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**Article**

## Development of the American economy

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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.

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<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*.