Researchers in the Program on Industrial Organization (IO) study consumer and firm behavior, competition, innovation, and government regulation. This report begins with a brief summary of general developments in the last three decades in the range and focus of program members’ research, then discusses specific examples of recent work.

When the program was launched in the early 1990s, two developments had profoundly shaped IO research. One was development of game-theoretic models of strategic behavior by firms with market power, summarized in Jean Tirole’s classic textbook. The initial wave of research in this vein was focused on applying new insights from economic theory; empirical applications came later. Then came development of econometric methods to estimate demand and supply parameters in imperfectly competitive markets. Founding program members including Timothy Bresnahan, Ariel Pakes, and Robert Porter played a key role in advancing this work.

Underlying both approaches was the idea that individual industries are sufficiently distinct and industry details sufficiently important that one needs to focus on specific markets and industries in order to test specific hypotheses about consumer or firm behavior, or to estimate models that could be used for counterfactual analysis, such as analysis of a merger or regulatory change. The econometric developments in the field, which emphasized structural modeling of demand and supply, ran somewhat counter to the trend in other fields toward the search for natural experiments to illuminate the causal effects of policy changes.
There were, to be sure, some points of overlap with neighboring fields. A notable example was the role that industrial organization economists played in the activities of the NBER’s Program on Productivity, Innovation, and Entrepreneurship (PRIE), where research focused on the estimation of plant-level costs and productivity and the effects of firm and market characteristics on R&D spending and the rate of innovation.

In the last decade, the scope of program members’ research has broadened to encompass more industries and new topics. While studies of traditional manufacturing, service, and retail settings remain an important focus, there has been a large growth of research on sectors such as health care, education, financial markets, and the media.

Expanding the Scope of Research

A nice way to illustrate the increase in the breadth of IO research is to examine the rate at which IO program members cross-list their working papers. We analyzed all NBER working papers since 1990 on which at least one author was an IO program affiliate, then computed the share of these papers that were cross-listed with another program. We considered only programs in which at least 5 percent of the papers by IO members were cross-listed with another program. Figure 1 plots our findings. It shows an interesting evolution of cross-listing behavior in the last 15 years. While productivity remains a nontrivial focus of work in IO, there has been a remarkable increase in the share of IO papers cross-listed in other fields of applied microeconomics. This started in the early 2000s in the context of environmental regulation and energy—especially electricity—and health care markets. Today, 11 million Americans are enrolled in Medicare Advantage regions. In trauma, 41 million aged Medicaid plans, and 41 million in Medicare Part D plans. In each case, there has been an increasing appreciation of the importance of market power in a wide range of industries, such as health care, financial services, retailing, and media. Indeed, these changes continue to be some of the most significant in the U.S. economy, suggesting bright prospects for the relevance and importance of industrial organization research in coming years.

Examples of Recent Research

To illustrate the broadening of research by industrial organization economists, we now summarize several specific papers. We have chosen these examples to underscore the broadening spectrum of industries and topics addressed by program members and the variety of approaches and tools being used to study competition and markets. These examples are not meant to be a summary of the much broader scope of the current IO program affiliates. All of the recent working papers by program affiliates may be found at www.nber.org/papersbyprog/IO.html. This body of research includes large swaths of work on trade, media, political economy, and energy, as well as traditional competition policy, innovation, and regulation topics.

Competition in Health Insurance Markets

The U.S. health care system increasingly revolves around regulated health care markets. Today, 11 million Americans are enrolled in health plans through Affordable Care Act (ACA) exchanges, 17 million in Medicare Advantage plans, 55 million in managed Medicaid plans, and 41 million in Medicare Part D plans. In each case, there has been an increasing appreciation of the importance of market power in a wide range of industries, such as health care, financial services, retailing, and media. Indeed, these changes continue to be some of the most significant in the U.S. economy, suggesting bright prospects for the relevance and importance of industrial organization research in coming years.

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ditional markets, market power raises consumer prices. This point is some-
times contested in health insurance markets because hospitals and health care providers simultaneously enjoy consid-
erable market power, and a dominant health insurer may enjoy the ability to charge higher prices, lowering costs for consumers.

Many recent papers by IO program members have studied this situation. For example, in a recent paper, the authors examine health plan choice sponsored by CalPERS for California’s roughly 1.2 million state employees. Using data on plan choices, medical claims, and prices insurers pay to hospitals, they develop an econometric model of hospital-insurer bargaining, premium setting, plan choice, and health care utilization, and simulate the effect of having fewer insurers. Their analysis highlights the importance of both traditional market power and bargaining power following a hypothetical merger. Holding hos-
ital prices and consumer premiums fixed, they find that the overall lower consumer prices. Ho and Lee show how the magnitude of the competing effects varies across cit-
ties for the sample.

Another study, by Benjamin Handel, Igal Hendel, and Michael Whinston, examines a key issue in the ACA exchanges, again from a quaanti-
tative perspective. Their research, which recently received the Econometric Society’s Frisch Medal, focuses on the costs and benefits of “community rat-
ing,” under which insurers are not allowed to charge differential premiums based on health status. Community rating, “under which insurers are not allowed to charge differential premiums for quotes on the other contract to adjust. During that interval, an arbi-
trage opportunity exists and, with suf-
ficient speed, a trader may be able to see a trade in one market and execute a trade against a ‘ stale’ quote in the other market.

Remarkably, the time for these arbitrage gaps to close has narrowed dramatically as firms have invested in increasingly fast communication tech-
nology, but the dollar magnitude of the opportunities has remained con-
stant. The reason is that if the price in Chicago ticks up one index point, and the trader’s buy order gets to New Y ork before the price change, the profit the trader makes will be one index point, no matter how fast this happens. So the incentive to be fastest does not go away as everyone else is also motivated to be fast on one another. In this case, a consumer may search for 30 percent a trade against a “stale” quote in the other market.

They analyze alternative market design rules and suggest that moving from continuous time trading to what they call frequent batch auctions (auc-
tions in which matching is fixed every 15 min-
vals — for example, every tenth of a second) might improve the efficiency of price discovery. Brand new trade-

bility has attracted attention from the Securities and Exchange Commission and other regulators.

Digital Advertising

Researchers have become increas-
ingly interested in the nature of com-
petition and the determinants of firm behavior in the digital economy. One example of research in this area con-
cerns the market for internet search advertis-
ing. Internet advertising is among the fastest-growing indus-
tries, with search advertising revenues of approximately $37 billion in 2017. Google and Facebook have become two of the world’s largest companies on the strength of their advertising sales.

One paper that illustrates the use of digital advertising, such as television commercials, a com-
mon argument for internet advertising, and especially search advertising, is that it solves the fundamental problem in the industry — the problem that half the money is wasted and no one knows whose ad is clicked on. In other words, argument goes, can be measured and targeted. As the industry has grown, researchers have focused on trying to assess just how much value is created in digital advertising, how effective it is in swaying people’s behavior, and how any resulting surplus is divided between consumers, advertisers, and internet platforms.

One paper that illustrates recent research on how advertisers operate is "Search Advertising and Brand Width: Evidence from eBay" by Chris Nosko, and Steven Tadelis. Their study is also an example of a recent trend in the field toward working in digital advertising and is among the first to look at how users see and interact with ads. The authors break down the estimated impact by frequency and recency of the user (how many times and how recently they have visited eBay), and show that search advertising for eBay is effective when the ads are shown to users who have not been to eBay in a long time. Such users account for a relatively small share of the overall volume, explaining the small aggregate effect. Although many advertisers on Google are not well known to searchers, most people are so aware of eBay, and potentially of fewer other large advertisers, that they don’t need Google to find it.


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The Value of Soft Skills in the Labor Market

David J. Deming

Economists are increasingly focused on the importance of so-called “soft skills” for labor market success. The evidence is overwhelming that these skills—also called “non-cognitive skills”—are important drivers of success in school and in adult life. Yet the very term soft skills reveals our lack of understanding of what these skills are, how to measure them, and whether and how they can be developed. And the term “non-cognitive” is simply used to mean “not predicted by IQ or achievement tests.”

The job market is way ahead of the ivory tower in emphasizing soft skills. Employers frequently list teamwork, collaboration, and oral and written communication skills as highly valuable yet hard-to-find qualities in potential new hires. A 2017 survey by the National Association of Colleges and Employers found that “ability to work in a team” was the most commonly desired attribute of new college graduates. Teamwork was followed closely by written and verbal communication skills and was listed ahead of problem-solving skills, analytical/quantitative skills, and other attributes that are emphasized in formal educational settings. Yet, until recently, economists have had very little to say about the importance of soft skills in the workplace.

In contrast, a large body of work in economics focuses broadly on the economics of skill development, education, and the labor market. He received the Early Career Award from the Association for Education Finance and Policy and was named a William T. Grant Scholar in 2013.

Research Summaries

STEM Jobs and the Slowdown in Demand for Cognitive Skills

While cognitive skills are still important predictors of labor market success, their importance has declined since 2000. An important recent paper finds significantly smaller labor market returns to cognitive skills in the early and mid-2000s, compared with the late 1980s and early 1990s. It compares the returns to cognitive skills across the 1979 and 1997 waves of the National Longitudinal Survey of Youth (NLSY)—the same survey that was used to document the importance of cognitive skills in several influential early papers. In a 2017 study, we replicate this finding and also show that returns to soft skills increased between the 1979 and 1997 NLSY waves. Moreover, recent findings suggest that employment and wage growth for managerial, professional, and technical occupations stalled considerably after 2000, which the researchers argue represents a “great reversal” in the demand for cognitive skills.

The slow overall growth of high-skilled jobs in the 2000s is driven by a decline in science, technology, engineering, and math (STEM) occupations. STEM jobs shrank as a share of all U.S. employment between 2000 and 2012, after growing strongly between 1980 and 2000. This relative decline of STEM jobs preceded the Great Recession. In contrast, between 2000 and 2012 non-STEM professional occupations such as managers, nurses, physicians, and finance and business support occupations grew at a faster rate than during the previous decade. The common thread among these non-STEM professional jobs is that they require strong analytical skills and significant interpersonal interaction. We are not witnessing an end to the importance of cognitive skills—rather, strong cognitive skills are increasingly a necessary—but not a sufficient—condition for obtaining a good, high-paying job. You also need to have social skills.

Between 1980 and 2012, social skill-inten-
Some recent research uses behavioral measures such as school absences or suspensions to measure soft skills. These studies argue that behavioral measures are better because they are more predictive and less context-dependent. However, they do not show that these suspensions as a behavioral measure of impulsivity is problematic, since suspensions are also determined by school context, racial discrimination, and other unknown factors. The deeper issue with using behaviors to measure soft skills is that sometimes behaviors are the underlying soft skill, but also many other things.


International Linkages and the Business Cycle: Lessons from Micro for Macro

Andrei A. Levchenko

The international business cycle exhibits two prominent features. The first is significant positive comovement among countries. Figure 1 illustrates this by plotting the GDP growth rates for the G-7 countries. The tendency of GDP growth rates to move together is evident. Second, country pairs that are more closely linked through trade in goods and multinational production exhibit greater comovement. Figure 2 illustrates this with a scatterplot of the GDP correlation and its main trading partners.

Our research program is that measuring and modeling shocks at the micro and aggregate levels. The goal is to provide a unified perspective on business cycle comovement. First, to what extent are these regularities due to transmission of shocks across countries, rather than just synchronizing shocks? Second, what types of shocks—technology or demand shocks—drive international comovement? This provides evidence on transmission through a particular channel of the use of intermediate inputs in production.

Our main finding is that vertical linkages are an important driver of the trade-comovement relationship. Bilateral international trade increases significantly more in cross-border industry pairs that use each other as sources of intermediate inputs. Our estimates suggest that 80 percent of aggregate productivity shocks are indeed a source of transmission of shocks, rather than simply a stand-in for the presence of common shocks.

At the firm level, our main finding is that firms directly connected to foreign countries through trade or multinational linkages are more synchronized than countries, even after controlling for common shocks. At the macro level, we highlight the consequences of heterogeneity across firms in both size and the extent of international linkages. Larger firms are more likely to trade internationally and to own affiliates in foreign countries. Indeed, in most countries, international trade flows are dominated by a handful of large firms. It is a natural conjecture that these large, internationally connected firms matter for cross-border comovement. We compute the change in the aggregate correlation between France and each foreign country that would occur if direct linkages at the firm level disappeared. To do this, we combine the regression-based estimates of the change in the correlation at the firm level with firm-level weights. If direct linkages at the firm level were severed, the aggregate correlation would fall by 0.098 on average in our sample of ten partner countries. This is a non-negligible change relative to the average correlation between France and its main trading partners—0.291—over this period.

Javier Cravino and I focus on how multi-national firms contribute to the transmission of shocks across countries. We use Orbis, a firm-level database that covers several million firms operating in 34 countries over the period 2004–12. The key feature of the dataset is that it contains information on domestic and foreign ownership. This information allows us to study micro-level cross-country comovement between the different parts of multinational corporations. At the same time, the data cover the bulk of economic activity in our sample of countries, making it possible to aggregate the firm-level results and derive their implications for aggregate comovement. We document two novel empirical patterns. First, foreign affiliate and headquarters sales exhibit strong positive comovement: 10 percent growth in headquarters sales is associated with 2 percent growth in the sales of the affiliate. Second, shocks to the source country account for a significant fraction of the variation in sales growth at the source destination level.

We use these data to recover the cost shocks that are consistent with observed price dynamics and the global network of input-output trade. We then compare the extent of global synchronization in observed PPI and the recovered cost shock series, and attribute the difference to the impact of linkages. We find that input linkages contribute substantially to inflation synchronization across countries, accounting for about half of the global component of PPI inflation.

Building on the theme of transmission of price shocks, Cravino and I study a particularly important type of price shocks: large exchange-rate changes. Our main interest is gauging the distributional impact of large devaluations. The main insight combines two observations. First, devaluations lead to large changes in prices. Second, consumers at different points on the income distribution have different consumption baskets. Poor households spend relatively more on tradable product categories, and consume lower-priced varieties within categories. Changes in the relative price of tradables and of lower-priced varieties will thus affect the cost of living of low-income and high-income households differently. We quantify these effects following the 1994 Mexican devaluation and show that they can have large distributional consequences. Two years post-devaluation, the cost of living for the bottom income decile rose 1.68 to 1.62 times more than for the top income decile. Thus, in the case we study, the devaluation was strongly anti-poverty.

TFP vs. Non-Technology Shocks

The second open question in the international business cycle literature is whether comovement is driven by total factor productivity (TFP) shocks or non-technology shocks (sometimes called “demand” shocks). The challenge is to separately identify and measure technology and non-technology shocks. Nitya Pandalai-Nayar and I propose a novel identification scheme for a non-technology business cycle shock, which we label “non-technology expectations” (NTE). This is a shock that moves expectations of economic activity but...
Globalization and the Business Cycle

Andrei A. Levchenko

Globalization has had a significant impact on the macroeconomy. In the late 1990s, Andrei A. Levchenko, along with his co-authors, conducted research on the role played by the business cycle in the U.S., with output, hours, and consumption rising following a positive shock, and accounted for the bulk of U.S. short-run business cycle fluctuations. This non-technology shock also has a significant impact on Canadian macro-aggregates. In the short run, it is more important than either the surprise TFP or the news of future TFP shocks in generating business cycle comovement between the U.S. and Canada, accounting for over 40 percent of the forecast error variance of Canadian GDP and over one-third of the variation in Canadian hours, imports, and exports.

Next, we extend the analysis to multiple countries and sectors. Using industry-level data on 30 countries over up to 28 years, we develop estimates of utilization-adjusted TFP shocks, and an approach to infer non-technology shocks. We then use a quantitative model calibrated to the observed international input-output and final goods trade data, and use it to assess the contribution of both technology and non-technology shocks to international comovement. We show that unlike the traditional Solow residual, the utilization-adjusted TFP shocks are virtually uncorrelated across countries. Transmission of TFP shocks across countries also cannot generate substantial GDP correlations in our sample of countries. By contrast, non-technology shocks are highly correlated across countries, and the model simulation with only non-technology shocks generates substantial GDP correlations.

New Evidences on the Impacts of Birth Order

Sandra E. Black

What determines a child’s success? We know that family structure matters and that children from higher socioeconomic status families do better in school, get more education, and earn more.

However, even beyond that, there is substantial variation in success across children within families. This has led researchers to study factors that relate to within-family differences in children’s outcomes.

One that has attracted much interest is the role played by birth order, which varies systematically within families and is exogeneously determined.

While economists have been interested in understanding human capital development for many decades, compelling economic research on birth order is more recent and has largely resulted from improved availability of data. Early work on birth order was hindered by the aggregate data requirements necessary to convincingly identify the effects of birth order. Most importantly, one needs information on both family size and birth order. As there is only a third-born child in a family with at least three children, comparing third-borns to first-borns across families of different sizes will conflate the birth order effect with a family size effect, so one needs to be able to control for family size. Additionally, it is beneficial to have information on multiple children from the same family so that birth order effects can be estimated within-family differences in child outcomes; otherwise, birth order effects will be confounded with other effects that vary systematically with birth order, such as cohort effects.

Large Scandinavian register datasets that became available to researchers beginning in the late 1990s have enabled birth order research. As they contain population data on both within-family differences in child outcomes, and because firstborns had lower education in large families than in small families. We found that firstborns had higher educational attainment than second-borns who in turn did better than third-borns, and so on. These results were robust to a variety of specifications: most importantly, we could control for within-family differences in child outcomes within the same families.

To give a sense of the magnitude of these effects, the order of mechanical attainment between the first child and the fifth child in a five-child family is roughly equal to the difference between the educational outcomes of lower family size.

Almost a half-century ago, economists including Gary Becker, H. Gregg Lewis, and Nigel Tomes created models of quality quantity trade-offs in child-rearing and used these models to explore the role of family in children’s success. They sought to explain an observed negative correlation between family income and family size: if child quality is a normal good, as income rises the family demands higher-quality children at the cost of lower family size.

However, this was a difficult model to test, as characteristics other than family income and child quality vary with family size. The introduction of natural experiments, combined with newly available large administrative datasets from Scandinavia, made testing such a model possible.

In my earliest work on the topic, Paul Devereux, Kjell Salvanes, and I took advantage of the Norwegian administrative data set and set out to better understand the theoretical quantity-quality tradeoff. It became clear that child “quality” was not a constant within a family — children within families were different. Below, I outline the model assumptions to the contrary. Indeed, we found that birth order could explain a large fraction of the family size differential in children’s educational outcomes. Average educational attainment was lower in larger families largely because later-born children had lower average education, rather than because firstborns had lower education in large families than in small families. We found that firstborns had higher educational attainment than second-borns who in turn did better than third-borns, and so on. These results were robust to a variety of specifications: most importantly, we could control for within-family differences in child outcomes within the same families.

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attainment of blacks and whites calculated from the 2000 Census. We augmented the education results by examining earnings, whether full-time employed, and whether one had attended college as additional outcome variables, and found strong evidence for birth order effects, particularly for women. Later-born women have lower earnings (whether employed full-time or not), are less likely to work full-time, and are more likely to have their first child as teenagers. In contrast, while later-born men have lower full-time earnings, they are not less likely to work full-time [Figure 1].

Birth Order and Cognitive Skills

One possible explanation for these differences is that cognitive ability varies systematically by birth order. In a subsequent work, Devereux, Salvanes, and I examined the effect of birth order on IQ scores.1

The psychology literature has long debated the role of birth order in determining children’s IQs; this debate has been recently reignited when, in 2000, J. L. Rodgers et al. published a paper in American Psychologist entitled “Resolving the Debate Over Birth Order, Family Size, and Intelligence” that referred to the apparent relationship between birth order and IQ as a “methodological illusion.”2 However, this work was limited due to the absence of large representative datasets necessary to identify these effects. We again used national register data from Norway to estimate this relationship. To measure IQ, we used the outcomes of standardized cognitive tests administered to Norwegian men between the ages of 18 and 20 when they enlisted in the military. Consistent with our earlier findings on educational attainment but in contrast to the previous work in the literature, we found strong birth order effects on IQ that are present when we look within families. Later-born children have lower IQs, on average, than their earlier-born counterparts. There are also theories that suggest that interactions among siblings can shape birth order effects. For example, Frank J. Sulloway suggests that firstborns have an advantage in following the status quo, while later-borns—by having incentives to differentiate themselves—become more sociable and unconventional in order to attract parental resources.3

In each of these papers, we attempted to identify potential mechanisms for the patterns we observed. However, it is here we see the limitations of the national administrative datasets, as for the most part, we lack necessary detailed information on biological factors and on household dynamics when the children are young. However, we do have some evidence on the role of biological factors. Later-born children tend to have better birth outcomes datasets extending over eight years of data.4,5,6

Personality is another factor that is potentially influenced by birth order, and one that can explain these IQ differences between birth orders. Firstborn children are significantly more likely to be employed and to work as top managers, while later-born children are more likely to be self-employed. More generally, firstborn children are more likely to be in occupations requiring sociability, leadership ability, conscientiousness, agreeableness, emotional stability, extraversion, and openness.

The Effect of Birth Order on Non-Cognitive Skills

We augmented the educational attainment relationship to one-child family

Birth Order and Education

For example, the difference in annual earnings in adulthood could be due to a 2 percent difference in IQ and, once again, the magnitudes are quite large. However, later-borns are less likely to consider themselves to be in good health, and measures of mental health generally decline with birth order. Firstborn children also exhibit worse health behaviors. The number of cigarettes smoked daily increases monotonically with birth order, suggesting that the higher prevalence of smoking by later-borns than among the oldest birth orders is a robust finding.7

Importantly, we also demonstrate that the number of cigarettes increases monotonically with birth order, suggesting that the higher prevalence of smoking by later-borns than among the oldest birth orders is a robust finding.7

The effects of birth order on health are also significant and persist through adulthood and, hence, have important effects on health outcomes.8

Possible Mechanisms

Why are adult outcomes likely to be affected by birth order? A host of potential explanations has been proposed across several academic disciplines.9

A number of biological factors may explain birth order effects. These relate to changes in the womb environment or maternal immune system that occur over successive births. Births differ in duration, complications, and in the characteristics of the placenta.10,11,12,13,14,15

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Figure 1

Figure 2

Distribution of IQ by Birth Order in Norway

Source: S. E. Black, P. J. Devereux, and K. G. Salvanes, NBER Working Paper No. 12267

Family Size, Birth Order and Educational Attainment

Chapter 4 in this volume. Chapter 4 in this volume. Chapter 4 in this volume.
systematically benefit firstborns and help explain their generally better outcomes.

Conclusion

In the past two decades, with the increased accessibility of administrative datasets on large swaths of the population, economists and other researchers have been better able to identify the role of birth order in the outcomes of children. There is strong evidence of substantial differences by birth order across a range of outcomes. While I have described several of my own papers on the topic, a number of other researchers have also taken advantage of newly available datasets in Florida and Denmark to examine the role of birth order on other important outcomes, specifically juvenile delinquency and later criminal behavior. Consistent with the work discussed here, later-born children experience higher rates of delinquency and criminal behavior; this is at last partly attributable to time investments of parents.


Trends in Factor Shares: Facts and Implications

Loukas Karabarbounis and Brent Neiman

The distribution of national income between capital and labor and the determinants of that split are important for many reasons. The evolution of factor shares over time affects income inequality across households. Changes in factor shares inform economists’ assumptions about aggregate production technologies and their understanding of the state of product and labor markets. The behavior of factor shares influences conclusions about the implications of progress in computing, robotics, and information technologies, the response and incidence of changes in tax policies, and the dynamics of markets and competition.

For many decades, the assumed stability of factor shares— one of the “stylized facts” about growth codified by Nicholas Kaldor in 1961—meant that the modern macroeconomics literature paid little attention to trends in the functional distribution of income. Measurement challenges and the absence of long time series for more than a small set of countries likely also played a role in dampening economists’ interest in the evolution of factor shares over time.

Loukas Karabarbounis is an associate professor of economics at the University of Minnesota. He is also a research consultant at the Federal Reserve Bank of Minneapolis and a research associate in the NBER’s Economics Fluctuations and Growth Program and International Finance and Macroeconomics Program. He serves as a member of the board of editors of the American Economic Review and as an associate editor of the Journal of Monetary Economics. Prior to joining the University of Minnesota, he was an associate professor of economics at the University of Chicago’s Booth School of Business. He has served as a senior research economist at the Federal Reserve Bank of Minneapolis.

Karabarbounis’s research interests are in macroeconomics, labor economics, and international finance. His latest research focuses on topics such as the global decline in labor’s share of income, productivity and capital flows in southern Europe, cyclical and persistent changes in labor market outcomes, and the effects of unemployment insurance policy on macroeconomic outcomes. He is a recipient of the 2016 Sloan Research Fellowship, awarded by the Alfred P. Sloan Foundation. He received his Ph.D. in Economics from Harvard University and an undergraduate degree from the Athens University of Economics and Business.

The Global Decline of the Labor Share

Our work builds on a dataset that we collected from national income and product accounts for many countries and industries. We demonstrate that, at the global level, the labor share has been declining since the early 1980s. The decline has been broad-based. As shown in Figure 1, it occurred in seven of the eight largest economies of the world. It occurred in all Scandinavian countries, where labor unions have traditionally been strong. It occurred in emerging markets such as China, India, and Mexico that have opened up to international trade and received outsourcing from developed countries such as the United States.

Where available, we use the labor share of income in the corporate sector as our preferred measure of the labor share, as it excludes many unincorporated enterprises and sole proprietors whose income is difficult to split between labor and capital. Further, our measure is not influenced by the government sector, which lacks market
prices for its output, or by the residential sector (that has a labor share of zero), whose share of the total GDP fluctuates for reasons potentially unrelated to technology or product market structure. We have posted our country-level data set online and it has been used in a number of studies.

The labor share declined in most U.S. states and, globally, in most industries, including manufacturing, wholesale, and retail. Some have suggested that the share of compensation in domestic product net of depreciation, rather than in gross domestic product, is more informative about inequality between workers and capitalists. In fact, while some exceptions exist, most notably the United States, most countries experienced similar trend declines in their labor shares regardless of whether the share is measured as a fraction of net or gross domestic product.

Possible Explanations

The labor share decline likely has multiple drivers. A key benefit of our focus on the global decline is that it restricts the set of explanations to those that operate on a global scale. Country-specific changes in policies, for instance, might be important for specific countries but are unlikely to account for much of the overall trend that the world has experienced.

Global trends in the value-added shares of various industries, referred to as structural change, contribute to the decline in the labor share if industries with lower labor share levels have grown relative to industries with higher labor share levels. Most of the labor share decline—and most of the cross-country variation in the labor share decline—is due to within-industry declines.

Another possible force contributing to the decline in the labor share is the substitution away from labor and toward capital in production. There was a decline in the price of investment relative to consumption that accelerated globally around the same time that the global labor share began its decline. A key hypothesis that we put forward is that the decline in the relative price of investment, often attributed to advances in information technology, automation, and the computer age, caused a decline in the cost of capital and induced firms to produce with greater capital intensity. If the elasticity of substitution between capital and labor—the percentage change in the capital-labor ratio in response to a percentage change in the relative cost of labor and capital—is greater than one, the lowering of the cost of capital results in a decline in the labor share.

Most prior estimates of the elasticity of substitution between capital and labor are based on time-series variation within a country in factor shares and factor prices. These estimates generally imply an elasticity of substitution below one. By contrast, our estimates of this elasticity are identified from cross-country and cross-industry variation in trends in labor shares and investment price declines. We find that countries and industries with larger declines in investment prices experienced larger declines in their labor shares, which leads to our estimate of an elasticity of substitution equal to 1.25. Taken together with the observed decline in the relative price of investment, our estimates imply that this form of technological change accounts for roughly half of the decline in the global labor share.

This elasticity—and the implied relation between capital and the labor share—applies at the industry or country level and is therefore inclusive of changes in economic activity across firms within industries or across firms and industries within countries. Our hypothesis that progress with IT-related technological change contributed to the decline in the labor share is, therefore, not inconsistent with the possibility that most firms experience stable or even rising labor shares, while low labor share firms gained in market share.

We also demonstrate how the inclusion of multiple types of capital with heterogeneous depreciation rates complicates the relationship between labor shares and the user cost of capital. Further, while a single elasticity suffices to describe trends in the labor share to trends in the user cost of capital when all capital can be bundled into a single type, this will not be the case for general equilibrium functions with different nesting of capital types and labor, such as those posited in the literature on capital-skill complementarity. Our work aims to further explore these issues.

If technology explains half of the global labor share decline, what might explain the other half? We use investment flows data to separate residual payments into payments to capital and economic profits, and find that the capital share did not rise as it should if capital-labor substitution entirely accounted for the decline in the labor share. Rather, we note that increases in markups and the share of economic profits also played an important role in the labor share decline.

Other Implications

Beyond the conclusions about technology and product market structure that emerge, why else does the labor share decline matter? The evolution of the labor share is a useful summary statistic for consumption or welfare-based inequality between a representative worker and capitalist. Some analyses focus on the labor share in gross domestic product while others emphasize the labor share in net domestic product. Which of the two measures best approximates inequality depends on whether one studies transitional dynamics or the steady state, as well as which shocks are driving the labor share decline.

Our work also uncovers a closely related trend influencing the financing of global investment. Whereas in 1980 household saving funded most global investment, today corporate saving accounts for nearly two-thirds of every invested dollar. We measure corporate saving as undistributed corporate profits, which together with household and government saving equal national saving. We use a combination of aggregate and firm-level data to demonstrate that the decline in the global labor share is likely due to an increase in accounting profits. Since dividends did not keep pace with profits, corporate saving increased.

The increase in corporate saving was also pervasive at the global level and observed in all ten of the largest economies. Further, given that global corporate investment has been relatively stable as a share of GDP since 1980, the corporate sector evolved from a net borrower to a net lender to the rest of the economy. The improvement in the net lending position of the corporate sector fell into various margins of adjustment, including reductions in consumption, accumulation of cash, and equity buybacks.

Next Steps

The stability of the labor share of income is a key assumption built into many modern macroeconomic models, but recent evidence shows downward trends in the labor share in the majority of countries and industries. Such trends are informative for the design of macroeconomic models, for evaluating changes in corporate financial practices, for assessing inequality, and for designing monetary and fiscal policies. A consensus remains elusive on the exact roles of factors such as technology, product market competition, globalization, and housing, and we are continuing our exploration of these issues in U.S. and international data.


Figure 2

The Components of Corporate Gross Value Added

Percentage of gross value added

Gross saving

Corporate saving

Payments to capital

Corporate Gross Value Added

The stability of the labor share of income is a key assumption built into many modern macroeconomic models, but recent evidence shows downward trends in the labor share in the majority of countries and industries. Such trends are informative for the design of macroeconomic models, for evaluating changes in corporate financial practices, for assessing inequality, and for designing monetary and fiscal policies. A consensus remains elusive on the exact roles of factors such as technology, product market competition, globalization, and housing, and we are continuing our exploration of these issues in U.S. and international data.


Figure 3
Richard Thaler Awarded Nobel for Research on Behavioral Economics

Richard Thaler of the University of Chicago’s Booth School of Business, an NBER research associate for more than 25 years, was awarded the 2017 Nobel Prize in Economic Sciences for his research in behavioral economics.

Thaler became the 27th current or past NBER research affiliate to receive the Nobel Prize:


The Royal Swedish Academy of Sciences’ announcement of the prize explains that Thaler “has incorporated psychologically realistic assumptions into analyses of economic decision-making. By exploring the consequences of limited rationality, social preferences, and lack of self-control, he has shown how these human traits systematically affect individual decisions as well as market outcomes.

His empirical findings and theoretical insights have been instrumental in creating the new and rapidly expanding field of behavioral economics, which has had a profound impact on many areas of economic research and policy.”

The Academy cited many settings in which behavioral insights have enriched the research dialogue, including the study of household saving, the formation of prices in financial markets, the role of fairness in setting wages and prices, and the potential for “nudges” to influence consumer behavior. The Academy’s description of the ways in which Thaler’s work has been applied may be found here.

A longer summary of the scientific contributions that underlie this award may be found here.

Thaler is the Charles R. Walgreen Distinguished Service Professor of Economics and Behavioral Science at the Booth School and a research associate in the NBER’s Asset Pricing Program. In 1992, he and Robert Shiller launched the NBER Working Group on Behavioral Economics, which has served as an important forum for researchers in this field. He served as co-director of the group until 2016.

Thaler became the 27th current or past NBER research affiliate to receive the Nobel Prize:


In addition, six current or past members of the NBER Board of Directors have received the Nobel Prize: George Akerlof, 2001; Robert Solow, 1987; and the late: William Vickrey, 1996; Douglas North, 1993; James Tobin, 1981; and Paul Samuelson, 1970.
Conferences

Financial Market Regulation

A conference on financial market regulation sponsored by the Puelicher Center for Banking Education at the University of Wisconsin took place in Cambridge on October 6. Research Associates Dean Corbae of the University of Wisconsin and Robert Townsend of MIT organized the meeting. These researchers’ papers were presented and discussed:

- Greg Buschak, University of Chicago; Gregory Matvos, University of Texas at Austin and NBER; Tomasz Piskorski, Columbia University and NBER; and Amit Seru, Stanford University and NBER, "Fintech, Regulatory Arbitrage, and the Rise of Shadow Banks" (NBER Working Paper No. 23288)
- Andrea L. Eifeldt, University of California at Los Angeles and NBER; Bernard Herskovic, University of California, Los Angeles; Sriram Rajan, U.S. Department of the Treasury; and Emil Stiirwoldane, Harvard University, "Risk Reallocation in OTC Derivatives Networks"
- Lin William Cong, University of Chicago, and Zhiguo He, University of Chicago and NBER, "Blockchain Disruption and Smart Contracts"
- Victor Aguirregabiria, University of Toronto; Robert Clark, Queen's University; and Hui Wang, Peking University, "The Geographic Flow of Bank Funding and Access to Credit: Branch Networks and Local-Market Competition"
- Ralph Kojien, New York University and NBER, and Motohito Yogo, Princeton University and NBER, "The Fragility of Market Risk Insurance"

Summaries of these papers are at: www.nber.org/confer/2017/FMRf17/summary.html

Trade and Labor Markets

A conference on trade and labor markets sponsored by the Smith Richardson Foundation took place in Cambridge on October 13–14. Research Associates Gordon H. Hanson of the University of California, San Diego and Stephen J. Redding of Princeton University organized the meeting. These researchers’ papers were presented and discussed:

- Robert C. Feenstra, University of California, Davis and NBER, and Hong Ma and Yuan Xu, Tsinghua University, "U.S. Exports and Employment"
- Illelin Kondo, University of Notre Dame, "Trade Displacement Multipliers: Theory and Evidence Using the U.S. Trade Adjustment Assistance"
- Eunhee Lee, University of Maryland, and Kei-Mu Yi, University of Houston and NBER, "Global Value Chains and Inequality with Endogenous Labor Supply"
- Spencer Lyon, New York University, and Michael E. Wangh, New York University and NBER, "Redistributing the Gains from Trade through Progressive Taxation"
- Justin R. Pierce, Federal Reserve Board, and Peter K. Schott, Yale University and NBER, "Trade Liberalization and Investment: Evidence from the U.S. Granting of PNTR to China"
- Benjamin G. Hyman, University of Pennsylvania, "Can Displaced Labor Be Retrained? Evidence from Quasi-Random Assignment to Trade Adjustment Assistance"
- Shushanik Hakobyan, International Monetary Fund, and John McLaren, University of Virginia and NBER, "NAFTA and the Gender Wage Gap"
- Brian J. Asquith, NBER; Sanjana Goswami and Antonio Rodriguez-Lopez, University of California, Irvine; and David Neumark, University of California, Irvine and NBER, "US Job Flows and the China Shock"

Summaries of these papers are at: www.nber.org/confer/2017/TLMf17/summary.html

A conference on "Competition and the Industrial Organization of Securities Markets" took place in Cambridge on December 1. Tarun Chordia of Emory University, Gideon Saar of Cornell University, and Faculty Research Fellow Mao Ye of University of Illinois at Urbana-Champaign organized the meeting. These researchers’ papers were presented and discussed:

- Mariana Khapko, University of Toronto, and Marius A. Zoican, Université Paris-Dauphine, "Smart Settlement"
- Markus Baldauf, University of British Columbia, and Joshua J. Mollner, Northwestern University, "Trading in Fragmented Markets"
- John W. Hatfield, University of Texas at Austin; Scott Duke Kominers, Harvard University; Richard Lowery, University of Texas at Austin; and Jordan M. Barry, University of San Diego School of Law, "Collusion in Markets with Syndication"
- Lin William Cong, University of Chicago, and Zhiguo He, University of Chicago and NBER, "Blockchain Disruption and Smart Contracts"
- Peter H. Haslag, Vanderbilt University, and Matthew Ringenberger, University of Utah, "The Demise of the NYSE and NASDAQ: Market Quality in the Age of Market Fragmentation"
- James Brugler, University of Melbourne; Carole Comerton-Forde, University of New South Wales; and Terrence Hendershott, University of California at Berkeley, "Does Financial Market Structure Impact the Cost of Capital?"

Summaries of these papers are at: www.nber.org/confer/2017/CIOf17/summary.html
Using FoodAPS for Research in Diet, Health, Nutrition, and Food Security

A conference on "Using FoodAPS for Research in Diet, Health, Nutrition, and Food Security" took place in Washington, DC, on December 7–8. Research Associates Marianne Bitler, University of California, Davis and NBER and Janet Currie, Princeton University and NBER, organized the meeting, which was sponsored by the Economic Research Service, the Food and Nutrition Service, and the U.S. Department of Agriculture. These researchers' papers were presented and discussed:

- Bruce D. Meyer, University of Chicago and NBER, and Nikolas Mitrag, CERGE-EI, "Misreporting of Government Transfers: How Important are Survey Design and Geography?"
- David E. Frisvold, University of Iowa and NBER, and Joseph Price, Brigham Young University and NBER, "The Role of School Meal Programs in the Food Environment Experienced by Children"
- Timothy Beatty, Marianne Bitler, Xinze Cheng, and Cynthia van der Werf, University of California, Davis, "The Pay Check Cycle; also Beatty, Bitler, and van der Werf, "Do Food Assistance Programs Affect Retailers?"
- Erin T. Bronchetti, Swarthmore College; Garrett S. Christensen, University of California, Berkeley; and Benjamin Hansen, University of Oregon and NBER, "USDA Food Assistance Programs (SNAP, the National School Lunch Program, and the School Breakfast Program) and Healthy Food Choices: Quasi-Experimental Evidence from Geographic Variation in Food Prices"
- Charles J. Courtemanche and Rusty Tcherni, Georgia State University and NBER, and Augustine Denteh, Georgia State University, "The Impacts of SNAP on Food Insecurity, Obesity, and Food Purchases: Who Misreports and Does it Matter?"
- Amy Ellen Schwartz, Syracuse University, and Augustina Laurito, New York University, "Does School Lunch Fill the "SNAP Gap" at the End of the Month?"
- Robert A. Moffitt, Johns Hopkins University and NBER, and Kyungmin Kang, Johns Hopkins University, "The Effect of SNAP and School Food Programs on Food Spending, Diet Quality, and Food Security: Sensitivity to Program and Income Reporting Error"
- Helen H. Jensen, Brent Kreider, and Oleksandr Zhylyevskyy, Iowa State University, "Investigating Causal Effects of SNAP and WIC on Food Insecurity Using FoodAPS"
- Jacob S. Goldin, Stanford University; Tatiana Homonoff, New York University; and Katherine H. Meckel, Texas A&M University; "Incidence and Incidence: SNAP Benefit Cycles and Grocery Prices"
- Di Fang, Aaron M. Novotny, Rodolfo Noya, and Michael Thomsen, University of Arkansas, "WIC Participation and Relative Quality of Household Food Purchases: Evidence from FoodAPS"

Summaries of these papers are at: www.nber.org/confer/2017/FSf17/summary.html

Neemrana Conference

The NBER, the Indian Council for Research on International Economic Relations (ICRIER), and the National Council for Applied Economic Research (NCAER) sponsored a meeting in New Delhi and Neemrana, India, on December 15–17 that included NBER researchers and economists from Indian universities, research institutions, and various government departments. The meeting was organized by NBER Research Associates Abhijit Banerjee of MIT and Gita Gopinath of Harvard University, and Rajat Kathuria of ICRIER.

The NBER participants were Abhijit Banerjee; Gabriel Chowdorow-Reich, Douglas Elmendorf, Karen Dynan, and Amanda Pallais of Harvard University; Anne O. Krueger of Johns Hopkins University; Benjamin Moll of Princeton University; Joshua Rauh of Stanford University; Lars Hansen; Brent Nieman; and Owen Zidar of the University of Chicago; Hilary Hoynes of the University of California, Berkeley; Alan Olmstead of the University of California, Davis; and Kaarhik Murshed of the University of California, San Diego. A wide range of topics was discussed, including the current outlook for growth in India and the global economy, the links between productivity growth and the agricultural sector, the ways in which banks and other financial institutions influence economic growth, urbanization, the challenge of job creation in both India and the United States, skill development and the role of education, and the challenge of achieving inclusive economic growth.

Program and Working Group Meetings

Market Design

The NBER's Working Group on Market Design met in Cambridge October 20–21. Working Group Co-Directors Michael Ostrovsky of Stanford University and Parag A. Pathak of MIT organized the meeting. These researchers' papers were presented and discussed:

- Haluk Ergin, University of California, Berkeley and Tayfun Simsek and Erdal Unver, Boston College, "Efficient and Incentive Compatible Liver Exchange"
- Nirvikar Agarwal, MIT and NBER; Irai Ashlagi, Stanford University; Paulo J. Somaimi, Stanford University and NBER; Michael A. Rees, University of Toledo Medical Center; and Daniel C. Waldinger, MIT, "An Empirical Framework for Sequential Assignments: The Allocation of Deceased Donor Kidneys"
- Eric Budish, University of Chicago and NBER; Robin S. Lee, Harvard University and NBER; and John Shim, University of Chicago, "Will the Market Fix the Market? A Theory of Stock Market Competition and Innovation"
- Albert Kyle, University of Maryland and Jeongmin Lee, Washington University in St. Louis, "Toward a Fully Continuous Exchange"
- Paul Milgrom and Ilya Segal, Stanford University, "Deferred-Acceptance Clock Auctions and Radio Spectrum Reallocation"
New Directions: Development Economics and Market Design

- Lawrence Ausubel, University of Maryland; Christina Aperjis, Power Auctions LLC; and Oleg V. Baranov, University of Colorado Boulder, “Market Design and the FCC Incentive Auction”
- Ulrich Doraszelski and Katja Seim, University of Pennsylvania and NBER; Michael Sinkinson, Yale University and NBER; and Peichun Wang, University of Pennsylvania, "Ownership Concentration and Strategic Supply Reduction" (NBER Working Paper No. 23634)

Summaries of these papers are at: www.nber.org/confer/2017/MDf17/summary.html

New Directions: Transportation and Market Design

- Michael Ostrovsky and Michael Schwarz, Google Research, "Carpooling and the Economics of Self-Driving Cars"
- Peter Cramton, University of Maryland; Richard Geddes, Cornell University; and Axel Ockenfels, University of Cologne, "Markets for Road Use: Eliminating Congestion through Scheduling, Routing, and Real-Time Road Pricing"
- Juan Camilo Castillo, Stanford University; Dan Knoepfle, Uber; and Glen Weyl, Microsoft Research, "Surge Pricing Solves the Wild Goose Chase"
- Georgy Artemov, University of Melbourne; Yeon-Koo Che, Columbia University; and Yinghua He, Rice University, "Strategic Mistakes: Implications for Market Design Research"
- Jacob D. Leshno and Irene Y. Lo, Columbia University, "The Cutoff Structure of Top Trading Cycles in School Choice"
- Esen Onur, David Reiffen, and Lynn Riggs, Commodity Futures Trading Commission; and Haoxiang Zhu, MIT and NBER, "Mechanism Selection and Trade Formation on Swap Execution Facilities: Evidence from Index CDS Trades"
- Konstantinos Daskalakis, MIT; Christos H. Papadimitriou, University of California, Berkeley; and Christos Tzamos, Microsoft Research, "Does Information Revelation Improve Revenue?"
- Dirk Bergemann, Yale University, and Tibor Heumann and Stephen Morris, Princeton University, "Information and Market Power"

New Directions: Development Economics and Market Design

- Jean-François Houde, Cornell University and NBER; Terence R. Johnson, University of Notre Dame; Molly Lipscomb, University of Virginia; and Laura A. Schedcher, University of Wisconsin, Madison, “Using Market Mechanisms to Increase the Take-up of Improved Sanitation in Senegal”
- Reshmaan N. Hussam, Yale University, and Natalia Rigo and Benjamin N. Roth, MIT, "Targeting High Ability Entrepreneurs Using Community Information: Mechanism Design in the Field"
- Yusuke Narita, Yale University, "Experimental Design as Market Design: Billions of Dollars Worth of Treatment Assignments"

Summaries of these papers are at: www.nber.org/confer/2017/MDf17/summary.html

Public Economics

Members of the NBER’s Public Economics Program met at the Stanford Institute for Economic Policy Research on October 26–27. Program Director Raj Chetty of Stanford University and Faculty Research Fellow Danny Yagan of the University of California, Berkeley organized the meeting. These researchers’ papers were presented and discussed:

- Mark Duggan, Stanford University and NBER, and Atul Gupta and Emile Jackson, Stanford University, “The Impact of the Affordable Care Act: Evidence from California’s Hospital Sector”
- Alexander M. Gelber, University of California, Berkeley and NBER; Timothy J. Moore, University of Melbourne; and Alexander Strand, Social Security Administration, “Disability Insurance Income Saves Lives”
- Ethan Lieber, University of Notre Dame, and Lee Lockwood, University of Virginia and NBER, “Targeting with In-kind Transfers: Evidence from Medicaid Home Care”
- Peter Ganong, University of Chicago and NBER, and Pascal Nod, University of Chicago, “Consumer Spending During Unemployment: Positive and Normative Implications”
- Rebecca Diamond, Stanford University and NBER, and Timothy McQuade and Franklin Qian, Stanford University, “The Effects of Rent Control Expansion on Tenants, Landlords, and Inequality: Evidence from San Francisco”
- Katrine Jakobsen, University of Copenhagen; Kristian Jakobsen, Krakå; Henrik Kleven, Princeton University; and Gabriel Zucman, University of California, Berkeley and NBER, “Wealth Taxation and Wealth Accumulation: Theory and Evidence from Denmark”

Summaries of these papers are at: www.nber.org/confer/2017/PEf17/summary.html
Economic Fluctuations and Growth

Members of the NBER’s Economic Fluctuations and Growth Program met in Chicago on October 27. Research Associates Guido Lorenzoni of Northwestern University and John V. Leahy of University of Michigan organized the meeting. These researchers’ papers were presented and discussed:

- Matthew Smith, U.S. Department of the Treasury; Danny Yagan, University of California, Berkeley and NBER; and Owen M. Zidar and Eric Zwick, University of Chicago and NBER, “Capitalists in the Twenty-First Century”
- Stefania Albanesi, University of Pittsburgh and NBER; Giacomo De Giorgi, GSEM-University of Geneva; and Jaromir Nosal, Boston College, “Credit Growth and the Financial Crisis: A New Narrative” (NBER Working Paper No. 23740)
- Anmol P. Bhandari, University of Minnesota; David Evans, University of Oregon; Mikhail Golosov, Princeton University and NBER; and Thomas J. Sargent, New York University and NBER, “Inequality, Business Cycles, and Fiscal-Monetary Policy”

Summaries of these papers are at: www.nber.org/confer/2017/EFGf17/summary.html

International Finance and Macroeconomics

Members of the NBER’s International Finance and Macroeconomics Program met in Cambridge on October 27. Research Associates Guido Lorenzoni of Northwestern University and Vivian Yue of Emory University organized the meeting. These researchers’ papers were presented and discussed:

- Doireann Fitzgerald, Federal Reserve Bank of Minneapolis and NBER; Yaniv Yedid-Levi, University of British Columbia; and Stefanie Halper, University College Dublin, “Can Sticky Quantities Explain Exchange Rate Disconnect?”
- Javier Bianchi, Federal Reserve Bank of Minneapolis and NBER; Pablo Ottonello, University of Michigan; and Ignacio Presno, Board of Governors of the Federal Reserve System, “Fiscal Policy, Sovereign Risk, and Unemployment”
- John D. Burger, Loyola University Maryland; Francis E. Warnock, University of Virginia and NBER; and Veronica Cacdac Warnock, University of Virginia, “Currency Matters: Analyzing International Bond Portfolios” (NBER Working Paper No. 23175)
- Christopher Ercge, Andrea Prestipino, and Andrea Raffo, Federal Reserve Board, “The Macroeconomic Effects of Trade Policies”
- Tomas Williams, Universitat Pompeu Fabra, “Capital Inflows, Sovereign Debt and Bank Lending: Macro-Evidence from an Emerging Market”

Summaries of these papers are at: www.nber.org/confer/2017/IFMf17/summary.html

Monetary Economics

Members of the NBER’s Monetary Economics Program met in Cambridge on November 3. Research Associate Valerie A. Ramey of University of California, San Diego and Faculty Research Fellow Johannes Wieland of the University of California, San Diego organized the meeting. These researchers’ papers were presented and discussed:

- Nicolas Crouzet, Northwestern University, and Neil Mehrotra, Federal Reserve Bank of Minneapolis, “Small and Large Firms over the Business Cycle”
- Sigurdur Benediktsdottir, Yale University; Gauti B. Eggertsson, Brown University and NBER; and Eggert Boararinsson, Central Bank of Iceland, “The Rise, the Fall, and the Resurrection of Iceland”

Summaries of these papers are at: www.nber.org/confer/2017/MEf17/summary.html
Behavioral Finance

Members of the NBER's Behavioral Finance Program met in Cambridge on November 3. Program Director Nicholas Barberis of Yale University organized the meeting. These researchers' papers were presented and discussed:

- Stelios Michalopoulos, Brown University and NBER, and Melanie Meng Xue, Northwestern University, “Folklore”
- Paolo Giuliano, University of California, Los Angeles and NBER, and Nathan Nunn, Harvard University and NBER, “Understanding Cultural Persistence and Change” (NBER Working Paper No. 23617)
- Ufuk Akcigit, University of Chicago and NBER; Salomé Baslandze, Einaudi Institute for Economics and Finance; and Francesca Lotti, Bank of Italy, “Connecting to Power: Political Connections, Innovation, and Firm Dynamics”
- James E. Alt, Harvard University; David Lassen, University of Copenhagen; and Sebastian Barfort, London School of Economics and Political Science, “The Effect of Income and Unemployment Shocks on Political Preferences”

Summaries of these papers are at: www.nber.org/confer/2017/BFf17/summary.html

Political Economy

Members of the NBER's Political Economy Program met in Cambridge on November 3. Program Director Alberto A. Alesina of Harvard University organized the meeting. These researchers' papers were presented and discussed:

- Stelios Michalopoulos, Brown University and NBER, and Melanie Meng Xue, Northwestern University, “Folklore”
- Paolo Giuliano, University of California, Los Angeles and NBER, and Nathan Nunn, Harvard University and NBER, “Understanding Cultural Persistence and Change” (NBER Working Paper No. 23617)
- Ufuk Akcigit, University of Chicago and NBER; Salomé Baslandze, Einaudi Institute for Economics and Finance; and Francesca Lotti, Bank of Italy, “Connecting to Power: Political Connections, Innovation, and Firm Dynamics”
- James E. Alt, Harvard University; David Lassen, University of Copenhagen; and Sebastian Barfort, London School of Economics and Political Science, “The Effect of Income and Unemployment Shocks on Political Preferences”

Summaries of these papers are at: www.nber.org/confer/2017/POLf17/summary.html

Corporate Finance

Members of the NBER's Corporate Finance Program met at Stanford on November 10. Faculty Research Fellow Shai Bernstein of Stanford University and Research Associates Peter M. DeMarzo of Stanford University and Bruce I. Carlin of University of California, Los Angeles organized the meeting. These researchers' papers were presented and discussed:

- Di Li, Georgia State University; Lucian A. Taylor, University of Pennsylvania; and Wenyu Wang, Indiana University, “Inefficiencies and Externalities from Opportunistic Acquirers”
- Victoria Vanasco, Stanford University; Brendan Daley, Duke University; and Brett Green, University of California, Berkeley, “Securitization, Ratings, and Credit Supply”
- Roni Michaely, Cornell Tech; Stefano Rossi, Bocconi University; and Michael Weber, University of Chicago and NBER, “The Information Content of Dividends: Safer Profits, not Higher Profits”
- Taylor Begley, Washington University in St. Louis, and Amiyatosh Purnanandam, University of Michigan, “Color and Credit: Race, Regulation, and the Quality of Financial Services”
- Lin William Cong, University of Chicago, and Yizhou Xiao, Chinese University of Hong Kong, “Persistent Blessings of Luck”
- Joao Granja, University of Chicago and Christian Leuz, University of Chicago and NBER, “The Death of a Regulator: Strict Supervision, Bank Lending and Business Activity”
- Matthew Smith, Department of Treasury; Danny Yagan, University of California, Berkeley and NBER, and Owen M. Zidar and Eric Zwick, University of Chicago and NBER, “Capitalists in the Twenty-First Century”

Summaries of these papers are at: www.nber.org/confer/2017/CFf17/summary.html

Summaries of these papers are at: www.nber.org/confer/2017/BFf17/summary.html
Members of the NBER’s Asset Pricing Program met at Stanford on November 10. Research Associates Leonid Kogan and Jun Pan of MIT organized the meeting. These researchers’ papers were presented and discussed:

- Michael Gofman, University of Rochester; Gill Segal, University of North Carolina at Chapel Hill; and Youchang Wu, University of Oregon, “Production Networks and Stock Returns: The Role of Creative Destruction”
- Aziz Ben-Rephael, Indiana University; Bruce J. Carlin, University of California, Los Angeles and NBER; Zhi Da, University of Notre Dame; and Ryan D. Israelen, Michigan State University, “Demand for Information and Asset Pricing” (NBER Working Paper No. 23274)
- Antonio Falato, Federal Reserve Board; Ali Hortacu, University of Chicago; and Dan Li and Chauche Shin, Federal Reserve Board, “Fire-Sale Spillovers in Debt Markets”
- Caroline Pflueger, University of British Columbia; Emil Sirriwardane, Harvard University; and Adi Sunderam, Harvard University and NBER, “Does Precautionary Savings Drive the Real Interest Rate? Evidence from the Stock Market”
- Anna Cieslak, Duke University, and Annette Vissing-Jorgensen, University of California, Berkeley and NBER, “The Economics of the Fed Put”

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Members of the NBER's Education Program met in Cambridge on November 16–17. Program Director Caroline Hoxby of Stanford University organized the meeting. These researchers’ papers were presented and discussed:

- Michael Gofman, University of Rochester; Gill Segal, University of North Carolina at Chapel Hill; and Youchang Wu, University of Oregon, “Production Networks and Stock Returns: The Role of Creative Destruction”
- Aziz Ben-Rephael, Indiana University; Bruce J. Carlin, University of California, Los Angeles and NBER; Zhi Da, University of Notre Dame; and Ryan D. Israelen, Michigan State University, “Demand for Information and Asset Pricing” (NBER Working Paper No. 23274)
- Antonio Falato, Federal Reserve Board; Ali Hortacu, University of Chicago; and Dan Li and Chauche Shin, Federal Reserve Board, “Fire-Sale Spillovers in Debt Markets”
- Caroline Pflueger, University of British Columbia; Emil Sirriwardane, Harvard University; and Adi Sunderam, Harvard University and NBER, “Does Precautionary Savings Drive the Real Interest Rate? Evidence from the Stock Market”
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The NBER’s Working Group on Organizational Economics met in Cambridge on November 17–18. Working Group Director Robert Gibbons of MIT organized the meeting. These researchers’ papers were presented and discussed:

- Nicholas Bloom, Stanford University and NBER; Aprajit Mahajan, University of California, Berkeley and NBER; David McKenzie, World Bank; and John Roberts, Stanford University, “Do Management Improvements Persist? Evidence from India”
- Camelia M Kuhnen, University of North Carolina at Chapel Hill and NBER, and Saravanan Kesavan, University of North Carolina at Chapel Hill, “Demand Fluctuations, Precarious Incomes, and Employee Turnover”
- Drew Fudenberg, Harvard University, and Luis Rayo, University of Utah, “Training and Effort Dynamics in Apprenticeship”

Summaries of these papers are at: [www.nber.org/confer/2017/EDf17/summary.html](http://www.nber.org/confer/2017/EDf17/summary.html)
Members of the NBER's Labor Studies Program met in Cambridge on December 1. Program Co-Directors David Autor of MIT and Alexandre Mas of Princeton University organized the meeting. These researchers' papers were presented and discussed:

- Tianjiao Dai and Jusso Toikka, MIT, "Robust Incentives for Teams"
- Tarek F. Ghani, Washington University in St Louis, and Tristan Reed, University of Chicago, "Relationships, Risk and Rents: Evidence from a Market for Ice"
- Wouter Dessein and Andrea Prat, Columbia University, "Organizational Capital, Corporate Leadership, and Firm Dynamics"
- Marco LiCalzi and Massimo Warglien, Ca' Foscari University of Venice, and Robert S. Gibbons, "What Situation Is This? Coarse Cognition and Behavior over a Space of Games"
- Eliza Forsythe, University of Illinois-Urbana, "Occupational Job Ladders and the Efficient Reallocation of Displaced Workers"
- Guido Friebel and Nick Zubanov, Goethe University Frankfurt, and Matthias Heinz, University of Cologne, "Making Managers Matter"
- David C. Chan, Jr., Stanford University and NBER, and Michael J. Dickstein, New York University and NBER, "Price-setting by Committee: Evidence from Medicare"

Summaries of these papers are at: www.nber.org/confer/2017/LSf17/summary.html

**Labor Studies**

Members of the NBER's Labor Studies Program met in Cambridge on December 1. Program Co-Directors David Autor of MIT and Alexandre Mas of Princeton University organized the meeting. These researchers' papers were presented and discussed:

- Peter Q. Blair and Bobby Chung, Clemson University, "Occupational Licensing Reduces Racial and Gender Wage Gaps"
- Rebecca Diamond, Stanford University and NBER, and Timothy McQuade and Franklin Qian, Stanford University, "The Effects of Rent Control Expansion on Tenants, Landlords, and Inequality: Evidence from San Francisco"
- Joakim Ruist, Gothenburg University, Jan Snihler, University Carlos III, and David A. Jaeger, City University of New York and NBER, "Shift-Share Instruments and the Impact of Immigration"
- Bo Cowgill, Columbia University, "The Value of an Additional Job Offer"
- Damon Jones, University of Chicago and NBER, and Ioana Marinescu, University of Pennsylvania and NBER, "The Labor Market Impacts of Universal and Permanent Cash Transfers: Evidence from the Alaska Permanent Fund"

Summaries of these papers are at: www.nber.org/confer/2017/LSf17/summary.html

**International Trade and Investment**

Members of the NBER's International Trade and Investment Program met at Stanford on December 1–2. Program Director Stephen J. Redding of Princeton University organized the meeting. These researchers' papers were presented and discussed:

- Victor Couture, University of California, Berkeley; Benjamin Faber, University of California, Berkeley and NBER; Yizhen Gu, Jinan University; and Lizhi Liu, Stanford University, "E-Commerce Integration and Economic Development: Evidence from China"
- Stephan Heblich, University of Bristol; Stephen J. Redding, Princeton University and NBER; and Daniel Sturm, London School of Economics, "The Making of the Modern Metropolis: Evidence from London"
- Lorenzo Caliendo, Yale University and NBER; Luca David Opreomolla, Banco de Portugal; Fernando Parro, Johns Hopkins University; and Alessandro Sforza, London School of Economics, "Goods and Factor Market Integration: A Quantitative Assessment of the EU Enlargement" (NBER Working Paper No. 23695)
- Wolfgang Keller, University of Colorado and NBER, and William W. Olney, Williams College, "Globalization and Executive Compensation" (NBER Working Paper No. 23384)
- Andrew B. Bernard, Dartmouth College and NBER; Emmanuel Dbyne, National Bank of Belgium; Glenn C.G. Magerman, ECAKES & NBB; Kalina Manova, University of Oxford; and Andreas Moxnes, University of Oslo, "The Origins of Firm Heterogeneity: A Production Network Approach"
- Chong Xiang, Purdue University, and Stephen Yacpe, Pennsylvania State University and NBER, "The Production of Cognitive and Non-cognitive Human Capital in the Global Economy"
- Sumit Agarwal, Georgetown University; J. Bradford Jensen, Georgetown University and NBER; and Ferdinando Monte, Georgetown University, "The Geography of Consumption" (NBER Working Paper No. 23616)
- Thibault Fally, University of California, Berkeley and NBER, and James E. Sayre, University of California, Berkeley, "Commodity Trade Matters"
- Jonathan I. Dingel, University of Chicago and NBER; Solomon M. Hsiang, University of California, Berkeley and NBER; and Kyle C. Meng, University of California, Santa Barbara and NBER, "The Spatial Structure of Endowments, Trade, and Inequality: Evidence from the Global Climate"

Summaries of these papers are at: www.nber.org/confer/2017/ITf17/summary.html
Health Care

Members of the NBER's Health Care Program met December 8 in Cambridge. Program Director Jonathan Gruber of MIT organized the meeting. These researchers' papers were presented and discussed:

- Joshua L. Krieger, Harvard Business School; Danielle Li, MIT and NBER; and Dimitris Papanikolaou, Northwestern University and NBER, "Developing Novel Drugs"
- Liran Einav, Stanford University and NBER; Amy Finkelstein, Massachusetts Institute of Technology and NBER; and Pietro Tebaldi, University of Chicago, "Risk Adjustment vs. Subsidies in the Design of Health Insurance Exchanges"
- Elena Prager, Northwestern University, "Consumer Responsiveness to Simple Health Care Prices: Evidence From Tiered Hospital Networks"
- David Dranove and Christopher Ody, Northwestern University, and Amanda Starc, Northwestern University and NBER, "A Dose of Managed Care: Controlling Drug Spending in Medicaid" (NBER Working Paper No. 23956)
- Steve Cicala, University of Chicago and NBER; Ethan Lieber, University of Notre Dame; and Victoria R. Marone, Northwestern University, "Cost of Service Regulation in U.S. Health Care: Minimum Medical Loss Ratios" (NBER Working Paper No. 23353)
- Leora Friedberg, University of Virginia; Wenliang Hou, Center for Retirement Research at Boston College; Wei Sun, Renmin University; and Anthony Webb, the New School, "Lapses in Long-Term Care Insurance"

Summaries of these papers are at: www.nber.org/confer/2017/HCF17/summary.html

Entrepreneurship

The NBER's Working Group on Entrepreneurship met on December 8 in Cambridge. Josh Lerner of Harvard University and Entrepreneurship Working Group Director Antoinette Schoar of MIT organized the meeting, which was sponsored by the Ewing Marion Kauffman Foundation. These researchers' papers were presented and discussed:

- Ufuk Akcigit, University of Chicago and NBER; Salomé Baslandze, Einaudi Institute for Economics and Finance; and Francesca Lotti, Bank of Italy, "Connecting to Power: Political Connections, Innovation, and Firm Dynamics"
- Meghana Ayyagari, George Washington University, and Vojislav Maksimovic, University of Maryland, "Human Capital, Competition, and Entrepreneurial Success in Manufacturing"
- Michael Ewens, California Institute of Technology, and Richard Townsend, University of California, San Diego, "Are Early Stage Investors Biased Against Women?"
- Geraldo Correia, Universidade Católica Portuguesa; Maria Fabiana Penas, Universidad Torcuato Di Tella; and Robert Seamans, New York University, "Debtor Protection and Firm Dynamics"
- Charlie Eaton, University of California at Merced; Sabrina T. Howell, New York University and NBER; and Constantine N. Yannelis, New York University, "When Owner and Customer Incentives Diverge: Private Equity in Higher Education"
- Joshua L. Krieger, Harvard Business School; Danielle Li, MIT and NBER; and Dimitris Papanikolaou, Northwestern University and NBER, "Developing Novel Drugs"
- Colleen M. Cunningham, London Business School; Florian Ederer, Yale University; and Song Ma, Yale University, "Killer Acquisitions"

Summaries of these papers are at: www.nber.org/confer/2017/ENTF17/summary.html

Insurance

The NBER's Insurance Working Group met December 9 in Cambridge. Working Group Co-Directors Benjamin R. Handel of the University of California, Berkeley and Motohiro Yogo of Princeton University organized the meeting. These researchers' papers were presented and discussed:

- Ralph Koijen, New York University and NBER, and Motohiro Yogo, Princeton University and NBER, "The Fragility of Market Risk Insurance"
- Yiling Deng, Georgia State University; James Tyler Leverty, University of Wisconsin-Madison; and George Zanjani, University of Alabama, "Market Discipline and Government Guarantees: Evidence from the Insurance Industry"
- Shan Ge, The Ohio State University, "How Do Financial Constraints Affect Product Pricing? Evidence from Weather and Life Insurance Premiums"

Summaries of these papers are at: www.nber.org/confer/2017/INSF17/summary.html
NBER Development Economics/BREAD

The NBER Development Economics Program met jointly with the Bureau for Research and Economic Analysis of Development (BREAD) on December 8-9 in Cambridge. Research Associates Raymond Fisman of Boston University, Piniopli K. Goldberg of Yale University, Rema Hanna of Harvard University, Michael Kremer of Harvard University, and Program Director Duncan Thomas of Duke University organized the meeting. These researchers’ papers were presented and discussed:

- Arun Advani, University of Warwick, “Insurance Networks and Poverty Traps”
- Imran Rasul, University College London; Oriana Bandiera and Robin Burgess, London School of Economics; and Vittorio Bassi, University of Southern California, “Tackling Youth Unemployment: Evidence from a Labor Market Experiment in Uganda”
- Kelsey Jack, Tufts University and NBER; Günther Fink, Swiss Tropical and Public Health Institute; and Felix Masiye, University of Zambia, “Seasonal Liquidity, Rural Labor Markets and Agricultural Production: Evidence from Zambia”
- Lorenzo Casaburi, University of Zurich, and Jack J. Willis, Harvard University, “Time vs. State in Insurance: Experimental Evidence from Contract Farming in Kenya”
- Esther Duflo, Massachusetts Institute of Technology and NBER; Pascaline Dupas, Stanford University and NBER; and Michael Kremer, Harvard University and NBER, “The Impact of Free Secondary Education: Experimental Evidence from Ghana”
- Marshall Burke, Stanford University and NBER; Lauren F. Bergquist, Becker Friedman Institute; and Edward Miguel, University of California, Berkeley and NBER, “Selling Low and Buying High: Arbitrage and Local Price Effects in Kenyan Markets”

Summaries of these papers are at: www.nber.org/confer/2017/DEVf17/summary.html

Chinese Economy

The NBER’s Working Group on the Chinese Economy met December 15–16 in Shenzhen, China. Research Associates Hamming Fang of the University of Pennsylvania, Zhiguo He of the University of Chicago, Wei Xiong of Princeton University, and Working Group Director Shang-Jin Wei of Columbia University organized the meeting in cooperation with the Chinese University of Hong Kong, Shenzhen. These researchers’ papers were presented and discussed:

- Pravin Krishna, Johns Hopkins University and NBER, and Heiwai Tang, Johns Hopkins University, “Production Networks and Misallocation”
- Xing Li, Stanford University; Chong Liu, Peking University; Xi Weng, Peking University; and Li-An Zhou, Peking University, “Target Setting in Tournaments: Theory and Evidence from China”
- Zheng Liu, Federal Reserve Bank of San Francisco; Pengfei Wang, Hong Kong University of Science & Technology; and Zhiwei Xu, Shanghai Jiao Tong University, “Interest-Rate Liberalization and Capital Misallocation”
- Victor Couture, University of California, Berkeley; Benjamin Faber, University of California, Berkeley and NBER; YiZheng Gu, Jinan University; and Lizi Liu, Stanford University, “E-Commerce Integration and Economic Development: Evidence from China”
- Yu Zhang, Peking University, “ Liquidity Constraints, Transition Dynamics, and the Chinese Housing Return Premium”
- Haoyuan Ding, Shanghai University of Finance and Economics; Hanming Fang, University of Pennsylvania and NBER; Shu Lin, Chinese University of Hong Kong; and Kang Shi, Chinese University of Hong Kong, “Equilibrium Consequences of Corruption on Firms: Evidence from China”
- Jiange Bian, University of International Business and Economics; Zhi Da, University of Notre Dame; Dong Lou, London School of Economics; and Hao Zhou, Tsinghua University, “Leverage Network and Market Contagion”
- Yi Huang and Ugo Panizza of The Graduate Institute, Geneva; and Marco Pagano, University of Naples Federico II, “Local Crowding Out in China”
- Franklin Allen, Imperial College London and NBER; Xian Gu, Central University of Finance and Economics; Jun Qian, Fudan University; and Yiming Qian, University of Iowa, “Implicit Guarantee and Shadow Banking: The Case of Trust Products”
- Haoyu Gao, Central University of Finance and Economics; Hong Ru, Nanyang Technological University; Robert Townsend, MIT and NBER; and Xiaoguang Yang, Chinese Academy of Sciences, “Rise of Bank Competition: Evidence from Banking Deregulation in China”
- Sabrina T. Howell, New York University and NBER; Lin Williams Cong, University of Chicago; and Ran Zhang, Peking University, “The Impact of Delay in Going Public: Evidence from China”

Summaries of these papers are at: www.nber.org/confer/2017/CEf17/summary.html
Should the United States be open to commerce with other countries, or should it protect domestic industries from foreign competition? This question has been the source of bitter political conflict throughout American history. Such conflict was inevitable, James Madison argued in The Federalist Papers, because trade policy involves clashing economic interests. The struggle between the winners and losers from trade has always been fierce because dollars and jobs are at stake: depending on the policy chosen, some industries, farmers, and workers will prosper, while others will suffer.

Clashing over Commerce: A History of U.S. Trade Policy

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Modern developed nations are rich and politically stable in part because their citizens are free to form organizations and have access to the relevant legal resources. Yet in spite of the advantages of open access to civil organizations, it is estimated that 80 percent of people live in countries that do not allow unfettered access. Why have some countries disallowed the formation of civic organizations as part of their economic and political systems?

The contributions to Organizations, Civil Society, and the Roots of Development seek to answer this question through an exploration of how developing nations throughout the 18th and 19th centuries, including the United States, United Kingdom, France, and Germany, made the transition to allowing their citizens the right to form organizations. The transition, contributors show, was not an easy one. Neither political changes brought about by revolution nor subsequent economic growth led directly to open access. In fact, initial patterns of change were in the opposite direction, as political coalitions restricted access to specific organizations for the purpose of maintaining political control. Ultimately, however, it became clear that these restrictions threatened the foundation of social and political order. Tracing the path of these modern civil societies, Organizations, Civil Society, and the Roots of Development is an invaluable contribution to all interested in today’s developing countries and the challenges they face in developing this organizational capacity.

Organizations, Civil Society, and the Roots of Development

Edited by Naomi R. Lamoreaux and John Joseph Wallis

$130

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