Reconsidering Frank Knight's *Risk, Uncertainty, and Profit*

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In 1921, Houghton and Mifflin finally published the second-place essay from the 1917 Hart, Schaffner, and Marx economics dissertation competition. The publisher must have been exasperated with the author, Frank H. Knight, and his two supervisors, J. M Clark and A. A. Young, all of whom claimed that "minor corrections" had taken four years. In fact, Knight's presentation of the theory of perfect competition was revised, the material on uncertainty and entrepreneurial judgment was expanded, and a much longer discussion of the relevance of the book's themes to the social control of economic processes was added to the final chapter. Even the manuscript's title was changed, from "Cost, Value, and Profit" to *Risk, Uncertainty, and Profit*.[1] When Knight submitted the essay to the competition, he was still at Cornell University, reading economic theory as a postdoctoral scholar with Herbert Davenport. When *Risk, Uncertainty, and Profit* (Knight 1921b) was finally published, he was a tenured associate professor of economics at the University of Iowa, with a key criticism of Alfred Marshall's price theory already published (Knight 1921a). In between, he had spent two years as an instructor of statistics for the Economics Department at the University of Chicago.

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1. The title of the original dissertation, submitted in 1916 at Cornell, was "The Theory of Business Profit" (Knight 1916). No extant copy of the essay submitted as "Cost, Value, and Profit" to the Hart, Schaffner and Marx essay competition has survived, but whatever revisions made to it were supervised by Herbert Davenport.

The Independent Review, v. 24, n. 4, Spring 2020, ISSN 1086–1653, Copyright © 2020, pp. 533–541.

At the time of its publication, *Risk, Uncertainty, and Profit* was met with little by way of fanfare. Wesley Mitchell provided a short review in the *American Economic Review,* saying that although he did not share an affinity for Knight's type of economic theory, the distinction between risk and uncertainty "is not less valid to the realistic economist than to the pure theorist" (1922, 275). G. P. Watkins published a longer review in the *Quarterly Journal of Economics* that was critical of several key aspects of Knight's distinction between risk and uncertainty, especially in terms of its explanation of business profit. By the time Watkins's review was published, the same journal had already published the first of Knight's two Harvard lectures on ethics and economics (Knight 1922, 1923), and Knight had begun writing his first textbook on economics for students at the University of Iowa, part of which became *The Economic Organization* (Knight 1933a). Knight continued to publish some articles in economic theory (for example, Knight 1924), but the themes of *Risk, Uncertainty, and Profit* began to recede from his work. In a letter to Jacob Viner in 1925, he acknowledged that he wasn't a very good theorist and thought any contributions he might make would be in the history of economic thought and the study of institutionalism (see Emmett 2006, 109). He was hired to teach those subjects when he returned to Chicago in the late 1920s. At the time of his move, he was finishing a translation of Max Weber's *General Economic History* (Weber 1927).

Not exactly the story of an economics classic that you were expecting to read, right? To cap off what seems like a lackluster history, at the end of his career Knight described *Risk, Uncertainty, and Profit* as "a *Jugendarbeit* … a 'masterpiece' in the old sense, by which an apprentice qualified for admission to the guild" (1957, lii). Once Knight passed admission, he took his professorial career away from its starting point. If it weren't for his dispute with the Austrians (especially F. A. Hayek) over capital theory in the 1930s, he might not have published any more work in economic theory. That said, he did continue to work on an economics textbook until the mid-1940s. Other than *The Economic Organization,* none of the drafts of that text were ever published.

However, perhaps unbeknownst to Knight, his "masterpiece" was finally about to start its own life on a foreign shore. Lionel Robbins took over the teaching of the undergraduate year-long "Principles of Economic Analysis" course at the London School of Economics and Political Science (LSE) in the 1929–30 academic year. By 1933, Robbins had realized that his course was increasingly built around Knight's book (Robbins 2018, xvii) and began to identify it as a key text for his students, along with Philip Wicksteed's *Common Sense of Political Economy* (1910), Alfred Marshall's *Principles of Economics* ([1890] 1920), A. C. Pigou's *Economics of Welfare* (1920), and Edwin Cannan's *Review of Economic Theory* (1929). But in the spring of 1933, Robbins discovered that Houghton Mifflin's supply of remaining copies of *Risk* was insufficient for the number of students in his course and that the publisher was not interested in republishing it. A number of letters crossed the Atlantic between Robbins, Knight, and the Hart, Schaffner and Marx essay committee (which owned the copyright), with the result that the committee gave Robbins permission to reprint the book as part of the

LSE's Series of Reprints of Scarce Tracts in Economics and Political Science. Robbins asked Knight to write a new preface to the work, perhaps to update his thinking about economics (see Knight 1933c). At about the same time, in Chicago Knight found himself increasingly called upon to teach price theory during Viner's absences. His students began reading *Risk, Uncertainty, and Profit* as well as *The Economic Organization* (Knight 1933a) in order to understand what he was teaching. Thus it was that a classic was born at the LSE and the University of Chicago in the early 1930s.

What did students at Chicago and the LSE find in *Risk, Uncertainty, and Profit*? The book's core theoretical contribution was in the four chapters of part 2, "Perfect Competition." In its first three chapters, part 2 provided a concise presentation of the theories of exchange, specialization, and valuation under both static and progressive conditions. Knight's formulations translated classical liberalism's appreciation for market exchange into neoclassical theory in a manner similar to Wicksteed's *Common Sense*. However, unlike the other English texts that Robbins included on his syllabus, *Risk, Uncertainty, and Profit* provided a blend of Wicksteed and the Austrian tradition, concluding with a theme that others in those traditions before Knight had not been able to capture as effectively—the entrepreneurial response to uncertainty as the key to understanding profit.

"Economics," Knight told his readers, "is the science of a certain form of organization of human activities" (1921b, 54). This "science of a system of organization"—or actually, as Knight said, of a social system organized around the division of labor through "free agreement and voluntary exchange"—solves society's "two fundamental problems *together, as one*" (1921b, 55, 56, emphasis in original). Knight followed this assertion with a shorter version of his later description of the tasks of any social organization in *The Economic Organization* (1933a). Market organization solves (1) "the relative importance of different lines of consumption . . . as a basis for the guidance of production"; (2) the organization of societal production; and (3) "decisions . . . as to how much of society's income is to be diverted from present consumption and to be used for the purpose of furthering social progress" (Knight 1921b, 57–58). And it solves all three simultaneously, without central coordination and decision.

Knight proceeded to concise, clear presentations of utility and cost theory in the next chapters, with, however, some nonstandard presentations, such as the downward-sloping "Knight curve" showing "net utility" as the combination of expected utility minus the expected degree of exertion necessary (1921b, 68–69). Here Knight's sources are from the "American psychological school" of his mentor Herbert Davenport and Frank Fetter. He concluded these chapters with a preliminary list of the assumptions he viewed as necessary features of the world in which perfect competition would function as the theory would predict. Although these assumptions appear most famously in his later essay "The Ethics of Competition" (Knight 1923), here they served to set up the argument of the remainder of *Risk, Uncertainty, and Profit*. The eleven assumptions stipulate a world in which all the features relevant to utility and cost considerations are known with certainty. Knight pointed out later in the book that unknown, unpredictable changes in the considerations embedded in the assumptions could lead to a noncompetitive, monopolistic economic order. However, "no sort of change interferes with the no-profit adjustment if the law of the change is known" (1921b, 173). Although some Chicago and LSE students read *Risk, Uncertainty, and Profit* as a cautionary tale regarding the predictive power of the price theory that Knight, Viner, and others taught (see Patinkin 1973), most saw the possibilities that price theory offered to understand the laws of economic change and hence for society to reap the benefits of market organization.

But Chicago students also realized that the economics Knight was teaching them in class was not necessarily what *Risk, Uncertainty, and Profit* said. A case in point—indeed, the most obvious difference—was the treatment of capital theory. Before Knight began teaching price theory at Chicago, his approach to capital was very similar to Eugen Böhm-Bawerk's and other Austrian economists'. For example, in both *Risk, Uncertainty, and Profit* and *The Economic Organization,* Knight used a version of capital theory built on the notion that the production process starts with primary goods that are transformed into intermediary goods and then into final consumption goods (see diagram in Knight 1933c, 41). Because the capital invested at the various stages of the production process is not fully repaid until the end of the period of production, the value of the capital is dependent on the period of production. But as Knight taught price theory at Chicago, he became increasingly dissatisfied with Austrian capital theory. The Austrian economists, he came to believe, were too fixated on the notion of a production process to realize that across the whole economy goods are always being introduced, are in various stages of production, or are being removed from production. In other words, if you take the economy as a whole as your object of study, there is no economy-wide production process but rather constant change and transformation. For theoretical purposes, Knight envisioned the economy as a whole only as a single transformation process, with capital being constantly introduced, transformed, and removed simultaneously. "There is no interval between production and consumption," he said in a paraphrase of a passage from his response to Hayek that was included in an "additional note" to the fifth impression of the LSE reprint of *Risk, Uncertainty, and Profit* (Knight 1935c, 79–80, and 1940, xxxviii). The most famous metaphor he used for this transformation process appears infrequently in his published essays but more often in notes students took during his courses—the Crusonian plant.

For Knight, four important ideas emerged from this perspective. First, the economy is not a provisioning process, providing goods in exchange for labor. Instead, markets emerge around the exchange of services of different types and bundled in different ways. Second, at the center of these markets are enterprises that coordinate the exchange of services for individuals. Individuals in a modern economy do not exchange with each other directly but rather through the intermediation of enterprises. Hence, the central coordinating unit of modern capitalism is not the individual but the enterprise. Third, a natural corollary of thinking that the economy is a system of the exchange of services through modern enterprises is the rejection of the classical tripartite division of resources as land, labor, and capital. Rather than thinking of services being produced from land, labor, and capital, why not just say that the economy as a whole is the constant production, exchange, and consumption of services? Then, if we need a single term, why not simply identify the resource-producing services as *capital* because it makes sense in the context of Knight's vision of enterprise-coordinated markets? Finally, Knight realized that visualizing the economy as a "wheel of wealth" (1933c, 63), or what we today call the "circular-flow diagram," is misleading. Although the common circular-flow diagram does place "businesses" and "households" at the center of the diagram, its use suggests that the various flows are coordinated separately and hence can be controlled by specific government policies separately as well. Knight's earlier "wheel of wealth" joined his earlier Austrian-like theory of capital in the waste bin.

What readers of *Risk, Uncertainty, and Profit* from the 1930s to 1950s read was thus far from what Knight had come to believe. Students at the University of Chicago had the benefit of sitting in his class and comparing what he said with what they read. But students at the LSE and elsewhere did not have that privilege. Thus, when Lionel Robbins offered Knight the opportunity to write a preface for the first reissue that the LSE published in 1933, Knight accepted the challenge. His ideas were still in flux, however, and he ended up using the opportunity to summarize the transition of his ideas over the previous decade. The preface of 1933 reads like a summary of the essays that ended up in the collection of essays Knight's students published for his fiftieth birthday (Knight 1935b). Only a passing mention is made in this preface to the changes in his economic theory, from utility theory to cost and capital theory, that reshaped almost everything in his economic theory during the 1930s.

Realizing that students were not reading his debate with F. A. Hayek and the Austrians over capital theory of the 1930s, Knight tried to rectify the situation in 1940 by adding a short "additional note" to the preface of 1933 that included a summary of the main points in his article "Professor Hayek and the Theory of Investment" (Knight 1935c). Eight years later, the LSE reset the printing of *Risk,* and Knight was finally provided with the opportunity to set out the argument in greater detail. However, by 1948, most readers knew his capital theory arguments, and both he and his audience were by that time more interested in his response to J. M. Keynes's *General Theory of Employment, Interest, and Money* (1936). Knight satisfied them with a summary of his argument against Keynes (Knight 1937), which concluded with the Chicago School–sounding observation that "the problem of stabilization is to accomplish the result under a government of law, for, apart from political objections, too much discretion in the hands of administrators will defeat the end of confidence" (Knight 1948, xlv). Thus, although the prefaces he wrote for the reissues of his classic book in 1933, 1948, and 1957 (Knight 1933b, 1948, 1957) did not explain everything about his changing ideas, they did play a key role in hinting at the changes in his ideas.

Thus, *Risk, Uncertainty, and Profit* lived on not only as a "classic" but also as a text that reminded students and faculty alike that scholars change their views and that classic texts can remain alive because they generate ideas that the next generations of scholars use to create new solutions to new problems they face. People return to classic texts because they find insights there that escape their time and place. The students at the LSE and Chicago devoted their attention to part 2 of *Risk, Uncertainty, and Profit*—"Perfect Competition"—because Knight's methodology and theoretical insights there, even if they were no longer ones he worked from, sparked insights that led to at least three generations of economic scholarship among those students and their students.

Nevertheless, those same generations of students seem to have avoided part 3 of the book, "The Meaning of Risk and Uncertainty," which offered both an account of business profit focused on the judgment of entrepreneurs as well as an early version of public-choice theory. If entrepreneurs suffer from an uncertain future, both in their own decisions and by the decisions of the managers they hire and trust, how much more do social functionaries suffer from uncertainty and make decisions that may jeopardize the republic? Knight's students at Chicago avoided such thoughts, either by the reduction of uncertainty into a category of risk—objective versus subjective probabilities (Friedman and Savage 1948)—or by the argument in the next generation that risk and uncertainty can be captured by the distinction between insurable and uninsurable risk (LeRoy and Singell 1987).

But the notion of uncertainty could not be pushed aside so easily. Outside the confines of Chicago economics, uncertainty appeared in popular treatments of entrepreneurship and finance (Taleb 2007), in scholarly work on economics and hermeneutics (for example, Yu 2004), in post-Keynesianism (Davidson 2010), as well as in the theory of the firm (Langlois and Cosgel 1993). Indeed, the living legacy of Knight's classic text today has been its role as a touchstone for the notion that uncertainty exists in many aspects of economic life,[2] requires judgment rather than rational calculation, and provides the opportunity for entrepreneurial activity (Magnani and Zucchella 2018).

Nicolai Foss and Peter Klein (2012), among others, have recently launched a research program in entrepreneurship and management studies entitled Organizing Entrepreneurial Judgment, drawing on Knight's blending of the ethical and epistemological meanings of *judgment* as well as on the insight from *Risk, Uncertainty, and Profit* that the choice of those who act on the entrepreneur's behalf is perhaps the most significant form of action under the condition of uncertainty: "the true uncertainty in organized life is the uncertainty in an estimate of human capacity, which is always a capacity to meet uncertainty" (Knight 1921b, 309).

Nevertheless, Knight himself did change methodological positions as his interests moved beyond those of his early masterpiece. Price theory was always the starting point he used for his understanding of the real world's imperfect competition (see Knight 1939), but he also wanted to build a new, nonclassical theory of liberalism. At the time Knight moved to the University of Chicago, he had just translated Max Weber's

2. See the special issue of the open-access journal *Economics* titled "Radical Uncertainty and Its Implications for Economics" (Ormerod and Tucker 2016).

General Economic History (Weber 1927), which provided a methodology for comparative institutional analysis. Although, strictly speaking, Knight never became a "Weberian" theorist, he did make a Weberian turn that led him to be less interested in further development of the applied price theory that his students were doing and more interested in setting the core principles of his theory of exchange within different institutional frameworks (see Knight 1935a). From the mid-1930s on, then, Knight's primary work was the elaboration of the three things he believed a study of liberal society needed: first, an understanding of the core principles of market exchange—that is, the basics of price theory that he taught Chicago students such as James Buchanan in the 1940s; second, an understanding of the principles behind the institutions of a liberal society; and third, a new liberal theory of ethics and social justice. The essays in *Freedom and Reform* (Knight 1947) and the lectures Knight gave around the country—one version of which can be found in *Intelligence and Democratic Action* (Knight 1960)—took up the second and third components of his vision. Behind all three aspects of his work remained the same questing, never-satisfied mind that makes *Risk, Uncertainty, and Profit* a classic.

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