Angus Burgin
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Toward an Intellectual History of Uncertainty

Economists discussing the problem of radical uncertainty commonly invoke Frank Knight's classic definition in *Risk, Uncertainty and Profit*, but only rarely venture to explore the broader contours of his argument. Those who do so are soon confronted by a striking disjunct between Knight's methods and those adopted by most economists writing on the subject over the past half-century. As some here may recall, Knight began his graduate studies at Cornell in the philosophy department, only transferring to economics when his original advisors decided he was too skeptical.[1] His subsequent treatment of the concept of uncertainty and the origins of profit remained closely engaged with problems at the boundaries of economics, ranging widely to explore the epistemological and political-philosophical implications of the concept. *Risk, Uncertainty and Profit* reads less like a doctoral dissertation in economics than a treatise of social philosophy.[2] In our discussion today, I would like to return to Knight's text to consider two of its implications for those working on problems of uncertainty. First, he helps us to recover a set of complex questions about the relationship between uncertainty and social theory that economists have long marginalized. Second, he reminds us that uncertainty itself has an intellectual history. In recent years scholars have developed ever more elaborate a sophisticated histories of risk and probability; what might we learn if we turned our attention to uncertainties that elude quantitative methods altogether?

Knight, of course, arrives at his definition of uncertainty in contradistinction to risk. In observing this difference, however, he is quick to emphasize that only a small subset of future

[1] Donald Dewey, "Frank Knight Before Cornell: Some Light on the Dark Years," in *Research in the History of Economic Thought and Methodology*, vol. 8, ed. Warren J. Samuels (Greenwich, Conn.: JAI, 1990), 1–38.
[2] For a history of Knight's philosophical engagements in this period, see Ross B. Emmett, "'The Economist as Philosopher': Frank H. Knight and American Social Science during the Twenties and Early Thirties" (Ph.D. diss., University of Manitoba, 1990).

events can be subsumed under the category of "risks." Uncertainties, in contrast, are everywhere:

> The practical difference between the two categories, risk and uncertainty, is that in the former the distribution of the outcome in a group of instances is known (either through calculation *a priori* or from statistics of past experience), while in the case of uncertainty this is not true, the reason being in general that it is impossible to form a group of instances, because the situation dealt with is in a high degree unique. The best example of uncertainty is in connection with the exercise of judgment or the formation of those opinions as to the future course of events, which opinions (and not scientific knowledge) actually guide most of our conduct.[3]

In Knight's analysis, the future is rife with irreducible uncertainties, which consist of problems that are "bafflingly complex."[4] We engage in various strategies to reduce or comprehend them, but in the complicated dynamics of the modern world these are always a thin gloss over the uniqueness and corresponding unknowability of future events.

For Knight, the pervasiveness of this uncertainty yields opposing responses. On the one hand, uncertainty is terrifying, and much of our labor is devoted to its reduction. "It goes without saying that rational conduct strives to reduce to a minimum the uncertainties involved in adapting means to end," he wrote in *Risk, Uncertainty, and Profit*. "[I]n attempting to act 'intelligently' we *are* attempting to secure adaptation, which means foresight, as perfect as possible."[5] On the other hand, uncertainty is what makes life interesting, creates space for the intellect, and sustains the existence of profit. "With uncertainty absent, man's energies are devoted altogether to doing things; it is doubtful weather intelligence itself would exist in such a situation; in a world so built that perfect knowledge was theoretically possible, it seems likely that all organic readjustments would become mechanical, all organisms automata."[6] As he observes near the conclusion of the book: "the very idea of intelligent conduct implies an effort

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[3] Frank H. Knight, *Risk, Uncertainty and Profit* (Boston: Houghton Mifflin, 1921), 233.
[4] Knight, *Risk, Uncertainty and Profit*, 235.
[5] Knight, *Risk, Uncertainty and Profit*, 238. Emphasis Knight's.
[6] Knight, *Risk, Uncertainty and Profit*, 268.

to reduce uncertainty, while none the less we recognize, on any calm, cool contemplation of the matter, that a life with uncertainty eliminated or perhaps even very greatly reduced would not appeal to us."[7] In a characteristically bleak formulation, humans are constantly attempting to constrain precisely the quality that makes their lives worthwhile.

This Knightian paradox provides a marked contrast to later treatments of uncertainty. In *Risk, Uncertainty and Profit* Knight shows little interest in strict concepts of rationality; to him, uncertainty is both desirable and desirable, and people alternately (and at times concurrently) approach it as something to be mitigated and embraced. His interests are less in expanding the horizons of quantitative analysis than in delineating the territory that necessarily eludes its grasp. His fundamental concern is with the analytical problem posed by the persistent unknowability of the future, as a source of intense interest that is always shaped by forces that we cannot anticipate or comprehend. While Knight's successors in economics departments became preoccupied with developing and contesting the tools that would enable us to determine rational behavior under conditions of uncertainty, his more direct heirs acknowledged the unknowability of the future and sought to develop a social and economic philosophy that embraced it. Such literary and philosophical ruminations, however, would no longer find economics to be a welcoming disciplinary home.

In *Risk, Uncertainty and Profit*, Knight suggests that conflicting views on uncertainty form a substratum for debates about political economy. When confronted by the unknowability of the future, humans have widely differing responses: some express a high degree of sensitivity to particular forms of uncertainty, while others prove much more willing to accept and embrace uncertainties for the benefits they can potentially afford. In Knight's terms, individuals "differ widely," and the "steeper the curve of increasing disutility the more we must favor a relative

[7] Knight, *Risk, Uncertainty and Profit*, 348.

dispersion of the burden."[8] Those who dislike uncertainty will be much more inclined to invest in activities that limit its reach, including the acquisition of knowledge, the establishment of large-scale social organizations, and the imposition of constraints on future progress and development; those who are less sensitive to uncertainty will view the costs incurred by each of these endeavors with skepticism. Some will seek to sacrifice progress in order to increase the knowability of the future; others will embrace the benefits of change and complexity at the cost of security and the capacity to predict. In Knight's analysis, political disputes are structured as much by different dispositional tolerances for uncertainty as by ideological or material concerns.

In the decades immediately following the publication of *Risk, Uncertainty and Profit*, a number of Knight's colleagues came to share his preoccupation with the political ramifications of uncertainty. They differed widely, however, in the types of uncertainty they emphasized and sought to redress. For Hayek, uncertainty appeared largely as a problem created by the state; his primary concern was the creation of a stable framework of laws that would allow business operators to proceed with a minimum of political instability.[9] Keynes, in contrast, emphasized the capacity of businesspeople to take advantage of uncertainties to create "great inequalities of wealth," as well as unemployment and other inefficiencies, and argued that interventions were necessary to control currency and credit and to ensure the publication "of all business facts which it is useful to know."[10] These were differences not only over the degree to which uncertainty would be tolerable, but also over the sources of uncertainty that should serve as the primary locus for human concern.

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[8] Knight, *Risk, Uncertainty and Profit*, 347-348.
[9] Friedrich A. Hayek, *The Constitution of Liberty* (Chicago: University of Chicago Press, 1960).
[10] John Maynard Keynes, *The End of Laissez-Faire* (London: Hogarth, 1927). The problem of uncertainty in Keynes's social vision has received extensive discussion; see, for example, Robert Skidelsky, *John Maynard Keynes: The Economist as Saviour, 1920–1937* (London: Macmillan, 1992), 539; Sheila Dow, "Uncertainty about Uncertainty," *Foundations for New Economic Thinking: A Collection of Essays* (London: Palgrave, 2012), 72–82.

In another work preoccupied with the political implications of uncertainty, *Capitalism, Socialism and Democracy*, Joseph Schumpeter arrived at a conflicted and ambiguous sublimation of these views. Although Schumpeter was sympathetic to Knight's concept of uncertainty and highly attuned to its centrality to economic life, he worried in *Capitalism, Socialism, and Democracy* that it was becoming increasingly marginalized by tendencies within capitalism itself.[11] "[I]nnovation itself is being reduced to routine," he wrote. "Technological progress is increasingly becoming the business of teams of trained specialists who turn out what is required and make it work in predictable ways."[12] Market societies were squeezing out the very uncertainties that made their social and economic institutions possible. "Since capitalist enterprise, by its very achievements, tends to automatize progress, we conclude that it tends to make itself superfluous."[13] Schumpeter's deep political pessimism emerged from his assessment of the pace and structure of social and technological change. His high tolerance for certain kinds of uncertainty was thus accompanied by skepticism about the sustainability of an economic order premised on it.

However distinct their political views, each of these economists grappled with uncertainty in part as a matter of moral and political philosophy. Designing an economic order required foundational decisions about the kinds of uncertainties that could be mitigated and the degree to which it was desirable to do so. For this final generation of literary economists, as for their predecessors and successors, the intellectual history of economics was in part a story of embedded assumptions about the shape of the future and the degree to which it could or should be known.

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[11] Joseph Schumpeter, *History of Economic Analysis* (New York: Oxford University Press, 1954), 894.
[12] Joseph Schumpeter, *Capitalism, Socialism and Democracy*, third edition (New York: Harper & Row, 1950; first edition 1942), 132.
[13] Schumpeter, *Capitalism, Socialism and Democracy*, 134.

The messiness of uncertainty, in its travels through various disciplines, methodologies, and lines of inquiry, makes its history especially challenging to comprehend or constrain. It is perhaps unsurprising that historians have largely eschewed it, choosing instead to emphasize narratives that align with (rather than work against) the pathways of disciplinary segmentation. In recent years, historians have devoted particular attention to the history of probability, building on the extraordinary contributions of the Bielefeld research group on the Probabilistic Revolution.[14] We now frame the period between the eighteenth and the early twentieth century in large part as a story of the rise of probabilistic reasoning: in Ian Hacking's powerful formulation, "the world itself became numerical," and the "imperialism of probabilities" was "the philosophical success story of the first half of the twentieth century."[15] These histories, in turn, have led narratives about risk to become ever more central to social, cultural, and intellectual histories of the period. As Jonathan Levy suggests in *Freaks of Fortune*, in the nineteenth century risk burrowed into the popular consciousness and became an inextricable part of the "modern condition."[16] Technical developments created novel risks, which in turn were mitigated through corporate and state-sponsored insurance. After decades of neglect, historians thus find themselves turning to Karl Polanyi once again; his story of a "double movement," in which the expansion of risk created a need for social policies that counteracted its excesses, has once again found a broad and appreciative audience.

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[14] Major works produced by this group include Stephen M. Stigler, *The History of Statistics: The Measurement of Uncertainty before 1900* (Cambridge, Mass.: Belknap Press of Harvard University Press, 1986); Lorraine Daston, *Classical Probability in the Enlightenment* (Princeton: Princeton University Press, 1988); Theodore M. Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life* (Princeton: Princeton University Press, 1995).

[15] Ian Hacking, *The Taming of Chance* (New York: Cambridge University Press, 1990), 4-5. Several forthcoming works pull this story into the postwar era; see Catherine Sophia Herfeld, "The Many Faces of Rational Choice Theory" (Ph.D. dissertation, Witten/Herdecke University, 2012); S. M. Amadae, *The Cold War's Legacy: Prisoner's Dilemma Governmentality* (forthcoming).

[16] Jonathan Levy, *Freaks of Fortune: The Emerging World of Capitalism and Risk in America* (Cambridge, Mass.: Harvard University Press, 2012), 1, 2, 5. For other recent scholarship on risk in an American context, see *Embracing Risk: The Changing Culture of Insurance and Responsibility*, ed. Tom Baker and Jonathan Simon (Chicago: University of Chicago Press, 2002); Jamie Pietruska, *Looking Forward: A Cultural History of Prediction in the Gilded Age* (forthcoming).

For all its accomplishments, this new attention to histories of numeracy at times marginalizes, like the economics profession itself, precisely those problems that elude quantitative analysis. Historians run the risk of reproducing the myopia of their subjects, relegating uncertainty to the role of a silent specter behind a broader narrative about the "taming of chance." We might begin to think about how to write a history of qualitative engagements with the problem of uncertainty, which itself can provide a powerful story of shifting sentiments about the social role of the market. Emma Rothschild's *Economic Sentiments*, for example, privileges precisely this line of analysis, arguing that in the universe of enlightenment political economy uncertainty was everywhere, and politics was in large part a matter of "tolerance" for its reach.[17] In her analysis, the "universe of imaginative uncertainty is also the rise of commerce."[18] Economic ideas are closely related to perspectives on uncertainty, and social policy is constructed in constant dialog with an unknowable future. Historians of later periods might ask the same questions as Rothschild, even if the responses of their subjects become cagier and more difficult to discern. However sophisticated the quantitative techniques of our subjects may be, we would be wise to remember that views on political economic systems nonetheless rely upon views about the reach and desirability of the qualitative uncertainties they produce.

In the decades following the Second World War discussions of the social and philosophical implications of irreducible uncertainty largely fell to the margins of the economics profession.[19] Increasingly, the professionalized disciplines pursued methodologically insular lines of inquiry: as economists explored problems in decision theory and political theorists

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[17] Emma Rothschild, *Economic Sentiments: Adam Smith, Condorcet, and the Enlightenment* (Cambridge, Mass.: Harvard University Press, 2001), 38.
[18] Rothschild, *Economic Sentiments*, 227.
[19] The methodological constraints of postwar discussions of uncertainty are evident, for example, in Jimmie Savage's highly influential treatment in *The Foundations of Statistics* (New York: John Wiley & Sons, 1954).

debated the prospects for luck minimization, both communities lost interest in the wide-ranging forays across economics, politics, and philosophy that Knight and his colleagues had pursued. Such discussions were instead largely relegated to intermediary subfields of dubious prestige, percolating through works of popular sociology and energizing the extraordinary postwar boom in "futures research."[20] Perhaps its broadest influence, however, was in the nascent field of management theory, which was born in large part out of an attempt to grapple with the managerial problem of the unknowability of future events. As the historian T. J. Jackson Lears has observed, "strategies of managerial rationality" inhabit a fraught territory between the embrace of chance and the desire for control.[21]

The omnipresence of uncertainty and its close relationship with profit, for instance, became a primary theme in the work of Peter Drucker after he rose to prominence with the publication of *The Future of Industrial Man* (1942) and *The Concept of the Corporation* (1946). Already in *The New Society* (1949) he had arrived at the conclusion that uncertainty was becoming ever more central to our experience of the economic world. "It is characteristic of industrial production," he wrote, "that every single increase in efficiency and productivity increases the uncertainty of industrial production."[22] Research grows ever more distant, in time and concept, from the products that it may or may not yield. By 1957 he was proclaiming that we had entered "into a new, as yet nameless, era," marked by changes brought on by innovations in the production process. The problems posed by these uncertainties underlay all of Drucker's subsequent work: his attempts to systematize innovation as a "leap into the unknown," to redress the "unbearable" social and psychological toll exacted by a rapid pace of change, to critique the "long odds" that confront the projections adopted by any planning

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[20] For a discussion of futurism and an example of the vitality of recent work on the "history of the future," see the contributions by David C. Engerman, Jenny Andersson, Manu Goswami, and Matthew Connelly et al to the forum on "Histories of the Future" in the *American Historical Review* 117, no. 5, 1402–1485.
[21] Jackson Lears, *Something for Nothing: Luck in America* (New York: Viking, 2003), 232.
[22] Peter Drucker, *The New Society: The Anatomy of Industrial Order* (New York: Harper & Brothers, 1950), 57.

regime, and to draw attention to the centrality of knowledge in a world persistently confronted by the absence thereof. His work, as he framed it, was an attempt to create a "philosophy of purpose, a logic of quality and ways to measure qualitative change."[23] The modern discipline of management, in this sense, was born in large part out of an attempt to theorize precisely the kinds of uncertainty that professors of economics increasingly ignored.

For historians, the amorphous and omnipresent uncertainties addressed by Knight and Drucker offer a powerful counternarrative to the recent emphases on numeracy, rational choice, and the rise of probabilistic reasoning — one that fixes its attention on the radical uncertainties that modern technology produces, rather than the risks it can help us to redress. For economists, a return to this earlier moment in the history of the discipline might provide a gentle reminder that some aspects of our economic world can only be addressed by literary methodologies.[24] According to Frank Knight, the relentless novelties of experience — for better and for worse — leave room for little else.

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[23] Peter Drucker, *Landmarks of Tomorrow* (New York: Harper & Brother, 1957), 15.
[24] David Tuckett, in a significant recent gesture in this direction, emphasizes that "ontological uncertainty" needs to be understood through the conviction "narratives" that actors construct in the absence of calculable grounds. See David Tuckett, "Irreducible Uncertainty and its Implications: A Narrative Action Theory for Economics," Institute for New Economic Thinking annual conference, April 2013.