

The Formation of the NBER: Insights from the Rockefeller Archive Center

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Abstract

During several visits to the Rockefeller Archive Center (RAC) in 2017 and 2018, I viewed papers from a handful of collections which provided perspective on the early history of the National Bureau of Economic Research (NBER). In my book project, tentatively titled *Mapping the Future. A Euro-American History of Business Forecasting, 1920-1980*, I investigate the history of four economic forecasting tools that have been developed, disseminated, and applied in the United States, in Europe, and beyond. One of them, leading indicators, was originally developed at the NBER in the 1930s and remains, till today, one of the most prominent forecasting tools worldwide. In what follows, I offer an overview of my book project and outline the history of the formation of the NBER. In it, I make extensive references to the sources of the Rockefeller Archive Center, which provide the most profound insights into the early history of the NBER.

Project Overview

“The type of monsoon in India must directly affect the trade of Lancashire some months after, and with it the whole trade of Great Britain. The decision of a bankers’ meeting in Wall Street may precipitate trade depression throughout the civilized world,” noted a British observer in 1927. “The whole world is now a highly-organized economic whole.”¹ Years before the eve of the 1929 slump, American and European observers were well aware of the degree of interdependence that characterized the industrial system of their time. Shocks in one part of a country tore across nations and jumped to other continents, hitting every economic sector. A few decades ago, an American senator remembered how in 1903, life in Massachusetts was not very different from that in the village communities of Italy in the days of the Roman Empire. Before the introduction of the railroad and the telegraph, local communities in the United States were, to large degree, self-sufficient and industrial relations were readily comprehensible and administrable.² This was vastly different from the industrial system of the early twentieth century, which contemporaries described as a “great machine in which every part is dependent upon all the other parts.”³

Some spoke of machines, others of “Frankensteins” that had gained power over people’s lives.⁴ New networks of credit, communication, and exchange had linked producers and consumers in distant markets, and at the same time brought about “a double form of ‘dissociation’” of buyer and seller, capital and good, which had dramatically increased the uncertainties of economic transactions.⁵ People depended on the decisions of strangers, and the consequences of other people’s actions could be devastating. As the recurrence and expanding reach of increasingly violent economic crises demonstrated, everybody could fall prey to the vicissitudinous caprices of what contemporaries, in an attempt to attribute their individual fortunes to external forces, began to term the “economic weather.” People’s fortunes could be gained or lost, it seemed, through no fault of their own. As the business cycle seemed to have the power to decide over success and failure, getting to know and maybe predict its movements became a primary aim.

In early twentieth century United States, an alliance of business executives, economists, and politicians strove to make this dream a reality. While they all shared the ambition to master the future, they were driven by different objectives. Most business executives and politicians involved in the project hoped that economic forecasts would allow business people to prepare for and thereby mitigate economic crises. This, they argued, might help tame voices calling for governmental reform or change in economic organization.⁶ This argument gained new momentum after World War I, when the socialist promise of a crisis-free economic development triggered fears of a Bolshevik revolution, and was picked up throughout the twentieth century in the context of the Cold War. Economists, on the other hand, hoped that the development of a science of business forecasting might allow them to advance the status of their own science. Since the “discovery” of the business cycle in the late nineteenth century, European and American economists had tried to work out patterns in the movements of economic fluctuations. The establishment of an economic statistical data infrastructure in the early twentieth century, which experienced a dramatic expansion and new means of application during World War I, gave these efforts a new foundation. It incited hopes that economic statistics would help detect universal laws behind the alternating phases of boom and depression.⁷ This, economists believed, might allow them to forecast the crises that shook contemporaries in seemingly periodical intervals. By this means, they might not only be able to help soften them, but might also pave the way towards a new understanding of economics as an exact science. For economics, like the natural sciences, would then become “mathematical in form and empirical in spirit,” “lay[] stress upon measurements, and aspire[] to prediction” and, maybe most importantly, demonstrate its “practical efficiency in guiding action as forcefully as have the natural sciences.”⁸ Business forecasting played a crucial role in this project, as it promised to establish the economy as an autonomous object with a self-contained logic, governed by universal laws, and thereby render economics an exact science.⁹ Right from the start, the attempt to establish a “science of business forecasting” linked a practical interest in stabilizing and thereby preserving capitalism and aspirations for a new role of economic science. In fact, this dual objective was of central importance in the development and professionalization of twentieth-century business forecasting. With diagnoses of capitalism’s decline flourishing

and crises spreading from one country to another, business forecasting quickly became a transatlantic project to stabilize global capitalism and advance economic science.

My dissertation tells the history of this double project. It traces how American and European economists and statisticians in the twentieth century grappled with the ups and downs of the business cycle. More specifically, it looks at how their forecasting practices and techniques have changed over time, growing out of and finding their way into companies, central banks, and government departments and, somewhat modified, back into academia. This is not a history of progress. For more than a century now, economists and statisticians have invented new techniques or modified existing ones in desperate attempts to forecast and thereby help control economic fluctuations. To say the least, economic forecasting has, until now, not become an exact science. Recessions still hit economies by surprise. As an American economist has recently put it, “Forecasting approaches have changed, but forecasts for recessions have not improved.”¹⁰ In the process, however, economic forecasting has acquired a central place in society. Somewhat paradoxically, despite the regular “collective failure” of economists to forecast economic crises, economic forecasts have become an indispensable part of our life.¹¹ They affect how we gauge what has become known as the economy’s health, and guide the decision-making process of policy institutions, private companies, and individuals. Forecasting practices, in short, shape how we understand, represent, and act upon the economy. This paradox sits at the center of my project. In five chapters that focus on the origins and the transnational and, in some cases, global circulation of four different forecasting tools, I investigate how the role of economic forecasting has changed in the course of the twentieth century. I discuss how this was both a factor and an indicator of a changed conception of economic change and economics’ place in it that, in turn, shaped scientific, economic, and political practices.

The second chapter of my dissertation focuses on the history of the leading indicators established at the prestigious National Bureau of Economic Research (NBER), which till today constitutes one of the most popular forecasting tools used all over the world. Drawing on the wealth of material held at the Rockefeller

Archive Center, the remainder of this report tells the history of the formation of the NBER.

The Formation of the NBER: Insights from the Rockefeller Archive Center

On January 1, 1912, Lee J. Spangler, the self-proclaimed “last of the prophets,” announced “nothing but trouble for 1912.” As the *Gettysburg Times* reported on its front page, Spangler expected that “the struggles between capital and labor will become keener than ever before.”¹² He did not enjoy too good a reputation as a forecaster after having predicted the imminent end of the world for December 1908 – a prophecy which obviously did not come true.¹³ But his forecast for 1912 seemed plausible to many of his contemporaries. The depression of 1908 and the subsequent recession had led to a marked increase in labor strikes and protests.¹⁴ Between 1908 and 1912, the Socialist Party had more than doubled its support. As Eugene V. Debs, the charismatic candidate of the Socialist Party, never grew tired of stressing, there was but one issue at stake in the presidential election of 1912, “and that issue is Socialism vs. Capitalism.”¹⁵ The end of the world might not have come yet. The end of capitalism, however, seemed nigh.

Not only to self-proclaimed prophets these were worrying prospects. For America’s businessmen, too, these were alarming developments. In spring 1912, Theodore Vail, president of the American Telephone & Telegraph Company (AT&T), met with John P. Morgan and other businessmen to discuss the situation.¹⁶ “The general underlying conditions of our country never were better,” explained Theodore Vail in 1912.¹⁷ Yet, “[a] feeling of unrest and of dissatisfaction with existing conditions is now prevalent throughout the country.” Conditions that had been unquestioned for generations had recently become the cause of complaint. “Legitimate enterprise and industry,” explained Vail, “have become the objects of unjust suspicion.”¹⁸ As Vail and the other businessmen saw it, labor union agitators were trying to set workers and the public against them. Surely, Vail and his fellowmen could not let these demagogues do as they liked.

Someone had to put a stop to them. Otherwise, the general unrest spreading in the United States might “cause the undermining of law, of property r[i]ghts, of the very form of government under which this country has been built up.”¹⁹

To counter this danger, the men proposed the creation of an “economic bureau” that would provide Americans with a systematic education in economic affairs.²⁰

It is believed that much can be done to correct misunderstandings and to relieve unrest by giving to the public full and exact information on social and economic industrial and commercial conditions. Such information would show that while some of the prevailing theories and beliefs would under ideal [sic] conditions achieve ends that were beautiful and much to be desired, yet these theories and beliefs must be applied to the world as it actually is, and be reconciled with natural conditions that do, and perhaps, always will, exist.²¹

In short, an economic bureau, by spreading the “right” information, should silence voices calling for an overthrow of the “economic organization of society.”²²

A few months later, Vail and the other businessmen met again. This time, John D. Rockefeller, Jr. was part of the group. Rockefeller was quickly convinced that “the necessity for such a campaign as they had outlined was great.”²³ Discussion among the men trailed off, however, when it came to the design of the bureau. While Vail endeavored to create “a sort of publicity bureau,”²⁴ Rockefeller believed that not publicity, but truth-finding was to be the paramount goal of the bureau.²⁵ Rockefeller’s claim that “at least one-half the expenditures of the Bureau should be on the side of thorough scientific investigation and research through impartial agencies” met with resistance.²⁶ Some of the businessmen had no intention of spending any money on actual research at all.²⁷ Eventually, this led to a breach among the men.²⁸

When 9,000 workers of the Rockefeller family-owned Colorado Fuel & Iron Company went on strike in September 1913, Rockefeller decided to play a lone hand. That winter, he assigned Jerome Greene, secretary of the newly-founded Rockefeller Foundation, to revise Vail’s memorandum of 1912. Greene explained in January 1914:²⁹

The business interests of this country are suffering chiefly from indiscriminating abuse and undigested or radical schemes for reform, that while a basis for complaint may have existed and may still exist, the business interests of the country[,] as a whole[,] have everything to gain and nothing to lose by the dissemination of accurate information as the starting point for intelligent public opinion and wise legislation.

Mirroring Rockefeller's claims of 1912, Greene stressed the need for impartial research and for the "frank and honest" character of publicity.³⁰ The bureau ought to constitute "a place for scientific examination of problems of the day uninfluenced by politics or business gain."³¹ Rather than advocating the interests of businessmen, the Bureau should serve the public good.³²

In April 1914, Greene arranged a meeting in New York to discuss his proposal with several economists. Among the invitees were Edwin F. Gay, dean of Harvard Business School, and J. Laurence Laughlin, head of the economics department at the University of Chicago. In consultation with several other economists, among them the young economist Wesley C. Mitchell,³³ the group compiled a report of recommendations. To avoid "the popular prejudice which might conceivably attend an enterprise generously supported by a great capitalist," the report stressed the necessity to eschew any kind of publicity. Instead, the proposed bureau ought to confine itself "to the full and dispassionate investigation of problems of fundamental scientific interest."³⁴ As the report stated, "It is essential for the permanent standing of an Institute of Economic Research that it should early establish its reputation as scientific, impartial, and unprejudiced in its finding and presenting of the facts as to economic and social conditions."³⁵

While the men were pondering about the right design for an economic bureau, the strike at the Colorado Fuel & Iron Company continued. By mid-April 1914, strikers and guards counted around thirty victims.³⁶ A few days later, the conflict escalated into open warfare. On April 20, 1914, state militia and mine guards attacked 1,200 striking coal miners and their families with machine guns, setting fire to the camp at Ludlow, Colorado.³⁷ The killing of about two dozen people, among them three women and eleven children, triggered a wave of outrage among American citizens. Papers all over the country reported on the deaths. As the *Denver Times*

remarked, “the entire state, sympathizers and non-sympathizers alike, is aroused as never before at the slaughter of innocent children and defenseless women.”³⁸

The strike, with John D. Rockefeller, Jr. and his associates at the center of public attention, quickly became what others have called “the worst nightmare in Rockefeller history.”³⁹ Faced with a severe loss of reputation, the creation of an economic bureau did not seem to offer a way out. As Frederick T. Gates, long-term adviser to the Rockefeller family, argued, “the proposed institute would tend to become a merely academic and futile instrument for gathering useless data.”⁴⁰ Yet, what the Rockefeller family needed was “guidance.”⁴¹ In June 1914, John D. Rockefeller, Jr. asked William Lyon Mackenzie King, Canada’s first minister of labor and later prime minister, to head the Foundation’s new Department of Industrial Relations to advise him on the conflict in Ludlow. With the establishment of the new department and Mackenzie King’s acceptance, the project of an economic bureau was shelved.⁴² “It is,” explained Gates, “the last thing needed.”⁴³

However, some of the economists consulted by Greene plowed on, with the lead now taken by Malcolm C. Rorty, chief statistician and vice president of AT&T.⁴⁴ Malcolm Rorty believed that “true and widespread knowledge” of economic matters and in particular income distribution would silence Bolshevik revolutionaries in the United States.⁴⁵ Rorty therefore opted for the creation of an economic bureau as part of “a campaign of education in opposition to Bolshevism in this country.”⁴⁶ However, the economists on board strove for political independence.⁴⁷ At the economists’ instigation, Rorty ultimately gave in. The men agreed that research at the Bureau “should be carried through on an absolutely scientific basis and without any attempt, on the part of those financing it, to control either the findings or the composition of the Committee.”⁴⁸ With a grant from the recently established Commonwealth Fund, the National Bureau of Economic Research was formally established in December 1919 under the leadership of Edwin F. Gay and Wesley C. Mitchell.⁴⁹ While Edwin Gay left the Bureau in the late 1920s, Wesley Mitchell continued to shape the research program of the NBER until his death in 1948.⁵⁰

To guarantee the impartiality and objectivity of the bureau's findings, the researchers adopted what they called "a self-denying ordinance."⁵¹ The bylaws of the bureau stipulated that the members of the Board of Directors were appointed by different societies representing "all the important organized interests in the country" and "every school of thought from extreme conservative to extreme radical."⁵² The directors were asked to help outline the research program and safeguard the quality of the results and were given the opportunity to criticize all reports prior to printing and to insert dissenting opinions in the publications. Above all, however, the researchers hoped to assure the objectivity of their findings by applying "scientific," that is, empiricist, methods.⁵³ Instead of dealing "mainly with speculation about what would happen in a simplified world created for their own purposes and existing only in their imaginations,"⁵⁴ they envisaged to treat theories as mere working hypotheses that had yet to be tested and modified by study of "concrete observations" as they found them to be entailed in statistics.⁵⁵ Just like theories in the natural sciences were being tested by experience derived from experiments, so theories in economics had to be tested by statistics.⁵⁶

The business cycle research that Mitchell and his colleagues conducted at the National Bureau in the years that followed bears witness to the attempt of revolutionizing economics by statistics. It testifies to the dream of turning economics into an exact science that would "contribute to the work of social disarmament by turning from the antagonisms of opinion to agreements upon facts," and to the disappointments and failures that researchers encountered on their way.⁵⁷

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¹ William Wallace. *Business Forecasting and Its Practical Application*. London: Sir Isaac Pitman & Sons, Ltd., 1927, p. 3.

² George Frisbie Hoar. *Autobiography of Seventy Years*. Vol. 1. 2 vols. New York: Charles Scribner's Sons, 1903, p. 42; George E. Roberts. "The Interdependence of Industry." In: *Nation's Business: A General Magazine for Businessmen* (May 1923), p. 42; similar:

Herbert Hoover. *American Individualism*. Garden City, NY: Doubleday, Page & Company, 1922, p. 46.

³ Roberts, “The Interdependence of Industry,” p. 42; similar: Frank Parker. “The Development of Business Forecasting.” In: *Administration. The Journal of Business Analysis and Control* 4.3 (Sept. 1922), p. 270.

⁴ Hoover, *American Individualism*, p. 46.

⁵ Michael Zakim and Gary John Kornblith. “Introduction: An American Revolutionary Tradition.” In: *Capitalism Takes Command. The Social Transformation of Nineteenth-Century America*. Ed. by Michael Zakim and Gary John Kornblith. Chicago and London: University of Chicago Press, 2012, p. 3.

⁶ “The growth of corporate organizations, of our banking systems, of our railways, of our electrical power, of our farm cooperatives, of our trade unions, of our trade associations, and of a hundred others indeed develops both beneficent and malign forces,” explained Herbert Hoover in 1921. “Our demagogues, of both radical and standpat breed, thrive on demands for the destruction of one or another of these organizations as the only solution for their defects, yet progress requires only a guardianship of the vital principles of our individualism [...]” Economic forecasting, from that point of view, was a form of “guardianship.” Hoover, *American Individualism*, pp. 46–47.

⁷ On the expansion of statistics and the new use of statistics, the use of statistics, “not only as a record of what had happened, but also as a vital factor in planning what should be done,” see Wesley C. Mitchell. “Statistics and Government.” In: *Publications of the American Statistical Association* 16.125 (1919), p. 223.

⁸ Wesley C. Mitchell. *Business Cycles. The Problem and Its Setting*. 12th ed. New York: NBER, 1927, p. 189; Wesley C. Mitchell. *The National Bureau’s Social Function. Twentieth Annual Report of the Director of Research*. New York: H. Wolff, Mar. 1940, p. 20.

⁹ On the link between economists’ struggle for the autonomy of their field and attempts to “establish the economy as a pure and autonomous object,” see Daniel Breslau. “Economics Invents the Economy: Mathematics, Statistics, and Models in the Work of Irving Fisher and Wesley Mitchell.” In: *Theory and Society* 32.3 (June 1, 2003), pp. 406–407.

¹⁰ Tara M. Sinclair. “Continuities and Discontinuities in Economic Forecasting.” In: *Futures Past. Economic Forecasting in the 20th and 21st Century*. Ed. by Ulrich Fritsche, Roman Koester, and Laetitia Lenel. Berlin et al.: Peter Lang, 2020, p. 31; similar: Kenneth J. Arrow. “Knowledge, Belief and the Economic System. Talk in Vienna, October 22, 2013.” In: *WiFo Monatsberichte* 12 (2013), p. 943.

¹¹ Journalists attested economists a “collective failure” after the financial crisis of 2008, and accused them of three sins: “That macro and financial economists helped cause the crisis, that they failed to spot it, and that they have no idea how to fix it,” Lisa Nienhaus. *Die Blindgänger: warum die Ökonomen auch künftige Krisen nicht erkennen werden*. Frankfurt/Main: Campus, 2009; “What Went Wrong with Economics. And How the Discipline Should Change to Avoid the Mistakes of the Past.” In: *The Economist* (July 16, 2009); cf. also Paul Jorion. *Misère de La Pensée Économique*. Paris: Fayard, 2012.

¹² “Year of Trouble.” In: *The Gettysburg Times* (Jan. 1, 1912), p. 1; cf. also “Spangler Sees Awful Things Ahead.” In: *Mount Carmel Item* (Jan. 4, 1912), p. 1.

¹³ See, for example, “Prophet Ducks, World Rolls On. Spangler Announces Immediate Translation, But Departs to Escape Arrest.” In: *Detroit Free Press* (Dec. 28, 1908); “Fake Prophet Disappears. World Didn’t Come to an End and Followers Are Disgusted.” In: *The Allentown Leader* (Dec. 28, 1908); “World Fails to End; Prophet Flees.” In: *Vancouver*

Daily World (Jan. 8, 1909).

¹⁴ “There is much unrest. Radical tendencies are running strong, and while parties are maneuvering for public favor all sorts of erratic and threatening proposals are imminent,” noted, for example, Henry Clews, another forecaster, in his outlook for 1912. “The Year’s Business.” In: *The Bismarck Tribune* (Jan. 2, 1912), p. 4.

¹⁵ Eugene V. Debs. “Why You Should Vote for Socialism.” In: *Appeal to Reason* (Aug. 31, 1912), p. 1.

¹⁶ On the formation of the NBER, see Nahum I. Stone. “The Beginnings of the National Bureau of Economic Research.” In: *The Beginnings of the National Bureau of Economic Research*. Ed. by Wesley C. Mitchell. Cambridge, MA: National Bureau of Economic Research, 1945; David M. Grossman. “American Foundations and the Support of Economic Research, 1913-29.” In: *Minerva* 20.1/2 (1982); Guy Alchon. *The Invisible Hand of Planning: Capitalism, Social Science, and the State in the 1920s*. Princeton, NJ: Princeton University Press, 1985, pp. 52–58; Ellen Condliffe Lagemann. *The Politics of Knowledge. The Carnegie Corporation, Philanthropy, and Public Policy*. Middletown, CT: Wesleyan University Press, 1989, pp. 51–60; John M. Jordan. ““To Educate Public Opinion”: John D. Rockefeller, Jr., and the Origins of Social Scientific Fact-Finding.” In: *The New England Quarterly* 64.2 (1991); Malcolm Rutherford. *The Institutional Movement in American Economics, 1918-1947: Science and Social Control*. Cambridge: Cambridge University Press, 2011, p. 265.

¹⁷ *Bureau of Economic Research. Memo Originally Drawn by Theodore Vail and Here Revised by John D. Rockefeller, Jr. and John D. Rockefeller. Preamble*. Aug. 21, 1912. Office of the Messrs. Rockefeller records, Economic Reform Interests, Series F, Box 18, Folder 143. Rockefeller Archive Center, p. 2.

¹⁸ *Ibid.*, p. 1.

¹⁹ John D. Rockefeller Jr. Letter to Frederick T. Gates, July 27, 1912. Office of the Messrs. Rockefeller records, Economic Reform Interests, Series F, Box 18, Folder 143. Rockefeller Archive Center, p. 1; cf. also Jordan, ““To Educate Public Opinion”: John D. Rockefeller, Jr., and the Origins of Social Scientific Fact-Finding,” p. 294.

²⁰ John D. Rockefeller Jr. Letter to Frederick T. Gates, July 27, 1912. Office of the Messrs. Rockefeller records, Economic Reform Interests, Series F, Box 18, Folder 143. Rockefeller Archive Center, p. 1.

²¹ *Bureau of Economic Research. Memo Originally Drawn by Theodore Vail and Here Revised by John D. Rockefeller, Jr. and John D. Rockefeller. Preamble*, p. 4.

²² *Ibid.*, 1, cf. also 2-3.

²³ John D. Rockefeller Jr. Letter to Frederick T. Gates, July 27, 1912. Office of the Messrs. Rockefeller records, Economic Reform Interests, Series F, Box 18, Folder 143. Rockefeller Archive Center, p. 2; Jordan, ““To Educate Public Opinion”: John D. Rockefeller, Jr., and the Origins of Social Scientific Fact-Finding,” p. 295.

²⁴ David M. Grossman. “American Foundations and the Support of Economic Research, 1913-29.” In: *Minerva* 20.1/2 (1982), p. 61.

²⁵ “No one should come into the enterprise who would not be willing to have any interests which he was related to, investigated and the absolute truth regarding it brought to the public eye, whether it reflected well or ill upon him.” Cf. John D. Rockefeller Jr. Letter to Frederick T. Gates, July 27, 1912. Office of the Messrs. Rockefeller records, Economic Reform Interests, Series F, Box 18, Folder 143. Rockefeller Archive Center, pp. 3–4.

²⁶ *Essential Features of the Proposed Bureau*. Aug. 26, 1912. Office of the Messrs. Rockefeller records, Economic Reform Interests, Series F, Box 18, Folder 143. Rockefeller

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²⁷ John D. Rockefeller Jr. Letter to Nelson W. Aldrich, Aug. 26, 1912. Office of the Messrs. Rockefeller records, Economic Reform Interests, Series F, Box 18, Folder 143. Rockefeller Archive Center.

²⁸ Cf. Henry P. Davison. Letter to John D. Rockefeller Jr., Aug. 28, 1912. Office of the Messrs. Rockefeller records, Economic Reform Interests, Series F, Box 18, Folder 143. Rockefeller Archive Center; in 1915, Rockefeller compared combinations of capital to combinations of labor, and warned, "Combinations of capital are sometimes conducted in an unworthy manner, contrary to law and in disregard of the interest both of labor and the public. Such combinations cannot be too strongly condemned nor too vigorously dealt with," cf. John D. Rockefeller Jr. *Draft for a Speech*. Oct. 8, 1915. Office of the Messrs. Rockefeller records, John D. Rockefeller, Jr. Personal, Series Z, Subseries 8: John D. Rockefeller, Jr., Personal Papers - Speeches, Box 71, Folder 44. Rockefeller Archive Center, p. 5.

²⁹ Jerome D. Greene. *Memorandum Concerning a Proposed Economic Bureau. Revision of a Draft Originally Prepared by Theodore N. Vail*. Jan. 21, 1914. RG 3.1, Series 910, Box 2, Folder 10, Rockefeller Foundation records (RF). Rockefeller Archive Center, p. 1.

³⁰ *Ibid.*, pp. 1–2.

³¹ Jerome D. Greene. *Copy*. Jan. 21, 1914. RG 3.1, Series 910, Box 2, Folder 10, Rockefeller Foundation records (RF). Rockefeller Archive Center, p. 2.

³² Greene, *Memorandum Concerning a Proposed Economic Bureau. Revision of a Draft Originally Prepared by Theodore N. Vail*, p. 1.

³³ Cf. Wesley Clair Mitchell. *Memorandum*. RG 3.1, 910, Box 2, Folder 10, Rockefeller Foundation records, Rockefeller Archive Center.

³⁴ Edwin F. Gay et al. *Report of Committee to the Rockefeller Foundation*. Aug. 4, 1914. RG 3.1, 910, Box 2, Folder 10, Rockefeller Foundation records, Rockefeller Archive Center, p. 2.

³⁵ *Ibid.*, pp. 1–2.

³⁶ Thomas G. Andrews. *Killing for Coal: America's Deadliest Labor War*. Cambridge, MA: Harvard University Press, 2008, p. 271.

³⁷ Andrews, *Killing for Coal*; Scott Martelle. *Blood Passion: The Ludlow Massacre and Class War in the American West*. New Brunswick, NJ: Rutgers University Press, 2008; George S. McGovern and Leonard F. Guttridge. *The Great Coalfield War*. Niwot, CO: University Press of Colorado, 1996; Priscilla Long. *Where the Sun Never Shines: A History of America's Bloody Coal Industry*. New York: Paragon House, 1991.

³⁸ Cf. *Denver Times*, April 22, 1914, quoted in Andrews, *Killing for Coal*, p. 275.

³⁹ Ron Chernow. *Titan: The Life of John D. Rockefeller, Sr.* New York: Random House, 1998, p. 571.

⁴⁰ Jerome D. Greene. Letter to Starr J. Murphy, Feb. 16, 1921. Office of the Messrs. Rockefeller records, Economic Reform Interests, Series F, Box 18, Folder 143. Rockefeller Archive Center, p. 2.

⁴¹ Cf. Chernow, *Titan*, p. 583.

⁴² Jerome D. Greene. *Annual Report 1913-14*. 1915, p. 17.

⁴³ Frederick T. Gates. Letter to John D. Rockefeller Jr., Aug. 18, 1914. Office of the Messrs. Rockefeller records, Economic Reform Interests, Series F, Box 18, Folder 143. Rockefeller Archive Center, p. 3.

⁴⁴ On Rorty cf. Donald R. Belcher. "Malcolm Churchill Rorty." In: *Journal of the American Statistical Association* 31.195 (1936).

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- ⁴⁵ Malcolm C. Rorty. "Income Statistics." In: *Publications of the American Statistical Association* 15.119 (Sept. 1917), p. 796.
- ⁴⁶ Malcolm C. Rorty. Letter to Max Farrand, Aug. 9, 1919. Series 18 Grants, Box 223, Folder 2099. Commonwealth Fund records. Rockefeller Archive Center, p. 1; see also Nahum I. Stone's account of his meetings with Rorty in 1915 and 1916, Stone, "The Beginnings of the National Bureau of Economic Research," pp. 5–6.
- ⁴⁷ See Nathum I. Stone. Letter to John P. Frey, Aug. 19, 1919. Series 18, Box 223, folder 2099, Commonwealth Fund records. Rockefeller Archive Center.
- ⁴⁸ Stone, "The Beginnings of the National Bureau of Economic Research," p. 7.
- ⁴⁹ On the Commonwealth Fund, see, for example, Alchon, *The Invisible Hand of Planning*, p. 56.
- ⁵⁰ On Mitchell's biographical background, see Arthur F. Burns. "Wesley Clair Mitchell (1874-1948)." In: *Year Book of the American Philosophical Society*. Philadelphia, PA: American Philosophical Society, 1948; Lucy Sprague Mitchell. *Two Lives. The Story of Wesley Clair Mitchell and Myself*. New York: Simon and Schuster, 1953; Breslau, "Economics Invents the Economy: Mathematics, Statistics, and Models in the Work of Irving Fisher and Wesley Mitchell," pp. 399–400; Walter A. Friedman. *Fortune Tellers: The Story of America's First Economic Forecasters*. Princeton: Princeton University Press, 2014, pp. 170–171.
- ⁵¹ Wesley C. Mitchell. *The National Bureau Enters Its Twentieth Year*. New York, NY: Press of A. Colish, 1939, p. 9; on self-restraint and self-denying passivity as main traits of the epistemic virtue of mechanical objectivity, see Lorraine Daston and Peter Galison. *Objectivity*. New York: Zone Books, 2010, pp. 115–190.
- ⁵² Stone, "The Beginnings of the National Bureau of Economic Research," p. 6; *By-Laws of the National Bureau of Economic Research, Inc.* Dec. 29, 1919. Series 18: Grants, Box 223, Folder 2099, Commonwealth Fund records, Rockefeller Archive Center.
- ⁵³ Mitchell, *The National Bureau Enters Its Twentieth Year*, p. 10.
- ⁵⁴ Wesley C. Mitchell. "Facts and Values in Economics." In: *The Journal of Philosophy* 41.8 (1944), p. 218.
- ⁵⁵ Mitchell, "Facts and Values in Economics," p. 215; on the identification of observations with statistics, see Harro Maas and Morgan S. Morgan. "Observation and Observing in Economics." In: *History of Political Economy* 44 (Supplement 1 Dec. 2012).
- ⁵⁶ Wesley Clair Mitchell. *Business Cycles*. Berkeley: University of California Press, 1913, p. 20.
- ⁵⁷ Edwin F. Gay. "Foreword." In: Willard L. Thorp and Hildegard E. Thorp. *Business Annals*. New York: NBER, 1926, p. 5; on quantification as a means to create consensus, see Theodore M. Porter. "Objectivity as Standardization: The Rhetoric of Impersonality in Measurement, Statistics, and Cost-Benefit Analysis." In: *Rethinking Objectivity*. Ed. by Allan Megill. Durham; London: Duke University Press, 1994, p. 209.