“The Rise of Business Forecasting Agencies in the United States”

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[The following article is not intended for publication, but rather to summarize my current thoughts about the early history of the economic forecasting industry in the United States as I prepare to write a book on the subject. I have included the figures for the paper in a separate document because their size can make them time-consuming to print. I welcome any comments or questions at wfriedman@hbs.edu. I greatly appreciate this opportunity to present my work at N.Y.U.]

1. Introduction

This article examines the reasons why business forecasting agencies emerged in the early twentieth century, why they took the form they did, and what difference they made. The use of a historical approach helps to expose the core principles of economic forecasting in its pioneering phase—a phase that shaped its subsequent path. I examine the work of forecasters who produced regular predictions in the early twentieth century, including James Brookmire, John Moody, and Luther Lee Blake (of Standard Statistics), and pay special attention to Roger Babson, of the Babson Statistical Organization, and Warren Persons, of the Harvard Economic Service. I also discuss the work of Irving Fisher, who criticized the methods of many forecasting agencies and devised his own model of economic prediction. It might seem odd to include popular business writers and enthusiasts, such as Roger Babson, with academics, such as Irving Fisher of Yale. But the effort to promote and sell forecasts encompassed a range of people, including entrepreneurs, economists, journalists, and pseudoscientists. Like many areas of business advice today, the market for economic forecasting in the early twentieth century was
crowded with a heterogeneous mix of competitors, all eager to sell their theories and services.

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One of the biggest mysteries of economic life has been the phenomenon of business cycles: the periodic fluctuations that caused general panic in one year and an economic boom in another. Why was economic growth uneven and unpredictable? This question engaged the some of the most important economists of the early twentieth century, including Nikolai Kondratieff, John Maynard Keynes, Wesley Clair Mitchell, and Joseph Schumpeter. The rise and fall of economic fortunes embodied both the “creative” and “destructive” elements of the capitalist system as Schumpeter described it. In the United States, the number of books on the subject increased rapidly: the Harvard University Library lists seven books on that subject published between 1900 and 1919, and 87 between 1920 and 1929.

The problem of economic fluctuations was taken up by an array of entrepreneurs and organizations that tried to predict the next boom or bust.¹ Several firms, including Cleveland Trust, National City Bank of New York, and American Telephone & Telegraph, published periodic economic forecasts as a sideline to their main business.

Other firms specialized in this service, providing weekly or monthly charts and commentaries forecasting economic trends of the U.S. economy.² There were no such agencies in the United States in 1900. By 1929 almost a dozen of them existed, publishing a wide range of weekly and monthly newsletters. Among these publications were the Babson Statistical Organization’s Barometer Letter (started 1907); the Brookmire Economic Service’s Forecaster (1912); Moody’s Investors Service’s Weekly Letter (1909);
Standard Statistics Company’s Daily Trade Service (1917); and the Harvard Economic Service’s Weekly Letter (1922). These publications provided forecasts of general business conditions, and they often included other figures, such as forecasts of commodity prices. Another important organization was Irving Fisher’s Index Number Institute, which published a weekly commodity-price index and purchasing-power index, along with Fisher’s observations about business conditions.

The effort to chart the “ups and downs” of aggregate commercial activity was popularly known as both “business forecasting” and “economic forecasting” and was distinguished from the art of stock-market prediction, which had its own history on Wall Street. Most forecasting agencies sold their forecasts in weekly newsletters offered by subscription for about $100 per year (about $975 today), and they marketed their services through sales forces and paid advertisements in newspapers. Together, forecasting agencies had a combined circulation of about 35,000 in the late 1920s. Babson had about 12,000 subscribers; Moody’s Investor Services, 10,000; and Harvard, 2,000. Fisher sold his forecasts through newspaper columns and hence made them available to the public.

The desire to see into the future was not new, of course, for prediction had always been an aspiration, not just in commerce, but more generally in society. Nineteenth-century political economists were preoccupied with charting America’s future growth. In a sense, the first long-range “forecasters” in the United States were statesmen like William H. Seward, who wrote about the future economic significance of the transatlantic cable and other technologies. State and federal governments anticipated, and nurtured, the future growth of society and of the economy by enacting laws favorable to economic growth, such as free trade, bankruptcy protection, and general
incorporation. Further, the federal government, especially, collected statistical data to measure population changes, the growth of manufacturers, and agricultural performance.

    But with the rise of large corporations, business executives and managers started to make plans for the coming quarter, year, or several years. Forecasters provided information to managers and investors who contemplated the purchase of large quantities of raw materials, or the expansion of production facilities, or who wanted to calculate sales quotas, or decide whether or not to extend credit to potential borrowers.

    Forecasters were part of the rising class of financial analysts (like accountants, brokers, and bankers) who, cumulatively, provided economic information that helped businesses make investment and strategic decisions. They were also part of the business press, which, by the early twentieth century, was supplying information to managers and investors through various channels, including news tickers, monthly journals like the Commercial and Financial Chronicle, and daily newspapers like the Wall Street Journal (published since 1889).

    Forecasters, too, were among a new class of business experts and consultants who tried to standardize traditional business processes by making them more precise through the use of quantitative analysis and social-science methods. This effort included the work of Frederick Winslow Taylor, who pioneered incentive systems and time-and-motion studies in his Scientific Management movement; John H. Patterson, founder of National Cash Register, who actively promoted the use of sales quotas; and psychologists Hugo Muensterberg and Walter Dill Scott, who devised aptitude tests designed to fit workers into appropriate occupations. This group of experts introduced a range of metric
tools to help managers gain greater control over processes of production and distribution and also over their workforce. All the calculations these experts introduced were, in some way, oriented toward predicting the future: time-motion studies helped to estimate production schedules; sales quotas, to determine future demand; and psychological tests, to predict a worker’s future performance. Like the work of economic forecasters, these innovations were designed to help managers confront the inherent indeterminacy of the future.

While forecasters were part of these groups of analysts, news-reporters, and consultants, their goals and methods were unique. They introduced a range of statistical techniques that, taken together, made the effort to look to the future more systematic and the tools to do so, more clearly defined. Unlike accountants, who provided detailed summaries of a company’s past, forecasters presented visions of the economic future. This effort was very much at the core of capitalism itself, an economic system that emphasizes change, investment, and innovation, and the future.

2. Precursors

While specialized forecasting agencies that offered periodic predictions were nonexistent at the start of the twentieth century, they had many predecessors. Among them were those firms that sought to improve the transparency with which companies operated, including the mercantile credit-reporting agencies of Lewis Tappan (1788-1873) and John Bradstreet (1815-1863). Henry Varnum Poor (1812-1905) and his son Henry William Poor (1844-1915) published their famous Manual of Railroads starting in 1868, and annually after that. The work of these individuals helped reduce the risk of financial
transactions for merchants and investors by providing information about individual firms.

There were also nineteenth-century efforts to predict the health of the overall economy. The French statistician Clément Juglar analyzed economic fluctuations in Des crises commerciales et leur retour périodique en France, en Angleterre, et aux États-Unis (1862), a book that appeared in an English translation in the United States in 1893. The eminent British economist William Stanley Jevons studied data drawn from sunspots to predict cycles of trade between England and China in 1878.9

But, in many ways, the story of commercial business-cycle forecasting began with Samuel Benner, “the Ohio Farmer,” and his predictions of the price of iron and of hogs. Starting in 1875, Benner began selling Benner’s Prophecies of Future Ups and Downs, which went through fifteen editions and continued to be published until 1905.

Benner (1832-1913) was one of the best-known promtoters of the idea of fixed-length business cycles. This was a popular notion of the time, particularly among the many people who published stock-market tip sheets.10 Some argued that economic swings came every ten years, noting the panics in 1837, 1847, 1857, and, in the years after the Civil War, in 1873, 1884, and 1893. Another common theory was that business cycles operated on a seven-year calendar, bringing recessions (in Europe as well as in the United States) in 1893, 1900, and 1907.11 Such theories provided the comforting idea that panics were not random, but were entirely predictable.

Benner regarded iron prices as the key to America’s overall economic health, and hence as predictors of periods of panic and expansion. Iron, he wrote, was “the most useful of all metals, in fact the bone and sinew of our civilization, and the most important
element of progress, as seen in the sewing machine, reaper and mower, spinning-jenny, power loom, steamboat, railroad, land and submarine telegraph.” Using a double entendre, Benner claimed to have found a “Cast-Iron Rule” for average annual pig-iron prices, which, he held, followed a set pattern of cyclical movements that were repeated every twenty-seven years. He believed that the cycle of average annual prices went as follows: 3 years up; 6 down; 2 up; 5 down; 4 up; 7 down. This pattern would then itself repeat: 3 years up, 6 down, etc, and devised a simple line chart to demonstrate his “Rule.” Benner also claimed to have found cycles for the price of hogs, corn, and other provisions.

Benner likened economic forecasting to weather forecasting: although he could not predict day-to-day conditions with complete accuracy, he could trace the pattern of panics as one would the changing of seasons. Much of Benner’s reasoning was based on pseudoscience and his book included lengthy digressions on the influence of planetary movements on prices. He especially favored the movements of the planet Jupiter.

Benner’s price charts seem to have had little practical value. According to his late-nineteenth-century predictions, for example, panics should have come in 1891, 1911, and 1918, rather than in 1893 and 1907. But his “cast-iron-rule” forecasts were popular enough for the Wall Street Journal to report his annual predictions each January in the early 1890s and, in 1933, to recall him as having been “Wall Street’s earliest ‘market counselor’ of renown . . .” John H. Patterson, president of National Cash Register, claimed that Benner’s book on the importance of the pig-iron market helped him prepare for economic downturns: when pig-iron prices declined, Patterson got ready for a slowdown in sales for his company’s cash registers.
H. Cole noted, in 1961, that a comprehensive study of fluctuations would include “a history of increasing sophistication anent the phenomenon called the business cycle from Samuel Benner downward . . .” Benner’s annual charts, though crude and untimely, had several features that appeared later in the weekly forecasting newsletters of the early twentieth century, including the use of line-charts to indicate economic direction, the belief in a leading indicator, and the idea of using aggregate price data.

3. Pioneering forecasting agencies

Several forecasting agencies were founded shortly after the turn of the century, following the panic of 1907, a financial crisis that was particularly perplexing to many investors, businessmen, and business analysts. Contemporary wisdom in financial circles had assumed that panics were a thing of the past. “The opinion . . . entertained by . . . banking experts,” wrote financial journalist Alexander Noyes in 1909, “. . . was that ‘aggregation of banking resources’ and ‘coordination of industry’ had, between them, created a new economic situation, where old-fashioned financial and commercial panics . . . would be no longer possibilities.” Panic is not a term commonly used in this way today. Instead we refer to “recession” and “depression.” But “panic” better captured the swift arrival of these downturns and the fear that accompanied them.

The founders of these forecasting services were primarily entrepreneurs who had worked in finance in early in their careers. Roger Babson, of Wellesley, Massachusetts, had sold bonds for a firm in New York City and then for another in Boston before founding the Babson Statistical Organization in 1904. After seeing many of his clients lose money in 1907, and inspired by the example of Samuel Benner, Babson started a
forecasting service. Beginning the following year, he mailed out Babson’s Reports, promising to tell readers “when to buy and when to sell; and what to buy and what to sell.” (His emphasis).

In 1910 James Brookmire, of St. Louis, organized the Brookmire Economic Chart Company, which printed colorful, oversized charts on a range of subjects, including “pricing cycles” of hardware, steel, and iron, and also a “business barometer” of overall economic conditions. Brookmire was the son of a prominent St. Louis grocer, who, after working in the family firm for several years, became a partner in a stock-brokerage firm, Simon, Clifford, and Brookmire. He began making economic charts primarily as a way to attract clients to his firm. He moved the service to New York in 1916.

John Moody worked ten years for the investment firm Spencer Trask, beginning as a self-described “stamppicker” before becoming the head of their statistical department. Moody left the firm to publish his now-famous industrial manuals in 1900, but lost control of them in 1907 (to Roger Babson) due to his poor investments in mines, newspaper, and expensive printing facilities. In 1909, Moody re-entered business, founding the Analyses Publishing Company, a securities-rating business, and publishing a Weekly Letter, which contained forecasts of economic activity.

Luther Lee Blake, originally from Fayetteville, Tennessee, was employed by a Nashville brokerage house as a telephone operator and then as an analyst for the New York investment bank Laidlaw and Company. In 1906 he founded the Standard Statistics Bureau, which delivered information on securities offerings to individual clients by messenger on a daily basis. In 1917, Blake started the Standard Daily Trade Service, a newsletter that offered frequent economic forecasts.
All four of these individuals were highly entrepreneurial, starting several companies in the late nineteenth and early twentieth centuries. Forecasting was Babson’s and Brookmire’s main activity in the 1910s; Moody and Blake both operated large business-information companies, which offered forecasts as a sideline to their primary activities—rating securities and selling business-statistics, respectively. Of this group, only Roger Babson attended college, having gone to MIT.

4. After World War I

American involvement in World War I stimulated further interest in statistical economics, and many statisticians and economists (including Roger Babson) were employed by the government. In the years after the war, business leaders, politicians and academics paid more attention to the problems of business-cycles. In 1920, statistician Malcolm Rorty of AT&T, economist Wesley Mitchell and economic historian Edwin Gay worked to found the private, non-profit economic research center, National Bureau of Economic Research. In 1921, Herbert Hoover, Secretary of Commerce, began publication of the Survey of Current Business to provide information about recent overall economic activity.

During this time, academics also entered the business of selling forecasts. In 1922, the Harvard Economic Service began publication of its Weekly Letter on overall economic conditions. The service was run by the school’s Committee on Economic Research (founded 1917) and was run by economist C. J. Bullock; it was part of the university’s broader effort to improve the scientific quality of the discipline of economics. Warren Persons devised the forecasting model for Harvard. Persons had
completed a doctorate in economics at the University of Wisconsin in 1916, writing on wealth and income distribution. His work attracted attention for its application of statistical precision to questions of economic fluctuations, and it eventually led to his appointment at Harvard.

In 1923, the renowned economist Irving Fisher, of Yale, organized the Index Number Institute, which sold a commodity-price index and a purchasing-power index to several newspapers, including the New York World, the Philadelphia Inquirer, the New York Journal of Commerce, the New Haven Union, and the Hartford Courant. By the mid-1920s, Fisher had expanded this service to include a stock-market index and short, opinionated articles on current economic topics, including future trends. He packaged the whole service as “Irving Fisher’s Business Page.”

These individuals (Babson, Brookmire, Moody, Blake, Persons, and Fisher) were only the best-known of the forecasting field. In the 1920s, several others also produced regular predictions of general economic conditions, including Ralph Mitchell Ainsworth of Ainsworth’s Financial Services, Carroll Tillman of the Tillman Survey, C. G. Selden of the Selden Service, J. George Frederick of the Business Bourse, and Kenneth Stevens Van Strum of the Van Strum Financial Service. Most of these firms operated in New York City. Those that were not centered in New York, like the businesses of Roger Babson and Irving Fisher, opened offices there.

5. Forecasting Methods

Forecasters developed different types of methods for making their predictions. Many did not formulate, or at least did not publicize, a specific forecasting model. In fact,
John Moody and Luther Lee Blake at the Standard Statistics Bureau, claimed not to follow a specific model at all. Lawrence H. Sloan, who edited Blake’s newsletter, the Standard Trade and Securities Service, noted, “We hold that the conditions of every major business swing are different, and that it is these constantly altering conditions, rather than theoretical expectancies, which should be given the greatest consideration.”

But others were more open about their approach. Among the methods developed in the early twentieth century were aggregate models, which studied variations in a single aggregate number (usually an index of industrial production) to forecast the entire economy; lead-lag models, which focused on finding leading indicators to predict general trends; and early econometric models, which aimed to describe, through mathematical equations, the cause-and-effect of economic change. These methods are exemplified by the forecasting techniques of Babson, Persons, and Fisher.

Babson’s aggregate model. Roger Babson ran a successful agency. By the early 1920s, the Babson Statistical Organization had become a large company, with over 300 employees. It included a production department, which researched and wrote the weekly reports, a marketing department, and an administrative department. At this time, Babson received about 12,000 subscriptions for its Barometer Letter (at $7.50 per month, or about $73 today). The firm’s marketing efforts systematically combined mailings and direct selling. There were 43 salesmen operating in 1921; most were in large northern and Midwestern cities, and there were none in the South. In 1920 the Babson Statistical
Organization held conferences in 16 major cities, including Boston, Chicago, Cincinnati, New York, and Pittsburgh; the largest, in Chicago, drew 500 people.\textsuperscript{30}

Babson believed that the marketplace went through discernible cycles, which he broke down into phases of prosperity, decline, depression, and improvement. The key to successful business planning and investing, he felt, was simply figuring out which phase the economy was in.

Unlike Samuel Benner, Babson did not believe that the price movements of a single commodity, such as iron, could forecast the onset of a business depression or expansion. Instead he gathered information on twenty-five data series—nearly all those available to him at the time—which included a hodgepodge of statistics on railroad freight movement, manufacturing output, trade, bank clearings, immigration rates, and commodity prices.\textsuperscript{31} These data came in widely different units (from pounds to prices), so Babson found a way to combine them by developing an index scale for each series, based on annual percentage change.\textsuperscript{32} He combined them to create an aggregate number representing “general business activity.” Although Babson’s methods were crude by modern standards, they did represent an important step toward creating a single figure to serve as a proxy for the business activity of the entire economy. Today, of course, we call that figure Gross National Product. Babson plotted his aggregate data series on charts he called the Babson Compositplot, which displayed undulating periods of expansion and recession.

Babson shared some of Samuel Benner’s pseudoscientific leanings. Babson was particularly influenced by Benner’s perception of the economy as operating according to natural principles beyond the control of man. Babson perpetuated a meteorological
analogy by publishing an annual book on business “barometers.” He also had a fascination for Sir Isaac Newton and tied the great scientist’s work on gravitational pull to the problem of forecasting. Babson claimed that the economy operated according to Newton’s law of equal-and-opposite reactions. “[A] period of business prosperity,” Babson wrote, “would be followed by an equal and opposite period of depression.” Using this logic, Babson devised an “Area Theory” of the business cycle that, he claimed, revealed how periods of prosperity were followed by periods of recession—the latter depicted in gray on his “Compositplot.” Babson believed that, in order to make an accurate economic forecast, the duration of a period of recession should be multiplied by its severity (Time x Intensity = Area); this “area” of recession, shown using his aggregate series of business indicators, would then be matched by an equal “area” of expansion. In other words, a sharp, short recession could reasonably be followed by a similarly sharp, short expansion, or by a shallow, long-lasting one—the product of the severity and duration being the same. Perhaps the greatest advantage of Babson’s aggregate chart was that it seemed to indicate, in a quick glance, whether the country was headed for depression or expansion. His chart also included an X-Y line for secular aggregate growth, which was purposefully situated to make the areas of expansion and recession equal. This all might seem like hocus-pocus, but part of Babson’s appeal was that he created a forecasting method that accorded well to how people implicitly think about the economy: It generally grows. Sometimes it grows too fast and sometimes too slow. In the long-run, this evens out.

Also, Babson was a shrewd analyst of business practice. He relentlessly surveyed the attitudes of leading businessmen in letter-writing campaigns to bank presidents,
Rotary club members, manufacturers, and investors and then used their opinions to shape his forecasts. Babson believed that while the broad swings in the economy followed some natural Newtonian law, the actual mechanism for these swings had to do with human psychology. In other words, the opinion of the crowd shaped the daily direction of the economy. “In reality the business-cycle is the curve of man’s attitude towards his neighbor and life,” Babson wrote. Businessmen and investors always tend to follow the mob. “Men will do almost anything, except think for themselves, and of all human ills, our moods are perhaps the most contagious.” Fear of economic depression brought a discernible impact on men’s minds, Babson believed, causing reductions in investment and consumption. At the same time, belief in imminent prosperity made businesspeople and consumers careless with their money.

Warren Persons’s lead-lag model. The Harvard Economic Service was considerably smaller than the Babson Organization. By 1923, it had a staff of 38, with 14 staff members working on the production of the reports and the rest tending to marketing, administration, and subscriptions. The number of subscribers peaked at about 2,000 in 1928. The service had salesmen in New York, Philadelphia, Cleveland, Chicago, and Toronto, working on a commission basis. Direct mail and newspaper advertising produced about 75 percent of all new business. After initially trying to attract a wide variety of firms, the Harvard Service concluded in the mid-1920s that the best audience for the services consisted of firms with capital of over $500,000. Harvard’s list of clients included Du Pont, Packard Motor Car, Consolidated Steel, American Telephone and Telegraph, Hart, Schaffner & Marx, and Macy’s.
Rather than using a single aggregate series to form his predictions, Warren Persons of Harvard developed a “lead-lag model.” Persons’s based his forecasts almost entirely on historical statistics. Unlike Roger Babson, Persons did not believe business cycles to be of fixed duration or follow any natural law. Instead, Persons developed an approach to deciphering cycles based strictly on empirical observation. In a series of articles in The Quarterly Journal of Economics and other scholarly journals, he made a substantial contribution to economic analysis with his statistical measures of business fluctuations.42 In 1916, he published in the American Economic Review, “The Construction of a Business Barometer Based Upon Annual Data”, which outlined his forecasting method.43 Persons investigated the relations between twenty-three independent data series for the years 1903 to 1914. Using his own pioneering statistical methods, he adjusted these data series for seasonal variances and for secular growth, which allowed him to see any real cyclical variances in the series more clearly. He then charted the remaining wavelike movements of the data series and grouped them according to the chronological order of occurrence. “[C]ycles are the undulating curves, or numerical values, secured by removing from the actual items [being studied] the secular trend and the seasonal variation, and expressing the results in terms of comparable units,” Persons explained. “The actual figures thus corrected and expressed measure the rhythmic movement of business, the ebb and flow corresponding to depression and prosperity.”44

By looking at the relation of different economic series during the period 1903 to 1914, Persons noticed a distinct pattern: while all factors in an economy were affected by the highs and lows of a business cycle, they did not move up and down simultaneously.
“Some factors appear to lag behind, rising and falling many months after the rest,” a Harvard Economic Service report of 1923 noted. “Other factors appear to lead the movement; they begin the rise and they begin the fall; they can be used to suggest when the turn of the cycle from rise to fall or vice versa is approaching.”

Persons divided his economic data series into three large groups: speculation (for instance, shares traded on the New York Stock Exchange and prices of industrial stocks), business activity (commodity prices and pig-iron production), and banking (deposit levels and rates on commercial paper).

Persons concluded that a relation existed among these three areas of the economy: speculation, business activity, and banking. He argued (1) that the major fluctuations of speculation anticipated those of general business by from four to ten months, and (2) that the major fluctuations of general business preceded those of banking by from two to eight months. Persons then constructed a chart for the Harvard Economic Service that displayed three curves representing these different aspects of the economy: A-speculation, B-business activity, and C-banking. The proper way to forecast, according to Persons, was to follow changes to trends in the series representing speculation (A), which would signal upcoming changes in business activity (B), which would, in turn, be followed by changes in banking (C). Persons did not advance a theory to explain why this relationship held. Instead, he insisted, instead, that his purpose was simply to reveal the results of correlations without theoretical bias.

Irving Fisher’s economic model. Fisher, by far the most accomplished economist and mathematician among the group of pioneering forecasters, produced a forecasting
methodology far different from those of Persons or Babson. Fisher disputed the idea of a business cycle altogether, calling it a “myth,” because it “lacked periodicity, had no cyclical rhythm and hence was no true cycle at all.” Fisher did not search for historic sequences in economic rhythms, as Persons had done, but looked rather for the cause-and-effect of economic change. Fisher’s triumph was in describing fundamental economic relationships in rigorous mathematical terms.

Fisher saw economic fluctuations as monetary in origin: changes in the amount of money in circulation changed prices, which in turn affected the volume of production. The correct way to analyze the misnamed “business cycle” was to employ the equation of exchange, which Fisher put in mathematical terms in 1911 as \((MV = PT)\). The equation showed that the stock of money \((M)\) in the economy multiplied by the velocity of money \((V)\) was equal to an index of the average price level \((P)\) times the total number of transactions \((T)\). Put in other words, the level of prices varied indirectly with the stock of money in circulation, if one assumed a constant velocity of circulation and quantity of trade.

Fisher believed that a prolonged or dramatic fall in the price level foreshadowed a depression, whereas a similar rise in the price level forecast suggested improved conditions in the future. Business fluctuations resulted in part from the imperfect adjustment of interest rates. When prices rose, Fisher argued, interest rates were slow to respond; hence, real interest rates fell. Spurred by these artificially low rates, businesses invested excessively. When interest rates finally began to rise again, a series of events occurred: the volume of borrowing diminished, the value of bonds declined, loans could not be renewed on the old terms, and some companies found themselves unable to make
interest payments. Banks called in their loans and the money supply became contracted, causing prices to fall and the process to start over.  

Fisher, himself a highly successful inventor as well as an economist, had faith in new technologies and innovations, new methods of organization, new ideas (like scientific management), and also new moral principles (like prohibition). He was sure, early in the 1920s, that business could become more efficient and workers healthier and more committed. But essential to this growth was the maintenance of stable commodity prices. As Fisher wrote later, “Like the influence of peace as distinct from war, any stability of commodity prices which makes the calculation of the business man, in terms of dollars and cents, more safe then when the purchasing power of the dollar is constantly changing, results in prosperous conditions, bigger earnings, better prospects, and a higher price level of securities.”

Unlike other agencies that sold forecasts directly to subscribers through newsletters, Fisher’s idea was to sell his forecasts and indexes to newspapers. Fisher hired the statistician and entrepreneur Karl Karsten to organize a sales force to travel to regional newspapers throughout the country and try to “sell” editors on the merits of Fisher’s Business Page. This was not an easy task. One salesman canvassed seventy-nine newspapers in spring 1928, traveling throughout New York, New Jersey, Pennsylvania, Maryland, New England, and parts of Canada, and found only about 4 percent of the editors he talked to enthusiastic enough to purchase the service immediately, though an additional third expressed the desire to hear more about it.
While these quick summaries cannot do justice to the different approaches of Babson, Persons, and Fisher, they do provide a general sense of the development of forecasting—and more specifically forecasting models, which can also be quickly seen by looking at the graphs they produced. The charts moved from mapping the ups and downs of a single data series (in the case of Benner, average annual prices), to graphs containing a great variety of information (Babson’s Compositplot and stock and bond indices). Harvard’s forecasting charts provided clues about the sequence of economic change over time (in this case speculation, business, and banking), and, Fisher’s diagram illustrated the causes behind changes in fundamental economic relationships (in this case, the quantity of money and the price level).

Each forecaster differed in conceptualizing the economy: Babson envisioned the economy as a combination of industrial, financial, and commercial statistics, though one driven by mass psychology, especially the greed and panic of the crowd of investors and consumers. Persons, writing in the yeas after World War I, perceived a fundamental relationship between economic three institutions: investors, businesses, and banks. Fisher, finally, focused entirely on the circulation of money, interest rates, and credit.

The remaining forecasters can also be grouped in ways that relate to these models. Moody was somewhat like Babson in that he created an index of industrial production that he used to make his forecasts, but he often diverged from it when making his predictions. James Brookmire himself came up with a three-curve scheme of credit-business-and-banking that was similar to (and even predated) Harvard’s, though it was far less rigorous in construction. Luther Blake’s Standard Statistics also published
a three-prong trend curve, but offered little description of how it was made and seldom referred to it when forecasting.

All of these forecasters created models that were divorced from the activities of individual firms. This is striking because the early twentieth century was a period when powerful businessmen came to dominate entire sectors of the economy: J. P. Morgan in banking, steel, and telecommunications, Andrew Mellon in aluminum, Henry Ford and Alfred Sloan in automobiles, and John D. Rockefeller in oil. The models developed by forecasters took none of this into account, despite the fact that many of them (including Babson and Fisher) had worked in industries that experienced speculative behavior. All forecasters, however, believed that the economy was simply too vast to have general levels of business activity be affected by the actions of individual firms or a cartel of firms.

6. The performance of forecasters during the 1920s

How successful were the forecasters in predicting future trends? The rise and then the abrupt fall of the stock market is a familiar story of the 1920s: the early and late years of the decade were times of extreme volatility in business activity in the United States, and almost sure to confound, it would seem, any forecaster, however sophisticated; but also, to multiply the market for forecasting services.57

In the 1930s several efforts were undertaken to assess the accuracy of forecasts made in the 1920s. In 1933, Alfred Cowles III, son of a wealthy publishing magnate, published an analysis of stock market forecasting in the journal Econometrica. Cowles looked at stock market predictions made by 24 financial publications for the period from
January 1928 to June 1932, and concluded, “A review of the various statistical tests, applied to the records for this period, of these 24 forecasters, indicates that the most successful records are little, if any, better than what might be expected to result from pure chance.”\(^5\) Three years later, E. W. Pettee studied accuracy in forecasting wholesale commodity prices, and concluded that price forecasters were “mostly right” less than half the time in predicting cyclical turning-points in wholesale prices. Pettee also found that “On the whole, common-sense analyses stood the test of prediction better than empirical formulas . . .”\(^6\)

The analyst who looked most directly at business-cycle forecasting (as opposed to stock-market or commodity-price forecasting), however, was Garfield V. Cox, a finance professor at the University of Chicago—and his findings were more encouraging. In 1930, Cox assessed the ability of forecasters to predict general business activity during the period 1918 to 1929. Cox studied the predictions made by Babson, Brookmire, Harvard, Standard Statistics, and Moody’s; he did not survey the work of Irving Fisher, who, unlike the others, did not make predictions month-in and month-out.\(^6\)

Cox rated the monthly forecasts of each agency in two ways. He rated forecasts on their “definiteness” (how emphatic was the forecast) as \(\frac{1}{4}, \frac{1}{2}, \frac{3}{4},\) or 1, with a value of 1 being the most definite.\(^6\) He also rated the forecasts on their “correctness,” with a score, again by a scale of quarters: from \(+\frac{1}{4}\) to +1, for those that were right in their predictions and from \(-\frac{1}{4}\) to −1, for those in error. The product of these two numbers (definiteness \(x\) correctness) indicated the “adequacy” of the forecast for that month. By this method the possible monthly scores for adequacy of forecasts ranged from +1 (very helpful) to −1
(very harmful) with many quarterly intermediate values. A score of 0 represented a prediction which was neither helpful nor harmful.

Using this scheme, Cox concluded that the most reliable services during the entire period studied belonged to Standard Statistics (.52) and Babson (.45); Brookmire (.31) and Harvard (.31) occupied the middle range; and Moody’s (.21) came in last. The services scoring highest were incorrect about 1 month out of 10; those scoring lowest were incorrect about 1 month out of 4.

Cox found that the group was relatively reliable; it was easier to trust the group than to pick an individual forecaster. Looking at the overall results, the services together scored on the average +0.66 for definiteness, +.053 for correctness, and +0.36 for adequacy. He wrote, “These results obviously do not in themselves justify one in placing implicit faith in any given forecast of any service, but they do support the expectation that the services will be right considerably oftener than they will be wrong, and that, in the long run, dependence upon the advice of one or more of them would prove much better than dependence upon luck.”

After surveying the accuracy of general-business forecasts for the 1920s, Cox had several observations: First, it was often extremely difficult to assess the accuracy of individual forecasts as either all “right” or “wrong,” but that some intermediate scale was necessary (hence his rating scale). Compounding this problem was the fact that forecasters were not always specific about how much the expected general-business activity to expand or contract, or when exactly an upturn or downturn would occur.

Second, forecasters often over-estimated the speed at which changes in the availability of credit, or some other occurrence, would have on business activity. Cox
wrote, “The error which marred most seriously the eleven-year record under review was the failure to foresee the industrial recession of 1923–24, and this mistake appears to have been due primarily to overconfidence in the power of abundant bank credit to sustain or even expand business activity regardless of other factors.”

Third, Cox found that forecasters had a greater reluctance to predict decline from prosperity, than to predict a recovery from a depression. He believed that this pressure to be overly optimistic came from clients. It was, he wrote, “probably due to the widespread resentment of clients which is likely to greet the issuance of a definitely bearish prediction.”

Fourth, Cox found that the accuracy of forecasters did not improve over the decade; as a group they were no more or less accurate in the later years of the 1920s, than they had been in the earlier year.

Cox’s work presents the best data available on the accuracy of forecasts from this time. But it has several problems, including the fact that he did not adequately explain how to interpret a score of, say, 0.36.

Also, it is worth noting that “accuracy” was not the only reason individuals purchased forecasts. Clients may not have purchased forecasts in order to follow their advice but simply as a way of knowing what others might be thinking about economic prospects.

Forecasting numbers could also be used by managers to gain authority and garner support for decisions they had already made, rather than as inputs in the decision-making process. The historian Theodore Porter wrote in 1995 that “quantification is a technology of distance” – that is, numbers distanced an “expert” from
the average businessperson by providing a veil of objectivity. Having statistical information helped managers gain credibility within a firm. The Harvard Economic Service, Jesse Isidor Straus of Macy’s, wrote in 1922, “It is the first time, so far as I know, that a university laboratory has been established for the purpose of studying business conditions, and it seems to me that your efforts should appeal both from selfish motives and because of the fact that you are dignifying business” In this way, the role of forecasters resembled what others have said of management consultants and credit agencies: often the use of these services had as much to do with internal company politics as with practical value. The work of economic forecasters helped managers demonstrate that they were conducting business along scientific principles.

7. Decline of the period of pioneers

The years after 1929, however, brought change to the forecasting industry. On the afternoon of September 5, 1929, the entrepreneur and economic forecaster Roger Babson gave a speech at an annual business conference in Wellesley, Massachusetts, in which he warned of an impending sharp drop in share prices on the New York Stock Exchange. “I shall repeat what I have said at this time last year and the year before; namely, that sooner or later a crash is coming which will take in the leading stocks and cause a decline of from 60 to 80 points in the Dow-Jones Barometer,” he said, at a time when the index stood at about 380. “Fair weather cannot always continue. The economic cycle is in progress today, as it was in the past. . . . More people are borrowing and speculating today than ever in our history. Sooner or later a crash is coming and it may be terrific.”
Unlike Babson, most analysts in the late summer of 1929 were relatively optimistic about the coming fall. The view of the Harvard Economic Society was typical. “Business enters the period of autumn expansion at a high level, although general activity has, as usual, been less in August than in July,” Harvard reported at around the time Babson made his remarks. “For certain industries in which seasonal expansion usually begins early—automobiles, flour milling, and boots and shoes—increased activity has indeed appeared; but in the steel industry, which also, as a rule, experiences an increase in operations during August, gradual contraction has continued. . . . But sentiment remains confident, and it is to be anticipated that fall trade will bring some stimulus to general business.”

Irving Fisher did not feel, like Babson, that the share prices on the stock market were overvalued. He believed, instead, that significant gains in the real economy had brought stock prices to a new and permanently “high plateau” and that investment trusts, which were similar to today’s open-ended mutual-fund firms, had reduced the risk of investing. “[T]here may be a recession of stock prices but not anything in the nature of a crash,” argued Fisher. “We are living in an age of increasing prosperity and consequent increasing earning power of corporations and individuals. This is due in large measure to mass production and inventions such as the world has never before witnessed.”

Although Fisher enjoyed greater prestige than Babson, the latter’s September 5 remarks nonetheless caused a commotion when they hit the news tickers in financial houses at around 2 o’clock that afternoon. A sharp sell-off began, bringing the market indexes down about 3 percent in what one observer described as a “torrent of
liquidation” in the late afternoon. The very next day, however, the market soared, making up much of the lost ground. Babson was “derided up and down Wall Street,” according to the New York Times. The sharp rebound following the “Babson Break,” as the episode came to be called, seemed to confirm what Fisher believed. But in the weeks after, the stock market remained volatile, generally falling for the remainder of September and then rising in early October.

The events of late October are familiar: On Wednesday, October 23, the stock market finished sharply down, with the Dow Jones Industrial Average falling 6% for the day to 306, on a trading volume of 6.4 million shares, about 70% higher than usual that year. Then came “Black Thursday,” when a record 12.9 million shares were traded, about twice the previous day’s figure. The morning began with a rapid sell-off, bringing the Dow-Jones average down to 272, before the market rebounded in the afternoon to close at 299. The following Monday, October 28, heavy selling began again, bringing the Dow-Jones average down 13 percent for the day. On Tuesday, October 29, a date known as “Black Tuesday,” 16.4 million shares were traded and the Dow-Jones index fell another 12 percent and finished at 230. By November 13, the market had fallen to 199, off a remarkable 48 percent from its early September high of 381, around the time of Babson’s remarks.

The coming of the Great Crash of October 1929 changed the forecasting industry—not so much due to the failure of forecasters to predict the decline in the market, but to their repeated predictions of general prosperity in the weeks, months, and even years afterward. The inclination toward optimism, which Cox had noted, did not help most forecasters in the 1930s.
The Harvard Economic Society remained optimistic in 1930 and was criticized on several occasions for its failed predictions in the school’s Alumni Bulletin.\textsuperscript{71} By December 1931, the depression had lasted longer than the major downturn of 1920–21, which Harvard had seen as a historical model. The A-B-C curves on the Harvard chart were increasingly out of synch. Harvard group noted the complexity of the economic situation was compounded because of the international nature of the problem and admitted that they did not have “adequate grounds for forecasting business revival.” The service dissolved in December 1931.\textsuperscript{72}

Irving Fisher meanwhile, was even more optimistic than Harvard during 1930 and 1931.\textsuperscript{73} Irving Fisher revisited his predictions in The Stock Market Crash—and After (1930), and outlined many reasons for the real improvement in the performance of companies, among them that “industry had found that in its research laboratories, staffed by scientists from the universities, was the most profitable investment ever made.”\textsuperscript{74} Meanwhile, he tried to expand his forecasting services, but with little success. In 1930, he began offering the Financial Analysis Service, which was quickly succeeded by the Trade and Money Index the following year, and then by Market Indicators, which was published until 1934.\textsuperscript{75}

Moody’s, which ran full-service business-information company, was less hurt by the fact that it, too, had missed the crash and afterward had frequently predicted recovery. Moody’s, which did not forecast a depression, saw its revenues drop from $3 million in 1930 to $500,000 a year later; their revenues then rebounded to $2 million in 1932 (about the same as they had been in 1928). John Moody said the company was saved by radical cost-cutting. The firm cut salaries in late 1931 and 1932 by 20 percent or more
and reduced staff wherever possible.” The company also turned away from forecasting, concentrating more on its ratings business. In an article in the Christian Science Monitor in 1957, Donald McCruden, then-president of Moody’s, recalled, “Following the panic of 1929, people with money turned more seriously to investing as contrasted with speculating or gambling. . . . Increasingly, they turned toward advisors like ourselves to find the kind of help and guidance they needed.”

Babson, meanwhile, promoted himself as a “seer.” He always claimed to have correctly predicted the market crash, despite having made the same prediction in 1927 and 1928, and heavily publicized his forecasting service in the 1930s, placing “Be Right with Babson” signs in New York subway cars. He recruited students to his College, founded in 1919, in Wellesley, Massachusetts, and began writing self-help books. He also became more politically active, and in 1940 would run for President of the United States as head of the Prohibition Party.

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While the failure of the forecasting industry to foresee continuing blight of the depression years brought an end to several forecasting agencies (Harvard’s, Fisher’s, and others like Thomas Gibson’s agency) and discouraged others from publishing forecasts (like Moody’s), it of course did not bring an end to efforts at predicting economic fluctuations. The Depression only highlighted the problems of economic fluctuation, just as prior periods of panic had done. But whereas before 1929 the coming of an economic downturn in the United States stimulated efforts to encourage (and inform) private responses to business cycles, the unprecedented crisis of the 1930s, with the rise of Keynesian forecasting models, stimulated public attempts to flatten business cycles.
Conclusion

The work of the pioneering forecasters helps to reveal the tendencies of the field: to narrow the scope of questions about the future from the expansive ideas of statesmen to economic considerations of growth or decline; to shorten the focus of economic forecasts to the coming “fiscal year” or “fiscal quarter”; to perceive the economy as largely autonomous and self-correcting; to rely on statistical and mathematical models to represent the economy, rather than textual descriptions or analyses of individual firms or political actors; to create a marketplace for forecasts that flourished on salesmanship as well as the ability to make accurate recommendations, on persuasion as well as prediction; to invent a vocabulary of forecasting that popularized words such as “recession” or “depression” instead of “panic” and that overused the word “science”; and to rely on visual devices to communicate, especially stock charts that revealed the economy as moving linearly up or down, or, in the case of the Harvard group, in sequence or out of sequence.

The study by Cox revealed that forecasts were helpful but not reliably accurate; they were more art than science. But Cox found that business-cycle forecasters, as a group, were more accurate than random guesses would have been during the 1920s. Though Cox did not study the Depression years, it is clear that forecasters were far less accurate during the early 1930s than during the 1920s. One of the ironies of forecasting is that it is most needed during times of rapid change, and yet these are the times it is least likely to be helpful. Most forecasting is based on the analysis of past trends. Babson, Persons, Brookmire, and Moody, all looked to past data-series to understand the future.
This technique can illuminate useful economic relationships that hold during “normal” times. Yet it is unhelpful when major unprecedented events (such as wars or depressions) occur. The forecasters studied here talked of having models, but in fact did not have true models. A model is something that considers causation, and only Fisher perhaps meets that criterion. Most of the others really studied trends. They looked at the past and said, “if something happened before it will happen again.” With more and more data available, it was easy to identify more and more trends: both accurate and inaccurate ones.

The Depression period also revealed that forecasting methods could become imprisoning. Once forecasters published their methods, they were more or less stuck. They were reluctant to give up on the methods they have invested time in and have publicized. The story of Harvard makes for a good example: for much of the 1930s, Harvard continued to insist their models worked, even when the curves fell out of sequence. Fisher also kept insisting that his forecasts were accurate, even though events showed otherwise.

In many ways the story of forecasting in the early twentieth century presents an “Age of Amateurs,” precursors to the sophisticated macroeconomists and industry specialists in both the private sector and the public, who try to project the demand for specific products and general economic conditions today. But it is worthwhile to remember that among the people discussed in this article are some of the brightest and most well-funded individuals of their day; and that others were among the most astute observers of Wall Street.
We have a strong prejudice toward believing that new methods will be better than old methods, that new forecasting tools will be better than old ones. But this is not necessarily the case. Recent events (like the story of Long-Term Capital Management) show that even the smartest analysts, with almost unlimited financial resources, fail when unexpected events occur.
Endnotes

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2 Firms also hired economists and statisticians. Garfield Cox, An Appraisal of American Business Forecasts (Chicago, 1930), p. 1: “Parallel with the growth of these [forecasting] services has come a rapid increase in the number of large corporations employing economists and statisticians to assist the management in shaping programs of action to the outlook for general business.”


4 Hardy and Cox, Forecasting Business Conditions, p. 41.
On the historical desire for perceiving the future, see Keith Thomas, Religion and the Decline of Magic (Oxford; reprint 1997).


Roger W. Babson, “Sources of Market News,” Annals of the American Academy of Political and Social Science 35:3 (May, 1910): 617–626. For all of these offerings, businesses paid $100–$150 or so per month.

See De Courcy Thom, A Brief History of Panics and Their Periodical Occurrence in the United States (1893).


21 Babson, Actions and Reactions, p. 108.

22 Wall Street Journal, Jun. 15, 1907, p. 3.

23 See Chander and Miranti, “Networks and Certainty”; Alchon, 1985, p. 77; Hawley, 1873, p. 16.


26 This quote is from a speech at the University of Toronto, Jan. 28, 1925, and is cited in Hardy and Cox, p. 109.
31 The data series: building operations; money in circulation; comptroller’s reports; loans of New York banks; cash held by the New York banks; deposits in the New York banks; surplus reserves of the New York banks; total bank clearings of the United States; bank clearings of the United States, excluding New York; stock exchange transactions; new securities; business failures; labor statistics; imports; exports; balance and volume of trade; gold movements; domestic and foreign money rates; political factors; production of gold; prices of commodities; crop conditions; railroad gross and net earnings; idle car figures; miscellaneous statistics.

32 For each series, Babson created an annual scale from high to low and devised from it what “normal” monthly growth should be. See Charles O. Hardy and Garfield V. Cox, *Forecasting Business Conditions* (New York: Macmillan Co., 1927), 28.

33 Tooze, *Statistics and the German State*, p. 106.


vi:4 (December 1916).


49 Though Persons did not dwell on the causes for economic cycles, he invoked Fisher and pointed to the idea that cycles occurred due to fluctuations in short-term interest rates, and responses from speculators and businesspeople. Persons wrote that, “We may think of interest rates as varying inversely with the amount of the bank reserves in the credit reservoir.” There was a limited amount of credit available in the economy and, generally, speculators were the first to be able to take advantage of increases in the pool of credit. Eventually, however, businesses began to take advantage of the increasing credit and made investments, until bankers came to the conclusion that excessive credit had been granted and then began to call in their loans. Warren M. Persons, “A Non-Technical Explanation of the Index of General Business Conditions,” *Review of Economic Statistics* 2:2 (Feb. 1920): 39-48. Quote, p. 47.


51 See Irving Fisher, “‘The Equation of Exchange,’ 1896-1910,” *The American Economic Review* 1:2 (Jun 1911): 296-305. Fisher also used a more intricate version for his forecasts: $PT = MV + M'V'$. According to Fisher: M, the money in circulation, was taken from estimates by the Director of the Mint and the Comptroller of the Currency. M’ was based on reports of the Comptroller of the Currency for individual deposits. V and V’ were worked out by a formula developed by Fisher in
“A Practical Method of Estimating the Velocity of Circulation of the Currency,” *Journal of the Royal Statistical Society* (Dec. 1909). $T$, the volume of trade, was based on the statistics of internal commerce published by the Bureau of Statistics in the Department of Commerce and Labor and included statistics of quantities of commodities exported and imported, sales of stocks, railroad tons carried, and postoffice letters carried. $P$, the price level, was based on figures from the Bureau of Labor for the wholesale prices of two hundred and fifty-eight commodities and also on prices of stocks and wages per hour.


56 Karl Karsten Papers, Box 4, Folder, “Newdick, Edwin.” The company found a group of advertisers, including General Electric, Remington Rand, Cunard Line, Metropolitan Life, Phoenix Mutual, who placed ads on Fisher’s page. Karl G. Karsten Papers, Library of Congress, Box 5, Folder “I.N.I.” Many of the news editors insisted that Fisher’s company not only supply the news stories and indices but also provide the advertisements that would run on the page. The arrangement struck with the Philadelphia Record, for instance, was that the newspaper would pay $50 per week to publish the Irving Fisher Business Page, but that Fisher’s group had to also arrange for $400 worth of advertising to appear alongside the columns, for which Fisher would receive an additional 15 percent commission (or $60).


60 Cox evaluated the following: The *Barometer Letter* Babson’s Statistical Organization; the Brookmire Forecaster of the Brookmire Economic Service; the Monthly Letters and Weekly Letters of the Harvard Economic Service; the Monthly Analysis of Business Conditions and the Weekly Letter of Moody’s Investors Service; the Standard Daily Trade Service and its successor, the Standard Trade and Securities Service of the Standard Statistics Company; and the Monthly Letter on Economic Conditions of the National City Bank of New York. The forecasts studied cover the period November 1918 to December 1929, except Harvard whose first prediction was published June 1919; and Standard Statistics Company, which did not undertake forecasts until January 1921.

61 Cox checked the results of forecasts against three indexes: the Annalist Index of Business Activity, the American Telephone and Telegraph Company Index of Business Activity, and the Index of the Volume of Trade of the Federal Reserve Bank of New York.


63 The demand for such consensus opinion was underscored when Paul Babson, the nephew of Roger Babson, started the United Business Service. This service summarized the forecasts from several of the leading agencies in each of its weekly issues.


67 August 31, 1921, p. 208.

There is some debate about whether the curves actually did indicate that a depression was coming and were simply, and perhaps purposefully, misinterpreted. Schumpeter felt this way, writing: “The fact is that the barometer curves indicated the approaching break in 1929 clearly enough—the trouble was that the interpreters of the curves wither would not believe their own methods or else would not take what they believed to be a serious responsibility in predicting depression.” Joseph A. Schumpeter, *History of Economic Analysis* (1954; edition used, New York: Oxford, 1994), p. 1165. A more recent article investigates the “myth” that Harvard had the right data but simply lacked the nerve to predict the depression, but, after reviewing Harvard’s data, concludes that the crash was not foreseeable. See Kathryn M. Dominguez, Ray C. Fair, and Matthew D. Shapiro, “Forecasting the Depression: Harvard versus Yale,” *The American Economic Review* 78:4 (Sept., 1988): p. 598.


Samuel Benner’s chart of pig-iron prices, 1875. Benner claimed to reveal the past (from 1835 to 1875) and the future (from 1876 to 1897). The chart embodied Benner’s idea of a fixed natural cycle in the average annual price of pig iron, a cycle which he also believed mapped perfectly to overall business activity. The cycle went as follows: 3 years up; 6 down; 2 up; 5 down; 4 up; 7 down. This would then be repeated: 3 years up, 6 down, etc. Source: Benner’s Prophecies (1875).
The Compositplot of the Babson Statistical Organization, 1921. Babson’s chart revealed the plotting of an aggregate series in a solid black line that fluctuated up and down. The subjects contained in the series included figures for new building, crops, bank clearings, immigration, foreign trade, failures, commodity prices, railroad earnings, and other figures. The smoother black line, the X-Y line, which ran through the aggregate line, was intended to signify the country’s net gain. Babson marked out the equal-and-opposite periods of recession and expansion as A, B, C, D, E, and F. Managers at firms were supposed to take this chart of the overall economy and compare it with their own sales figures to determine the extent of correlation. Source: Business Barometers (1921).
Graph from Harvard Economic Service, Weekly Letter, Vol. 1, No. 1, January 3, 1922. The Harvard Economic Service published a lead-lag graph that displayed three curves representing these different aspects of the economy: A-speculation, B-business activity, and C-money. The chart (hopefully) showed that the major fluctuations of speculation (line A) anticipated those of general business (line B) by from four to ten months, and the major fluctuations of general business preceded those of banking (line C) by from two to eight months.
Irving Fisher’s Diagram of the Equation of Exchange, 1911. While Fisher did not produce a forecasting chart, he created a diagram to make an analogy between the equation of exchange (\(MV + M'V' = PT\)) and a mechanical balance. The left side of the balance symbolized the left side of the exchange, with a small weight standing for \(M\), the money in circulation, and a larger bank book standing for \(M'\), deposits subject to check. The distance to the left of the fulcrum of the weight represented the velocity of circulation (\(V\)) and the distance of the bank book the velocity of circulation of bank deposits (\(V'\)). The volume of trade (\(T\)) was represented by a tray on the right, with the average prices (\(P\)) at which these goods were sold, represented by the distance to the right at which the tray hung. Source: Irving Fisher, “‘The Equation of Exchange,’ 1896-1910,” The American Economic Review 1:2 (Jun 1911): p. 299.
The following charts show Garfield Cox’s estimates of the accuracy of general business forecasts (as opposed to stock market predictions) made by the Babson Statistical Organization and the Harvard Economic Society for the years from 1920 through 1929 (the other services Cox studied, Moody’s, Standard Statistics, and Bookmire’s are omitted for readability). Scores ranged from -1 to +1, with +1 being the most helpful in assessing the future, and a score of 0 being neither helpful nor harmful. Overall, Cox gave the Babson Statistical Organization a score of 0.45 and the Harvard Economic Society a score of .31.
Accuracy of General Business Forecasts, 1925-1929