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## Program Report

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## The Economics of Aging

David Wise\*

The NBER's Program on the Economics of Aging began in 1986, when the baby boom generation was between the ages of 22 and 40, and when life expectancy at age 62 (the age of eligibility for Social Security) was nearly three years shorter than it is today. The program at its outset was created with a forward-thinking orientation, drawing together economists from multiple subfields of the profession to consider jointly what would become one of the most important demographic, social, and economic transitions of the twenty-first century. The underlying focus of the program is the study of the health and financial well-being of people as they age, and the larger implications of a population that is increasingly composed of older people.

Today, the substantive importance of research on aging has never been greater. The long-anticipated aging of the baby boom generation across the threshold of eligibility for Social Security and Medicare has arrived. Baby boomers are now between the ages of 50 and 68, and their initiation of retirement benefits is accelerating. The societal impact of aging baby boomers is compounded by increasing longevity. In just the next 20 years, the U.S. population aged 65 and older is projected to increase from 43 million to 76 million people.

The implications of these demographic trends are extensive, yet they are just one part of a complex dynamic of changing factors affecting people's well-being as they age. One such factor is a marked shift in employment-based retirement policy, away from traditional defined benefit (DB) pension plans and retiree health benefits, and toward 401(k)-type plans in which individuals manage their own retirement assets. Another factor is the implicit continuing changes in the public programs that benefit older people, most notably Social Security, Medicare, and Medicaid, as financial

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# NBER Reporter

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pressures from the current provisions of these programs intensify. A third factor is the substantial and ongoing effects of the Great Recession, many of which are still being assessed.

The landscape of health and health care is changing rapidly as well, with lower disability rates by age, continuing advances in medical technology and disease management, increases in health care costs, and significant reforms in health policy. Health affects one's ability to work at older ages, and is strongly associated with financial well-being. Our aim through program research is to advance our understanding of well-being in all its dimensions and to determine what can be done to improve well-being in this rapidly changing environment.

Over the last 28 years, the NBER's Program on the Economics of Aging has helped to transform this field from an exploratory new research area into a well-recognized and influential subfield of the economics profession. Throughout its history, the program has benefited from a substantial base of financial support from the National Institute on Aging (NIA), and from the leadership of a visionary program officer at NIA, Richard Suzman. NIA's recognition of the analytic value of economic research in aging and its support for a highly integrated program of investigators working collaboratively on aging issues was path-breaking. This support has been critical to development of the NBER program, the research subfield, and our understanding more generally of people's well-being as they age. The NBER's Aging Program continues to be anchored by NIA Center and Program Project grants, and by multiple NIA-funded research projects that are administered under the coordinating umbrella of the program. NIA support has been supplemented in recent years by Retirement Research Center and Disability Research Center grants from the Social Security Administration (SSA).

The program has thrived through its history by simultaneously recruiting and inspiring some of the most prominent, established economics scholars along with more emerging scholars to develop a research agenda on economic issues related to aging. This has had a magnetic effect on the size, scope, and productivity of the program as new researchers have been drawn into the field by the prominent senior scholars already working on aging issues. The program has also been leveraged by substantial research development support provided by NIA, includ-

ing an NIA-funded training program on the economics of aging and NIA funding for pilot projects. The training program alone has supported about 150 investigators, the large majority of whom have developed a long-term research agenda on the economics of aging. Nearly 100 pilot awards have also been supported by NIA, most of which have laid a foundation for larger-scale subsequent research projects. Both the training and research development opportunities in aging have expanded even further in recent years through the SSA-funded research centers.

One measure of the success of these training and development initiatives is that three of the five most recent recipients of the John Bates Clark Medal (awarded annually to the best economist under age 40) are active program affiliates who have been part of the program for most of their careers: Esther Duflo (2010 recipient), Amy Finkelstein (2012 recipient), and Raj Chetty (2013 recipient). Two Nobel Prize winners, Daniel McFadden and the late Robert Fogel, played an important role in building the program, as did several past officers of the American Economic Association (AEA) and some of the intellectual leaders in public economics, health economics, labor economics, financial economics, behavioral economics, and econometrics. What has emerged from this long-term commitment to training and recruitment is a multigenerational consortium of accomplished researchers who work together on important issues and create training opportunities for each new cohort of economists who become involved with the program over time.

Many of the studies taking place through the NBER's Aging Program are distributed initially as NBER Working Papers, examples of which are noted below. Some are also published in a continuing series of NBER research volumes on the economics of aging, the most recent of which are *Research Findings in the Economics of Aging* (2010),<sup>1</sup> *Explorations in the Economics of Aging* (2011),<sup>2</sup> *Investigations in the Economics of Aging* (2012),<sup>3</sup> and *Discoveries in the Economics of Aging* (2014).<sup>4</sup>

The research composition of the NBER's Program on Aging has evolved as the economics of aging field has matured. The overarching goal is to understand the health and financial well-being of people as they age, how well-being is affected by the changing environment in which people live, and what interventions might be effective in improving health and financial well-being. What is most apparent from the research carried out by program affiliates is the integral relationship between the multiple dimensions of people's well-being.

As we confront the demographic challenges of a substantially larger population of older people, opportunity lies in three sets of trends, all of which are a focus of continuing research. First, saving in 401(k) and similar plans is now a mainstream aspect of retirement preparation. Though large parts of the population appear to save too little, and access to employment-based saving programs is far from universal, a policy foundation for the accumulation of personal retirement resources is in place, and financial preparation can be improved through saving-related interventions. Second, many though not all measures of health are improving, and these improvements can be accelerated through health-related interventions. Third, it may be possible to allocate some of the bounty of longer and healthier lives to prolonging the labor force participation of some older workers, thereby helping to pay for higher Social Security and health care costs, and moderating the macroeconomic challenges we collectively face. But whether people work or retire at one age or another depends significantly on how we structure our public policies and work environments. Each of these issues is being considered in ongoing program research. The summary below describes examples of NBER publications and working papers that have been distributed in the last two years, and that bear on each of these issues.

### Financial Well-Being

Among the resources that are potentially available to support people in their

later years are Social Security, employer-provided pension benefits, financial asset savings, housing wealth, and earnings. In his 2014 Richard T. Ely Lecture to the AEA,<sup>5</sup> James Poterba presents an overview of changing retirement security, the increasing importance of individual decisions about saving, and the varying composition of financial resources available in retirement across different segments of the population. Among the research reviewed in that lecture is a series of studies co-authored with Steven Venti and me on the financial status of people as they age, the most recent of which demonstrates the strong lifelong relationships between health, education, Social Security income, financial assets, and depletion of financial assets in later life.<sup>6</sup>

As noted, a major trend of the last two decades is away from traditional employer-provided pensions and toward savings-based retirement programs, most notably 401(k) plans. John Beshears, James Choi, David Laibson, Brigitte Madrian, and others have an extensive research agenda on what motivates saving. The consistent finding of their research is that people tend to "follow the path of least resistance," participating more often when enrollment is automatic, and often following the default provisions of their employers' programs. People are also affected by other behavioral factors such as simplification, planning aids,<sup>7</sup> reminders, and commitment features.<sup>8</sup> Their most recent studies have looked at how small cues in plan descriptions can alter behavior,<sup>9</sup> the availability and utilization of 401(k) loans,<sup>10</sup> peer influences on saving,<sup>11</sup> and the use of Roth versus traditional 401(k) plans.<sup>12</sup>

Using data from Denmark, Chetty, John Friedman, Soren Leth-Petersen, Torben Nielsen, and Tore Olsen find that automatic contributions are more effective at inducing saving than subsidization or financial incentives.<sup>13</sup> Robert Clark, Jennifer Maki, and Melinda Sandler Morrill find that a simple informational flyer about their employer's 401(k) plan and the value of contributions compounding over a career significantly increase the likelihood of younger workers contrib-



uting to the plan.<sup>14</sup> In similar work, Gopi Shah Goda, Colleen Flaherty Manchester, and Aaron Sojourner find that providing plan participants with income projections, based on saving rates, also increases contributions.<sup>15</sup>

Related to saving rates is the decision of how to allocate one's savings among alternative investment options. Again, defaults are important, but so are the number of options available and the presentation of those options to plan participants. Clemens Sialm, Laura Starks, and Hanjiang Zhang show that while participants in defined-contribution (DC) plans rarely adjust their portfolio allocations, significant changes in investment composition still occur because of changes in the investment options offered by plan sponsors.<sup>16</sup> Beshears and his co-authors find that when people receive simplified investment disclosure information, they spend less time on their investment decisions, but do not change them significantly.<sup>17</sup> Fabian Duarte and Justine Hastings find that a government-defined fee index in the pension system in Mexico significantly influenced investment behavior, but the design of the index did not necessarily steer investors to the lowest cost funds.<sup>18</sup>

Because responsibility for retirement planning has shifted from employers to workers, questions have been raised about the importance of financial literacy, as well as the appropriate role for financial advisors. Recent papers by Hastings, Madrian, and William Skimmyhorn<sup>19</sup> and by Annamaria Lusardi, Olivia Mitchell, and Vilsa Curto<sup>20</sup> review the literature on financial education and financial literacy, documenting deficiencies in financial sophistication in survey data and poor performance of many individuals on test-based measures of financial literacy. A study by Lusardi, Pierre-Carl Michaud, and Mitchell shows that financial knowledge can potentially account for a large portion of wealth inequality.<sup>21</sup> It is not clear that the use of professional financial advisors helps, however. John Chalmers and Jonathan Reuter find that clients who choose brokers over self-directed investing tend to have riskier portfolios that underperform benchmark portfolios.<sup>22</sup> More

actively managed investments also have higher fees. For example, Hastings, Ali Hortaçsu, and Chad Syverson find that advertising affects fund manager choice, and may raise average management fees in Mexico's pension system.<sup>23</sup>

This line of research on retirement saving has also analyzed the risk and return tradeoffs of different investment portfolios. For example, Mitchell and Stephen Utkus look at the role of target-date funds in shifting investment decisions from workers back to employers (or to fund managers) who adjust portfolios automatically based on a worker's investment horizon.<sup>24</sup> However, Pierluigi Balduzzi and Reuter find wide variability in returns to different target-date retirement funds.<sup>25</sup> Andreas Hubener, Raimond Maurer, and Mitchell consider how asset allocations interact with Social Security claiming, survivor benefit rules, and life insurance purchases.<sup>26</sup>

While accumulated savings is one aspect of financial well-being at older ages, a related question is how much money people need for financial security in later life. The biggest reason financial need may be changing is the growth of out-of-pocket medical costs. For example, a recent study by Goda, John Shoven, and Sita Slavov finds that after subtracting health spending from Social Security benefits, the average net Social Security benefit has grown more slowly than non-medical inflation.<sup>27</sup> In related work, Sanders Korenman and Dahlia Remler consider the feasibility of a health-inclusive poverty measure.<sup>28</sup> Further reinforcing the relationship between out-of-pocket medical costs and financial need, Clark and Mitchell find that public employees who anticipate receiving employer-provided health insurance in retirement save less than their private sector uncovered counterparts.<sup>29</sup>

In addition to studying saving and the need for saving, investigators in the Aging Program are analyzing how people use their accumulated assets in later life. Of particular interest is the relative importance of annuitized versus non-annuitized resources, and how they are affected by the financial decisions people make.

Annuitized assets provide a steady stream of income for life, providing insurance against outliving one's resources. Social Security provides a base level of annuitized income which may be supplemented by traditional employer-provided pension plans or by private annuity products. Non-annuitized assets, on the other hand, are available for unexpected or irregular expenses, such as adverse health events.

Shoven and Slavov show the effect of delayed Social Security claiming as a low-cost approach to increasing people's annuity payment stream.<sup>30</sup> Those leaving jobs with a traditional pension plan may also have the option to retain or to cash out their pension annuities. Clark, Morrill, and David Vanderweide find that even among employees leaving their jobs before age 50, people often keep their annuitized pensions rather than cashing out of them.<sup>31</sup> The purchase of annuity products in the private market is less common. Poterba, Venti, and I analyze the amount of annuity income people could potentially purchase if they converted all of their non-annuitized financial assets to annuities.<sup>32</sup> We find that fewer than half of households could increase their annuitized income by more than \$5,000 per year, but that wealthier households could purchase larger annuities.

Jeffrey Brown, Arie Kapteyn, Erzo Luttmer, and Mitchell suggest that one reason for the small private market for annuities is the difficulty of assessing their value.<sup>33</sup> Beshears, Choi, Laibson, Madrian, and Stephen Zeldes look at how the framing and structure of private annuity choices affect people's stated preferences, and how annuities might be structured to increase their appeal.<sup>34</sup> Brown, Jeffrey Kling, Sendhil Mullainathan, and Marian Wrobel find that annuities are more attractive when presented in a consumption frame than in an investment frame.<sup>35</sup> Vanya Horneff, Maurer, Mitchell, and Ralph Rogalla look at the annuity protections in Guaranteed Minimum Withdrawal Benefit variable annuities.<sup>36</sup> Felix Reichling and Kent Smetters find that when valuation risk is incorporated into models of household demand for annuities, the number of households

choosing to annuitize declines.<sup>37</sup>

Many public policy provisions also influence financial well-being in later life. Brown and Scott Weisbenner find that the Windfall Elimination Provision of Social Security reduces benefits proportionately more for households with lower lifetime earnings.<sup>38</sup> Alan Gustman, Thomas Steinmeier, and Nahid Tabatabai find that the 3.5 percent of households that are subject either to the Windfall Elimination or the Government Pension Offset rules have the value of their benefits reduced by an average of about one-fifth.<sup>39</sup> These authors also find that pension data reported in some surveys is understated relative to its contribution in supporting retirees.<sup>40</sup>

## Health and Life Satisfaction

Finances and health are two fundamental aspects of well-being as we age. As we live longer, an important question is whether our lengthening life expectancies are characterized by poor health and functional disability, or by good health and functional independence. A particularly exciting finding of recent research, reported by David Cutler, Kaushik Ghosh, and Mary Beth Landrum, shows the compression of morbidity into a shorter period of time just before death.<sup>41</sup> If confirmed in continuing work, this means that the impacts of population aging will not be as severe as they might be if additional life expectancy involved many years of disability and need for care. In prior work, Cutler and Landrum compressed 19 health indicators into three summary measures of physical and social impairment, functional ability, and sensory impairment, which provided an important background to studying health trends.<sup>42</sup>

Many factors affect health trends, and many can be influenced by public health interventions. For example, Samuel Preston, Andrew Stokes, Neil Mehta, and Bochen Cao project that future mortality will be affected by both reductions in smoking and increases in obesity, roughly offsetting for women, but with smoking reductions having a bigger effect for men.<sup>43</sup> Program researchers have also tested various behavior-change interventions. Recent

work by Beshears, Choi, Laibson, Madrian, and Katherine Milkman investigates the power of planning prompts in inducing more people to keep colonoscopy appointments<sup>44</sup> or to increase flu vaccination rates.<sup>45</sup> Larger experimental interventions have been undertaken in poorer regions of the world including a recent study by Abhijit Banerjee, Sharon Barnhardt, and Duflo which examines attempts to better treat anemia with fortified salt.<sup>46</sup>

Changes in health insurance and health policy impact health as well, and program researchers have a diverse research agenda on health policy impacts. For example, using data from the Oregon lottery for Medicaid coverage, Finkelstein et al. find that increased insurance coverage led to higher health care utilization, lower out-of-pocket medical expenditures, and better self-reported physical and mental health.<sup>47</sup> Charles Courtemanche and Daniela Zapata find that the near universal coverage following health reforms in Massachusetts also led to improvements in multiple measures of health.<sup>48</sup> Martin Hackmann, Jonathan Kolstad, and Amanda Kowalski analyze other impacts of the insurance mandate in Massachusetts, finding significant decreases in premiums and average costs, smaller post-reform markups in the individual health insurance market, and a generally healthier mix of enrollees.<sup>49</sup>

Florian Heiss, Adam Leive, McFadden, and Joachim Winter look at plan choice in the implementation of Medicare Part D and find that a sizeable fraction of consumers are not making the best decisions among plan options.<sup>50</sup> This conclusion is reinforced in a study by Jason Abaluck and Jonathan Gruber, who find both inertia in plan choice and suboptimal decisions even among those who change plans.<sup>51</sup> In addition, Keith Marzilli Ericson finds that firms may raise premiums on existing enrollees, who are slower to change plans they already have, while charging less for comparable new plans.<sup>52</sup> Liran Einav, Finkelstein, and Paul Schrimpf find that there is substantial bunching of pharmaceutical spending just before the “donut hole,” where insurance coverage is discontinuously reduced.<sup>53</sup>

Trends and patterns in health care spending are another subject of continuing program research. Amitabh Chandra, Jonathan Holmes, and Jonathan Skinner find that the slowdown in health care spending growth over the last decade is a result of three primary factors: the rise in high deductible insurance plans, state-level efforts to control Medicaid costs, and a general slowdown in the diffusion of new technology, particularly in the Medicare population.<sup>54</sup> Katherine Baicker, Michael Chernew, and Jacob Robbins find substantial cost-spillover effects in markets with a high concentration of Medicare managed care enrollees, lowering hospital costs for all seniors and for commercially insured younger populations.<sup>55</sup> Cutler, Skinner, Ariel Dora Stern, and David Wennberg find that the single most important factor causing regional variation in health care spending is physician beliefs about treatment and not differences in patient demand-side factors.<sup>56</sup>

A line of research on health care productivity tries to relate medical advances and medical spending to the health outcomes that are obtained from that spending. For example, Anne Hall and Tina Highfill analyze alternative approaches to calculating disease-based expenditure indexes.<sup>57</sup> Chandra, David Malenka, and Skinner look at the pace of new technology adoption, using as a case study drug-eluting stents which they find are adopted more rapidly at higher quality hospitals and at hospitals where patients are more likely to benefit from the technology.<sup>58</sup> Eric Budish, Benjamin Roin, and Heidi Williams find that longer periods of time between pharmaceutical innovation and commercialization can deter R&D investments, at least in part because patents have a fixed term.<sup>59</sup> Chandra, Finkelstein, Adam Sacarny, and Syverson find that the hospital industry has much in common with more traditional production sectors; for example, hospitals with higher productivity measures have comparatively larger and expanding market shares.<sup>60</sup>

As noted earlier in this report, much of the integrative research of the Program on Aging has found strong interrelation-

ships between well-being in the financial and health domains which persist throughout the life course. For example, Till Stowasser, Heiss, McFadden, and Winter describe the existing evidence on the links between socioeconomic status and health and they explain some of the challenges in assessing causal relationships.<sup>61</sup> Hilary Hoynes, Diane Whitmore Schanzenbach, and Douglas Almond find that access to food stamps in childhood leads to a reduction in obesity, high blood pressure, and diabetes later in life.<sup>62</sup> In a longer-term historical analysis of health and the economy, Dora Costa argues that scientific advances (including sanitation projects) played an important historical role in improving health and raising economic productivity.<sup>63</sup> Bruce Meyer and Wallace Mok find that the economic consequences of health impairments are profound.<sup>64</sup> Cutler and Adriana Lleras-Muney explore the relationship between education and health across countries, finding both that education affects health and, in some cases, that health may affect education.<sup>65</sup>

Extending beyond traditional measures of health, some of the most recent program research has considered well-being in a more general sense. For example, Daniel Benjamin, Ori Heffetz, Miles Kimball, and Nichole Szembrot identify 136 aspects of well-being that incorporate happiness and life satisfaction, goals and achievements, freedoms, engagement, morality, self-expression, relationships, and the well-being of others.<sup>66</sup> Exploratory work by Angus Deaton uses well-being data from Gallup surveys over the period of the financial crisis and finds, among other results, a close relationship with stock market performance.<sup>67</sup> In another application of Gallup data, Deaton and Arthur Stone find that elderly Americans who live with people under the age of 18 have lower life evaluations than those who do not: they experience worse emotional outcomes, less happiness and enjoyment, and more stress, worry, and anger.<sup>68</sup> McFadden has also evaluated well-being in work on “the new science of pleasure.”<sup>69</sup>

## Work and Retirement at Older Ages

While the determinants of work and retirement have been core components of the Aging Program since its inception, an important emerging angle of research is how people’s capacity to work is changing over time, and the effect of public policies and work environments on older people’s incentive to continue working. For example, Kevin Milligan and I document long-term trends in mortality risk in different countries, a measure of health that is comparable across countries and comparable over time within the same country. We find that at each mortality rate in 2007, if American men between the ages of 55 and 69 had worked as much as American men in 1977 they would have worked an additional 3.7 years, or 46.8 percent more.<sup>70</sup> Whether these improvements in health will translate into work behavior is complicated by and highly dependent upon policy. At the individual level, health is clearly a factor that influences work behavior, as quantified in a recent study by Gustman and Steinmeier.<sup>71</sup> At the economy-wide level, policy incentives as well as trends in overall health are likely to play a key role in affecting labor market activity.

I have been directing a long-term NBER project on Social Security and retirement around the world which has engaged an international team of investigators from Belgium, Canada, Denmark, Italy, France, Germany, Japan, the Netherlands, Spain, Sweden, the United Kingdom, and the United States. The current focus of the group is on this question: given health status, to what extent are differences in labor force participation across countries determined by the provisions of disability insurance (DI) programs?<sup>72</sup> Several studies from this project have been circulated recently as NBER Working Papers, including papers on Belgium,<sup>73</sup> France,<sup>74</sup> Germany,<sup>75</sup> and the United Kingdom.<sup>76</sup> Courtney Coile, who conducted the U.S. study for a forthcoming Aging volume, finds that leaving the labor force through DI is strongly related to education and policy incen-

tives, even after controlling for the effects of health.<sup>77</sup> Coile, Milligan, and I draw together the findings from the country studies and identify several overarching themes.<sup>78</sup> We find, for example, that neither the variation in DI participation across countries nor the trends in participation within countries over time has much to do with health trends. Much larger factors are changes in DI policy, the financial incentives of the DI policies (in conjunction with other pathways to retirement), and the stringency of the applicant screening process. We also find a strong relationship between education and DI participation in all countries, even after controlling for health. It is also striking that the proportion of people aged 60 to 64 on DI is larger in the United States than in most other countries; there has been a large decline in DI since the mid-1990s and later in most other countries.

Numerous other NBER studies have also explored relationships between policy and labor market behavior at older ages. Looking at Social Security policy, Gustman and Steinmeier estimate generally increasing work at older ages from three potential changes to Social Security policy: raising the early retirement age, raising the normal retirement age, and eliminating the payroll tax.<sup>79</sup> Alexander Gelber, Damon Jones, and Daniel Sacks find considerable bunching at the kink points in the Social Security earnings test that appears to persist even when individuals reach an age at which they are no longer subject to the earnings test, or following legislative changes that eliminate the earnings test for some groups.<sup>80</sup> Jingjing Chai, Maurer, Mitchell, and Rogalla find that a lump sum payment for delaying retirement could increase the average retirement age by as much as two years.<sup>81</sup> Neeraj Kaushal finds that the expanded pension system in India had a modestly negative effect on the labor supply of older men, but not of women.<sup>82</sup>

Looking at DI policy, Andreas Kostol and Magne Mogstad find that many DI recipients have considerable capacity to work and can be induced to work more using financial incentives.<sup>83</sup> David Autor, Mark Duggan, and Gruber find



that when people need to wait longer to claim private DI benefits, they are less likely to claim the insurance and more likely to work.<sup>84</sup> Timothy Moore finds that roughly one-fifth of the DI recipients who lost benefits as a result of the 1996 removal of drug and alcohol addictions as qualifying conditions for DI subsequently returned to work.<sup>85</sup>

With regard to health insurance policy, Shoven and Slavov find that among state and local government employees, access to retiree health coverage raises the probability of leaving the labor force between the ages of 60 and 64 by 5.1 percentage points, or about 28 percent.<sup>86</sup> Maria Fitzpatrick finds that after the introduction of retiree health insurance for a group of public teachers, the percentage still employed at age 65 drops from 51 to 29 percent.<sup>87</sup> Steven Nyce, Sylvester Schieber, Shoven, Slavov, and I also find very significant increases in early retirement among firms offering more generous retiree health benefits in the private sector, based on an analysis of employee-level data in 64 large firms.<sup>88</sup>

Studying other workplace programs, Steven Allen, Clark, Maki, and Morrill find that employer-based retirement seminars affect people's planned retirement age and planned age of claiming Social Security benefits.<sup>89</sup> Fitzpatrick and Michael Lovenheim document the impact of early retirement incentives on the teaching profession.<sup>90</sup> Goda, Jones, and Manchester look at the influence of selection and incentives in influencing work mobility between DB and DC pension systems.<sup>91</sup> Interestingly, Chalmers, Woodrow Johnson, and Reuter find that within Oregon's integrated DB-DC pension system, employees receiving DC benefits are more likely to retire before the normal retirement age than employees receiving the DB benefit.<sup>92</sup>

The health of the macroeconomy has its own effect on labor market behavior. For example, Yuriy Gorodnichenko, Jae Song, and Dmitriy Stolyarov find that flows into both full and partial retirement increase when the unemployment rate rises.<sup>93</sup> However, Andreas Mueller, Jesse Rothstein, and Till von Wachter

find no evidence that expiring unemployment insurance benefits lead to a rise in DI applications.<sup>94</sup>

The fiscal challenges of population aging heighten the importance of our continuing research on these issues, as the baby boom generation moves from the most productive and highest earning phase of their careers to the ages when people have traditionally retired. The implications for the U.S. economy are enormous as the cost of government programs rises, with fewer people in the labor force to pay for them and, at least potentially, a reduction in the aggregate productive capacity of a smaller labor force. In confronting fiscal challenges, Axel Börsch-Supan reviews various approaches considered or implemented in Europe, including contribution or benefit rate changes, indexation of benefits to dependency, measures to induce longer working lives, adapting retirement age to life expectancy, and more reliance on private savings.<sup>95</sup> Alan Auerbach, Lorenz Kueng, and Ronald Lee evaluate the intergenerational impacts of different tax and benefit adjustments to social security policy.<sup>96</sup>

A final example of the looming fiscal challenges of population aging and the importance of labor market behavior in confronting these challenges is the unfunded liability of retiree pension and state and local government health care benefits. Byron Lutz and Louise Sheiner estimate the total unfunded liability for state and local health care benefits at more than \$1 trillion, or about half the amount of unfunded pension obligations.<sup>97</sup> Robert Novy-Marx and Joshua Rauh estimate that without policy changes, full funding of state and local pension systems over the next 30 years would require that contributions increase by 2.5 times, reaching 14.1 percent of revenues.<sup>98</sup> These authors also consider public pension reforms that link benefits to investment performance.<sup>99</sup>

Researchers in the Economics of Aging Program will continue to explore the potential for policy to motivate, or at least facilitate, the many positive societal trends that will help meet the demographic challenges ahead: improv-

ing health, increasing saving, extending productive working lives, and enhancing well-being as the population ages.

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## Research Summaries

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### Labor Market Adjustment to International Trade

David Autor and Gordon Hanson\*

The past two decades have seen a fruitful debate on the impact of globalization on U.S. labor markets. Research by economists in the 1990s revealed that

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while international trade, particularly in the form of offshoring, was associated with modest increases in the wage premium for skilled labor, other shocks, including skill-biased technical change, played a more important role in the evolution of the U.S. wage structure.<sup>1</sup> Recent evidence suggests that since the early 1990s, expanding global trade, propelled by China's spectacular growth, is playing a much larger role in the U.S. labor market.

One factor limiting trade's impact on U.S. labor was that, historically, imports from low-wage countries were small. As recently as 1990, low-income countries accounted for less than 4 percent of U.S. manufacturing imports. With China's emergence as a global economic power,

the situation has changed markedly. Today, China accounts for one-fifth of the manufactured goods that the United States purchases from abroad.

The causes of China's manufacturing surge are its strong comparative advantage in labor-intensive production coupled with a rapid overall rate of economic growth. Its comparative advantage, which lay dormant during the decades of global economic isolation imposed by Mao, was unleashed in dramatic fashion by the reforms of the 1980s and 1990s, which also contributed to progressive increases in the country's aggregate productivity. For U.S. manufacturing, which still accounts for the majority of U.S. trade, China's expansion repre-



sents a substantial competitive shock. Compounding the effects of this shock are trade imbalances in both China and the United States. Large Chinese trade surpluses along with large U.S. trade deficits mean that increases in U.S. imports from China have not been offset by corresponding increases in U.S. exports to China.

The emergence of China from being a technologically backward and largely closed economy to the world's third largest manufacturer in just two decades provides a unique opportunity to learn about the impact of international trade on labor market outcomes. In a series of recent papers with various co-authors, we have sought to trace out these impacts.

### Local Labor Market Impacts of Import Competition

Because trade shocks play out in general equilibrium, assessing their causal effects presents a conceptual and empirical challenge. One needs to map many industry-specific changes (attributable, say, to industry productivity growth in China) into a small number of aggregate outcomes. Our solution to this “degrees of freedom” problem is to use regional economies as laboratories in which to study the labor market consequences of trade.<sup>2</sup>

In work with David Dorn, we relate changes in labor-market outcomes from 1990 to 2007 across U.S. local labor markets to changes in exposure to Chinese import competition.<sup>3</sup> These local labor markets are subject to differential trade exposure according to their initial patterns of industry specialization. Some regions, such as Raleigh, North Carolina, specialize in industries such as furniture that are heavily exposed to trade with China, whereas others, such as Fresno, California, specialize in fruit and vegetable products that are lightly exposed.

We find that greater import competition from China affects local labor markets not just through manufacturing employment, which unsurprisingly is adversely affected, but also along other margins which have escaped notice in

earlier research. Local labor markets facing rising low-income country imports as a result of China's growth experience increased unemployment, decreased labor-force participation, and increased use of disability and other transfer benefits, as well as lower average wages. Notably, import shocks trigger a decline in wages that is primarily observed outside the manufacturing sector. Reductions in both employment and wage levels lead to a drop in the average earnings of households. These changes contribute to rising transfer payments through multiple federal and state programs. The largest transfer increases are for federal disability, retirement, and in-kind medical payments. Unemployment insurance and income assistance play a significant but secondary role. Trade Adjustment Assistance (TAA), which specifically provides benefits to workers who have been displaced by import competition, accounts for a negligible part of the trade-induced increase in transfers.

The differential take-up rates of TAA and of Social Security Disability Insurance (SSDI) that we document are particularly notable. TAA grants are temporary, whereas most workers who collect disability receive SSDI benefits until retirement or death. For regions affected by Chinese imports, the estimated dollar increase in per capita SSDI payments is more than 30 times as large as the estimated dollar increase in TAA payments. This implies that workers are far more likely to use SSDI to insure themselves against increases in import competition than to use TAA.<sup>4</sup>

### Import Competition and the Great U.S. Employment “Sag” of the 2000s

Even before the Great Recession, U.S. employment growth was unimpressive. Between 2000 and 2007, the economy gave back the considerable jump in employment rates it had achieved during the 1990s, with major contractions in manufacturing employment being a prime contributor to the slump. This pre-Great Recession U.S. employment “sag”

of the 2000s is widely recognized but little understood. In work with Daron Acemoglu, Dorn, and Brendan Price, we explore whether rising import competition from China played a significant role in this sag — both directly through import competition-induced reductions in U.S. manufacturing employment, and indirectly through spillovers to employment in other upstream and downstream sectors inside and outside of manufacturing.<sup>5</sup>

Our approach includes analysis at both the national industry level and the local labor market level. These two perspectives are helpful for framing the mechanisms through which increased import competition affects aggregate employment. One impact of import competition on employment is through direct competition — intuitively, industries more exposed to rising imports contract output and reduce the number of workers on the payroll. This direct impact leads to further indirect effects on upstream industries that supply inputs to the affected industry and on downstream industries that purchase inputs from the affected industry. Our national industry perspective allows us to capture these upstream and downstream effects explicitly via input-output linkages between industries. However, the national industry data miss two other potentially important impacts: the offsetting positive employment effects that occur as workers displaced by trade find jobs in other sectors, and the further negative employment effects of initial job loss on aggregate demand. Helpfully, we are able to capture a portion of these latter two effects in our data on local labor markets. Thus, the impacts of trade on employment observed in national industry and local labor market data give us two complementary perspectives on the aggregate employment effects that we seek to identify.

We estimate that import competition reduced aggregate U.S. employment between 600,000 and 1.25 million jobs between 1991 and 2011. This reduction constitutes a meaningful contribution to the aggregate U.S. employment sag in this period. But it is nevertheless modest relative to the decline in U.S. manufactur-

ing employment of 5.2 million workers between 2001 and 2011, and more modest still when compared to the aggregate employment sag including non-manufacturing. The exercise serves as an additional step toward quantifying the full employment impact of increasing import competition on the U.S. labor market. Perhaps as important, the multiple angles of attack used in our analysis underscore the considerable conceptual challenges in drawing general equilibrium inferences from national and sub-national data.

### Estimating Trade Impacts for Individual Workers

In work with Dorn and Jae Song, we widen our focus from market-level reactions to import competition, and study adjustment at the worker level.<sup>6</sup> What happens to workers employed in industries that undergo a sharp increase in import competition? Are the consequences for individual worker earnings, employment, and uptake of government transfers merely transitory or do they persist over the longer run?

Using worker-level data from the U.S. Social Security Administration (SSA), we estimate the impact of exposure to Chinese import competition on cumulative earnings, employment, movement across sectors, movement across regions, and receipt of Social Security benefits over the period 1992 to 2007. By exploiting links between workers and their employers observable in the SSA data, we are able to study four margins of worker adjustment: the change in earnings at the initial employer (that is, the worker's place of employment before the increase in imports from China), the change in earnings associated with job loss, the change in earnings associated with uptake of government benefits, and the change in earnings associated with moving between employers, industries, and/or regions. Decomposing changes in earnings across these margins—and capturing how they vary by worker characteristics—reveals where in the adjustment process labor market frictions arise and which types of workers face larger burdens in adjusting to shocks.

Labor economists are interested in the long-run consequences of job loss. To deal with the challenge of distinguishing involuntary from voluntary worker separations from employers, previous researchers have studied episodes of mass layoffs in which plants let go a substantial fraction of their employees within a short span of time. Perhaps not surprisingly, the repeated finding of mass layoff studies is that workers suffer an immediate loss in earnings that they partially, but not fully, make up through subsequent employment. Perhaps more surprisingly, this earnings loss, in proportional terms, appears to be similar across workers at different skill levels. Our analysis allows us to revisit the consequences of job loss in the context of rising import competition.

Our data provide clear evidence that workers more exposed to trade with China experience lower cumulative earnings, lower cumulative employment, and greater receipt of SSDI over the sample window of 1992 through 2007. Strikingly, trade exposure increases job churning across firms, industries, and sectors, but not across regions. Workers more exposed to import competition spend less time working for their initial employer, less time working in their initial narrow manufacturing industry, and more time working elsewhere in manufacturing and outside manufacturing altogether.

While trade exposure has comparatively modest earnings effects on the median exposed worker—of approximately 3 percentage points per year—the magnitudes of job churn and adjustment in earnings and employment differ substantially across demographic groups. Reductions in cumulative earnings are concentrated among workers with low initial wages, workers with low tenure at their initial firm, workers with weak attachment to the labor force, and those employed at large firms with low wage levels. Trade competition also affects the careers of high-wage workers, who are able to rapidly separate from their initial employers and to move to other firms, often outside manufacturing. High-wage workers frequently make these adjustments prior to large-scale layoffs at their

initial firm, and without notable declines in earnings. Low-wage workers instead stay longer in their initial trade-exposed firms and industries, are more likely to separate from their initial firm during mass layoffs, and incur greater losses of earnings both at the initial firm and after moving to other employers. Thus, while trade exposure induces augmented job churn for both high- and low-wage workers, the consequences for their overall earnings are distinct: high-wage workers appear to primarily obtain “safe harbor” in equally highly paid work, often outside of manufacturing. Low-wage workers, by contrast, churn primarily within the manufacturing sector and experience reduced earnings at both the initial employer, where the initial shock transpired, and at subsequent employers.

These findings are complementary to the local labor market approach of our other research. The variation in disruptions to earnings and employment induced by trade that we identify reveals the presence of frictions in moving workers between jobs. Absent such frictions, wages would equalize for similar workers at all moments of time and we would detect no wage differences across workers, either in the short or long run. That we find substantial evidence of outcome differences suggests that frictions are materially important. Though our worker-level perspective prevents us from estimating the impact of international trade on equilibrium employment or wages for entire skill groups, it allows us to see differences across workers in adjustment to greater import competition. These adjustment burdens may color how workers perceive global economic integration.

### Conclusions

Economic theory suggests that trade with China yields aggregate income gains for the U.S. economy. What our findings add to this well understood insight is that the distributional consequences of trade and the offsetting, medium-run efficiency losses associated with adjustment to trade shocks are substantial. These aspects of labor market adjustment to trade are often

overlooked in research on trade because of a focus on wages as the sole channel of trade adjustment. The consequences of Chinese trade for U.S. employment, household income, and government benefit programs may contribute to public ambivalence toward globalization and specific anxiety about increasing trade with China.

<sup>1</sup> R. C. Feenstra, and G. H. Hanson. "Productivity Measurement and the Impact of Trade and Technology of Wages: Estimates for the U.S. 1972–1990," NBER Working Paper No. 6052, June 1997, published as "The Impact of Outsourcing and High-Technology Capital on Wages: Estimates for the U.S., 1979–1990," Quarterly Journal of Economics, 114 (3) (1999), pp. 907–40; and L. F. Katz and D. H. Autor, "Changes in the Wage Structure and Earnings Inequality," in O. Ashenfelter and D. Card, eds., Handbook of Labor Economics, Vol. 3A, Amsterdam: Elsevier Science, (1999), pp. 1463–555.

<sup>2</sup> Important precursors to our work

include G. J. Borjas and V. A. Ramey, "Foreign Competition, Market Power, and Wage Inequality: Theory and Evidence," NBER Working Paper No. 4556, November 1993, and Quarterly Journal of Economics, 110 (4) (1995), pp. 1075–110; and P. Topalova, "Trade Liberalization, Poverty, and Inequality: Evidence from Indian Districts," NBER Working Paper No. 11614, September 2005, and in A. Harrison, ed., Globalization and Poverty, Chicago, IL: University of Chicago Press, (2007), pp. 291–336.

<sup>3</sup> D. H. Autor, D. Dorn, and G. H. Hanson. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States," NBER Working Paper No. 18054, May 2012, and American Economic Review, 103 (6) (2013), pp. 2121–68.

<sup>4</sup> Two related papers include D. H. Autor, D. Dorn, and G. H. Hanson, "The Geography of Trade and Technology Shocks in the United States," NBER Working Paper No. 18940, April 2013, and American Economic Review: Papers and Proceedings, 103

(3) (2013), pp. 220–5; and "Untangling Trade and Technology: Evidence from Local Labor Markets," NBER Working Paper No. 18938, April 2013. In this work, we juxtapose the effects of trade and technology on employment in U.S. local labor markets between 1990 and 2007. Regional exposures to trade and technology are uncorrelated, conditional on initial manufacturing employment.

<sup>5</sup> D. Acemoglu, D. H. Autor, D. Dorn, G. H. Hanson, and B. Price, "Import Competition and the Great U.S. Employment Sag of the 2000s," MIT Working Paper, September 2013; and D. Acemoglu, D. H. Autor, D. Dorn, G. H. Hanson, and B. Price, "Return of the Solow Paradox? IT, Productivity, and Employment in U.S. Manufacturing," NBER Working Paper No. 19837, January 2014, and forthcoming in American Economic Review: Papers and Proceedings.

<sup>6</sup> D. H. Autor, D. Dorn, G. H. Hanson, and J. Song, "Trade Adjustment: Worker Level Evidence," NBER Working Paper No. 19226, July 2013.

## Economic Consequences of Gender Identity

Marianne Bertrand\*

An increasingly discussed explanation for why women and men experience different labor markets is the existence and persistence of gender identity norms. Influential research by George Akerlof and Rachel Kranton<sup>1</sup> has imported into

economics insights from social psychology regarding an individual's social identity and how it can influence behaviors and choices. These researchers define identity as one's sense of belonging to one or multiple social categories. One's identity encompasses a clear view about how people who belong to that category should behave. In their model, identity directly enters the utility function: identity influences economic outcomes because deviating from the behavior that is expected for one's social category is assumed to decrease utility. Hence, people's economic

actions can in part be explained by a desire to conform with their sense of self. Akerlof and Kranton apply their model to the concept of gender identity. In this case, the two relevant social categories are those of "man" and "woman," and these two categories are associated with specific behavioral prescriptions which, if violated, will decrease utility.

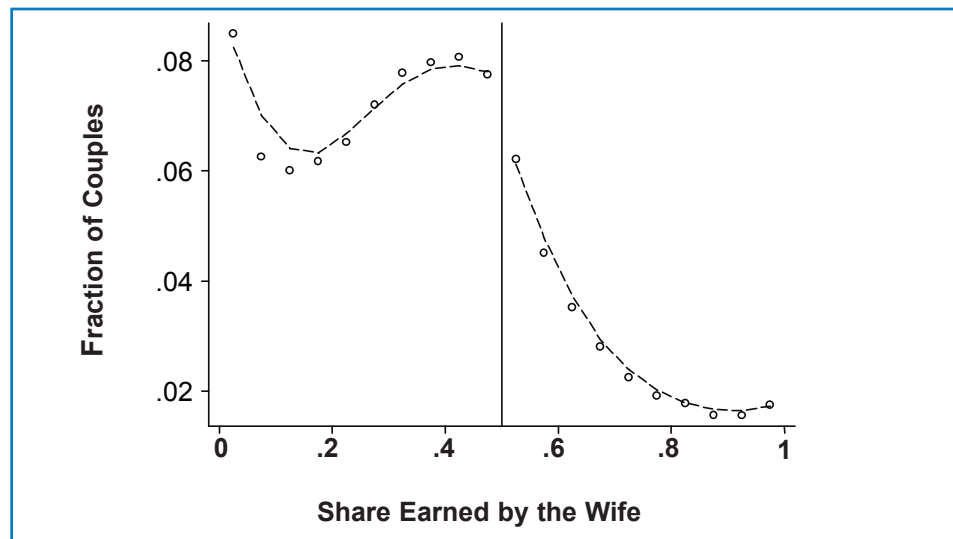
Gender identity norms may help to explain why occupational segregation by gender has been slow to disappear. Women may feel discomfort entering certain professions, and men may feel dis-

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comfort if women enter these professions if the professions are strongly “gendered” (for example, only men, not women, are bankers). This is related to Claudia Goldin’s pollution theory of discrimination,<sup>2</sup> which also assumes that men derive utility from their work not just because of the wage they earn but also because of how their image is affected by where they work and with whom they work. In Goldin’s model, men want to keep women away from certain jobs because broad female participation in those jobs would reduce the prestige men obtain from working in them. The reduction in prestige in Goldin’s case is driven by the signals that might be sent to outsiders about the qualifications required to perform these jobs if too many women enter them. In other words, Goldin’s model is closer to a statistical discrimination model while Akerlof and Kranton’s is more directly reminiscent of a taste-based discrimination model.

Another application is women’s labor force participation. As long as there is a strong behavioral prescription indicating that “men work in the labor force and women work in the home,” gender identity norms could explain why women have been slow to increase their labor force participation. Nicole Fortin uses data from the World Values Surveys to assess how women’s sense of self relates to their labor force participation in a sample of OECD countries.<sup>3</sup> She shows that the social representation of women as homemakers and men as breadwinners appears quite predictive of women’s labor force participation across countries. Fortin re-examines a similar question in a single country, the United States, over a longer time period (1977 to 2006).<sup>4</sup> A more central motivation in this particular paper is to provide an explanation for the slowdown in the closing of the gender gap in labor force participation in the United States since the mid-1990s (see for example Francine Blau and Lawrence Kahn<sup>5</sup>). Fortin shows that the evolution of gender role attitudes over time appears to map well with the evolution of female labor force participation. Women’s gender role attitudes steadily became less traditional,



**Figure 1: Distribution of Relative Income within Couples**

with more and more women disagreeing with the notion that husbands should be the breadwinners and wives should be the homemakers, and more egalitarian, with more and more women agreeing with the notion that they are as capable as men in the workforce, until the mid-1990s when these trends reversed. Raquel Fernandez and Alessandra Fogli study the labor force participation of second-generation American women.<sup>6</sup> They use past values of female labor force participation in these women’s country of ancestry as cultural proxies for gender identity norms. Controlling for individual and spousal socioeconomic backgrounds, they find that American women whose ancestry is from higher labor force participation countries work more. Spousal culture also appears to matter in explaining the labor force participation of these women.

Motherhood has been shown to be particularly disruptive to women’s labor force participation and earnings. With Lawrence Katz and Goldin, I demonstrate that much of the large gender gap that emerges over time between male and female graduates of top MBA programs is attributable to gender differences in hours worked and frequency of career interruptions; the presence of children is the main contributor to women’s shorter work hours and greater career discontinuity.<sup>7</sup> The fact that work-family balance considerations are more binding for mothers

than for fathers could be seen as another manifestation of gender identity norms (for example, “a working mom cannot have a warm relationship with her child”) that have not fully adjusted to improving educational and labor market opportunities for women.

Another behavioral prescription often associated with gender identity is that “a man should earn more than his wife.” With Emir Kamenica and Jessica Pan, I explore the possible manifestations of this gender identity norm in patterns of relative income within households, marriage formation, wives’ labor force participation, marital satisfaction, and the division of home production.<sup>8</sup> Using U.S. administrative data on individual income, we show that the distribution of relative income within couples (wife income / (wife income + husband income)) exhibits a sharp drop to the right of .5, for example, when a wife starts to earn more than her husband. This is shown in Figure 1, above.

In U.S. Census data, we also show that within a marriage market over time, when a randomly chosen woman becomes more likely to earn more than a randomly chosen man, the marriage rate declines (see also Tara Watson and Sara McLanahan<sup>9</sup>). Looking within couples, we show that when the probability that the wife’s potential income exceeds her husband’s actual income is higher, the

wife is less likely to participate in the labor force. We also provide suggestive evidence that this specific gender identity norm might influence the quality of marriage, with couples where the wife earns more than the husband reporting being less happy. Finally, using the American Time Use Surveys, we show that the gender gap in home production, how much more time the wife spends on non-market work than the husband, is larger in couples where the wife earns more than the husband, a finding that runs counter to standard models of the division of labor within the household.

One could also ask whether gender identity norms are responsible for gender differences in psychological attributes, such as attitudes toward risk, negotiation, and competition, which have been related to differences in career choices and earnings between men and women<sup>10</sup> and might contribute to women's underrepresentation at the very top of the corporate hierarchy.<sup>11</sup> Psychologists have shown that people expect women to be docile and men to be confident and self-assertive. Some have argued that a higher degree of risk aversion is viewed as the norm for females while part of the male identity is to be a risk-taker. These expectations could be part of socially constructed gender norms, rather than a reflection on innate differences; behaving according to these expectations may reflect a willingness to conform to what is expected from one's social category.

In a laboratory setting, Daniel Benjamin, James Choi, and A. Joshua Strickland study how making salient a specific aspect of one's gender or racial identity affects a subject's likelihood of making riskier choices or more patient choices.<sup>12</sup> The study consists of generating exogenous variation in identity effects by temporarily making more salient ("priming") a certain social category and seeing how the subjects' choices are affected by this priming. The gender identity salience manipulation is done through a questionnaire at the beginning of the experiment in which subjects are asked to identify their gender and whether they are living on a coed versus a single-sex dormitory

floor. While the study uncovers some rich patterns with respect to racial identity, making gender salient appears to have no significant effects on either men's or women's patience, or their level of risk aversion. Of course, it is possible that the experimental priming was too weak to temporarily affect preferences.

Assuming that the gender identity model is relevant to women's labor market outcomes, one is left with the question of what drives the strength of gender identity norms. In an identity model, the changes in women's labor market outcomes over the last decades could only have occurred in conjunction with deep societal changes in the strength and meaning of the male and female social categories. Innovations in contraception may have contributed to altering women's identity in the 1960s and 1970s. As Goldin and Katz show, the introduction of the birth control pill led to both an increase in women's investment in schooling and an increase in the age at first marriage.<sup>13</sup> This, Goldin argues, meant that women's adult identities were less influenced by traditional gender roles, as these identities were now more likely to be formed before marriage and more influenced by career considerations.<sup>14</sup>

Other papers have discussed the influence of nurturing in the formation of gender identities. Many believe that gender role attitudes are largely determined in early childhood, and several papers have documented something akin to an intergenerational transmission of gender identity norms. Fernandez, Fogli, and Claudia Olivetti<sup>15</sup> provide an explanation for why men may differ in how traditional their views are with respect to whether women belong at home or in the workplace. They argue that a significant factor in the steady increase of women's involvement in the labor force has been the growing number of men being raised in families with working mothers. These men may have developed less stereotypical gender role attitudes, with weaker association between their masculinity and being the only or main breadwinner in their household. In particular, they show that men whose mothers worked are more

likely to have working wives. This finding suggests a virtuous cycle: with more of these "new" men around, women should rationally invest more in labor market skills and thereby expose their sons to this less traditional family structure.

Olivetti, Eleonora Patacchini, and Yves Zenou explore how the work behavior of a teenager's own mother, as well as that of her friends' mothers, affect the work decisions of that teenager once she becomes an adult.<sup>16</sup> They find that both intergenerational channels positively affect a woman's work hours in adulthood, but the cross effect is negative, indicating the existence of cultural substitutability. That is, the mother's role model effect is larger the more distant she is (in terms of working hours) from the friends' mothers.

While the literature discussed above suggests the malleability of gender identity norms over rather short horizons (one generation), other work suggests stickiness of these norms in the longer term. Alberto Alesina, Paola Giuliano, and Nathan Nunn show that ethnicities and countries where ancestors practiced plough cultivation, which required more physical strength than shifting cultivation and hence was less suited to female labor, today have beliefs that exhibit greater gender inequality as well as lower rates of female labor force participation.<sup>17</sup> They identify the causal impact of plough cultivation use by exploiting variation in the historical geo-climatic suitability of the environment for growing crops that differentially benefited from the adoption of the plough.

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<sup>1</sup> G. A. Akerlof and R. E. Kranton, "Economics and Identity," *Quarterly Journal of Economics*, 115 (2000), pp. 715–53.

<sup>2</sup> C. Goldin, "A Pollution Theory of Discrimination: Male and Female Differences in Occupations and Earnings," NBER Working Paper No. 8985, June 2002, and forthcoming in Leah P. Boustan, C. Frydman, and R. A. Margo, eds., *Human Capital in History: The American Record*, Chicago, IL:

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<sup>3</sup> N. Fortin, "Gender Role Attitudes and the Labour Market Outcomes of Women Across OECD Countries," *Oxford Review of Economic Policy*, 21 (2005), pp. 416–38.

<sup>4</sup> N. Fortin, "Gender Role Attitudes and Women's Labor Market Participation: Opting Out, AIDS, and the Persistent Appeal of Housewifery," *University of British Columbia Working Paper*, December 2013.

<sup>5</sup> F. D. Blau and L. M. Kahn, "Female Labor Supply: Why is the U.S. Falling Behind?" NBER Working Paper No. 18702, January 2013, and *American Economic Review: Papers and Proceedings*, 103 (2013), pp. 251–6.

<sup>6</sup> R. Fernandez and A. Fogli, "Culture: An Empirical Investigation of Beliefs, Work, and Fertility," NBER Working Paper No. 11268, April 2005, and *American Economic Journal: Macroeconomics*, 1 (2009), pp. 146–77.

<sup>7</sup> M. Bertrand, C. Goldin, and L. F. Katz, "Dynamics of the Gender Gap for Young Professionals in the Corporate and Financial Sectors," NBER Working Paper No. 14681, January 2009, and *American Economic Journal: Applied Economics*, 2 (2010), pp. 228–55.

<sup>8</sup> M. Bertrand, J. Pan, and E. Kamenica, "Gender Identity and Relative Income within Households," NBER Working

Paper No. 19023, May 2013.

<sup>9</sup> T. Watson and S. McLanahan, "Marriage Meets the Joneses: Relative Income, Identity, and Marital Status," NBER Working Paper No. 14773, March 2009, and *Journal of Human Resources*, 46 (2011), pp. 482–517.

<sup>10</sup> See M. Niederle and L. Vesterlund, "Do Women Shy Away From Competition? Do Men Compete Too Much?" NBER Working Paper No. 11474, July 2005, and *Quarterly Journal of Economics*, 122 (2007), pp. 1067–101; and T. Buser, M. Niederle, and H. Oosterbeek, "Gender, Competitiveness and Career Choices," NBER Working Paper No. 18576, November 2012, and forthcoming in *Quarterly Journal of Economics*, 129 (2014).

<sup>11</sup> M. Bertrand and K. F. Hallock, "The Gender Gap in Top Corporate Jobs," NBER Working Paper No. 7931, October 2000, and *Industrial and Labor Relations Review*, 55 (2001), pp. 3–21.

<sup>12</sup> D. J. Benjamin, J. J. Choi, and A. J. Strickland, "Social Identity and Preferences," NBER Working Paper No. 13309, August 2007, and *American Economic Review*, 100 (2010), pp. 1913–28.

<sup>13</sup> C. Goldin and L. F. Katz, "The Power of the Pill: Oral Contraceptives and Women's Career and Marriage Decisions," NBER Working Paper No. 7527,

February 2000, and *Journal of Political Economy*, 110 (2002), pp. 730–70.

<sup>14</sup> C. Goldin, "The Quiet Revolution that Transformed Women's Employment, Education, and Family," NBER Working Paper No. 11953, January 2006, and *American Economic Review: Papers and Proceedings*, 96 (2006), pp. 1–21.

<sup>15</sup> R. Fernandez, A. Fogli, and C. Olivetti, "Preference Formation and the Rise of Women's Labor Force Participation: Evidence from WWII," NBER Working Paper No. 10589, June 2004; R. Fernandez, A. Fogli, and C. Olivetti, "Marrying Your Mom: Preference Transmission and Women's Labor and Education Choices," NBER Working Paper No. 9234, September 2002; and R. Fernandez, A. Fogli, and C. Olivetti, "Mothers and Sons: Preference Formation and Female Labor Force Dynamics," *Quarterly Journal of Economics* 119 (2004), pp. 1249–99.

<sup>16</sup> C. Olivetti, E. Patacchini, Y. Zenou, "Mothers, Friends, and Gender Identity," NBER Working Paper No. 19610, November 2013.

<sup>17</sup> A. F. Alesina, P. Giuliano, and N. Nunn, "On the Origins of Gender Roles: Women and the Plough," NBER Working Paper No. 17098, May 2011, and *Quarterly Journal of Economics*, 128 (2013), pp. 469–530.



# Taxes and International Mobility of Talent

Emmanuel Saez\*

Tax-induced international mobility of talent is a controversial public policy issue, especially when tax rates differ substantially across countries and migration barriers are low as in the case of the European Union. High top tax rates may induce top earners to migrate to countries where the tax burden is lower, thereby limiting the redistributive power of governments by creating tax competition. Such concerns have featured prominently in recent tax policy debates in Europe, including the introduction of the 50 percent top marginal tax rate in the United Kingdom in 2010 (reduced to 45 percent in 2013) and a temporary 75 percent top marginal tax rate on labor income in France in 2013–14. Furthermore, the introduction in many European countries of preferential tax schemes for high-skilled foreign immigrants represents *prima facie* evidence of tax competition in internationally integrated labor markets. Preferential tax schemes for high-skilled foreign workers have been introduced in Belgium, Denmark, Finland, the Netherlands, Portugal, Spain, Sweden, and Switzerland. A summary of all such existing schemes in OECD countries is provided by OECD.<sup>1</sup> The key empirical question is how international migration by high-skilled workers responds to tax differentials across countries.

An enormous body of empirical literature has studied the effect of taxation on labor supply, earnings, and reported income for tax purposes *within* countries. In our 2009 study, Joel Slemrod, Seth Giertz, and I review the large recent literature on the effects of marginal tax rates on reported income.<sup>2</sup> However, there is almost no empirical work on the effect

of taxation on the mobility of workers *across* countries. In two recent studies, we investigate the importance of tax-induced migration effects among top earners.

## Evidence from the European Football Market

In our 2010 paper, Henrik Kleven, Camille Landais, and I study whether top tax rates affect the international mobility of football players in Europe.<sup>3</sup> International mobility among football players has recently been the subject of heated discussion in the United Kingdom in connection with the increase in the top marginal tax rate from 40 percent to 50 percent. Supposedly, the star player Cristiano Ronaldo moved from Manchester United to Real Madrid in 2009 partly to avoid the announced 50 percent tax in the United Kingdom and to benefit instead from the so-called “Beckham Law” in Spain, a preferential tax scheme offering a flat tax of 24 percent to foreign residents. The nickname for this tax scheme was coined a few years earlier when another star player, David Beckham, also moved from Manchester United to Real Madrid to benefit from the scheme. Arsène Wenger, the emblematic manager of Arsenal Football Club, commented on the U.K. tax reform by saying that “with the new taxation system, (...), the domination of the Premier League will go, that is for sure.”<sup>4</sup>

The football market offers three important advantages for the study of mobility. First, international mobility has been very common in the professional football market since the Bosman ruling by the European Court of Justice in 1995 that lifted pre-existing restrictions on player mobility. In the absence of such restrictions, cross-border mobility is higher in the football market than in most other markets owing to the fact that the game is the same everywhere and involves

very little country-specific human capital. This makes the football market a valuable laboratory to begin the study of tax-induced mobility across countries. Football players may provide an upper bound on the migration response to taxation for the labor market as a whole. Obtaining an upper bound is crucial for gauging the potential importance of this policy question, especially in the long run as labor markets become more international and country-specific human capital declines in importance.

Second, extensive data on the careers and mobility of professional football players can be gathered for most countries over long time periods. For this project, we have gathered exhaustive data on the career paths of all first-league football players for 14 European Union countries over the past 30 years, as well as performance data for all first-league teams.

Third, and most importantly, there are many sources of variation in tax policy which can be exploited to identify the causal effect of taxation on mobility in the football market. In particular, a number of countries have experimented with special tax schemes offering substantially lower tax rates to immigrant football players, including Denmark (1991), Belgium (2002), and Spain (2004). An analysis of these tax schemes produces convincing evidence that international mobility patterns do indeed respond to taxation. For example, when Spain introduced the Beckham Law in 2004, the fraction of foreigners in the Spanish league immediately and sharply started to diverge from the fraction of foreigners in the comparable Italian league. Moreover, exploiting the specific eligibility rules in the Beckham Law, we show that the extra influx of foreigners in Spain is driven entirely by players eligible for the scheme with no effect on ineligible players.

Combining the evidence from tax reforms in all 14 European countries in

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our sample, we find that the location decisions of players are very responsive to tax rates. But because labor demand by football clubs is relatively rigid—there can only be so many players in a club and only so many clubs in each national league—we also find strong evidence of sorting effects. Top-quality players are much more responsive than lower-quality players. In fact, we find that tax cuts to foreigners in a given country attract top-quality foreign players, but crowd out lower-quality foreign players as well as some domestic players.

### Evidence from the Danish Preferential Tax Scheme for Highly Paid Foreigners

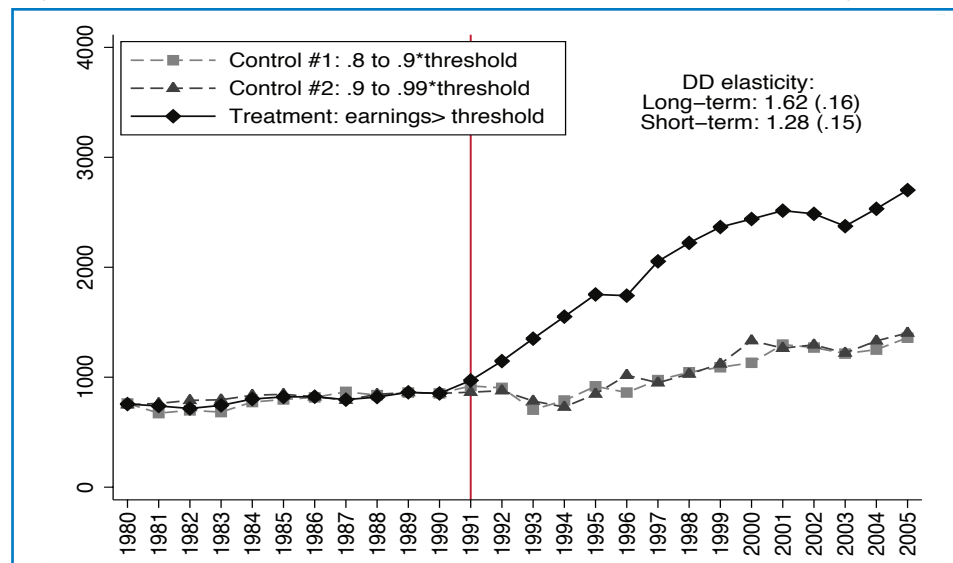
With Kleven, Landais, and Esben Anton Schultz in 2013, I study quasi-experimental variation created by a Danish preferential tax scheme for high-earning immigrants enacted in 1992.<sup>5</sup> Under this scheme, the tax rate on labor earnings is reduced to a flat rate of about 30 percent for a period of up to three years. Eligibility for the scheme requires annualized earnings above a threshold (indexed to average earnings growth and equal to about 100,000 euros in 2009), corresponding roughly to the 99th percentile of the distribution of individual earnings in Denmark. This scheme is much more generous than the Danish regular tax system, which imposes a top marginal tax rate of about 62 percent above 47,000 euros (as of 2009). Absent the special tax scheme, workers with earnings above the scheme threshold would face average income tax rates of around 55 percent, about twice as high as the scheme rate. At the end of the three years of preferential tax treatment, the taxpayer becomes subject to the ordinary Danish tax schedule on subsequent earnings.

We find striking evidence that the scheme had a very large effect on the number of highly paid foreigners in Denmark. Figure 1 summarizes our results. It shows that the number of foreigners in Denmark above the eligibility threshold, the group affected by the tax scheme, doubles after the scheme is

introduced relative to the number of foreigners slightly below the threshold. The latter represents a comparison group not affected by the tax scheme. This effect builds up in the first five years of the scheme and remains stable afterward. As a result, the fraction of foreigners in the top one-half of 1 percent of the earnings distribution is 7.5 percent in recent years compared to a 4 percent counterfactual absent the scheme. This very large behavioral response implies that the revenue-maximizing tax rate for a scheme targeting highly paid foreigners is relatively small, about 35 percent. This corresponds roughly to the current tax rate on foreigners in Denmark under the scheme once we account for other relevant taxes, such as value-added taxes (VAT) and excises. Importantly, the revenue-maximizing tax rate on natives is much higher because the response of migration with respect to the net-of-tax rate among expatriate natives is very small. In other words, highly skilled expatriates, who would be eligible for the scheme if they haven't

been in Denmark for three years, do come back more because of the scheme.

It can therefore be desirable from a single-country revenue perspective to adopt such preferential schemes targeting highly paid foreigners. At the same time, these schemes impose negative fiscal externalities on other countries by reducing their capacity to collect taxes from top earners. This tension between country welfare and global welfare in the design of individual income tax policy has loomed large in the debate about tax competition for a long time, but our paper provides the first compelling evidence that this is indeed a major empirical issue. Absent international tax coordination, preferential tax schemes to high-income foreigners could substantially weaken tax progressivity at the top of the distribution. International policy coordination and the design of rules regulating such special schemes in the European Union is therefore likely to be an important part of the European Union policy debate in coming years.



**Figure 1: Migration Effects of the Danish Preferential Tax Scheme: Number of Eligible vs. Ineligible Foreigners over Time**

**Notes:** This figure shows the number of foreigners with earnings above the scheme eligibility threshold (treatment series) from 1980 to 2005. As control groups, it reports the number of foreigners in Denmark with earnings between 80 percent and 90 percent of the threshold (control 1) and with earnings between 90 percent and 99.5 percent of the threshold (control 2). Both control series are normalized so that they match the treatment series in 1990: the year before the scheme was first implemented. The vertical line at year 1991 denotes the year the scheme was first implemented. The scheme was enacted in 1992 and applied retrospectively to all contracts starting after June 1, 1991.

<sup>1</sup> OECD, “The Taxation of Mobile High-Skilled Workers,” chapter 4 in OECD Tax Policy Study No. 21: Taxation and Employment, Paris: OECD, 2011.

<sup>2</sup> E. Saez, J. B. Slemrod, and S. H. Giertz, “The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review,” NBER Working Paper No. 15012, May 2009,

and Journal of Economic Literature, 50 (1) (2012), pp. 3–50.

<sup>3</sup> H. J. Kleven, C. Landais, and E. Saez, “Taxation and International Migration of Superstars: Evidence from the European Football Market,” NBER Working Paper No. 16545, November 2010, and American Economic Review, 103 (5) (2013), pp. 1892–924.

<sup>4</sup> Jonathan Northcroft, *The Sunday Times*, April 25, 2009.

<sup>5</sup> H. J. Kleven, C. Landais, E. Saez, and E. A. Schultz, “Migration and Wage Effects of Taxing Top Earners: Evidence from the Foreigners’ Tax Scheme in Denmark,” NBER Working Paper No. 18885, March 2013, and Quarterly Journal of Economics, 129 (1) (2014), pp. 333–78.

## The Financialization of Commodity Markets

Wei Xiong\*

Over the last decade, commodity futures have become a popular asset class for portfolio investors, just like stocks and bonds. This process is sometimes referred to as the financialization of commodity markets. According to an estimate provided by the Commodity Futures Trading Commission (CFTC) in 2008, investment inflows to various commodity futures indices from early 2000 to June 30, 2008 totaled \$200 billion.<sup>1</sup> The increasing presence of financial investors in commodity markets has led to a growing concern of the public and in policy circles as to whether financialization might have affected commodity prices and whether more government regulation in these markets is warranted.

In particular, the synchronized boom and bust cycle in 2007–8 in a large number of commodities across the energy, metal, and agricultural sectors has led to a heated debate regarding whether speculation in commodity futures markets

caused a bubble in commodity prices. Testing to determine whether there actually was a price bubble is challenging and deflects attention from analyzing more nuanced impacts of financialization on commodity markets. Mindful of these considerations, in a series of studies my co-authors and I focus on analyzing how the increasing presence of financial traders has transformed commodity markets through the economic mechanisms that underpin these markets: risk sharing and information discovery. This research summary provides an overview of these studies. Ing-Haw Cheng and I have also written a broader review of the literature on the financialization of commodity markets and on the debate about whether there was a price bubble.<sup>2</sup>

### Evidence of Financialization

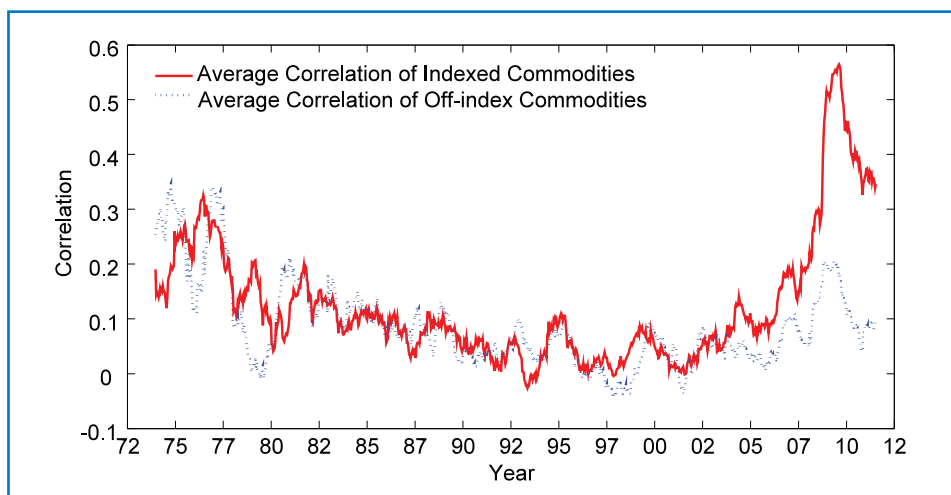
Prior to the early 2000s, despite liquid futures contracts being traded on many commodities, their prices offered a risk premium for idiosyncratic commodity price risk, and had little co-movement with stocks or with each other.<sup>3</sup> These aspects are in sharp contrast to the price

dynamics of typical financial assets, which carry a premium only for systematic risk and are highly correlated with market indices and with each other. This contrast indicates that commodity markets were partially segmented from outside financial markets and from each other.

Ke Tang and I present evidence that financialization has increased the integration of commodity futures markets with each other.<sup>4</sup> We find that futures prices of non-energy commodities became increasingly correlated with oil prices after 2004, when significant index investment started to flow into commodities markets. Figure 1, on page 21, shows that while this trend intensified after the world financial crisis triggered by the bankruptcy of Lehman Brothers in September 2008, its presence was already evident and significant before the crisis. In particular, this trend was significantly more pronounced for commodities in the popular S&P-GSCI and DJ-UBS commodity investment indices than for those off the indices after controlling for a set of alternative arguments. The trend increase in the difference in futures price co-movements with oil between indexed and off-index com-

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**Figure 1: Average Correlations of Indexed and Off-Index Commodities**

Source: Tang and Xiong, 2012, endnote 4

modities is related to the large inflows of investment capital to commodity index securities during this period.

A compelling alternative argument for the increased co-movements between commodity prices is the rapidly increasing commodity demands from fast-growing emerging economies such as China.<sup>5</sup> Indeed, there is evidence of an increasing return correlation between commodities and the Morgan Stanley emerging market equity index in recent years. However, we also find that co-movements of commodity futures prices in China remained stable in 2006–8, which was in sharp contrast to the large increases in the United States during this period. This contrast again suggests that the increases in commodity price co-movements were not all driven by changes in supply and demand of commodities from the fast-growing emerging economies.

## Risk sharing

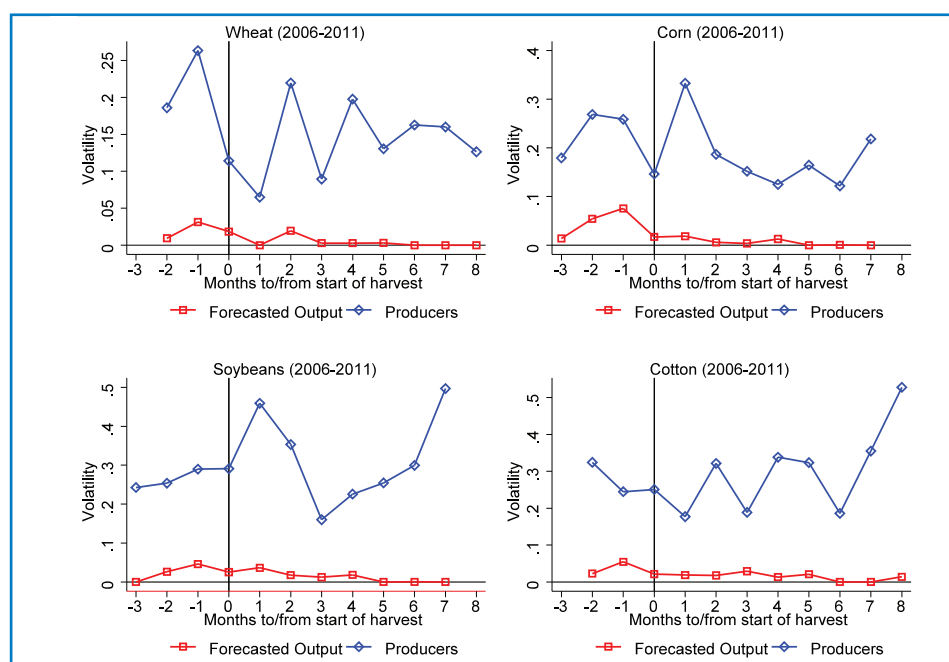
One of the original reasons for developing commodity futures markets was to facilitate commodity producers' unloading of their commodity price risks to other economic agents. The long-standing hedging pressure theory of Keynes and Hicks emphasizes that commercial hedgers, who are typically producers and are net short in commodity futures markets, face insufficient interest from

other participants on the long side. The aforementioned partial segmentation of commodity futures markets prior to the 2000s is consistent with the premise of such inefficient risk sharing posited by the hedging pressure theory. By bringing more financial traders to the long side of commodity futures markets, financialization facilitates the risk sharing of commercial hedgers.<sup>6</sup>

However, financial traders such as

hedge funds and commodity index traders also face their own need to control risk and may have to reduce risk exposure in commodity futures markets when their risk-bearing capacity falls as a result of reasons outside of commodity markets. My joint work with Cheng and Andrei Kirilenko provides a vivid example of how financial distress experienced by financial traders during the recent financial crisis may cause them to consume rather than to provide liquidity in commodity futures markets.<sup>7</sup> By using changes in the VIX to proxy for shocks to financial traders' risk-bearing capacity, we find that during the crisis, but not before it, increases in the VIX led financial traders to reduce their net long positions in 12 agricultural commodities. The market-clearing condition implies that this was coupled with reductions in futures prices and hedgers' short positions, leading to a reallocation of commodity price risk from financial traders to hedgers during the crisis. This finding highlights financial traders' dual roles as both liquidity providers and liquidity consumers to hedgers.

A common practice in both academic and policy studies of speculation



**Figure 2: Volatility of Hedgers' Position and Output Forecast**

Source: Cheng and Xiong, 2013, endnote 8

and hedging in futures markets is to treat trading by hedgers as hedging and trading by speculators as speculation. Like financial traders who might have hedging needs, hedgers may also engage in speculative trading. In a recent study, Cheng and I specifically analyze whether hedging motives can sufficiently explain trading by hedgers in futures contracts of four agricultural commodities — wheat, corn, soybeans, and cotton — for which we have relatively clean measures of hedgers' positions and needs.<sup>8</sup> Figure 2 shows that in each of these commodities, the volatility in hedgers' futures positions, measured by the volatility of the monthly percentage change of their aggregate short position, is many times greater than the cross-harvest volatility of monthly percentage changes in USDA output forecasts, which ultimately determine the hedgers' hedging need. Interestingly, price changes prove to be a far better explanatory variable for short-term changes in hedgers' positions than changes in output forecasts. Specifically, hedgers tend to sell more futures when prices rise and buy back futures when prices fall.<sup>9</sup> These findings suggest that while hedgers take short positions in futures markets to hedge their commercial risks, they may also engage in speculation on the margin.

Taken together, my studies present a more nuanced view of risk sharing in commodity futures markets than the prior literature suggests. While financialization causes more financial traders to share the commodity price risk of hedgers, financial traders may have to demand liquidity from hedgers when they experience their own financial distress, which occurred during the recent financial crisis. On the other side, hedgers trade not just to hedge, and hedgers may engage in speculation against financial traders as well. To fully understand risk sharing in commodity futures markets thus requires identifying the motives of both sides of individual trades rather than simply classifying traders into different categories and then separating speculation from hedging based on the categories.

## Information Discovery

Participants in commodity markets face severe informational frictions. The globalization of many industrial and agricultural commodities has exposed market participants to informational frictions regarding the supply, demand, and inventory of these commodities around the world. Aggregating such information from different countries or regions is challenging. The statistics from emerging economies are often sparse and unreliable. The statistics from OECD countries, while more reliable, are often delayed and subject to subsequent revisions. The presence of severe informational frictions gives trading in both spot and futures markets for commodities an important role in aggregating information regarding supply and demand of these commodities.

In my joint work with Michael Sockin, we develop a theoretical framework to highlight an informational feedback channel for trading in commodity markets to affect commodity demand.<sup>10</sup> This framework integrates commodity market trading under asymmetric information with an international macro setting. In this setting, a continuum of specialized goods producers whose production has complementarity, which emerges from their need to trade produced goods with each other, faces unobservable global economic strength and demands a key commodity, such as copper, as a common production input. Through the trading of the commodity either in a spot or futures market, the equilibrium commodity price aggregates dispersed information regarding global economic strength and, in turn, affects the goods producers' expectations. Through this channel, informational noise in the commodity price, which may originate from either supply shocks or trading in futures markets, affects the goods producers' demand for the commodity.

In contrast to conventional wisdom that a higher commodity price leads to a lower quantity demanded by goods producers, our model shows that demand may increase with price. This happens

because a higher commodity price signals a stronger global economy and motivates each goods producer to demand more of the commodity for producing more goods. This informational effect offsets the cost effect. The complementarity in production among goods producers magnifies the informational effect through their incentives to coordinate production decisions and can even lead to a positive price elasticity of their commodity demand.

Conghui Hu and I provide empirical evidence that supports commodity futures prices as barometers of global economic strength in recent years.<sup>11</sup> Specifically, we find that in 2005–12, the stock prices of five East Asian economies — China, Hong Kong, Japan, South Korea, and Taiwan — had positive reactions to lagged overnight futures prices of copper and soybeans traded in the United States, and weaker reactions to crude oil. Interestingly, these East Asian economies are all net importers of these commodities. The positive price reactions indicate that East Asian stock markets tended to interpret the rising futures prices as signals of strong global demand for their produced final goods despite the higher input factor cost during the sample period.

The important informational role of commodity prices has an intricate implication for empirical detection of speculative effects in commodity markets and in particular for understanding the boom and bust of commodity prices in 2007–8. After the oil price boom in 2008, many commentators pointed toward the lack of inventory response to rising oil prices as a reason to doubt speculative effects on oil prices. The logic is as follows: if speculation artificially drives up oil prices, the increased prices would reduce oil consumption and thus lead to more oil storage. According to this logic, the lack of a spike in oil inventory during the oil price boom suggests that the rising oil prices during this period were justified by rising oil demand. This logic, while intuitive and compelling, ignores the aforementioned informational effect of oil prices. When the informational effect is sufficiently strong, it is possible for specula-

tion to drive up oil prices without causing demand to fall or inventory to rise.

Indeed, it is difficult to fully explain the large price increases of crude oil, copper, and other key commodities in the first half of 2008 simply based on rising commodity demands. In this period, oil prices increased by 40 percent before peaking at \$147 per barrel in intraday trading in July 2008. Major world economies such as the United States were falling into recession in late 2007, with the United States beginning its recession in December 2007 (as determined by the NBER). The S&P 500, FTSE 100, DAX, and Nikkei equity indices had peaked by October 2007, and with the collapse of Bear Stearns in March 2008 the world financial system was facing imminent trouble. Growth in emerging economies such as China was also slowing: year-on-year growth in China's GDP peaked in mid-2007, and the Shanghai CSI 300, MSCI China, and broader MSCI Emerging Markets equity indices peaked in October 2007. With the benefit of hindsight, it is difficult to argue that the growth of the emerging economies, which were heavily dependent on exports to developed economies and were themselves slowing, was strong enough to more than offset the weakness in the developed economies and to push up oil prices by more than 40 percent over the first half of 2008.

On the other hand, it is reasonable to argue that there was great uncertainty regarding the strength of the global economy during this period. As shown in recent work by Kenneth Singleton, the large oil price increases in early 2008 were accompanied by a greatly increased dispersion of one-year-ahead oil price forecasts by professional economists.<sup>12</sup> In

this uncertain environment, agents in the economy might have reasonably interpreted the large increases in futures prices of oil and other commodities as positive signals of robust commodity demand from China and other emerging economies. Through this informational channel, speculation in commodity futures markets might have affected commodity demand and prices.

This body of research suggests that to fully understand the dramatic boom and bust of commodity prices in recent years and to systematically evaluate the role of futures market speculation, it is important to account for severe informational frictions faced by market participants and for the informational role of commodity prices in affecting their expectations.

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<sup>1</sup> Commodity Futures Trading Commission, "Staff Report on Commodity Swap Dealers and Index Traders with Commission Recommendations," September 2008.

<sup>2</sup> I. Cheng and W. Xiong, "The Financialization of Commodity Markets," NBER Working Paper No. 19642, November 2013, and forthcoming in the Annual Review of Financial Economics.

<sup>3</sup> H. Bessembinder, "Systematic Risk, Hedging Pressure, and Risk Premiums in Futures Markets," Review of Financial Studies, 4 (1992), pp. 637–67; G. Gorton and G. Rouwenhorst, "Facts and Fantasies about Commodity Futures," Financial Analysts Journal, 62 (2) (2006), pp. 47–68; C. Erb and C. Harvey, "The Strategic and Tactical Value of Commodity Futures," Financial Analysts Journal, 62 (2) (2006), pp. 69–97.

<sup>4</sup> K. Tang and W. Xiong, "Index

Investment and Financialization of Commodities," NBER Working Paper No. 16385, September 2010, and Financial Analysts Journal, 68 (6) (November 2012), pp. 54–74.

<sup>5</sup> J. D. Hamilton, "Causes and Consequences of the Oil Shock of 2007–08," NBER Working Paper No. 15002, May 2009; L. Kilian, "Not All Oil Price Shocks Are Alike: Disentangling Demand and Supply Shocks in the Crude Oil Market," American Economic Review, 99 (2009), pp. 1053–69.

<sup>6</sup> See evidence by J. D. Hamilton and J. C. Wu, "Risk Premia in Crude Oil Futures Prices," NBER Working Paper No. 19056, May 2013.

<sup>7</sup> I. Cheng, A. Kirilenko, and W. Xiong, "Convective Risk Flows in Commodity Futures Markets," NBER Working Paper No. 17921, March 2012.

<sup>8</sup> I. Cheng and W. Xiong, "Why Do Hedgers Trade So Much?" NBER Working Paper No. 19670, November 2013, and forthcoming in the Journal of Legal Studies.

<sup>9</sup> See also the recent work of W. Kang, G. Rouwenhorst, and K. Tang, "The Role of Hedgers and Speculators in Liquidity Provision to Commodity Futures Markets," Working paper, Yale University, 2013.

<sup>10</sup> M. Sockin and W. Xiong, "Informational Frictions and Commodity Markets," NBER Working Paper No. 18906, March 2013.

<sup>11</sup> C. Hu and W. Xiong, "Are Commodity Futures Prices Barometers of the Global Economy?" NBER Working Paper No. 19706, December 2013.

<sup>12</sup> K. Singleton, "Investor Flows and the 2008 Boom/Bust in Oil Prices," Management Science, 60 (2) (February 2014), pp. 300–18.



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## NBER Profile: *David Autor*

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David Autor is a Research Associate in the NBER's Programs on Aging, Education, and Labor Studies, and a Professor of Economics at MIT. He is also a Research Affiliate of the Abdul Latif Jameel Poverty Action Lab, Co-director of the MIT School Effectiveness and Inequality Initiative, Associate Director of the NBER Disability Research Center, and Editor-in-Chief of the *Journal of Economic Perspectives*. He studies labor market impacts of technological change and globalization, earnings inequality, disability insurance and labor supply, and temporary help and other intermediated work arrangements. Autor has received an NSF Career Award, an Alfred P. Sloan Foundation Fellowship,

the Sherwin Rosen Prize for Outstanding Contributions in the Field of Labor Economics, and MIT's James A. and Ruth Levitan Award for excellence in teaching. He is also an elected Fellow of the American Academy of Arts and Sciences. Autor earned a B.A. in Psychology from Tufts University and a Ph.D. in Public Policy from Harvard's Kennedy School of Government in 1999. Prior to graduate study, he spent three years directing computer skills education for economically disadvantaged children and adults in San Francisco and South Africa. Autor is the co-captain of the MIT Economics hockey team, which is reputed to be one of the most highly cited teams in the MIT intramural league.



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## NBER Profile: *Marianne Bertrand*

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Marianne Bertrand is a Research Associate in the NBER's Programs on Corporate Finance, Development Economics, and Labor Studies, and is the Chris P. Dialynas Distinguished Service Professor of Economics at the University of Chicago Booth School of Business. She is also a Research Fellow at the Center for Economic Policy Research and the Institute for the Study of Labor, a Co-Director of Chicago Booth's Social Enterprise Initiative, a member of the Faculty Advisory Board for the University of Chicago's Collegium for Culture and Society, and a member of the Board of Directors for the Abdul Latif Jameel Poverty Action Lab. She serves as co-editor of the *American Economic Review*.

Bertrand is an applied microeconomist whose research has been published widely. She has received several awards and honors, including the 2004 Elaine Bennett

Research Prize, awarded by the American Economic Association to recognize and honor outstanding research in any field of economics by a woman at the beginning of her career, and the 2012 Society of Labor Economists' Sherwin Rosen Prize for Outstanding Contributions in the Field of Labor Economics. She is a Fellow of the American Academy of Arts and Sciences.

Born in Belgium, Bertrand received a bachelor's degree in economics from Belgium's Université Libre de Bruxelles in 1991, followed by a master's degree in econometrics from the same institution the next year. She moved to the United States in 1993 and earned a Ph.D. in economics from Harvard University in 1998. She was a faculty member in the Department of Economics at Princeton University for two years before joining Chicago Booth in 2000.

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## NBER Profile: *Gordon Hanson*

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Gordon Hanson is a Research Associate in the NBER's Programs on Development Economics and International Trade and Investment. He holds the Pacific Economic Cooperation Chair of International Economic Relations at the University of California, San Diego School of International Relations and Pacific Studies, and is a Professor of Economics in the university's Department of Economics.

Hanson earned a bachelor's degree in economics from Occidental College in 1986 and a Ph.D. in economics from MIT in 1992. He joined the University of California, San Diego in 2001 and previously held faculty appointments at the University of Michigan and at the

University of Texas.

Currently, Hanson is co-editor at the *Review of Economics and Statistics*. At the University of California, San Diego, he directs the Center on Emerging and Pacific Economies and recently helped launch the Policy Design and Evaluation Lab. His ongoing projects addressing trade, immigration, and labor markets frequently take him to China and to Mexico.

Hanson grew up in Chang Mai, Thailand, and Fresno, California, and currently lives in Solana Beach, California with his wife, Caty, and daughters Thea (17) and Carlyn (14). His hobbies include skiing, water sports, and entertaining his three-year-old cattle dog.



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## NBER Profile: *Emmanuel Saez*

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Emmanuel Saez is a Research Associate in the NBER's Programs on Public Economics and Economic Fluctuations and Growth, and a Professor of Economics and Director of the Center for Equitable Growth at the University of California, Berkeley. His research focuses on tax policy and inequality both from theoretical and empirical perspectives. Jointly with Thomas Piketty, he has constructed long-run historical series of

income inequality in the United States that have been widely discussed in the public debate. He received his Ph.D. in Economics from MIT in 1999. He was awarded the John Bates Clark Medal of the American Economic Association in 2009 and a MacArthur Fellowship in 2010. He became an NBER Faculty Research Fellow in 1999, and has been a Research Associate since 2003.

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## NBER Profile: *Wei Xiong*

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Wei Xiong is a Research Associate in the NBER's Program on Asset Pricing, and a Professor of Economics at Princeton University, where he has been on the faculty since 2000. He received his Ph.D. in Finance from Duke University in 2001. Before that, he studied physics, receiving a B.S. from the University of Science and Technology of China in 1993 and his M.A. from Columbia University in 1995.

Xiong's research focuses on capital

market frictions and behavioral finance. His recent work explores the financialization of commodity markets, belief distortions in the financial sector, and China's financial markets. In 2012, he received the Amundi Smith Breeden Award for best paper published in the *Journal of Finance*.

Xiong lives in Princeton, New Jersey, with his wife Lin and their seven-year-old daughter Meiya and four-year-old son Yi-Tian.



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## Conferences

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### Economics of Culture and Institutions

An NBER Conference on the Economics of Culture and Institutions took place in Cambridge on April 5, 2014. Research Associate Alberto Bisin of New York University and Faculty Research Fellow Paola Giuliano of the University of California, Los Angeles, organized the meeting. They chose these papers to discuss:

- **Yuriy Gorodnichenko**, University of California, Berkeley and NBER, and **Gerard Roland**, University of California, Berkeley, "Culture, Institutions, and Democratization"
- **Davide Cantoni**, University of Munich; **Yuyu Chen**, Peking University; **David Yufan Yang**, Stanford University; **Noam Yuchtman**, University of California, Berkeley and NBER; and **Y. Jane Zhang**, Hong Kong University of Science and Technology, "Curriculum and Ideology"
- **Ruixue Jia**, University of California, San Diego, and **Torsten Persson**, IIES and NBER, "Ethnicity in Children and Mixed Marriages: Theory and Evidence from China"
- **Marianna Belloc**, Sapienza University of Rome; **Francesco Drago**, University of Naples Federico II and CSEF; and **Roberto Galbiati**, CNRS and Sciences Po, "Earthquakes, Religion, and Transition to Self-Government in Italian Cities"
- **Yann Algan** and **Elizabeth Beasley**, Sciences Po; **Frank Vitaro**, Université de Montréal; and **Richard Tremblay**, Université de Montréal — GRIP, "The Long-Term Impact of Social Skills Training at School Entry: A Randomized Controlled Trial"
- **Benjamin Enke** and **Anke Becker**, Bonn Graduate School of Economics; **Thomas Dohmen**, Maastricht University; and **Armin Falk**, University of Bonn, "The Ancient Origins of the Cross-Country Heterogeneity in Risk Preferences"



- **Xi Chen**, Yale University; **Ravi Kanbur**, Cornell University; and **Xiaobo Zhang**, International Food Policy Research Institute, “Peer Effects, Risk Pooling, and Status Seeking: What Explains Gift Spending Escalation in Rural China?”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/CIs14/summary.html>

## Innovation Policy and the Economy

The NBER’s fifteenth annual Conference on Innovation Policy and the Economy took place in Washington on April 8, 2014. The conference was organized by Faculty Research Fellow William Kerr and Research Associate Josh Lerner of the Harvard Business School, and Research Associate Scott Stern of MIT. They chose these papers to discuss:

- **George Borjas**, Harvard University and NBER, and **Kirk Doran**, University of Notre Dame, “How High-Skill Immigration Affects Science: Evidence from the Collapse of the USSR”
- **John Bound**, University of Michigan and NBER; **Murat Demirci**, University of Virginia; **Gaurav Khanna**, University of Michigan; and **Sarah Turner**, University of Virginia and NBER, “Finishing Degrees and Finding Jobs”
- **Paula Stephan**, Georgia State University and NBER; **Chiara Franzoni**, Politecnico di Milano; and **Giuseppe Scellato**, Politecnico di Torino, “International Competition for Ph.D.s and Postdoctoral Scholars: What Does (and Does Not) Matter”
- **Sari Pekkala Kerr**, Wellesley College; **William Kerr**; and **William Lincoln**, Johns Hopkins University, “Firms and the Economics of High-Skilled Immigration”
- **Richard Freeman**, Harvard University and NBER, “Immigration, International Collaboration, and Innovation: Science and Technology Policy in the Global Economy”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/IPEs14/summary.html>

## Twenty-Ninth Macroeconomics Annual Conference

The NBER’s Twenty-Ninth Macroeconomics Annual Conference, organized by Research Associates Jonathan Parker of MIT and Michael Woodford of Columbia University, took place in Cambridge on April 11 and 12, 2014. They selected these papers to discuss:

- **Robert Hall**, Stanford University and NBER, “Quantifying the Lasting Harm to the U.S. Economy from the Financial Crisis”
- **Christopher Foote**, Federal Reserve Bank of Boston, and **Rich Ryan**, University of Michigan, “Labor Market Polarization over the Business Cycle”
- **Hess Chung**, **Edward Herbst**, and **Michael Kiley**, Federal Reserve Board, “Effective Monetary Policy Strategies in New-Keynesian Models: A Re-Examination”
- **John Fernald**, Federal Reserve Bank of San Francisco, “Productivity and Potential Output Before, During, and After the Great Recession”

- **Tarek Alexander Hassan**, University of Chicago and NBER, and **Thomas Mertens**, New York University, “Information Aggregation in a DSGE Model”
- **Robert Barsky**, Federal Reserve Bank of Chicago and NBER; **Susanto Basu**, Boston College and NBER; and **Keyoung Lee**, Federal Reserve Bank of Chicago, “Whither News Shocks?”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/Macro14/summary.html>

## Financing Housing Capital

An NBER Conference on Financing Housing Capital, organized by Research Associate Monika Piazzesi of Stanford University, took place on April 25, 2014 in Chicago. These papers were discussed:

- **Matteo Iacoviello** and **Luca Guerrieri**, Federal Reserve Board, “Collateral Constraints and Macroeconomic Asymmetries”
- **Stefano Giglio**, University of Chicago and NBER; **Matteo Maggiori**, New York University and NBER; and **Johannes Stroebel**, New York University, “Very Long-Run Discount Rates”
- **Michael Sockin**, Princeton University, and **Wei Xiong**, Princeton University and NBER, “Learning about the Neighborhood: A Model of Housing Cycles”
- **David Scharfstein**, Harvard University and NBER, and **Adi Sunderam**, Harvard University, “Concentration in Mortgage Lending, Refinancing Activity, and Mortgage Rates” (NBER Working Paper No. [19156](#))
- **Erik Hurst**, **Amit Seru**, and **Joseph Vavra**, University of Chicago and NBER, and **Benjamin Keys**, University of Chicago, “Regional Risk Sharing Through the U.S. Mortgage Market”
- **Giovanni Favara**, Federal Reserve Board, and **Mariassunta Giannetti**, Stockholm School of Economics, “Mortgage Concentration, Foreclosures, and House Prices”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/FHCs14/summary.html>

## Monetary Policy and Financial Stability in Emerging Markets

In conjunction with the Central Bank of the Republic of Turkey, the NBER sponsored a meeting on “Monetary Policy and Financial Stability in Emerging Markets,” which was held in Istanbul on June 13–15, 2014. The conference organizers were Research Associates Laurence Ball of Johns Hopkins University and Sebnem Kalemli-Ozcan of the University of Maryland, and Turalay Kenc and Yusuf Soner Başkaya of The Central Bank of the Republic of Turkey. The organizers chose these papers to discuss:

- **Olivier Blanchard**, International Monetary Fund and NBER, and **Jonathan Ostry**, **Atish Ghosh**, and **Marcos Chamon**, International Monetary Fund, “Capital Flow Management”
- **Emmanuel Farhi**, Harvard University and NBER, and **Ivan Werning**, MIT and NBER, “Dilemma not Trilemma? Capital Controls and Exchange Rates with Volatile Capital Flows”
- **Kristin Forbes**, MIT and NBER, and **Michael Klein**, Tufts University and NBER, “Shifting from a Salsa to a Waltz: The Consequences of Policy Responses during Global Booms”

- **Laura Alfaro**, Harvard University and NBER; **Anusha Chari**, University of North Carolina, Chapel Hill and NBER; and **Fabio Kanczuk**, University of São Paulo, “The Real Effects of Capital Controls: Credit Constraints, Exporters, and Firm Investment”
- **Cecilia Dassatti**, Central Bank of Uruguay, and **José-Luis Peydró**, Universitat Pompeu Fabra, “Macprudential and Monetary Policy: Loan-Level Evidence from Reserve Requirements”
- **Anton Korinek**, Johns Hopkins University and NBER, and **Damiano Sandri**, International Monetary Fund, “Capital Controls or Macprudential Regulation?”
- **Julien Bengui**, Université de Montréal, and **Javier Bianchi**, University of Wisconsin, Madison, and NBER, “Capital Flow Management When Capital Controls Leak”
- **Koray Alper**, **Mahir Binici**, **Hakan Kara**, and **Pinar Özlü**, Central Bank of Turkey, and **Selva Demiralp**, Koc University, “Required Reserves, Liquidity Risk, and Credit Growth”
- **Pablo Mariano Federico**, BlackRock, Inc.; **Carlos Vegh**, Johns Hopkins University and NBER; and **Guillermo Vuletin**, Brookings Institution, “Effects and Role of Macprudential Policy: Evidence from Reserve Requirements Based on a Narrative Approach”
- **Markus Brunnermeier**, Princeton University and NBER, and **Yuliy Sannikov**, Princeton University, “International Credit Flows, Pecuniary Externalities, and Capital Controls”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/MPFSs14/summary.html>

## Trans-Atlantic Public Economics Seminar on Personal Income Taxation and Household Behavior

The NBER’s bi-annual Trans-Atlantic Public Economics Seminar met in Vienna on June 16–18, 2014. The seminar, hosted by the Institute for Advanced Studies (IHS), focused on the topic of personal income taxation and household behavior. The meeting was co-organized by Research Associate Roger Gordon of the University of California, San Diego and IHS Director Christian Keuschnigg, who chose the following papers for discussion:

- **Richard Blundell**, University College London and Institute for Fiscal Studies; **Monica Costa Dias** and **Jonathan Shaw**, Institute for Fiscal Studies; and **Costas Meghir**, Yale University and NBER, “Female Labor Supply, Human Capital, and Welfare Reform” (NBER Working Paper No. [19007](#))
- **Robert McClelland** and **Shannon Mok**, Congressional Budget Office, and **Kevin Pierce**, Internal Revenue Service, “Labor Force Participation Elasticities of Women and Secondary Earners within Married Couples”
- **Aspen Gorry**, Utah State University; **Kevin Hassett** and **Aparna Mathur**, American Enterprise Institute; and **Glenn Hubbard**, Columbia University and NBER, “The Elasticity of Deferred Income with Respect to Marginal Income Tax Rates”
- **Jon Bakija** and **William Gentry**, Williams College, “Capital Gains Taxes and Realizations: Evidence from a Long Panel of State-Level Data”
- **Philipp Dörrenberg**, **Andreas Peichl**, and **Sebastian Siegloch**, ZEW and IZA, “How Responsive Are Deductions to Tax Rate Changes?”



- **Dominika Langenmayr**, University of Munich, “Voluntary Disclosure of Evaded Taxes — Increasing Revenues, or Increasing Incentives to Evade?”
- **John Beshears**, **David Laibson**, and **Brigitte Madrian**, Harvard University and NBER, and **James Choi**, Yale University and NBER, “Does Front-Loading Taxation Increase Savings? Evidence from Roth 401(k) Introductions”
- **Jeffrey Brown**, University of Illinois at Urbana-Champaign and NBER; **James Poterba**, MIT and NBER; and **David Richardson**, TIAA-CREF, “Do Required Minimum Distributions Constrain Household Behavior? The Effect of the 2009 Holiday on Retirement Savings Plan Distributions”
- **Jarkko Harju** and **Tuomas Matikka**, Government Institute for Economic Research, “The Elasticity of Taxable Income and Income-shifting: What is ‘Real’ and What is Not?”
- **Luzi Hail** and **Stephanie Sikes**, University of Pennsylvania, and **Clare Wang**, Northwestern University, “Cross-Country Evidence on the Relation between Capital-Gains Taxes, Risk, and Expected Returns”
- **Annette Alstadsæter**, University of Oslo, and **Martin Jacob**, WHU Otto Beisheim School of Management, “Do Dividend Taxes Affect Corporate Investment?”
- **Peter Egger** and **Katharina Erhardt**, ETH Zürich, and **Christian Keuschnigg**, “Personal Income Taxes, Corporate Profit Taxes and the Heterogeneous Tax Sensitivity of Firm-Level Investments”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/TAPES14/summary.html>

## 25th Annual East Asian Seminar on Economics Held in Tokyo

The 25th Annual East Asian Seminar took place in Tokyo on June 20 and 21, 2014. This meeting was jointly sponsored by the NBER, the Tokyo Center for Economic Research, 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 Canon Institute for Global Studies. The meeting focused on “Unconventional Monetary Policy.” The meeting was organized by NBER Research Associates Takatoshi Ito of the University of Tokyo and Andrew Rose of the University of California, Berkeley, along with Tsutomu Watanabe and Kosuke Aoki of the Center for Advanced Research in Finance at the University of Tokyo. The organizers chose these papers to discuss:

- **Takatoshi Ito**, “We Are All QE-sians Now”
- **Lars Svensson**, Stockholm School of Economics and NBER, “Inflation Targeting and Leaning Against the Wind: A Case Study”
- **Adair Morse** and **Annette Vissing-Jorgensen**, University of California, Berkeley and NBER; and **Anna Cieslak**, Northwestern University, “Stock Returns over the FOMC Cycle”
- **John Fernald**, **Mark Spiegel** and **Eric Swanson**, Federal Reserve Bank of San Francisco, “Monetary Policy Effectiveness in China: Evidence from a FAVAR Model”
- **Randall Morck**, University of Alberta and NBER; **Deniz Yavuz**, Purdue University; and **Bernard Yeung**, National University of Singapore, “State-Controlled Banks and the Effectiveness of Monetary Policy”
- **Gu Jin** and **Tao Zhu**, Hong Kong University of Science and Technology, “Non Neutrality of Money in Dispersion: Hume Revisited”

- **Leo Krippner**, Reserve Bank of New Zealand and CAMA, “Measuring the Stance of Monetary Policy in Conventional and Unconventional Environments”
- **Byongju Lee, Woon Gyu Choi, Taesu Kang, and Geun-Young Kim**, Bank of Korea, “U.S. Monetary Policy Normalization and EME Policy Mix from a Global Liquidity Perspective”
- **Roberto Rigobon**, MIT and NBER, “Online Price Index: Congruence and Predictability of the Official CPI”
- **Tsutomu Watanabe and Kota Watanabe**, Meiji University, “Estimating Daily Inflation Using Scanner Data: A Progress Report”
- **Ippei Fujiwara**, Australian National University; **Yoshiyuki Nakazono**, Yokohama City University; and **Kozo Ueda**, Waseda University, “Policy Regime Change against Chronic Deflation? Policy Option under a Long-Term Liquidity Trap”
- **Chung-Shu Wu and Chun-Neng Peng**, Chung-Hua Institution for Economic Research; **Jin-Lung Lin**, National Dong-Hwa University; and **Hsiang-Yu Chin**, National Chengchi University, “Capital Flows and Unconventional Monetary Policy”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/EASE14/summary.html>

## NBER China Conference

The fifteenth annual CCER-NBER-Tsinghua University Conference on China and the World Economy took place at the China Center for Economic Research (CCER) in Beijing on June 25–28, 2014. The conference was jointly organized by NBER Research Associate Shang-Jin Wei of Columbia University, Yang Yao of CCER, and Chong-En Bai of Tsinghua University. The organizers chose the following topics for discussion:

### *China and the Global Economy*

- **Justin Lin**, CCER, “China and the World Economy”
- **René Stulz**, Ohio State University and NBER, “Bank Performance during a Crisis”

### *Financial Market*

- **Joshua Aizenman**, University of Southern California and NBER, “Real Estate Valuation in the Open Economy”
- **Yiping Huang**, CCER, “Ownership and Credit Rationing in China”

### *Intergenerational Mobility*

- **Nathaniel Hendren**, Harvard University and NBER, “Intergenerational Mobility in the United States: Lessons from the Equality of Opportunity Project”
- **Chih Ming Tan**, University of Dakota, and **Zhibo Tan and Xiaobo Zhang**, CCER, “Sins of the Father: The Intergenerational Legacy of the 1959–61 Great Chinese Famine on Children’s Cognitive Development”
- **Xiaoyan Lei**, CCER, “Intergenerational Mobility in Education: Evidence from CHARLS”

## *Trade*

- **Pol Antras**, Harvard University and NBER, “Contract Theory and Global Value Chains”
- **Shang-Jin Wei**, “Sizing up Market Failures in Export Pioneering Activities”
- **Miaojie Yu**, CCER, “Multiproduct Firms, Export Product Scope, and Trade Liberalization: The Role of Managerial Efficiency”

## *International Finance*

- **Menzie Chinn**, University of Wisconsin, Madison and NBER, “The Trilemma and Reserves: Measurement and Policy Implications”
- **Yang Yao**, “Financial Structure and Current Account Imbalances”
- **Jianguo Xu**, CCER, “China A-share Stock Valuation: Fundamental Risk and Speculation Premium”
- **Pierre-Olivier Gourinchas**, University of California, Berkeley and NBER, “Global Safe Assets”
- **Jiandong Ju**, **Qing Liu**, and **Kang Shi**, Tsinghua University, and **Justin Lin**, CCER, “A Dynamic Structural Analysis of Real Exchange Rate and Current Account Imbalances: Theory and Evidences from China”

## *Policies and Markets*

- **Bruce Weinberg**, Ohio State University and NBER, “Strengthening Scientific Performance: Lessons and Benefits”
- **Li Jin**, Peking University and Oxford University, “The Effect of Political Career Concerns on Media Slant and Market Return: Evidence from China”
- **Chong-en Bai**, **Qing Liu**, and **Wen Yao**, Tsinghua University, “Distortions to the Capital Market and their Implications on the Economic Structure: The Case of China”

## *Retirement*

- **Alan Gustman**, Dartmouth College and NBER, “Pensions, Social Security and Retirement”
- **Yaohui Zhao**, CCER, “Working After Processing Retirement: Evidence from CHARLS”
- **Bo Zhao**, CCER, “Too Poor to Retire? House Prices and Retirement”

## *College Education*

- **Bridget Long**, Harvard University and NBER, “Making College Education Accessible to Disadvantaged Students (1)”
- **Susan Dynarski**, University of Michigan and NBER, “Making College Education Accessible to Disadvantaged Students (2)”
- **Hongbin Li**, Tsinghua University, “China’s College Education”

Summaries of these papers may be found at: <http://conference.nber.org/confer/2014/China14/summary.html>



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## International Seminar on Macroeconomics

NBER's 37th International Seminar on Macroeconomics (ISOM) took place in Riga on June 27 and 28, 2014. The seminar was organized by Research Associates Richard Clarida of Columbia University, Jeffrey Frankel of Harvard University, Francesco Giavazzi of Bocconi University, and Hélène Rey of London Business School. The organizers chose the following papers for discussion:

- **Kristin Forbes**, MIT and NBER; **Marcel Fratzscher**, DIW Berlin and CEPR; and **Roland Straub**, European Central Bank, "Capital Controls and Macroprudential Measures: What Are They Good For?"
- **Agustín Bénétrix** and **Philip Lane**, Trinity College Dublin, and **Jay Shambaugh**, George Washington University and NBER, "International Currency Exposures, Valuation Effects, and the Global Financial Crisis"
- **Cecilia Hornok**, Hungarian Academy of Sciences, and **Miklos Koren**, Central European University, "Lumpy Trade and the Welfare Effects of Administrative Barriers"
- **Òscar Jordà**, Federal Reserve Bank of San Francisco; **Moritz Schularick**, University of Bonn; and **Alan Taylor**, University of California, Davis and NBER, "Betting the House"
- **Evi Pappa**, **Rana Sajedi**, and **Eugenia Vella**, European University Institute, "Fiscal Consolidation with Tax Evasion and Rent Seeking"
- **Alberto Alesina**, Harvard University and NBER; **Carlo Favero**, Bocconi University; and **Francesco Giavazzi**, "The Output Effect of Fiscal Consolidation Plans"
- **Carmen Reinhart** and **Kenneth Rogoff**, Harvard University and NBER, and **Vincent Reinhart**, Morgan Stanley, "Effective Defaults on Sovereign Debt in Advanced Countries"
- **Matthias Efing**, Swiss Finance Institute; **Harald Hau**, University of Geneva; **Patrick Kampkötter**, University of Cologne, and **Johannes Steinbrecher**, Ifo Dresden, "Incentive Pay and Bank Risk Taking: Evidence from Austrian, German, and Swiss Banks"

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/ISOM14/summary.html>

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## NBER News

### Gentzkow Receives John Bates Clark Medal

NBER Research Associate Matthew Gentzkow received the American Economic Association's John Bates Clark Medal for 2014. This annual award recognizes the American economist under the age of 40 who has made the most substantial contribution to economic thought and knowledge. This year's prize highlights Gentzkow's research contributions in "understanding the economic forces driving the creation of media products, the changing nature and role of media in the digital environment, and the

effect of media on education and civic engagement."

Gentzkow is the Richard O. Ryan Professor of Economics and the Neubauer Family Faculty Fellow at the University of Chicago's Booth School of Business. He is a Research Associate in the NBER's Programs on Industrial Organization and Political Economy. He received his B.A. in 1997 and his Ph.D. in 2004 from Harvard University.

Other current NBER Research Associates who have received the Clark

Medal include Daniel McFadden, Martin Feldstein, Joseph Stiglitz, James Heckman, Jerry Hausman, Sanford Grossman, Paul Krugman, Lawrence Summers, David Card, Kevin Murphy, Andrei Shleifer, Steven Levitt, Daron Acemoglu, Susan Athey, Emmanuel Saez, Esther Duflo, Jonathan Levin, Amy Finkelstein, and Raj Chetty. Three other Clark Medal winners, the late Gary Becker, Milton Friedman, and Zvi Griliches, were also NBER affiliates.

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## Program and Working Group Meetings

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### Political Economy

The NBER's Program on Political Economy met in Cambridge on April 4, 2014. Program Director Alberto Alesina of Harvard University chose these papers to discuss:

- **Marina Azzimonti**, Federal Reserve Bank of Philadelphia, "Partisan Conflict"
- **Roland Bénabou**, Princeton University and NBER, and **Davide Ticchi** and **Andrea Vindigni**, IMT Institute for Advanced Studies Lucca, "Forbidden Fruits: The Political Economy of Science, Religion, and Growth"
- **Pedro Bordalo**, University of London; **Nicola Gennaioli**, Università Bocconi; and **Andrei Shleifer**, Harvard University and NBER, "Stereotypes"
- **Amine Ouazad**, INSEAD, and **Romain Rancière**, International Monetary Fund, "Credit Standards and Segregation"
- **Joan Esteban**, Instituto de Análisis Económico, CSIC; **Massimo Morelli**, Columbia University; and **Dominic Rohner**, University of Zurich, "Strategic Mass Killings"
- **Erik Meyersson**, SITE, Stockholm School of Economics, "Political Man on Horseback: Military Coups and Development"

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/POLs14/summary.html>

### Cohort Studies

The NBER's Working Group on Cohort Studies met in Cambridge on April 4, 2014. Working Group Director Dora Costa of the University of California, Los Angeles chose these papers to discuss:

- **Ilon Koupil**, Stockholm University, "Socioeconomic Inequalities in Health among Swedish Men and Women Born 1915–2010: Life Course and Intergenerational Effects across the Twentieth Century"
- **Alissa Goodman**, University of London; **Elaine Kelly**, Institute for Fiscal Studies; and **James Smith**, RAND Corporation, "Childhood Health in the United States and United Kingdom: A Cross-Cohort, Cross-National Comparison"
- **Robert Levenson**, University of California, Berkeley, "Emotional Diversity: Sources and Consequences"
- **Lambert Lumey**, Columbia University, "Early Life Determinants of Health and Socioeconomic Outcomes over the Lifecourse: Findings from the Dutch Famine 1944–45"
- **Jonas Hjort**, Columbia University; **Mikkel Sølvsten**, University California, Berkeley; and **Miriam Wüst**, Aarhus University, "Long-Run Returns to Universal Investments in Infant Health: Evidence from Denmark's Home Visiting Program"

- **Randy Jirtle**, University of Wisconsin, “Epigenetics”
- **Gabriella Conti**, University College London and NBER, “Beyond Birth Weight: The Origins of Health Capital”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/CSs14/summary.html>

## Public Economics

The NBER’s Program on Public Economics met in Cambridge on April 10 and 11, 2014. Program Co-director Raj Chetty of Harvard University and Research Associate Emmanuel Saez of the University of California, Berkeley, chose these papers to discuss:

- **Mark Duggan** and **Amanda Starc**, University of Pennsylvania and NBER, and **Boris Vabson**, University of Pennsylvania, “Who Benefits when the Government Pays More? Pass-Through in the Medicare Advantage Program”
- **Marcus Hagedorn**, Institute for Advanced Studies; **Fatih Karahan**, Federal Reserve Bank of New York; **Iouri Manovskii**, University of Pennsylvania and NBER; and **Kurt Mitman**, University of Pennsylvania, “Unemployment Benefits and Unemployment in the Great Recession: The Role of Macro Effects” (NBER Working Paper 19499)
- **Koichiro Ito**, Boston University and NBER, and **James Saltee**, University of Chicago and NBER, “The Economics of Attribute-Based Regulation: Theory and Evidence from Fuel-Economy Standards”
- **Paul Carrillo**, George Washington University, and **Dina Pomeranz** and **Monica Singhal**, Harvard University and NBER, “Tax Me if You Can: Evidence on Firm Misreporting Behavior and Evasion Substitution”
- **Stefano Giglio**, University of Chicago and NBER; **Matteo Maggiori**, New York University and NBER; and **Johannes Stroebe**, New York University, “Very Long-Run Discount Rates”
- **Dayanand Manoli**, University of Texas, Austin and NBER, and **Nicholas Turner**, Department of the Treasury, “The Impact of Taxpayer Notifications on EITC Use and Earnings”
- **Robert McClelland** and **Shannon Mok**, Congressional Budget Office, and **Kevin Pierce**, Statistics of Income, Internal Revenue Service, “Labor Force Participation Elasticities of Women and Secondary Earners within Married Couples”
- **Victoria Bryant**, Statistics of Income, Internal Revenue Service; **David Grusky** and **Pablo Mitnik**, Stanford University; and **Michael Weber**, Statistics of Income, Internal Revenue Service, “New Estimates of Intergenerational Economic Mobility Using Tax Return Data”
- **Clemens Fuest**, ZEW and the University of Mannheim, and **Andreas Peichl** and **Sebastian Siegloch**, IZA and the University of Cologne, “Do Higher Corporate Taxes Reduce Wages? Micro Evidence from Germany”
- **Jeffrey Clemens**, University of California, San Diego and NBER, and **Joshua Gottlieb**, University of British Columbia, “Bargaining in the Shadow of a Giant: Medicare’s Influence on Private Payment Systems”
- **Rafael Lalive**, University of Lausanne; **Camille Landais**, London School of Economics; and **Josef Zweimuller**, University of Zurich, “Market Externalities of Large Unemployment Insurance Extension Programs”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/PEs14/summary.html>



## Asset Pricing

The NBER's Program on Asset Pricing met at the University of Chicago on April 11, 2014. Faculty Research Fellows Lauren Cohen and Christopher Malloy of the Harvard Business School organized the meeting and chose these papers to discuss:

- **Lubos Pastor**, University of Chicago and NBER; **Robert Stambaugh**, University of Pennsylvania and NBER; and **Lucian Taylor**, University of Pennsylvania, "Scale and Skill in Active Management"
- **Ralph Koijen**, London Business School, and **Motohiro Yogo**, Federal Reserve Bank of Minneapolis, "Shadow Insurance"
- **Matthew Baron**, Princeton University, and **Wei Xiong**, Princeton University and NBER, "Credit Expansion and Financial Instability: Evidence from Stock Prices"
- **Marcin Kacperczyk**, Imperial College and NBER; **Jaromir Nosal**, Columbia University; and **Luminita Stevens**, University of Maryland, "Investor Sophistication and Capital Income Inequality"
- **Tarun Ramadorai** and **Cristian Badarinza**, University of Oxford, "Preferred Habitats and Safe-Haven Effects: Evidence from the London Housing Market"
- **Stefano Giglio**, University of Chicago and NBER; **Matteo Maggiori**, New York University and NBER; and **Johannes Stroebe**, New York University, "Very Long-Run Discount Rates"

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/APs14/summary.html>

## Corporate Finance

The NBER's Program on Corporate Finance met at the University of Chicago Booth School of Business on April 11, 2014. Research Associate Steven Kaplan and Faculty Research Fellow Kelly Shue, both of the University of Chicago Booth School of Business, chose the following papers to discuss:

- **Sumit Agarwal**, National University of Singapore; **Souphala Chomsisengphet**, Department of the Treasury; **Neale Mahoney**, University of Chicago and NBER; and **Johannes Stroebe**, New York University, "Regulating Consumer Financial Products: Evidence from Credit Cards" (NBER Working Paper No. 19484)
- **Samuel Hanson** and **Andrei Shleifer**, Harvard University and NBER; **Jeremy Stein**, Federal Reserve Board; and **Robert Vishny**, University of Chicago and NBER, "Banks as Patient Fixed Income Investors"
- **Andrew Ang**, Columbia University and NBER; **William Goetzmann**, Yale University and NBER; and **Ludovic Phalippou**, University of Oxford, "Estimating Private Equity Returns from Limited Partner Cash Flows"
- **Jongha Lim**, University of Missouri, and **Berk Sensoy** and **Michael Weisbach**, Ohio State University, "Indirect Incentives of Hedge Fund Managers" (NBER Working Paper No. 18903)
- **Itzhak Ben-David**, Ohio State University and NBER; **Ajay Palvia**, Office of the Comptroller of the Currency; and **Chester Spatt**, Carnegie Mellon University and NBER, "Banks' Internal Capital Markets and Deposit Rates"
- **Shai Bernstein**, Stanford University, and **Albert Sheen**, Harvard University, "The Operational Consequences of Private Equity Buyouts: Evidence from the Restaurant Industry"
- **Francisco Pérez-González**, Stanford University and NBER, "The Death Sentence, Organizations, and Firm Performance"

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/CFs14/summary.html>

## Health Economics

The NBER's Program on Health Economics met in Cambridge on April 11, 2014. Program Director Michael Grossman of the City University of New York's Graduate Center, and Research Associate Theodore Joyce of Baruch College, chose these papers to discuss:

- **Tom Chang**, University of Southern California; **Joshua Graff Zivin**, University of California, San Diego and NBER; and **Tal Gross** and **Matthew Neidell**, Columbia University and NBER, "Particulate Pollution and the Productivity of Pear Packers" (NBER Working Paper No. 19944)
- **Darius Lakdawalla**, University of Southern California and NBER; **Anup Malani**, University of Chicago and NBER; and **Julian Reif**, University of Illinois at Urbana-Champaign, "The Insurance Value of Medical Innovation"
- **Jason Hockenberry**, Emory University and NBER; **Jesse Margolis**, City University of New York; **Shin-Yi Chou**, Lehigh University and NBER; and **Michael Grossman**, "Moral Hazard and Less Invasive Medical Treatment for Coronary Artery Disease: An Analysis of Smoking in the National Health Interview Survey"
- **Robert Kaestner**, University of Illinois and NBER, and **Cuiping Long**, University of Illinois at Chicago, "Effects of Prescription Drug Insurance on Hospitalization and Mortality: Evidence from Medicare Part D"
- **David Cesarini** and **Christopher Dawes**, New York University; **Dalton Conley**, New York University and NBER; and **Benjamin Domingue** and **Jason Boardman**, University of Colorado, "Socio-demographic and Genetic Aspects of Educational Attainment do not Moderate Each Other"

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/HES14/summary.html>

## Behavioral Finance

The Behavioral Economics Working Group held a meeting on Behavioral Finance at the University of Chicago on April 12, 2014. Faculty Research Fellow Amit Seru and Research Associate Amir Sufi, both of the University of Chicago, organized the meeting and chose these papers to discuss:

- **Kenneth Ahern**, University of Southern California, and **Denis Sosyura**, University of Michigan, "Rumor Has It: Sensationalism in Financial Media"
- **Asaf Manela**, Washington University in St. Louis, and **Alan Moreira**, Yale University, "News Implied Volatility and Disaster Concerns"
- **Alexander Ljungqvist**, New York University and NBER, and **Wenlan Qian**, National University of Singapore, "How Constraining Are Limits to Arbitrage? Evidence from a Recent Financial Innovation"
- **Steve Foerster**, University of Western Ontario; **Juhani Linnainmaa**, University of Chicago and NBER; **Brian Melzer**, Northwestern University; and **Alessandro Previtero**, University of Western Ontario, "The Costs and Benefits of Financial Advice"
- **Cindy Soo**, University of Michigan, "Quantifying Animal Spirits: News Media and Sentiment in the Housing Market"
- **Kelly Shue**, University of Chicago, and **Richard Townsend**, Dartmouth College, "Growth through Rigidity: Understanding Recent Trends in Executive Compensation"
- **Benjamin Keys**, University of Chicago, and **Jialan Wang**, Consumer Financial Protection Bureau, "Perverse Nudges: Minimum Payments and Debt Paydown in Consumer Credit Cards"

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/BES14/summary.html>

## Chinese Economy

The NBER's Working Group on the Chinese Economy met in Cambridge on April 25 and 26, 2014. Working Group Director Shang-Jin Wei of Columbia University and Research Associate Hanming Fang of the University of Pennsylvania organized the conference. They chose these papers to discuss:

- **Siqi Zheng** and **Weizeng Sun**, Tsinghua University, and **Matthew Kahn**, University of California, Los Angeles and NBER, "Internet Search as Social Learning: Implications for China's Housing Market Dynamics"
- **Trevor Tombe**, University of Calgary, and **Xiaodong Zhu**, University of Toronto, "Trade Liberalization, Internal Migration, and Regional Income Differences: Evidence from China"
- **Hui He**, **Feng Huang**, and **Dongming Zhu**, Shanghai University of Finance and Economics, and **Zheng Liu**, Federal Reserve Bank of San Francisco, "Breaking the 'Iron Rice Bowl' and Precautionary Savings: Evidence from Chinese State-Owned Enterprises Reform"
- **Xue Bai**, Pennsylvania State University; **Kala Krishna**, Pennsylvania State University and NBER; and **Hong Ma**, Tsinghua University, "How You Export Matters: Export Mode, Learning, and Productivity in China"
- **Myrto Kalouptsi**, Princeton University and NBER, "Detection and Impact of Industrial Subsidies: The Case of World Shipbuilding"
- **Jennifer Carpenter** and **Fangzhou Lu**, New York University, and **Robert Whitelaw**, New York University and NBER, "The Real Value of China's Stock Market"
- **Wolfgang Keller** and **Carol Shiue**, University of Colorado, Boulder and NBER, "Capital Markets and Colonial Institutions in China"
- **Hanming Fang**, and **Quanlin Gu** and **Li-An Zhou**, Peking University, "The Gradients of Power: Evidence from the Chinese Housing Market"
- **Yen-Cheng Chang** and **Bin Zhao**, Shanghai Advanced Institute of Finance; **Harrison Hong**, Princeton University and NBER; and **Larissa Tiedens**, Stanford Graduate School of Business, "Does Diversity Lead to Diverse Opinions? Evidence from Languages and Stock Markets"
- **Shang-Jin Wei**; **Ziru Wei**, Tsinghua University; and **Jianhuan Xu**, New York University, "Sizing up Market Failures in Export Pioneering Activities: Some Structural Estimation Evidence"

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/CEs14/summary.html>

## Organizational Economics

The NBER's Working Group on Organizational Economics met in Cambridge on April 25 and 26, 2014. Working Group Director Robert Gibbons of MIT chose these papers to discuss:

- **William Fuchs**, University of California, Berkeley, and **Luis Garicano** and **Luis Rayo**, London School of Economics, "Optimal Contracting and the Organization of Knowledge"
- **Anton Kolotilin**, University of New South Wales, "Optimal Information Disclosure: Quantity vs. Quality"
- **Florian Englmaier**, University of Munich; **Andreas Roider**, University of Regensburg; and **Uwe Sunde**, University of St. Gallen, "The Role of Communication of Performance Schemes: Evidence from a Field Experiment"
- **Florian Ederer**, Yale University, and **Alexander Stremitz**, University of California, Los Angeles, "Promises and Expectations"



- **Sendhil Mullainathan**, Harvard University and NBER, and **Sandip Sukhtankar**, Dartmouth College, “Ownership Structure and Economic Outcomes: The Case of Sugarcane Mills in India”
- **Eric Van den Steen**, Harvard University, “Strategy and the Strategist: How it Matters Who Develops the Strategy”
- **Nicola Lacetera**, University of Toronto and NBER; **Bradley Larsen**, Stanford University; **Devin Pope**, University of Chicago and NBER; and **Justin Sydnor**, University of Wisconsin, “Bid Takers or Market Makers? The Effect of Auctioneers on Auction Outcomes” (NBER Working Paper No. 19731)
- **David Cutler**, Harvard University and NBER; **Jonathan Skinner**, Dartmouth College and NBER; **Ariel Dora Stern**, Harvard University; and **David Wennberg**, Dartmouth Institute for Health Policy and Clinical Practice, “Physician Beliefs and Patient Preferences: A New Look at Regional Variation in Health Care Spending” (NBER Working Paper No. 19320)
- **Rongzhu Ke**, Chinese University of Hong Kong; **Jin Li**, Northwestern University; and **Michael Powell**, Northwestern University, “Managing Careers in Organizations”
- **Ricardo Alonso**, University of Southern California, “Recruitment and Selection in Organizations”
- **Christel Karsten**, University of Amsterdam; **Ulrike Malmendier**, University of California, Berkeley and NBER; and **Zacharias Sautner**, Frankfurt School of Finance and Management, “M&A Negotiations and Lawyer Expertise”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/OEs14/summary.html>

## Children

The NBER’s Program on Children met in Cambridge on May 15, 2014. Program Director Janet Currie of Princeton University chose these papers to discuss:

- **Prashant Bharadwaj**, University of California, San Diego and NBER, “Health Endowments and Unemployment during Macroeconomic Crises”
- **Anna Aizer**, Brown University and NBER; **Adriana Lleras-Muney**, University of California, Los Angeles and NBER; **Joseph Ferrie**, Northwestern University and NBER; and **Shari Eli**, University of Toronto, “The Long Run Impact of Cash Transfer Programs to Poor Families”
- **Achyuta Adhvaryu**, University of Michigan; **Parul Christian**, **Alain Labrique**, and **Keith West, Jr.**, Johns Hopkins University; **Snaebjorn Gunnsteinsson**, University of Maryland; **Jonathan Sugimoto**, Fred Hutchinson Cancer Research Center; and **Abu Shamim**, JiVitA Bangladesh, “Vitamin A and Resilience to Early Life Shocks”
- **Paul Gertler**, University of California, Berkeley and NBER; **Sally Grantham-McGregor**, University College London, Institute of Child Health; **James Heckman**, University of Chicago and NBER; **Rodrigo Pinto** and **Arianna Zanolini**, University of Chicago; **Christel Vermeersch**, The World Bank; and **Susan Chang-Lopez** and **Susan Walker**, University of the West Indies, “Labor Market Returns to a Early Childhood Stimulation Intervention in Jamaica”
- **Petra Persson**, Stanford University, and **Maya Rossin-Slater**, University of California, Santa Barbara, “Family Ruptures and Intergenerational Transmission of Grief”
- **Lena Edlund**, Columbia University and NBER, and **Paola Valenti**, Columbia University, “Should I Stay or Should I Go? Single Motherhood Revisited”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/CHEDs14/summary1.html>

## Education

The NBER's Program on Education met in Cambridge on May 16, 2014. Program Director Caroline Hoxby of Stanford University chose these papers to discuss:

- **Christopher Walters**, University of California, Berkeley, "Inputs in the Production of Early Childhood Human Capital: Evidence from Head Start"
- **Maria Fitzpatrick**, Cornell University and NBER, "Intergovernmental (Dis)incentives, Free-Riding Teacher Salaries, and Teacher Pensions"
- **Rebecca Dizon-Ross**, MIT, "How Do School Accountability Reforms Affect Teachers? Evidence from New York City"
- **Rajeev Darolia** and **Cory Koedel**, University of Missouri, and **Francisco Martorell** and **Katie Wilson**, RAND Corporation, "Do Employers Prefer Workers Who Attend For-Profit Colleges? Evidence from a Field Experiment"
- **Ben Marx**, Columbia University, and **Lesley Turner**, University of Maryland, "Borrowing Trouble? Student Loans, the Cost of Borrowing, and Implications for the Effectiveness of Need-Based Grant Aid"
- **Francisco Martorell**, RAND Corporation; **Isaac McFarlin**, University of Michigan; and **Kevin Stange**, University of Michigan and NBER, "Investing in Schools: Capital Spending, School Conditions, and Student Achievement"

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/CHEDs14/summary.html>

## Market Design

The NBER's Working Group on Market Design, co-directed by Susan Athey of Stanford University and Parag Pathak of MIT, met in Palo Alto on June 8 and 9, 2014. The working group co-directors chose these papers to discuss:

- **Haluk Ergin**, Duke University, and **Tayfun Sönmez** and **Utku Unver**, Boston College, "Living-Donor Lobar Liver/Lung Exchange"
- **Yeon-Koo Che**, Columbia University; **Jinwoo Kim**, Yonsei University; and **Fuhito Kojima**, Stanford University, "Stable Matching in Large Economies"
- **Nicolas Lambert**, **Michael Ostrovsky**, and **Mikhail Panov**, Stanford University, "Strategic Trading in Informationally Complex Environments"
- **Nima Haghpanah** and **Jason Hartline**, Northwestern University, "Reverse Mechanism Design"
- **Umut Dur**, North Carolina State University; **Scott Duke Kominers**, Harvard University; **Parag Pathak**; and **Tayfun Sönmez**, Boston College, "The Demise of Walk Zones in Boston: Priorities vs. Precedence in School Choice"
- **Nikhil Agarwal**, Yale University, and **Paulo Somaini**, MIT and NBER, "Identification and Estimation in Manipulable Assignment Mechanisms"
- **Paul Milgrom** and **Ilya Segal**, Stanford University, "Deferred-Acceptance Auctions and Radio Spectrum Reallocation"
- **Susan Athey**, and **Denis Nekipelov**, University of Virginia, "Designing Large Advertising Markets When Agents Have Heterogeneous Objectives"

- **Liran Einav** and **Jonathan Levin**, Stanford University and NBER; **Chiara Farronato**, Stanford University; and **Neel Sundaresan**, eBay, “Sales Mechanisms in Online Markets: What Happened to Internet Auctions?”
- **Lawrence Ausubel**, University of Maryland, and **Oleg Baranov**, University of Colorado, Boulder, “Revealed Preference in Bidding: Empirical Evidence from Recent Spectrum Auctions”
- **Bradley Larsen**, Stanford University, “The Efficiency of Dynamic, Post-Auction Bargaining: Evidence from Wholesale Used-Auto Auctions”
- **Eric Budish**, University of Chicago, and **Judd Kessler**, University of Pennsylvania, “Changing the Course Allocation Mechanism at Wharton”

Summaries of these papers may be found at: <http://www.nber.org/confer/2014/MDs14/summary.html>

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## Risk Topography: Systemic Risk and Macro Modeling

*Risk Topography: Systemic Risk and Macro Modeling*, edited by Markus Brunnermeier and Arvind Krishnamurthy, will be available from the University of Chicago Press in August 2014.

The recent financial crisis and the difficulty of using mainstream macroeconomic models to accurately monitor and assess systemic risk have stimulated new analyses of how we measure economic activity and the development of more

sophisticated models in which the financial sector plays a greater role.

The volume assembles contributions from leading academic researchers, central bankers, and other financial market experts that explore ways of refining and enhancing macroeconomic modeling in order to achieve more accurate economic measurement of risk factors. Essays in this volume focus on the development of models capable of highlight-

ing and measuring vulnerabilities that leave the economy susceptible to adverse feedback loops and liquidity spirals. In a financial world of increasing complexity and uncertainty, this volume is an invaluable resource for policymakers working to design measurement systems and for academics concerned with conceptualizing effective measurement strategies.

The price of the clothbound volume is \$110.00, and the ebook is \$88.00.

## Innovation Policy and the Economy, Volume 14

*Innovation Policy and the Economy 2013, Volume 14*, edited by Josh Lerner and Scott Stern, is now available from the University of Chicago Press.

Appreciation of the importance of innovation to the economy has increased

over the past decade. There is an active debate regarding the implications of technological change for economic policy and the appropriate policies and programs regarding research, innovation, and the commercialization of new technol-

ogy. This debate has only intensified as policymakers focus on new sources of innovation and growth in light of the recent economic downturn and the associated focus on enhancing employment and growth. Four of the five papers in



this year's volume highlight the growing role of the Internet and digitization in our understanding of the changing nature of innovation and entrepreneurship, and the impact of innovation policy. The first offers an overview of the impact of "Big Data" on the ability to conduct novel types of measurement and research in economics and related fields. The second highlights the increasingly sophisti-

cated and creative research designs that have been used to evaluate the interplay between piracy, the availability of legitimate digital channels, and the impact of anti-piracy enforcement efforts. The third paper provides an overview of the rapidly emerging area of crowdfunding. The fourth addresses the underpinnings of much of the digital economy by focusing on the institutional logic of stan-

dard-setting organizations and the conditions that allow standard-setting bodies to function and achieve their objectives. The final paper focuses on the interplay between geographic clusters, entrepreneurship, and innovation.

The clothbound volume is available for \$58.00, and the ebook for \$7.00 to \$46.00.

## NBER Macroeconomics Annual 2013

*NBER Macroeconomics Annual 2013, Volume 28*, edited by Jonathan Parker and Michael Woodford, is now available from the University of Chicago Press.

The twenty-eighth edition of the *NBER Macroeconomics Annual* continues its tradition of featuring theoretical and empirical research on central issues in contemporary macroeconomics. As in previous years, this volume not only addresses recent developments in macroeconomics, but also takes up important policy-relevant questions and opens new

debates that will continue for years to come. The first two papers in this year's issue tackle fiscal and monetary policy, asking how interest rates and inflation can remain low despite fiscal policy behavior that appears inconsistent with a monetary policy regime focused only on inflation and output and not on fiscal balances as recently observed in the United States. The third examines the implications of reference-dependent preferences and moral hazard in employment fluctuations in the labor market. The fourth paper

addresses money and inflation, analyzing the long run inflation rate, the coexistence of money with pledgeable and money-like assets, and why inflation did not increase in response to business cycle fluctuations in productivity. The fifth looks at the stock market and how it relates to the real economy. The final chapter discusses the recent large and public shift toward more expansionary monetary policy in Japan.

The price of the clothbound volume is \$90.00.

## Economic Regulation and Its Reform: What Have We Learned?

*Economic Regulation and Its Reform: What Have We Learned?*, edited by Nancy L. Rose, is now available from the University of Chicago Press.

The past thirty years have witnessed a transformation of government economic intervention in broad segments of industry throughout the world has taken place. Many industries historically subject to economic price and entry controls have been largely deregulated, including natural gas, trucking, airlines, and commercial banking. However, recent concerns about market power in restructured electricity markets, instability amid chronic finan-

cial stress in the airline industry, and the challenges created by the repeal of the Glass-Steagall Act, which allowed commercial banks to participate in investment banking, have led to calls for renewed market intervention.

*Economic Regulation and Its Reform* explores a wide range of issues surrounding government economic intervention. The essays observe that assessing the costs and benefits of such intervention requires a careful analysis of its consequences, and a recognition that actual regulation is likely to deviate from the regulatory prescriptions of economic the-

ory. The contributors point out that government interventions may take a variety of forms, from relatively nonintrusive performance-based regulations to more aggressive antitrust and competition policies and barriers to entry. This volume introduces the key issues surrounding economic regulation, provides an assessment of the economic effects of regulatory reforms over the past three decades, and examines how these insights bear on some of today's most significant concerns in regulatory policy.

The clothbound volume is \$110.00, and the ebook version is \$88.00.

## Housing and Mortgage Markets in Historical Perspective

*Housing and Mortgage Markets in Historical Perspective*, edited by Eugene N. White, Kenneth Snowden, and Price Fishback, will be available from the University of Chicago Press in July 2014.

The central role of the housing market in the recent recession raised questions about its contribution to previous economic downturns. Were the underlying causes of housing and mortgage crises the same in earlier episodes? Has the onset and spread of crises changed over time? Did previous pol-

icy interventions either damage or improve long-run market performance and stability?

This volume begins to answer these questions, providing important context for understanding recent events by examining how historical housing and mortgage markets worked—and how they sometimes failed. The contributors to this volume survey the foundational research on housing crises, comparing the downturn of the 1930s to that of the 2000s in order to identify the contributions to each crisis. Some chapters

explore notable historical experiences with mortgage securitization and the role that federal policy played in the surge in home ownership between 1940 and 1960. By providing a broad historical overview of housing and mortgage markets, the volume offers valuable new insights that can inform future policy debates.

The price of the clothbound volume is \$110.00, and the ebook is \$88.00.

## Discoveries in the Economics of Aging

*Discoveries in the Economics of Aging*, edited by David A. Wise, is now available from the University of Chicago Press.

The oldest members of the baby boomer generation are now crossing the threshold of eligibility for Social Security and Medicare with extensive and significant implications for these programs' overall spending and fiscal sustainability. Yet the aging of the baby boomers is just one part of the rapidly changing landscape of aging in the United States and

around the world.

The latest volume in the NBER's Economics of Aging series, *Discoveries in the Economics of Aging* assembles a number of the most recent and insightful studies in this expanding field of study. One substantive focus of the volume is the well-documented relationship between health and financial well-being as people age. The contributors explore this issue from a variety of perspectives. The first part of the volume explores recent

trends in health measurement, including the use of alternative measurement indices. Later contributions explore alternate determinants of health, including retirement, marital status, and cohabitation with family, and the potential for innovations, interventions, and public policy to improve health and financial well-being.

The price of the clothbound volume is \$110.00, and the ebook is \$88.00.

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