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# NBER Reporter

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## Program Report

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## Development of the American Economy

**Claudia Goldin \***

The Development of the American Economy (DAE) Program's 66 members — and the 14 affiliated researchers with primary appointments in other NBER Programs — undertake research that spans much of recorded history, every major sub-field of empirical economics, and most of the globe (but with a concentration on the Americas). The DAE program was created in 1978, as one of six new research programs that were inaugurated shortly after Martin Feldstein assumed the NBER Presidency. The mission of the DAE Program goes back to the original tasks of the NBER — to chart the development of the American economy and to set down its statistical foundations.

I am often asked what constitutes economic history and what the appropriate time frame is. Economic history, like the research of DAE members, knows no time period. It is a “state of mind.” History does not simply occur. History is constantly written and rewritten in light of an ever-changing present.

The recent work of DAE members incorporates virtually all NBER Programs and Working Groups: political economy, labor and population, corporate finance and banking, technological change, trade, the macro economy, economic growth, and urban studies. Because of the enormous breadth of research done by DAE members, this report will highlight only two areas of recent activity: historical corporate finance and the long-run consequences of environmental degradation and climate change. In each case, history has been written and rewritten in view of present day events — financial crises and environmental change.

### Early Corporate Governance, Enterprise Law, and Financial Crises

Several DAE researchers have been studying the history of American corporations to understand the evolution of their ownership

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# NBER Reporter

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and governance. Until recently, it was generally presumed that the governance failures commonly associated with modern enterprises arose with the emergence of large enterprises at the end of the nineteenth century and were not present among early corporations. The findings of DAE scholars have overturned the conventional view regarding when ownership became separate from control. It occurred much earlier than described by Adolf A. Berle, Jr. and Gardiner C. Means in their well-known 1932 volume, *The Modern Corporation and Private Property*.

Eric Hilt and Naomi Lamoreaux, in two separate projects, demonstrate that the earliest American corporations were often plagued by the same governance problems that afflicted larger enterprises much later. In particular, early nineteenth century corporations had large numbers of shareholders with little interest in expending effort to monitor the management of firms in which they had a stake. Moreover, controlling shareholders often utilized the firm's resources for their own benefit, a practice known today as "tunneling."<sup>1</sup> Probably the best known historical example of tunneling is Cr dit Mobilier, the tightly held construction company set up in the 1860s by the Union Pacific. But many examples of tunneling can be found in early nineteenth century corporate histories. Corporate governance failure, according to DAE research, is not a uniquely modern problem.

In response to problems created by controlling shareholders in early corporations, the charters of these enterprises often specified voting rights for their shareholders that reduced the power of individuals who held large blocks of stock. These voting algorithms, which might be termed "graduated voting rights," were first introduced by Alexander Hamilton. Under these rules the votes per share to which an investor was entitled decreased with the number of shares an individual held and thus strengthened the relative voting power of small shareholders.

According to DAE researcher Howard Bodenhorn, these voting rights — which were somewhere between democratic and plutocratic — were relatively common among the earliest American banks and helped attract the participation of small investors.<sup>2</sup> These complex voting rights, however, gradually

fell out of favor sometime during the nineteenth century. The precise reasons why these novel voting rules disappeared are not entirely clear but it is probable that they were incompatible with larger mergers, were difficult to enforce, and encouraged strategic behavior of various types.

Financial crises have been the subjects of enduring interest among DAE researchers, and several recent papers by Michael Bordo, Barry Eichengreen, Christopher Meissner, Kevin O'Rourke, Alan Taylor, and their respective coauthors, have placed the recent financial crisis in historical context.<sup>3</sup> Some of this research has analyzed the consequences of financial crises for the evolution of financial regulations. In particular, historical financial crises have been shown to trigger significant changes in legal protections of investors, as regulators attempt to respond to the causes of the crisis, as shown in papers by Charles Calomiris, Hilt, Efraim Benmelech, and Bordo.<sup>4</sup> The financial regulations and investor protections we have in place today, including the recent Dodd-Frank legislation, represent an accretion of measures often enacted in response to crises.

A number of DAE researchers have examined the historical development of enterprise law from a comparative perspective. Around the world, the menu of different organizational forms offered to entrepreneurs has differed substantially, and several scholars have investigated the consequences of these differences for entrepreneurs.<sup>5</sup> Some of this research has highlighted the importance of hybrid organizational forms, which share some attributes with both corporations and partnerships, and quickly became enormously popular.<sup>6</sup> Other work has found that early differences in legal systems were unlikely to have had persistent effects.<sup>7</sup>

A hallmark of DAE research is the collection of primary source documents and data. The projects just described provide some good illustrations. For example, Hilt and Carola Frydman have recently embarked on a project

to construct a comprehensive accounting and financial dataset using annual reports for publicly-traded firms from 1900 to 1930. Because the quality and quantity of financial information contained in annual reports varies across firms and over time during this period the data collection is particularly challenging. Once complete, this dataset will be used to provide a complete view of the financial and economic characteristics of the firms in an important period of development and change in America's financial markets.

### **Environmental and Climate Change: Long-Run Changes and Impacts**

DAE researchers have expanded our understanding of the immediate and later health consequences of environmental contaminants. Lead exposure is known to have serious cognitive and physiological effects. Water-borne lead exposure, according to DAE researchers Karen Clay, Werner Troesken, and Michael R. Haines, led to greatly increased infant mortality across U.S. cities in the 1900 to 1920 period. In addition, they show that wages in manufacturing were lower in places with significant levels of water-borne lead. Higher levels of lead and a longer period of exposure also were associated with significantly lower intelligence test scores. Troesken and Joseph Ferrie have studied the long-term impact of lead water pipes in cities in the 1930s on intelligence test scores of World War II enlistees based on their earlier place of residence.<sup>8</sup> Getting the lead out of the water supply greatly improved infant survival, cognitive functioning, and manufacturing productivity.

But if water is an essential element in life and pure water is far healthier than polluted water, then what property rights rules would better ensure both? Gary Libecap addresses that question in his tribute to Katharine Coman's 1911 article, the first paper in the inaugural issue of the *American*

*Economic Review*. Libecap demonstrates that issues regarding appropriate water rights and irrigation districts have as much relevance today as they did when Coman wrote exactly 100 years ago.<sup>9</sup>

Pollution levels have been observed to rise in the early stages of economic development, reach a peak, and then fall as standards of living advance further. In the declining portion of the inverted-U relationship, changes in pollution levels reinforce the positive impact of development but oppose it in the earlier phase. Clay and Troesken reexamine this phenomenon in perhaps the best known historical case—the rise and fall of the London fog. Their study of the “first environmental Kuznets curve” shows that the conventional wisdom is basically accurate concerning the reasons for the thinning of the pea soup that once enveloped London.<sup>10</sup>

Whereas the blight of the London fog was slow in the making, the American Dust Bowl was a rapid environmental catastrophe. According to DAE researcher Richard Hornbeck, the 1930s erosion of great sections of the Plains left much of the area with little ability to readjust except through outward migration.<sup>11</sup> Hugh Rockoff and Richard H. Steckel relate severe climate change, such as the 1930s Dust Bowl, to financial stress. The researchers use drought indexes that come from rich, yet lesser-known, sources such as tree rings to test the relationship between financial stress and climate change. They find that droughts exacerbated other economic stress to cause financial calamities.<sup>12</sup>

The response to the opening up to land development of various parts of the great expanse of the United States can help us understand how farmers adapt to climate change. DAE researcher Paul Rhode and his co-author Alan Olmstead have cleverly used the lessons from U.S. agricultural development to understand what might happen as the climate in any one area changes. The United States contains extremely cold



(for example, North Dakota) and hot (for example, New Mexico) lands as well as those in extremely arid and wet regions. These places were populated and farmed at various times in our history. Farmers, aided by a team of crop scientists, overcame the daunting task of growing crops and raising animals in these vastly different areas. The range of temperature and rain across these areas rivals any predictions for climate change in the next century in North America. According to these researchers the past gives us great hope for the future, especially if publicly and privately funded agricultural research is maintained.<sup>13</sup>

Several of the articles on climate change cited in this report were presented at an NBER conference and published in *The Economics of Climate Change*, D. Libecap and Richard H. Steckel, eds., (University of Chicago Press for the NBER, 2011). The papers largely concern adjustments to climate change in the past with the introduction of new crop varieties, irrigation techniques, and various property rights schemes. The volume, like much of the research done by DAE members, provides a revealing view of the past in light of a changing present.

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<sup>1</sup> E. Hilt, "When Did Ownership Separate from Control? Corporate Governance in the Early Nineteenth Century," NBER Working Paper No. 13093, May 2007; N. Lamoreaux and J. Rosenthal, "Corporate Governance and the Plight of Minority Shareholders in the United States before the Great Depression," NBER Working Paper No. 10900, November 2004.

<sup>2</sup> H. Bodenborn, "Splendid Associations of Favored Individuals: Federal and State Commercial Banking Policy in the Federalist Era," NBER Working Paper No. 15135, July 2009; "Voting Rights, Share Concentration, and Leverage in Nineteenth-Century U.S. Banks," July 2011 (paper presented

at the 2011 NBER-DAE Summer Institute).

<sup>3</sup> M. D. Bordo and J.S. Landon-Lane, "The Global Financial Crisis of 2007–8: Is it Unprecedented?" NBER Working Paper No. 16589, December 2010; "The Lessons from the Banking Panics in the United States in the 1930s for the Financial Crisis of 2007–2008," NBER Working Paper No. 16365, September 2010; O. Jordà, M. Schularick, and A.M. Taylor, "Financial Crises, Credit Booms, and External Imbalances: 140 Years of Lessons," NBER Working Paper No. 16567, December 2010; M. Schularick and A.M. Taylor, "Credit Booms Gone Bust: Monetary Policy, Leverage Cycles and Financial Crises, 1870–2008," NBER Working Paper No. 15512, November 2009; M. Almunia, A. S. Bénétrix, B. Eichengreen, K. H. O'Rourke, and G. Rua, "From Great Depression to Great Credit Crisis: Similarities, Differences, and Lessons," NBER Working Paper No. 15524, November 2009; R. S. Grossman and C. M. Meissner, "International Aspects of the Great Depression and the Crisis of 2007: Similarities, Differences, and Lessons," NBER Working Paper No. 16269, August 2010.

<sup>4</sup> C. Calomiris, "Banking Crises and the Rules of the Game," NBER Working Paper No. 15403, October 2009; E. Hilt, "Wall Street's First Corporate Governance Crisis: The Panic of 1826," NBER Working Paper No. 14892, April 2009; E. Benmelech and M. D. Bordo, "The Financial Crisis of 1873 and 19th Century American Corporate Governance," forthcoming.

<sup>5</sup> N. R. Lamoreaux and J. Rosenthal, "Contractual Tradeoffs and SMEs Choice of Organizational Form, A View from U.S. and French History, 1830–2000," NBER Working Paper No. 12455, August 2006; E. Hilt and K. E. O'Banion, "The Limited Partnership in New York, 1822–1853: Partnerships without Kinship," NBER Working Paper No. 14412, October 2008.

<sup>6</sup> T. Guinnane, R. Harris, N. R. Lamoreaux, and J. Rosenthal, "Putting the Corporation in its Place," NBER Working Paper No. 13109, May 2007.

<sup>7</sup> A. Musacchio "Law and Finance c. 1900," NBER Working Paper No. 16216, July 2010.

<sup>8</sup> K. Clay, W. Troesken, and M. R. Haines, "Lead, Mortality, and Productivity," NBER Working Paper No. 16480, October 2010; J. P. Ferrie, K. Rolf, and W. Troesken, "Cognitive Disparities, Lead Plumbing, and Water Chemistry: Intelligence Test Scores and Exposure to Water-Borne Lead Among World War Two U.S. Army Enlistees," NBER Working Paper No. 17161, June 2011.

<sup>9</sup> G. D. Libecap, "Institutional Path Dependence in Climate Adaptation: Coman's 'Some Unsettled Problems of Irrigation,'" NBER Working Paper No. 16324, September 2010.

<sup>10</sup> K. Clay and W. Troesken, "Did Frederick Brodie Discover the World's First Environmental Kuznets Curve? Coal Smoke and the Rise and Fall of the London Fog," NBER Working Paper No. 15669, January 2010; also, Chapter 10 in *The Economics of Climate Change*, Gary D. Libecap and Richard H. Steckel, eds., University of Chicago Press for the NBER, 2011.

<sup>11</sup> R. Hornbeck, "The Enduring Impact of the American Dust Bowl: Short and Long-run Adjustments to Environmental Catastrophe," NBER Working Paper No. 15605, December 2009.

<sup>12</sup> J. Landon-Lane, H. Rockoff, and R. H. Steckel, "Droughts, Floods, and Financial Distress in the United States," NBER Working Paper No. 15596, December 2009; also Chapter 3 in *The Economics of Climate Change*.

<sup>13</sup> A. L. Olmstead and P. W. Rhode, "Responding to Climatic Challenges: Lessons from U.S. Agricultural Development," Chapter 6 in *The Economics of Climate Change*.

# A Summary of Recent Corporate Tax Research

John R. Graham\*

Taxes are thought to influence corporate decisions in many ways. For that reason, in the past decade a number of changes (or proposed changes) to the U.S. tax code have been made in an attempt to affect corporate behavior. For example, U.S. and European authorities have raised the possibility of eliminating or reducing the ability of companies to deduct interest payments from taxable income, because the tax-favored status of debt has reduced tax revenue collection and allegedly encouraged a “debt bias” of corporations. It is believed that by using too much debt financing, firms may have exacerbated economic downturns. Also, during the last two recessions, in an attempt to stimulate the corporate sector, the U.S. government has temporarily granted companies the ability to carry current-year losses back five years, in order to receive a refund on taxes paid during the past five years. Further, equity tax rates have been decreased for retail investors in an attempt to reduce the corporate cost of capital, and these changes are thought to have increased dividend payout. And, there have been proposals to disallow multinational companies from avoiding income taxes on profits earned overseas by their reinvesting those profits overseas. In this report, I summarize academic research on these and related issues.

In 1958 Modigliani and Miller (M&M) laid the groundwork for mod-

ern corporate finance research by demonstrating that when capital and informational markets are perfect, firm value is not affected by financial decisions. Five years later they showed that the existence of taxation can create an environment in which financial decisions affect firm value. In particular, M&M demonstrated that when corporate income is taxed and debt interest is a deductible expense, firm value can be increased by using debt financing rather than funding entirely from equity.

Several branches of research emanated from these basic insights. The first addresses whether the tax environment leads to firm-specific optimal capital structures and value enhancement. If there are costs to using too much debt (for example, expected financial distress costs or personal taxes on interest income), then firms with the greatest benefit to shielding taxes (for example, firms facing higher income tax rates) should be the ones with the greatest incentives to use debt financing. Much of my tax research focuses on how to measure these tax incentives in the context of a dynamic tax code.

One important feature of the tax code is that a firm can “carry back” current losses (by refile past tax returns) to receive a tax refund for taxes paid in recent years. Alternatively, if carrying back losses is not attractive, then firms can carry forward losses to offset taxable income in future years. Therefore, because the dynamic tax code allows firms to move income through time, it is necessary to forecast future taxable income to estimate current-period tax rates and tax incentives.

## Capital Structure Choices and Simulating Corporate Marginal Income Tax Rates

In my early work, I simulated dynamic corporate marginal income tax rates that could explain the probability that a firm will be nontaxable and that allow it to carry losses forward and backward. I then used these simulated tax rates to document that firms respond to tax incentives when they make incremental financing choices,<sup>1</sup> and when they choose the level of debt and the level of leasing.<sup>2</sup> These corporate tax incentives hold up even in the presence of high personal tax rates on interest income.<sup>3</sup>

Most tax and capital structure research, including the work just mentioned, uses data drawn from financial statements, not data from actual tax returns. Given that financial statements consolidate worldwide income statements and balance sheets for multinational firms, but that tax rules and tax incentives vary by country, one might wonder how closely financial-statement-based research mirrors tax return data.<sup>4</sup> In recent work, Lillian Mills and I access confidential tax returns to explore how closely tax rates estimated from financial statement data parallel those based on tax return data.<sup>5</sup> Fortunately, we find that simulated tax rates based on financial statement data are very highly correlated with tax variables based on tax return data.

## Capital Structure – Debt Bias

Documenting that tax rates are correlated with corporate capital structure choices suggests that firms may increase

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value by choosing debt optimally. However, some argue that an increased use of debt in response to tax incentives leads to negative outcomes. After all, the extent to which firms are able to increase value occurs directly because deducting interest expenses deprives the government of tax revenues. More than just reducing tax revenues, a “debt bias”—using extra debt in response to tax incentives—could result in too much debt in the system, increasing the probability that firms will become financially distressed, and thereby exacerbating or perhaps even causing economic downturns. Critics of debt bias argue that the ability to deduct interest should be eliminated or at least reduced. For this argument to have its greatest force, it should be the case that 1) tax incentives lead to a large increase in the use of debt, and that 2) the “extra” debt that firms use in response to tax incentives should lead to a material increase in the probability of experiencing financial distress.

Regarding whether taxes have a first-order effect on the use of debt, I have documented that a tax rate that is 10 percentage points higher (for example, 34 percent instead of the mean 24 percent) leads to debt usage that is 0.7 percent higher. Thus, while taxes do affect capital structure, the effect is moderate, providing only partial evidence of the first debt bias consideration. Regarding whether the extra debt usage increases the odds of encountering distress, two co-authors and I search for these effects when one might expect the negative effects of excess leverage to be at their worst: during the severe economic contractions during the Great Depression and during the years 2008–9.<sup>6</sup> In the first stage of our analysis, we show that firms did in fact use more debt because of tax incentives during the Depression. However, we do not find any evidence that this extra debt increased the probability of encountering distress. Similarly, we do not find any evidence that debt bias led to negative outcomes during the recent recession. It is important to note that our failure to find negative effects of debt bias could be attributable to noise in the data (especially during the Depression era) and to our focus on nonfinancial firms. Clearly, there needs to be more research on

this important issue in general, and with respect to financial firms in particular.

### Capital Structure – Tax Benefit Functions

One way to measure how much interest tax savings contribute to firm value involves estimating marginal tax benefit functions—that is, measuring the marginal tax benefit of each incremental dollar of tax deduction. By adding up the value created by each incremental dollar of interest deduction, one can estimate the contribution to firm value associated with the tax savings that flow from a given level of interest deductions. Two co-authors and I follow this approach and estimate that the equilibrium, gross tax benefit of interest deductions (ignoring all costs) equals about 10.5 percent of value across all firms, and about twice that much for the top decile of companies.<sup>7</sup>

Analogous to using supply shifts to identify demand curves, we use exogenous variation in benefit functions to deduce the cost-of-debt function that justifies the capital structure choices that firms make. By summing the area under the cost functions up to a given amount of debt, we estimate that the equilibrium all-in expected cost of debt equals about 7 percent of firm value. By summing up the area between the cost and benefit functions, we estimate that the equilibrium net benefits of debt (net of all costs) are about 3.5 percent of firm value. Again, these numbers are fairly moderate and do not suggest pervasive high leverage caused by severe debt bias.

### Tax-Loss Carrybacks and Economic Stimulus

For the most part, U.S. companies in recent decades have been able to carry back current-period losses to receive a refund for taxes paid in the past two years. This feature of the tax code serves as an economic stabilizer by providing an infusion of liquidity to (previously profitable) companies that are currently struggling. During the last two recessions, the carryback period was temporarily lengthened to five years in an attempt to stimulate the corporate sector during an economic downturn.

Hyunseob Kim and I examine the economic impact of the stimulus during the most recent recession.<sup>8</sup> Companies were given the option to carry back losses from either their 2008 tax year or their 2009 tax year to receive a refund for taxes paid during the previous five years. Had the carryback period remained at two years, we estimate the carryback feature of the tax code would have provided \$77 billion in tax refunds; allowing losses to be carried back an additional three years added an incremental \$54 billion in tax refunds to corporate coffers (this estimate ignores TARP recipients and the tax benefits granted to them). Interestingly, the increased benefit was particularly valuable to sectors that were hugely profitable during the economic boom of the mid-2000s but then suffered the greatest losses during the recession: housing, finance, and autos. That is, the U.S. government supported firms in these industries via changes to the tax code.

### Payout Policy

One feature of the famous 2003 “Bush tax cuts” was to reduce the maximum tax rate on both qualifying dividends and capital gains to 15 percent, from 38 percent and 20 percent, respectively. This relative reduction in dividend taxation thus made dividends more attractive to taxable individual investors.<sup>9</sup> Given this increased investor preference for dividends, one might expect companies to begin to pay out a larger proportion of profits via dividends. Research shows that there was a surge of dividend initiations following the May 2003 implementation of these tax breaks and that dividend hikes were largest at the companies that had the greatest net tax incentive to increase dividends, such as firms with proportionally more individual investors (which makes sense given that the tax cut was focused on individuals). Chetty and Saez show that the dividend increases were less likely to occur in firms for which the executives owned substantial stock options (which makes sense because options are not dividend protected, meaning that paying a dividend reduces the value of existing options).<sup>10</sup>

Thus, investor-level taxes affect cor-



porate payout choices. However, are taxes the dominant force driving payout policy? Based on surveys and one-on-one interviews, three co-authors and I document that CFOs agree with the general conclusion that firms increased dividends in response to the reduction in retail investor dividend tax rates—but we conclude that the 2003 tax effect on corporate payout decisions was overall moderate.<sup>11</sup> Executives indicate that non-tax conditions (such as generating long-run, sustainable earnings or facing lower growth prospects) are the first-order factors that determine payout policy and also determine whether a particular firm is at a margin where taxes would affect its payout decisions. In summary, most CFOs say that tax considerations matter but taxes are not the dominant factor in their decisions about whether to increase dividends or choose dividends over share repurchases.

## Taxes on Foreign Profits

Economics and politics have merged into a contentious debate related to the extent to which U.S. firms should pay U.S. taxes on profits earned by their foreign divisions and subsidiaries. Under current law, taxes are paid to foreign authorities as the profits are earned—but taxes are not paid to the U.S. tax authority until the profits are returned home (“repatriated”) to the domestic parent. By surveying tax executives, two-coauthors and I learn that the ability to defer paying U.S. taxes is in fact one of the most important reasons that U.S. companies invest overseas.<sup>12</sup> Opponents of these tax rules argue that evidence like this is proof that U.S. firms shift jobs overseas to the detriment of domestic employment. (Supporters of the repatriation tax rules argue that they help U.S. firms compete overseas.)

If foreign profits are repatriated home, they are then taxed at a rate essentially equal to the degree to which the U.S. tax rate exceeds the tax rate in the foreign jurisdiction in which they were earned (for example, profits earned and taxed at an Irish corporate tax rate of 13 percent would be taxed an additional 22 percent when returned to the United States because the U.S. corporate income tax rate is 35 percent). In

2004, Congress passed the American Jobs Creation Act, which allowed firms to repatriate profits to the United States subject to a tax rate of no more than 5.25 percent and often much lower. Our research documents that many firms embraced this tax break and bought profits home to the United States. Perhaps surprisingly, we also show that some firms did not repatriate earnings, even at low repatriation tax rates, and even though repatriation would have a positive effect on actual cash flows, because it would lead to a reduction in reported earnings. That is, even at low tax rates repatriation is at times avoided by firms because it reduces earnings per share, which financial executives believe in turn hurts stock price. Interestingly, Senator Kay Hagen recently proposed instituting another “one time” reduction in taxes owed on repatriated profits. Justification for such a proposal is unclear given that, overall, academic research into the 2004 reduction in repatriation taxes does not provide clear evidence that on net firms used the funds brought home to increase investment or hiring.

In summary, the tax code is constantly under revision, in part in an attempt by authorities to alter corporate behavior. Recent research documents that tax incentives do affect corporate behavior, but the effects are often modest. I look forward to future research that helps explain why tax effects are not always as large as we might expect, whether the reason be measurement issues, offsetting nontax influences, or unanticipated changes in corporate behavior that occur as the economy re-equilibrates.

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<sup>1</sup> J. R. Graham, “Debt and the Marginal Tax Rate,” *Journal of Financial Economics*, 41, 1996, pp. 41–74.

<sup>2</sup> J. R. Graham, M. Lemmon, and J. Schallheim, “Debt, Leases, Taxes, and the Endogeneity of Corporate Tax Status,” *Journal of Finance*, 53, 1998, pp. 131–62.

<sup>3</sup> J. R. Graham, “Do Personal Taxes Affect Corporate Financing Decisions?” *Journal of Public Economics*, 73, 1999, pp. 147–85.

<sup>4</sup> For details, see J. R. Graham, J. Raedy, and D. Shackelford, “Accounting for Income Taxes,” NBER Working Paper No. 15665,

January 2010, and *Journal of Accounting and Economics* forthcoming

<sup>5</sup> J. R. Graham and L. Mills, “Using Tax Return Data to Simulate Corporate Marginal Tax Rates,” NBER Working Paper No. 13709, December 2007, and *Journal of Accounting and Economics*, 44:2–3, 2008, pp.366–88.

<sup>6</sup> J.R. Graham, S. Hazarika, and K. Narasimhan, “Financial Distress during the Great Depression,” NBER Working Paper No. 17388, August 2011, and *Financial Management*, forthcoming.

<sup>7</sup> J. van Binsbergen, J. R. Graham, and J. Yang, “The Cost of Debt,” NBER Working Paper No. 16023, May 2010, and *Journal of Finance* 65:6, 2010, pp.2089–136.

<sup>8</sup> J.R. Graham, and H. Kim, “The Effects of the Length of the Tax-Loss Carry back Period on Tax Receipts and Corporate Marginal Tax Rates,” NBER Working Paper No. 15177, July 2009, and *National Tax Journal*, 62, 2009, pp.413–27.

<sup>9</sup> Alok Kumar and I find that individual investors form clienteles based on tax preferences of holding dividends and that individual investors shift holdings to tax-deferred accounts in response to higher income tax rates. See J.R. Graham and A. Kumar, “Do Dividend Clienteles Exist? Evidence on Dividend Preferences of Retail Investors,” *Journal of Finance* 61, 2006, pp. 1305–336.

<sup>10</sup> R. Chetty and E. Saez, “Dividend Taxes and Corporate Behavior: Evidence from the 2003 Dividend Tax Cut,” NBER Working Paper No. 10841, October 2004; J. Poterba, “Taxation and Corporate Payout Policy,” NBER Working Paper No. 10321, February 2004; J. Bouin, J. Raedy, and D. Shackelford, “Did Dividends Increase Immediately After the 2003 Reduction in Tax Rates?” NBER Working Paper No. 10301, February 2004.

<sup>11</sup> A. Brau, J. R. Graham, C. R. Harvey, and R. Michaely, “Payout Policy in the 21st Century,” NBER Working Paper No. 9657, April 2003, and *Journal of Financial Economics*, 77:3, 2005, pp. 483–527.

<sup>12</sup> J.R. Graham, M. Hanlon, and T. Shevlin, “Real Effects of Accounting Rules: Evidence from Multinational Firms Investment Location and Profit Repatriation Decisions,” *Journal of Accounting Research*, 49, 2011, pp.137–85.



# Offshoring, International Trade, and American Workers

Ann Harrison and Margaret McMillan\*

In 1982, only one out of four employees of U.S. multinationals was located offshore, and over 90 percent of those employees were in industrial countries. By 2007, the share of offshore employment had reached 44 percent, and the majority of those jobs were in low-income countries. These trends in offshoring are mirrored in the statistics on international trade: over the past two decades imports from low-wage countries have more than doubled.<sup>1</sup>

Over this same time period, U.S. employment in the manufacturing sector fell sharply and income inequality increased. The downward trend in U.S. manufacturing employment began with the multinationals and coincided with their expansion offshore: between 1982 and 1999 U.S. based multinationals reduced employment domestically by 4 million workers. Our research is motivated by these parallel developments and seeks to understand the implications for American workers.

## Are U.S. Based Multinationals Exporting Jobs?

This question has always been of interest to policymakers and is arguably more important now than ever before. Accordingly, there is no shortage of academic research on this topic.<sup>2</sup> The problem is that the answer to the question seems to change depending on the study. Brainard and Riker<sup>3</sup> find that labor employed by overseas affiliates substitutes at the margin for labor employed by parents at home,

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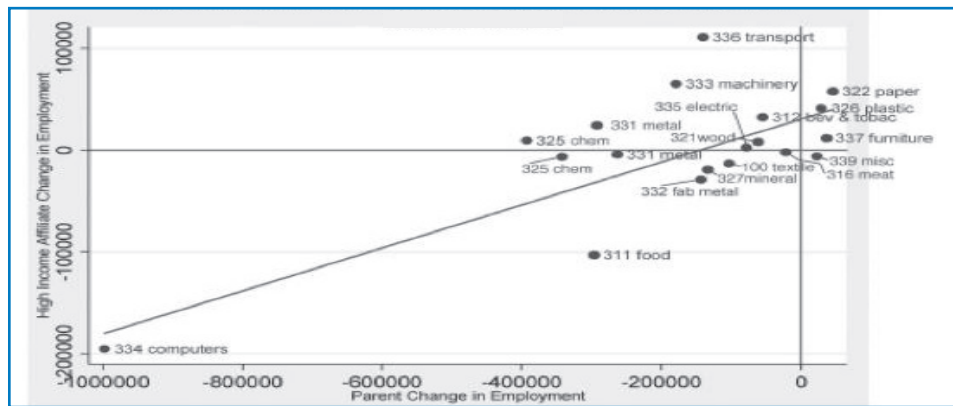


Figure 1 — Manufacturing Industry Offsets by 3-digit NAICS Codes, 1982–99  
High Income Affiliates

but they emphasize that the results differ depending on geographic location. In particular, they emphasize strong substitution between workers in developing countries, such as between workers in countries like Mexico and China. More recently, Desai, Foley, and Hines<sup>4</sup> have shown that increases in employment abroad are positively correlated with employment at home. They interpret this as evidence that expansion abroad by U.S. based multinationals leads to job creation at home.

Our research examines this seemingly contradictory evidence in an attempt to bring closure to this debate. We begin by establishing that the relationship between multinational employment at home and abroad changes depending on the loca-

tion of U.S. multinational activity.<sup>5</sup> We show that for affiliates in high-income countries, there is a positive correlation between employment at home and abroad, suggesting that foreign employment of U.S. multinationals may be complementary to domestic employment (Figure 1). However, we also establish that this positive correlation between employment in the United States and employment in high income locations is driven by a contraction in employment in both locations, not by employment growth.

For firms that operate in developing countries, however, employment contractions in the United States are matched by affiliate employment growth in low income locations. As shown in Figure 2,

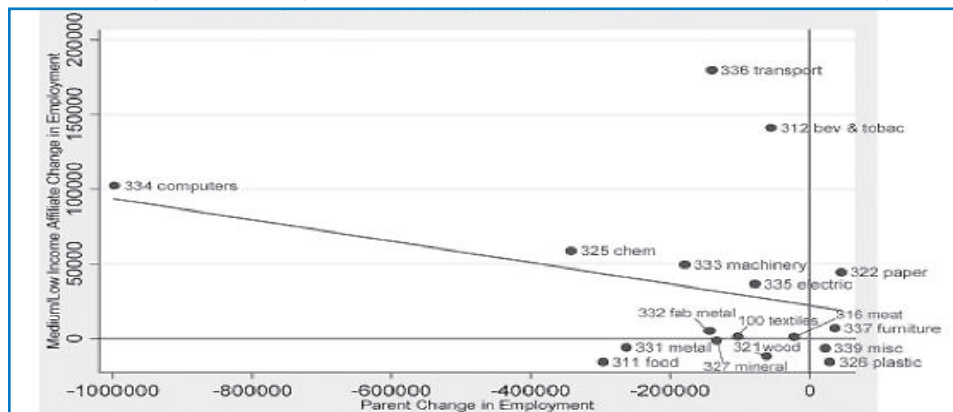


Figure 2 — Manufacturing Industry Offsets by 3-digit NAICS Codes, 1982–99  
Medium/Low Income Affiliates

workers in low-income countries appear to be substitutes for U.S. workers in several highly visible industries, including computers, electronics, and transportation.

We can explain these apparently conflicting results by distinguishing between the different motives for foreign investment.<sup>6</sup> Markusen and Maskus<sup>7</sup> show how different incentives for foreign investment lead to different organizational structures, which should produce different degrees of substitution between employment at home and abroad. Horizontal multinationals (H-FDI), defined as firms that produce the same products in different locations, are primarily motivated to locate abroad by trade costs. For H-FDI, investment abroad substitutes for parent exports, and foreign-affiliate employment should substitute for home employment. Vertically integrated enterprises (V-FDI) are motivated to locate different components of production in different locations by factor price differences. For V-FDI, sourcing different stages of production elsewhere can be complementary to employment growth at home. Another theoretical framework that emphasizes “trade in tasks” has been developed by Grossman and Rossi-Hansberg: they show that falling costs of offshoring specific tasks can be associated with higher wages at home.<sup>8</sup>

Our research design allows us to answer the following question: what is the foreign wage elasticity of demand for American workers, and to what extent does it depend on the motivation for foreign direct investment? We use confidential firm-level data on U.S.-based multinationals from the U.S. Bureau of Economic Analysis combined with international wage data. We allow different degrees of substitution (or complementarity) depending on the motive for offshoring and whether offshoring takes place in high-or low-income affiliate locations. We differentiate between the motives for offshoring using the following measures of vertical integration between parents and their affiliates: imports from foreign affiliates; exports for further processing; exports for resale; and export platform offshoring. At the same time, we control for other confounding changes, such as other factor price changes, demand shocks, and technological change.

Overall, we find that affiliate employment in low-income countries substitutes for domestic employment: a 10 percentage point reduction in wages in low-income countries is associated with a 1 percent reduction in U.S. parent employment. However, for vertically integrated multinationals that split up the production process and export significant amounts to low-income countries for further processing, foreign wage reductions are associated with an increase in domestic employment.

During our sample period, offshoring still was not a primary driver of aggregate employment changes in U.S. manufacturing. After decomposing the 17-percentage-point decline in U.S. manufacturing employment at home and assigning different causal factors to the decline, we find that the usual suspects account for only a tiny fraction of the observed decline. Greater import penetration accounts for 2 percentage points; lower and falling real wages in low-income countries where U.S. companies expanded their offshore operations only account for 2.4 percentage points of the reduction in U.S. manufacturing employment. We show that 12 percentage points out of the 17-percentage-point decline in U.S. employment can be attributed to the falling cost of capital. As the price of investment goods fell relative to wages, companies replaced people with machines.

### **Interpreting the Results on Multinational Employment Abroad**

Our results indicate that whether the offshoring of jobs by U.S. multinationals leads to a decline in U.S. based employment depends on both the location of the investment abroad and the motive for the investment. In general, the expansion of employment in low-income countries has been associated with a contraction in employment in the United States and in high-income countries. However, when American workers and workers in low-income countries perform different tasks, the expansion of multinational employment abroad can lead to increases in domestic employment. Taken together,

these results go a long way toward explaining why previous researchers have found seemingly contradictory results. Still, a number of important questions remain unanswered.

First, in the absence of a counterfactual, it is impossible to know whether the jobs lost to offshoring were part of a survival strategy. If relocating jobs offshore enabled firms to stay afloat, then it might be the case that even more jobs would have been lost if the multinational had not offshored jobs. We find some evidence that offshoring is associated with a higher probability of firm survival, but this effect is dwarfed by the effect of firm size on survival rates. Establishing a credible counterfactual is likely to be highly problematic because multinational firms are different from other firms along several dimensions.

Further, there are two important questions that we cannot address with the BEA data, but which could be addressed with data from the Current Population Survey (CPS). First, with only the BEA data we cannot say anything about the relationship between offshoring and wages because the firms in the sample report only aggregate wages — individual characteristics are not included. Second, to the extent that offshoring has an impact on domestic employment, it will have general equilibrium effects that cannot be detected by focusing solely on U.S. based multinationals and their employees. We explore these issues with our co-authors Avi Ebenstein and Shannon Phillips.<sup>9</sup>

### **Economy-wide Trends in Employment, Wages and Inequality**

Using data from the CPS, we show that between 1982 and 2002, total manufacturing employment fell from 22 to 17 million, with rapid declines at the beginning of the 1980s and in recent years. However, the effects were uneven across different types of workers. For workers without a college degree, there were significant declines in manufacturing employment over the entire period. The opposite was true for workers with a college degree. Within manufacturing, the labor force has

become increasingly well educated, as college graduates replace workers with high school degrees.

Wage trends mirror the shifts in employment. While wages fell for the least educated workers, they increased for workers with at least some years of college. The biggest wage gains were for manufacturing workers with an advanced degree. The decline in wages for high school dropouts and the steep wage increases at the upper end of the income distribution indicate a sharp increase in wage inequality.

### Are Trade and Offshoring Responsible for Growing Wage Inequality?

As we note in our work with John McLaren<sup>10</sup>, there are a variety of mechanisms through which trade and offshoring are likely to affect wages and inequality. We focus on one such mechanism: the impact of trade and offshoring on the movement of workers across sectors and occupations. To the extent that trade leads workers to switch industries (for example from manufacturing to services) or occupations (for example from machine tool operator to burger flipper), studies that focus on the impact of trade liberalization on within-sector inequality miss an important part of the story.

By merging data from the CPS with data on trade and offshoring, we show that the effects of trade and offshoring on wages across industries within manufacturing are tiny and sometimes positive. These results are in line with earlier work on trade and wages that focuses exclusively on the manufacturing sector. However, when we redefine the analysis at the occupation level, we find large, significant, and primarily negative effects of import competition and offshoring on U.S. wages. These results are consistent with recent empirical work demonstrating the importance of occupational tenure and downplaying the importance of tenure within a particular industry for a worker's wages.

We then examine the mechanisms behind the contrast between the small positive-wage effects of globalization within manufacturing and the relatively

large negative-wage effects we observe at the occupational level. We begin by showing that trade and offshoring are associated with a contraction in the manufacturing workforce. Then, using a large panel of CPS workers who are matched across surveys, we demonstrate that workers who switch industries within manufacturing experience almost no decline in wages. However, when workers relocate to the service sector, they experience a significant wage loss. The negative wage impact is particularly large among displaced workers who also switch occupations. We estimate wage losses of 2-to-4 percent among workers leaving manufacturing and an additional 4-to-11 percent wage loss among workers who also switch occupations. These effects are most pronounced for workers who perform routine tasks. This downward pressure on wages because of import competition and offshoring has been overlooked since it operates between and not within sectors.

This provides compelling evidence that the negative consequence of trade on workers is mediated through a reallocation of labor across sectors and into different occupations. While many models of trade posit that workers can move in a costless manner to new jobs in the face of pressure from foreign labor, we identify large and significant wage declines among workers forced to leave manufacturing, and the wage decline is particularly pronounced for those who are forced to switch occupations.

Finally, we find that the negative effect of international trade on U.S. wages was more pronounced in the 1990s than in earlier decades. Moreover, the negative impact of offshoring to low-wage countries on both U.S. wages and employment only became important in the 1990s. The wages of older workers appear to have been disproportionately hurt by offshoring activities.

### Implications for American Workers

The trends in offshoring and international trade that we have described are likely to accelerate. China currently

employs around 120 million people in the manufacturing sector and, although some reports indicate that wages are rising in China, those wages are still only a tiny fraction of wages in the United States. Moreover, China is expanding its manufacturing base to low-wage countries across the globe through a series of overseas economic zones<sup>11</sup>. The implication for American workers is that in order to regain ground, they will need to find jobs outside of manufacturing where wages are comparable to those in manufacturing.

This is a tall order. As McMillan and Rodrik<sup>12</sup> point out, the type of structural change that characterizes the U.S. economy and many other parts of the world reduces economic growth. And when growth slows down, so does job creation. This focus on structural change as an important determinant of economic growth also has been addressed by World Bank Chief Economist Justin Lin<sup>13</sup>.

This state of affairs has led some economists, including one of us, to reconsider the role of industrial policy. Harrison and Rodriguez-Clare<sup>14</sup> discuss "soft" industrial policies that focus on strengthening the educational system, investing in infrastructure, and promoting collaboration with industry associations, and compare such policies with "hard" industrial policies that shift relative prices. Aghion, Dewatripont, Du, Harrison, and Legros<sup>15</sup> demonstrate that industrial policy which preserves competition is most likely to improve performance.

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<sup>1</sup> Survey of Current Business, *various articles*.

<sup>2</sup> Due to space constraints, we cannot list all of the relevant papers here. For reviews of this literature, see A. Harrison and M. McMillan, "Outsourcing Jobs? Multinationals and U.S. Employment," NBER Working Paper No. 12372, July 2006, and "Offshoring Jobs? Multinationals and U.S. Manufacturing Employment," *The Review of Economics and Statistics*, Vol. 93, No. 3, August 2011, pp. 857-75.

<sup>3</sup> L. Brainard and D. Riker, "Are U.S. Multinationals Exporting U.S. Jobs?"



NBER Working Paper No. 5958, March 1997.

<sup>4</sup> F. Foley, M. Desai, and J. Hines Jr. "Domestic Effects of the Foreign Activities of U.S. Multinationals," *American Economic Journal: Economic Policy*, No. 1 February 2009, pp. 181–203.

<sup>5</sup> A. Harrison and M. McMillan, "Dispelling Some Myths about Offshoring," *Academy of Management Perspectives*, Vol. 20, No. 4, November 2006, pp. 6–22, and A. Harrison, M. McMillan, and C. Null, "U.S. Multinational Activity Abroad and U.S. Jobs: Substitutes or Complements?," *Journal of Industrial Relations*, Vol. 45, No. 2, 2007, pp. 347–65.

<sup>6</sup> A. Harrison and M. McMillan, "Outsourcing Jobs? Multinationals and U.S. Employment," and "Offshoring Jobs? Multinationals and U.S. Manufacturing Employment."

<sup>7</sup> J. Markusen and K. Maskus, "General-Equilibrium Approaches to the Multinational Firm: A Review of Theory

and Evidence," NBER Working Paper No. 8334, June 2001.

<sup>8</sup> G. Grossman and E. Rossi-Hansberg, "Trading Tasks: A Simple Theory of Offshoring," NBER Working Paper 12721, December 2006.

<sup>9</sup> A. Ebenstein, A. Harrison, M. McMillan, and S. Phillips, "Estimating the Impact of Trade and Offshoring on American Workers Using the Current Population Surveys," NBER Working Paper 15107, June 2009.

<sup>10</sup> A. Harrison, J. McLaren, and M. McMillan, "Recent Findings on Trade and Inequality," NBER Working Paper 16425, September 2010, and "Recent Perspectives on Trade and Inequality," *Annual Review of Economics*, Vol. 3: pp. 261–89, September 2011.

<sup>11</sup> D. Brautigam and T. Xiaoyang, "Going Global in Groups: Analyzing China's New Overseas Economic Zones," IFPRI Working Paper, 2011.

<sup>12</sup> M. McMillan and D. Rodrik, "Globalization, Structural Change and

Productivity Growth," NBER Working Paper No. 17143, June 2011. Results for the United States are not shown in this paper. In more recent work, McMillan shows that 1997–2007 was a period of growth-reducing structural change for the United States.

<sup>13</sup> J. Lin, "Should Industrial Policy in Developing Countries Conform to Comparative Advantage or Defy It? A Debate between Justin Lin and Ha-Joon Chang," *Development Policy Review*, 27(5), 2009, pp. 483–502.

<sup>14</sup> A. Harrison and A. Rodriguez-Clare, "Trade, Foreign Investment, and Industrial Policy for Developing Countries," NBER Working Paper No. 15261, August 2009, and *Handbook of Development Economics*, Volume 5, D. Rodrik and M. Rosenzweig eds., North Holland, 2010, pp. 4039–214.

<sup>15</sup> P. Aghion, M. Dewatripont, L. Du, A. Harrison, and P. Legros, "Industrial Policy and Competition," Working Paper, June 2011.

## Fund Flows and Performance in the Venture Capital Industry

Antoinette Schoar\*

The venture capital industry in the United States has undergone a major expansion over the last three decades, starting from a handful of funds in the early 1980s to an industry with more than \$50 billion in invested capital per year today. However, this expansion has not been entirely smooth: the venture capital industry experienced a dramatic boom and growth period in the late 1990s, but a subsequent bust led to consolidation of the industry after 2001. In the aftermath of the tech bubble's bursting, the aver-

age performance of the venture capital industry in the United States over the last decade has been poor.

When compared to the R and D budgets of the largest public firms in the United States, the size of the venture capital industry is small in absolute terms. But there is intense interest in the performance and functioning of this industry because of its central role as a catalyst in providing risk capital to entrepreneurs. In this context, the poor performance of venture capital over the last decade is of great concern for policymakers and market participants alike.

My research aims to understand the factors that drive the efficiency of fund flows and performance in the industry

and ultimately the role of venture investments on entrepreneurial firms. In a series of research papers, my co-authors and I have studied the role of investor and fund manager heterogeneity in an attempt to understand industry performance and investment behavior.

### Persistence and heterogeneity in fund returns

Steven Kaplan and I provide the first large-scale documentation of private equity returns at the fund level, using a novel dataset of individual fund performance collected by Venture Economics.<sup>1</sup> We document three stylized facts about the industry that have not been closely

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examined before. First, when we investigate the performance of private equity funds, we find that venture capital (VC) fund returns on average are lower than the S&P 500 on an equal-weighted basis, but that they are higher than the S&P 500 on a capital-weighted basis. We also find a great deal of heterogeneity in returns across funds and time.

Second, we find substantial persistence in VC fund performance. General partners (GPs)—that is, the managers of VC funds—whose funds outperform the industry in one fund are likely to outperform the industry in the next fund, and vice versa. Furthermore, we find persistence not only between two consecutive funds but also between the current fund and the fund that preceded it. These findings are markedly different from the results for mutual funds, where persistence has been difficult to detect and, when detected, tends to be driven by persistent underperformance. We investigate whether selection biases, risk levels, or industry differences can explain the results, but conclude that they are unlikely to do so.

Third, we study the relationship between fund performance and capital flows, fund size, and overall survival of the GP. When we analyze the fund's track record in terms of capital flows, and consider both individual GPs and the industry overall, we find that fund flows are positively related to past performance. However, in contrast to the convex relationship found in the mutual fund industry, the relationship in private equity is concave. Similarly, new partnerships are more likely to be started in periods after the industry has performed especially well. But funds that are raised and partnerships that are created in boom times are less likely to raise follow-on funds; this suggests that these funds perform poorly. Therefore, a larger fraction of fund flows during boom times appears to go to funds that have lower performance, rather than to top funds. Finally, the dilution of overall industry performance in periods when many new funds enter is driven mainly by the poor performance of new entrants. The performance of established funds is less affected.

These results are puzzling, since we do not find long-term persistent return differences in other asset classes. We conjecture that underlying heterogeneity in the skill and quality of GPs could lead to heterogeneity in performance and to more persistence if new entrants cannot compete effectively with existing funds.

Several forces might make it difficult to compete with established funds. Many practitioners assert that unlike mutual fund and hedge fund investors, private equity investors have proprietary access to particular transactions. In other words, better GPs may be able to invest in better investments. In addition, private equity investors typically provide management or advisory inputs along with capital. If high-quality GPs are scarce, then differences in returns between funds could persist. However, if heterogeneity in GP skills drives the persistence results, then it is surprising that the returns to superior skill are not appropriated by the GPs through higher fees and larger funds in our sample period, as has been suggested for mutual funds.<sup>2</sup>

### Investor selection

One reason why heterogeneity in returns between venture funds might persist over time is if these funds voluntarily restrict the amount of funding and the type of investors from whom they raise capital. Josh Lerner and I<sup>3</sup> present a theory that relies on the idea that managers use the liquidity of securities as a choice variable to screen for deep-pocket investors, those who have a low likelihood of facing a liquidity shock. We assume an information asymmetry about the quality of the manager between the existing investors and the market. The manager then faces a lemons problem when he has to raise funds for a subsequent fund from outside investors, because the outsiders cannot determine whether the manager is of poor quality or the existing investors were hit by a liquidity shock. Thus, liquid investors can reduce the manager's cost of capital in future fundraising.

We test the assumptions and predictions of our model in the context of the

private equity industry. Consistent with the theory, we find that transfer restrictions on investors are less common in later funds organized by the same private equity firm, where information problems are presumably less severe. Also, partnerships whose investment focus is in industries with longer investment cycles display more transfer constraints. Finally, we present evidence consistent with the assumptions of our model, including the high degree of continuity in the investors of successive funds and the ability of sophisticated investors to anticipate funds that will have poor subsequent performance. Overall, the research suggests that heterogeneity in the characteristics of investors might impose constraints on how (even good) funds expand their capital.

### Heterogeneity in investor performance

To further shed light on the puzzle of return heterogeneity in venture capital, especially at the lower end, Lerner, Wongsunwai Wan, and I investigate the differences in investment strategies and sophistication across types of institutional investors.<sup>4</sup> Almost parallel to the findings on the fund side, we find that different classes of investors in private equity have enjoyed dramatically different returns over the past two decades. Using detailed records of the composition and performance of funds that different classes of investors select, we document very substantial differences in the returns that those investors enjoy. On average, endowments' average annual returns from private equity funds are nearly 14 percent greater than returns of the average investor. Funds selected by investment advisors and banks lag sharply, even after we control for fund characteristics.

What drives this difference in returns across investors? We find that both endowments and public pension funds generally appear to be better able to use information about the fund's prospects that they obtain during the investment process. These investors are much less likely to reinvest in a given partnership, and they seem to be better at forecasting the per-

formance of follow-on funds. Those funds in which endowments (and to a lesser extent, public pension funds) decided to reinvest show much higher performance than funds where endowments decided not to reinvest. Other Limited Partner (LP) classes do not display these performance patterns. In fact, corporate pension funds and advisors are more likely to reinvest if the *current* fund had high performance, but this does not necessarily translate into higher future performance. These findings suggest that endowments proactively use the information they gain as inside investors, while other LPs seem less willing or able to use information that they obtained as an existing fund investor.

We also rule out the possibility that the superior performance of endowments or public pension funds is the result of historical accident: that is, that through their early experience these LPs may have had greater access to established private equity groups that manage high performing funds. To test this hypothesis, we examine investments in young private equity groups (those established after 1990) across all classes of LPs. When we repeat our analysis conditioning on young GPs, we still find a performance premium for endowments and public pension funds, although the difference is somewhat smaller than in the analysis using all GPs. This finding does not support the idea that the superior performance of these LPs is merely driven by historical accident.

In a related paper, Lerner, Wang and I<sup>5</sup> show that even within the set of endowments and foundations there are big differences in the performance of their portfolios. We investigate the underlying drivers of this return heterogeneity and show that performance is related to the size of endowment, the quality of the student body, and the use of alternative investments.

This documented heterogeneity in the sophistication of how investors use information about past fund performance

to make investment decisions might have broader implications for the governance of the industry overall. The most effective (if not the only) governance tool that investors in private equity can bring to bear is the threat of not reinvesting in the next fund of the partnership. More direct interference and oversight of investors in fund management is not possible because of the limited liability structure of the funds. However, the presence of a critical mass of inefficient investors allows poorly performing GPs to raise new funds and thus can even make the governance mechanism by sophisticated LPs less effective. This governance externality therefore can lead to a worsening of industry performance overall, if there is an inflow of investors with lower return expectations or who are unable to monitor managers. The illiquidity and very long time horizon of venture capital and private equity investments further aggravate the governance challenge.

## Going Forward

While earlier research often was severely limited by the quality of the available data about this notoriously “private” industry, a number of very welcome recent efforts by academics and industry organizations will allow for more comprehensive research on the topic. Still, a lot remains to be explained. The recent financial crisis has highlighted the importance of managing liquidity risk in private equity and venture capital. At the same time, the venture capital industry itself is undergoing big changes. Investors are experimenting with new fund structures, and greater variation in fund sizes, in response to a widening range of investment opportunities: we see the entry of super angels who often have only a few million dollars under management and of multibillion dollar funds investing in clean energy or health care solutions. Moreover, there is a growing focus on investments of U.S. venture capitalists in emerging markets, not

just to help U.S. companies build a more efficient supply chain abroad but also to directly take advantage of opportunities in emerging economies.

In the current economic environment there is enormous policy interest in understanding the potential for venture capital to be a catalyst for economic growth and job creation. In light of the unique governance challenges that private equity investors face described in this article, it will be of immense interest to understand how these changes affect the performance and ultimate sustainability of the industry.

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<sup>1</sup> S. N. Kaplan and A. Schoar, “Private Equity Performance: Returns, Persistence and Capital Flows,” NBER Working Paper No. 9807, June 2003, and the *Journal of Finance*, August 2005, 60 (4), pp.1791–823.

<sup>2</sup> See J.B. Berk and R.C. Green, “Mutual Fund Flows and Performance in Rational Markets,” NBER Working Paper No. 9275, October 2002, and *Journal of Political Economy* (2004), 112, pp.1269–95.

<sup>3</sup> J. Lerner and A. Schoar, “The Illiquidity Puzzle: Evidence from Private Equity Partnerships,” NBER Working Paper No. 9146, September 2002, and the *Journal of Financial Economics*, May 2004, Vol. 72 (2), pp. 3–40.

<sup>4</sup> J. Lerner, A. Schoar, and W. Wan, “Smart Institutions, Foolish Choices? The Limited Partner Performance Puzzle,” NBER Working Paper No. 11136, February 2005, and the *Journal of Finance*, April 2007, 62 (2), pp. 731–64.

<sup>5</sup> J. Lerner, A. Schoar, and J. Wang, “Secrets of the Academy: Drivers of University Endowment Success,” NBER Working Paper No. 14341, September 2008, and *Journal of Economic Perspectives*, Summer 2008, 22 (3), pp. 207–22.

# Is Environmental Quality Worth the Cost?

V. Kerry Smith\*

In outlining the principles for project evaluation over fifty years ago, Otto Eckstein — one of the fathers of benefit-cost analysis and a former member of the NBER Board of Directors — was skeptical about the prospects for reliably measuring the economic tradeoffs that people would make in order to increase the amounts of public goods provided to them through new federal projects.<sup>1</sup> Much has changed in the ensuing five decades: benefit cost analyses are now a standard part of the information used in evaluating new major rules, with President Obama's revision to Executive Order 12866 continuing the practice started in 1981, and efforts to measure the tradeoffs that people would make to enjoy increases in the public goods (or reductions in the "bads") that are intended to come from those rules are more common. The Environmental Protection Agency (EPA) has led the way among regulatory agencies in developing guidelines for how these analyses should be conducted. Nonetheless, these analyses are not without controversy.

Many popular accounts today describe environmental regulations as "job-killers" and neglect their potential benefits. Indeed, the EPA's release of their report on the benefits and costs of the Clean Air Act Amendments in March of this year barely made the headlines.<sup>2</sup> This research summary describes some of the studies that have tried to document the benefits from environmental policies, so that there can be an appropriate weighing

of benefits and costs. It also outlines the opportunities for future work.

## Research Strategies for Measuring Valuation

### *The Hedonic Model*

The hedonic property value model has been a workhorse in demonstrating that spatially delineated amenities (and disamenities) influence housing prices. A decade and a half ago, Ju Chin Huang and I took stock of the record and found that consistent and plausible measures of the tradeoffs for air pollution had been derived using hedonic property value studies.<sup>3</sup> Today we have a more nuanced view. The ability to estimate the role of location-specific public goods, such as air quality, relies on spatial variation. Often there are unobservable attributes important to the price of a house that co-vary with the local public good of interest. Equally important, self selection of households based on preferences is another potential source of bias in hedonic estimates. In the absence of a careful identification strategy with credible instruments, we now realize that significant bias is possible.<sup>4</sup> However, controlled simulation analyses evaluating strategies using spatial fixed effects to absorb the confounding effects of omitted variables, and quasi-experimental methods to purge time varying omitted variables, suggest that both strategies can be effective.<sup>5</sup>

Of course, there are important caveats. When the nature of the amenity varies with spatial scale, it is important to recognize the potential for an overlap between the spatial scale for capitalization of a local amenity and the scale for the variation of the omitted variable.<sup>6</sup> Equally important, we now have a better understanding of how measuring a capitaliza-

tion effect may differ from estimating a marginal willingness to pay. Adopting a research design that exploits current methods to control for omitted variables and selects a strong instrument does not assure that the estimated capitalization effect has a welfare interpretation.<sup>7</sup>

### *Travel Cost Methods*

Next year will be the 65<sup>th</sup> anniversary of Harold Hotelling's letter to the National Park Service proposing the travel cost strategy for estimating recreation demand. Models based on his insight<sup>8</sup> are used routinely to evaluate the quality of recreation sites. Even though prices (travel costs) are given, the most recent work in this area has recognized the potential endogeneity of some site amenities, such as congestion. We have developed consistent estimates that allow evaluation of policies to enhance conditions at a site, recognizing their potential effects in inducing changes in undesirable attributes.<sup>9</sup> These non-market general equilibrium responses parallel advances in using the conditions for a locational equilibrium to estimate partial and general equilibrium measures of benefits for changes in spatially delineated amenities.

### *Models of Sorting*

Over a decade ago, Epple and Sieg developed a vertical sorting model for estimating households' preferences for public goods.<sup>10</sup> Since then, environmental economists have used the model to estimate partial and multi-market benefits for improved air quality,<sup>11</sup> to evaluate the distributional effects of these policies,<sup>12</sup> and to incorporate endogenous amenities into the equilibrium sorting process.<sup>13</sup> This research is closely related to structural hedonic models, and to mod-

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els introduced in industrial organization for evaluations of market structure in a framework that recognizes product differentiation as a means to gain market power.<sup>14</sup>

The most recent work in this area links housing and employment decisions and includes housing supply, which makes it possible to extend the model to consider supply-side policy to affect open space, habitat protection, and land use within a consistent general equilibrium framework.<sup>15</sup>

Three important insights emerge from the research to date: first, the differences between partial and general equilibrium measures of the economic benefits from policies can be important, but judgments about the relative size of the measures that follow from these two perspectives will vary with different spatially delineated amenities. As a result, we cannot use the conclusions about the relative importance of general equilibrium effects derived from air pollution policies for other contexts, such as open space, or outside the environmental domain, for example in judging local education quality. Second, the findings from sorting models' assessments of different policies appear to be reasonably robust across model specifications—considering vertical versus horizontal preference specifications—and different specifications for the extent of the local market.<sup>16</sup> Finally, the distributional implications of local policies can be pronounced, suggesting that some groups, notably those at the lower end of the housing market, may well lose even though air quality uniformly improves in all communities because the improvement is not enough to offset the increase in housing costs.

## Research Opportunities

The importance of general equilibrium effects is not limited to assessments in the context of local housing markets. If we return to EPA's recent Prospective Analysis of the net gains estimated for the 1990 Clean Air Act Amendments (CAAA), it is easy to find an example. Comparing the two chapters reporting

EPA's assessment of the net gains from the amendments, one finds that a partial equilibrium assessment would conclude that for 2010 the annual net benefits are 10 percent of GDP, while the report's assessment using a computable general equilibrium model concludes that they are 0.07 percent of that model's estimate for GDP. So the CAAA policies offer enormous net gains or virtually nothing, depending on the strategy used for evaluation. In the end the results are not the product of estimation uncertainty or flaws in non-market valuation methods. Instead, the devil is in the details of how to conduct general equilibrium assessments of large-scale public policies with non-market amenities, and this is an area that warrants further research. Indeed, Jared Carbone and I assess the effects of the treatment of amenities in household preferences for measuring the results of imposing a modest energy tax increase, and that helps us to explain these differences.<sup>17</sup> When we consider the importance of the assumed size of the substitution-versus-complementarity association between air quality and leisure, it is possible to change the size of the general equilibrium assessment of the benefits, including the air quality improvement together with the associated price changes, by over 90 percent.

The collapse of the housing market throughout many metropolitan areas in this country might be thought to cast a pall over research that relies on market equilibria. Not so—it is an opportunity to understand what thin markets and markets with high transaction costs reveal about amenities. Preliminary research suggests a new wave of insights into how aggregate shocks influence the ways that hedonic and sorting models evaluate non-market tradeoffs. This is one important research byproduct of our current hard times.

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<sup>1</sup> See O. Eckstein, "The Economics of Project Evaluation," Water Resource Development, Cambridge, MA: Harvard University Press, 1961, and H.S. Banzhaf, "Two Historically Competing Visions for Benefit-Cost Analysis," Land Economics

Vol. 85(1): 2009, pp.3–23.

<sup>2</sup> U.S. Environmental Protection Agency, "The Benefits and Costs of the Clean Air Act from 1990 to 2020," Final Report, Office of Air and Radiation, March 2011.

<sup>3</sup> V.K. Smith and J.C. Huang, "Can Markets Value Air Quality? A Meta Analysis of Hedonic Property Value Models," Journal of Political Economy, Vol. 103(1): 1995, pp.209–27.

<sup>4</sup> K.Y. Chay and M. Greenstone, "Does Air Quality Matter? Evidence from the Housing Market," NBER Working Paper No. 6826, December 1998, and Journal of Political Economy, Vol. 113(2): 2005, pp.376–424.

<sup>5</sup> N.V. Kuminoff, C.F. Parmeter, and J.C. Pope, "Which Hedonic Models Can We Trust to Recover the Marginal Willingness to Pay for Environmental Amenities?" Journal of Environmental Economics and Management, Vol. 60(3): 2010, pp.145–60.

<sup>6</sup> J.K. Abbott and H.A. Klaiber, "An Embarrassment of Riches: Confronting Omitted Variable Bias and Multi-Scale Capitalization in Hedonic Price Models," Review of Economics and Statistics (in press, 2011).

<sup>7</sup> The original hedonic paper is S. Rosen, "Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition," Journal of Political Economy, Vol. 82(1): 1974, pp. 34–55. For a discussion of limitations in how recent analyses can be interpreted, see N.V. Kuminoff and J.C. Pope, "Rosen Bias' in the Willingness to Pay for Nonmarket Goods," Working Paper, September 2011, and H.A. Klaiber and V.K. Smith, "Quasi Experiments, Hedonic Models, and Estimating Tradeoffs for Local Amenities," August 2011, earlier version was NBER Working Paper No. 14957, May 2009.

<sup>8</sup> See D.J. Phaneuf and V.K. Smith, "Recreation Demand Models" in K.G. Maler and J.R. Vincent, eds., Handbook of Environmental Economics, Vol.2 (Amsterdam: North Holland): 2005, pp.671–761, and Roger H. von Haefen, D.J. Phaneuf, and G.R. Parsons, "Estimation and Welfare Analysis with Large Demand Systems," Journal of Business & Economic Statistics, Vol.



22(2): 2004, pp.194–205.

<sup>9</sup> C. Timmins and J. Murdock, "A Revealed Preference Approach to the Measurement of Congestion in Travel Cost Models," *Journal of Environmental Economics and Management*, Vol. 53(2): 2007, pp.141–290.

<sup>10</sup> D. Epple and H. Sieg, "Estimating Equilibrium Models of Local Jurisdiction," NBER Working Paper No. 6822, December 1998, and *Journal of Political Economy*, Vol. 107(4):1999, pp.645–81.

<sup>11</sup> H. Sieg, V.K. Smith, H.S. Banzhaf, and R. Walsh, "Estimating the General Equilibrium Benefits of Large Changes in Spatially Delineated Public Goods," NBER Working Paper No. 7744, June 2000, and *International Economic Review*, Vol. 45(4): 2004, pp. 1047–77.

<sup>12</sup> H.S. Banzhaf and R.P. Walsh, "Do People Vote with Their Feet? An Empirical Test of Tiebout's Mechanism," *American Economic Review*, Vol. 98(3): 2008,

pp.843–63, and V.K. Smith, H. Sieg, H.S. Banzhaf, and R. Walsh, "General Equilibrium Benefits for Environmental Improvements: Projected Ozone Reductions under EPA's Prospective Analysis for the Los Angeles Air Basin," *Journal of Environmental Economics and Management*, Vol. 47(3): 2004, pp. 559–84.

<sup>13</sup> H.A. Klaiber and V.K. Smith, "Developing General Equilibrium Benefit Analyses for Social Programs: An Introduction and Example," Working Paper, Evans School of Public Affairs, University of Washington, Benefit-Cost Analysis Center, March 2011; D. J. Phaneuf, J.C. Carbone, and J.A. Herriges, "Non-Price Equilibria for Non-Marketed Goods," *Journal of Environmental Economics and Management*, Vol. 57 (1):2009,pp. 45–64.

<sup>14</sup> N.V. Kuminoff, V.K. Smith, and C. Timmins, "The New Economics

of Equilibrium Sorting and its Transformational Role for Policy Evaluation," NBER Working Paper No. 16349, September 2010.

<sup>15</sup> D.G. Hallstrom and V.K. Smith, "Habitat Protection Policies and Open Space: A General Equilibrium Analysis of 'Takings' and 'Givings,'" Working Paper, 2003.

<sup>16</sup> N.V. Kuminoff, V.K. Smith, and C. Timmins, "The New Economics of Equilibrium Sorting and its Transformational Role for Policy Evaluation," NBER Working Paper No. 16349, September 2010.

<sup>17</sup> J.C. Carbone and V.K. Smith, "Evaluating Policy Interventions with General Equilibrium Externalities," *Journal of Public Economics*, Vol. 92(5-6): 2008, pp.125–74, and "Valuing Ecosystem Services in General Equilibrium," NBER Working Paper No.15844, March 2010.

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## NBER Profile: John R. Graham

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John Graham is a Research Associate in the NBER's Corporate Finance Program and a professor of Finance at Duke University. He is also faculty co-director of Duke's Center for Financial Excellence.

Graham received his bachelor's degree in math and economics at the College of William and Mary in 1983, his Masters of economics at Virginia Commonwealth University in 1988, and his Ph.D. in finance at Duke University in 1994. Prior to joining the faculty at Duke, he taught at the University of Utah and worked as a senior economist at Virginia Power.

Graham's research focuses primarily on corporate finance issues including the choice of capital structure, payout policy, risk man-

agement, corporate diversification, taxes, and compensation. He is co-author of a textbook, *Corporate Finance: Linking Theory to What Companies Do*, now in its third edition and published by South-Western Cengage Learning. Graham is also co-editor of the *Journal of Finance*, director of the Global Business Outlook quarterly survey of CFOs, and Vice President of the Western Finance Association.

Graham was born in Beaumont, Texas and grew up primarily in Wilmington, Delaware. He currently lives in Chapel Hill, NC with his wife Suzanne and three children: Matt, Laura, and Rebecca. He spends his free time gardening, playing and coaching sports, and participating in church activities.



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## NBER Profile: *Ann E. Harrison*

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Ann E. Harrison is a Research Associate in the NBER's Programs in International Trade and Investment and Environmental and Energy Economics. She received her B.A. from the University of California, Berkeley and her Ph.D. in Economics from Princeton University in 1991. Since 2001, Harrison has been a Professor of Agricultural and Resource Economics at the University of California, Berkeley. She previously taught at the University of Paris, Harvard's Kennedy School of Government, and Columbia Business School.

Harrison spent the last two years at the World Bank, where she was the Director of Development Policy. Prior to that, she was the Bank's manager for trade research. On January 1, 2012 she will be joining the faculty of the Wharton School at the University of Pennsylvania as Professor of Management.

Harrison's research is in the area of international trade, foreign investment, and eco-

nomics development. She has analyzed the impact of globalization on domestic labor markets, the linkages between productivity and trade reform, and the impact of foreign investment on host countries. She is the editor of the NBER book, *Globalization and Poverty*, and her articles have been published in the *American Economic Review*, the *Review of Economics and Statistics*, the *Journal of International Economics*, the *Journal of Labor Economics*, and elsewhere. Her latest research analyzes anti-sweatshop activism, the impact of offshoring on wages and employment, the pros and cons of industrial policy, and the determinants of firm performance in India and China.

Harrison was born in France and raised in California. She is married to the economist Vicente Madrigal and has two children: Emily (16) and Alice (11). As a family, they enjoy reading, cooking, and traveling together.

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## NBER Profile: *Margaret S. McMillan*

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Margaret McMillan is an associate professor of economics at Tufts University and a Research Associate in the NBER's Program on International Trade and Investment. She holds a B.A. in mathematics and economics from Boston University, an M.P.A. from Princeton University, and a Ph.D. in economics from Columbia University.

McMillan was appointed the Director of the Development Strategies and Governance Division of the International Food Policy Research Institute in 2009. Before joining a university faculty, she had taught math in the Republic of Mali, managed a project for the World Bank in the United Republic of Tanzania, and worked as a financial analyst at

Lehman Brothers.

McMillan is the recipient of numerous awards for her research. In 2005, she was named the William and Flora Hewlett Foundation Fellow at the Radcliffe Institute for Advanced Study. She is also currently the principal investigator on a multi-million dollar project funded by the Economic and Social Research Council of the United Kingdom designed to enhance the understanding of economic growth and structural change in Sub-Saharan Africa.

McMillan lives in Newton, MA with her husband, Pierluigi Balduzzi, and their ten-year-old daughter, Anna.



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## NBER Profile: *Antoinette Schoar*

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Antoinette Schoar is an NBER Research Associate in the Program on Corporate Finance and chair of the NBER's Entrepreneurship Working Group. She is also the Michael M. Koerner ('49) Professor of Entrepreneurial Finance at MIT's Sloan School of Management.

After receiving her undergraduate degree in economics from the University of Cologne (Germany), Schoar earned her Ph.D. in Economics from the University of Chicago in 2000. She joined the Sloan School faculty that year and became a tenured professor in 2005.

Schoar's research interests range from entrepreneurship and the financing of small businesses in emerging markets to

household finance and intermediation in retail financial markets. She also is a cofounder of ideas42, a research lab on behavioral social science. In 2003, her paper "The Effects of Corporate Diversification on Productivity" won the *Journal of Finance* Brattle Prize. She also received the prestigious Kauffman Prize Medal for Distinguished Research in Entrepreneurship in 2009.

Schoar's work has been published in the *Journal of Finance*, *Journal of Financial Economics*, the *Quarterly Journal of Economics*, and other journals. She is also an associate editor of both the *Journal of Finance* and the *American Economic Journal in Applied Economics*.

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## NBER Profile: *V. Kerry Smith*

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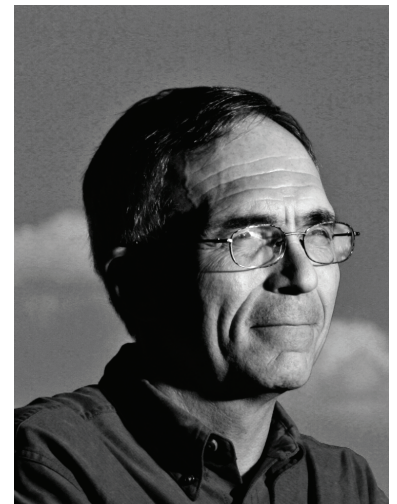
V. Kerry Smith is a Research Associate in the NBER's Program on Environmental and Energy Economics. He is also Regents' Professor of Economics at Arizona State University and a University Fellow at Resources for the Future.

Smith received his Ph.D. in Economics from Rutgers University in "what no doubt seems like another lifetime": 1970. His research focuses on measuring the economic tradeoffs that individuals make to enhance environmental quality and to reduce environmental sources of risk. His recent research has focused on evaluating alternative modeling strategies for introducing environmental services into static and dynamic computational

equilibrium models, both at the regional and national levels.

In addition to this research, he has studied the evaluation of homeland security policies. He is currently working with Central Arizona Project's Long-Term Ecological Research and the Decision Center for a Desert City, both NSF-sponsored activities, to develop strategies to integrate natural and social sciences into the development of sustainable policies for arid urban environments.

Kerry lives in Cave Creek, Arizona with his wife Pauline. They have two children, Tim and Shelley, plus two terrific grandsons, Jake and Sam.





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## Conferences

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### Economic Research on African Development Successes

The final NBER conference on “Economic Research on African Development Successes” took place in Zanzibar, Tanzania on August 3–5, 2011. The conference organizers, all NBER Research Associates, were Sebastian Edwards of the University of California, Los Angeles, Simon Johnson of MIT, and David N. Weil of Brown University.

Seventeen research projects were discussed at the meeting. They are:

- **Edward Kutsoati**, Tufts University, and **Randall Morck**, University of Alberta and NBER, “Family Ties, Inheritance Rights, and Successful Poverty Alleviation: Evidence from Ghana”
- **Diego A. Comin**, Harvard University and NBER, “An Exploration of Luxury Hotels in Tanzania”
- **Michael Kremer**, Harvard University and NBER; **Jean Lee** and **Olga Rostapshova**, Harvard University; and **Jonathan Robinson**, University of California, Santa Cruz, “The Return to Capital for Small Retailers in Kenya: Evidence from Inventories”
- **Ilia Rainer**, George Mason University, and **Francesco Trebbi**, University of British Columbia and NBER, “How is Power Shared in Africa?”
- **Sebnem Kalemli-Ozcan**, University of Houston and NBER, and **Bent Sorensen**, University of Houston, “Misallocation, Property Rights, and Access to Finance: Evidence from Within and Across Africa”
- **Pascaline Dupas**, Stanford University and NBER; **Sarah Green**, Innovations for Poverty Action; **Anthony Keats**, University of California, Los Angeles; and **Jonathan Robinson**, University of California, Santa Cruz, “Supply and Demand Challenges in Banking the Rural Poor: Evidence from Kenya”
- **Franklin Allen**, University of Pennsylvania and NBER; **Elena Carletti**, European University Institute; **Robert Cull**, World Bank; **Jun Qian**, Boston College; **Lemma Senbet**, University of Maryland; and **Patricio Valenzuela**, European University Institute, “Improving Access to Banking: Evidence from Kenya”
- **Nicholas Wilson**, Williams College, “Fertility Responses to Prevention of Mother-to-Child Transmission (PMTCT) Scale-Up in Zambia”
- **Damien de Walque**, World Bank; **William H. Dow**, University of California, Berkeley and NBER; **Carol Medlin**, Bill and Melinda Gates Foundation; and **Rose Nathan**, Ifakara Health Institute, “Stimulating Demand for AIDS Prevention: Lessons from the RESPECT Trial”
- **Erin Baggott** and **Michael Hiscox**, Harvard University, and **Jens Hainmueller**, MIT, “Conditional Grants to Improve Public Health: Evaluating the Health Impacts of the Nigerian Conditional Grants Scheme”
- **Sebastian Edwards**, “Tanzania: A Success Story?”
- **Emilie Caldeira**, Auvergne University; **Martial Foucault**, University of Montreal; and **Gregoire Rota-Graziosi**, International Monetary Fund, “Does Decentralization Increase Access to Poverty-Related Services? Evidence from Benin”
- **Sylvain Dessy**, Laval University, “The Political Economy of Government Revenues in Post-Conflict Resource-Rich Africa: Liberia and Sierra Leone”



- **Richard Akresh**, University of Illinois, Urbana-Champaign; **Damien de Walque**, World Bank; and **Harounan Kazianga**, Oklahoma State University, “Alternative Cash Transfer Delivery Mechanisms: Impacts on Illness and Health Clinic Utilization in Burkina Faso”
- **Margaret S. McMillan**, Tufts University and NBER; **William Masters**, Tufts University; and **Harounan Kazianga**, Oklahoma State University, “Demographic Pressure and Institutional Change: Village-Level Response to Rural Population Growth in Burkina Faso”
- **Lorenzo Casaburi**, Harvard University, and **Michael Kremer** and **Sendhil Mullainathan**, Harvard University and NBER, “Contract Farming and Agricultural Dynamics in Western Kenya”
- **Jeremy D. Foltz** and **Ursula T. Aldana**, University of Wisconsin-Madison, and **Paul Laris**, California State University, Long Beach, “The Sahel’s Silent Maize Revolution: Analyzing Maize Productivity in Mali at the Farm-level”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/ADSs11/summary.html>

## Globalization in an Age of Crisis: Multilateral Economic Cooperation in the Twenty-First Century

An NBER Conference on “Globalization in an Age of Crisis: Multilateral Economic Cooperation in the Twenty-First Century” took place at the Bank of England on September 15 and 16, 2011. Co-Organizers Robert C. Feenstra, University of California, Davis and NBER, and Alan M. Taylor, University of Virginia and NBER, chose the following papers for discussion:

- **Douglas A. Irwin**, Dartmouth College and NBER, and **Kevin H. O’Rourke**, Trinity College and NBER, “Free Trade and Multilateralism in History”
- **Barry Eichengreen**, University of California, Berkeley and NBER, “International Policy Coordination: The Long View”
- **Kyle Bagwell** and **Robert W. Staiger**, Stanford University and NBER, “Can the Doha Round be a Development Round? Setting a Place at the Table”
- **Pravin Krishna**, Johns Hopkins University and NBER, “Preferential Trade Agreements and the Multilateral Trade System”
- **Lee G. Branstetter**, Carnegie Mellon University and NBER, and **William A. Pizer**, Duke University, “Facing the Climate Change Challenge in a Global Economy”
- **Richard E. Baldwin**, Graduate Institute, Geneva and NBER, “Trade and Industrialization after Globalization’s 2nd Unbundling: How Building and Joining a Supply Chain are Different and Why it Matters”
- **Giancarlo Corsetti**, University of Cambridge, and **Gernot J. Mueller**, University of Bonn, “Rethinking Multilateral Policy Cooperation in the Twenty-First Century: What Do We Know about Cross-border Effects of Fiscal Policy?”
- **Maurice Obstfeld**, University of California, Berkeley and NBER, “The International Monetary System: Living with Asymmetry”
- **Charles A. E. Goodhart**, London School of Economics, “Global Macroeconomic and Financial Supervision: Where next?”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/MECF11/summary.html>

## The Global Financial Crisis

The NBER held a conference on “The Global Financial Crisis” at the National Press Club in Washington, DC on September 22, 2011. This conference, which included policymakers and members of the press, was directed at a broader audience than the June 2011 research meeting on the same topic which was described in the *NBER Reporter*, 2011 Number 3. NBER Research Associates Charles Engel of the University of Wisconsin, Kristin Forbes of MIT, and Jeffrey Frankel of Harvard’s Kennedy School served as organizers of both meetings. The program for the Washington Conference was:

- **Charles Engel**, “Increased Financial Integration and Capital Flows: Aggravating or Ameliorating Crises?”  
Discussion Leader: David Wessel, *Wall Street Journal*  
Panelists: Mohammad El Erian, PIMCO; Pierre-Olivier Gourinchas, University of California, Berkeley and NBER; Philip Lane, Trinity College Dublin
- Lunch Speaker – Lael Brainard, Under Secretary for International Affairs, U.S. Treasury Department
- “Global Contagion: What was the Role of Banks, Investors and Trade?”  
Session Introduction: Mark Spiegel, Federal Reserve Bank of San Francisco  
Discussion Leader: Sebastian Mallaby, Council on Foreign Relations  
Panelists: Joyce Chang, JP Morgan; Marcel Fratzscher, European Central Bank; Guillermo Ortiz, GO & Asociados
- “Reducing Country Vulnerability: Capital Controls, Reserves, the IMF, or Something New?”  
Session Introduction: Jeffrey A. Frankel  
Discussion Leader: Zanny Minton-Beddoes, *The Economist*  
Panelists: Erdem Basci, Central Bank of Turkey; Olivier J. Blanchard, IMF, MIT, and NBER; Kathryn M.E. Dominguez, University of Michigan and NBER

A summary of the presentations and discussion at this conference can be found at: <http://www.nber.org/confer/2011/GFC11/summary.html>

## Universities-Research Conference on Housing and Mortgage Markets in Historical Perspective

The NBER held a Universities Research Conference in Cambridge on “Housing and Mortgage Markets in Historical Perspective” on September 23 and 24, 2011. NBER Research Associates Price V. Fishback of the University of Arizona, Kenneth A. Snowden of University of North Carolina, Greensboro, and Eugene N. White of Rutgers University organized the conference and chose these papers for discussion:

- **Alexander J. Field**, Santa Clara University, “The Interwar Housing Cycle in the Light of 2001–2011: A Comparative Historical Approach”
- **Daniel K. Fetter**, Wellesley College and NBER, “How Do Mortgage Subsidies Affect Home Ownership? Evidence from the Mid-Century GI Bills” (NBER Working Paper No. 17166)
- **Carlos Garriga**, **Mathew Chambers**, and **Donald Schlagenhauf**, Federal Reserve Bank of St. Louis, “Did Housing Policies Cause the Post-War Boom in Homeownership? A General Equilibrium Analysis”
- **William Goetzmann**, Yale University and NBER, and **Rik Frehen** and **Geert Rouwenhorst**, Yale University, “Financial Innovation in Late-Eighteenth Century Netherlands: The Case of American Land Securities”

- **Kirsten Wandschneider**, Occidental College, “Lending to Lemons: Landschafts-Credit in 18th Century Prussia”
- **Jonathan Rose**, Federal Reserve Board, “The Prolonged Resolution of Troubled Real Estate Lenders During the 1930s”
- **Steven Gjerstad** and **Vernon Smith**, Chapman University, “Prosperity and Recession: U.S. Economic Cycles and Consumption Cycles During the Past Century”
- **Michael Brocker**, Booz, Allen, Hamilton, and **Christopher Hanes**, Binghamton University, “Effects of the 1920s American Real Estate Boom on Housing Markets in the Downturn of the Great Depression: Evidence from City Cross Sections”
- **Trevor Kollmann**, LaTrobe University, “Built with Good Intentions? An Examination of Public Housing Projects on Local Communities”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/URCf11/summary.html>

## NBER’s 26th Tax Policy and the Economy Conference Held in Washington

The NBER’s 26th Conference on Tax Policy and the Economy took place at the National Press Club in Washington on October 6, 2011. NBER Research Associate Jeffrey R. Brown of the University of Illinois, Urbana-Champaign organized this year’s meeting. The following papers were discussed:

- **Jeffrey B. Liebman**, Harvard University and NBER, and **Erzo F.P. Luttmer**, Dartmouth College and NBER, “The Perception of Social Security Incentives for Labor Supply and Retirement: The Median Voter Knows More Than You’d Think”
- **Michael P. Devereux** and **Simon Loretz**, Oxford University, “How would EU Corporate Tax Reform Affect U.S. Investment in Europe?”
- **Joseph Bankman** and **John Cogan**, Stanford University; **R. Glenn Hubbard**, Columbia University and NBER; and **Daniel Kessler**, Stanford University and NBER, “Reforming the Tax Preference for Employer Health Insurance”
- **Francisco J. Gomes**, London Business School; **Laurence J. Kotlikoff**, Boston University and NBER; and **Luis M. Viciara**, Harvard University and NBER, “The Excess Burden of Government Indecision” (NBER Working Paper No. 12859)
- **Leonard E. Burman**, Syracuse University and NBER, and **Marvin Phaup**, George Washington University, “Tax Expenditures, the Size and Efficiency of Government, and Implications for Budget Reform” (NBER Working Paper No. 17268)

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/TPE11/summary.html>

## Role of the Government in Residential Mortgage Markets

NBER Research Associates Darrell Duffie and Kenneth J. Singleton of Stanford University's Graduate School of Business organized a conference on the "Role of the Government in Residential Mortgage Markets", which was held in New York City on October 26, 2011. These papers were discussed:

- **David Scharfstein**, Harvard University and NBER, and **Adi Sunderam**, Harvard University, "The Economics of Housing Finance Reform: Privatizing, Regulating and Backstopping Mortgage Markets"
- **Valentin Bolotnyy**, Federal Reserve Board of Governors, "The Government-Sponsored Enterprises and the Mortgage Crisis: The Role of the Affordable Housing Goals"
- **Dwight Jaffee** and **John M. Quigley**, University of California, Berkeley, "The Future Role of Government Sponsored Enterprises: The Role for Government in the U.S. Mortgage Market"
- **Patricia Mosser**, **Joseph Tracy**, **Tony Dechario**, **James Vickery**, and **Joshua Wright**, Federal Reserve Bank of New York, "A Private Lender Cooperative Model for Residential Mortgage Finance"

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/SECf11/summary.htm>

## Housing and the Financial Crisis

An NBER Conference on Housing and the Financial Crisis, organized by Edward L. Glaeser, Harvard University and NBER, and Todd Sinai, University of Pennsylvania and NBER, was held in Cambridge on November 17 and 18, 2011. These papers were discussed:

- **Todd M. Sinai**, "House Price Moments in Boom-Bust Cycles"
- **Andrew Haughwout**, **Richard Peach**, **John Sporn**, and **Joseph Tracy**, Federal Reserve Bank of New York, "The Supply Side of the Housing Boom and Bust of the 2000s"
- **David Genesove**, Hebrew University, and **Lu Han**, University of Toronto, "A Spatial Look at Housing Bubbles"
- **Edward L. Glaeser**; **Joshua D. Gottlieb**, Harvard University; and **Joseph Gyourko**, University of Pennsylvania and NBER, "Can Cheap Credit Explain the Housing Boom?"
- **Christopher Mayer**, Columbia University and NBER, "Piggybacking on Crisis: The Role of Second Liens in Financing the Housing Bubble"
- **Benjamin Keys**, Federal Reserve Board; **Tomasz Piskorski**, Columbia University; **Amit Seru**, University of Chicago and NBER; and **Vikrant Vig**, London School of Business, "Mortgage Financing in the Housing Boom and Bust"
- **Dwight Jaffee** and **John M. Quigley**, University of California, Berkeley, "The Future Role of the Government Sponsored Enterprises: The Role for Government in the U.S. Mortgage Market"
- **Jack Favilukis**, London School of Economics; **David Kohn**, New York University; and **Sydney C. Ludvigson** and **Stijn Van Nieuwerburgh**, New York University and NBER, "International Capital Flows and House Prices: Theory and Evidence"

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/HFC11/summary.html>



### NBER Researchers Win Nobel Prize in Economics

NBER Research Associates Thomas J. Sargent and Christopher A. Sims are the winners of the 2011 Nobel Prize in Economics. Sargent is the Berkley Professor of Economics and Business at New York University, a Senior Fellow at the Hoover Institution, and a Research Associate in the NBER's Economic Fluctuations and Growth (EFG) Program. He has been an NBER Research Associate since 1970, with the exception of a brief interruption between 1973 and 1978. Sims is the Harold H. Helm '20 Professor of Economics and Banking at Princeton University and a Research Associate in the NBER's EFG and Monetary Economics Programs. He was a post-graduate research fellow at the NBER in 1970-71, and has been an

NBER Research Associate since 1979.

The award citation prepared by the Prize Committee of the Royal Swedish Academy of Sciences highlighted their contributions to "empirical research on cause and effect in the macroeconomy." The citation notes that "expectations of the private sector regarding future economic activity and policy influence decisions about wages, saving and investment. Concurrently, economic policy decisions are influenced by expectations about developments in the private sector. The laureates' methods can be applied to identify these causal relationships and explain the role of expectations." It further notes that such modeling can help to identify the impact of various policy actions.

Sargent and Sims join a long list of current and past NBER affiliates who have received the Prize, including: Peter Diamond and Dale Mortenson (shared with Christopher Pissarides), 2010; Paul Krugman, 2008; Edward C. Prescott and Finn Kydland, 2004; Robert F. Engle (shared with Clive Granger), 2003; George Akerlof and Joseph E. Stiglitz (shared with Michael Spence), 2001; James J. Heckman and Daniel L. McFadden, 2000; Robert C. Merton and Myron S. Scholes, 1997; Robert E. Lucas, Jr., 1995; Robert W. Fogel (shared with Douglass North), 1993; Gary S. Becker, 1992; and the late George J. Stigler, 1982, Theodore W. Schultz (shared with Arthur Lewis), 1979, Milton Friedman, 1976, and Simon Kuznets, 1971.

### Kathleen Cooper Elected Chair of NBER Board of Directors — Martin Zimmerman Vice-Chair

Kathleen B. Cooper was elected Chair of the NBER's Board of Directors at its September 19 meeting. She succeeds John S. Clarkeson, the former Chairman of the Boston Consulting Group. Cooper, the previous Vice-Chair of the NBER Board, is a senior fellow of the Tower Center for Political Studies at Southern Methodist University. She served as

Undersecretary for Economic Affairs of the U.S. Department of Commerce from 2001-5, and was previously Chief Economist at Exxon Mobil. Cooper was first elected to the NBER's Board of Directors in 1987.

The NBER Board also elected Director Martin B. Zimmerman as Vice-Chair. Zimmerman, who joined

the NBER board in 2000, is currently a Clinical Professor of Business at the Ross School of Business at the University of Michigan. He was previously Group Vice President for Corporate Affairs at Ford Motor Company. Before joining Ford, Zimmerman was a member of the Applied Economics Faculty at the MIT Sloan School of Management.

### New Directors Elected to NBER Board

The NBER's Board of Directors has elected four new members:

Timothy Bresnahan, the Landau Professor in Technology and the Economy at Stanford University and Director of the Center on Employment and Economic

Growth in the Stanford Institute for Economic Policy Research, is the new representative of Stanford University. Bresnahan is a Fellow of the American Academy of Arts and Sciences. He received his bachelor's degree from Haverford College in 1975 and

his master's and doctoral degrees in economics from Princeton in 1978 and 1980, respectively. Prior to his election to the Board, he was a Research Associate in the Industrial Organization and the Productivity, Innovation, and Entrepreneurship Programs.

Christopher Carroll, a Professor of Economics at the Johns Hopkins University in Baltimore, succeeds Arthur B. Kennickell as the representative of the American Statistical Association. Carroll, who was a Research Associate in the Economic Fluctuations and Growth and Monetary Economics Programs prior to his election, received his A.B. in Economics from Harvard University in 1986 and his Ph.D. from MIT in 1990. Before moving to the Johns Hopkins University in 1995, he worked at the Federal Reserve Board of Governors in Washington, DC. He also

spent 1997–8 on the staff of the President's Council of Economic Advisers.

Bruce E. Hansen, the Trygve Haavelmo Professor of Economics at the University of Wisconsin, is that university's newly-elected representative. He is the successor to Glen G. Cain, who has been elected a Director Emeritus of the NBER. Hansen is a Fellow of the Econometric Society. He received his Ph.D. from Yale University in 1989 and taught at the University of Rochester (1989–94) and Boston College (1994–8) before moving to the University of Wisconsin.

Linda Ewing, the Director of Research and Policy for the United Automobile, Aerospace and Agricultural Implement Workers of America (UAW), has been elected a Director At Large. Ewing received her B.A. in Economics from the Honors College at Michigan State University and completed the Ph.D. coursework in Economics at the University of Massachusetts, Amherst. She joined the UAW staff in 1991 as a research analyst and was appointed Director of the research department in 2002.

## NBER Researchers in Public Service

A number of past or current NBER researchers have recently been tapped for important public policy positions. Alan B. Krueger and Katharine G. Abraham, both of whom resigned from their positions as Research Associates in the NBER's Program on Labor Studies when they were confirmed for their current posts, are serving as the Chair, and as one of the members, of the President's Council of Economic Advisers. Krueger is on leave from his position as the Bendheim Professor of Economics and Public Affairs at Princeton University; Abraham is on leave from the University of Maryland, where she is a Professor in the College of Behavioral and Social Sciences. In addition, Janice C. Eberly,

formerly a Research Associate in the NBER's Economic Fluctuations and Growth Program, resigned from the NBER when she was confirmed as the Assistant Secretary for Economic Policy at the U.S. Treasury Department. She is on leave from Northwestern University's Kellogg School of Management.

A number of other NBER Research Associates are serving in various government positions while on leave from the NBER. They include: Lee G. Branstetter of Carnegie-Mellon University and Thomas Buchmueller of the University of Michigan, who are senior economists at the Council of Economic Advisers; Judith K. Hellerstein of the University of Maryland, who is the Chief Economist

at the Council of Economic Advisers; Michael Klein of Tufts University, who is the Chief Economist in U.S. Treasury Office of International Affairs; Adriana Kugler of the Georgetown Public Policy Institute, who is Chief Economist at the U.S. Labor Department; Gilbert E. Metcalf of Tufts University, who is Deputy Assistant Secretary for Environment and Energy at the U.S. Treasury; Sendhil Mullainathan of Harvard University, who is Assistant Director for Research at the U.S. Treasury's Consumer Financial Protection Bureau; and Fiona Scott Morton of Yale, who is Deputy Assistant Attorney General for Economic Analyses for the Antitrust Division of the U.S. Department of Justice.

## Franklin A. Lindsay Dead at 85

Franklin A. Lindsay, an emeritus member and former chairman of NBER's Board of Directors, passed away on October 13, 2011 at the age of 85. Lindsay was elected to the NBER's Board of Directors in 1976 as a representative of the Committee on

Economic Development. At that time, he was President and Chairman of Itek Corporation, a high-technology firm based in Lexington, Massachusetts. His career included a number of distinguished roles in both the public and private sec-

tors. Lindsay was elected Vice Chairman of the NBER Board in 1980, and was Board Chair from 1983 until 1986. He became an Emeritus Director in 1993.

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## Program and Working Group Meetings

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### Insurance Project Workshop

The NBER's Insurance Project, directed by NBER Research Associate Kenneth Froot of Harvard Business School, met in Cambridge on September 17, 2011. NBER Research Associate Howard Kunreuther of the University of Pennsylvania organized the meeting with Froot. These papers were discussed:

- **Levon Barseghyan, Francesca Molinari, and Edward O'Donoghue**, Cornell University, and **Joshua Teitelbaum**, Georgetown University, "The Nature of Risk Preferences: Evidence from Insurance Choices"
- **Steven Shavell**, Harvard University and NBER, "A General Rationale for a Governmental Role in the Relief of Large Risks"
- **Erwann Michel-Kerjan**, University of Pennsylvania, and **Jacqueline Wolkman Wise**, Temple University, "The Risk of Ever-Growing Disaster Relief Expectations"
- **Daniel Bauer** and **George Zanjani**, Georgia State University, "The Marginal Cost of Risk, Risk Measures, and Capital Allocation"
- **Neil Doherty**, University of Pennsylvania, and **Christian Laux** and **Alexander Muermann**, Vienna University of Economics and Business, "Insuring Non-Verifiable Losses and the Role of Intermediaries"
- **Santosh Anagol**, University of Pennsylvania, and **Shawn A. Cole** and **Shayak Sarkar**, Harvard University, "Bad Advice: Explaining the Persistence of Whole Life Insurance"
- **Alexander Muermann**, Vienna University of Economics and Business, "Asymmetric Information in Automobile Insurance: New Evidence from Telematic Data"

Summaries of the papers are available at: <http://www.nber.org/confer/2011/INSf11/summary.html>

### Working Group on the Chinese Economy

The NBER's Working Group on the Chinese Economy met in Cambridge on September 30 and October 1 and 2, 2011. Shang-Jin Wei of Columbia University, who directs the group, organized the conference with Hanming Fang, University of Pennsylvania and NBER. These papers were discussed:

- **Xiaobo Zhang**, International Food Policy Research Institute, and **Xi Chen**, Cornell University, "Costly Posturing: Relative Status, Ceremonies and Early Child Development"
- **Yuyu Chen** and **Guang Shi**, Peking University; **Ginger Zhe Jin**, University of Maryland and NBER; and **Naresh Kumar**, University of Iowa, "The Promise of Beijing: Evaluating the Impact of the 2008 Olympic Games on Air Quality" (NBER Working Paper No. 16907)
- **James Liang**, Stanford University, "Evolution of the Labor Market in a Rapidly Developing Country"
- **David Autor**, MIT and NBER; **David Dorn**, CEMFI; and **Gordon H. Hanson**, University of California, San Diego and NBER, "The China Syndrome: Local Labor Market Impacts of Import Competition in the United States"
- **Julian di Giovanni**, International Monetary Fund; **Andrei Levchenko**, University of Michigan and NBER; and **Jing Zhang**, University of Michigan, "The Global Welfare Impact of China: Trade Integration and Technological Change"



- **Lisa Cameron** and **Lata Gangadharan**, Monash University; **Nisvan Erkal**, University of Melbourne; and **Xin Meng**, Australian National University, “Little Emperors—Behavioral Impacts of China’s One-Child Policy”
- **Julan Du**, Chinese University of Hong Kong, and **Shang-Jin Wei**, “The Gate of Heavenly Peace: A Prism into the Capitalist Success in Communist China”
- **Chadwick C. Curtis** and **Steven Lugauer**, University of Notre Dame; and **Nelson Mark**, University of Notre Dame and NBER, “Demographic Patterns and Household Saving in China” (NBER Working Paper No. 16828)
- **Christopher D. Carroll**, Johns Hopkins University, and **Olivier Jeanne**, Johns Hopkins University and NBER, “A Tractable Model of Precautionary Reserves, Net Foreign Assets, or Sovereign Wealth Funds” (NBER Working Paper No. 15228)
- **Tuan-Hwee Sng**, Northwestern University, “Size and Dynastic Decline: The Principal-Agent Problem in Late Imperial China 1700–1850”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/CE11/summary.html>

## International Finance and Macroeconomics Program Meeting

The NBER’s Program on International Finance and Macroeconomics met in Cambridge on October 14, 2011. NBER Research Associates Charles Engel, University of Wisconsin, and Linda Tesar, University of Michigan, organized the meeting. These papers were discussed:

- **Adrien Verdelhan**, MIT and NBER, “The Share of Systematic Variation in Bilateral Exchange Rates”
- **Chadwick C. Curtis** and **Steven Lugauer**, University of Notre Dame, and **Nelson Mark**, University of Notre Dame and NBER, “Demographic Patterns and Household Saving in China”
- **Emmanuel Farhi** and **Gita Gopinath**, Harvard University and NBER, and **Oleg Itskhoki**, Princeton University and NBER, “Fiscal Devaluations”
- **Marina Azzimonti**, University of Texas at Austin; **Eva deFrancisco**, Towson University; and **Vincenzo Quadrini**, University of Southern California, “Financial Globalization and the Raising of Public Debt”
- **Julian di Giovanni**, International Monetary Fund; **Andrei Levchenko**, University of Michigan and NBER; and **Jing Zhang**, University of Michigan, “The Global Welfare Impact of China: Trade Integration and Technological Change”
- **Logan Lewis**, Federal Reserve Board of Governors, “Exports versus Multinational Production under Nominal Uncertainty”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/IFMf11/summary.html>

## Economic Fluctuations and Growth Research Meeting

The NBER’s Program on Economic Fluctuations and Growth met in Chicago on October 21. NBER Research Associates George-Marios Angeletos, MIT, and Martin Schneider, Stanford University, organized the meeting. These papers were discussed:

- **Aysegul Sahin**, **Joseph Song**, and **Giorgio Topa**, Federal Reserve Bank of New York, and **Giovanni L. Violante**, New York University and NBER, “Measuring Mismatch in the U.S. Labor Market”

- **Cristina Arellano**, University of Minnesota and NBER; **Yan Bai**, Federal Reserve Bank of Minneapolis; and **Patrick Kehoe**, Federal Reserve Bank of Minneapolis and NBER, “Financial Markets and Fluctuations in Uncertainty”
- **Raghuram Rajan**, University of Chicago and NBER, and **Rodney Ramcharan**, Federal Reserve Board, “The Anatomy of a Credit Crisis: The Boom and Bust in Farm Land Prices in the 1920s”
- **Per Krusell**, Stockholm University and NBER; **Toshihiko Mukoyama**, University of Virginia; **Richard Rogerson**, Princeton University and NBER; and **Aysegul Sahin**, Federal Reserve Bank of New York, “Is Labor Supply Important for Business Cycles?”
- **Eric R. Sims**, University of Notre Dame and NBER, “Permanent and Transitory Technology Shocks and the Behavior of Hours: A Challenge for DSGE Models”
- **Allen Head**, Queen’s University; **Lucy Qian Liu**, International Monetary Fund; **Guido Menzio**, University of Pennsylvania and NBER; and **Randall Wright**, University of Wisconsin, Madison and NBER, “Sticky Prices: A New Monetarist Perspective”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/EFGf11/summary.html>

## Labor Studies Program Meeting

The NBER’s Program on Labor Studies, directed by David Card of the University of California, Berkeley, met in Cambridge on October 28, 2011. These papers were discussed:

- **Olivier Deschenes**, University of California, Santa Barbara and NBER; **Michael Greenstone**, MIT and NBER; and **Joseph Shapiro**, MIT, “Defending Against Environmental Insults: Drugs, Emergencies, Deaths, and the NOx Emission Markets”
- **Janice Compton**, University of Manitoba, and **Robert Pollak**, Washington University and NBER, “Family Proximity, Childcare, and Women’s Labor Force Attachment”
- **Joseph G. Altonji**, Yale University and NBER, and **Richard K. Mansfield**, Cornell University, “The Contribution of Family, School and Community Characteristics to Inequality in Education and Labor Market Outcomes”
- **Claudia Olivetti**, Boston University and NBER, and **Barbara Petrongolo**, London School of Economics, “Gender Gaps across Countries and Skills: Supply, Demand, and the Industry Structure” (NBER Working Paper No. 17349)
- **Alberto Abadie** and **Guido Imbens**, Harvard University and NBER, and **Fanyin Zheng**, Harvard University, “Robust Inference for Misspecified Models Conditional on Covariates” (NBER Working Paper No. 17442)
- **Melissa Schettini Kearney**, University of Maryland and NBER, and **Phillip B. Levine**, Wellesley College and NBER, “Early Non-Marital Childbearing and the ‘Culture of Despair’”(NBER Working Paper No. 17157)

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/LSf11/summary.html>

## Market Design Working Group

The NBER's Working Group on Market Design, directed by Susan Athey and Parag A. Pathak of NBER and MIT, met in Cambridge on October 28 and 29, 2011. These papers were discussed:

- **Tayfun Sonmez**, Boston College, and **Tobias B. Switzer**, U.S. Air Force, "Matching with (Branch-of-Choice) Contracts at United States Military Academy"
- **John W. Hatfield**, Stanford University, and **Scott Duke Kominers**, University of Chicago, "Multilateral Matching"
- **Eric Budish**, University of Chicago, and **Eduardo M. Azevedo**, Harvard University, "Strategyproofness in the Large as a Desideratum for Market Design"
- **Clayton Featherstone**, Harvard University, "A Rank-Based Refinement of Ordinal Efficiency and a New (but Familiar) Class of Ordinal Assignment Mechanisms"
- **Haoxiang Zhu**, Stanford University, "Do Dark Pools Harm Price Discovery?"
- **Mark Satterthwaite**, Northwestern University; **Steven R. Williams**, University of Illinois, Urbana-Champaign; and **Konstantinos E. Zachariadis**, London School of Economics, "Price Discovery"
- **Steven Tadelis**, University of California, Berkeley and eBay Research Labs, and **Florian Zettelmeyer**, Northwestern University and NBER, "Information Disclosure as a Matching Mechanism: Theory and Evidence from a Field Experiment"
- **Tayfun Sonmez** and **Utku Unver**, Boston College, "Altruistically Unbalanced Kidney Exchange"
- **Itai Ashlagi** and **David Gamarnik**, MIT, and **Alvin E. Roth**, Harvard University and NBER, "The Need for (Long) Chains in Kidney Exchange"
- **Susan Athey**; **Ittai Abraham** and **Moshe Babaioff**, Microsoft Research; and **Michael Grubb**, MIT, "Peaches, Lemons, and Cookies: Designing Auction Markets with Dispersed Information"
- **Liran Einav** and **Jonathan D. Levin**, Stanford University and NBER; **Theresa Kuchler**, Stanford University; and **Neel Sundaresan**, eBay Research Labs, "Learning from Seller Experiments in Online Markets" (NBER Working Paper No. 17385)
- **Arpita Ghosh** and **Preston McAfee**, Yahoo! Research, "Incentivizing High-Quality User-Generated Content"
- **Sven Seuken**, University of Zurich; **David Parkes**, Harvard University; **Eric Horvitz**, **Mary Czerwinski**, and **Desney Tan**, Microsoft Research; and **Kamal Jain**, eBay Research Labs; "Market User Interface Design"
- **John W. Hatfield** and **Fuhito Kojima**, Stanford University, and **Yusuke Narita**, MIT, "Promoting School Competition Through School Choice: A Market Design Approach"
- **Yan Chen**, University of Michigan, and **Onur Kesten**, Carnegie Mellon University, "From Boston to Shanghai to Deferred Acceptance: Theory and Experiments on a Family of School Choice Mechanisms"

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/MDf11/summary.html>



## Public Economics Program Meeting

The NBER's Program on Public Economics (PE) met in Cambridge on November 3 and 4, 2011. The PE Program's Co-Director Raj Chetty of Harvard University and NBER Research Associate Emmanuel Saez of University of California, Berkeley organized this meeting. The following papers were discussed:

- **Timothy Dowd**, Joint Committee on Taxation, and **Robert McClelland** and **Athiphat Muthitacharoen**, Congressional Budget Office, "The Tax Elasticity of Capital Gains in the 21st Century"
- **Peter Brady**, Investment Company Institute, and **Kevin Pierce**, Statistics of Income, Internal Revenue Service, "Using Panel Tax Data to Examine the Transition to Retirement"
- **Nicholas Turner**, Department of the Treasury, "Do Students Profit from For-Profit Education? Estimating the Returns to Postsecondary Education with Tax Data"
- **Raj Chetty** and **John Friedman**, Harvard University and NBER; **Emmanuel Saez**; and **Nathaniel Hilger** and **Danny Yagan**, Harvard University, "The IRS Databank: Developing a Population Panel Dataset for Tax Policy Research"
- **Thomas Piketty**, Paris School of Economics, and **Emmanuel Saez**, "A Theory of Optimal Capital Taxation"
- **Philippe Aghion** and **William Kerr**, Harvard University and NBER; **Ufuk Akcigit**, University of Pennsylvania and NBER; and **Julia Cage**, Harvard University, "Taxation, Corruption, and Growth"
- **Nikolaos Artavanis**, Virginia Polytechnic Institute, and **Adair Morse** and **Margarita Tsoutsoura**, University of Chicago, "A New Method to Estimate Tax Evasion Using Financial Institution Lending: The Case of Greece"
- **Saurabh Bhargava**, University of Chicago, and **Dayanand S. Manoli**, University of Los Angeles and NBER, "Why Are Benefits Left on the Table? Assessing Incomplete Take-up with an IRS Field Experiment"
- **Casey Rothschild**, Wellesley College, and **Florian Scheuer**, Stanford University and NBER, "Optimal Taxation with Rent-Seeking" (NBER Working Paper No. 17035)
- **Ilyana Kuziemko**, Princeton University and NBER; **Ryan Buell** and **Michael I. Norton**, Harvard Business School; and **Taly Reich**, Stanford Graduate School of Business, "Last-Place Aversion: Evidence and Redistributive Implications" (NBER Working Paper No. 17234)
- **Dina Pomeranz**, Harvard University, "No Taxation without Information: Deterrence and Self-Enforcement in the Value Added Tax"
- **Brian G. Knight**, Brown University and NBER, "State Gun Policy and Cross-State Externalities: Evidence from Crime Gun Tracing" (NBER Working Paper No. 17469)

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/PEf11/summary.html>

## Asset Pricing Program Meeting

The NBER's Program on Asset Pricing met at Stanford University's Graduate School of Business on November 4, 2011. NBER Research Associates Andrew Ang and Tano Santos of Columbia's Graduate School of Business organized the meeting and chose these papers to discuss:

- **Lars-Alexander Kuehn**, Carnegie Mellon University, and **Lukas Schmid**, Duke University, "Investment Based Corporate Bond Pricing"
- **Dirk Hackbarth**, University of Illinois, Urbana-Champaign, and **Timothy Johnson**, London Business School, "Real Options and Risk Dynamics: Implications for the Cross-Section and Time-Series of Expected Returns"

- **Gara Afonso**, Federal Reserve Bank of NY, and **Ricardo Lagos**, New York University and NBER, “Trade Dynamics in the Market for Federal Funds”
- **Tim Bollerslev**, Duke University and NBER, and **Natalia M. Sizova** and **George Tauchen**, Duke University, “Volatility in Equilibrium: Asymmetries and Dynamic Dependencies”
- **Bryan T. Kelly**, University of Chicago; **Hanno Lustig**, University of California, Los Angeles and NBER; and **Stijn Van Nieuwerburgh**, New York University and NBER, “Too-Systemic-To-Fail: What Option Markets Imply About Sector-wide Government Guarantees” (NBER Working Paper No. 17149)
- **Manuel Adelino**, Dartmouth College; **Antoinette Schoar**, MIT and NBER; and **Felipe Severino**, MIT, “Credit Supply and House Prices: Evidence from Mortgage Market Segmentation”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/APf11/summary.html>

## Corporate Finance

The NBER’s Program on Corporate Finance met at Stanford University’s Graduate School of Business on November 4, 2011. NBER Research Associates Bruce Carlin of the University of California, Los Angeles, and Ilya Strebulaev of Stanford University’s Graduate School of Business organized the meeting. These papers were discussed:

- **Andrea Eisfeldt**, University of California, Los Angeles, and **Tyler Muir**, Northwestern University, “The Joint Dynamics of Internal and External Finance”
- **Hans B. Christensen**, University of Chicago Booth School of Business; **Luzi Hail**, Wharton School, University of Pennsylvania; and **Christian Leuz**, University of Chicago and NBER, “Capital-Market Effects of Securities Regulation: The Role of Prior Regulation, Implementation and Enforcement” (NBER Working Paper No. 16737)
- **Alex Edmans**, University of Pennsylvania and NBER, “Feedback Effects and the Limits to Arbitrage”
- **Archishman Chakraborty** and **Bilge Yilmaz**, University of Pennsylvania, “Authority, Consensus, and Governance”
- **Raymond Fisman** and **Daniel Paravisini**, Columbia University and NBER; and **Vikrant Vig**, London Business School, “Cultural Proximity and Loan Outcomes”
- **Shawn A. Cole**, Harvard University, and **Martin Kanz** and **Leora F. Klapper**, The World Bank, “Incentivizing Calculated Risk-Taking: Evidence from a Series of Experiments with Commercial Bank Loan Officers”
- **Andrew Hertzberg**, Columbia University, “Exponential Individuals, Hyperbolic Households”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/CFf11/summary.html>

## Monetary Economics Program Meeting

The NBER’s Monetary Economics Program met in Cambridge on November 4, 2011. NBER Research Associate Julio Rotemberg of Harvard Business School and Faculty Research Fellow Yuriy Gorodnichenko of the University of California, Berkeley, organized this program:

- **Ruediger Bachmann**, University of Michigan and NBER; **Tim Berg**, Ifo Institute; and **Eric R. Sims**, University of Notre Dame and NBER, “Inflation Expectations and Readiness to Spend: Cross-Sectional Evidence”
- **Susanto Basu**, Boston College and NBER, and **Brent Bundick**, Boston College, “Uncertainty Shocks in a Model of Effective Demand”

- **Atif Mian**, University of California, Berkeley and NBER, and **Amir Sufi**, University of Chicago and NBER, “What Explains High Unemployment? The Aggregate Demand Channel”
- **Bartosz Mackowiak**, European Central Bank, and **Mirko Wiederholt**, Northwestern University, “Inattention to Rare Events”
- **Ivan Werning**, MIT and NBER, “Managing a Liquidity Trap: Monetary and Fiscal Policy”
- **Eric M. Leeper**, Indiana University and NBER; **Nora Traum**, North Carolina State University; and **Todd B. Walker**, Indiana University, “Clearing Up the Fiscal Multiplier Morass”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/MEf11/summary.html>

## Behavioral Finance Meeting

The Behavioral Economics Working Group held a meeting on Behavioral Finance at Stanford Graduate School of Management on November 5, 2011. NBER Faculty Research Fellows James J. Choi, Yale School of Management, and Lauren Cohen, Harvard Business School, organized the meeting and chose these papers to discuss:

- **Yen-cheng Chang**, Shanghai Advanced Institute for Finance, and **Harrison Hong**, Princeton University and NBER, “Rules and Regression Discontinuities in Asset Markets”
- **Dong Lou**, London School of Economics, “Attracting Investor Attention through Advertising”
- **Huina Mao** and **Johan Bollen**, Indiana University-Bloomington, and **Scott Counts**, Microsoft Research, “Computational Economic and Finance Gauges: Polls, Search, & Twitter”
- **Yigitcan Karabulut**, Goethe University, Frankfurt, “Can Facebook Predict Stock Market Activity?”
- **David Hirshleifer**, University of California, Irvine, and **Jianfeng Yu**, University of Minnesota, “Asset Pricing in Production Economies with Extrapolative Expectations”
- **Sebastien Pouget** and **Stephane Villeneuve**, University of Toulouse, “A Mind is a Terrible Thing to Change: Confirmation Bias in Financial Markets”
- **Ulrike Malmendier**, University of California, Berkeley and NBER, and **Stefan Nagel**, Stanford University and NBER, “Learning from Inflation Experiences”
- **Victor Stango**, University of California, Davis, and **Jonathan Zinman**, Dartmouth College and NBER, “Borrowing High vs. Borrowing Higher: Sources and Consequences of Dispersion in Individual Borrowing Costs”

These summaries may be found at: <http://www.nber.org/2011/BEf11/summary.html>

## Education Program

The NBER’s Program on Education, directed by Caroline M. Hoxby of Stanford University, met at Stanford on November 10 and 11, 2011. The following papers were discussed:

- **Karthik Muralidharan**, University of California, San Diego and NBER, “Long-Term Effects of Teacher Performance Pay: Experimental Evidence from India”



- **Debopam Bhattacharya, Shin Kanaya, and Margaret Stevens**, University of Oxford, “A Test of Fair Treatment with Application to University Admissions”
- **Robert Fairlie**, University of California, Santa Cruz; **Florian Hoffmann**, University of British Columbia; and **Philip Oreopoulos**, University of Toronto and NBER, “A Community College Instructor Like Me: Race and Ethnicity Interactions in the Classroom” (NBER Working Paper No. 17381)
- **Sa Bui** and **Steven G. Craig**, University of Houston, and **Scott A. Imberman**, University of Houston and NBER, “Is Gifted Education a Bright Idea? Assessing the Impacts of Gifted and Talented Programs on Students” (NBER Working Paper No. 17089)
- **Rajashri Chakrabarti**, Federal Reserve Bank of New York, “Incentives and Responses under No Child Left Behind: Credible Threats and the Role of Competition”
- **Katja Kaufmann, Fernanda Brollo, and Eliana La Ferrara**, Bocconi University, “Learning about the Enforcement of Conditional Welfare Programs and Behavioral Responses: Evidence from Bolsa Familia in Brazil”
- **Joshua Goodman**, Harvard University, “The Wages of Sinistrality: Handedness, Brain Structure, and Human Capital Accumulation”
- **Todd R. Stinebrickner**, University of Western Ontario and NBER, and **Ralph Stinebrickner**, Berea College, “The Role of Learning about Academic Performance in Determining College Drop-out: Using Unique Expectations Data to Estimate a Simple Structural Model”
- **Stephanie Riegg Cellini**, George Washington University, and **Claudia Goldin**, Harvard University and NBER, “A Comprehensive View of For-Profit Postsecondary Education and the Role of Title IV in Tuition-Setting”
- **C. Kirabo Jackson**, Northwestern University and NBER, “Single-Sex Schools, Student Achievement, and Course Selection: Evidence from Rule-Based Student Assignments in Trinidad and Tobago” (NBER Working Paper No. 16817)

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/EDf11/summary.html>

## Political Economy

The NBER's Program on Political Economy, directed by Alberto Alesina of Harvard University, met in Cambridge on November 11, 2011. These papers were discussed:

- **Quamrul Ashraf**, Brown University, and **Oded Galor**, Brown University and NBER, “Cultural Diversity, Geographical Isolation, and the Origin of the Wealth of Nations”
- **Ernesto Dal Bo** and **Frederico Finan**, University of California, Berkeley and NBER, and **Martin Rossi**, University of California, Berkeley, “Strengthening the State Capabilities: the Role of Financial Incentives in the Call for Public Service”
- **Geoffrey Tate** and **Liu Yang**, University of California at Los Angeles, “Female Leadership and Gender Equity: Evidence from Plant Closure”
- **Christian Dippel**, University of California, Los Angeles, “Forced Coexistence and Economic Development: Evidence from Native American Reservations”
- **Michael J. Callen** and **James Long**, University of California, San Diego, “Institutional Corruption and Election Fraud: Evidence from a Field Experiment in Afghanistan”
- **David Rothschild**, Yahoo! Research, and **Justin Wolfers**, University of Pennsylvania and NBER, “Forecasting Elections: Voters Incentives versus Expectations”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/POLf11/summary.html>

## Economics of Culture and Institutions

An NBER meeting on the Economics of Culture and Institutions took place in Cambridge on November 12, 2011. Paola Giuliano, University of California at Los Angeles and NBER, and Alberto Bisin, New York University and NBER, organized the meeting and chose these papers to discuss:

- **Avner Greif**, Stanford University, and **Guido Tabellini**, IGIER, “The Clan and the City: Sustaining Cooperation in China and Europe”
- **Kaivan Munshi** and **Kenneth Chay**, Brown University and NBER, “Black Mobilization after Emancipation: Evidence from Reconstruction and the Great Migration”
- **Nico Voigtlaender**, University of California, Los Angeles and NBER, and **Hans-Joachim Voth**, Universitat Pompeu Fabra, “Persecution Perpetuated: The Medieval Origins of Anti-Semitic Violence in Nazi Germany” (NBER Working Paper No. 17113)
- **Matthias Doepke**, Northwestern University, and **Fabrizio Zilibotti**, University of Zurich, “The Intergeneration Transmission of Risk Preferences, Entrepreneurship, and Growth”
- **Daron Acemoglu**, MIT and NBER, and **Matthew Jackson**, Stanford University, “History and Expectations in the Evolution of Social Norms” (NBER Working Paper No. 17066)
- **Ingela Alger**, Toulouse School of Economics, and **Jorgen Weibull**, Stockholm School of Economics, “Evolutionary Stability of Social Preferences”
- **Adeline Delavande**, Universidade Nova de Lisboa, and **Basit Zafar**, Federal Reserve Bank of New York, “Stereotypes and Madrassas: Experimental Evidence from Pakistan”

Summaries of these papers may be found at: <http://www.nber.org/confer/2011/CIf11/summary.html>

## Organizational Economics Meeting

The NBER’s Working Group on Organizational Economics met in Cambridge on November 18 and 19, 2011. The first day’s program, organized by Working Group Director Robert S. Gibbons of MIT and Elizabeth Martinez of Massachusetts General Hospital (MGH) focused on “The Organization and Productivity of Healthcare Delivery.” Gibbons also organized the second day’s program which covered a broad range of topics. The papers discussed were:

- **Ian Larkin** and **Desmond Ang**, Harvard Business School; **Matthew Chao**, California Institute of Technology; and **Tina Wu**, New York University, “How (and How Much) Are Physicians Influenced By Pharmaceutical Sales Calls? A Large-Scale Quasi Experiment Using Archival Data”
- **Joseph Doyle** and **Jonathan Gruber**, MIT and NBER; **John Graves**, Vanderbilt University; and **Samuel Kleiner**, Cornell University and NBER, “Do More Expensive Hospitals Deliver Better Care? Evidence from Ambulance Referral Patterns”
- **Katherine Kellogg**, MIT, “Operating Room: Relational Spaces and Micro-institutional Change in Surgery”
- **Anna Levine Taub**, Northeastern University; **Anton Kolotilin**, MIT; **Robert S. Gibbons**; and **Ernst R. Berndt**, MIT and NBER, “The Heterogeneity of Concentrated Prescribing Behavior: Theory and Evidence from Antipsychotics” (NBER Working Paper No. 16823)
- **Amitabh Chandra**, Harvard University and NBER, and **Douglas O. Staiger**, Dartmouth College and NBER, “Expertise, Underuse, and Overuse in Healthcare”
- **James M. Malcomson**, Oxford University, “Relational Incentive Contracts with Persistent Private Information”

- **Maria Guadalupe**, Columbia University and NBER, and **Hongyi Li** and **Julie Wulf**, Harvard University, “Functional Centralization and the Division of Labor in Management”
- **Iwan Barankay**, University of Pennsylvania, “Gender Differences in Productivity Responses to Performance Rankings: Evidence from a Randomized Workplace Experiment”
- **Edward P. Lazear** and **Kathryn L. Shaw**, Stanford University and NBER, and **Christopher T. Stanton**, University of Utah, “The Value of Bosses”
- **Yanhui Wu**, University of Southern California, “Authority, Incentives and Performance: Theory and Evidence from a Chinese Newspaper”
- **Silke J. Forbes**, University of California, San Diego; **Mara Lederman**, University of Toronto; and **Trevor V. E. Tombe**, Wilfrid Laurier University, “Quality Disclosure and Gaming: Do Employee Incentives Matter?”
- **Luigi Guiso**, EUI, and **Luigi Zingales**, University of Chicago and NBER, “The Value of Social Networks in Bank Lending”

Summaries of these papers are available at: <http://www.nber.org/confer/2011/OEf11/summary.html>

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## NBER Books

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### Economic Development in the Americas since 1500: Endowments and Institutions

*Economic Development in the Americas since 1500: Endowments and Institutions*, by Stanley L. Engerman and Kenneth L. Sokoloff, is now available from Cambridge University Press. The paperback price is \$34.99 and the hard cover price is \$99.00.

This book, which is the latest in the NBER’s Series on Long-Term Factors in Economic Development, brings together a number of the co-authors’ previously

published articles. The essays deal with differences in the rates of economic growth in Latin American and mainland North America, specifically the United States and Canada. Relative differences in growth over time are found to be related to differences in the institutions that have evolved in different economies, including suffrage, education, tax policy, land and immigration policy, and banking and financial organizations. All of

these institutions in turn are related to differences in endowments, climate, and natural resources.

Engerman is a Research Associate in the NBER’s Program on the Development of the American Economy (DAE) and a professor of economics at the University of Rochester. Sokoloff, who passed away in 2007, was a Research Associate in DAE and a professor of economics at the University of California, Los Angeles.

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