SYMPOSIUM ON PREDICTION IN THE SOCIAL SCIENCES

Introduction: Reflections on Historical Prophecy in the Social Sciences

Michael Hechter
University of Oxford

The collapse of communist regimes in Russia and Eastern Europe was greeted by near-universal enthusiasm, save among two quite different groups. The first, not surprisingly, consists of the former officials of these regimes—many of whom feared for their careers, if not for their very lives, in the wake of lustration. Little of their disappointment was aired in public; it would, no doubt, have fallen on deaf ears. Yet since former government officials probably benefited disproportionately from the opportunities afforded by the new order, many of them may not have been so terribly disappointed anyway.

The second group, more surprisingly, consists of social scientists who failed to anticipate the collapse of communism despite claims to the predictive status of their trade. Successful prediction resolves uncertainty about future states of the world. On almost any view of human nature, certainty is preferred to uncertainty (Friedman, Hechter, and Kanazawa 1994). All of us would like to know what our spouse will be like 10 years after marriage, what successes and failures will befall us in one career as against another, and what kind of a house will have the greatest appreciation 25 years hence. Sociology is no less committed to prediction than are its sister disciplines: from its very beginnings, the attainment of predictive knowledge was one of the field’s principal rationales (Schuessler 1968). Perhaps this explains why social scientists have engaged in a

1 Address correspondence to Michael Hechter, Department of Applied Social Studies, University of Oxford, Barnett House, Wellington Square, Oxford OX1 2BN, United Kingdom.
2 Thus for Collins (in this issue), “The ability of sociology to make valid predictions is a sign of the maturity of the discipline.” There are, of course, other traditions in sociology that are skeptical about the field’s capacity to generate predictive knowledge.

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0002-9602/95/10006-0004$01.50

1520 AJS Volume 100 Number 6 (May 1995): 1520–27
good deal more public hand-wringer than the deposed former com- 
munist officials. Indeed, two successive program committees (1992, 1993) of 
the American Sociological Association devoted thematic panels to explore 
why the dramatic events of 1989 came as such a surprise (Lipset and 
Bence 1994).

The symposium presented here is derived from the most recent of these 
panels. Its central question is whether events such as those of 1989 
should—or could—have been predicted. More specifically, are social sci-
entists failing to live up to their promises, or do they uphold unrealistic 
extpectations by assuming that phenomena such as revolutions and the 
collapse of empires in fact are predictable?

That some kinds of events can be predicted with precision is undeni-
able. The tides and celestial appearances, such as Halley’s comet and 
solar eclipses, have been predicted with admirable precision for centuries. 
Even more impressive, the existence of difficult-to-observe phenomena, 
such as antimatter and black holes that were never even imagined but 
were predicted on the basis of theories like general relativity, have been 
confirmed occasionally in the history of science.

Of course, many other physical phenomena cannot be predicted nearly 
as precisely nor as far in advance. Earthquakes provide an instructive 
example. Since they are one of the most serious types of natural disasters, 
accurate earthquake prediction could save many lives. The accumulation 
of stress and the weakening of rock that precede an earthquake have 
measurable consequences. The sudden lowering of groundwater levels, 
the existence of tilts and bulges in the earth’s surface, changes in the 
velocity of propagation of P and S waves, changes in the earth’s magnetic 
field, and increased concentrations of rare gases in well water have been 
observed in different combinations prior to some—but not all—earth-
quakes. These observations can be used to signal the possible appear-
ance of an earthquake, but they do not always foretell one.

Seismologists can predict the locations of earthquakes very precisely; 
their predictions of the intensity of tremors are less accurate. Despite 
this, cities at risk of earthquakes can adopt building codes to minimize 
mortality rates. Yet temporal predictions of earthquakes could save even 
more lives; if predictions were accurate, then potential victims could be 
evacuated and would survive. Unfortunately, errors in predicting the 
timing of earthquakes average 20 years or more. It is likely that earth-
quake predictions will improve with better data. Seismologists have to 
teach tectonic dynamics that have taken place for tens of thousands

3 The first was published as a special issue of Theory and Society (Hechter and Szelenyi 1994).
of years on the basis of little more than a century of observation. Similarly, weather forecasts have improved on the basis of new technologies of measurement and computation.

Since revolutions and civil war also cause mortality, their potential victims have a strong interest in accurate predictions of these events. But are social phenomena predictable? Indeed some of them are. Selling automobile insurance can be profitable because statistical data permit insurers to estimate the risk of loss due to crime or accident for various classes of policyholders (Heimer 1985). Economists can predict the effects of different rules of auction on market efficiency (Smith 1991, pp. 25–29). Sociologists can predict the constancy of inequalities in educational attainment under a wide range of conditions (Ratery and Hout 1993; Shavit and Blossfeld 1993). But many other kinds of social phenomena do not seem very amenable to prediction. Thus people cannot easily predict their own future preferences (Kahneman and Snell 1993). Economists cannot predict fluctuations in the stock market (but see Rappoport and White 1994), and their recent macroeconomic forecasts have inspired little confidence in any quarter.

What accounts for the differential ability to predict future events? The standard answer to this question was given by Karl Popper (1957, 1963), who distinguished between two different types of predictions: scientific predictions and unconditional historical prophecies. Most scientific predictions are conditional: they assert that certain changes in the parameters of a given system will be associated with changes in outcomes. So if the price of a given commodity is doubled we can predict that less of it will be demanded. Unconditional scientific predictions can sometimes be derived from these conditional scientific predictions, together with historical statements that assert that the conditions in question are fulfilled.

In contrast, long-term historical prophecies can be derived from scientific conditional predictions only if they apply to systems that are well-isolated, stationary, and recurrent. The reason we can make long-term predictions of solar eclipses is because the solar system is a stationary and repetitive system. It is so because it happens to be isolated from the influence of other mechanical systems by vast amounts of empty space. Therefore it is relatively free of potentially destabilizing interference from outside. Recurrent systems of this kind also exist in biology. Systems of this kind occur rarely, however, and there is no reason to expect that long-term unconditional prophecy can be applied to human history. This is because societies can change—in some cases, rather rapidly—due to the growth of technology and other forms of human knowledge. More generally, the problem is that “we cannot predict, scientifically, results which we shall obtain in the course of our own knowledge” (Popper
1982, p. 62). On this account, social situations different from anything that ever happened before can and often do arise, thereby vitiating any possibility for long-term prophecy.  

This verdict need not be regarded as terribly pessimistic, for the utility of the physical sciences may not rest in their ability to accurately forecast events like solar eclipses. Likewise for the social sciences. Instead, the main task of the theoretical social sciences, according to Popper, is to trace the unintended social consequences of intentional human actions. This is not so different from the situation of the natural sciences. Both lead to propositions stating what cannot be done. The second law of thermodynamics informs us that it is impossible to build a machine that is perfectly efficient. Likewise, the law of demand informs us that it is impossible to raise the price of a given commodity and have more people willing to buy it. The social sciences provide us with an idea of what can, and what cannot, be done in the sphere of public policy. The role of science in social life is “the modest one of helping us to understand even the more remote consequences of possible actions, and thus of helping us to choose our actions more wisely” (Popper 1963, p. 343).

The conventional wisdom therefore suggests that social phenomena like revolutions are not predictable with any high degree of precision. If so, it follows that social scientists should not hang their heads in shame for failing to anticipate the collapse of the Soviet Union in the year 1989.

For somewhat different reasons, both Kuran and Tilly endorse this conventional wisdom. Kuran’s analysis of the inherent unpredictability of revolution hinges on the disjuncture between public and private preferences. Public preferences are opinions that citizens are willing to reveal to survey interviewers and political authorities, but private preferences are not so readily revealed. Revolutionary situations, for Kuran, occur when existing regimes lose legitimacy and citizens desire to replace their leaders, if not the entire system of governance. Fear of sanctions, however, causes these preferences to remain private, and so they are only imperfectly observable. Hence a society might be on the verge of a revolu-

\[4\] Popper certainly was not alone in arguing for the indeterminacy of history. Morgenstern (1928) also took a pessimistic view of long-term historical prediction, and for related reasons. Once the prediction of an event was made public, Morgenstern averred, people might alter their behavior intentionally so as to then invalidate the prediction. In another early contribution, Merton (1936) made precisely the converse observation that some public prophecies may come to pass precisely because they are self-fulfilling. By highlighting the self-altering potential of historical predictions, both Morgenstern and Merton underline Popper’s contention about the destabilizing role of knowledge in complex systems. The recent popularity of the discourse of path dependence among historians presumably attests to similar concerns. Grünberg and Modigliani (1954) and Simon (1954) claim to have refuted Morgenstern’s conclusion, but both papers subsequently have been challenged (Henshel 1994).
tionary upheaval without anyone knowing it. In this situation a small, intrinsically insignificant event might be enough to topple the entire social order. Informational limits and observability loom large in Kuran’s analysis. Due to the interdependence of individual preferences, revolution always is the outcome of a nonlinear process. This nonlinearity allows for large effects in the consequences of a given event. Imperfect observability of the interdependencies among public preferences means that potentially destabilizing events can never be accurately forecast—hence, the ease of explaining a revolution post hoc and the difficulty of predicting one ex ante.

Yet some revolutions will be more predictable than others. This is because private preferences are more difficult to measure and interpret in nondemocratic than in democratic regimes. Thus, due to public opinion surveys, private preferences are generally more observable in democracies. Even so, responses to questions on certain highly charged issues are unlikely to be accurate. To some degree, systematic response bias can be overcome by the use of new techniques in survey analysis. In contrast, nondemocratic regimes both discourage truthful revelation of public preferences and prohibit the collection and dissemination of accurate public opinion data. Sensitive observers should be able to make use of the distinction between public and private preferences, however, to generate hunches about the legitimacy of any given regime. Kuran concludes by predicting that no theory will be able to predict future revolutions accurately. The strength of this claim rests on the interpretation of accuracy. It is not surprising that Kuran takes a stringent view of the matter: an accurate prediction will specify that a revolution will occur in a specific state within a five-year confidence interval at maximum.

Tilly likewise is skeptical of our ability to make exact predictions about macrosocial events. Yet he seems to regard himself a voice in the wilderness. In his highly informed opinion, most current macrosociologists carry out their research as if it were possible to make accurate predictions. This is due to the (mostly implicit) assumptions they make about invariant units of analysis and social processes. More specifically, macrosociologists tend to assume coherent, durable self-propelling social units that are characterized by some general condition. An invariant model of that condition or process is invoked or invented, which enables them to explain the unit’s behavior as consistent with that of the invariant model. Citing chapter and verse from a number of currently influential studies, Tilly argues that the so-called predictions deriving from this method tend merely to be definitional and tautological. His acidic description of the activity he terms “improving the model” should be required reading for far too many students and practitioners of sociological research. In this way Tilly adds his voice to others who recently have surveyed compara-

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tive-historical methodology and found much of it wanting (Kiser and Hechter 1991; Lieberson 1991; Goldthorpe 1994).

Far from denying the importance of transhistorical regularities in political life, Tilly insists that they do not operate in the form of recurrent structures and processes on a large scale. Whereas students of revolution have assumed they were studying phenomena like tides or celestial appearances, in reality they are studying phenomena like floods. Although floods are natural phenomena that are consistent with general principles like the physics of incompressible fluids in open channels, they cannot be precisely predicted because every instance is different. Time, place, and sequence strongly influence how the relevant processes unfold. Tilly concludes by sketching an alternative way of thinking about macrosocial events and by describing some recent studies that break with past practice in ways he regards as hopeful. Whether or not Tilly's diagnosis and cure is accepted, it is remarkable that it needs to be repeated in 1995. After all Popper, who hardly was an obscure figure in the social sciences, made substantially the same point at least four decades ago.5

Perhaps a clue about why some social scientists have turned their backs on this conventional wisdom may be gleaned from Collins's article. This is because Collins begins by asserting not only that it is in principle possible to predict revolutions, but that he actually did so with respect to the demise of the Soviet Union. Collins documents this claim in his article and describes in some detail how he made this particular prediction. Was Collins's anticipation of the Soviet demise an accurate prediction derived from a set of fundamental theoretical principles, or was it merely a lucky guess?

Collins claims that his prediction was based on a geopolitical theory that links a variety of state resources and interstate competition with shifts in legitimacy. His elaborate discussion of the theory constitutes the substantive heart of the article. In a nutshell, geopolitical theory makes a set of conditional predictions about the power and prestige of states. State power and prestige, in turn, are held to vary directly with state

5 "History is characterized by its interest in actual, singular, or specific events, rather than in laws or generalizations. This view is perfectly compatible with the analysis of scientific method, and especially of causal explanation. . . . The situation is simply this: while the theoretical sciences are mainly interested in finding and testing universal laws, the historical sciences take all kinds of universal laws for granted and are mainly interested in finding and testing singular statements. . . . All causal explanations of a singular event can be said to be historical insofar as the 'cause' is always described by singular initial conditions. And this agrees entirely with the popular idea that to explain a thing causally is to explain it and why it happened, that is to say, to tell its 'story.' But it is only in history that we are really interested in the causal explanation of a singular event. In the theoretical sciences, such causal explanations are mainly means to a different end—the testing of universal laws" (Popper 1957, p. 143).
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legitimacy (which, for him, is the proximal cause of revolution). Hence, when the power and prestige of states decrease below some threshold level, state breakdown will occur. Analytically, this sounds very much like Popper's description of conditional scientific prediction. To this point, therefore, nothing in Collins's article violates the conventional wisdom in the philosophy of science.

Despite occasional rhetorical flourishes, Collins actually makes no strong claims for the predictive accuracy of geopolitical theory, at least with respect to temporality. He estimates that its predictions have an error term of from 30 to 50 years. In Kuran's view, this performance is unacceptably imprecise. There are at least two reasons for the relative indeterminacy of geopolitical theory. First, each application of the theory requires a specification of initial conditions, which are historically variable. The second reason for the theory's indeterminacy is captured in Collins's discussion of three kinds of historical time: the longue durée, in which geopolitical resources change slowly, wartime, in which large changes can occur within a small number of years, and social movement time, the two or three days during which the legitimacy of the threatened state—and hence its very fate—hangs in the balance. The implication is that events in the longue durée are highly determinate, those during wartime are less so, and those during social movement time are essentially indeterminate. Since state breakdown is a function of all three kinds of time, Collins therefore concedes Kuran's point that revolutions cannot be predicted with any precision. And he would appear to agree with Tilly that revolutions are not invariant processes.

Altogether, then, this symposium suggests that our situation with respect to prediction is akin to that in seismology. There is reason to believe that it is possible to predict the location of major social upheavals. Predicting their intensity is more dubious. Predicting their timing is likely to be beyond our grasp both now and in the future. Even so, Collins ends his article on a distinctly upbeat note. Readers must decide for themselves if this difference in tone between Collins, on the one hand, and Kuran and Tilly, on the other, is semantic—that is, whether it amounts to a dispute between those who view the glass as half full or half empty—or if something more fundamental is at stake.

REFERENCES


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