and the United States"
- Kory Kroft, University of Toronto and NBER; Fabian Lange, McGill University (Montreal); Matthew J. Notowidigdo, Northwestern University and NBER; and Matthew Tidball, University of Toronto, "Long Time Out: Unemployment, Marginal Attachment, and Labour Force Participation in Canada and the United States"
- Stephen Jones, McMaster University (Ontario), and Craig Riddell, University of British Columbia, "Unemployment, Marginal Attachment, and Labour Force Participation in Canada and the United States"
- David Alhouny, University of Illinois at Urbana-Champaign and NBER; Chandler Lutz, Copenhagen Business School; and Casey Warman, Dalhousie University (Nova Scotia) and NBER, "Local Labor Markets in Canada and the United States"
- Ana Damas De Matos and Daniel Parent, HEC Montréal, "Canada and High Skill Immigration in the U.S.: Way Station or Farm System?"
- Andrew J. Clarke, University of Melbourne, and Ana Ferrer and Mikal Skuterud, University of Waterloo, "A Comparative Analysis of the Labour Market Performance of University-Educated Immigrants in Australia, Canada, and the United States: Does Policy Matter?"
- David A. Green, University of British Columbia; Rene Morissette, Statistics Canada; and Benjamin M. Sand, York University (Toronto), "Geographic Spillovers of Booms: The Effects of Canada's Resource Boom on Canada-U.S. Differences in Wages"
- Audra Bowls and Chris Robinson, University of Western Ontario, and Haoming Liu, National University of Singapore, "Different Paths? Human Capital Prices, Wages, and Inequality in Canada and the U.S."
- Marie Connolly and Catherine Haack, Université du Québec à Montréal, and Miles Corak, University of Ottawa, "Intergenerational Income Mobility in Canada and the United States"

Summaries of these papers are at: http://www.nber.org/conf/confer/2016/PPCH16/summary.html
**Youth Labor Market**

An NBER conference, “Youth Labor Market,” supported by the Smith Richardson Foundation, took place in Cambridge on November 12. Research Associate David Card of the University of California, Berkeley, organized the meeting. These researchers’ papers were presented and discussed:

- **Jesse Rothstein**, University of California, Berkeley, and NBER, “Inequality of Educational Opportunity? Schools as Mediators of the Intergenerational Transmission of Income”
- **Joseph Altonji**, Yale University and NBER, and **Richard Mansfield**, Cornell University, “Quantifying Family, School and Location Effects in the Presence of Complementarities and Sorting”
- **Steven Raphael**, University of California, Berkeley, and NBER, and **Sandra Rozo**, University of Southern California, “Racial Disparities in the Acquisition of Juvenile Arrest Records”
- **Janna Johnson**, University of Minnesota, and **Samuel Schulhofer-Wohl**, Federal Reserve Bank of Minneapolis, “The Declining Geographic Mobility of U.S. Youth: Explanations and Implications”
- **Till von Wachter**, University of California, Los Angeles, and NBER, and **Hannes Schwandt**, University of Zurich, “The Effects of Graduating High School in Recessions and Booms on Early Career Outcomes and Long Term Earnings”

Summaries of these papers are at: http://www.nber.org/conf/2016/YLMf16//summary.html

**Economic Fluctuations and Growth**

The NBER’s Program on Economic Fluctuations and Growth met in Chicago on October 21. Research Associates Steven J. Davis of the University of Chicago and Guido Menzio of the University of Pennsylvania organized the meeting. These researchers’ papers were presented and discussed:

- **Xavier Gabaix**, Harvard University and NBER, “A Behavioral New Keynesian Model”
- **François Geerolf**, University of California, Los Angeles, “A Theory of Pareto Distributions”
- **Tobias Adrian, Nina Boyarchenko, and Domenico Giannone**, Federal Reserve Bank of New York, “Vulnerable Growth”

Summaries of these papers are at: http://www.nber.org/conf/2016/EFGf16/summary.html

**Monetary Economics**

The NBER’s Program on Monetary Economics met in Cambridge on October 28. Research Associate Ricardo J. Caballero of MIT and Faculty Research Fellow Eric R. Sims of the University of Notre Dame organized the meeting. These researchers’ papers were presented and discussed:

- **Joshua Hausman** and **Paul Rhode**, University of Michigan and NBER, and **Johannes Wieland**, University of California, San Diego, and NBER, “Recovery from the Great Depression: The Farm Channel in Spring 1933”
- **Adrien Auclert**, Stanford University and NBER, and **Matthew Rogalie**, Princeton University, “Inequality and Aggregate Demand”
- **Xavier Gabaix**, Harvard University and NBER, “A Behavioral New Keynesian Model”
- **Óscar Jordà**, Federal Reserve Bank of San Francisco, **Moritz Schularick**, University of Bonn, and **Alan M. Taylor**, University of California, Davis, and NBER, “Large and State-Dependent Effects of Quasi-Random Monetary Experiments”

Summaries of these papers are at: http://www.nber.org/conf/2016/EFMI16//summary.html
International Finance and Macroeconomics

The NBER's Program on International Finance and Macroeconomics met in Cambridge on October 28. Research Associates Ariel Burstein of the University of California, Los Angeles, and Charles Engel of the University of Wisconsin-Madison organized the meeting. These researchers' papers were presented and discussed:

- Luca Fornaro, CREI (Barcelona), and Federica Romei, Stockholm School of Economics, "Aggregate Demand Externalities in a Global Liquidity Trap"
- Martin Eichenbaum and Sergio Rebelo, Northwestern University and NBER, and Benjamin Johannsen, Federal Reserve Board, "On the Empirical Determinants of Nominal Exchange Rates"
- Manuel Amador, University of Minnesota and NBER; Javier Bianchi, Federal Reserve Bank of Minneapolis and NBER; Luigi Bocola, Northwestern University and NBER; and Fabrizio Perri, Federal Reserve Bank of Minneapolis, "Exchange Rate Policies at the Zero Lower Bound"
- Vahid Gholampour, Bucknell University, and Eric van Wincoop, University of Virginia and NBER, "What Can We Learn from Euro-Dollar 'Tweets'?”
- Pierre-Olivier Gourinchas, University of California, Berkeley, and Thomas Philippon, New York University and NBER; and Dimitri Vayanos, London School of Economics and NBER, "The Analytics of the Greek Crisis" (NBER Working Paper No. 22370)

Summaries of these papers are at: http://www.nber.org/confer/2016/IFMf16/summary.html

Asset Pricing

The NBER's Program on Asset Pricing met in Palo Alto on October 28. Faculty Research Fellow Valentin Haddad of University of California, Los Angeles, and Charles Engel of the University of Wisconsin-Madison organized the meeting. These researchers' papers were presented and discussed:

- Tarek A. Hassan, University of Chicago and NBER; Thomas Mertens, Federal Reserve Bank of San Francisco; and Tony Zhang, University of Chicago, "Currency Manipulation"

Summaries of these papers are at: http://www.nber.org/confer/2016/MEf16/summary.html

Market Design

The NBER's Working Group on Market Design met in Cambridge on October 28–29. Codirectors Michael Ostrovsky of Stanford University and Parag A. Pathak of MIT organized the meeting. These researchers' papers were presented and discussed:

- Darrell Duffie, Stanford University and NBER, and Haoxiang Zhu, MIT and NBER, "Size Discovery" (NBER Working Paper No. 21696)
- Ahmad Peivandi, Georgia State University, "Participation and Unbiased Pricing in CDS Settlement Mechanisms"
- Laura Doval, Yale University, "A Theory of Stability in Dynamic Matching Markets"
- Hugo Hopenhayn, University of California, Los Angeles, and NBER, and Maryam Saeedi, Carnegie Mellon University, "Bidding Dynamics in Auctions" (NBER Working Paper No. 22716)
- Oleg Baranov, University of Colorado Boulder; Christina Aperjis, Power Auctions LLC; Lawrence Ausubel, University of Maryland; and Thayer Morrill, North Carolina State University, "Efficient Procurement Auctions with Increasing Returns"
- Tibor Hennmann, Princeton University, "Ascending Auction with Multidimensional Signals"
- John Hatfield, University of Texas at Austin, and Scott Duke Kominers, Harvard University, "Hidden Substitutes"
- Paul Milgrom, Stanford University, "Deferred Acceptance Auctions without Substitutes"
- Gabriel Carroll and Ilya Segal, Stanford University, "Robustly Optimal Auctions with Unknown Resale Opportunities"
- Songzi Du, Simon Fraser University, "Participation and Unbiased Pricing in CDS Settlement Mechanisms"
- Shengwu Li, Stanford University, "Obvious Mechanisms: Simple and Robust Mechanisms"
- Marek Pyka, University of California, Los Angeles, and Peter Troyan, University of Virginia, "Obvious Dominance and Random Priority"

Summaries of these papers are at: http://www.nber.org/confer/2016/APf16/summary.html
• Benjamin Roth, MIT, and Ran Shorror, Pennsylvania State University, “Making It Safe to Use Centralized Markets: Epsilon-Dominant Individual Rationality and Applications to Market Design”

• Michal Feldman, Tel Aviv University; Nicole Immorlica, Brendan Lucier, and VasuS Syrgkanis, Microsoft Research; and Tim Roughgarden, Stanford University, “Efficiency Guarantees in Large Markets”

• David Delacrétaz, University of Melbourne; Scott Duke Kominers; and Alexander Teytelboym, University of Oxford, “Refugee Resettlement”

• Tommy Andersson, Lund University, and Lars Elders, Université de Montréal, “Assigning Refugees to Landlords in Sweden: Stable Maximum Matchings”

Summaries of these papers are at: http://www.nber.org/confer/2016/MDf16/summary.html

Political Economy

The NBER’s Program on Political Economy met in Cambridge on November 4. Director Alberto F. Alesina of Harvard University organized the meeting. These researchers’ papers were presented and discussed:

• Jonathan Schulz, Yale University, “The Church’s Ban on Consanguineous Marriages, Extended Kin-Groups, and Democracy”

• David N. Figlio, Northwestern University and NBER; Paola Giuliano, University of California, Los Angeles, and NBER; Umut Özbek, American Institutes for Research; and Paola Sapienza, Northwestern University and NBER, “Long-Term Orientation and Educational Performance” (NBER Working Paper No. 22541)

• Claudia Olivetti, Boston College and NBER; M. Daniele Pasceman, Boston University and NBER; and Laura Salisbury, York University and NBER, “Three-Generation Mobility in the United States, 1850–1940: The Role of Maternal and Paternal Grandparents” (NBER Working Paper No. 22094)


• Murat Iyigun, University of Colorado Boulder; Nathan Nunn, Harvard University and NBER; and Nancy Qian, Yale University and NBER, “Winter Is Coming: The Long-Run Effects of Climate Change on Conflict”

• Julia Cagé, Sciences Po (Paris), and Nicolas Hervé and Marie-Luce Viad, Institut National de l'Audiovisuel (Bry-sur-Marne, France), “The Production of Information in an Online World: Is Copy Right?”

Summaries of these papers are at: http://www.nber.org/confer/2016/POLf16/summary.html

Public Economics

The NBER’s Program on Public Economics met in Cambridge on November 3–4. Codirectors Amy Finkelstein of MIT and Raj Chetty of Stanford University and Research Associate Jonathan Gruber of MIT organized the meeting. These researchers’ papers were presented and discussed:

• Florian Scheurer, Stanford University and NBER, and Iván Werning, MIT and NBER, “Mirrlees Meets Diamond-Mirrlees” (NBER Working Paper No. 22076)

• Emmanuel Saez, University of California, Berkeley, and NBER, and Stefanie Stantcheva, Harvard University and NBER, “A Simpler Theory of Optimal Capital Taxation”

• Raj Chetty, David Grusky, and Maximilian Hell, Stanford University; Nathaniel Hendren, Harvard University and NBER; Robert Manduca, Harvard University; and Jimmy Narang, University of California, Berkeley, “The Fading American Dream: Trends in Absolute Income Mobility in the U.S.” (subsequently posted as NBER Working Paper No. 22910)


• John Beshears, David Laibson, and Brigitte C. Madrian, Harvard University and NBER; James J. Choi, Yale University and NBER; Christopher D. Clayton, Harvard University; and Christopher Harris, University of Cambridge, “Optimal Illiquidity”

• Matthew C. Weinzierl, Harvard University and NBER, “Popular Acceptance of Inequality Due to Brute Luck and Support for Classical Benefit-Based Taxation” (NBER Working Paper No. 22462)

• Brian G. Knight, Brown University and NBER, and Nathan M. Schiff, Shanghai University of Finance and Economics, “The Out of State Tuition Distortion”

Summaries of these papers are at: http://www.nber.org/confer/2016/PEf16/summary.html

Health Care

The NBER’s Program on Health Care met in Cambridge on November 4. Director Jonathan Gruber of MIT and Research Associates Amy Finkelstein of MIT and Raj Chetty of Stanford University organized the meeting. These researchers’ papers were presented and discussed:

• Vilsa Curto, Stanford University; Liran Einav, Jonathan D. Levin, and Jay Bhattacharya Stanford University and NBER; and Amy Finkelstein, “Health Care Spending and Utilization in Public and Private Medicare”


• Nathaniel Hendren, Harvard University and NBER, “Measuring Ex-Ante Welfare in Insurance Markets”

• Jason Abaluck, Yale University and NBER; Leiza Agba, Dartmouth College and NBER; and David C. Chan, Jr, Stanford University and NBER, “Discretion and Guidelines: Evidence from Warfarin Administration”

Summaries of these papers are at: http://www.nber.org/confer/2016/HEf16/summary.html
Corporate Finance

The NBER’s Program on Corporate Finance met in Cambridge on November 4. Research Associate Malcolm Baker and Faculty Research Fellow Samuel Hanson, both of Harvard University, organized the meeting. These researchers’ papers were presented and discussed:

- Marco Di Maggio, Harvard University and NBER; Amir Kermani, University of California, Berkeley, and NBER; and Christopher Palmer, University of California, Berkeley, “How Quantitative Easing Works: Evidence on the Refinancing Channel” (NBER Working Paper No. 22638)
- Sumit Agarwal, Georgetown University; Souphala Chomsisengphet, Office of the Comptroller of the Currency; Neale Mahoney, University of Chicago and NBER; and Johannes Stroebel, New York University and NBER, “Do Banks Pass through Credit Expansions to Consumers Who Want to Borrow? Evidence from Credit Cards” (NBER Working Paper No. 21567)
- Hong Ru, Nanyang Technological University, and Antoinette Schoar, MIT and NBER, “Do Credit Card Companies Screen for Behavioral Biases?” (NBER Working Paper No. 22360)
- Olivier Dessaint, University of Toronto; Thierry Foucault, HEC Paris; Laurent Frésard, University of Maryland; and Adrien Matray, Princeton University, “Ripple Effects of Noise on Corporate Investment”
- Alan M. Benson, University of Minnesota; Danielle Li, Harvard University; and Kelsey Shue, University of Chicago and NBER, “Can Promotion Tournaments Produce Bad Managers? Evidence of the ‘Peter Principle’”

Summaries of these papers are at: http://www.nber.org/confer/2016/HCF16/summary.html

Behavioral Finance

The NBER’s Working Group on Behavioral Finance met in Cambridge on November 5. Director Nicholas C. Barberis of Yale University organized the meeting. These researchers’ papers were presented and discussed:

- Ulrike Malmendier, University of California, Berkeley, and NBER; Demian Pouzo, University of California, Berkeley; and Victoria Vanasco, Stanford University, “A Theory of Experience Effects”
- Chen Lian, MIT, and Yueran Ma and Carmen Y. Wang, Harvard University, “Low Interest Rates and Risk Taking: Evidence from Individual Investment Decisions”
- Anthony A. DeFusco and Charles G. Nathanson, Northwestern University, and Eric Zwick, University of Chicago and NBER, “Speculative Dynamics of Prices and Volume”
- Antonio Gargano, University of Melbourne, and Alberto G. Rossi, University of Maryland, “Does it Pay to Pay Attention?”
- Santosh Anagol, University of Pennsylvania; Vimal Balasubramanian, University of Oxford; and Tarun Ramadorai, Imperial College London, “Endowment Effects in the Field: Evidence from India’s IPO Lotteries”
- Michael Bailey, Facebook; Ruiqing Cao, Harvard University; Theresa Kuchler, New York University; and Johannes Stroebel, New York University and NBER, “Social Networks and Housing Markets” (NBER Working Paper No. 22258)

Summaries of these papers are at: http://www.nber.org/confer/2016/BFF16/summary.html

Economics of Education

The NBER’s Program on the Economics of Education met in Palo Alto on November 10–11. Director Caroline M. Hoxby of Stanford University organized the meeting. These researchers’ papers were presented and discussed:

- Hugh Macartney, Duke University and NBER; Robert McMillan, University of Toronto and NBER; and Uros Petronijevic, York University, “A Unifying Framework for Education Policy Analysis”
- Juan Saavedra, University of Southern California and NBER; Dario Maldonado, Universidad de los Andes (Bogotá); Lucrecia Santibañez, Claremont Graduate University; and Luis Omar Herrera Prada, Inter-American Development Bank, “Premium or Penalty? Labor Market Returns to Novice Public Sector Teachers”
- Michael D. Bates, University of California, Riverside; and Quentin O. Brummet, Bureau of the Census, “Parental Valuation of School Choice: Evidence from Geographic Boundaries”
**Labor Studies**

The NBER’s Program on Labor Studies met in Cambridge on November 11. Director David Card of the University of California, Berkeley, organized the meeting. These researchers’ papers were presented and discussed:

- **Peter Bergman**, Columbia University, and **Isaac McFarlin, Jr.**, University of Florida, “An Experimental Analysis of Cream Skimming in Charter Schools”
- **Stefano DellaVigna**, University of California, Berkeley, and NBER, and **David Card**, “What Do Editors Maximise? Evidence from Four Economics Journals”
- **Zhuan Pei**, Cornell University; **Jörn-Stepfen Pischke**, London School of Economics and NBER; and **Hannes Schwandt**, University of Zurich, “Poorly Measured Confounders Are More Useful on the Left Than on the Right”

Summaries of these papers are at: http://www.nber.org/confer/2016/LSf16/summary.html

**Organizational Economics**

The NBER’s Working Group on Organizational Economics met in Cambridge on November 18–19. Director Robert S. Gibbons of MIT organized the meeting. These researchers’ papers were presented and discussed:

- **Marina Halac**, Columbia University, and **Pierre Yared**, Columbia University and NBER, “Commitment vs. Flexibility with Costly Verification”
- **Joshua Gans** and **Avi Goldfarb**, University of Toronto and NBER, and **Mara Lederman**, University of Toronto, “Exit, Tweets, and Loyalty”
- **Nicholas Bloom**, Stanford University and NBER; **Erik Brynjolfsson**, MIT and NBER; **Lucia Foster** and **Ron S. Jarmin**, Bureau of the Census; **Megha Patnaik**, Stanford University; **Ilay Saporta-Eksten**, Tel Aviv University; and **John Van Reenen**, MIT and NBER, “What Drives Differences in Management?”
- **Miguel Anton** and **Mireia Gine**, University of Navarra; **Florian Ederer**, Yale University; and **Martin C. Schmalz**, University of Michigan, “Common Ownership, Competition, and Top Management Incentives”
- **Helikki Rantakari**, University of Rochester, “Relational Influence”
- **Rocco Macchiavello**, London School of Economics, and **Josepa Miquel-Florens**, Toulouse School of Economics, “Vertical Integration and Relational Contracts in the Costa Rica Coffee Chain”
- **Christopher Hansman** and **Matthieu Teachout**, Columbia University; **Jonas Hjort**, Columbia University and NBER; and **Gianmarco León**, Pompeu Fabra University (Barcelona), “Vertical Integration, Supplier Behavior, and Quality Upgrading among Exporters”
- **Englin Atalay**, University of Wisconsin–Madison; **Mary Jiaxin Li**, University of Chicago; and **Ali Hortacsu** and **Chad Syverson**, University of Chicago and NBER, “How Wide Is the Firm Border?”
- **Alan M. Benson**, University of Minnesota; **Danielle Li**, Harvard University; and **Kelly Shue**, University of Chicago and NBER, “Can Promotion Tournaments Produce Bad Managers? Evidence of the ‘Peter Principle’ ”

Summaries of these papers are at: http://www.nber.org/confer/2016/OEf16/summary.html
The NBER's Working Group on the Chinese Economy met in Cambridge on November 18–19. Director Shang-Jin Wei of Columbia University and Research Associate Hanming Fang of the University of Pennsylvania organized the meeting. These researchers' papers were presented and discussed:

- **Yongheng Deng**, National University of Singapore; **Shang-Jin Wei**; and **Jing Wu**, Tsinghua University, “Estimating the Unofficial Income of Officials: The Case of China”
- **Yu-Hsiang Lei**, Yale-NUS College (Singapore), “Can Governments Harvest Connections with Firms? Evidence from China”
- **Ruixue Jia**, University of California, San Diego, and **Hongbin Li**, Tsinghua University, “Access to Elite Education, Wage Premium, and Social Mobility: The Truth and Illusion of China’s College Entrance Exam”
- **Lily Fang**, INSEAD (Singapore); **Josh Lerner**, Harvard University and NBER; and **Chaopeng Wu**, Xiamen University, “Intellectual Property Rights Protection, Ownership, and Innovation: Evidence from China” (NBER Working Paper No. 22685)
- **Jing Fang**, Huazhong University of Science and Technology (Wuhan), and **Hui He** and **Nan Li**, International Monetary Fund, “China’s Rising IQ (Innovation Quotient) and Growth: Firm-Level Evidence”
- **Paule Jia Barwick**, Cornell University and NBER; **Shengmao Cao**, Stanford University; and **Shanjun Li**, Cornell University, “Local Protectionism, Market Structure, and Social Welfare: China’s Automobile Market”
- **Sebastian Heise**, Federal Reserve Bank of New York; **Justin Pierce**, Federal Reserve Board; **Georg Schaur**, University of Tennessee; and **Peter Schott**, Yale University and NBER, “Trade Policy and the Structure of Supply Chains”
- **Markus Brunnermeier** and **Wei Xiong**, Princeton University and NBER, and **Michael Sockin**, University of Texas at Austin, “China’s Model of Managing the Financial System”
- **Viral Acharya**, New York University and NBER; **Jun Qian**, Shanghai Advanced Institute of Finance; and **Zhishu Yang**, Tsinghua University (Beijing), “In the Shadow of Banks: Wealth Management Products and Issuing Banks’ Risk in China”
- **Hao Wang** and **Hao Zhou**, Tsinghua University (Beijing); **Honglin Wang**, Hong Kong Institute for Monetary Research; and **Lisheng Wang**, Chinese University of Hong Kong, “Shadow Banking: China’s Dual-Track Interest Rate Liberalization”

Summaries of these papers are at: http://www.nber.org/confer/2016/CEf16/summary.html

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The NBER's Working Group on Market Microstructure met in Cambridge on December 2. Tarun Chordia of Emory University; Amit Goyal of the University of Lausanne; Jod Heshvik of New York University; Research Associate Bruce Lehmann of University of California, San Diego; Gideon Saar of Cornell University; and Avanidhar Subrahmanyam of University of California, Los Angeles, organized the meeting. These researchers’ papers were presented and discussed:

- **Paolo Pasquaelli**, University of Michigan, “Agency Costs and Strategic Speculation in the U.S. Stock Market”
- **Jennifer Conrad**, University of North Carolina at Chapel Hill, and **Sunil Wahal**, Arizona State University, “The Term Structure of Liquidity Provision”
- **Haoming Chen** and **Thomas Ruf**, University of New South Wales (Sydney); **Sean Foley**, University of Sydney; and **Michael Goldstein**, Babson College, “The Value of a Millisecond: Harnessing Information in Fast, Fragmented Markets”
- **Katya Malinova** and **Andreas Park**, University of Toronto, “Market Design with Blockchain Technology”

Summaries of these papers are at: http://www.nber.org/confer/2016/MMf16/summary.html

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The NBER’s Program on International Trade and Investment met in Palo Alto on December 2–3. Director Stephen Redding of Princeton University organized the meeting. These researchers’ papers were presented and discussed:

- **Robert Feenstra**, University of California, Davis, and NBER; **Minghui Xu**, University of California, Davis; and **Alexis Antoniades**, Georgetown University, “What is the Price of Tea in China? Towards the Relative Cost of Living in Chinese and U.S. Cities”
- **Treb Allen**, Dartmouth College and NBER; **Costas Arkolakis**, Yale University and NBER; and **Xiangliang Li**, Yale University, “On the Existence and Uniqueness of Trade Equilibria”
- **Sharon Traiberman**, Cowles Foundation, “Occupations and Import Competition: Evidence from Danish Matched Employee-Employer Data”
- **Farid Farrokhi**, Purdue University, “Global Sourcing in Oil Markets”
- **Anna Gumper**, University of Munich; **Andreas Moxnes**, University of Oslo and NBER; **Natalia Ramondo**, University of California, San Diego, and NBER; and **Felix Tintelnot**, University of Chicago and NBER, “Exporters’ and Multinational Firms’ Life-Cycle Dynamics”
- **Andrew Bernard**, Dartmouth College and NBER, and **Swati Dhingra**, London School of Economics, “Importers, Exporters, and the Division of the Gains from Trade”

Summaries of these papers are at: http://www.nber.org/confer/2016/ITf16/summary.html
Entrepreneurship

The NBER's Working Group on Entrepreneurship, supported by the Ewing Marion Kauffman Foundation, met in Cambridge on December 9. Director Antoinette Schoar of MIT and Research Associate Josh Lerner of Harvard University organized the meeting. These researchers' papers were presented and discussed:

- Zhao Chen, Fudan University (Shanghai); Zhikuo Liu, Shanghai University of Finance and Economics; and Juan Carlos Suárez Serrato and Daniel Xu, Duke University and NBER, "Notching R&D Investment with Corporate Income Tax Cuts in China"
- Juana Gonzalez-Urbi and Daniel Paravisini, London School of Economics, "How Sensitive Is Investment to the Cost of Outside Equity? Evidence from a U.K. Tax Relief"
- Morten Bennedsen, INSEAD (Fontainebleau); Margarita Tsoutsoura, University of Chicago; and Daniel Wolfenzon, Columbia University and NBER, "Drivers of Effort: Evidence from Employee Absenteeism"
- Sabrina T. Howell, New York University, "Learning and Success in Entrepreneurship"
- William Mullins, University of Maryland, and Patricio Toro, Central Bank of Chile, "Credit Guarantees and Credit Constraints"
- Daniel Cavagnaro and Yingdi Wang, California State University, Fullerton; Berk Sensoy, Ohio State University; and Michael Weissbach, Ohio State University and NBER, "Measuring Institutional Investors' Skill from Their Investments in Private Equity" (NBER Working Paper No. 22547)
- Aleksander Andonov, Erasmus University Rotterdam; Yael Hochberg, Rice University and NBER; and Joshua Raub, Stanford University and NBER, "Political Representation and Governance: Evidence from the Investment Decisions of Public Pension Funds"

Summaries of these papers are at: http://www.nber.org/confer/2016/ENTf16/summary.html

Development

The NBER's Program on Development Economics met in Cambridge on December 9–10. Research Associates Esther Duflo of MIT, Richard Hornbeck of the University of Chicago, Rohini Pande of Harvard University, Duncan Thomas of Duke University, and Eric Verhoogen of Columbia University organized the meeting. These researchers' papers were presented and discussed:

- Adnan Khan, London School of Economics; Asim Ijaz Khwaja, Harvard University and NBER; and Benjamin A. Olken, MIT and NBER, "Making Moves Matter: Experimental Evidence on Incentivizing Bureaucrats through Performance-Based Transfers"
- Michael C. Best, Stanford University; Jonas Hjort, Columbia University and NBER; and David Szakonyi, George Washington University, "Individuals and Organizations as Sources of State Effectiveness, and Consequences for Policy Design"
- Tommaso Porzio, University of California, San Diego, "Cross-Country Differences in the Optimal Allocation of Talent and Technology"
- Emily Breza, Harvard University and NBER, and Cynthia Kinnan, Northwestern University and NBER, "Measuring the Equilibrium Impacts of Credit: Evidence from the Indian Microfinance Crisis"
- Seema Jayachandran, Northwestern University and NBER; Joost de Laat, Porticus; Eric Lambin, Stanford University; and Charlotte Stanton, Carnegie Institution for Science, "Cash for Carbon: A Randomized Controlled Trial of Payments for Ecosystem Services to Reduce Deforestation" (NBER Working Paper No. 22378)
- Zhao Chen, Fudan University (Shanghai); Zhikuo Liu, Shanghai University of Finance and Economics; and Juan Carlos Suárez Serrato and Daniel Xu, Duke University and NBER, "Notching R&D Investment with Corporate Income Tax Cuts in China"
- Lorenzo Casaburi, University of Zurich, and Tristan Reed, McKinsey and Company, "Competition and Interlinkages in Agricultural Markets: An Experimental Approach"

Summaries of these papers are at: http://www.nber.org/confer/2016/DEVf16/summary.html
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