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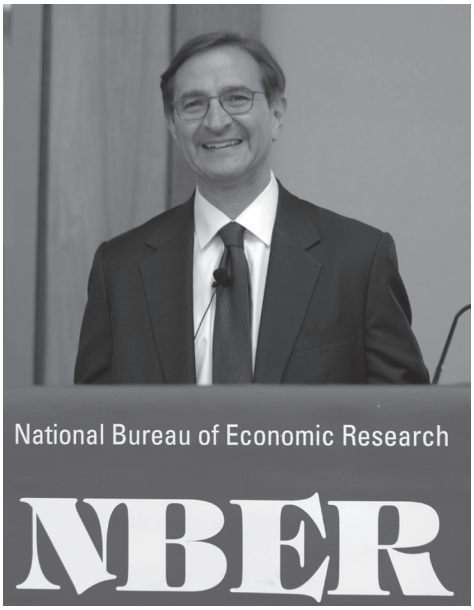

Steven N. Kaplan

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The 2012Martin Feldstein Lecture

Executive Compensation and Corporate Governance in the U.S.: Perceptions, Facts, and Challenges

Steven N. Kaplan*

In this lecture, I explore some commonly held perceptions of executive compensation and corporate governance in the United States: 1) CEOs are overpaid and their pay keeps increasing; 2) CEOs are not paid for performance; and 3) corporate boards are not doing their jobs. For example, Bebchuk and Fried have concluded that, "flawed compensation arrangements have not been limited to a small number of 'bad apples'; they have been widespread, persistent, and systemic."[1] I consider the accuracy of these perceptions today, and discuss the implications and challenges that the evidence poses for researchers, boards, and shareholders.[2]

How is pay measured?

There are two ways to measure CEO pay. The first is estimated or grant-date pay. This includes the CEO's salary, bonus, the value of restricted stock, and the estimated value of options issued that year. This is the compensation the board awards the CEO and, therefore, the appropriate measure for board governance effectiveness.

The second measure is realized pay. This includes the CEO's salary, bonus, the value of restricted stock, and the value of options exercised that year. Because it uses actual option gains (not estimated val-

** This is a written and abbreviated version of the Martin Feldstein Lecture given on July 10, 2012. Kaplan is an NBER Research Associate and the Neubauer Family Distinguished Service Professor of Entrepreneurship and Finance, University of Chicago Booth School of Business. He also serves on public company and mutual fund boards. Douglas Baird, Effi Benmelech, Carola Frydman, Austan Goolsbee, Jeff Miron, Raghu Rajan, Amir Sufi, Luke Taylor and Rob Vishny provided helpful comments on this article.*

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ues), this better measures what the CEO actually takes home. Accordingly, realized pay is appropriate for considering whether CEOs are paid for firm performance.

Facts about pay

Using estimated pay, I look at data from 1993 to 2010 for S&P 500 companies (from S&P's ExecuComp database). What has happened to average estimated CEO pay (adjusted for inflation) since 2000? Most audiences believe it has increased substantially. In fact, Figure 1 (on page 3) shows that while average CEO pay increased markedly from 1993 to 2000, it declined by over 46 percent from 2000 to 2010. Median CEO pay also increased from 1993 to 2000, but has since declined. The convergence between the means and medians suggests that boards have become less likely to award large pay packages since 2000.

There are still some outliers that receive attention and likely drive the perception that pay has increased. For example, three CEOs received over $50 million in estimated pay in 2010. The means and medians indicate that these are outliers and not the general rule.

ExecuComp also follows the CEOs of over 1,000 smaller companies not in the S&P 500. Average estimated pay for these CEOs, like S&P 500 CEOs, increased in the 1990s and declined in the 2000s. Today's average pay roughly equals its 1998 level.

Overall, then, estimated CEO pay — what boards expect to pay their CEOs — peaked around 2000, both for S&P 500 and non-S&P 500 CEOs. Since then, average estimated CEO pay has declined, returning roughly to its 1998 level.

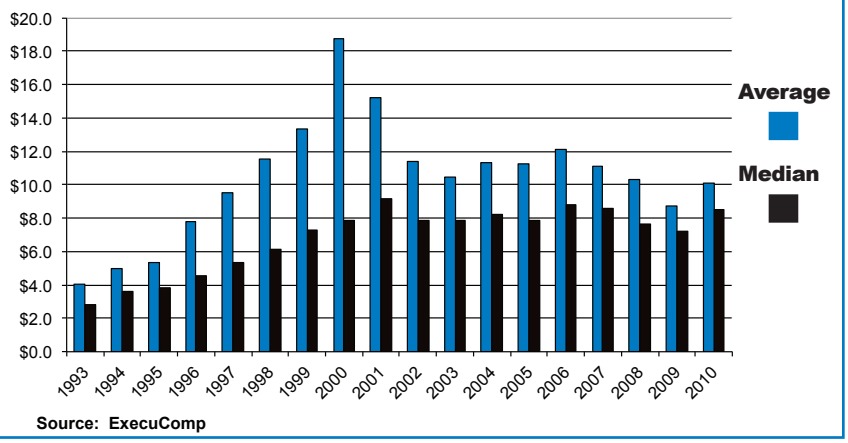
While average pay has declined since 2000, it remains very high in absolute terms. In 2010, the average S&P 500 CEO received estimated pay of just over $10 million. This is roughly 200 times the median household income in the United States and undoubtedly also contributes to the perception that CEOs are overpaid.

Turnover

The average lengths of CEO tenures today are shorter than in the past. As a result, comparing CEO pay in the 2000s to CEO pay in the 1990s (and earlier) is not an apples-to-apples comparison. In the 1970s, 1980s, and

Figure 1

Average & Median Total Pay (estimated)
of S&P 500 CEOs from 1993 to 2010 (in millions of 2010 $)



Source: ExecuComp

mid-1990s, roughly 10 percent of large U.S. company CEOs turned over each year, not counting takeovers.[3] Since 1998, annual turnover has increased to an average of 12 percent, implying a decline in CEO tenure from ten to eight years. Including takeovers, tenures have declined from roughly eight years before 1998 to only six years since.

The decline in tenure implies that the CEO's job has become riskier over time. The shorter expected tenure arguably offsets roughly 20 percent of the increase in CEO pay since the early 1990s.[4] The true increase in CEO pay since then is lower than the compensation figures alone would suggest.

How does CEO pay compare to that of other highly paid people?

Gabaix and Landier[5] argue that market forces can explain the increases in CEO pay. Using a simple competitive model, they show that CEO pay will rise as firms become larger because larger average firm size increases the returns to hiring more productive CEOs. They find empirically that the increase in CEO pay since 1980 can be fully attributed to the increase in large company market values.

Gabaix and Landier and others[6] focus on the market for public company top executives. But the same people also can become executives at private companies, become (or remain) consultants, and, earlier in their careers, become lawyers, investment bankers, or investors. In a competitive market, similarly talented individuals should have done as well as CEOs over the last twenty or thirty years. The large increase in the share of pre-tax income earned by very high earners over that period, documented by Piketty and Saez,[7] suggests that this is plausible.

Accordingly, I compare the average estimated pay of S&P 500 CEOs to the average adjusted gross income (AGI) of taxpayers in the top 0.1 percent of the income distribution.[8] Figure 2 shows that average estimated pay for S&P 500 CEOs, relative to the average income of the top 0.1 percent, is about the same in 2010 as it was in 1994. S&P 500 CEOs have seen little change in their estimated pay relative to other high earners since the early 1990s. And non-S&P 500 CEOs are worse off relative to the top 0.1 percent than they were in the early 1990s.

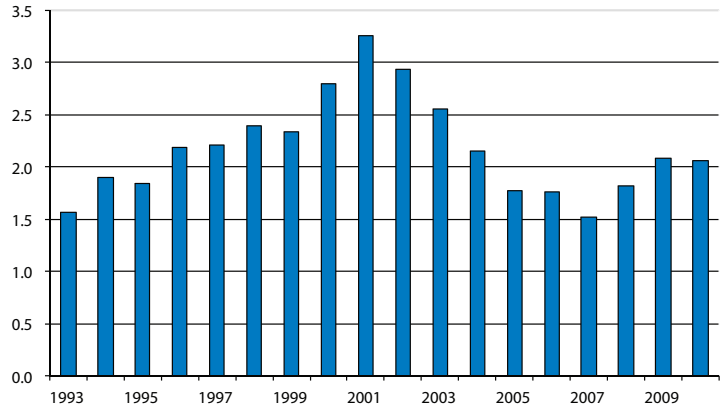
Over the last twenty years, then, public company CEO pay relative to the top 0.1 percent has remained relatively constant or declined. These patterns are consistent with a competitive market for talent. They are less consistent with managerial power. Other top income groups, not subject to managerial power forces, have seen similar growth in pay.

What about the longer-term?

What has happened over the longer-term, since the 1930s? I staple together three data sets of estimated pay — ExecuComp data for S&P 500 CEOs from 1992 to 2010, the Hall and Leibman[9] data for large company CEOs from 1980 to 1992, and the Frydman and Saks data for large company CEOs from 1936 to 1980.[10] Figure 3 (on page 4) compares this series with the average AGI of the top 0.1 percent. Over the long-term, estimated CEO pay relative to pay of the top 0.1 percent has remained stable, averaging roughly 1.9. The ratio is particularly low in the 1980s, becomes unusually high in the late 1990s, and returns near to its long-term average in 2010. The unanswered question from these patterns is what drives the fluctuations.

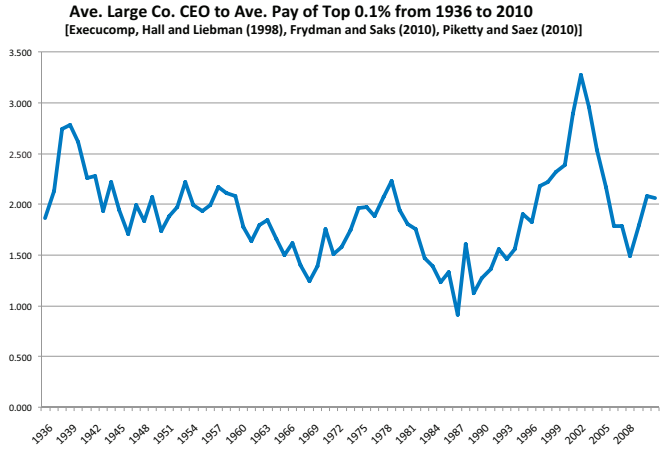
Figure 2

Average Pay (Estimated) of S&P 500 CEOs to
Average AGI of Top 0.1% of Taxpayers from 1993 to 2010



Source: ExecuComp, Piketty and Saez (2010)

Figure 3



Sources: S&P 500 CEO Pay 1992 to 2010 from ExecuComp,
Large Company CEO Pay 1980 to 1992 from Hall and Leibman (1998)
Large Company CEO Pay from 1936 to 1980, Frydman and Saks (2010),
Piketty and Saez (2010)

Figure 4 (below) shows the ratio of average estimated CEO pay to the average market value of the top 500 publicly traded companies (multiplied by 1,000). CEO pay was a higher fraction of market value in the 1930s through the 1950s than it was after 1960. Since 1960, however, the ratio has remained more stable, averaging 0.042 percent of market value. The ratio in 2010 was 0.036 percent. Since 1960, then, the data support the simple Gabaix and Landier story of a competitive market for talent. The unanswered question is why the pattern is so different before 1960.

Taken together, these long-run patterns suggest that a combination of the market for talent and firm scale have been meaningfully associated with large company CEO pay over a long period of time.

Other specific groups

The previous analyses compare public company CEOs to those in the top income brackets. But public company CEO pay also can be compared to the pay of specific groups in those brackets that have similar opportunities or talents, particularly non-public company executives, lawyers, and investors.

Bakija, Cole, and Heim[11] study IRS tax return data between 1979 and 2005. They try to compare public and private company executives by distinguishing those who receive the majority of their income in salary and wages from those who receive the majority from self-employment. The former are more likely to include public company executives; the latter, executives of closely-held businesses.

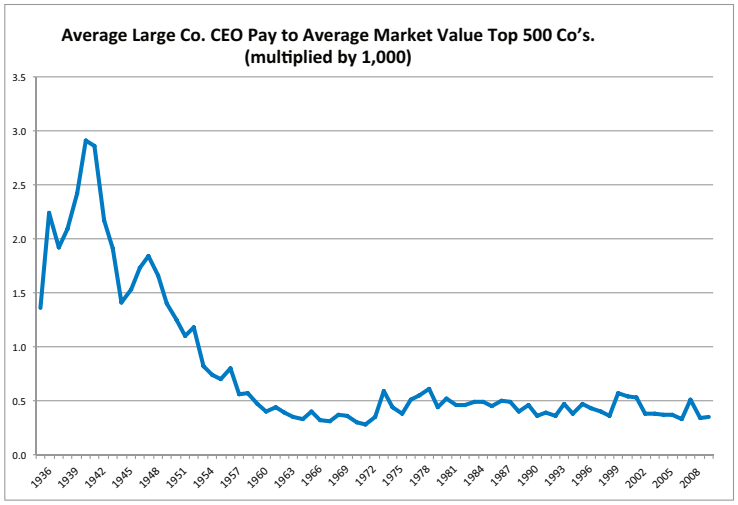
The pay of closely-held firm executives increased by more than the pay of salaried executives from 1979 to 2005. Closely-held firm executives also increased their representation in the top 0.1 percent, increasing from 9 percent in 1979 to 22 percent of the top 0.1 percent in 2005. Over the same period, the representation of salaried executives declined from 38 to 20 percent.

Public company executives, those who should be more subject to managerial power problems, saw their pay increase less than executives of closely-held company businesses which are, by definition, controlled by large shareholders or the executives, and are subject to limited agency problems. This is notable because many of the salaried and closely-held executives likely come from the same executive pool and, presumably, can move between public and private company employment.

What does this mean?

The point of these comparisons is to confirm that while public company CEOs earn a great deal, they are not unique. Other groups with similar backgrounds and talents — private company executives (as well as corporate lawyers, investors and others) — have seen significant pay increases where there is a competitive market for talent and no managerial power problems exist. If one uses evidence of higher CEO pay as evidence of managerial power, one must also explain why these other groups have had a similar or higher growth in pay. Instead, it seems

Figure 4



Sources: S&P 500 CEO Pay 1992 to 2010 from ExecuComp,
Large Company CEO Pay from 1936 to 1980, Frydman and Saks (2010).
Average market value of top 500 companies from CRSP from 1936 to 2010.

more likely that market forces have driven a meaningful portion of the increase in public company CEO pay.

Josh Rauh and I concluded that some combination of changes in technology, along with an increase in the scale of enterprises and finance, have allowed more talented or fortunate people to increase their productivity relative to others. This seems relevant for the pay increases of lawyers and investors (technology allows them to acquire information and trade large amounts more efficiently) as well as CEOs (technology allows them to manage very large global organizations).[12]

Pay for Performance

Do CEOs who perform better earn more in realized pay — which includes option exercises and thus better measures what the CEO actually takes home? For each year from 1999 to 2004, Rauh and I took the firms in the ExecuComp database and sorted them into five size-groups. Within each size-group for each year, we sorted the CEOs into five groups based on realized pay. We then looked at how the stocks of each group performed relative to their industry over the previous three years.

We found that realized compensation was highly related to firm stock performance. In every size group, firms with CEOs in the top quintile of realized pay were in the top performing quintile; firms with CEOs in the bottom quintile of realized pay were in the worst performing quintile.

Frydman and Saks study the correlation between an executive's wealth and firm performance. They find that CEO wealth has been strongly tied to firm performance since the 1930s, and that relationship "strengthened considerably" after the mid-1980s.

The evidence, then, is consistent with realized CEO pay and CEO wealth being strongly tied to firm performance. The more difficult question is how much pay-for-performance is optimal, and whether current practices can become more efficient. Some argue that pay-for-performance is too low and should be increased. Others argue that some pay-for-performance incentives, particularly in financial services, are too high.

Are CEOs fired for poor performance?

CEO turnover levels have increased since the late 1990s, so CEOs can expect to be CEOs for less time than in the past. CEO turnover also has become increasingly related to poor firm stock performance.[13] This suggests that boards and the corporate governance system have performed better in their monitoring role since the 1990s.

Jenter and Llewellen[14] present additional evidence consistent with this. They look at CEO turnover in ExecuComp firms from 1992 to 2004 and find "that boards aggressively fire CEOs for poor industry-adjusted performance, and that the turnover-performance sensitivity increases substantially with higher quality boards." In the first five years of their tenure, CEOs who perform in the bottom quintile relative to their industry are 42 percent more likely to depart than top quintile CEOs. This spread increases to more than 70 percent for firms with higher quality boards — more independent boards with greater stock ownership. As with pay-for-performance, the more difficult question is whether these differential departure rates are optimal and whether current practices can be improved.[15]

What do shareholders think?

It would be useful to know what shareholders think. Fortunately, the Dodd-Frank Act of 2010 mandated that most publicly traded-firms hold Say-on-Pay votes — non-binding shareholder votes on the compensation of their top five executives. Say-on-Pay supporters believed that the votes would reduce the perceived CEO pay spiral and would increase pay for performance. Under the alternative view that pay levels and pay-for-performance are largely determined in a competitive market, the Say-on-Pay votes would be a non-event.

The law went into effect in 2011. The votes were overwhelmingly in favor of existing pay policies: roughly 98 percent of companies received majority support of their shareholders; more than 73 percent of companies received a favorable vote above 90 percent.[16] The 2012 votes have followed a qualitatively similar pattern. The positive shareholder votes for most companies seem inconsistent with top executive pay being driven largely by managerial power. Rather, the votes are consistent with a more market-based view.

How have U.S. public companies performed?

Given the negative perceptions of CEO pay and corporate governance, one would think that corporate performance has been poor. The U.S. economy has gone through a financial crisis and recession, and the S&P 500 has declined from a peak of 1576 in 2007 to roughly 1400 today (August 2012). At the same time, CEO pay has declined. What has happened to operating performance?

S&P 500 companies have weathered the downturn surprisingly well. Median operating margins (EBITDA to Sales) increased from 1993 to 2007 and increased again, to their highest level in the period, from 2007 to 2011.[17] The National Income and Product Accounts, while they include public and private companies, also show that corporate profits as a fraction of GDP are at historically high levels. On average, then, particularly for non-financial companies, average operating performance has improved while average compensation has declined.

Summary

To summarize, I have considered the evidence for three common perceptions of U.S. corporate governance. The evidence is somewhat different from those perceptions. For example, while average CEO pay increased substantially through the 1990s, it has since declined. Indeed, CEO pay levels relative to other highly paid groups today are comparable both to their average level in the early 1990s

and to their average level since the 1930s. And, the ratio of large company CEO pay to firm market value has remained roughly constant since 1960.

Furthermore, CEOs are typically paid for performance and penalized for poor performance. Finally, boards do monitor CEOs, and that monitoring appears to have increased over time. CEO tenures in the 2000s are lower than in the 1980s and 1990s, and CEO turnover is tied to poor stock performance.

In his 2012 work, Murphy concludes that executive compensation is affected by the interaction of a competitive market for talent, managerial power, and political factors. That conclusion is hard to disagree with. There have been corporate governance failures and pay outliers where managerial power surely has been exercised. And, CEO pay today is still extremely high relative to typical household income. At the same time, a meaningful part of CEO pay appears to have been driven by the market for talent. In recent decades, CEO pay is likely to have been affected by the same forces of technology and scale that have led to the general increase in incomes at the very top.

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[1] *L. Bebchuk and J. Fried,* Pay without Performance: The Unfulfilled Promise of Executive Compensation, *Harvard University Press, (2006).*

[2] *My talk addresses these perceptions. It is based on the more detailed treatment in my* Executive Compensation and Corporate Governance in the U.S.: Perceptions, Facts and Challenges, *Cato Papers in Public Policy, forthcoming. Two excellent and recent surveys, "Executive Compensation: Where we are, and how we got there", Kevin J. Murphy, forthcoming in* Handbook of the Economics of Finance; *and G. Constantinides, M. Harris, and R. Stulz, eds., and "CEO Compensation", C. Frydman and D. Jenter,* Annual Review of Financial Economics, *2 (2010), pp. 75–102, provide broader analyses and summaries of corporate governance issues.*

[3] *See K. J. Murphy and J. Zábojník,* Managerial Capital and the Market for CEOs, *2008, and S. Kaplan and B. Minton, "How has CEO Turnover Changed?"* International Review of Finance, *12 (2012), pp. 57–87.*

[4] *F. Peters and A. Wagner, "The Executive Turnover Risk Premium", working paper, Swiss Finance Institute, 2012, which estimates this explicitly and finds that a 1 percent increase in turnover risk is associated with a 10 percent increase in pay.*

[5] *X. Gabaix and A. Landier, "Why Has CEO Pay Increased So Much?" NBER Working Paper No. 12365, July 2006, and* Quarterly Journal of Economics*, 123(1) (2008), pp. 49–100.*

[6] *See C. Frydman and R. E. Saks, "Executive Compensation: A New View from a Long-Term Perspective, 1936–2005",* Review of Financial Studies, *23, (2010), pp. 2099–138, and Murphy and Zábojník, 2008, op. cit.*

[7] *T. Piketty and E. Saez, "Income Inequality in the United States, 1913–1998", NBER Working Paper No. 8467, September 2001, and* Quarterly Journal of Economics, *118 (2003), pp. 1–39. (Tables and Figures updated to 2010 in Excel format, March 2012).*

[8] *This updates and expands the analysis in S. Kaplan and J. Rauh, "Wall Street and Main Street: What Contributes to the Rise in the Highest Incomes?" NBER Working Paper No. 13270, July 2007, and* Review of Financial Studies, *23 (2010), pp.1004–50.*

[9] *B. Hall and J. Liebman, "Are CEOs Really Paid Like Bureaucrats?" NBER Working Paper No. 6213, October 1997, and* Quarterly Journal of Economics, *113 (1998), ppp.653–91.*

[10] *I thank Carola Frydman for providing them.*

[11] *J. Bakija, A. Cole, and B. Heim,"Jobs and Income Growth of Top Earners and the Causes of Changing Income Inequality: Evidence from U.S. Tax Return Data", Working paper, Indiana University, 2012.*

[12] *See J.A. Parker and A. Vissing-Jørgensen, "The Increase in Income Cyclicality of High-Income Households and its Relation to the Rise in Top Income Shares",* Brookings Papers on Economic Activity, *Fall, 2010, pp.1–70, for a concurring view.*

[13] *See Kaplan and Minton, 2012, op. cit.*

[14] *D. Jenter and K. Lewellen, "Performance Induced CEO turnover", Working Paper, Stanford University 2010.*

[15] *See L.A. Taylor, "Why are CEOs Rarely Fired? Evidence from Structural Estimation",* Journal of Finance, *65(6) (2010), pp. 2051–87, for an attempt at estimating this.*

[16] *See S. Mishra, "Parsing the Vote: CEO Pay Characteristics Relative to Shareholder Dissent", working paper, Institutional Shareholder Services, 2012.*

[17] *See also "For Big Companies, Life Is Good," Scott Thurm,* Wall Street Journal, *April 8, 2012.*

The Production of Scientific Ideas

Pierre Azoulay and Joshua Graff-Zivin*

There is considerable evidence that the advancement of science influences productivity in the private sector of the economy. Thus, policymakers typically believe that public investments in science are important for long-run economic growth. But how do new scientific ideas come about? Apocryphal stories of Archimedes' eureka moment, or Newton's otherworldly contemplation interrupted by the fall of an apple, would have us believe that luck is an essential feature. Of course, if luck is all that is necessary to produce breakthroughs, then there is little room for scholarship on the subject. If, on the other hand, scientific knowledge production depends upon individuals, institutions, and incentives, then economic research should play an important role in increasing our understanding in this area.

While the pioneering work of Zvi Griliches, the founding director of the NBER's Productivity Program, set the stage for hundreds of subsequent empirical studies examining the diffusion of various technologies, comparatively little work has focused on the creation of the original technologies in the first place. This dearth of applied research on idea creation has not been for lack of interest but rather principally because of data limitations. As recently as 15 years ago, very little data were available to systematically study the scientific enterprise. Today, economists have at their disposal vast quantities of new data that allow them to link mentors and trainees, collaborators, and intellectual peers to characterize the production team. The data on papers, patents, and citations enable one to trace out the impact of individual bits of knowledge as they are incorporated into the research activities of other research teams, as well as within private sector firms. Together with methodological advances in the analysis of quasi-experimental data, we have begun to credibly characterize this production process, the conditions under which scientists collaborate to create new knowledge, and the benefits that follow.

One important theme that has emerged from the recent literature is the notion that an increased burden of knowledge because of an ever-expanding scientific frontier has led to greater scientific specialization, longer training periods, and to an increased propensity to collaborate.[1] This realization has cast a pall over the potential for ideas-based growth, because it implies that innovation is becoming more difficult over time.[2] Ultimately, whether this pessimism is warranted is an empirical question, which has led us to explore in more detail the impacts of interactions among scientists for the pace of scientific advance, and whether these interactions occur because of geographic proximity, shared intellectual interests, or social connections.

The Impact of Superstar Scientists

While the most important scientific work is much more likely to be produced as part of a collaboration than was the case only 40 years ago,[3] our own work suggests that the central members of these teams — whom we call "superstars" — continue to play an important role in shaping the rate and direction of scientific advance. Over the past ten years, we have gathered biographical information for a sample of 12,000 elite, academic life scientists, and combined these with precise measures of inputs (namely grants from the National Institutes of Health), outputs (publications and patents), and impact (citations to both publications and patents). Furthermore, we have linked these superstars to a much larger population of 200,000 academic life scientists in the United States, corresponding to most of the profession from the immediate post-war era to the end of the previous decade. Thanks to open-source software tools we designed for this purpose, we are able to locate all of these scientists in geographic space, identify their ties through co-authorship and citation networks, and assess the extent to which they work on similar topics.

Our first study in this area focuses on the benefits of exposure to superstar talent derived from formal collaboration.[4] The formation of collaborative teams is the result of a purposeful matching process, making it difficult to uncover the causal effect of collaboration on follow-on individual performance. To overcome the endogeneity of the collaboration decision, we use the quasi-experimental variation in the structure of co-authorship networks induced by the premature and sudden death of active superstar scientists. Our sample comprises 122 of these unfortunate events, and provides a unique opportunity to estimate the impact of the prominent members of scientific teams on their less-heralded collaborators when they work on other projects, as well as to

* *Azoulay and Graff Zivin are NBER Research Associates. Their Profiles appear later in this issue.*

probe the mechanisms that undergird this influence. Our results show that upon losing a superstar collaborator in this way, scientists experience a long-lasting productivity decline, with a loss of 5 to 10 percent of their previous quality-adjusted publication output. Given the rich data we have gathered, we are also able to examine several competing explanations for this effect.

One view of the academic reward system provides the backdrop for a broad class of stories with a common thread: that collaborating with superstars deepens social connections, possibly making researchers more productive in ways that have little to do with scientific knowledge, such as connecting coauthors to funding resources, editorial goodwill, or potential coauthors. Yet, we find no differential impact on coauthors of stars well-connected to the NIH funding apparatus, on coauthors of stars more central in the collaboration network, or on former trainees. These findings do not jibe with explanations stressing the gate keeping role of eminent scientists.

Rather, the effects of superstar extinction appear to be driven by the loss of an irreplaceable source of ideas. We find that coauthors close to the star in intellectual space experience a sharper decline in output than coauthors who work on less related topics. Furthermore, the collaborators of stars whose work was heavily cited at the time of their death also undergo steeper decreases than collaborators of superstars who were less well known. Together, these results paint a picture of an invisible college of coauthors bound together by interests in a fairly specific scientific area, which suffers a permanent and reverberating intellectual loss when it loses its star.

This first paper focused on the effects of exposure to superstar talent through collaboration, but our second effort highlights geographic co-location as the channel of influence. We use as a source of variation the job transitions between distant institutions in our sample of elite scientists.[5] There again, the challenges involved in establishing causality loom large, since scientists might choose to switch jobs at least in part based on the prospects of deeper interactions with colleagues or firms. We use a novel identification strategy that exploits labor mobility in a sample of 9,483 elite academic life scientists to examine impacts on the citation trajectories associated with individual articles (resp. patents) published (resp. granted) *before* the scientist moved to a new institution. This longitudinal contrast purges our estimates of most sources of omitted variable bias that can plague cross-sectional comparisons. However, the timing of mobility itself could be endogenous. To address this concern, we pair each moving scientist/article dyad (resp. scientist/patent dyad) with a carefully chosen control article or patent associated with a scientist who does not move to a new position. In addition to providing a very close match based on time-invariant characteristics, these controls share very similar citation trends prior to the mobility event. By analyzing the data at the matched-pair level of analysis, this simple difference-in-difference framework provides a flexible and non-parametric methodology for evaluating the effects of labor mobility on knowledge flows. Indeed, conditional on the assumption that the matching algorithm we employ successfully pairs articles and patents of comparable quality, we are able to present the findings in a straightforward, graphical form.

The results reveal a multifaceted story. We find that article-to-article citations from the scientists' origin location are barely affected by their departure. In contrast, article-to-patent citations, and especially patent-to-patent citations, decline at the origin location following a superstar's departure, suggesting that spillovers from academia to industry are not completely disembodied. We also find that article-to-article citations from scientists' destination locations markedly increase after they move. To the extent that academic scientists do not internalize the effect of their location decisions on the circulation of ideas, our results raise the intriguing possibility that barriers to labor mobility in academic science limit the recombination of individual bits of knowledge, resulting in a diminished rate of scientific exploration.

We are currently extending our research in this area along two dimensions. The "superstar extinction" study left open the question of whether we would observe the same negative impact on non-coauthors working in the same field. Our next study aims to ascertain whether co-authorship is required in order to be a full-fledged member of the invisible college of scientists formed around the star while alive. This question is important because it provides a lens through which we can examine whether scientific ideas are accessible to any trained scientist — exemplars of the pure public goods described in our economic textbooks — or whether they should be thought of as at least partially excludable — as would be the case if career success all but required direct connections with the scientific elite.

Second, we revisit our earlier work on the effect of elite scientist mobility, but with a focus on the creation of new knowledge as opposed to the diffusion of preexisting knowledge. Using a novel software tool, we can identify the peers of individual scientists based solely on their shared intellectual interests as indicated by keywords that tag publications — without any reference to linkages through co-authorship or citation. This opens the door to a deeper understanding of the process through which scientists position themselves in "intellectual space," and to the evolution of scientific fields over time.

Incentives for Scientific Exploration

A distinct but related part of our innovation research agenda is how scientists choose projects, and the extent to which funding systems shape these choices. In collaboration with Gustavo Manso from the University of California at Berkeley,[6] we document that the features of incentive schemes embodied in the design of research contracts exert a profound influence on the subsequent development of breakthrough ideas.

In particular, we study the careers of researchers who can be funded through two very distinct mechanisms: investigator-initiated R01 grants from the NIH,

or support from the Howard Hughes Medical Institute (HHMI). HHMI, a non-profit medical research organization, plays a powerful role in advancing biomedical research and science education in the United States. It has also adopted practices that should provide strong incentives for breakthrough scientific discoveries: the award cycles are long (five years, and typically renewed at least once); the review process provides detailed, high-quality feedback to the researcher; and the program selects "people, not projects," which allows for the quick reallocation of resources to new approaches when the initial ones are not fruitful. This stands in sharp contrast with the incentives offered to life scientists funded by the NIH. The typical R01 grant cycle lasts only three-to-five years, and renewal is not very forgiving of failure. Feedback on performance is limited in its depth and projects are funded based on clearly defined deliverables.

The contrast between the HHMI and NIH grant mechanisms naturally leads to the question of which incentives result in a higher rate of production of particularly valuable ideas. In the absence of a plausible source of exogenous variation for HHMI appointment, we estimate the treatment effect of the program by contrasting HHMI-funded scientists' output with that of a carefully matched group of NIH-funded scientists who focus their research on the same subfields of the life sciences as HHMI investigators, and who received prestigious early career prizes.

Our results support the hypothesis that appropriately designed incentives stimulate exploration. In particular, we find that the effect of the HHMI program increases as we examine higher quantiles of the vintage-adjusted distribution of citations. Our preferred econometric estimates imply that the program increases overall publication output by 39 percent relative to early career prize winners; the magnitude jumps to 96 percent when we hone in on the number of publications in the top percentile of the citation distribution. Symmetrically, we also uncover robust evidence that HHMI-supported scientists "flop" more often than the control group: they publish 35 percent more articles that fail to clear the (vintage-adjusted) citation bar of their least well cited pre-appointment work. This suggests that the HHMI investigators are not simply stars on the rise who are anointed by the program, but rather they appear to place more risky scientific bets after their appointment.

These findings are important for at least two reasons. First, they demonstrate the impact of nuanced features of research contracts for the rate and direction of scientific progress. Given the prominent role that scientific change is presumed to play in the process of economic growth, this has important implications for the organization of public and private research institutions. Second, they offer empirical support for the theoretical model developed by Manso,[7] and as such may provide insights relevant to a wider set of industries that rely on creative professionals, ranging from advertising and computer programming to leadership roles at the upper echelons of the corporate world. Many questions remain, and will constitute part of our research agenda going forward.

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Understanding the Profitability of Currency-Trading Strategies

Craig Burnside, Martin Eichenbaum, and Sergio Rebelo*

The profitability of simple currency-trading strategies presents perhaps even more of a challenge to traditional asset-pricing theory than does the equity-premium puzzle, which has received an enormous amount of attention. Understanding the properties of currency-trading strategies is important not just for asset pricing but for macroeconomics more generally. It is widely believed that these strategies are partly responsible for the high volatility of international capital flows, which are often viewed as problematic by policymakers. Understanding the rationale for widely-used currency strategies is important for understanding exchange rate movements in general, as well as for assessing the normative and positive implications of capital flows.

In a series of papers, we have studied two widely-used currency strategies: carry trade and currency momentum. The carry-trade strategy consists of borrowing low-interest-rate currencies and lending high-interest-rate currencies. The currency-momentum strategy consists of going long (short) on currencies for which long positions have yielded positive (negative) returns in the recent past. One appealing property of these strategies is that a practitioner does not need to estimate any parameters to implement them. One could, of course, entertain more complex versions of these strategies that, for example, optimally weight different currencies, or introduce volatility triggers that reduce exposure at times of high volatility.

This summary reviews our research on these trading strategies. First, we describe the empirical properties of the payoffs to carry and momentum. Second, we discuss whether these payoffs can be viewed as a reward for exposure to conventional types of risk. Third, we explore the plausibility of peso-event-based explanations of the payoffs. Finally, we review our work emphasizing the importance of microstructure frictions and the behavioral biases in understanding currency trading strategies.

Properties of Payoffs to Carry and Momentum

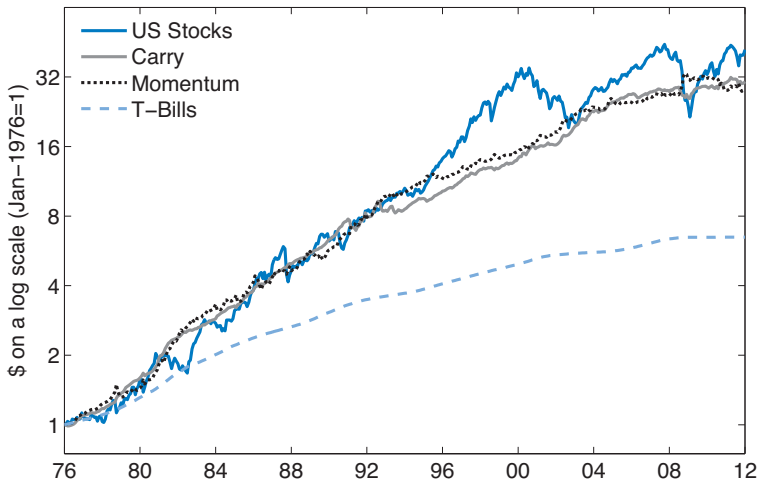
As in all of our work, here we consider a carry-trade strategy that combines individual-currency carry trades into an equally-weighted portfolio. We use the same 20 currencies considered in Burnside, Eichenbaum and Rebelo (2011) [henceforth BER (2011)].[1] The momentum strategy discussed below combines individual currency-momentum strategies into an equally-weighted portfolio of the same 20 currencies. We implement a monthly version of both strategies.[2] All portfolios are constructed assuming that the U.S. dollar is the domestic currency.

Figure 1 displays the cumulative returns to investing in the carry and momentum strategies and in the U.S. stock market. The investment period spans March 1976 to January 2012.[3] Two features of Figure 1 are worth noting. First, the cumulative returns to both strategies are almost as high as the cumulative return to investing in stocks. Second, the cumulative returns to the stock market are much more volatile than those of the currency portfolios.

The carry-trade strategy has an average annualized payoff of 4.5 percent, with a standard deviation of 5.2 percent, and a Sharpe ratio (the ratio of the mean excess return to its standard deviation) of 0.86. The momentum strategy is also highly profitable, yielding an average annualized payoff of 4.4 percent. The momentum payoffs have a standard deviation of 7.3 percent and a Sharpe ratio of 0.60.

The Sharpe ratios of both currency strategies are substantially higher than that of the stock market. The average excess return to the U.S. stock market over our sample period is 6.5 percent, with a standard deviation of 15.8 percent and a Sharpe ratio only equal to 0.41.

Figure 1



*Burnside, Eichenbaum, and Rebelo are Research Associates in the NBER's Program on Economic Fluctuations and Growth. Their profiles appear later in this issue.

To an important degree, the high Sharpe ratio of the carry-trade strategy reflects the large gains from diversifying across carry-trade strategies for individual currencies (see Burnside, Eichenbaum, Kleshchelski, and Rebelo (2006), henceforth BEKR (2006)).[4] In our sample, this diversification cuts the volatility of the payoffs by more than 50 percent. Since the average payoff is not affected, the Sharpe ratio of the portfolio doubles relative to the average Sharpe ratio of individual carry trades.[5] Similar gains to diversification obtain for currency momentum.

Surprisingly, the payoffs to the carry and momentum strategies are roughly uncorrelated. So, from an investor standpoint, there are obvious gains to using both currency-trading strategies simultaneously. Even more striking is the fact that the payoffs to these strategies are uncorrelated with stock market returns. So, the currency-trading strategies provide a natural source of diversification when combined with a broad portfolio of U.S. stocks.

Are the returns to the carry and momentum strategies compensation for measurable risk?

The profitability of both currency strategies stems from the failure of uncovered interest rate parity (UIP). According to this condition, the rate of expected exchange rate depreciation of the domestic currency is equal to the difference between the domestic and the foreign interest rate. The empirical failure of this condition has been extensively documented (see for example Fama (1984) and Eichenbaum and Evans (1995)).[6]

The failure of UIP is not surprising from a theoretical perspective. For UIP to hold, agents must be risk neutral. So, a natural explanation for both the failure of UIP and the profitability of our currency trading strategies is the presence of a risk premium that compensates investors for the covariance between the payoffs to the currency strategies and their stochastic discount factor. In BEKR (2006), BER (2011), and Burnside, Eichenbaum, Kleshchelski, and Rebelo (2011) [henceforth BEKR (2011)], and in Burnside (2011),[7] we argue that the profitability of these strategies is not a compensation for risk, at least as conventionally measured. Our basic argument is simple: the covariance between the payoffs to these two strategies and conventional risk factors is not statistically significant. Moreover, these risk factors leave unexplained economically large and statistically significant pricing errors. In the parlance of Wall Street, these strategies seem to generate high alphas.

The difficulty in explaining the profitability of the carry trade with conventional risk factors has led researchers such as Lustig, Roussanov, and Verdelhan (2011) and Menkhoff, Sarno, Schmeling, and Schrimpf (2012),[8] to construct empirical risk factors specifically designed to price the average payoffs to portfolios of carry-trade strategies.

A natural question is whether these risk factors explain the profitability of the momentum strategy. BER (2011) argue that they don't. In particular, they find that the risk factor models proposed by Lustig et al. (2011) and Menkhoff et al. (2012) imply that momentum has a large, statistically significant alpha.

It is one thing to argue that stock and currency markets are segmented, so that we need currency-specific factors to price currency strategies. But, surely, factors that explain carry-trade payoffs should also explain the currency-momentum payoffs. Since they don't, we are skeptical that the profitability of the carry trade and momentum reflects exposure to observable risk factors.

One interesting possibility is that traders who specialize in these strategies are being compensated for the fact that payoffs are strongly negatively skewed. In fact, the carry trade is sometimes characterized as "picking up pennies in front of a truck." In BEKR (2011) and BER (2011), we find that the skewness of the carry-trade payoffs is statistically insignificant. Even if we take the point estimates of skewness at face value, the carry-trade payoffs are less skewed than the payoffs to the U.S. stock market. The payoffs to the momentum portfolio are actually positively skewed, though not significantly so. As far as fat tails are concerned, currency returns do display excess kurtosis, especially in the case of the carry-trade portfolio.

One way to illustrate the presence of fat tails in the payoffs generated by our strategies is to compute the worst in-sample annual payoffs to currency strategies. In our sample, the worst annual payoff is negative 5.6 percent for the carry trade (in 2008) and negative 10.9 percent for momentum (in 2012). It is important to keep these losses in perspective: the worst annual payoff to the U.S. stock market over our sample was negative 40 percent (in 2008). By this metric, the dangers associated with the fat tails of the currency strategies are much less pronounced than those associated with the stock market.

The relatively small fat tails of the currency payoffs reflect, in part, the gains from diversification. For example, the negative 5.6 percent payoff to the carry trade in 2008 masks great heterogeneity in the individual carry-trade payoffs. During that year, the payoffs to the carry trade of the U.S. dollar against the Norwegian krone or the New Zealand dollar were both roughly negative 20 percent. In contrast, the payoff to the carry trade of the U.S. dollar against the euro and the Danish krone were both roughly 14 percent.

One interesting question is whether the presence of fat tails would deter an investor from investing in the carry trade. To address this question, BEKR (2006) consider an investor with a coefficient of constant relative-risk-aversion equal to five. As it turns out, this investor would allocate 187 percent of his portfolio to the carry trade, 68 percent to stocks, and borrow 157 percent at the risk-free rate. These results are consistent with the notion that the carry trade is a bigger asset-pricing puzzle than the equity premium.

"Peso Problems"

An alternative explanation for the profitability of our two currency strat-

egies is the possibility of rare disasters or "peso problems." By rare disasters, we mean very low probability events that sharply decrease the payoffs and/or sharply increase the value of the stochastic discount factor. These events may occur in sample. But, due to their low probability, they may be under-represented relative to their true frequency in population. As a result, a researcher would over-estimate the profitability of currency trading. By a "peso problem," we mean the effects on inference caused by the most extreme form of under-representation: the events do not occur in sample.

In BEKR (2011), we study the empirical plausibility of the peso-problem explanation by analyzing the payoffs to a version of the carry-trade strategy that does not yield high negative payoffs in a peso state. The strategy works as follows. When an investor borrows foreign currency, he simultaneously buys a call option on that currency with the same maturity as the foreign currency loan. If the foreign currency appreciates beyond the strike price, the investor can buy the foreign currency at the strike price and repay the loan.[9] Similarly, when an investor lends in foreign currency, he can hedge the downside risk by buying a put option on the currency. By construction, this "hedged carry trade" is immune to large losses such as those potentially associated with a peso event.

BEKR (2011) use data on currency options to estimate the average risk-adjusted payoff to the hedged carry trade. They find that this payoff is smaller than the payoff to the unhedged carry trade. This finding is consistent with the view that the average payoff to the unhedged carry trade reflects a peso problem. An obvious question is: what is the nature of the peso event for which agents are being compensated?

It is useful to distinguish between two extreme possibilities. The first possibility is that the salient feature of a peso state is large carry-trade losses. The second possibility is that the salient feature of a peso state is a large value of the stochastic discount factor. BEKR (2011) find that a peso event reflects high values of the stochastic discount factor in the peso state rather than very large negative payoffs to the unhedged carry trade in that state.

The intuition for this result is as follows: any risk-adjusted payoffs associated with the carry trade in the non-peso states must, on average, be compensated, on a risk-adjusted basis, for losses in the peso state. According to our estimates, the average risk-adjusted payoffs of the hedged and unhedged carry trade in the non-peso states are not very different. Consequently, the risk-adjusted losses to these two strategies in the peso state cannot be very different. Since the value of the stochastic discount factor in the peso state is the same for both strategies, the actual losses of the two strategies in the peso state must be similar. By construction there is an upper bound to the losses of the hedged carry trade. This upper bound tells us how much the hedged carry-trade strategy loses in the peso state. Since these losses turn out to be small, the losses to the unhedged carry trade in the peso state must also be small.

The rationale for why the stochastic discount factor is much larger in the peso state than in the non-peso states is as follows. We just argued that the unhedged carry trade makes relatively small losses in the peso state. At the same time, the average risk-adjusted payoff to the unhedged carry trade in the non-peso states is large. The only way to rationalize these observations is for the stochastic discount factor to be very high in the peso state. So, even though the losses of the unhedged carry trade in the peso state are moderate, the investor attaches great importance to them.

In BER (2011), we use a similar approach to study an equally-weighted portfolio of carry trade and momentum strategies. Again, we find that the only way to rationalize the hedged and unhedged payoffs is to characterize the peso event as one that involves moderate losses but a high value of the stochastic discount factor.

It is worth emphasizing that the 2008 financial crisis is not an example of the kind of rare disaster that rationalizes the profitability of currency trading. The reason is simple: momentum made money during the financial crisis.

Microstructure Based Explanations of the Profitability of Currency Strategies

The peso event rationalization takes a very macroeconomic perspective of the risks to currency traders. In this section, we discuss our work that focuses on the microstructure of foreign exchange markets.

Macroeconomists generally assume that asset markets are Walrasian in nature. This assumption is highly questionable. The foreign exchange market is actually a decentralized, over-the-counter market in which market makers play a central role. In BER (2011 and 2009)[10], we explore the impact of two types of microstructure frictions that can potentially account for key anomalies in exchange rate markets.

BER (2011) explore the impact of price pressure in foreign exchange markets on the profitability of our currency-trading strategies. By price pressure we mean that the price at which investors can buy or sell currencies depends on the quantity they wish to transact. Price pressure introduces a wedge between marginal and average payoffs to a trading strategy. As a result, observed average payoffs can be positive even though the marginal trade is not profitable. So, traders do not increase their exposure to the strategy to the point where observed average risk-adjusted payoffs are zero.

Finally, BER (2009) study an adverse-selection model that rationalizes the failure of UIP. The key feature of the model economy studied in that paper is that the adverse selection problem facing market makers is worse when, based on public information, the currency is expected to appreciate. The model can rationalize the forward premium puzzle: a regression of the change in the exchange rate on the forward premium has a negative slope.[11]

Behavioral Explanations for the Forward Premium Puzzle

Burnside, Han, Hirshleifer, and Wang (2011)[12] offer an alternative explanation for the forward premium puzzle in foreign exchange markets based upon investor overconfidence. In the most basic version of their model, a positive (bad) signal about U.S. inflation causes the U.S. dollar to depreciate in the spot market. It depreciates even more in the forward market because expected future U.S. dollar depreciation is associated with the positive inflationary signal. Given agents' overconfidence, however, both the spot rate and the forward rate tend to overshoot their long-run level. So, when agents observe a signal of higher future inflation, the consequent rise in the forward premium predicts a subsequent downward correction of the spot rate. The model can explain the forward premium puzzle and several other stylized facts related to the joint behavior of forward and spot exchange rates. It is also consistent with the availability of profitable carry-trade strategies. Versions of the model that incorporate New Keynesian frictions can, additionally, rationalize both the forward-premium puzzle and the observation that bad signals about U.S. inflation are often associated with U.S. dollar appreciation, rather than depreciation (see Andersen et al., 2003 and Clarida and Waldman, 2008).[13]

Concluding Remarks

In this note, we have reviewed our work on currency-trading strategies. We view this work as fitting into a broader research agenda of incorporating realistic financial frictions into modern macro models. A critical component of this agenda will involve asking who is on the other side of common trading strategies and why. We suspect that the answer will inevitably involve heterogeneity in expectations and persistent disagreement among agents. Allowing for these elements requires fundamental changes in mainstream macro models. For some recent steps in this directions see, for example, Acemoglu, Chernozhukov and Yildiz (2009), Angeletos and La'O (2011), Brunnermeier and Wei Xiong, (2012), Simsek (2012), and Burnside, Eichenbaum and Rebelo (2012).[14]

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[1] *The countries included in our sample are: Australia, Austria, Belgium, Canada, Denmark, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, South Africa, Spain, Sweden, Switzerland, the United Kingdom, and the United States.*

[2] *For the momentum strategy, we use returns obtained in the previous month to decide whether to go long or short on the currency. See C. Burnside, M.S. Eichenbaum, and S. Rebelo, "Carry Trade and Momentum in Currency Markets," NBER Working Paper No. 16942, April 2011, and* Annual Review of Financial Economics, *3 (December 2011), pp. 511–35.*

[3] *Since the currency strategies involve zero net investment, we compute the cumulative payoffs as follows: we initially deposit one U.S. dollar in a bank account that yields the same rate of return as the Treasury bill rate. In the beginning of every period, we bet the balance of the bank account on the strategy. At the end of the period, payoffs to the strategy are deposited into the bank account.*

[4] *C. Burnside, M.S. Eichenbaum, I. Kleshchelski, and S. Rebelo, "The Returns to Currency Speculation," NBER Working Paper No. 12489, August 2006.*

[5] *See C. Burnside, M.S. Eichenbaum, and S. Rebelo, "Carry Trade: the Gains from Diversification,"* Journal of the European Economic Association, *6(2-3) (April-May 2008), pp. 581–8. They show that similar diversification effects hold for carry-strategies implemented with emerging market currencies.*

[6] *In fact, Burnside, Eichenbaum, Kleshchelski, and Rebelo (2006) show that currency-trading strategies that use the interest rate differential to forecast the returns for going long in a particular currency have lower Sharpe ratios than the carry trade. See E. Fama, "Forward and spot exchange rates,"* Journal of Monetary Economics, *Volume 14, Issue 3 (November 1984), pp.319–38, and M. Eichenbaum and C. Evans "Some Empirical Evidence on the Effects of Shocks to Monetary Policy on Exchange Rates," NBER Working Paper No. 4271, February 1993, and* The Quarterly Journal of Economics, *110(4) (1995): pp. 975–1009.*

[7] *C. Burnside, M.S. Eichenbaum, I. Kleshchelski, and S. Rebelo, "Do Peso Problems Explain the Returns to the Carry Trade?" NBER Working Paper No. 14054, June 2008, and* Review of Financial Studies, *24(3) (March 2011), pp. 853–91, and C. Burnside, "Carry Trades and Risk," NBER Working Paper No. 17278, August 2011, and in* Handbook of Exchange Rates, *J. James, I.W. Marsh, and L. Sarno, eds., John Wiley & Sons, 2012, pp. 283–312.*

[8] *H. Lustig, N. Roussanov, and A. Verdelhan, "Common Risk Factors in Currency Markets," NBER Working Paper No. 14082, June 2008, and* Review of Financial Studies, *24(11) (November 2011), pp. 3731–77, and L. Menkhoff, L. Sarno, M. Schmeling, and A. Schrimpf, "Currency Momentum Strategies,"* Journal of Financial Economics, *forthcoming.*

[9] *It is possible that the counterparty in the options would default in the peso event. However, investors use options traded in exchanges to hedge. Since these contracts are marked to market on a daily basis, the risk of a default appears to be quite small at a practical level.*

[10] *C. Burnside, M.S. Eichenbaum, and S. Rebelo, "Understanding the Forward Premium Puzzle: A Microstructure Approach," NBER Working Paper No. 13278, July 2007, and* American Economic Journal: Macroeconomics, *1(2) (July 2009), pp. 127–54.*

[11] *The forward premium is the percentage difference between the forward rate and the spot exchange rate.*

[12] *C. Burnside, B. Han, D. Hirshleifer, and T.Y. Wang, "Investor Overconfidence and the Forward Premium Puzzle," NBER Working Paper No. 15866, April 2010, and* Review of Economic Studies, *78(2) (April 2011), pp. 523-58.*

[13] *T.G. Andersen, T. Bollerslev, F. Diebold, and C. Vega, "Micro Effects of*

Macro Announcements: Real-time Price Discovery in Foreign Exchange," NBER Working Paper No. 8959, May 2002, and American Economic Review, *93 (March 2003), pp. 38-62, and R. Clarida and D. Waldman, "Is Bad News about Inflation Good News for the Exchange Rate? And, If So, Can That Tell Us Anything about the Conduct of Monetary Policy?" NBER Working Paper No. 13010, April 2007, and in* Asset Prices and Monetary Policy, *J.Y. Campbell, ed. (Chicago: University of Chicago Press, 2008), pp. 371–92.*

[14] *D. Acemoglu, V. Chernozhukov, and M. Yildiz, "Fragility of Asymptotic Agreement under Bayesian Learning," MIT Working Paper No. 08-09, February 2009; G-M. Angeletos and J. La'O, "Optimal Monetary Policy with Information Frictions," NBER Working Paper No. 17525, November 2011; M.K. Brunnermeier and Xiong Wei, "A Welfare Criterion for Models with Heterogeneous Beliefs," Working Paper, October 2011; and A. Simsek, "Belief Disagreement and Collateral Constraints," Working Paper, March 2012.*

Work-Family Balance

Christopher J. Ruhm*

Difficulties in balancing the competing needs of work and home life are likely to be most acute for families with young children. Two trends — dramatic increases in employment rates of women, including mothers of young children, and the rise in lone-parent families — make this particularly relevant. Much of my research (often with coauthors) focuses on a broad set of issues surrounding these topics, particularly parental leave policies, employment by parents of young children, and early childcare and education. Some of the studies take a cross-national perspective, motivated by the sharp differences between many U.S. policies and those in other industrialized countries. For instance, parental leave entitlements are particularly limited in the United States, where early childcare generally is more a private responsibility.[1]

Parental Time with Children

Liana Fox, Wen-Jui Han, Jane Waldfogel, and I use March Current Population Survey (CPS) data for 1967–2009 to examine how these trends in family structure and parental employment translate into changes in two important inputs into children's well-being: time and money.[2] We supplement our primary analysis with investigations of time use and work scheduling arrangements. The analysis is child-based, in that it identifies secular changes for the typical child (rather than family). Our results verify that children have become much less likely to have a parent at home full or part-time: in the late 1960s approximately two-thirds of children were in homes with a nonworking parent compared to only around one-third at the beginning of the twenty-first century. These trends primarily reflect increases in the probabilities that parents hold jobs, rather than longer work hours for those who are employed or changes in family structure. For children in two-parent families, increases in market work have raised household incomes; for those with a single parent, the changes were largely required to offset income declines that otherwise would have occurred. Working parents spend less time in primary childcare than their nonworking counterparts. However, holding employment status constant, childcare hours have trended upwards, so the implications of these changes for child wellbeing are unclear.

Parental Leave Policies in Europe

In a series of papers, I examine the consequences of policies providing parents with rights to time off work following the birth of an infant. Because these entitlements are more extensive and have a longer history in Europe than the United States, my initial research involves a cross-national investigation of policies in Western European nations. Jackueline Teague and I construct a longitudinal data set detailing durations of job-protected leave in 17 European nations from 1960–1989, provide evidence of the trend towards increased durations of leave rights, and explore the relationship between these policies and macroeconomic outcomes.[3] Next, I conduct a differences-in-differences (DD) analysis of labor market outcomes for nine European countries covering the period 1969–93.[4] The identification strategy compares changes for females, the treatment group, to those of males, who were assumed to be unaffected by parental leave entitlements, as a function of variations in parental leave rights. My key finding is that rights to short periods (for example three months) of paid leave increased the employment-to-population (EP) ratios of women by 3 to 4 percent while having little effect on wages. More extended entitlements (for

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example, nine months) raised predicted female EP ratios by approximately 4 percent but decreased hourly earnings by around 3 percent. In part, employment rises because persons on leave are counted as "employed but absent from work", but also because of incentives to enter the labor force before having a child in order to qualify for leave benefits as well as increases in job continuity or higher reemployment rates following the birth.

Parental leave entitlements may also yield broader benefits, including enhancing the health of infants and young children. I investigate this theory using aggregate data from 1969–1994 for 16 European countries.[5] More generous paid leave is found to reduce deaths of infants and young children. The magnitudes of the estimated effects are substantial, especially where a causal effect of leave is most plausible. In particular, the estimated benefits of leave are larger for post-neonatal or child fatalities (deaths between 28 days and one year, or one to five years of age) than for perinatal mortality (deaths during the first 28 days of life), neonatal deaths, or low birth weight. The evidence further suggests that parental leave is a cost-effective method of improving child health.

Parental Leave in the United States

It is not clear to what extent the European results apply to the United States. Until enactment of the Family and Medical Leave Act (FMLA) in 1993, the United States did not provide broad rights to maternity/family leave, and the 12 weeks mandated under the FMLA are unpaid and not available to persons in firms with fewer than 50 employees (within 75 miles of the worksite) or who have not worked for the company for at least 1250 hours during the previous year.

Using data from the June Fertility Supplements to the 1987–2004 CPS, Han, Waldfogel, and I examine how the FMLA, state leave laws, and Temporary Disability Insurance (TDI) programs in five states (that effectively provide a limited amount of paid leave) influence the leave-taking and employment of mothers and fathers.[6] The empirical strategy compares labor market outcomes in the birth month and the following three months to outcomes of adults becoming new parents 11 or 12 months later (who are assumed not to be affected by the policies), as a function of leave rights in the state.

Leave laws are not found to affect *employment* during the immediate post-birth period, but they are associated with an increase in *leave-taking* by mothers of between 5 to 9 percentage points (13 to 20 percent) in the birth month and next two months. Paternity leave use also increased during the birth month (but not later) by amounts that are slight in absolute terms but large as a percentage of the (small) baseline rates. In addition, leave-taking rose more for college-educated or married mothers than for their less-educated or unmarried counterparts, presumably because the former are more often eligible for and able to afford the mostly unpaid leaves.

California enacted the first explicit paid family leave (PFL) program in the United States in 2004. Maya Rossin-Slater, Waldfogel, and I examine the consequences of this program for California mothers using a DD strategy where the comparison groups are California mothers with older children (aged 5–17), childless women in California, or mothers with infants in other large states.[7] We estimate that PFL approximately doubled the use of maternity leave by new California mothers, from an average of around three to six weeks, with particularly large growth for less advantaged groups. In addition, PFL increased the usual weekly work hours (and possibly wages) for employed mothers of one-to-three-year-old children.

Parental leave policies do not work in isolation. With this in mind, Elizabeth Washbrook, Han, Waldfogel, and I consider the combined effects of three U.S. public policies potentially influencing the work decisions of mothers of infants — parental leave laws, exemptions from welfare work requirements, and childcare subsidies for low-income families.[8] Using a group DD technique suitable for analysis of cross-sectional data, we find that these policies have strong effects on early maternal work participation, particularly for less educated or single mothers. However, we do not find any significant consequences for a variety of child outcomes.

Parental Employment

As mentioned earlier, female labor force participation increased rapidly during the second half of the twentieth century, with particularly large growth for mothers. Although it is difficult to determine how this has affected children — because employment is often correlated with difficult-to-observe confounding factors, the short-term and long-term effects may differ, and because of the numerous pathways through which child outcomes could be influenced — I have explored these issues using longitudinal data on parents and children from the 1979 cohort of the National Longitudinal Surveys of Youth (NLSY).[9]

My results suggest that maternal employment during the first year of a child's life has small negative effects on cognitive development at ages three through six. Job-holding during the second and third years of a child's life has more mixed consequences, although with some evidence of deleterious impacts when the mother works long hours. Interestingly, while few of these negative consequences persist through the beginning of adolescence for the typical child, there are sharp socioeconomic variations. In particular, early maternal employment is estimated to have far more negative impacts on the cognitive development of advantaged than disadvantaged 10- and 11-year olds. Maternal labor supply also is associated with higher obesity rates among high- but not low-SES children. In this case, though, work in later years (after age three) is found to be of primary importance. The SES differences in the cognitive impacts may occur because maternal employment pulls advantaged children out of home environments that

are particularly conducive to learning. However, this does not explain the disparate findings for obesity.

What about fathers? The preceding discussion focuses on the importance of maternal investments, and we simply do not know whether mothers provide unique child inputs or whether there is (partial or complete) substitutability between parents. Unfortunately, the potential bias created by nonrandom selection into employment is even more severe for fathers than mothers — most nonworking men are involuntarily unemployed and probably do not devote much of the extra nonmarket time to investments in children. There is, however, some evidence that children may be harmed when fathers work long hours during the early years, hinting that the time investments of fathers may substitute for those of mothers.

Childcare

Changes in family structure and employment patterns have increased the reliance on non-parental childcare during the preschool years. Dan Rosenbaum and I investigate the "cost burden" of this care, using data from the Survey of Income and Program Participation to calculate childcare costs as a proportion of after tax income.[10] We find that the average child under six lives in a family that spends 4.9 percent of its after tax income on childcare. However, this conceals wide variation: 63 percent of such children are in families with no childcare expenses while 10 percent are in households where the expenditure share exceeds 16 percent. The proportion of income devoted to childcare is typically greater in single-parent than married-couple families, but it is not systematically related to SES because disadvantaged families use lower cost modes and pay less per hour for given types of care. However, the expenditure share would be much less equal without low cost (subsidized) formal care focused on needy families, and government tax/transfer policies that redistribute income towards them.

Finally, Katherine Magnuson, Waldfogel, and I use data from the Early Childhood Longitudinal Survey — Kindergarten cohort to examine how enrollment in pre-kindergarten programs influences school readiness.[11] The results are somewhat mixed: pre-kindergarten is associated with higher reading and mathematics skills at school entry, but also more behavior problems. By the spring of first grade, the estimated academic effects have largely dissipated, while the behavioral consequences persist. However, larger and longer lasting academic gains are found for disadvantaged children, and pre-kindergartens in public schools do not have the same adverse behavioral consequences as those located elsewhere.

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[1] *For further discussion, see C. Ruhm, "How Well Do Parents with Young Children Combine Work and Family Life," NBER Working Paper No. 10247, January 2004, or C. Ruhm, "Policies to Assist Parents with Young Children,"* The Future of Children, *21(2) (2011), pp. 37–68.*

[2] *L. Fox, W.J. Han, C. Ruhm, and J. Waldfogel, "Time for Children: Trends in the Employment Patterns of Parents, 1967-2009," NBER Working Paper No. 17135, June 2011, and* Demography, *forthcoming.*

[3] *C. Ruhm and J. Teague, "Parental Leave Policies in Europe and North American," NBER Working Paper No. 5065, March 1995, and* Gender and Family Issues in the Workplace, *F. Blau and R. Erhenberg, eds., Russell Sage Foundation, 1997, pp. 133–56.*

[4] *C. Ruhm, "The Economic Consequences of Parental Leave Mandates: Lessons from Europe," NBER Working Paper No. 5688, July 1996, and* Quarterly Journal of Economics, *113(1) (1998), pp. 285–317.*

[5] *C. Ruhm, "The Economic Consequences of Parental Leave Mandates: Lessons from Europe," NBER Working Paper No. 6554, May 1998, and* Journal of Health Economics, *19(6) (2000), pp. 931–60.*

[6] *W. Han, C. Ruhm, and J. Waldfogel, "Parental Leave Policies and Parents' Employment and Leave-Taking," NBER Working Paper No. 13697, December 2007, and* Journal of Policy Analysis and Management, *28(1) (2009), pp. 29–54.*

[7] *M. Rossin-Slater, C. Ruhm, and J. Waldfogel, "The Effects of California's Paid Family Leave Program on Mothers' Leave-Taking and Subsequent Labor Market Outcomes," NBER Working Paper No. 17715, December 2011.*

[8] *W. Han, C. Ruhm, J. Waldfogel, and E. Washbrook, "Public Policies and Women's Employment after Childbearing," NBER Working Paper No. 14660, January 2009, and* B.E. Journal of Economic Analysis and Policy, *11 (1-Topics) (2011), pp. 1–48.*

[9] *C. Ruhm, "Parental Employment and Child Cognitive Development," NBER Working Paper No. 7666, April 2000, and* Journal of Human Resources, *39(1) (2004), pp. 155–92; C. Ruhm, "Maternal Employment and Adolescent Development," NBER Working Paper No. 10691, August 2004, and* Labour Economics *15(5) (2008), pp. 958–83.*

[10] *D. Rosenbaum and C. Ruhm, "The Cost of Caring for Young Children," NBER Working Paper No. 11837, December 2005, and* B.E. Journal of Economic Analysis and Policy, *7 (1-Topics) (2007), pp. 1–30 (under the title "Family Expenditures on Childcare").*

[11] *K. Magnuson, C. Ruhm, and J. Waldfogel, "Does Prekindergarten Improve School Preparation and Performance," NBER Working Paper No. 10452, April 2004, and* Economics of Education Review, *26(1) (2007), pp. 33–51.*

Race, Income, and Political Efficacy

Ebonya Washington*

"[T]he vote is the most powerful instrument ever devised by man for breaking down injustice and destroying the terrible walls which imprison men because they are different from other men," said Lyndon B. Johnson at the signing of the Voting Rights Act in 1965. His statement reflects a long-held, and long-fought-for, belief that political participation can help groups to overcome disadvantage bestowed by history. In my research, I empirically examine the extent to which this is true. I study the ability of minorities and low-income Americans to use the political process to affect policy outcomes and shift the distribution of public resources in their favor. I refer to this as their political efficacy, and ask two broad questions: When are other groups supportive of the policies/candidates that these two minority groups favor? How do American institutions help or hinder these groups' political efficacy?

When Are Other Groups Supportive of the Policies that Low-Income or Black Voters Support?

Because both Blacks and low-income voters are numerical minorities, a central component to their ability to secure passage of their preferred policies is the support of other groups. In my research, I demonstrate circumstances under which that support is and is not forthcoming. For example, for some 60 years before Barack Obama garnered 95 percent of their vote, Blacks have cast their ballots overwhelmingly for the Democratic candidate in two-party elections. But when are non-Blacks more likely to favor the Democratic candidate? Only when the Democratic candidate is not Black, I find by examining Congressional and gubernatorial elections from 1982 to 2000.[1] While both Black and White citizens are more likely to turn out to cast a ballot in an electoral contest that includes a Black candidate, the White voters are less likely to vote in favor of the Democratic candidate when s/he is Black. One possible explanation for the White reluctance to vote for Black candidates is that Black candidates (like the Black electorate) tend to be more liberal than their White Democratic counterparts.

Black-White segregation also predicts decreased support among Whites for Black candidates and, in fact, for Democratic candidates more generally, Elizabeth Ananat and I find.[2] We uncover two potential explanations for this phenomenon. First, Whites with less liberal attitudes self-select into more segregated communities. Second, contact with Black voters affects White voters' attitudes. In other work, I find additional support for the idea that interactions with others helps to shape one's political attitudes. For example, conditional on the total number of children in his family, a U.S. congressman's propensity to vote liberally, particularly on legislation concerning women's issues, increases with the number of daughters he has.[3] Women generally have more liberal attitudes than men; for elite women, this is particularly true. This research suggests that sharing (or at least witnessing) experiences that have led their daughters to grow up to be left leaning also moves Democratic congressmen to cast more liberal votes on the House floor than their counterparts with fewer or no daughters.

Support for policies preferred by the poor also appears to be shaped by experience.[4] Eric Brunner, Stephen Ross, and I looked not specifically at whether a person knew someone poor, but rather at how economic circumstances more generally shape views on redistribution. Focusing on California, where voters have the opportunity to weigh in on ballot propositions concerning a variety of issues each year, we show that — consistent with economic theory — neighborhood residents are more likely to vote in favor of redistribution and other liberal economic proposals when they are suffering negative economic shocks. We see larger effects in poorer communities, suggesting that those closer to benefitting from economic policies, and/or to observing others benefit from those same policies, have the most malleable opinions. One surprising finding of this study is that negative economic shocks also predict voting for liberal candidates and, to a lesser extent, voting liberally, on non-economic issues.

This co-movement of voting on economic and other issues may come from a desire for party strength, or because individuals strive for consistency across opinions and from opinions to behaviors, as suggested by the psychological theory of cognitive dissonance. In two papers, I find support for the relevance of cognitive dissonance to the voting arena. In the first, Sendhil Mullainathan and I show that the act of voting for a candidate increases one's support for that candidate.[5] Of course, the difficulty in trying to tease out this relationship is reverse causality — those who view the candidate more favorably are more likely to vote for the candidate. We circumvent this difficulty in two ways. First, we exploit the age discontinuity in voting eligibility. That is, we compare those who were just a little too young to vote for president in the focal election year with those just above the age cutoff. Second, we compare feelings about senators most recently elected during a presidential election year (when turnout is greater) with those most recently elected during

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an off-year. We find that both those who were above the age cutoff and those who most recently voted for a senator in a presidential election show greater polarization in their opinions of the president and the senator, respectively. In other words, the act of voting increases the distance in opinion between those in favor and those against.

In the second paper demonstrating the relevance of cognitive consistency to the voting arena, Alan Gerber, Gregory Huber, and I use a field experiment conducted around the 2008 Connecticut presidential primary.[6] The experiment targeted citizens who were registered to vote but unaffiliated with any political party. One group of such individuals was informed via a letter from the Connecticut Secretary of State that they must affiliate with a party in order to vote in the upcoming primary. That experimental "treatment" increased not only party registration, but also support for political figures of the same party. Once again, voters who were prompted to alter a behavior — this time party registration — ended up changing not only the behavior but also a related attitude. This co-movement of behaviors and issues suggests that shocks that prompt voters to vote more liberally for candidates, or on any of a variety of issues, may also make these voters more sympathetic to the liberal policies that low-income and minority voters generally favor.

How Do Institutions Impact Political Efficacy?

Money is thought to be a potent force in the American political process. For poor voters, the common wisdom is that money is an obstacle to having their viewpoints heard. Brunner, Ross, and I examine the relevance of this view to legislative voting in California.[7] Because of the aforementioned numerous ballot propositions there, we have good data on how voters in both low- and high-income areas of a district feel about various issues that will be considered by the public and by the legislator. Using these data, we calculate the extent to which legislative voting coincides with the majority view of low- and high-income constituents. Contrary to popular wisdom, we find that less income does not mean less representation. In fact, the opinions of high- and low-income voters are highly correlated, and the legislator's vote most often represents the views of both groups of voters in his/her district. Any differences in representation by income that do exist vary by the legislator's party. Republicans vote the will of their higher income over their lower income constituents more often; Democratic legislators do the reverse. We find that these patterns of representation by income are largely explained away by partisanship. Republicans vote like high-income voters in their district not because those voters are high income, per se, but because they are highly likely to vote Republican. Thus, rather than finding evidence for underrepresentation of the financially disadvantaged, we confirm underrepresentation of the politically disadvantaged — those who are represented by a politician of a differing party.

Of course, legislative voting is just one type of one representation and California is but one state. An important topic for future work is to examine whether these findings generalize to other legislative behaviors (constituent service, agenda setting, "pork" distribution) and to other geographic settings.

For Blacks, one alleged impediment to representation is race-based legislative redistricting. A majority Black legislative district is a congressional district in which a majority of residents are Black. When a state creates such a district, there are, by definition, fewer Blacks in the remaining districts. The conventional view (espoused by political scientists and both major political parties) is that the creation of these districts in a state leads that state's House delegation to vote more conservatively. The idea is that the majority Black district will elect a representative who is more liberal than average, but the remaining districts (with a lower percentage of Black voters) will elect correspondingly more conservative representatives, on balance moving the delegation's average vote in a more conservative direction. I investigate this common wisdom in regard to the 1990 congressional redistricting, the redistricting period that saw the largest increase in majority-minority districts.[8] This increase was effectively mandated in some states by a 1982 amendment to the Voting Rights Act (VRA). Comparing southern states that were forced to increase the number of Black districts with those that were not, I find no evidence that majority Black districts move the state's congressional delegation in a more conservative direction. In fact the results, although largely insignificant, point in a more liberal direction. Thus, the creation of majority-minority districts seems a net positive for Black representation. These districts serve to increase both Black descriptive representation--the number of Blacks in Congress — and Black substantive representation — the number of congresspersons who vote as Blacks hope they will.

The majority-minority district mandate is only one part of one reauthorization of the VRA. In other work examining the impact of American institutions on minority representation, Elizabeth Cascio and I look at the impact of the Act's original passage in 1965 on the distribution of public resources.[9] The Act dismantled barriers to Black voter registration, chief among them literacy tests. Those tests, despite their name, might be more aptly characterized as tests of race than of reading ability. Thus there were greater numbers of disenfranchised voters in literacy-test states in counties with larger shares of Black residents. We find that, post-VRA, not only did these counties see large increases in enfranchisement, but they also saw increases in their share of state transfers, which were largely earmarked for public education. Of course, the period around the passage of the VRA was notably turbulent in the American south, but we are

able to rule out competing explanations for the finding including desegregation, black political activism, and basic changes in need. Shortly before the passage of the VRA, Reverend Martin Luther King, Jr., wrote, "Voting is the foundation stone for political action. With it the Negro can eventually vote out of office public officials who bar the doorway to decent housing, public safety, jobs and decent integrated education."[10] Our empirical evidence seems to back his early assertion.

In conclusion, my work has established a few predictors of political efficacy for low-income and Black Americans. The ongoing goal is to examine when and how marginalized populations can use the political system to fulfill economic needs. President Johnson argued in the quote with which I began that voting is a powerful instrument. My work seeks to understand the circumstances and methods in which the instrument is most effectively wielded.

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[2] *E. Ananat and E. Washington, "Segregation and Black Political Efficacy," NBER Working Paper No. 13606, November 2007, and* Journal of Public Economics, *Vol. 93, No. 5–6, June 2009, pp. 807–22.*

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[7] *E. Brunner, S. Ross, and E. Washington, "Does Less Income Mean Less Representation?" NBER Working Paper No. 16835, February 2011, and* American Economic Journal: Economic Policy, *forthcoming.*

[8] *E. Washington, "Do Majority Black Districts Limit Blacks' Representation? The Case of the 1990 Redistricting," NBER Working Paper No. 17099, May 2011, and* Journal of Law and Economics, *forthcoming.*

[9] *E. Cascio and E. Washington, "Valuing the Vote: The Redistribution of Voting Rights and State Funds Following the Voting Rights Act of 1965," NBER Working Paper No. 17776, January 2012.*

[10] *M.L. King, Jr., "Civil Right No. 1 — The Right to Vote,"* New York Times, *March 14, 1965, p. SM26.*

NBER Profile: *Pierre Azoulay*

Pierre Azoulay is a Research Associate in the NBER's Program on Productivity, Innovation, and Entrepreneurship. He is also an Associate Professor at MIT's Sloan School of Management.

Azoulay received his Ph.D. in Management from MIT in 2001. He taught at Columbia University's Graduate School of Business from 2001–6 before joining the MIT Sloan School faculty in July 2006. His research focuses on the economics of science, technological innovation, and entrepreneurship.

Azoulay grew up in Paris, and now lives in Newton, MA with his wife Andrea, an architect, and two daughters, Sivan (6) and Orli (4). The young age of his children may explain why he barely remembers an earlier period of his life when he enjoyed reading books unrelated to work.

NBER Profile: *Joshua Graff Zivin*

Joshua Graff Zivin is a Research Associate in the NBER's Programs on Environmental and Energy Economics, Health Economics, and Health Care. He is also a Professor in the School of International Relations and Pacific Studies and in the Department of Economics at the University of California, San Diego (UCSD).

Graff Zivin holds an undergraduate degree in economics and psychology from Rutgers University and a Ph.D. in Environmental and Resource Economics from the University of California, Berkeley. Prior to joining the UCSD faculty, he taught at Columbia University from 1998–2008. In the 2004–5 academic year, he served as Senior Economist for Health and the Environment on the Council of Economic Advisers.

Graff Zivin currently serves on the Board of Editors of the *Journal of Economic Literature*. His research interests are broad and include the environment, health, economic development, and innovation.

Graff Zivin lives in Solana Beach, California. He enjoys running, cooking, and spending time with his wife and three sons.

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Martin Eichenbaum is a Research Associate in the NBER's Programs on Economic Fluctuations and Growth, Monetary Economics, and International Finance and Macroeconomics. He also is the Ethel and John Lindgren Professor of Economics at Northwestern University and the co-director of the Center for International Macroeconomics at Northwestern University.

Eichenbaum received his Ph.D. in economics from the University of Minnesota in 1981. He is a Fellow of the Econometric Society and currently serves as the co-editor of the *American Economic Review*. He is also an academic consultant to the Federal Reserve Banks of Atlanta and Chicago and a member of the Advisory Council to the Global Markets Institute at Goldman Sachs.

Eichenbaum lives in Glencoe, IL with his wife, Yona. They have a daughter, Rachel, and a son, Joseph. In his leisure time, he studies history, listens to music, and obsesses about politics.

NBER Profile: *A. Craig Burnside*

A. Craig Burnside is a Research Associate in the NBER's Programs on Economic Fluctuations and Growth and International Finance and Macroeconomics. He is also a Professor of Economics at Duke University and a Research Professor of Economics at the University of Glasgow.

Burnside received his B.A. from the University of British Columbia in 1985 and his Ph.D. from Northwestern University in 1991. He taught at Queen's University, the University of Pittsburgh, and the University of Virginia, and worked at the World Bank prior to moving to Duke in 2004. Burnside currently serves on the Board of Editors of the *American Economic Review* and is an Associate Editor of the *Review of Economics and Statistics*. He was a National Fellow of the Hoover Institution in 1998–9.

Burnside grew up in Quebec, Canada. He now lives with his wife and daughter in Chapel Hill, NC. His hobbies include cycling, tennis, and reading history.

NBER Profile: *Sergio Rebelo*

Sergio Rebelo is a Research Associate in the NBER's Programs on Economic Fluctuations and Growth, International Finance and Macroeconomics, and Asset Pricing, and has very fond memories of spending the 1992–3 academic year at the NBER as an Olin Fellow.

He is also the Tokai Bank Distinguished Professor of International Finance at the Kellogg School of Management and a co-director of the Center for International Macroeconomics at Northwestern University.

Rebelo received his Ph.D. from the University of Rochester in 1989. He is an Associate Editor of the *Journal of Monetary Economics* and a Fellow of the Econometric Society. He is also an academic consultant to the Federal Reserve Bank of Atlanta and a member of the Advisory Council to the Global Markets Institute at Goldman Sachs.

Rebelo grew up in Portugal and now lives in Wilmette, IL with his wife, Maria, and his children, Tomas and Francisca. He and his family have fun writing "Salt of Portugal", a travel blog about Portugal.

NBER Profile: *Christopher J. Ruhm*

Christopher J. Ruhm is a Research Associate in the NBER's Programs of Research on Health Economics, Health Care Policy, and Children. He is also Professor of Public Policy and Economics at the University of Virginia (UVA) and is a Research Fellow at the Institute for the Study of Labor (IZA) in Germany.

Ruhm received his doctorate in economics from the University of California at Berkeley in 1984. Prior to joining UVA's faculty in 2010, he held positions at the University of North Carolina at Greensboro and Boston University, and was a Postdoctoral Research Fellow at Brandeis University. During the 1996–7 academic year, Ruhm served as Senior Economist on President Clinton's Council of Economic Advisers, where his main responsibilities were in the areas of health policy, aging, and labor market issues.

Ruhm is co-author of *Turbulence in the American Workplace* (published by Oxford University Press) and *Time Out with Baby: The Case for Paid Parental Leave* (which is to be published by Zero to Three). He is currently associate editor of the *Southern Economic Journal*, *Journal of Population Economics,* and *International Journal of Information Security and Privacy* and is a steering committee member of the Southeastern Health Economics Study Group. From 2009–11, he served as Vice President of the Southern Economic Association.

Ruhm lives with his artist wife, Maryanna Williams, and two children in a beautiful country home just outside of Charlottesville, Virginia. In his spare time he enjoys biking, hiking, and taking on the almost impossible challenge of learning to play the piano as an adult.

NBER Profile: *Ebonya Lia Washington*

Ebonya Washington has been an NBER Faculty Research Fellow in the Programs on Political Economy and the Economics of Children since 2004. She is also the Henry Kohn Associate Professor of Economics at Yale University.

Washington received her BA with honors in Public Policy from Brown University in 1995 and her Ph.D. in Economics from MIT in 2003. She was a Post-Doctoral Lecturer in MIT's Department of Economics in 2003–4. She joined Yale's Departments of Economics and Political Science as an Assistant Professor in 2004 and was promoted to Henry Kohn Assistant Professor in 2008, and to her current position in 2010. She was also a Visiting Scholar in Harvard University's Department of Economics in 2007–8.

Conferences

Twenty-third Annual EASE Conference

The NBER, the Australian National University, the China Center for Economic Research, the Chung-Hua Institution for Economic Research, the Hong Kong University of Science and Technology, the Korea Development Institute, the National University of Singapore, and the Tokyo Center for Economic Research jointly sponsored the NBER's 23rd Annual East Asian Seminar on Economics. It took place on June 15 and 16, 2012 at National Taiwan University. Takatoshi Ito, University of Tokyo and NBER, and Andrew K. Rose, University of California, Berkeley and NBER, organized the conference, which focused on "Employment and Growth." These papers were discussed:

- **Margaret S. McMillan**, Tufts University and NBER, and **Dani Rodrik**, Harvard University and NBER, "Globalization, Structural Change, and Productivity Growth" (NBER Working Paper No. 17143)

- **Julen Esteban-Pretel**, GRIPS; **Ryo Nakajima**, Yokohama National University; and **Ryuichi Tanaka**, Tokyo Institute of Technology, "Changes in Japan's Labor Market Flows due to the Lost Decade"

- **Stacey Chen**, Academia Sinica, "Long-Term Changes in the Wage Structure of Taiwan"

- **Mei Hsu**, National Taipei University, and **Been-Lon Chen**, Academia Sinica, "Why Do Immigrants Earn So Much More Than Natives in Taiwan?"

- **Pengfei Wang and Lifang Xu**, Hong Kong University of Science & Technology, and **Jianjun Miao**, Boston University, "Stock Market Bubbles and Unemployment"

- **Kaoru Hosono**, Gakushuin University, and **Miho Takizawa**, Toyo University, "Financial Frictions, Misallocation, and Plant-Size Distribution"

- **Yupeng Lin, Takeshi Yamada**, and **Anand Srinivasan**, National University of Singapore, "The Bright Side of State Owned Bank Lending: Evidence from Japan"

- **Catherine Wolfram**, University of California, Berkeley and NBER; **Paul J. Gertler** and **Orie Shelef**, University of California, Berkeley; and **Alan Fuchs**, United Nations Development Programme, "Poverty, Growth and the Demand for Energy"

- **Jakob B. Madsen**, Monash University, "Health, Human Capital Formation, and Knowledge Production"

- **Meng-Chun Liu** and **Shin-Horng Chen**, CIER, "Contribution of Taiwan's R&D Investment to Employment"

- **Loukas Karabarbounis** and **Brent Neiman**, University of Chicago and NBER, "Declining Labor Shares and the Global Rise of Corporate Savings"

- **Sanghoon Ahn**, Korea Development Institute, "Employment and Productivity Dynamics in Korea: An Analysis of Establishment-Level Micro Data"

- **Xiaoyan Lei**, CCER, "The Retirement Patterns in China"

Summaries of these papers may be found at: http://www.nber.org/confer/2012/ease12/summary.html

35th International Seminar on Macroeconomics

NBER's 35th International Seminar on Macroeconomics (ISOM) took place on June 15 and 16, 2012 at the University of Oslo. NBER Research Associate Francesco Giavazzi, Bocconi University, and Kenneth West, University of Wisconsin, organized this year's program. The following papers were discussed:

- **Olivier Jeanne**, Johns Hopkins University and NBER, "Capital Account Policies and the Real Exchange Rate"

- **Hideaki Hirata**, Hosei University; **M. Ayhan Kose** and **Marco Terrones**, International Monetary Fund; and **Christopher Otrok**, University of Missouri, "Global House Price Fluctuations: Synchronization and Determinants"

- **Tanya Molodtsova**, Emory University, and **David Papell**, University of Houston, "Taylor Rule Exchange Rate Forecasting During the Financial Crisis"

- **Nicolas Berman**, Graduate Institute of International & Development Studies; **José De Sousa**, Paris-Sud 11 University; and **Philippe Martin** and **Thierry Mayer**, Sciences-Po, "Time to Ship during Financial Crises"

- **Christophe Chamley**, Paris School of Economics, and **Brian Pinto**, The World Bank, "Official Bailouts of Sovereigns: Seniority, Catalytic Effects, and Insolvency"

- **Luca Sala** and **Antonella Trigari**, Bocconi University, and **Ulf Soderstrom**, Sveriges Riksbank, "Structural and Cyclical Forces in the Great Recession: Cross-Country Evidence"

- **Luca Guerrieri** and **Matteo Iacoviello**, Federal Reserve Board, and **Raoul Minetti**, Michigan State University, "Banks, Sovereign Debt, and the International Transmission of Business Cycles"

- **Alessandra Fogli** and **Enoch Hill,** University of Minnesota, and **Fabrizio Perri**, University of Minnesota and NBER, "The Geography of the Great Recession"

Summaries of these papers may be found at: http://www.nber.org/confer/2012/ISOM12/summary.html

Trans-Atlantic Public Economics Seminar on Business Taxation

The NBER's Trans-Atlantic Public Economics Seminar tackled the topic of business taxation this year. The group met on June 20–22, 2012 at Oxford University. Organizers Michael Devereux, Oxford University, and Roger Gordon, University of California at San Diego and NBER, chose these papers for discussion:

- **Florian Scheuer**, Stanford University and NBER, "Entrepreneurial Taxation and Occupational Choice"
- **Stefania Albanesi**, Columbia University and NBER, "Optimal Taxation of Entrepreneurial Capital with Private Information"
- **Clemens Fuest and Giogia Maffini**, Oxford University, and **Nadine Riedel**, University of Hohenheim, "What Determines Corporate Tax Payments in Developing Countries? Evidence from Firm Panel Data"
- **Harry Huizinga** and **Wolf Wagner**, Tilburg University, and **Johannes Voget**, University of Mannheim, "International Taxation and Cross-Border Banking"
- **Michael Devereux** and **Li Liu**, Oxford University, and **Simon Loretz**, University of Bayreuth, "Using Tax Reforms and Tax Return Data to Identify the Effects of Tax and Cash Flow on the Investment of Small Companies"
- **Jesse Edgerton**, Federal Reserve Board, "Investment, Accounting, and the Salience of the Corporate Income Tax"
- **Jarkko Harju** and **Tuomas Kosonen**, Government Institute for Economic Research, Helsinki, "The Impact of Tax Incentives on Economic Activity of Entrepreneurs"
- **Tobias Boehm**, University of Muenster; **Tom Karkinsky**, University of Oxford CBT; and **Nadine Riedel**, University of Hohenheim, "The Impact of Corporate Taxes on R&D and Patent Holdings"
- **Laura Kawano**, Department of the Treasury, and **Joel Slemrod**, University of Michigan and NBER, "The Effect of Tax Rates and Tax Bases on Corporate Tax Revenues: Estimates with New Measures of the Corporate Tax Base"
- **James R. Hines**, University of Michigan and NBER, and **Jongsang Park**, University of Michigan, "Investment Ramifications of Distortionary Tax Subsidies"
- **Peter Egger**, Federal Institute of Technology Zurich; **Christian Keuschnigg**, University of St.Gallen; and **Valeria Merlo** and **Georg Wamser**, ETH Zurich, "Corporate Taxes and Internal Borrowing within Multinational Firms"
- **Bruce Blonigen**, University of Oregon and NBER; **Lindsay Oldenski**, Georgetown University; and **Nicholas Sly**, University of Oregon, "Separating the Opposing Effects of Bilateral Tax Treaties"

Summaries of these papers may be available at: http://www.nber.org/confer/2012/TAPES12/summary.html

NBER Conference in China

The fourteenth annual NBER-CCER Conference on China and the World Economy took place at the China Center for Economic Research (CCER) in Beijing on June 25 - 26, 2012. The conference program was jointly arranged by the National Bureau of Economic Research, the CCER at Beijing University, and Tsinghua University. After opening remarks by James Poterba of NBER and MIT, Yang Yao of CCER, and Chong- En Bai of Tsinghua University, the following topics were discussed:

Macroeconomics

- **Justin Yifu Lin,** CCER, "China and the World Economy"
- **Martin Feldstein,** NBER and Harvard, "The Future of the U.S. Economy"
- **David Li,** Tsinghua University, "The Outlook for the Chinese Economy"
- **Alan Auerbach,** NBER and University of California, Berkeley, "Long-term Fiscal Issues"

Education

- **Caroline Hoxby,** NBER and Stanford University, "The Economics of Education"
- **Xinzheng Shi,** Tsinghua University, "High School Quality and Academic Performance in China"

International Economics

- **Yang Yao,** CCER, "Differential Growth Rates and Global Imbalances"
- **Shang-Jin Wei,** NBER and Columbia University, "Underappreciated Determinants of the Real Exchange Rate"
- **Miaojie Yu,** CCER, "Export Intensity and Trade Liberalization"

Savings and Retirement

- **Brigitte Madrian,** NBER and Harvard University, "Behavioral Economics of Savings"
- **Yaohui Zhao,** CCER, "Patterns of Retirement in China"
- **David Wise,** NBER and Harvard University, "The Economics of Retirement"
- **Ho-mou Wu,** CCER, "China's Local Government Debt"

Fiscal Policy

- **Lei Zhang,** Tsinghua University, "Social Security Taxation and Compliance"
- **James Poterba,** "U.S. Federal Tax Reform: Prospects and Possibilities"
- **Lixing Li,** CCER, "The Political Economy of Corporate Finance"
- **Christine Wong,** Oxford University, "Fiscal Federalism"
- **Min Ouyang,** Tsinghua University, "Property Taxes and Home Prices"
- **Yu Liu,** Guanghua School, "Disclosure and Efficiency in Noise-driven Markets"

After the CCER-NBER meeting, the NBER participants took part in two subsequent conferences, one in Xi'an, co-hosted with Northwest University, and one in Chengdu, co-hosted with the Southwestern University of Finance and Economics. These meetings were arranged in part to mark the thirtieth anniversary of a 1982 China visit by a delegation of NBER economists who were hosted by the Chinese Academy of Social Sciences.

Health, Education, and Welfare Programs in China

The NBER, Tsinghua University, and the Cheung Kong Graduate School of Business jointly sponsored a conference on "Health, Education, and Welfare Programs in China" which took place at Tsinghua University on July 5-7, 2012. NBER Research Associate Roger Gordon of the University of California, San Diego, was the U. S. organizer. The following papers were discussed:

- **Shuang Zhang**, Cornell University, "Long-term Effects of In Utero Exposure to Land Reform on Academic Performance in China"
- **Hui He**, **Kevin XD Huang**, and **Sheng-Ti Hung**, University of Hawaii, "Are Recessions Good for Your Health? When Ruhn Meets GHH"
- **Shuang Zhang**, "Mother's Education and Infant Health: Evidence from Closure of High Schools in China"
- **Karthik Muralidharan**, University of California, San Diego and NBER, "Is There a Doctor in the House? Absent Medical Providers in India"
- **Gordon G Liu, Jay Pan**, and **Chen Gao**, Peking University, "Separating Government Regulatory Roles from Operational Functions by Public Hospitals for Greater Supply Capacity"

- **Chen Gao, Fei Xu**, and **Gordon G Liu**, Peking University, "Payment Reform and Changes in Health Care in China"

- **Mingming Ma, Binzhen Wu,** and **Xiaohan Zhong**, Tsinghua University, "Matching Mechanisms and Matching Quality: Evidence from China"

- **Belton Fleisher**, Ohio State University; **Haizheng Li**, Georgia Institute of Technology; **Shi Li**, Beijing Normal University; and **Xiaojun Wang**, University of Hawaii, "Access to Higher Education and Inequality: The Chinese Experience"

- **Han Li** and **Jiaxin Xie**, Hong Kong University of Science and Technology, "Can Conditional Grants Attract Better Students: Evidence from Chinese Normal Universities"

- **Binzhen Wu and Xiaohan Zhong**, Tsinghua University, "College Admission Mechanism and Matching Quality: An Empirical Study of China"

- **Raj Chetty** and **John Friedman**, Harvard University and NBER, and **Jonah Rockoff**, Columbia University and NBER, "The Long-Term Impacts of Teacher Value-Added and Student Outcomes in Adulthood" (NBER Working Paper No. 17699)

- **Cheng Yuan** and **Lei Zhang**, Tsinghua University, "Public School Spending and Private Substitution in Urban China"

- **Monica Martínez-Bravo,** Johns Hopkins University; **Gerard Padró i Miquel,** London School of Economics; **Nancy Qian**, Yale University and NBER; and **Yang Yao**, Peking University, "The Effects of Village Elections on Public Goods and Redistribution: Evidence from China"(NBER Working Paper No. 18101)

- **Yuyu Chen** and **Guang Shi**, Peking University; **Ginger Zhe Jin,** University of Maryland and NBER**;** and **Naresh Kumar**, University of Miami, "Gaming in Air Pollution Data? Lessons from China"

- **Jie Mao**, **Lei Zhang**, and **Jing Zhao**, Tsinghua University, "Tax Rate and Compliance: Evidence from the Social Security Pension System in China"

- **Douglas Almond**, Columbia University and NBER, and **Hongbin Li** and **Lingsheng Meng**, Tsinghua University, "Son Preference and Early Childhood Investments in China"

Summaries of these papers are available at: www.nber.org/confer/2012/PFIC/summary.html

The Microeconomics of New Deal Policy

An NBER Conference on "The Microeconomics of New Deal Policy", organized by Price Fishback, University of Arizona and NBER, took place in Cambridge on July 26 and 27, 2012. These papers were discussed:

- **Shawn Kantor**, University of California, Merced and NBER; **Price Fishback**; and **John Wallis**, University of Maryland and NBER, "Did the New Deal Solidify the 1932 Democratic Realignment?"

- **Robert Fleck**, Clemson University, "Why Did the Electorate Swing Between Parties during the Great Depression?"

- **Charles Calomiris**, Columbia University and NBER; **Joseph Mason**, Louisiana State University; **Marc Weidenmier**, Claremont McKenna College and NBER; and **Katherine Bobroff**, Harvard University, "The Effects of Reconstruction Finance Corporation Assistance on Michigan's Banks' Survival in the 1930s"

- **Kris James Mitchener**, Santa Clara University and NBER, and **Gary Richardson**, University of California, Irvine and NBER, "Skin in the Game? Leverage, Liability, and the Long-run Consequences of the New Deal Financial Legislation"

- **Nicolas Ziebarth**, **Christopher Vickers**, and **Mark Chicu**, Northwestern University, "Cementing the Case for Collusion under the National Recovery Administration"

- **Jason Taylor**, Central Michigan University, and **Todd Neumann**, University of Arizona and NBER, "The Effect of Institutional Regime Change Within the New Deal on Industrial Output and Labor Markets"

- **Douglas Irwin**, Dartmouth College and NBER, "Did the New Deal Expand U.S. Trade?"

- **Jonathan Rose**, Federal Reserve Board, and **Kenneth Snowden**, University of North Carolina, Greensboro and NBER, "The New Deal and the Origins of the Modern American Real Estate Loan Contract"

- **Trevor Kollmann**, La Trobe University, "New Deal Public Housing Projects and Their Impact on Local Communities"

- **Carl Kitchens**, University of Arizona, "Swat that Mosquito: Estimating the Decline of Malaria in Georgia 1937–1947"

- **Briggs Depew**, University of Arizona; **Price Fishback**; and **Paul Rhode**, University of Michigan and NBER, "New Deal or No Deal in the Cotton South: The Effect of the AAA on the Agriculture Labor Structure"

Summaries of these papers may be found at: http://conference.nber.org/confer/2012/MND12/summary.html

The Economics of Food Price Volatility

The NBER and the Agricultural and Applied Economics Association jointly organized a conference on "The Economics of Food Price Volatility", which took place in Seattle, Washington on August 15 and 16, 2012. NBER Director Jean-Paul Chavas of the University of Wisconsin-Madison, NBER Research Associate David Hummels of Purdue University, and Brian Wright of the University of California, Berkeley, organized the meeting. These papers were discussed:

- **Carlo Cafiero**, Food and Agriculture Organization of the United Nations, "What Do We Really Know about Food Security?"

- **Christophe Gouel**, World Bank, "Food Price Volatility and Domestic Stabilization Policies in Developing Countries"

- Quy-**Toan Do** and **Martin Ravallion**, The World Bank, and **Andrei A. Levchenko**, University of Michigan and NBER, "Coping with Food Price Volatility: Trade Insulation as Social Protection"

- **Kym Anderson**, University of Adelaide, and **Maros Ivanic** and **Will Martin**, The World Bank, "Food Price Spikes, Price Insulation, and Poverty"

- **Steven T. Berry**, Yale University and NBER; **Michael J. Roberts**, North Carolina State University; and **Wolfram Schlenker**, Columbia University and NBER, "Identifying Agricultural Demand and Supply Elasticities: Implications for Food Price Volatility"

- **Julian M. Alston**, University of California, Davis; **Will Martin**; and **Phillip Pardey**, University of Minnesota, "Influences of Agricultural Technology on the Size and Importance of Food Price Variability"

- **Eugenio Bobenrieth**, Pontificia Universidad Católica de Chile; **Juan R.A. Bobenrieth**, Universidad del Bío-Bío; and **Brian Wright**, "Bubble Trouble? Rational Storage, Mean Reversion, and Runs in Commodity Prices"

- **Nicole Aulerich**, Cornerstone Research, and **Scott H. Irwin** and **Philip Garcia**, University of Illinois, "Bubbles, Food Prices, and Speculation: Evidence from the CFTC's Daily Large Trader Data Files"

- **Walter Enders** and **Matthew T. Holt**, University of Alabama, "The Evolving Relationships Between Agricultural and Energy Commodity Prices: A Shifting-Mean Vector Autoregressive Analysis"

- **Philip Abbott**, Purdue University, "Biofuels, Binding Constraints, and Agricultural Commodity Price Volatility"

Summaries of these papers are available awww.nber.org/confer/2012/FPVf12/summary.html

Anna Schwartz Dead at 96

Anna Schwartz, an NBER Research Associate in the Monetary Economics Program, and the NBER's longest serving researcher, passed away on June 21 at the age of 96. Anna, who joined the NBER in 1941, was best known for her collaboration with Milton Friedman on *A Monetary History of the United States, 1867–1960* (published in 1963). This study was a landmark contribution in the analysis of the links between monetary policy and aggregate economic activity. She was also the author or co-author of many other influential books and papers, including three working papers in the last two years. Schwartz was a Distinguished Fellow of the American Economic Association, and the recipient of nine honorary degrees.

Schwartz did her undergraduate work at Barnard College, graduating at the age of 18, and received her Ph.D. from Columbia University. Before joining the NBER, she worked for several years at the USDA and at the Social Science Research Foundation.

Anna Schwartz was a very active contributor to the intellectual life of the NBER and the economics profession, and she will be deeply missed. An interview with her conducted by Claudia Goldin several years ago is posted on the NBER's website in the "oral histories" library: http://www.nber.org/nberhistory/oralhistories2.html

Paul McCracken Dead at 96

Paul McCracken, an emeritus member and former Chair of the NBER's Board of Directors, passed away on August 3, 2012 at the age of 96. He was first elected to the NBER's Board of Directors in 1974 as the representative of the American Statistical Association, and was subsequently elected as the representative from the University of Michigan, and then as an at-large member of the board. McCracken served as Vice-Chair of the NBER's Board of Directors between 1988 and 1992 and as Board Chair from 1993 until 1996. At the time of his death, McCracken was the Edmund Ezra Day Distinguished University Professor of Business Administration, Economics, and Public Policy (Emeritus) at the University of Michigan, where he served on the faculty for over sixty years. In addition to his academic career, he was a distinguished public servant, having served as a member of the Council of Economic Advisers in the late 1950s and chaired the Council between 1969 and 1971.

NBER Hosts 2012 Summer Institute

The NBER hosted its 35th annual Summer Institute during a three-week period in July. With more than 2100 participants, nearly 500 of whom were attending the NBER Summer Institute for the first time, this year's was one of the largest summer gatherings in NBER history.

NBER Research Associate Steven N. Kaplan of the University of Chicago's Booth School of Business delivered the Martin Feldstein lecture on the topic of "Executive Compensation and Corporate Governance in the U.S."

NBER Research Associates Aviv Nevo of Northwestern University and Ariel Pakes of Harvard University presented the "Econometrics Methods Lectures" on the topic "Methods for Demand Estimation." Their lectures, which spanned two days and have been recorded and posted on the NBER website at: http://www.nber.org/econometrics_minicourse_2012

As in past years, the 2012 Summer Institute drew participants from a wide range of institutions — more than 380 different colleges, universities, and research institutes were represented — and spanned a wide range of research topics. There were more than 475 research presentations, organized into 49 distinct research meetings. A full list of meetings and the papers presented may be found at: http://www.nber.org/confer/2012/SI2012/SI2012.html

Japan Project Meets

The NBER together with the Center on the Japanese Economy and Business, The Center for Advanced Research in Finance, and the Australia-Japan Research Centre held a project meeting on the Japanese economy in Tokyo on June 29 and 30, 2012. The organizers were: Jennifer Corbett, Australia-Japan Research Centre; Charles Horioka, NBER and Osaka University; Anil Kashyap, NBER and the Graduate School of Business, University of Chicago; Kazuo Ueda, University of Tokyo; and David Weinstein, NBER and Columbia University. The following papers were discussed:

- **Takeo Hoshi**, University of California at San Diego and NBER, and **Takatoshi Ito**, University of Tokyo and NBER, "Defying Gravity: How Long Will Japanese Government Bond Prices Remain High?"

- **Makoto Hazama** and **Iichiro Uesugi**, Hitotsubashi University; **Kaoru Hosono**, Gakushuin University; **Daisuke Miyakawa**, Development Bank of Japan; **Hirofumi Uchida**, Kobe University; **Arito Ono**, Mizuho Research Institute; and **Taisuke Uchino**, Daito Bunka University, "Natural Disasters, Bank Lending, and Firm Investment"

- **David B. Cashin**, University of Michigan, and **Takashi Unayama**, Kobe University, "Measuring Intertemporal Substitution: Evidence from a Consumption Tax Rate Increase in Japan"

- **Yasushi Hamao**, University of Southern California; **Kenji Kutsuna**, Kobe University; and **Joe Peek**, Federal Reserve Bank of Boston, "Nice to be on the A-List"

- **Julian Franks**, London Business School; **Colin Mayer**, University of Oxford; and **Hideaki Miyajima**, Waseda University, "The Ownership of Japanese Corporations in the 20th Century"

- **Douglas Skinner** and **Meng Li**, University of Chicago, and **Kazuo Kato**, Osaka University, "Is Japan Really a "Buy"? The Corporate Governance, Cash Holdings, and Economic Performance of Japanese Companies"

- **Daiji Kawaguchi**, Hitotsubashi University, and **Soohyung Lee**, University of Maryland, "Brides for Sale: Cross-Border Marriages and Female Immigration"

- **Ryo Kambayashi**, Hitotsubashi University, and **Takao Kato**, Colgate University, "Trends in Long-term Employment and Job Security in Japan and the United States: the Last Twenty-Five Years"

Summaries of these papers may be found at: http://www.nber.org/confer/2012/JPMs12/summary.html

Economic Fluctuations and Growth Research Meeting

The NBER's Program on Economic Fluctuations and Growth met in Cambridge on July 14, 2012. NBER Research Associates Varadarajan Chari, University of Minnesota, and Xavier Gabaix, New York University's Stern School of Business, organized the meeting. These papers were discussed:

- **Alessandra Fogli**, University of Minnesota, and **Laura Veldkamp**, New York University and NBER, "Germs, Social Networks, and Growth"

- **Ali Shourideh**, University of Pennsylvania, "Optimal Taxation of Capital Income: A Mirrleesian Approach to Capital Accumulation"

- **Atif Mian**, University of California, Berkeley and NBER, and **Amir Sufi**, University of Chicago Booth School of Business and NBER, "What Explains High Unemployment? The Aggregate Demand Channel"(NBER Working Paper No. 17830)

- **Arvind Krishnamurthy**, Northwestern University and NBER, and **Zhiguo He**, University of Chicago and NBER, "A Macroeconomic Framework for Quantifying Systemic Risk"

- **Mikhail Golosov**, Princeton University and NBER; **Pricila Maziero**, University of Pennsylvania; and **Guido Menzio**, University of Pennsylvania and NBER, "Taxation and Redistribution of Residual Income Inequality" (NBER Working Paper No. 18151)

- **Chang-Tai Hsieh**, University of Chicago and NBER, and **Peter J. Klenow**, Stanford University and NBER, "The Life Cycle of Plants in India and Mexico" (NBER Working Paper No. 18133)

Summaries of these papers may be found at: http://www.nber.org/confer/2012/EFGs12/summary.html

Economics of Household Saving

NBER Research Associate Erik Hurst of the University of Chicago and NBER President James Poterba of MIT, who co-direct an NBER project on "The Economics of Household Saving", organized a meeting of that project on July 21, 2012. The following papers were discussed:

- **Greg Kaplan**, University of Pennsylvania and NBER, and **Giovanni Violante**, New York University and NBER, "A Model of the Consumption Response to Fiscal Stimulus Payments" (NBER Working Paper No. 17338)

- **Claus Kreiner**, **David Lassen**, and **Soren Leth-Petersen**, University of Copenhagen, "Consumption Responses to Fiscal Stimulus Policy and the Household Price of Liquidity"

- **Henrik Cronqvist**, Claremont McKenna College, and **Stephan Siegel**, University of Washington, "The Origins of Savings Behavior"

- **Lorenz Kueng**, Northwestern University, "Tax News: Identifying the Household Consumption Response to Tax Expectations using Municipal Bond Prices"

- **William Gale**, Brookings Institution; **Michal Grinstein-Weiss**, **Clinton Key,** and **William M. Rohe**, University of North Carolina, Chapel Hill; and **Mark Schreiner and Michael Sherraden**, Washington University in St. Louis, "Long-Term Impacts of Individual Development Accounts on Homeownership among Baseline Renters: Evidence from a Randomized Experiment"

- **Ralph Koijen**, University of Chicago and NBER; **Stijn Van Nieuwerburgh**, New York University and NBER; and **Motohiro Yogo**, Federal Reserve Bank of Minneapolis, "Health and Mortality Delta: Assessing the Welfare Cost of Household Insurance Choice" (NBER Working Paper No. 17325)

Summaries of these papers may be found at: http://www.nber.org/confer/2012/SI2012/SAV/summary.html

Bureau Books

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Social Security Programs and Retirement around the World: Historical Trends in Mortality and Health, Employment, and Disability Insurance Participation and Reforms

Social Security Programs and Retirement around the World: Historical Trends in Mortality and Health, Employment, and Disability Insurance Participation and Reforms, edited by David A. Wise, will be available from the University of Chicago Press in early autumn of 2012.

In nearly every industrialized country, large aging populations and increased life expectancy have placed enormous pressure on social security programs. Until recently, that pressure was compounded by a trend toward retirement at an earlier age. With a larger fraction of the population receiving benefits, social security programs in many countries may have to be reformed to remain financially viable through the coming decades.

This NBER Conference Report offers a cross-country analysis, drawing on measures of health that are comparable, and exploring, for example, the extent to which differences in the labor force are determined by disability insurance programs. It also looks at how disability insurance reforms may be prompted by the circumstances of a country's elderly population.

Wise is the Area Director of Health and Retirement Programs and Director of the Program on the Economics of Aging at the NBER. He is also the John F. Stambaugh Professor of Political Economy at the Kennedy School of Government at Harvard University. This volume costs $125.00.

The Design and Implementation of U.S. Climate Policy

The Design and Implementation of U.S. Climate Policy, edited by Don Fullerton and Catherine Wolfram, will be available in the fall of 2012 from the University of Chicago Press.

Economic research has been invaluable in advancing our understanding of the consequences associated with global warming, and the costs and benefits of various policies designed to reduce emissions of greenhouse gases. As nations continue to develop climate policies, economic insights about their design and implementation should become increasingly important.

This NBER Conference Report balances theoretical and empirical approaches, considering the possible effects of various climate policies on a range of economic outcomes. The studies in the volume examine such topics as the coordination — or lack thereof — between federal and state governments; the implications of monitoring and enforcing climate policy; and the specific consequences of various climate policies for the agricultural, automotive, and building sectors.

Fullerton is an NBER Research Associate and Director of the NBER's Program on Environmental and Energy Economics. He is also the Gutgsell Professor in the Department of Finance at the University of Illinois at Urbana-Champaign and a faculty associate at both the Institute of Government and Public Affairs and the Center for Business and Public Policy there.

Wolfram is also an NBER Research Associate. She is an associate professor of business administration at the Haas School of Business, University of California, Berkeley, and co-director of its Energy Institute. This volume costs $110.00.

Capitalizing China

Capitalizing China, edited by Joseph P. H. Fan and Randall Morck, will be available from the University of Chicago Press in late October 2012.

Over the past two decades, China's economic boom has surprised many, particularly given the ongoing role of central government planning there. China's current growth trajectory suggests that the size of its economy could soon surpass that of the United States. Some argue that continued growth and the expanding middle class will ultimately exert pressure on the government to bring about greater openness of the financial markets.

To better understand China's recent economic performance, this NBER Conference Report examines the distinctive system it has developed: "market socialism with Chinese characteristics." While its formal institutional makeup resembles that of a free-market economy, many of its practices remain socialist in nature, including strategically placed state-owned enterprises that wield influence both directly and through controlled business groups, and Communist Party cells whose purpose is to maintain control of many segments of the economy. China's economic system, the contributors find, also retains many historical characteristics that play a central role in managing the economy. This volume examines these and other issues in chapters on China's financial regulations, corporate governance codes, bankruptcy laws, taxation, and disclosure rules.

Joseph P. H. Fan is professor of finance and codirector of the Institute of Economics and Finance at the Chinese University of Hong Kong. Randall Morck is an NBER Research Associate. He holds the Stephen A. Jarislowsky Distinguished Chair in Finance and is the Distinguished University Professor at the University of Alberta Business School. This volume costs $110.00.

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