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Introduction

Over the last years, the history of economics has received broad attention. As a side-effect of the financial crisis of 2008, much of this research has served a critical purpose: By investigating the history of economic thought, scholars aimed at unveiling how economics helped bringing into being the world of ruthless capitalism we inhabit. Aside from rather "popular" explorations in the history of economic thought, which targeted the entire field of economics (Sedláček 2011; Vogl 2016), the financial crisis also spawned a broad research on the history and impact of economic statistics. Research has especially focused on the history of the Gross Domestic Product (GDP). Scholars have, for example, investigated how the GDP became what has been called "the world's most powerful number" and how it has helped making economic growth a priority among social scientists and politicians alike (Fioramonti 2013; Speich Chassé 2013; Lepenies 2016; Schmelzer 2016).

Despite this newly awakened interest in the history of economics and economists' impact on economic and political decision-making, the history of economic forecasting has received only little attention until now. This finding is surprising, as economic forecasting has often been perceived as one of the most important fields of economic expertise (Zarnowitz 1992, 519; Köster 2016). Also, economists' failure to predict the financial crisis was one of the strongest points of public criticism towards economics after 2008. Journalists attested economists a "collective failure," and accused them of three sins: "That macro and financial economists helped cause the crisis, that they failed to spot it, and that they have no idea how to fix it" (Nienhaus 2009; "What Went Wrong with Economics. And How the Discipline Should Change to Avoid the Mistakes of the Past" 2009; cf. also Jorion 2012). These highly emotional reactions, which take the value of economic forecasts as a yardstick for evaluating the performance of the entire economics profession, is contrasted by a comparatively silent

stance of the scientific community. The academic interest in the history of economics that the financial crisis has brought about has, it seems, not yet spread to the field of economic forecasting. There are still very few case studies that investigate the creation and the impact of economic forecasts (Friedman 2014; Lenel 2018; J. Pietruska 2018; Reichmann 2018).

This volume is an attempt to change this. We believe that economic forecasting presents a unique opportunity to study the development of economic statistics and modelling and other forecasting practices and the changing relationship between economics, economic policy, and the public over time. Forecasting constitutes an important activity carried out by institutes of economic research, central banks and international organizations. Economic forecasts receive extensive media coverage and attain great public attention. Policy institutions and private companies rely to a high degree on economic forecasts. Notwithstanding the challenges and difficulties economic forecasting faces, it apparently inhabits a crucial place in modern industrial societies. This raises pressing questions. Why does the reliance on economic forecasting not seem to be shattered by forecasting failures and the severe disappointments they yield? How do economic forecasting services adapt their forecasting techniques and presentations to practical purposes? How do they deal with wrong predictions and economic crises? Is it true, what some critics say, that forecasters stay with their models regardless of empirical failure? Or are there practices of critical self-evaluation at work which contribute to the refinement and (sometimes) paradigm change of forecasting techniques? Finally, what is the impact of forecasts on economic expectations and behavior and how do the expectations of economic and political decision-makers, in turn, affect the epistemic process of economic forecasting?

In approaching the history of economic forecasting, we try to avoid what appears to us as one of the biggest problems of the research on the history of economics today: The issues at play are normally discussed among economists, historians, and sociologists, but these disciplines rarely reach out to each other. Despite repeated calls for a synthesis (cf., e.g., Abbott 1991; Siegenthaler 1999), interdisciplinarity is more than underdeveloped in this field. This is unfortunate, as a greater cooperation would prove beneficial for all three disciplines. Economists could gain from a greater historical contextualization of economic knowledge. As historians

and sociologists have shown, economics is not a uniform science, but differs among historical and geographical contexts (cf., e.g., Fourcade 2009). Also, historians' and sociologists' focus on the practices of knowledge production, their sites and multilayered effects, could help economists broaden the all too narrow perspective of the so-called *Dogmengeschichte* or *History of Economic Thought* (Dommann, Speich Chassé, and Suter 2014; on the field of the history of knowledge more general, see Dupré and Somsen 2019). Historians and sociologists, on the other hand, could benefit from economists' broader knowledge and their better understanding of the relevant issues. And while historians could caution sociologists against drawing too broad generalizations from small sample sizes, historians, on the other hand, could gain from using sociological theories and models. This might not only counteract historians' deplorable inclination to marginalize their own work, but also make their case studies and their underlying premises and methods more comprehensible and more comparable to others.

One of the goals of the conference "Futures Past. Economic Forecasting in the 20th and 21st Century," hosted at the University of Hamburg in October 2018 and funded by the German Research Foundation Priority Program 1859 "Experience and Expectation. Historical Foundations of Economic Behavior," was to encourage such exchanges. We wanted to bring together scholars from different disciplines to discuss the history of economic forecasting in the 20th and 21st century, its changing practices, its roles in society, and the multilayered interactions between forecasters, economic and political decision-makers and the public. The conference demonstrated that the different perspectives on the subject provoked fruitful discussions, confrontations, and clarifications of perspectives. The successful "experiment" of the conference motivated us to edit this volume, which seeks to give an impulse to a field of research which deserves more attention and more collaboration.

1. A Very Short History of Economic Forecasting

People have always tried to forecast the future. For the longest time, however, the main target of prophecy were cataclysmic events in the context of Christian eschatology. During the 18th century, in the course of the

development of a "modern" society, attempts to forecast the future became more important and systematic. The shift in the relationship between experience and expectation, which the historian Reinhard Koselleck described as one of the main features of the onset of modernity, brought about a consciousness of a future that was fundamentally different from the past (Koselleck 2004). The semantics of political and social communication were more and more transformed to target a future that was now understood as open (Luhmann 1980). At the same time, political thinkers started to outline conceptions about the historical development and the future prospects of civil society. These were not actually forecasts, as especially utopian endeavors were generally meant as a criticism of present conditions (Saage 1991). They did, however, constitute first attempts to bridge the separation of space of experience and horizon of expectation.

The late 19th century, then, saw the emergence of professional forecasting, as trading at stock exchanges and speculative market practices of all kinds grew in importance, especially in grain trade. This brought about a growing demand for all kinds of forecasts such as to predict, for example, weather conditions and market fluctuations. As Jamie Pietruska has shown in her work on the culture of prediction in the second half of the 19th century in the United States, a new quest for certainty led to the establishment of numerous forms of prediction. Utopian novelists, crop forecasters, and business prophets competed for scientific authority and professional credibility (J. Pietruska 2018). Interestingly, despite their different fields and techniques, these forecasters often shared certain semantics such as a "meteorological" language, which has remained important in economic forecasting up to this day, thus testifying to meteorology's lasting influence (Anderson 2005; J. L. Pietruska 2011; J. Pietruska 2018).

With regards to economics, the "discovery" of the business cycle in the mid-19th century played a major role in the development of forecasting. In the 1860s, the French physician and economists Clément Juglar studied time series of economic data and identified a cycle of roughly ten years' duration. Juglar distinguished different phases of economic fluctuations, thereby abandoning the long-held notion of random events and shocks as the sole cause for economic crises (Juglar 1862). As the first to define a pattern of periodic fluctuations, Juglar has been referred to as the "ancestor" of business cycle research (Schumpeter [1954] 1997).

Numerous economic crises in the late 19th and early 20th century seemed to testify to the periodic character of economic fluctuations, thereby prompting economists and entrepreneurs to study business cycles in a more systematic fashion. The economic crisis of 1907 led to the establishment of a multitude of forecasting services in the United States (Friedman 2014). Some relied on "common sense," extrapolations of past developments, or simple statistical correlations. Others claimed to apply sophisticated mathematical methods and models to predict future economic developments. The "Harvard barometer," established in 1919, especially captured contemporaries' attention for its seemingly sophisticated technical approach, spurring the establishment of economic services and institutes of business cycle research in Europe, Australia, and South-America throughout the 1920s (Friedman 2009; 2014; Lenel 2018). However, as recent research has shown, failures of the Harvard index led members of the Harvard group to increasingly abandon the use of the index in the early 1920s, instead basing their forecasts on the expectations and plans of American manufacturers as well as Federal Reserve authorities and other bankers (Lenel 2018). Widely unnoticed by the public, an unofficial practice of "foretalk" with economic and political decision-makers replaced the seemingly "mechanical" means of forecasting.

The unforeseen October 1929 crash and the following Great Depression greatly shook the economic forecasting community. As a reaction to their forecasting failures and the severe loss of reputation that these failures brought about, forecasting services like the Harvard Economic Service had to shut their doors in the aftermath of the Great Depression. At the same time, the unprecedented economic crisis revealed the importance of economic forecasting and prevention measures. With government intervention in the economy increasing throughout the 1930s, administrations' demand for economic forecasts rose.

This demand was further spurred by the publication and wide reception of John Maynard Keynes' *General Theory of Employment, Interest, and Money* (Keynes [1936] 2013). The claim for deficit spending and work creation schemes to maintain economic growth and minimize price changes required a close monitoring of monetary, fiscal and economic conditions. Keynes' *General Theory* therefore provided a framework to expand the statistical coverage and to develop national accounting systems. As a

reaction, the 1930s and 1940s saw a second wave of establishments of institutes of business cycle research in Europe and the U.S., with institutes becoming the nucleus for the development of empirically based and theoretically informed forecasting techniques to predict future economic developments.

Forecasting could mean very different things, though. Which time span should be predicted? Which data, which theories, which techniques should be used and applied? These were hotly debated issues in the postwar decades, as the somewhat dramatic American "measurement without theory" debate exemplifies (Koopmans 1947; Fourcade 2009, 86). With the IS/LM model interpretation of Keynes' *General Theory* (Hicks 1937) and the development of dynamic macro models (e.g. Samuelson 1939) based on the description of business cycles as reactions to stochastic shocks in a system of difference equations, macroeconomic theory began to replace old-style business cycle theories (M. S. Morgan 2012, 217–55) with endogenously arising economic fluctuations. While descriptive and "intuitive" techniques of forecasting lost in reputation, economists began to model the economy as a system of simultaneous economic equations with stochastic influences. By manipulating their models, they could testify their hypotheses about relationships represented in the model and demonstrate some answer with the model (M. S. Morgan 2012). This procedure promised to yield "objective" future knowledge that seemed urgently needed at a time of a growing quest for economic policy advice (M. S. Morgan and Rutherford 1998).

This quest was fostered by a growing planning euphoria. Two decennia of relatively stable economic growth since the late 1940s, which had led contemporaries in the 1960s ask if the business cycle was obsolete (Bronfenbrenner 1969), had created the notion of a "programmability" of the future (Plitzko 1964). The planning optimism was further fueled by the Cold War context, in which the future became a battleground as predictions could serve as weapons (Connelly et al. 2012; Andersson 2012; Seefried 2015; Andersson 2018).

In the following decade, however, sharp economic fluctuations, the "oil shocks" of 1973 and 1979, the "comeback" of unemployment, and the structural changes which were a result of industrial restructuring and a serious competition from East Asian countries, created a new feeling of

uncertainty which pushed back the optimism of the 1960s. Already in 1971, a reviewer explained that it "is hard to imagine that the question of the possible obsolescence of the business cycle would be chosen as the theme for a conference held today" (Allsopp and Bronfenbrenner 1971, 951). Keynesian macroeconomics came under attack, as critics blamed it for the phenomenon of "stagflation," as the seemingly paradoxical coexistence of economic stagnation and a high inflation rate characteristic of Western industrial countries during this decade was called (Nützenadel 2005). Not surprisingly, the 1970s also brought economic forecasting under fire, as forecasters delivered more and more false predictions (Graff 1977). While some observers in the 1960s had considered long-term forecasts of more than ten years possible, forecasters now even grappled with the accuracy of short-term predictions. Two phenomena were striking: that forecasters had enormous problems to predict economic downswings, and that they had a tendency to underestimate upswings. In the German case, these shortcomings even led to "backbiting" from scholars of the German Democratic Republic, who perceived the forecasting problems as indicative for the unstableness of the free market system in general (Kuczynski 1970).

And forecasters? Critics often stated that forecasters stayed with their "wrong" methods at all costs and simply ignored their "failures." The reality was different, though: Forecasters undertook big efforts to improve their methods, to broaden their statistical basis, and to develop computer programs (and the appropriate computers) to process the gigantic data volume. Forecasters furthermore developed sophisticated evaluation methods to assess and improve the quality of forecasts. Some of them also started to apply different kinds of forecasting techniques during the 1970s – especially autoregression equations – to overcome some of the mentioned shortcomings. The 1980s and 1990s brought substantial improvements in time series methods: vector autoregressions, models for non-stationary data and models to handle co-integrated systems (Elliott, Granger, and Timmermann 2006; 2013). Although this often simply caused other (just different) problems, it demonstrates that forecasters undertook great efforts to improve their forecasts. This also entailed the cooperation of economic institutes and forecasting services, which led for instance to a "Gemeinschaftsdiagnose" (joint prognosis) by the leading

economic research institutes in Germany, aiming to enhance the authority of forecasts by achieving a consensus (Reichmann 2018, 34–35).

But fundamental problems remain (Fildes and Stekler 2002). As Tara Sinclair shows in her contribution to this volume, forecasters are still facing severe challenges when predicting economic downswings. Unfortunately, this is exactly what the public demands from them. But this inaptitude is certainly not caused by unwillingness or ideological ignorance of forecasters (Döpke, Fritsche, and Waldhof 2019). The simple truth is that "correct" forecasting is a very complicated, to some degree unsolvable task. But this has more to do with the complexity of the task itself and the challenges it has to tackle.

2. The Social Fabrication of Forecasts: Some Aspects

As already mentioned, the financial crisis of 2008 also plunged forecasters into a crisis ("What Went Wrong with Economics. And How the Discipline Should Change to Avoid the Mistakes of the Past" 2009). As a reaction, forecasters began to overthink their forecasting habits. Some forecasters openly admitted that their models were unable to predict financial crises (Heuser 2008; Hartmann and Vogel 2010). However, the loss in reputation does not seem to have had lasting effects. As other crises before, the financial crisis of 2008 has not diminished the public interest in economic forecasts. Forecasts are still eliciting broad media coverage, and institutes of business cycle research are still receiving public funds. This indicates that the accuracy of economic forecasts is not the only criterion determining their demand. Rather, forecasting seems to constitute a dynamic means of observing current developments that helps actors to coordinate and stabilize their expectations of an uncertain future in the present. As the sociologist Werner Reichmann has argued, economic forecasts are anchored in the present, not in the future. By influencing the variables they predict, forecasts can validate or invalidate themselves. "True" or "false" are therefore no fitting categories for judging the quality of economic forecasts (Reichmann 2018, 286).

This is of course highly controversial, as the accuracy of forecasts seems to constitute the most important "currency" within the field of forecasting. As Oskar Morgenstern has argued in 1928, "Every forecast must become

true, otherwise it is entirely worthless" (Morgenstern 1928, 95). But Reichmann's observation rightly points to the fact that the epistemic status of forecasts in the social sciences is different from their status in the natural sciences, as economic forecasts have the potential to create the conditions of their own fulfillment (Morgenstern 1928, 92–108; Merton 1948, 195; Reichmann 2018, 286–87). They can become "self-fulfilling prophecies," which the sociologist Robert Merton described as false definitions of a situation that evoke a new behavior which makes the originally false prediction come true (Merton 1948, 195), or act as "self-disfulfilling prophecies": The prediction of a recession can lead to countercyclical measures by the government, thereby preventing or at least postponing the predicted recession.

The potential of economic forecasts to shape actors' expectations and thereby influence their economic behavior makes economic forecasting and its potential impacts both a challenging and a highly relevant topic. How actors form expectations is a hotly debated question in economics, even more so since the 2008 financial crisis, which presented a severe challenge for the standard theory of rational expectations. According to the rational expectations theory, economic actors form decisions on the basis of all available information. They are therefore able, on average, to accurately predict the future; deviations from perfect foresight are only random. Recently, the sociologist Jens Beckert presented a different account of economic expectations. Alluding to the fundamental uncertainty of the future, Beckert described economic expectations as "communicatively established imaginaries" of the future (Beckert 2016, 42). According to Beckert, actors base their behavior on these "fictional expectations" *as if* they did actually describe future states of the world (Beckert 2014, 9–10; 2016, 10). This allows them to act and coordinate their economic actions.

In this picture, economic forecasts play a crucial role. They offer stories on which economic actors can base their fictional expectations and thus their behavior. By this means, forecasts are persuasive and performative utterances that are inherently political. But forecasts are not only a means to create and stabilize expectations. They also provide what Luhmann called a "symbolic cover," which allows actors to coordinate their expectations and thereby overcome the threshold of uncertainty. Only by agreeing on shared expectations, agents can counteract the double contingency which

is present in all social interactions. Forecasts thus justify and legitimate action despite the uncertainty of the future, thus enabling capitalism's functioning (Luhmann 1995, 127–28; 1994, 74; Beckert and Bronk 2018; Lenel 2018, 412).

This might explain why forecasts are the outcome of not only statistical calculations and mathematical models, but also of an interactive negotiation process. As Werner Reichmann has shown in his research on current forecasting practices in German-speaking countries, forecasters are embedded in various formal and informal networks (Reichmann 2013; 2018). They consult with economic and political decision-makers and, as demonstrated by the German *Gemeinschaftsdiagnose*, also with other forecasters. By this means, economic and political decision-makers as well as other economists can participate in the epistemic process of forecasting (Reichmann 2013). Similar networks have already existed in the 1920s, thus questioning the vision of a purely technical forecast, which was brought forward, among others, by the Harvard index (Lenel 2018, 398–405). Drawing on a term introduced by the American sociologist David Gibson in his research on political decision-making during the Cuban missile crisis, Reichmann describes the exchange between two or more actors about possible futures as "foretalk:" Here, actors negotiate their expectations to produce a consensus on the future (Gibson 2011b; 2011a; 2012; Reichmann 2013).

As these observations forcefully remind us, we need to rethink our common understanding of economic forecasts. Forecasts are not well-founded statements about the future, but only judgments of likelihood, which are the outcome of communicative acts of imagination. As Jamie Morgan explained, their translation into number gives the impression of precision and thus "makes us think of economic forecasting as more than simply complicated guesswork, […] a science and not an art of numbers" (J. Morgan 2013; on the process of translation, see Svetlova 2012). In fact, however, economic forecasts are mere anticipations of possible futures, or "foresights" (on this term, see J. Morgan 2013; Priddat 2016). Through the process of negotiation and by being circulated, however, they can create "convergences of beliefs" and expectations and by that means gain currency (Arrow 1979). Their communication engineers agreement on a shared narrative of the future and thereby fosters the realization of this version of the future (Priddat 2016).

The importance of the social fabrication of forecasts should, however, not be overstressed. The future is not just made of expectations. There are "objective facts" in economic life. People have money or have not, have marketable goods or not, have suitable technologies at hand or not. These facts may be perceived as "constructed" as well, but they are, and this is important here, not negotiable. They simply do not change if actors have different expectations. They, too, influence actors' expectations. The hard to disentangle mixture of economic facts and stories, material conditions and fabricated expectations demonstrates that economic forecasting is certainly not physics, but at the same time not made out of thin air.

Economic forecasts are the result of very different practices. They are derived by a set of different statistical, mathematical and social techniques, thus entailing both calculative and non-calculative practices. By presenting contributions from economists, historians, and sociologists, this volume wants to highlight the multifacetedness of economic forecasting. While by no means representative in geographical or periodical scale, this volume seeks to start a discussion on the multilayered, intricate practices which form the basis of economic forecasts and their impacts on futures past.

3. This Volume

The contributions in this volume look at the history and present state of forecasting, the practices involved and the impacts they yield(ed).

Tara Sinclair opens the volume with an overview of the state and historical record of economic forecasting and an analysis of some explanations and the implications of this record. In her chapter, "Continuities and Discontinuities in Economic Forecasting," Sinclair demonstrates that until this day and despite the seeming advances in forecasting techniques, forecasters have serious problems to predict economic downturns. As Sinclair argues, this finding testifies to the necessity for policy makers and the public to use economic forecasts with caution and improve and quicken their reactions to recessions as they are occurring. Forecasters, on the other hand, should be encouraged to publish warning signals of recessions in advance as the social costs of recessions are huge.

The historian Jan Logemann in his chapter, "Measuring and Managing Expectations: Consumer Confidence as an Economic Indicator,

1920s–1970s," investigates the origins and the application of consumer confidence measurements as a prognostic tool. Stimulated by a new understanding of consumers and their vital importance for economic growth, economists and market experts working in the mid-20th century developed new techniques to track consumers' changing expectations. From the 1950s onwards, corporate and government officials used these techniques to forecast and engineer consumer-driven economic growth in the United States and in Europe. Logemann argues that European émigré scholars like George Kantona played a crucial role in this development. Drawing on insights of continental European social and Gestalt psychology, they presented new ideas about the expectations of consumers and their impacts and developed innovative tools to measure these "soft" factors and derive forecasts from them. Logemann's chapter not only sheds light on the origins and the history of an important forecasting variable, but also provides a fascinating account of the central importance of transnational knowledge transfers in economics, whose history and place in 20th century economics is astonishingly unexplored up to this date.

In her contribution, "The economist as futurologist. The making and the public reception of the *Perspektivstudien* in Switzerland, 1964–1975," historian Marion Ronca investigates the emergence and the history of the "Perspektivstudien" in the 1960s, which aimed at providing long-term forecasts of the economic development in Switzerland. As a reaction to the opposition of vested interests and its unique form of government, Switzerland had long abstained from economic planning and the development and expansion of a statistical infrastructure. In the 1960s, however, the Swiss government assigned a group of economists headed by the futurologist Francesco Kneschaurek to investigate the long-term development of Switzerland. Ronca argues that the "Perspektivstudien" excluded social and political factors in their outlooks and thus conveyed a new conception of the economy as a separated, ahistorical sphere. As such, the "Perspektivstudien" were contributing to widespread expectations of an infinite post-war prosperity that were, however, heavily shaken during the 1970s.

Timo Walter offers a sociological analysis of the problems of inflation targeting, which is premised on the assumption that future inflation rates can be ensured by shaping economic expectations in the present. In his

chapter, "The Janus Face of Inflation Targeting: How Governing Market Expectations of the Future Imprisons Monetary Policy in a Normalized Present," Walter draws on recent interventions in the fields of sociology and anthropology to investigate the conditions on which the success of this future-oriented and expectations-based form of monetary policy depends and the limitations these conditions imply. Walter shows that inflation targeting has become an "expectations game," which is played out entirely within a "present future" (the future as it is imagined and projected from the present) and decoupled from the "future present" as it materializes at a later point in time. Through increasingly sophisticated models for forecasting inflation, central banks can construct a present future in terms of which they can coordinate expectations. This procedure, Walter argues, is problematic as it reduces central bank's control of the future present and thus their power to govern the future.

In his chapter, "Social Interaction, Emotion, and Economic Forecasting," sociologist Werner Reichmann points to the social fabrication of forecasting. Drawing on surveys conducted with forecasters at business cycle research institutes in Germany, Austria and Switzerland since 2004, Reichmann distinguishes two epistemic resources that help economic forecasters to issue forecasts *despite* the radical uncertainty of the future. First, Reichmann shows that forecasters do not work alone, but are entangled in a vast network of other forecasters, business professionals, and politicians who participate in the epistemic process of economic forecasting. Second, Reichmann emphasizes the vital role of emotions in economic forecasting. By developing a "feeling" for numbers and an intuitive understanding of economic trends, forecasters try to overcome the shortcomings of pure reasoning, economics theory, and econometric models. Pointing to these findings, Reichmann forcefully argues that economic forecasting is not merely a technical matter, but also depends on social interaction and the mobilization of emotions.

Oliver Pilmis, too, takes a sociological perspective on forecasting. Contrasting Reichmann's qualitative approach, Pilmis' contribution, "The Dynamics of Expectations: A Sequential Perspective on Macroeconomic Forecasting," exploits a huge database of historical inflation and growth forecasts and investigates the heterogeneity across forecasters by the means of quantitative analysis. Pilmis reaches the conclusion that economic

forecasting is mainly data-driven. This means that a fundamental homogeneity of forecasting methods and applied models exists and a certain characteristic of forecasts depending on the forecasting institutions cannot be easily identified. Interestingly, Pilmis reports a tendency for all forecasts under investigation to return to a certain "normal stance" in the medium run with higher and stronger adjustments in the short run.

The chapter by the economists Jörg Döpke, Ulrich Fritsche, and Gabi Waldhof, "Never Change a Losing Horse?: On Adaptations in German Forecasting after the Great Financial Crisis," presents the result of a broad empirical survey investigating how macroeconomic forecasters have reacted to the dire accuracy of forecasts before and in the first phase of the financial crisis. Building on surveys and questionnaires among German forecasters in 2017, they demonstrate that despite occasionally contrary statements, forecasters' behavior has changed surprisingly little since the financial crisis. There is, however, increased awareness of forecast uncertainty. Also, forecasters whose forecasts proved erroneous in the past seem to be more prone to adopt other methods and theories.

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