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*Futurama. Business Forecasting and the Dynamics of
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Futurama. Business Forecasting and the Dynamics of Capitalism in the Interwar Period¹

Abstract

The recognition of the key importance of economic stability after World War I sparked interest in business forecasting on both sides of the Atlantic. This article explores the creation and the rapid international and domestic dissemination of the Harvard Index of General Business Conditions in the early 1920s, which contemporaries celebrated as the first “scientific” approach to business forecasting. Drawing on multi-site archival research, the paper analyses the extension of the index by an information-exchange-based method in the 1920s and traces its influence on the survey-based forecasting approach employed by American companies in the 1930s. Engaging with the current debate on the temporal order of capitalism, the article argues that business forecasting was not only a means of stabilizing capitalism, but a factor and an indicator of a change in the dynamics of capitalism in the interwar period.

JEL-Codes: B 00, B 10, B 20, B 41, N 01, N 40

Keywords: Prognose; Konjunkturforschung; Kapitalismus; Konsumforschung; Wirtschaftskrisen; Wissensgeschichte; Zukunft; forecasting; future; business cycle research; capitalism; consumer research; historical epistemology; material practices; Harvard Economic Service; London and Cambridge Economic Service; League of Nations; General Motors

Introduction

At the 1939 New York World’s Fair, General Motors presented a scale model of the United States 20 years into the future. The model, crafted by famous industrial designer Norman Bel Geddes, was known as “Futurama.” From moving chairs, each equipped with an individual sound system, the visitors saw, “as from an airplane,” a miniature featuring 50,000 scale-model automobiles, 10,000 of them in actual operation over a system of so-called superhighways.² As the visitors glided through the exhibit, which encompassed more than 35,000 square feet and extended along several levels of the General Motors building, a male voice explained the wonder-world of 1960. “A new world is constantly opening before us at an ever-accelerating rate of

¹ Thanks to Jeremy Adelman, William Deringer, Christian Flow, Michael Gordin, Marcus Mikulcak, Mary S. Morgan, Veronika Settele, and to the members of the History of Science program seminar at Princeton University for their helpful comments on this work.

² Sloan Message Depicts Growth. Motor Chief Says Transportation Symbol of Expansion in All Fields, in: The Indianapolis Star, June 12th 1939, p. 20.

progress. A greater world, a better world, a world which always will grow forward.”³ Upon leaving the exhibition, the visitors were given a button that stated, “I Have Seen the Future.”

At the time of the fair, the executives of General Motors had been experimenting with what they called “consumer educational activities” for several years.⁴ Tentatively started in the 1920s, consumer research had experienced a significant uptick with the onset of the Great Depression. The 1920s had seen a dramatic expansion of trade in consumer goods. While economic downturns had traditionally been attributed to fallen production, a growing number of economists in the 1930s began to attribute the depression to inadequate consumer demand.⁵ To fuel recovery, then, businessmen had to find means to boost consumption. The set-up of the General Motors exhibit reflected this assumption. As Walter Lippmann noted, “General Motors has spent a small fortune to convince the American public that if it wishes to enjoy the full benefit of private enterprise in motor manufacturing it will have to rebuild its cities and its highways by public enterprise.”⁶ Like a self-fulfilling prophecy, Futurama was designed to shape consumers’ expectations and thereby actualize the future it predicted.

Sociologists and economists have long argued that an active orientation towards the future plays a vital role in creating and maintaining capitalist dynamics.⁷ Recently, this line of argument has gained new attention. In his 2016 book *Imagined Futures. Fictional Expectations and Capitalist Dynamics*, the German sociologist Jens Beckert describes capitalist dynamics as grounded in and sparked by actors’ images of the future.⁸ Alluding to what Keynes called the “radical uncertainty” of the future, Beckert conceives these images as based not on probabilistic assessments, but on “fictional expectations” which motivate and coordinate economic decision-making and thus drive the dynamics of capitalism.⁹

Beckert’s study presents a powerful contribution to the understanding of capitalism. An analysis of imagined futures as a driving force in capitalist dynamics promises new perspectives

³ *General Motors*, To New Horizons. Promotional Film from General Motors for Their “Highways and Horizons” Exhibit at the 1939-40 New York World’s Fair, 1940.

⁴ H. G. Weaver, Consumer Research and Consumer Education, in: *The Annals of the American Academy of Political and Social Science* 182/1, 1935, pp. 93–100, here p. 97.

⁵ “Hope for future economic stabilization rests with increasing certainty on the new science of ‘economics of consumption,’” reported, for example, *The Cincinnati Enquirer*, see Stabilization. Calls for New Science, in: *The Cincinnati Enquirer*, February 7th 1931, p. 12; cf. also W. A. Friedman, *Birth of a Salesman: The Transformation of Selling in America*, Cambridge, MA 2005, p. 230.

⁶ W. Lippmann, Today and Tomorrow. A Day at The World’s Fair, in: *The Cincinnati Enquirer*, June 6th 1939, p. 6.

⁷ Cf. M. Weber, *The Protestant Ethic and the Spirit of Capitalism*, London 1930; P. Bourdieu, *Algeria* 1960, Cambridge 1979.

⁸ J. Beckert, *Imagined Futures: Fictional Expectations and Capitalist Dynamics*, Cambridge, MA 2016; cf. also J. Beckert, Capitalist Dynamics. Fictional Expectations and the Openness of the Future (MPiFG Discussion Paper 14/7), March 2014.

⁹ J. Beckert, Capitalism as a System of Contingent Expectations: Toward a Sociological Microfoundation of Political Economy (MPiFG Discussion Paper 12/4), July 2012; cf. also W. Streeck, How to Study Contemporary Capitalism?, in: *European Journal of Sociology* 53/1, April 2012, pp. 1–28.

on a debate that has all too long described capitalism as a timeless and irresistible system penetrating our lives – rather than an entity inherent to and indeed emergent from people’s daily practices.¹⁰ However, from a historian’s perspective, two points need further investigation. First, in the interest of denaturalization and contingency, we need to explore the ways in which the future is constructed, stabilized, and contested. Beckert mentions two instruments used to generate fictional expectations, namely forecasting and economic theories and models, but his focus lies more with the effects of these instruments than with their design and working. However, these instruments have changed across time and space. Secondly, therefore, I argue that we should investigate possible changes in the instruments’ design and working. Here, focusing on the story of a particular forecasting tool, I will look to do both.

Capitalism as an analytical concept is, above all, a tool of comparison.¹¹ But Beckert’s account of a progression from a pre-capitalist temporal order to a capitalist temporal order supposes a constancy of the capitalist order.¹² It finds itself therefore in accord with a number of studies that have argued that the advent of modernity came along with a transformation from traditional to modern temporal structures or, as Reinhart Koselleck put it, a shift in the relationship of experience and expectation.¹³ We still have remarkably few studies that explore how these structures have developed since.¹⁴ Detecting changes in practice might alert us to possible breaks and changes in actors’ orientation towards the future – and thus, speaking with Jens Beckert, in the dynamics of capitalism.

¹⁰ Beckert, *Imagined Futures*, p. 7; for an evaluation of the changing field, see P. A. Kramer, *Embedding Capital: Political-Economic History, the United States, and the World*, in: *The Journal of the Gilded Age and Progressive Era* 15/03, 2016, pp. 331–362; S. Rockman, *What Makes the History of Capitalism Newsworthy?*, in: *Journal of the Early Republic* 34/3, 2014, pp. 439–466; S. Beckert et al., *Interchange: The History of Capitalism*, in: *Journal of American History* 101/2, 2014, pp. 503–536; L. Hyman, *Why Write the History of Capitalism?*, in: *Symposium Magazine*, July 8th 2013; J. Sklansky, *The Elusive Sovereign: New Intellectual and Social Histories of Capitalism*, in: *Modern Intellectual History* 9/1, 2012, pp. 233–248; M. Zakim/G. J. Kornblith (Eds.), *Capitalism Takes Command: The Social Transformation of Nineteenth-Century America*, Chicago ; London 2012; S. Beckert, *The History of American Capitalism*, in: E. Foner/L. McGirr (Eds.): *American History Now*, Philadelphia, PA 2011, pp. 314–335.

¹¹ On capitalism as a tool for comparing across time and space, see for example S. Beckert, *The New History of Capitalism*, in: J. Kocka/M. van der Linden (Eds.): *Capitalism. The Reemergence of a Historical Concept*, London/New York 2016, pp. 235–249, here p. 236.

¹² Cf. F. Lenger, *Die neue Kapitalismusgeschichte. Ein Forschungsbericht als Einleitung*, in: *Archiv für Sozialgeschichte* 56, 2016, pp. 3–37, here p. 37; cf. also Beckert, *Imagined Futures*, p. 33; J. Beckert, *Die Historizität fiktionaler Erwartungen* (MPIfG Discussion Paper 17/8), May 2017, p. 1.

¹³ R. Koselleck, *Futures Past: On the Semantics of Historical Time*, New York, NY 2004; N. Luhmann, *The Future Cannot Begin: Temporal Structures in Modern Society*, in: *Social Research* 43/1, 1976, pp. 130–152; for a recent critique, cf. R. Graf/B. Herzog, *Von der Geschichte der Zukunftsvorstellungen zur Geschichte ihrer Generierung. Probleme und Herausforderungen des Zukunftsbezugs im 20. Jahrhundert*, in: *Geschichte und Gesellschaft* 42, 2016, pp. 497–515, here pp. 498–500.

¹⁴ Jens Beckert has recently published a paper on “the historicity of fictional expectations,” but focuses on changes in content and importance of fictional expectations. Possible changes in practice are not addressed. See Beckert, *Die Historizität fiktionaler Erwartungen*; on different temporalities of capitalism, see W. H. Sewell, *The Temporalities of Capitalism*, in: *Socio-Economic Review* 6/3, April 15th 2008, pp. 517–537; for a more recent account, see J. Levy, *Capital as Process and the History of Capitalism*, in: *Business History Review* 91/3, September 11th 2017, pp. 1–28.

Drawing on extensive, multi-site archival research, this article explores the making, the dissemination, and the transformation of one of the first and most influential economic forecasting tools of the 20th century, namely the Index of General Business Conditions established by the Harvard Committee on Economic Research in 1919. The article proceeds as follows. The first section outlines the method of the Harvard index as originally drafted by the economists of the Harvard Committee. I argue that the seemingly mechanical mode of operation fostered a rapid dissemination of the instrument among European economists and American businessmen in the early 1920s. This popularization, as well as the discussion that accompanied it, is the topic of section 2. An unexpected behaviour of the economic data under study in 1922 prompted the members of the Harvard Committee to change their methods (section 3). Increasingly, they resorted to personal contact with economic and political decision-makers to check the index by “inside information.” These new practices were discredited as “unscientific” by many American economists, but outlasted the Harvard Economic Society, as it was called from 1928 onwards, in the long run. Section 4 argues that, while the Harvard Economic Society had to shut its doors in the aftermath of the depression, the Society’s unofficial forecasting practice lived on and shaped the development of forecasting practices applied by American corporations throughout the 1930s and, years later, by European economists. In the conclusion, I argue that the transformation of the forecasting practice in the interwar period, which implied a change in method and in temporality, might indeed be interpreted as an indicator and a factor of a change in the dynamics of capitalism.

1 The Index of General Business Conditions: An Outline of the Method

When the American economist Wesley C. Mitchell, born in 1878, looked back at his education, he remembered a time of controversy. In 1890 Alfred Marshall published his *Principles of Economics*, which quickly won him worldwide acclaim. However, only a few years later, critics began to question the solidity of the theory of value upon which Marshall’s analysis rested. As Mitchell remembered, “Darwin’s emphasis upon instincts, the emphasis of William James and other psychologists upon habits, undermined confidence in the older conception of conduct as guided by calculation.”¹⁵ For Mitchell, this realization raised an awkward question. “If economic theory rested on a theory of value, and this theory was insecure, how could economists shore up their tottering edifice?”¹⁶ As Mitchell saw it, the solution was simple. More empirical research was necessary. Just like their colleagues in the natural sciences, economists had to test their theories

¹⁵ W. C. Mitchell, Facts and Values in Economics, in: The Journal of Philosophy 41/8, 1944, pp. 212–219, here pp. 213–214.

¹⁶ Ibid., p. 214.

by “facts,” as Mitchell found them to be entailed in statistics.¹⁷ Only thus could economists put an end to “speculation about what would happen in a simplified world” and instead move the complexities of reality to the page.¹⁸

In his 1913 book on *Business Cycles*, Mitchell put his ideas into action. After a summary of the various theories of business cycles available, Mitchell used the theories as working hypotheses to structure his statistical investigation in the second part. In a third part, he presented tentative conclusions about the causes and the rhythm of business cycles. Mitchell’s book was often cited and highly acclaimed. Mitchell’s contemporaries were particularly intrigued by the “realism and concreteness” of Mitchell’s book.¹⁹ As the British economist Arthur Pigou noted, “the skeleton does not appear as a skeleton, but as a being of flesh who lives and moves.”²⁰

In 1907, the United States had experienced one of the most destructive financial panics it had ever seen. With business confidence at ebb tide, interest in business forecasting had increased.²¹ Journalists and economists thus particularly stressed the fact that Mitchell’s book “offers good suggestions for bettering barometers for the forecasting of business conditions.”²² The empirical method promoted by Mitchell seemed to promise a new and “more objective” approach to a field which many, until then, had dismissed as charlatany. Two years after the publication of *Business Cycles*, Warren M. Persons, economist and statistician of Mitchell’s generation and one of the first reviewers of Mitchell’s book, presented his ideas for a “new business barometer” to the American Statistical Society. He criticized his predecessors as “unscientific” and “naïve” and contrasted their “rule of thumb manner” with his own approach to business forecasting, which was based on a thorough study of statistics and might eventually “be perfected to the point of absolute reliability.”²³

In 1916, Persons published an article on the topic in the *American Economic Review*, that laid out his forecasting method to a wider public.²⁴ One year later, Persons was appointed professor of economics at Harvard University and leading statistician of the newly founded

¹⁷ *W. C. Mitchell*, *Business Cycles*, Berkeley 1913, p. 19; 91; *W. C. Mitchell*, *Statistics and Government*, in: *Publications of the American Statistical Association* 16/125, 1919, pp. 223–235, here p. 231; 235.

¹⁸ *Mitchell*, *Facts and Values in Economics*, p. 218.

¹⁹ *A. C. Pigou*, *Review of Business Cycles by Wesley Clair Mitchell*, in: *The Economic Journal* 24/93, 1914, pp. 78–81, here p. 78.

²⁰ *Ibid.*, p. 81.

²¹ Cf. for example *Pittsburg’s Rival*. *The Lake Erie Iron Industry Coming to the Front Rapidly*, in: *The Record-Argus*, December 7th 1908, p. 2; *Advertisement for the Monthly Report of the First National Bank*, in: *Press and Sun-Bulletin*, November 11th 1912, p. 10.

²² *W. M. Persons*, *Books on Business Cycles: Mitchell, Aftalion, Bilgram*, in: *The Quarterly Journal of Economics* 28/4, 1914, pp. 795–810, here p. 809; cf. also *Book on Business Crises Published by University*, in: *Woodland Daily Democrat*, October 3rd 1913, p. 3.

²³ *New Barometer*, *This Records Trend of Business*, in: *Oakland Tribune*, August 13th 1915, p. 13.

²⁴ *W. M. Persons*, *Construction of a Business Barometer Based upon Annual Data*, in: *The American Economic Review* 6/4, 1916, pp. 739–769.

Harvard Committee on Economic Research. The Committee, chaired by Harvard economist Charles J. Bullock and funded by private companies, Harvard alumni, and, later, subscriptions to the Committee's publications as well as a five-year grant from the Rockefeller Foundation, was established in 1917 to analyse and improve the scientific quality of economic investigation.²⁵ Persons was assigned to study existing methods of collecting and interpreting economic statistics and to edit the committee's journal, the *Review of Economic Statistics*. In the first issue, published in January 1919, Persons took up his 1916 article on business forecasting. World War I had sparked interest in economic statistics, but the development of the infrastructure of data-gathering was a tedious process.²⁶ In 1919, government statistics were still too narrow and often published with a delay of several months. In the absence of a better alternative, Persons based his analysis on economic data collected and published by privately owned periodicals. These data sets, Persons noted, were only samples. The figures for gross earnings of railroads, for instance, which the *Chronicle* published each month, were based upon available reports for the previous month. Sometimes, these reports covered as few as nineteen routes out of the hundreds in the country. Similarly, the data on bank clearings and building permits published by *Bradstreet's* were collected for selected groups of cities only.²⁷ However, Persons took what he could get, noting that the twenty time series taken necessarily constituted "a tentative selection."²⁸ Among the time series chosen were, among others, the monthly bank clearings of New York City, the monthly tonnage of pig iron produced in the United States, and *Bradstreet's* monthly number of business failures.²⁹ In order to "unravel" the cyclical fluctuations of the twenty series, Persons devised a method of

²⁵ Cf. Report of the Work of the Harvard University Committee on Economic Research during the Year 1919-1920, with Statement and Estimate of Receipts and Expenditures, May 31st 1920, Harvard University Archives, Records of President Abbott Lawrence Lowell, UAI.5.160, Box 156, Folder 310; F. W. Hunnewell, Letter to Charles J. Bullock, May 29th 1929, Harvard University Archives, Records of President Abbott Lawrence Lowell, UAI.5.160, Box 258, Folder 148; on the history of the Harvard Committee on Economic Research, see C. J. Bullock, The Need of Endowment for Economic Research, in: The Harvard Graduates' Magazine 23, June 1915, pp. 601-610; C. J. Bullock, Prefatory Statement, in: The Review of Economic Statistics 1/1, 1919, p. 4; W. A. Friedman, Fortune Tellers: The Story of America's First Economic Forecasters, Princeton 2014, pp. 128-165; W. A. Friedman, The Harvard Economic Service and the Problems of Forecasting, in: History of Political Economy 41/1, January 1st 2009, pp. 57-88; M. S. Morgan, The History of Econometric Ideas, Cambridge 2003 (1990), pp. 56-63; J. Fayolle, The Study of Cycles and Business Analysis in the History of Economic Thought, in: *European Commission/D. Ladiray* (Eds.): Monographs of Official Statistics: Papers and Proceedings of the Colloquium on the History of Business-Cycle Analysis, Luxemburg 2003, pp. 9-44, here pp. 12-17; M. Armatte, Cycles and Barometers: Historical Insights into the Relationship between an Object and Its Measurement, in: *European Commission/D. Ladiray* (Eds.): Monographs of Official Statistics: Papers and Proceedings of the Colloquium on the History of Business-Cycle Analysis, Luxemburg 2003, pp. 45-74, here pp. 63-65.

²⁶ J. A. Toose, Statistics and the German State, 1900-1945: The Making of Modern Economic Knowledge (9), Cambridge 2001, p. 4-9; 13.

²⁷ W. M. Persons, Indices of Business Conditions, in: The Review of Economic Statistics 1/1, 1919, pp. 5-48, here p. 6.

²⁸ *Ibid.*, p. 7.

²⁹ Persons originally started out with fifteen series, but supplemented them later by other series, see *Persons*, Indices of Business Conditions; W. M. Persons, An Index of General Business Conditions, in: The Review of Economic Statistics 1/2, 1919, pp. 110-205.

“correcting” statistics for secular trend and seasonal fluctuations.³⁰ The series covered the time from 1903-1914, for Persons believed that results derived from this data might forecast the relations that existed among economic phenomena in “ordinary peace times,” which had only been interrupted by the Great War.³¹ In the second issue, published three months later, Persons described different methods of comparison, which allowed him to assess what he called “the sequence of fluctuation.” Sorting the corrected series according to the “similarity” and “simultaneity” of their cyclical fluctuations, Persons found the twenty series falling into three groups, that related to speculation (A), business (B), and banking (C) respectively.³² In a next step, Persons averaged the series of each group and plotted the graphs of the three averages on the same chart. From this chart, Persons concluded that the group averages had moved “in certain fixed relations to one another.”³³ The movements of curve A (speculation) preceded and thus forecast those of curve B (business) by four to ten months, while the movements of curve B forecast those of curve C (banking) by two to eight months. Additionally, the movements of A and C indicated a “fundamental change in general business conditions” when in opposite directions. If curve C fell sharply when A was rising, business would change for the better; if curve C rose substantially when curve A was falling, business would change for the worse.³⁴ After having constructed an index on the same plan for November 1918, which, according to Persons, revealed the same characteristics, the members of the Harvard Committee believed they had discovered a “definite relationship in the speculative, commodity, and money market,”³⁵ which would provide the means for a “scientific prediction of the future course of general business conditions.”³⁶

In July 1919, Persons and his colleagues started to present their index of business conditions in a monthly bulletin. December 1919 saw their first major success, when their index “forecast” the recession of 1920/21 several months earlier than other forecasting agencies. As the members of the Harvard Committee noted in their monthly bulletin of December 1919, the downward movement of curve A “indicates that we may expect a check to the upward

³⁰ Cf. *Persons*, *Indices of Business Conditions*.

³¹ *Persons*, *An Index of General Business Conditions*, p. 117.

³² *Ibid.*, p. 114; *Harvard Economic Service*, *The Harvard Index of General Business Conditions. Its Interpretation*, *Weekly Letters*, Cambridge, MA 1922, pp. 2–8, here p. 5.

³³ *W. M. Persons*, *General Business Conditions*, in: *Review of Economic Statistics (Monthly Supplement)* 1, August 1919, pp. 2–9, here p. 2.

³⁴ *Harvard Economic Service*, *The Harvard Index of General Business Conditions. Its Interpretation*, p. 6; *Harvard Committee on Economic Research*, *Monthly Survey of General Business Conditions*, in: *The Review of Economic Statistics* 2/12, December 1920, pp. 339–348, here p. 339.

³⁵ *Harvard Business Forecasts as a Help to You*, in: *Chicago Tribune*, September 28th 1923, p. 25; “the Index Chart reveals the phase of the business cycles existing at any time and forecasts the phase in prospect,” see *Harvard Economic Service*, *The Harvard Index of General Business Conditions. Its Interpretation*, p. 6.

³⁶ *Harvard Economic Service*, *The Harvard Index of General Business Conditions. Its Interpretation*, p. 4.

movement of commodity prices and business activity (...) and perhaps a recession of prices” (see Figure 1).³⁷ Encouraged by their success in forecasting the recession, the Committee launched a so-called *Weekly Letter* in 1922, now under the name “Harvard Economic Service.” A subscription to the Service, which included the quarterly issued *Review of Economic Statistics*, cost \$100 per year (about \$1,100 today)³⁸ and was heavily advertised throughout the country.³⁹

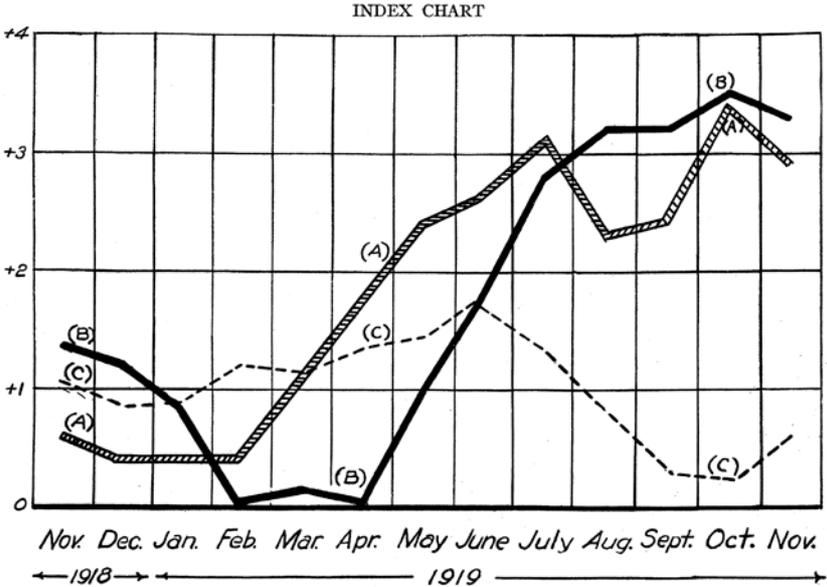


Figure 1: The Index Chart (Dec. 1919)⁴⁰

Wesley C. Mitchell, who was one of the first to review the newly launched *Review of Economic Statistics* in 1919, praised the approach of the Harvard Committee as “ultra-scientific.” To him, “[t]he establishment of this periodical promises to mark a new stage in the development both of economic research in the universities and of business forecasting for the public.”⁴¹ Mitchell was not alone in his judgment. Many contemporaries were intrigued by the Harvard

³⁷ *Harvard Committee on Economic Research*, General Business Conditions, in: *The Review of Economic Statistics* (Monthly Supplement) 1, December 1919, pp. 2–9, here p. 2.

³⁸ *Friedman*, *Fortune Tellers*, p. 142; this amount put it out of reach of individuals and small businesses, see *E. S. Mason/T. S. Lamont*, *The Harvard Department of Economics from the Beginning to World War II*, in: *The Quarterly Journal of Economics* 97/3, 1982, pp. 383–433, here p. 415; Bullock himself noted that “[s]tudy of the results of the circularizing campaign shows that large concerns are our best prospects, and that our present Service does not appeal to small concerns having a capital of less than \$500,000,” see *C. J. Bullock*, *Report of the Work of the Committee on Economic Research for the Year 1921-1922*, June 20th 1922, Harvard University Archives, Records of President Abbott Lawrence Lowell, UAI.5.160, Box 156, Folder 310, p. 8.

³⁹ The Committee spent \$35,174.00 in newspaper, magazine, and direct mail advertising in 1921-22. Bullock estimated that they had circularized around 110,000 individuals, firms, and corporations, and sent out approximately 440,000 letters. In June 1922, the campaign was estimated to have yielded \$62,395.00 of new business, see *Bullock*, *Report of the Work of the Committee on Economic Research for the Year 1921-1922*, p. 8.

⁴⁰ *Harvard Committee on Economic Research*, General Business Conditions, p. 2.

⁴¹ *W. C. Mitchell*, *Review of “The Review of Economic Statistics,”* in: *The American Economic Review* 9/4, 1919, pp. 872–876, here p. 872.

Committee's new, "scientific" approach to business forecasting.⁴² At first sight, however, the index of the Harvard Committee closely resembled the techniques of their predecessors. As Warren Persons acknowledged himself, his analysis was based upon his predecessors' data.⁴³ His technique, too, bore strong resemblances to the work of several commercial statistical agencies, which had issued forecasts from 1907 onwards. Just like James H. Brookmire, who had published his first business barometer in 1910,⁴⁴ Persons postulated a chronological sequence in business events and believed that certain data would lead others and might thus, like a change in air pressure in the traditional barometer, indicate an imminent change in the business weather.⁴⁵

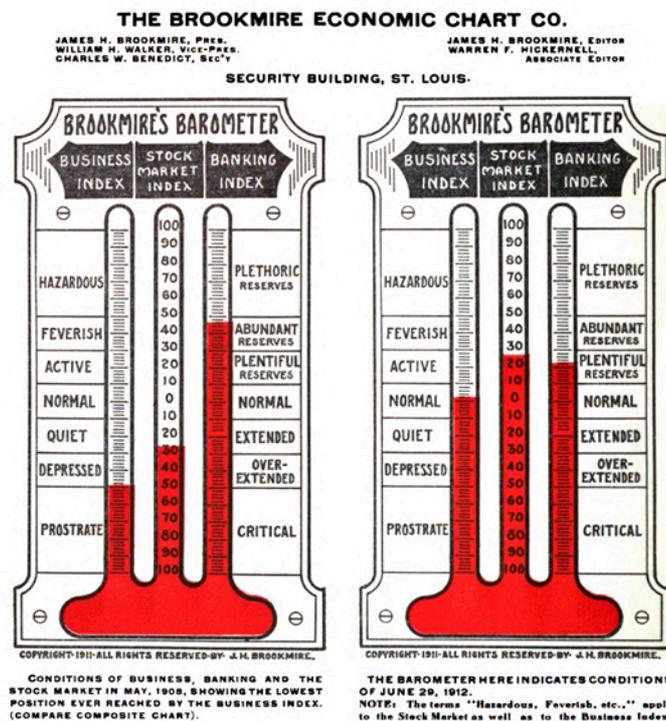


Figure 2: Brookmire's Barometer⁴⁶

⁴² Cf. for example *W. F. Willcox*, Review of The Review of Economic Statistics, in: Publications of the American Statistical Association 16/127, September 1919, pp. 484–486.

⁴³ *Persons*, Indices of Business Conditions, p. 6.

⁴⁴ *J. H. Brookmire*, The Brookmire Economic Charts. A Graphic Record of Fundamental, Political and Industrial Conditions as a Barometer to the Financial and Business Situation for a Period Beginning 1885 and the Science of the New York Stock Market, St. Louis, MO 1910.

⁴⁵ On meteorological barometers and their ambivalent and contradictory interpretations by seventeenth- and eighteenth-century users, see *J. Golinski*, Barometers of Change: Meteorological Instruments as Machines of Enlightenment, in: *W. Clark/J. Golinski/S. Schaffer* (Eds.): The Sciences in Enlightened Europe, Chicago 1998, pp. 69–93.

⁴⁶ *The Brookmire Economic Chart Co*, Brookmire's Forecaster. An Analysis and Forecast of Fundamental Conditions 1/26, July 1st 1912, p. 4.

Upon looking closer, however, differences in method and presentation became evident. Persons discussed the sources and the nature of his data in detail and addressed the steps of his analysis in depth. Numerous charts and tables supplemented the different stages of his investigation, conveying the impression of transparency, verifiability, and reproducibility. Similarly, Persons subjected all data to the same empirical procedures. This approach was in stark contrast to the practice of his predecessors, who dealt with the data on a case-by-case basis, refusing to disclose the individual interventions to the reader.⁴⁷ As Mitchell remarked in his review, “If some of the Review’s charts are difficult to understand, some of its rivals’ charts are impossible to understand.”⁴⁸

The differences in practice were paralleled by a difference in ethos. In 1912, the Brookmire Economic Service advertised its service by citing an investor who had congratulated the Service “on the commendable taste, judgement and accuracy embodied in your service, bringing it to a point of perfection seldom seen.”⁴⁹ Where Brookmire and others held “experience and judgment” as their claim to authority,⁵⁰ Persons endeavoured to minimize the scope for interpretation and intervention. He rejected his predecessors’ practice of selecting and perfecting and aimed instead “at self-elimination in his judgements.”⁵¹ In a 1923 advertisement, the Harvard Economic Service addressed the businessman, who says “[t]he most serious words that you can utter as a business executive (...), ‘It is my opinion.’” These words “place the responsibility squarely on your shoulders,” stated the advert, and asked, “When you state your opinion, who is really speaking? You have not made up your mind out of nothing. (...) You are influenced by the judgment of your treasurer, your superintendent, your sales manager.”⁵² The Harvard Economic Service, by contrast, promised forecasts uncontaminated by judgment and sentiment. Conforming to the ethos of “mechanical objectivity,” Persons attempted to resist

⁴⁷ In September 1915, the editor of the Brookmire Economic Service described his technique of eliminating the secular trend as follows: “In constructing the charts I refuse to be committed to any one method or any limited number of factors. I also reserve the right to eliminate any factor when for legislative or other causes that factor ceases to be a good barometer,” quoted by *Persons*, *Construction of a Business Barometer Based upon Annual Data*, p. 745.

⁴⁸ *Mitchell*, *Review of “The Review of Economic Statistics,”* p. 872.

⁴⁹ Advertisement for the Brookmire Economic Service, in: *The Wall Street Journal*, October 2nd 1912, p. 7; the practices of selecting, judging, and perfecting are in line with what Daston and Galison have described as the precept of “truth-to-nature,” cf. *L. Daston/P. Galison, Objectivity*, New York, NY 2010, pp. 55–113.

⁵⁰ *Brookmire*, *The Brookmire Economic Charts. A Graphic Record of Fundamental, Political and Industrial Conditions as a Barometer to the Financial and Business Situation for a Period Beginning 1885 and the Science of the New York Stock Market*, p. 107B; cf. also: “Without good judgment permanent success is impossible in any line,” see *ibid.*, p. 7A.

⁵¹ *K. Pearson*, *The Grammar of Science*, London 1900 (1892), p. 6; *T. M. Porter*, *Karl Pearson: The Scientific Life in a Statistical Age*, Princeton 2004, p. 213; for Persons’ many citations of Pearson’s “Grammar of Science,” cf. for example *Persons*, *An Index of General Business Conditions*; *W. M. Persons*, *The Correlation of Economic Statistics*, in: *Publications of the American Statistical Association* 12/92, 1910, pp. 287–322.

⁵² “It Is My Opinion.” Advertisement by the Harvard Economic Service, in: *Chicago Tribune*, October 23rd 1923, p. 28.

intervention and to put in its stead a set of procedures that would move the future to the page through a strict protocol.⁵³ This impression was enhanced by a seemingly objective presentation of the results. While Brookmire's figures were shaped by highly subjective judgments about the state of the economy ("hazardous," "feverish," etc., see Figure 2), the Harvard Index seemed to bear no traces of its creators. It was designed as a self-registering instrument, promising "evidence that is yielded automatically" and thus free from personal bias.⁵⁴

Nowhere was the struggle against subjectivity more apparent than in the methods that Persons applied to ascertain the correlation between the twenty time series. After having corrected the series for secular trend and seasonal variation by statistical means, Persons drew the graphs of what he believed to be the cyclical fluctuations on translucent paper.⁵⁵ Along with two other "observers," Persons placed one chart over another on the glass top of an illuminated box to compare their correspondence and lag. Like a camera, the illuminated box was supposed to capture the graphs' correlations in a flash, allowing the sequence of fluctuations to print itself to the glass.⁵⁶

Yet, the illuminated box did not run itself. When the three men compared their results – twenty graphs made for 190 possible pairwise combinations – serious disagreement arose on the nature and degree of correlation.⁵⁷ As Persons later explained, "personal equation, preconceived notions, or theoretical bias" might have influenced the conclusions of the all too human scientists.⁵⁸ Looking for "a more objective method," Persons computed coefficients of correlations between those pairings of items which, from the preliminary comparison, appeared likely to result in maximum correlation.⁵⁹ Here, Persons adopted a method originally developed by British scientists as an aid in the study of biological evolution.⁶⁰ Just like Francis Galton and Karl Pearson had studied the correlation of traits between relatives to identify so-called laws of

⁵³ "By *mechanical objectivity* we mean the insistent drive to repress the willful intervention of the artist-author, and to put in its stead a set of procedures that would, as it were, move nature to the page through a strict protocol, if not automatically," see *Daston/Galison*, *Objectivity*, p. 121; this economic application is consistent with their notion that the epistemic virtues "overflowed the boundaries of any one discipline or even any single division of disciplines," *ibid.*, p. 48; on the term "mechanical objectivity" with a special focus on practices of quantification see also *T. M. Porter*, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*, Princeton, NJ 1995; Porter has argued that practices that conform to the ideal of mechanical objectivity are especially prominent in applied fields, where the boundaries between "inside" and "outside" are not sharply differentiated, see *ibid.*, pp. 228–231.

⁵⁴ "We cannot set up an experiment in economics; we must draw our conclusions and state our probabilities on the basis of evidence that is yielded automatically, so to speak," *Persons*, *An Index of General Business Conditions*, p. 125.

⁵⁵ Cf. Emil Ponfick's practice of recording outlines of organs on a plate of milk glass mounted over the body and transferring the images from glass to transparent paper, cf. *Daston/Galison*, *Objectivity*, p. 147.

⁵⁶ Cf. Lorraine Daston's and Peter Galison's description of the virtue of mechanical objectivity, *ibid.*, p. 115–90, here: 122.

⁵⁷ *Persons*, *An Index of General Business Conditions*, pp. 127–128.

⁵⁸ *Ibid.*, p. 121; on personal equation, see *S. Schaffer*, *Astronomers Mark Time: Discipline and the Personal Equation*, in: *Science in Context* 2/01, March 1988, pp. 115–145.

⁵⁹ *Persons*, *An Index of General Business Conditions*, pp. 121–122.

⁶⁰ Persons also cited the various papers by Galton and Pearson, see *ibid.*, p. 130.

inheritance, Persons strived to unravel the laws of the business cycle by investigating the correlation of different statistical series.⁶¹

The seemingly mechanical procedure and representation was rendered possible by a cyclical understanding of time. Quoting Karl Pearson, Warren Persons praised the “man [who] has won his dictatorship over other forms of life by his power of foreseeing the effects which flow from antecedent causes – not only by his memory of past experience, but by his power of codifying natural law, that is, by his power of generalising experience in scientific statements.”⁶² Persons generalized the results obtained from the study of the past to unravel “laws” about the chronological sequence of business events that were valid for both past and future.⁶³ Believing in the existence of an “ordinary universe” with so-called “normal” conditions,⁶⁴ he carved out the patterns of the past to forecast the patterns of the future, as if past and future formed two halves of a symmetrical butterfly.⁶⁵

Of course, the index of the Harvard Committee on Economic Research was shaped by preconceived ideas and theories just like the figures of their predecessors had been.⁶⁶ Selection and simplification were part of their procedure, too. To their contemporaries, however, the purported mechanical procedure seemed to leave little room for personal judgment and thus for doubting their results. In this, the rigor and uniformity of quantitative technique promoted by Persons served as a “technology of trust,” promising credible knowledge about a highly uncertain and contested future.⁶⁷

⁶¹ Cf. *ibid.*, pp. 131–134; on Pearson’s and Galton’s use of correlation as a key to biometry, cf. *Porter*, Karl Pearson, pp. 249–296.

⁶² Karl Pearsons quoted by *Persons*, *An Index of General Business Conditions*, p. 133.

⁶³ “What is the nature of ‘economic law?’” asked Persons in 1919 and answered by citing Pearson’s concept of a scientific law, cf. *Ibid.*, p. 130; 133; in 1924, Persons approvingly cited John Merz, who described the “successful scientific explorer” as “the man who could single out some special thing for minute and detailed investigation, who could retire with one definite object, with one fixed problem into his study or laboratory and there fathom and unravel its intricacies, rising by induction or divination to some rapid generalization which allowed him to establish what is termed a law,” see *W. M. Persons*, *Some Fundamental Concepts of Statistics*, in: *Journal of the American Statistical Association* 19/145, March 1924, pp. 1–8, here p. 2.

⁶⁴ See *Friedman*, *Fortune Tellers*, p. vii; *Persons*, *An Index of General Business Conditions*, p. 117; on statistical curves as “normalizing interventions,” see *J. Link*, *Das “normalistische” Subjekt und seine Kurven. Zur symbolischen Visualisierung orientierender Daten*, in: *David Gugerli/Barbara Orland* (Eds.): *Ganz normale Bilder. Historische Beiträge zur visuellen Herstellung von Selbstverständlichkeit*, Zürich 2002, pp. 107–128.

⁶⁵ “The object of summarizing experience is to use that experience as a basis of future conduct or action,” *Persons*, *An Index of General Business Conditions*, p. 134.

⁶⁶ On this point, see also *Morgan*, *The History of Econometric Ideas*, pp. 62–63; *J. A. Schumpeter*, *History of Economic Analysis*, Reprint ed., London 1997 (1954), p. 1131.

⁶⁷ *Porter*, *Trust in Numbers*; Porter argues that the push for rigor was especially important in applied sciences (like forecasting), as a response to suspicion, and thus reflects the “weakness and vulnerability” of these disciplines, see *ibid.*, p. xi; 199.

2 New Terminals and Waterfronts: The Dissemination of the Index

The seemingly mechanical working of the index sparked interest in other parts of the world. In Europe, with rising levels of inflation, a series of financial crises, and high rates of unemployment, economists and statisticians were particularly eager to learn about the method which was said to have put forecasting on a scientific basis. In December 1921, John Maynard Keynes, one of the most prominent advocates of the crucial importance of economic and financial stability, wrote to Charles Bullock to propose a cooperation between the Harvard Committee and a group of British economists. Keen to study business conditions “upon a truly international basis” and to spread the influence of their work,⁶⁸ Bullock and his colleagues accepted enthusiastically and offered to underwrite, up to the sum of \$5,000, the expenses of the British group.⁶⁹ In February 1922 Bullock travelled to London to meet with the group. Four months later, the London and Cambridge Economic Service was officially established “on the lines of the Harvard Economic Service.”⁷⁰ The Harvard index was reprinted in “Reconstruction in Europe,” a monthly supplement to the *Manchester Guardian* edited by Keynes, and, from January 1923 onwards, in a monthly bulletin.⁷¹ The British index, in turn, was published in the Harvard Committee’s *Weekly Letter*. It was based on four series, which, at least for the period of 1920/21, were found to have moved in the same chronological order as the corresponding series of the Harvard index. “There is no difference of principle between the British and the American study,” claimed Arthur Bowley, member of the London group.⁷²

From 1922 until 1935, the London and Cambridge Economic Service used parts of the payments by the Harvard Committee to finance foreign correspondents.⁷³ German, Belgian, French, and Italian economists, among them Lucien March and Costantino Ottolenghi, were asked for monthly contributions of current statistics. In some cases, the cooperation initiated the

⁶⁸ *Bullock*, Report of the Work of the Committee on Economic Research for the Year 1921-1922, p. 5.

⁶⁹ *Ibid.*, pp. 3–4; in 1928, a second donation by the Harvard Economic Society was offered and accepted *J. M. Keynes*, London and Cambridge Economic Service. Minutes of the Eighteenth Meeting of the Executive Committee, December 18th 1928, London School of Economics and Political Science Archives, London and Cambridge Economic Service, Box 2, Minute Book, p. 1. \$5,000 in 1922 would be \$55,000-\$70,000 in 2017.

⁷⁰ *Bullock*, Report of the Work of the Committee on Economic Research for the Year 1921-1922, p. 4; *W. H. Beveridge*, London and Cambridge Economic Service. Minutes of the First Meeting of the Executive Committee, July 5th 1922, London School of Economics and Political Science Archives, London and Cambridge Economic Service, Box 2, Minute Book, p. 1.

⁷¹ Cf. Harvard Economic Service for Business Conditions in the United States, in: *The Manchester Guardian Commercial*. Reconstruction in Europe, April 20th 1922, pp. 52–53; *Bullock*, Report of the Work of the Committee on Economic Research for the Year 1921-1922, p. 4.

⁷² At least this was said to be a statement by Professor Bowley, which the Harvard Economic Service claimed to have “reproduce[d] substantially,” *Harvard Economic Service*, An Index of British Economic Conditions, in: *Weekly Letter* 1/25, June 17th 1922, pp. 145–147, here p. 145.

⁷³ The cessation of the payment in 1935 was a consequence of the discontinuance of the Harvard publication, see Minutes of the Twenty-Seventh Regular Meeting of the Executive Committee of the London and Cambridge Economic Service, March 5th 1935, London School of Economics and Political Science Archives, London and Cambridge Economic Service, Box 2, Minute Book, p. 1.

formation of Economic Services in the respective countries, which then received additional payments from the Harvard Committee.⁷⁴ To Bullock and his colleagues, who reserved the right to veto decisions made by the British Service concerning their selection of correspondents, these developments proved a most welcome “extension of our work in Europe.”⁷⁵ As Bullock put it, he believed emphatically in “[t]he importance of such a European connection for the work of our Committee.”⁷⁶

From the mid-1920s onwards, the League of Nations actively promoted the expansion of the Harvard method in Europe and beyond. In 1923, a Joint Committee, consisting of representatives of the Economic and Financial Section of the League of Nations and the International Labour Office, had decided to investigate methods of establishing economic barometers as part of a study of industrial fluctuations, crises and the consequent unemployment.⁷⁷ In the resulting report, published in 1924, the “barometers” issued by the Harvard Committee and the London and Cambridge Economic Service featured prominently, serving as examples for a new “scientific” approach to economic forecasting.⁷⁸ Echoing the work by Warren Persons, the report noted that the purpose of economic barometers was to discover “the laws relating to the sequence of economic fluctuations,” which, according to the report, was “the essential preliminary to the making of adequate forecasts.”⁷⁹ Curiously, the report constantly referred to the Harvard index as a “barometer,” thereby adopting Persons’ 1916 term.

Believing that economic barometers might serve as a means of economic stabilization, the Committee encouraged the establishment of economic barometers among the various member states.⁸⁰ In April 1926, Eric Drummond, first secretary general of the League, wrote a letter to the governments of the 55 member-states, calling their attention to the great importance attached to the collection of statistics on which economic barometers, “d’un niveau scientifique équivalent à celui atteint par le Comité des recherches économique de l’Université Harvard et par le Service

⁷⁴ On the Italian case, see *W. H. Beveridge*, London and Cambridge Economic Service. Minutes of the Second Meeting of the Executive Committee, July 24th 1922, London School of Economics and Political Science Archives, London and Cambridge Economic Service, Box 2, Minute Book, p. 3; cf. also *A. L. Bowley*, London & Cambridge Economic Service. Minutes of the Eleventh Meeting of the Executive Committee, February 12th 1925, London School of Economics and Political Science Archives, London and Cambridge Economic Service, Box 2, Minute Book, p. 2; on the payments to the French Service, see *C. J. Bullock*, Memorandum for Executive Committee, Max 1931, Harvard Business School Archives, Baker Library, Wallace Brett Donham Papers, Box 37, Folder 1, p. 2.

⁷⁵ Cf. *C. J. Bullock*, Letter to Sir William Beveridge, May 18th 1926, London School of Economics and Political Science Archives, William Henry Beveridge Papers, 2B/25/5, pp. 1–2.

⁷⁶ *Bullock*, Report of the Work of the Committee on Economic Research for the Year 1921-1922, p. 4.

⁷⁷ *International Labour Office*, Economic Barometers. Report Submitted to the Economic Committee of the League of Nations (Studies N, Statistics), Geneva 1924, p. 5.

⁷⁸ *Ibid.*, p. 8.

⁷⁹ *Ibid.*

⁸⁰ *Ibid.*, pp. 8–11.

économique de Londres et de Cambridge,”⁸¹ may be based.⁸² While the government representatives of the Latin American countries merely acknowledged the reception of the letter, government officials of most European countries as well as of Australia and New Zealand forwarded the letter to economists and statisticians, who wrote lengthy reports on the topic. While most of them rejected a complete adaptation of the Harvard method, alluding to the different economic conditions prevailing in their country,⁸³ many embraced the idea of a statistical investigation of the relations between the various branches of economic life.⁸⁴ Some economists even copied the methods of the Harvard Committee one-to-one for their respective countries.⁸⁵

In December 1926, a conference in Paris, organized by the League of Nations, brought together Belgian, British, Czechoslovak, Dutch, French, German, Italian, and Swiss economists to discuss the scientific and technical aspects of economic barometers. Again, the discussion centred on the different conditions prevailing in the various countries. While some of the economists believed that business cycles moved differently in the various countries, and that any attempt to establish an economic barometer in their country had to take into view “the complexity of its economic life,”⁸⁶ others hinted at the fact that not enough statistics were available yet in their country.⁸⁷ However, most of the men agreed that it was “practicable and useful to construct economic barometers.”⁸⁸ After all, this might help businessmen plan for the future and assist governments and the various international organizations responsible for social

⁸¹ *E. Drummond*, Letter to the Secretary of the Netherlands, June 17th 1925, League of Nations Archives, Registry 407, Document N° 44712, Dossier N° 30796.

⁸² *Economic Committee of the League of Nations*, Report to the Council on the Eighteenth Session of the Committee, March 6th 1926, League of Nations Archives, Registry 407, Document N° 50174, Dossier N° 30796, pp. 2–3; *E. Drummond*, Draft for a Letter (in French and English), April 21st 1926, League of Nations Archives, Registry 407, Document N° 50174, Dossier N° 30796.

⁸³ Cf. for example *R. Olbrechts*, Economic Barometers. Note on the Establishment of Monthly Indices of Business Activity in Belgium, November 25th 1926, League of Nations Archives, Registry 407, Document N° 44711, Dossier N° 30796; *H. W. Methorst*, Committee of Experts for Economic Barometers. Enquiry into the Present Trend of Business Conditions in the Netherlands, August 31st 1926, League of Nations Archives, Registry 407, Document N° 44712, Dossier N° 30796; *A. W. Flux*, Notes on Economic Barometers, November 22nd 1926, League of Nations Archives, Registry 408, Document N° 55655, Dossier N° 30796; *E. Wagemann*, Zum Problem der Bewegungsformen der Wirtschaft (Strukturveränderung und Konjunktur; Dominanten und sekundäre Reihen), November 26th 1926, League of Nations Archives, Registry 408, Document N° 55837, Dossier N° 30796.

⁸⁴ Cf. for example *Methorst*, Committee of Experts for Economic Barometers. Enquiry into the Present Trend of Business Conditions in the Netherlands, p. 2.

⁸⁵ Cf., for example, *L. V. Furlan*, Note on an Economic Barometer for Switzerland, October 26th 1926, League of Nations Archives, Registry 408, Document N° 53516, Dossier N° 30796.

⁸⁶ Cf. the statement of de Bosch Kemper, Committee of Experts on Economic Barometers. Provisional Minutes of the First Meeting Held at 10.30 a.m. on December 13th, 1926, December 13th 1926, League of Nations Archives, Registry 451, Document N° 56940, Dossier N° 51866, p. 7.

⁸⁷ Cf. the statements of M. J. de Bosch Kemper and Antonin Basch, *ibid.*, p. 8.

⁸⁸ See the statement by C. Gini, *ibid.*, p. 10.

policy.⁸⁹ By the end of the three-day conference, the attendees agreed that the Harvard index should be established internationally and eventually be used as a “world barometer.”⁹⁰

By the late 1920s, economists all over Europe experimented with the Harvard method, trying to establish their own economic barometers along the lines of the Harvard Committee. Institutes of business cycle research were established in Germany, France, Italy, the Soviet Union, and Austria. Some of them were explicitly modelled upon the Harvard Committee on Economic Research, mentioning the Harvard group in their founding documents.⁹¹ In Belgium, Czechoslovakia, Switzerland, and the Netherlands, economists set themselves the same task. Many of the European economists worked in close cooperation with the Harvard Committee. Some of them travelled to Cambridge, and most of them exchanged data, letters, and cables with the Harvard group on a regular basis.

American businessmen embraced the Harvard index with similar enthusiasm. Thinking back to the period around 1920, Alfred Sloan, President of the General Motors Corporation, described in 1927 a carefree feeling. “We were sailing along at full speed, the sun was shining, and so far as could be seen there was no cloud in the sky that would indicate an approaching storm.” However, in September of that year, “almost over night, values commenced to fall (...) and, before it was realized what was happening, this great ship of ours was in the midst of a terrific storm.” The recession of 1920/21, Sloan remembered, had made him realize that “[w]e should not be satisfied to go along, unconcernedly, when times were good, with no thought of the future.” Instead, “scientific means of administration and control” were needed, “whereby we should be able to project ourselves as much as possible into the future.”⁹²

To many American businessmen who found themselves in the same position, the Harvard index seemed to offer just what they were looking for.⁹³ The rigorous method, cancelling the biases of the knower, promised trustworthy knowledge about the future that was urgently needed. As the Assistant General Manager and Treasurer of the Packard Motor Car Company explained, the index appealed to him especially “because it was conceived on logical

⁸⁹ See *ibid.*, p. 9; Committee of Experts on Economic Barometers. Provisional Minutes of the Third Meeting, Held at 10 a.m. on December 14th, 1926, December 14th 1926, League of Nations Archives, Registry 451, Document N° 56940, Dossier N° 51866, p. 9.

⁹⁰ Committee of Experts on Economic Barometers. Provisional Minutes of the Fifth Meeting, Held at 3.15 p.m. on December 15th, 1926, December 15th 1926, League of Nations Archives, Registry 451, Document N° 56940, Dossier N° 51866, p. 5.

⁹¹ Apart from the British group, see, for example, Österreichisches Institut für Konjunkturforschung. Aufgaben und Organisation des Instituts, 1927, Duke University Archives, Oskar Morgenstern Papers, Box 2, Correspondence 1925-1936: H-K, p. 2.

⁹² *A. P. Sloan*, The Principles and Policies behind General Motors. An Address Delivered before Automobile Editors of American Newspapers at General Motors Proving Ground, Milford, Michigan, September 28th 1927, Kettering University Archives, Daniel C. Wilkerson Collection, 83-12.16, p. 3.

⁹³ Cf. *J. H. Richardson*, Business Forecasting in the United States: Recent Developments by Individual Companies, in: *International Labour Review* 19, 1929, pp. 175–192, here p. 176.

lines, comprised all the factors essential for accurate analysis; and, besides being sufficiently disinterested in motive to make unbiased conclusions possible.” Similarly, the Treasurer of the E. I. Du Pont De Nemours & Company praised the “complete exposition of methods employed,” and emphasized the “unusually trustworthy means of appraising business conditions.” An employee of the American International Corporation called the work of the Harvard Committee simply the “most scientific attempt to forecast business conditions.”⁹⁴

As the fame of the Harvard Committee grew both internationally and domestically, numerous companies adopted the Harvard approach to calculate their own indices and compare these indices to the Harvard “B” curve, designed to measure general business activity.⁹⁵ The Eastman Kodak Company, for example, computed their sales as a percentage above or below normal, “using the same method used by the Harvard Committee,” and compared the curve to various indices, among them the Employment Index and the Harvard “B” curve to find what they called “a well-defined lag.” By this means, they believed to have obtained “definite barometers for the sales of the principal products.”⁹⁶ The statisticians at the American Telephone and Telegraph Company, the General Motors Corporation, and the S. W. Straus Company proceeded similarly.⁹⁷ Malcolm Rorty, chief statistician at AT&T, found this method so useful that he recommended it to others, noting that “[i]n the vast majority of businesses very useful forecasts of future activity may be made by the simple and statistically crude method of plotting a curve of past performance for as many years as possible, in comparison with a curve representing general business activity, and then carrying both curves forward, almost by free-hand drafting, keeping in mind the probable development of the current business cycle and the relations between the two curves that have obtained in previous cycles.”⁹⁸ The results were said to have “a fundamental bearing” on the operating budget of the respective company and to be of “primary

⁹⁴ Opinions of Representative Subscribers, 1920, Harvard University Archives, Records of President Abbott Lawrence Lowell, UAI.5.160, Box 156, Folder 310.

⁹⁵ *Richardson*, *Business Forecasting in the United States: Recent Developments by Individual Companies*, pp. 179–80.

⁹⁶ *M. B. Folsom*, *The Organization of a Statistical Department*, in: *Harvard Business Review* 2/2, 1924, pp. 178–93, here pp. 186–87.

⁹⁷ On AT&T, see *Richardson*, *Business Forecasting in the United States: Recent Developments by Individual Companies*, pp. 184–87; *M. C. Rorty*, *The Statistical Control of Business Activities*, in: *Harvard Business Review* 1/2, 1923, pp. 154–66; *What Is Normal Business? An Interview on the Subject of Business Cycles with Col. M. C. Rorty*, in: *Industry Illustrated* 2/1, January 1922, p. 15; 63–64; on General Motors, see *R. B. Prescott*, *Forecasting Automobile Production*, in: *W. M. Persons/W. T. Foster/A. J. Hettinger* (Eds.): *The Problem of Business Forecasting. Papers Presented at the Eighty-Fifth Annual Meeting of the American Statistical Association, Washington, D.C., December 27–29, 1923, Boston and New York 1924*, pp. 100–108; on the S. W. Straus and Company, see *W. C. Clark*, *Forecasting Building Construction*, in: *W. M. Persons/W. T. Foster/A. J. Hettinger* (Eds.): *The Problem of Business Forecasting. Papers Presented at the Eighty-Fifth Annual Meeting of the American Statistical Association, Washington, D.C., December 27–29, 1923, Boston and New York 1924*, pp. 109–33.

⁹⁸ *Rorty*, *The Statistical Control of Business Activities*, p. 158; *What Is Normal Business? An Interview on the Subject of Business Cycles with Col. M. C. Rorty*, p. 64.

importance” in connection with the determination of financial, purchasing, production, and sales policies, and in the handling of labour and personnel matters.⁹⁹

From 1923 onwards, these attempts were encouraged by the highest authorities. In a 1923 study on *Business Cycles and Unemployment* commissioned by Herbert Hoover, researchers of the National Bureau of Economic Research advised businessmen to compute their own forecasts, for “the manner, degrees, and intensity, with which changes in general business conditions affect different industries in the same cycle and the same industry in different cycles are by no means uniform.”¹⁰⁰ As the report promised, “the provision of the future on the part of a large element of the business community will lessen the extremes of prosperity and depression.”¹⁰¹ Hoover, keen to silence the voices calling for legislative action to tame industrial capitalism, never grew tired of repeating this.¹⁰² Indeed, as Hoover saw it, economic services, by providing business men with the necessary information, had already helped in stabilizing business.¹⁰³ However, “[i]f business is to function at the minimum risk, is to function with precision and success, *every* [emphasis added] business man must have at his elbow the fundamental facts of commerce accurately determined.”¹⁰⁴ From this perspective, the collection of business statistics and the computation of economic forecasts by individual companies helped preserve what Herbert Hoover called “American Individualism.”

The endeavours to compile company-specific forecasts led to the publication of several manuals on business forecasting. In most of them, the methods of the Harvard Committee featured prominently.¹⁰⁵ The authors described the Harvard approach as “not only the best-

⁹⁹ *Rorty*, *The Statistical Control of Business Activities*, p. 157; *Folsom*, *The Organization of a Statistical Department*, p. 186; 193; recently, Thomas Stapleford took up the argument, describing the expansion of statistical data and analysis in the 1920s as “closely linked to the structural changes in American manufacturing and retailing documented by Alfred Chandler,” see *T. A. Stapleford, Business and the Making of American Econometrics, 1910–1940*, in: *History of Political Economy* 49/2, June 2017, pp. 233–265, here p. 238.

¹⁰⁰ *F. R. Macaulay, Individual Industries and Enterprises in the Business Cycle*, in: *Committee of the President’s Conference on Unemployment, and a Special Staff of the National Bureau. Business Cycles and Unemployment. Report and Recommendations*, New York, NY 1923, pp. 19–31, here p. 19.

¹⁰¹ *O. W. Knauth, Statistical Indexes of Business Conditions and Their Uses*, in: *Committee of the President’s Conference on Unemployment, and a Special Staff of the National Bureau. Business Cycles and Unemployment. Report and Recommendations*, New York, NY 1923, pp. 363–379, here p. 377.

¹⁰² “We are constantly reminded by some of the economists and business men that the fluctuation of the business cycle is inevitable; that there is an ebb and flow in the demand for commodities and services that cannot from the nature of things be regulated. I have great doubts whether there is a real foundation for this view,” claimed Herbert Hoover in 1923, alluding to the fact that “many of our industries are themselves finding methods for insuring more continuous operation of their plants during these ebbs and flows of demand,” *H. Hoover, Introduction*, in: *L. D. Edie: The Stabilization of Business*, New York, NY 1923, pp. v–viii, here p. v.

¹⁰³ *H. Hoover, Address at New York Commercial’s One Hundred and Twenty-Fifth Anniversary Banquet at the Hotel Commodore, N.Y.C., May 23rd 1921*, Herbert Hoover Presidential Library, Herbert Hoover Secretary of Commerce Files, “Articles, Addresses, Public Statements,” p. 6.

¹⁰⁴ *Ibid.*, p. 3.

¹⁰⁵ Cf., for example, *W. Wallace, Business Forecasting and Its Practical Application*, London 1927, pp. 21–24; *C. O. Hardy/G. V. Cox, Forecasting Business Conditions*, New York, NY 1927, pp. 71–95; *J. H. Richardson, Business*

known, but (...) also the one backed by the greatest weight of economic and statistical authority,” and stressed the fact that the Harvard Committee was revealing “all the machinery” to its subscribers, “thus making it possible for anyone to reproduce its results exactly by working according to the directions laid down.”¹⁰⁶ In only a few years, the Harvard index had crossed national and disciplinary borders. Its sturdiness and flexibility had allowed the index to travel well.¹⁰⁷ The shared goal of supporting global capitalism had made economists, politicians, businessmen, and experts from the League’s Economic and Financial Section embrace the traveller with open arms.

3 The Harvard Network: A Change in Methods

While the popularity of the Harvard index increased, the index started to show unsettling signs of failing. In their first *Weekly Letter*, issued on January 3, 1922, the Harvard Economic Service had alluded to the upward move of curve A, representing speculation, which, according to the Service, forecast a “significant rise of curve B, reflecting increased commodity prices and business activity, in the spring of 1922.”¹⁰⁸ The recovery, the members of the Service promised, was just around the corner.

Yet, in the weeks that followed, curve B moved further downwards.¹⁰⁹ In what may have been a reaction to data that did not behave according to protocol, the members of the Service fell back on judgment and interpretation. “A forecast of business conditions in 1922-23 requires us (a) to weigh the principal factors, favourable and unfavourable, which will control the course of business this year and next, and (b) to determine how they will affect the new business cycle which is now developing,” noted the Service on January 21.¹¹⁰ The quasi-mechanical procedure was complemented by activities of selecting, comparing, and judging. In a lengthy “appraisal of the business situation,” Persons and his colleagues commented on the agricultural situation, the manufacturing situation, on money and credit as well as on “the European situation” to ultimately modify their forecast of January 3: “What has been said (...) should not be interpreted

Forecasting, London 1931, pp. 26–37; *D. F. Jordan*, *Practical Business Forecasting*, New York, NY 1927, pp. 261–267.

¹⁰⁶ *Wallace*, *Business Forecasting and Its Practical Application*, p. 24; *Hardy/Cox*, *Forecasting Business Conditions*, p. 72.

¹⁰⁷ Combining and modifying Latour’s and Fleck’s positions on the traveling possibilities of knowledge, Mary Morgan understands facts that travel well as having “sufficient autonomy and separability to be quite mobile without losing their integrity of meaning compared to Fleck’s community and multi-connected facts,” but as “rarely carry[ing] the hard immutability of Latour’s marks when they travel,” *M. S. Morgan*, *Traveling Facts*, in: *M. S. Morgan/P. Howlett* (Eds.): *How Well Do Facts Travel? The Dissemination of Reliable Knowledge*, Cambridge 2011, pp. 3–39, here p. 15.

¹⁰⁸ *Harvard Economic Service*, *General Business Conditions*, in: *Weekly Letter* 1/1, January 3rd 1922, pp. 1–4, here p. 1.

¹⁰⁹ *Harvard Economic Service*, *General Business Conditions*, in: *Weekly Letter* 1/8, February 18th 1922, pp. 45–47, here p. 45.

¹¹⁰ *Harvard Economic Service*, *The Business Prospect*, in: *Weekly Letter* 1/4, January 21st 1922, pp. 17–24, here p. 17.

as meaning that a business boom is in prospect, because the numerous adverse factors in the situation make such a development highly improbable.” The readers learned that the various “situations” described might be “obstacles which tend to retard business activity.”¹¹¹ However, there was “evidence, also, that the general movement of business and wholesale prices will be upward.”¹¹² In short, the economists did not know what way things were moving. And it seemed that their index did not either.

The weeks to come saw a coexistence of both mechanical and interpretive practices. On the one hand, the researchers stuck to a mechanical reading of the index, repeatedly drawing historical analogies that seemed to justify their optimistic January forecast. As they put it in spring 1922, the movements of money rates (curve C) and speculation (curve A), in the period from 1903 to 1914, “always forecast business improvement.”¹¹³ “We expect, therefore, the movement of curve B of our index chart representing business to maintain the same relationship to the combined movements of speculation and money rates which it did during pre-war years.”¹¹⁴ On the other hand, references to conditions that their figures did *not* tell about, such as strikes, floods, “the inclement weather,” and the economic conditions in Europe, multiplied.¹¹⁵ Increasingly, these references entered their forecasts. In April 1922, the members of the Service let their readers know that their optimistic expectation was not based on the notion “that business must improve because it has been bad.” Instead, it was based on a comprehensive “analysis of the fundamental economic situation.”¹¹⁶ Six months later, Persons and his colleagues noted that “[t]he upward movement of business activity continues to be registered by evidence other than that purely statistical” and hinted at various “news items” that confirmed their forecast.¹¹⁷

Of course, the members of the Harvard Economic Service did not merely read the news. They didn’t have to. The seemingly mechanical working of their index and the comprehensible presentation of their results had encouraged people all over the globe to engage with their

¹¹¹ *Ibid.*, p. 24.

¹¹² *Ibid.*

¹¹³ *Harvard Economic Service*, General Business Conditions, p. 45.

¹¹⁴ *Harvard Economic Service*, General Business Conditions, in: Weekly Letter 1/10, March 4th 1922, pp. 57–60, here p. 57; similar: *Harvard Economic Service*, General Business Conditions, in: Weekly Letter 1/18, April 29th 1922, pp. 101–104, here p. 102.

¹¹⁵ Cf. for example *Harvard Economic Service*, General Business Conditions, in: Weekly Letter 1/12, March 18th 1922, pp. 69–72, here p. 72; *Harvard Economic Service*, The European Economic Situation, in: Weekly Letter 1/15, April 8th 1922, pp. 85–92; *Harvard Economic Service*, General Business Conditions, p. 104; *Harvard Economic Service*, General Business Conditions, in: Weekly Letter 1/21, May 20th 1922, pp. 121–124, here p. 122; *Harvard Economic Service*, The Volume of Manufacture, in: Weekly Letter 1/22, May 27th 1922, pp. 125–128, here p. 125; *Harvard Economic Service*, General Business Conditions, in: Weekly Letter 1/25, June 17th 1922, pp. 141–144, here pp. 142–144.

¹¹⁶ *Harvard Economic Service*, General Business Conditions, in: Weekly Letter 1/16, April 15th 1922, pp. 93–96, here p. 96.

¹¹⁷ *Harvard Economic Service*, General Business Conditions, in: Weekly Letter 1/42, October 14th 1922, pp. 253–256, here p. 254.

publications and to adopt their methods. By 1922, businessmen across the country were seeking their advice and sending in their data. Economists from all over Europe came to Cambridge to learn about their methods. Subscribers called so frequently that the Committee eventually decided to create a Service Department to take their calls and to compare the statistics and charts they sent with their own index.¹¹⁸ As Bullock rejoiced, “we shall (...) pretty nearly have control of the water-fronts and terminals, so to speak.”¹¹⁹

From autumn 1922 onwards, the members of the Committee actively fostered and expanded these networks. As the Harvard index began to fail, Charles Bullock started an extensive correspondence with bankers and businessmen across the United States. People like Benjamin Strong, first President of the Federal Reserve Bank of New York, regularly sent Bullock “confidential” information, which Bullock shared with Warren Persons and other members of the Harvard Economic Service.¹²⁰ “I think that probably I am in substantial, and perhaps complete, agreement with you with reference to the degree of power which Federal Reserve authorities have over price movements,” wrote Bullock in March 1924.¹²¹ If not economic laws, but rather humans ruled the patterns of the curves, then the members of the Service had to learn about their behaviour just as they had tried to learn and predict the behaviour of statistical series. Ironically, the mechanical method promoted by the Harvard Committee had laid the foundation for this change in methods.

Soon, the office of the Service became a veritable centre for exchange. The members of the Service recorded subscribers’ reactions and emotions and reported them to people like Benjamin Strong, who assured Bullock repeatedly that information like this was “of value to us.”¹²² Similarly, Bullock transmitted the “confidential knowledge” that he received from Strong and others to European correspondents. For instance, he informed Keynes what was “felt”

¹¹⁸ *C. J. Bullock*, Report of the Work of the Harvard University Committee on Economic Research for the Year 1923-1924, June 2nd 1924, Harvard University Archives, Records of President Abbott Lawrence Lowell, UAI.5.160, Box 190, Folder 211, pp. 9–10.

¹¹⁹ *C. J. Bullock*, Letter to President A. Lawrence Lowell, October 20th 1925, Harvard University Archives, Records of President Abbott Lawrence Lowell, UAI.5.160, Box 225, Folder 147.

¹²⁰ *C. J. Bullock*, Letter to Governor Benjamin Strong, November 29th 1922, Harvard University Archives, Charles J. Bullock Papers, HUG 4245, Box 6, Correspondence L-Z, p. 2; Bullock mentions that he asked permission to show a letter by Strong to Persons and Young, see *C. J. Bullock*, Letter to Benjamin Strong, September 24th 1923, Harvard University Archives, Charles J. Bullock Papers, HUG 4245, Box 6, Correspondence L-Z, p. 1; in June 1924, Bullock wrote to Strong, “Your letter of May 16 was very carefully read and studied by Allyn Young and myself;” *C. J. Bullock*, Letter to Governor Benjamin Strong, June 2nd 1924, Harvard University Archives, Charles J. Bullock Papers, HUG 4245, Box 6, Correspondence L-Z.

¹²¹ *C. J. Bullock*, Letter to Governor Benjamin Strong, March 26th 1924, Harvard University Archives, Charles J. Bullock Papers, HUG 4245, Box 6, Correspondence L-Z, p. 1.

¹²² *B. Strong*, Letter to Charles Bullock, December 24th 1923, Harvard University Archives, Charles J. Bullock Papers, HUG 4245, Box 6, Correspondence L-Z.

“among leading men in the Federal Reserve System,”¹²³ assuring him that “[t]his isn’t gossip; this is actual first-hand knowledge.”¹²⁴ (“The Federal Reserve Board and some of the other Federal Reserve authorities have mouths that are sealed as hermetically as a sieve.”¹²⁵) Of course, Bullock did not forget to ask Keynes about “any information or expressions of personal opinion that you may have about conditions in your country.”¹²⁶ At the annual Harvard Economic Conferences, statisticians of various companies and agents of several Federal Reserve Banks met with members of the Harvard Committee to exchange their outlooks for the next year.¹²⁷ For a few years, the Harvard Committee acted as a mediating office, creating a channel to share expectations between economic and political decision-makers all over the globe.

The use of this information in their *Weekly Letters* was, however, not without risk. First, it endangered the friendship that the members of the Committee had established with these men (for they were all men) and thus the very network itself. In the winter of 1923/24, Benjamin Strong was heavily disappointed because he felt that Bullock had passed on confidential information without his consent. Bullock denied the accusation, but confessed that “of course I cannot profess to be ignorant of things that come from outside sources.”¹²⁸ Second, the disclosure of confidential information was jeopardizing the reputation of the Harvard Committee. As Bullock explained in a letter to Strong in December 1923, “it is impossible for us to be ignorant, although of course we never refer to confidential sources, and do not profess to have inside information. (...) It is my belief that it would be a bad thing for our publications to have the idea get abroad that we are operating on inside information.”¹²⁹ The members of the Harvard Committee had always been eager to convey the impression of transparency, verifiability, and reproducibility. Their statistical methods, which purported objectivity and standardization, had fostered confidence where personal knowledge was lacking.¹³⁰ This had been the key to their success and to the rapid dissemination of their method. The use of inside knowledge, by contrast, smelled of arbitrariness, subjectivity, and discretion. Thus, it had to stay secret.¹³¹ This was not only a question of method, but indeed of morality.

¹²³ C. J. Bullock, Letter to John M. Keynes, March 5th 1923, Harvard University Archives, Charles J. Bullock Papers, HUG 4245, Box 5, Correspondence A-K, p. 4.

¹²⁴ Ibid., p. 2.

¹²⁵ Ibid., p. 3.

¹²⁶ Ibid., p. 5.

¹²⁷ Cf. G. King, Summary of Papers Read at Harvard Economic Conference, 13 and 14 November, 1925, November 1925, Harvard Business School Archives, Baker Library, Wallace Brett Donham Papers, Box 36, Folder 25.

¹²⁸ C. J. Bullock, Letter to Governor Benjamin Strong, December 27th 1923, Harvard University Archives, Charles J. Bullock Papers, HUG 4245, Box 6, Correspondence L-Z, p. 1.

¹²⁹ Ibid., pp. 1–2.

¹³⁰ Porter, Trust in Numbers, p. 200.

¹³¹ The members of the Harvard Committee assured their readers repeatedly that their results were “premised only upon such facts as are familiar to competent observers” and not based on any “inside knowledge,” cf., for example, *Harvard Economic Service*, The Volume of Manufacture, p. 140.

Yet, contemporaries quickly noted the change in methods. In September 1923, one reader, alluding to a 1923 leaflet, suspected the Committee to “have swallowed Hoover’s propagandist theory and figures hook, line and sinker.”¹³² Others questioned the scientific character of the Committee’s work. “Of course, just so far as the Harvard Group is relying on general information or broad observations or tips or ‘hunches’ they are precisely in the same position as many another group which makes no pretensions to scientific method,” wrote Wesley Mitchell in a letter to Henry Dennison, a famous businessman, in February 1924, and demanded that “all future forecasts make clear, definite and unmistakable precisely what forecast, if any, the statistical series as analysed by Persons justify.” Echoing the moral tone that Persons had taken in earlier articles, Mitchell noted, “If you can bring a conviction of sin home to these people so much the better.”¹³³ The members of the London and Cambridge Economic Service, somewhat more pragmatic, asked the Harvard Economic Service simply “to reduce the number of words in their usual monthly cable and furnish instead certain additional statistics.”¹³⁴

The Harvard group, however, continued its course. Having lost trust in their index, they based their forecasts on inside knowledge, not statistics.¹³⁵ Discussions of current and anticipated Federal Reserve policies assumed an increasingly prominent place in the Service’s forecasts. In August 1929, for example, the Harvard group noted that the steel industry experienced a gradual contraction, that the number of construction projects was decreasing, and that crop prospects had declined. Alluding to the Federal Reserve’s present policy of increasing acceptance holdings, the Service’s *Weekly Letter* nevertheless stated that “sentiment remains confident.”¹³⁶ On October 5th 1929, the Harvard group issued a somewhat less optimistic forecast, noting that “the stock market recession is likely to affect business sentiment adversely.” However, Charles Bullock and his colleagues had “little doubt that the reserve system would act to expand credit and ease money if recession should threaten serious consequences for business.”¹³⁷ Indeed, even after the

¹³² *Anonymous*, Letter to Thomas W. Lamont, September 14th 1923, Harvard University Archives, Charles J. Bullock Papers, HUG 4245, Box 6, Correspondence L-Z, p. 1.

¹³³ *W. C. Mitchell*, Letter to Henry S. Dennison, February 5th 1924, University Archives, Rare Book & Manuscript Library, Columbia University in the City of New York, Wesley C. Mitchell Papers, Box 8.

¹³⁴ *A. L. Bonley*, Minutes of the Meeting of the Editorial Committee of the London and Cambridge Economic Service, London School of Economics and Political Science Archives, London and Cambridge Economic Service, Box 2, Minute Book, p. 2.

¹³⁵ Cf. Bullock’s own description of their forecasting practice, *C. J. Bullock*, Our Forecast for 1929. Statement for the Executive Committee, January 19th 1931, Harvard Business School Archives, Baker Library, Wallace Brett Donham Papers, Box 37, Folder 1, p. 2.

¹³⁶ *Harvard Economic Service*, The Financial and Business Situation. Bank Credit Expansion and Reserve Policy, in: *Weekly Letter* 8/35, August 31st 1929, pp. 205–208, here p. 208.

¹³⁷ *Harvard Economic Service*, The Financial and Business Situation, in: *Weekly Letter* 8/40, October 5th 1929, pp. 233–237, here p. 237.

Great Crash three weeks later, with curve A falling abruptly,¹³⁸ the Harvard group remained certain “that serious and prolonged business depression, like that of 1920-21, is out of the question. The soundness of business conditions and the rapid easing in money indicate that even a mild depression is improbable, and that what we face is probably a business recession which will terminate by spring.”¹³⁹ However, as it turned out, the stock market crash was only the beginning of what became the worst economic downturn in the history of the United States. In January 1931, the *Harvard Alumni Bulletin* published a letter by a Boston lawyer and former Harvard student, which criticized the “ill-timed optimism” of the *Weekly Letters* issued by the Harvard group. “As we look back over the *Bulletins* of the Harvard Economic Society, sent out every week by Harvard economists, we realize very forcibly how wrong they have been during the last two years,” read the letter, which was discussed in newspapers all over the country.¹⁴⁰ In what may have been a last attempt to rescue the Society’s good name, Charles Bullock and William Crum in 1932 explained that “a mechanical reading of the chart in June 1929 clearly foretold the coming of a major cyclical decline. (...) If we had read the Index mechanically in the summer of 1928, we should have forecast a serious recession, and possibly a business depression; but it was tolerably clear that the federal reserve authorities would relieve credit conditions as they had done in the previous year; and we therefore continued to count upon business prosperity.”¹⁴¹ From now on, Bullock promised, the Harvard Society would “[m]ake no forecasts except such as result from a mechanical reading of our index.”¹⁴² But promises like this could not stem the decline. With the number of subscribers dwindling, the Harvard Economic Society had to cease operation in 1935.¹⁴³

The Harvard group had fundamentally changed its methods throughout the 1920s. When the index had shown first signs of failing in 1922, the members of the Harvard Committee had

¹³⁸ Cf. *Harvard Economic Service*, Business and Financial Conditions. The Business Outlook, in: Weekly Letter 8/46, November 16th 1929, pp. 273–276, here p. 273.

¹³⁹ *Harvard Economic Service*, Financial and Business Conditions, in: Weekly Letter 8/48, November 30th 1929, pp. 281–284, here p. 281/282.

¹⁴⁰ *W. P. Everts*, The Harvard Economic Society. Letter to the Editor of the Bulletin, in: Harvard Alumni Bulletin, January 8th 1931, p. 463; Harvard Shares in Crash Blame, Says Graduate, in: The Courier-News, January 10th 1931, p. 19; Blames Stock Market Collapse on Harvard, in: The Morning News, January 10th 1931, p. 1; Academic Tipping Service, in: The Baltimore Sun, January 11th 1931; Rap at Economic Society Reports Upsets Harvard, in: Chicago Tribune, January 11th 1931, p. 6.

¹⁴¹ *C. J. Bullock/W. L. Crum*, The Harvard Index of Economic Conditions: Interpretation and Performance, 1919-31, in: The Review of Economic Statistics 14/3, 1932, pp. 132–148, here p. 137; 142.

¹⁴² *C. J. Bullock*, Letter to Charles Francis Adams, September 15th 1931, Harvard Business School Archives, Baker Library, Wallace Brett Donham Papers, Box 37, Folder 1, pp. 1–2.

¹⁴³ In November 1931, the Trustees of the Harvard Economic Society had decided to cease the publication of the *Weekly Letter*, but to continue the publication of the quarterly issued *Review of Economic Statistics* and to supplement it by a monthly supplement containing index charts with interpretations. At the same time, the membership fee was reduced from \$100 to \$10 a year, see *C. J. Bullock*, To Our Members and Subscribers, November 14th 1931, Harvard University Archives, Records of President Abbott Lawrence Lowell, UAI.5.160, Box 292, Folder 265, p. 1; see also *Friedman*, Fortune Tellers, p. 160.

begun to regularly consult with political and economic decision-makers, enabling them “to *participate* in the epistemic process of forecasting.”¹⁴⁴ Increasingly, the Harvard group’s forecasts did not rely on statistics, but rather on “foretalk.”¹⁴⁵ However, the members’ cyclical understanding of time did not change. Bound by the epistemic ethic of mechanical objectivity, which prompted them to search for time-invariant “laws” to minimize the scope for individual judgment, they still extrapolated from experience, as Crum’s and Bullock’s 1932 article shows. Yet, as it turned out, human actions were even less predictable than the behaviour of the curves.

4 Channels between Producer and Consumer: Customer Research and Beyond

Not bound by the same ethic, company representatives were the first to experiment with new means of forecasting. Believing that “a psychological approach to our present day problems would be more fundamental, more revealing, more convincing and more appealing than anything that might be developed through the usual statistical approach,” company representatives, many of them former subscribers to the Harvard Economic Service’s *Weekly Letter*, took up the notion of networks as conduits for transfers of knowledge about the future in the early 1930s, but reshaped their design.¹⁴⁶ While Bullock had been interested in learning about his correspondents’ opinions and motivations in the past and present to estimate their behaviour in the future, the surveys that company representatives conducted throughout the 1930s were intended to continuously inquire about consumers’ expectations and, in the same way, continuously update the company’s production accordingly.

Representatives of the General Motors Sales Section had compiled annual forecasts of automobile demand from the mid-1920s onwards. Believing “in the development of things and events along consistent and orderly lines,” they had analysed past sales data by statistical means to compute what they called a “smooth ‘trend’ line” that would enable them to forecast future sales.¹⁴⁷ As they described their technique, they peered “into the future with the hope of eliminating some of the uncertainties and in the process improving our knowledge of the laws

¹⁴⁴ W. Reichmann, Epistemic Participation: How to Produce Knowledge about the Economic Future, in: *Social Studies of Science* 43/6, December 2013, pp. 852–877, here p. 858.

¹⁴⁵ D. R. Gibson, Speaking of the Future: Contentious Narration During the Cuban Missile Crisis, in: *Qualitative Sociology* 34/4, December 2011, pp. 503–522, here p. 504; D. R. Gibson, Talk at the Brink: Deliberation and Decision during the Cuban Missile Crisis, Princeton, NJ 2012.

¹⁴⁶ H. G. Weaver, Letter to Charles F. Kettering, June 7th 1938, Kettering University Archives, Charles F. Kettering Papers, 87-11.4; important corporate users of market research that had also been part of the “Harvard network” in the 1920s included General Motors, Eastman Kodak Co., Du Pont, American Telephone & Telegraph Company, Swift & Co. On market research in the 1930s, see Thought-Starter, in: *Time*, November 14th 1938, pp. 66–70, here p. 66; L. O. Brown, *Market Research and Analysis*, New York, NY 1937, pp. 206–246; J. M. Converse, *Survey Research in the United States. Roots and Emergence 1890-1960*, Berkeley, CA 1987, pp. 87–127.

¹⁴⁷ *General Motors Sales Section and New York Office Statistical Staff*, The Domestic Automobile Market. Its Past and Future, November 1928, Kettering University Archives, Charles F. Kettering Papers, 87-11.4, p. 13; 1; Richardson, *Business Forecasting in the United States: Recent Developments by Individual Companies*, pp. 187–89.

governing the forces which affect the market for motor cars.”¹⁴⁸ After the onset of the Great Depression, a fundamental change in method took place, in which the “usual statistical approach” was replaced by a “psychological approach.”¹⁴⁹ A new department, the so-called Customer Research Staff, was established in 1933 “to keep the business sensitively attuned to the requirements of the customer.”¹⁵⁰ Through various channels, among them mail questionnaires and personal interviews, the Customer Research Staff asked two to three million Americans each year about their attitudes towards design, speed, safety, and about their buying expectations.¹⁵¹ By 1939, Henry Weaver, the enthusiastic head of the new department, and his 37 colleagues had sent out fifteen million questionnaires and were operating an enormous correspondence with people all over the U.S., making General Motors “the largest-scale question asker not only in the industry, but in the world.”¹⁵² Increasingly, not “laws,” but opinions, emotions, and instincts were understood as governing the market and, indeed, the future. As Weaver, who held a Bachelor of Science in Mechanical Engineering from Georgia Tech and had worked as a sales analyst at General Motors from the early 1920s onwards,¹⁵³ put it in 1939, “2,000,000 opinions make a fact.”¹⁵⁴

The analysis of the responses to the questionnaires, intended to allow the modern company to “lay its plans and make its commitments on a long-range basis” and thereby render mass production and mass distribution more effective,¹⁵⁵ followed no rigid scheme. As Weaver explained, “[f]ailure to achieve mathematical exactness does not necessarily vitiate the value of the results.”¹⁵⁶ Instead, Weaver and his colleagues praised questionnaires and personal interviews as a means to get “an intimate ‘feel’ of public reactions.”¹⁵⁷ In this spirit, Weaver escorted 45 people through the Chicago Automobile Show in 1932. According to Weaver, “[a] good percentage” of them owned cars bought in 1929. When Weaver asked them when they expected to trade, “[a]lmost without exception they answered about as follow: ‘Not until spring – maybe

¹⁴⁸ *General Motors Sales Section and New York Office Statistical Staff*, *The Domestic Automobile Market. Its Past and Future*, p. ii.

¹⁴⁹ *Weaver*, Letter to Charles F. Kettering, June 7th 1938; see also *H. G. Weaver*, Letter with Caricature to Charles F. Kettering, June 1st 1938, Kettering University Archives, Charles F. Kettering Papers, 87-11.4.

¹⁵⁰ *H. G. Weaver*, *The Proving Ground of Public Opinion*, December 1932, Kettering University Archives, Charles F. Kettering Papers, 87-11.7, p. 3b.

¹⁵¹ *H. G. Weaver*, *Proving Ground on Public Opinion*, in: *Journal of Consulting Psychology* 5/4, 1941, pp. 149–153, here p. 150.

¹⁵² *Thought-Starter*, p. 68.

¹⁵³ *General Motors IV: A Unit in Society*, in: *Fortune*, March 1939, p. 44–52; 136; 138; 141–142; 145–146; 148; 150; 152, here p. 138; *Deaths. Weaver*, in: *The Georgia Tech Alumnus* 27/3, February 1949, p. 10.

¹⁵⁴ *Thought-Starter*, p. 68.

¹⁵⁵ *Weaver*, *Proving Ground on Public Opinion*, p. 149; *H. G. Weaver*, *The Use of Statistics in the Study of Consumer Demand*, in: *Journal of the American Statistical Association* 30/189, March 1935, pp. 183–184, here p. 183.

¹⁵⁶ *Weaver*, *The Use of Statistics in the Study of Consumer Demand*, pp. 184–85.

¹⁵⁷ *H. G. Weaver*, Letter to Charles F. Kettering, September 19th 1933, Kettering University Archives, Charles F. Kettering Papers, 87-11.4.

not then – winter still ahead of us – conditions too uncertain – want to keep liquid.’ One man said that it would be foolish to trade until spring. Another said that the new cars were all so attractive that it would take longer to choose than ever before. (...) From all this it seems inevitable that sales will remain subnormal until March or April.”¹⁵⁸ Small data sets, imprecise specifications (“a good percentage,” “almost”), and a lack of standardized answer choices did not allow for reproducibility and verifiability. But Weaver and his colleagues vindicated what the Harvard Committee had dismissed as unscientific. Rejecting the “general tendency to over-stress the mechanics” of the questionnaire,¹⁵⁹ Weaver described the process of developing a questionnaire and analysing the responses as an “art,” that could “never be reduced to a formula.”¹⁶⁰

The change in practice indicated a change in temporality. While the Sales Section of General Motors had stressed the value of past data for the determination of future sales throughout the 1920s, the Customer Research Staff established in 1933 promoted a fundamental openness of the future. Increasingly, mechanical means of forecasting were refuted as insufficient and, indeed, undesirable. As Henry Weaver put it in 1934, “[t]he mood of the buyer today is very different from the mood of the buyer back in 1928 and 1929”¹⁶¹ for “human beings, in contrast to inanimate things, HAVE THE ABILITY TO CHANGE WITHIN THEMSELVES” (Weaver’s emphasis).¹⁶² As Alfred Sloan added two years later, “[h]uman beings (...) not only have the ability to change within themselves, but in actual fact are going through a constant process of change. They are subject to impressions which importantly affect their reactions, depending upon the tempo of the times.”¹⁶³ The Customer Research Staff was determined to take advantage of this. As “forward-looking producers,” they used customer research not only to inquire about “the changing tastes and desires” of consumers, but also as a means of “propaganda – crystallizing consumer desires along definite lines.”¹⁶⁴ As Weaver once put it, “the BUYER’S MIND IS THE RAW MATERIAL (...) OUT OF WHICH WE MANUFACTURE SALES” (Weaver’s emphasis).¹⁶⁵ The surveys, for instance, were designed as “an under-cover

¹⁵⁸ *H. G. Weaver*, Consumer Reactions at 1932 Chicago Show, February 12th 1932, Kettering University Archives, Charles F. Kettering Papers, 87-11.4, p. 5.

¹⁵⁹ *Weaver*, The Use of Statistics in the Study of Consumer Demand, p. 183.

¹⁶⁰ *Ibid.*, p. 183; 184.

¹⁶¹ *H. G. Weaver*, The Consumer as a Laboratory. Address Delivered at Third General Motors Executives Conference at the Greenbrier Hotel, White Sulphur Springs, West Virginia, October 19th 1934, Kettering University Archives, Charles Tutt Papers, 1982.004.049, p. 8.

¹⁶² *Ibid.*, p. 10.

¹⁶³ *A. P. Sloan*, Address before the Poor Richard Club of Philadelphia, January 17th 1936, Kettering University Archives, Daniel C. Wilkerson Collection, 83-12.16, pp. 7–8.

¹⁶⁴ *Weaver*, Consumer Research and Consumer Education, p. 97; General Motors. Customer Likes & Dislikes. Confidential, September 13th 1933, Kettering University Archives, Charles F. Kettering Papers, 87-11.4, p. 1.

¹⁶⁵ “[T]he BUYER’S MIND IS THE RAW MATERIAL OUT OF WHICH SALES ARE PRODUCED. (...) Consumer Research (...) is beginning to disclose some of the fundamental characteristics and the temperamental

activity reaching the owner in the quiet of his home and enticing him to spend from 30 minutes to a full evening thinking about automobiles in general and General Motors products in particular – incidentally emphasizing the obsolescence of his present car.”¹⁶⁶ Customer research, then, was not only a means to forecast business conditions, but to actively shape them. In 1933, Weaver predicted that General Motors would realize “an even greater and more secure prosperity” by “recognizing the ultimate consumer as the hub about which all our activities revolve.”¹⁶⁷ In a 1936 campaign, cast and placed before the election, General Motors tried to persuade Americans that not governmental actions of “restriction and regimentation,” but instead corporations like General Motors, by sending out letters and responding to people’s wants and needs, were serving progress.¹⁶⁸

Weaver repeatedly emphasized the “scientific” character of General Motors’ customer research.¹⁶⁹ Indeed, the Customer Research Staff’s methods were even more “scientific” than the old-fashioned statistics with their “mechanistic concept of man and society” for they were dealing with “facts” in a “realistic way.”¹⁷⁰ To that effect, Weaver and his colleagues did not “rely wholly on past experience as recorded in the handbooks,” but were “continually checking up through laboratory tests and tool room experiments” upon “the characteristics and ‘temperaments’ of the materials,” in their case “the buyer’s mind.”¹⁷¹ In 1936, this re-evaluation of what it meant to conduct “scientific” economic research was backed by the publication of Keynes’ *General Theory*, in which Keynes described humans’ actions “not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities,” but as a “result of animal spirits.”¹⁷² From this perspective, “economic prosperity is excessively dependent on a political and social atmosphere which is congenial to the average business man.”¹⁷³ However, almost another fifteen years passed until academia adopted the survey technique as a systematic

qualities of THE RAW MATERIAL OUT OF WHICH WE MANUFACTURE SALES,” *Weaver*, The Consumer as a Laboratory. Address Delivered at Third General Motors Executives Conference at the Greenbrier Hotel, White Sulphur Springs, West Virginia, pp. 3–4.

¹⁶⁶ H. G. *Weaver*, Letter to Charles F. Kettering, April 25th 1938, Kettering University Archives, Charles F. Kettering Papers, 87-11.4.

¹⁶⁷ Henry Weaver, quoted in R. *Marchand*, Customer Research as Public Relations. General Motors in the 1930s, in: *S. Strasser/C. McGovern/M. Judt*: Getting and Spending. European and American Consumer Societies in the Twentieth Century, Cambridge 1998, pp. 85–109, here p. 92.

¹⁶⁸ Cf. *ibid.*, pp. 99–101.

¹⁶⁹ Cf., for example, *Weaver*, The Consumer as a Laboratory. Address Delivered at Third General Motors Executives Conference at the Greenbrier Hotel, White Sulphur Springs, West Virginia, p. 2; *Weaver*, The Proving Ground of Public Opinion.

¹⁷⁰ Cf. H. G. *Weaver*, Excerpts from “Man in Chains” by Henry C. Link, May 7th 1938, Kettering University Archives, Charles F. Kettering Papers, 87-11.4; *Weaver*, Letter to Charles F. Kettering, June 7th 1938; cf. also *Sloan*, Address before the Poor Richard Club of Philadelphia, p. 9.

¹⁷¹ *Weaver*, The Consumer as a Laboratory. Address Delivered at Third General Motors Executives Conference at the Greenbrier Hotel, White Sulphur Springs, West Virginia, p. 2.

¹⁷² J. M. *Keynes*, The General Theory of Employment, Interest and Money, Vol. 7 (The collected writings of John Maynard Keynes), Cambridge 2013 (1936), p. 161.

¹⁷³ *Ibid.*, p. 162.

means of business forecasting. In 1950, the Munich-based Institute for Economic Research conducted the first survey among 5,000 company executives to inquire about their expectations. Throughout the 1950s, the graphical visualization of the results was, again, being referred to as a “barometer.”¹⁷⁴ While methods, temporality, and epistemic ethic had changed, the term remained the same.

Conclusion

This article has (1) explored the creation of the Harvard Index of General Business Conditions in 1919 and (2) its international and domestic dissemination in the early 1920s, (3) shed light on its extension by an information-exchange-based method in the 1920s, and (4) investigated how these methods informed the survey-based forecasting approach applied by American companies in the 1930s. These processes, which occurred gradually and unevenly, implied a change in methods and in temporality.

An unexpected behaviour of the economic data under study prompted a change in methods as early as 1922. Increasingly, the members of the Harvard Committee resorted to personal contact with economic and political decision-makers to check their index by “inside information.” The years to come saw the creation of channels across country and community borders, allowing for an ever-closer exchange and cooperation between American and European economists and political and economic decision-makers.¹⁷⁵ Yet, bound by the epistemic ethic of mechanical objectivity, the members of the Harvard Committee continued to forecast future outcomes by generalizing past experiences. They maintained their index and looked for time-invariant patterns in the behaviour of their correspondents. At the same time, more and more businessmen, economists, and politicians came to believe that the rise of business forecasting had already had a stabilizing effect on the business cycle.¹⁷⁶ Paradoxically, they started to perceive the future as manipulable, but continued to use the index which was based on a cyclical understanding of time.

¹⁷⁴ E. Wenk, Zur Frage des Konjunkturtest-Verfahrens. Referat in der 183. Sitzung der Kommission für Konjunkturbeobachtung, April 29th 1952, Bundesarchiv Bern, E7181A#1978/72#1, p. 1.

¹⁷⁵ Cf., for example, a 1934 letter by Ernst Wagemann, in which he informed Bullock about the publication of an English translation of the Weekly Reports of the Berlin-based Institute, telling him that “the publication was suggested by American creditors, who have an interest in giving Americans a better understanding of the German situation (own translation),” see E. Wagemann, Letter to Charles Bullock, March 3rd 1934, Harvard University Archives, Charles J. Bullock Papers, HUG 4245, Box 6, Correspondence L-Z, p. 1.

¹⁷⁶ “There is a belief, rather widely held (...) that the situation prevailing during the years immediately past represents a permanent change in the methods of carrying on business,” see A. J. Hettinger, Cycles Yield to Prosperity. New Methods of Business Forecasting Shown as Stabilizing Influence, in: Detroit Free Press, April 18th 1927, p. 15; cf. also U. of C. Experts Will Broadcast Business Talks. How to Forecast Conditions to Be Told, in: Chicago Tribune, February 14th 1926, p. 50.

In the early 1930s, at the height of the Great Depression, company representatives who had been part of the Harvard network throughout the 1920s adopted the network approach of the Harvard Committee, but used it to a different end. Not bound by the same epistemic ethic, they moved away from the idea that the past could predict future outcomes and understood the future instead as malleable and manipulable. Futurama, designed at the same time, illustrates this new approach to the future.¹⁷⁷ As Alfred Sloan put it in 1939, the objective of the Futurama exhibit was “to demonstrate in dramatic fashion that the world, far from being finished, is hardly yet begun; that the future is one which will demand (...) our most fruitful imagination.”¹⁷⁸ Futurama, by exciting the fair-goers’ imagination, was fashioned to stimulate consumption and by that means actualize the future it predicted. Similarly, the surveys conducted by the General Motors Customer Research Staff in the 1930s were designed to shape consumers’ expectations and thereby boost consumption, thus contributing to the consolidation of the mass consumer society, which, as others have argued, was a driving force in the globalization of capitalism.¹⁷⁹ By this means, forecasting saw a shift from forecast-as-representation to forecast-as-process and became an interactive tool to make and change the future.¹⁸⁰

As the distance between experience and expectation seemed to grow and the future was increasingly perceived as malleable, the interactional component of the forecasting techniques gained in importance. “[M]ore intimate and more sensitive channels of communication between the producer and the consumer” were established, which, at an ever-accelerating pace, were to record and at the same time shape consumers’ expectations,¹⁸¹ thus transforming the world outside the walls of the customer research department into a laboratory.¹⁸² In times of economic and political uncertainty, the forecasting tools created an infrastructure that allowed for a growing cooperation between far-flung actors and arenas. Rather than being mere instruments of

¹⁷⁷ Rüdiger Graf and Benjamin Herzog have recently distinguished four different approaches to the future in the 20th century: future by expectation, by design, by risk, and by conservation, see *Graf/Herzog*, *Von der Geschichte der Zukunftsvorstellungen zur Geschichte ihrer Generierung. Probleme und Herausforderungen des Zukunftsbezugs im 20. Jahrhundert*. This article traces the shift of a „future by expectation“ to a “future by design.“

¹⁷⁸ *A. P. Sloan*, *A Greeting to Our Guests, Futurama. “Highways and Horizons” Exhibit at the New York World’s Fair, New York, NY 1939*, p. 1.

¹⁷⁹ On that point, see *B. Mazlish*, *Consumerism in the Context of the Global Ecumene*, in: *B. Mazlish/A. Iriye* (Eds.): *The Global History Reader*, New York 2005, pp. 125–132.

¹⁸⁰ Cf. Lorraine Daston’s and Peter Galison’s discussion on “haptic images,” *Daston/Galison*, *Objectivity*, pp. 382–402, esp. 382–83.

¹⁸¹ *Weaver*, *Consumer Research and Consumer Education*, p. 95.

¹⁸² *Weaver*, *The Consumer as a Laboratory*. Address Delivered at Third General Motors Executives Conference at the Greenbrier Hotel, White Sulphur Springs, West Virginia; *B. Latour*, *Give Me a Laboratory and I Will Raise the World*, in: *K. Knorr-Cetina/M. Mulkay* (Eds.): *Science Observed*, London 1983, pp. 141–170.

imagination, used to generate expectations about the future, they acted as “mediating instruments,” creating relationships and networks upon which the flow of capital depended.¹⁸³

Niklas Luhmann described markets as characterized by double contingency. “The other can act otherwise than I expected precisely if and because he knows what I expect. He can leave his intentions unclear or be deceptive about them.”¹⁸⁴ For agents to overcome the ever-present threshold of anxiety, “‘nevertheless’ strategies” are necessary. According to Luhmann, trust constitutes the strategy with the greatest scope. “Anyone who gives his trust considerably widens his potential for action. He can rely on unsure premises and by doing so increase their certainty value.” Trust, however, depends on “symbolic cover.”¹⁸⁵ Possibly, business forecasting, by tying increasingly anonymous actors and arenas together, provided just that: a symbolic cover, allowing actors to coordinate their expectations and thereby overcome the threshold of anxiety. Forecasting tools allowing for different degrees of coordination, then, would allow for different degrees of risk-taking. Their rate of change might thus serve as an indicator of a change in the dynamics of capitalism.

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¹⁸³ On the notion of “mediating instruments,” see, for example, *P. Miller/T. O’Leary*, Mediating Instruments and Making Markets: Capital Budgeting, Science and the Economy, in: *Accounting, Organizations and Society* 32/7–8, October 2007, pp. 701–734.

¹⁸⁴ *N. Luhmann*, *Social Systems*, Stanford, CA 1995, pp. 127–28; *N. Luhmann*, *Die Wirtschaft der Gesellschaft*, Frankfurt am Main 1994, p. 74.

¹⁸⁵ *Luhmann*, *Social Systems*, pp. 128–29.

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Bionote

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