

would have rejected Harvey Leibenstein's hard-and-fast distinction between prediction and explanation; nor did Hayek identify trend predictions with what he called "explanations of the principle," as Frantz mistakenly asserts (p. 20).

Scott Scheall

*Arizona State University, Polytechnic Campus*

## REFERENCES

- Angner, Erik. 2004. "Did Hayek Commit the Naturalistic Fallacy?" *Journal of the History of Economic Thought* 26 (3): 349–361.
- Caldwell, Bruce, and Julian Reiss. 2006. "Hayek, Logic, and Cultural Evolution." *Journal of the History of Economic Thought* 28 (3): 359–370.
- Denis, Andy. 2002. "Was Hayek a Panglossian Evolutionary Theorist? A Reply to Whitman." *Constitutional Political Economy* 13 (3): 275–285.
- Hayek, Friedrich A. 1960. *The Constitution of Liberty*. Chicago: University of Chicago Press.
- Hayek, Friedrich A. [1955] 1967. "Degrees of Explanation." In *Studies in Philosophy, Politics, and Economics*. New York: Simon and Schuster, pp. 3–21.
- Hayek, Friedrich A. 1988. *The Fatal Conceit: The Errors of Socialism*. Chicago: University of Chicago Press.
- Menger, Karl. 1994. *Reminiscences of the Vienna Circle and the Mathematical Colloquium*. Edited by L. Golland, B. McGuinness, and A. Sklar. Dordrecht: Kluwer Academic Publishers.
- Sent, Esther-Mirjam. 2004. "Behavioral Economics: How Psychology Made Its (Limited) Way Back into Economics." *History of Political Economy* 36 (4): 735–760.
- Whitman, Douglas Glen. 1998. "Hayek contra Pangloss on Evolutionary Systems." *Constitutional Political Economy* 9 (1): 45–66.
- Whitman, Douglas Glen. 2003. "Hayek contra Pangloss: A Rejoinder." *Constitutional Political Economy* 14 (4): 335–338.

Till Düppe and E. Roy Weintraub, *Finding Equilibrium: Arrow, Debreu, McKenzie and the Problem of Scientific Credit* (Princeton, NJ, and Oxford: Princeton University Press, 2014), pp. 304, \$39.50, hardcover. ISBN 978-0691-15664-4.

doi: 10.1017/S105383721500019X

The history of ideas is replete with illustrations of roughly simultaneous discovery and of sequential discoveries where "first in time" does not give rise to "first in mind." The history of economics is certainly no exception here; just ask poor Edward West, fourth fiddle to David Ricardo, Thomas Malthus, and Robert Torrens. Issues of priority and credit are part of the messy process of knowledge creation and diffusion, and they are grist for the mill of the historian of economics.

But how is the historian of economics to contend with these issues? One approach, certainly, is to wade into the texts, the archives, and other elements of the historical record to find the "truth." Who was there first? Who did it "better" (whatever that may mean)? Is there a historical record that merits correction? Such exercises are all well and good, and at times even informative. And it is even possible that the result of such research is that what is known as the "Smith theory" will suddenly become

known as the “Jones theory”—though this is unlikely. Another approach is to accept the muddle for what it is, a regular part of the process by which knowledge is worked out; an attempt to come to grips, as an historian, with how the situation in question came to be—the larger context that put a discipline in the place where such simultaneous discoveries were possible (and perhaps almost inevitable), the forces that resulted in a particular individual's (or set of individuals), rather than others, being identified with the idea in question, and what all of this tells us about the processes of knowledge creation and diffusion. Of course, these two approaches need not be mutually exclusive, a fact illustrated by Till Düppe and E. Roy Weintraub's fascinating book, *Finding Equilibrium: Arrow, Debreu, McKenzie and the Problem of Scientific Credit*.

The 1940s and 1950s were a period during which economists, enamored of the increasing number of mathematical tools suddenly determined to be relevant for certain types of theorizing, were probing at great length, and from various directions, the properties of competitive equilibrium. The reasons for this were wide-ranging. Problems of welfare economics and of economic growth and development, the possibilities of centralized planning, the properties of a general equilibrium system, and sheer delight in formalizing “economic” problems through increasingly elegant mathematics were among the many motivations that factored into this burgeoning line of research. Out of this work came many results that had a profound influence on the subsequent course of economic analysis, one of which was the proof—or, rather, the proofs—of the existence of an equilibrium in a general equilibrium system.

It is illustrative that the existence proof, a bedrock result of modern economics (so much so that it can be partially credited with transforming economics into a mathematical modeling science), represents one of those instances of simultaneity, with Kenneth Arrow, Gerard Debreu, and Lionel McKenzie formulating their own proofs independently during the years leading up to the publication of the Arrow–Debreu and McKenzie articles in 1954. They were not alone, of course. A serious illness here and an ungranted research leave there, and the story of the existence proof could involve three other individuals and the period from 1955 to 1956, and Andreu Mas-Colell, Michael D. Whinston, and Jerry R. Green (1995, p. 632) could be instructing fresh-faced PhD students in the Gale–Nikaido existence proof rather than the Arrow–Debreu one. The road to the present is anything but linear. Düppe and Weintraub's book is a story of this nonlinearity.

The facts, as the authors lay them out, are relatively straightforward. The three protagonists were simultaneously working on existence proofs, doing so from different directions and using different techniques. Debreu made Arrow aware of his work, and Arrow suggested that they join forces. The Arrow–Debreu paper and McKenzie's paper were presented on consecutive days at the December 1952 meetings of the Econometric Society. Both papers were published in *Econometrica* some months later, McKenzie's appearing in the issue prior to that in which the Arrow–Debreu paper appeared. The profession, though, latched onto Arrow–Debreu, their names becoming associated with the proof. Arrow received the Nobel in 1972 and Debreu in 1983. There was no Nobel for McKenzie, no place in the pantheon.

These facts provide the basis for an interesting paper of the typical variety in the history of economic thought. The contexts within which these facts were wrapped,

however, provide a fascinating window into the history of modern economics, and it is this larger set of contexts that is the focus of Düppe and Weintraub's analysis.

The book opens with three chapters that introduce the reader to the young Arrow, McKenzie, and Debreu, respectively, and the very different roads that they walked in coming to the point of working on existence proofs. One was a would-be actuary who stumbled into economics almost by accident, another a Bourbakist in search of a place to utilize the purity of these new mathematical tools, and the third a frustrated Rhodes Scholar stuck in a (then) also-ran Southern university surrounded by colleagues at best indifferent to his work and interests. Their respective backgrounds conditioned their approaches to the problem, their interpretation of its meaning and implications, and their subsequent attitudes toward issues of priority and status.

As Düppe and Weintraub show, our protagonists' ability to reach a stage at which they could formulate their respective proofs was anything but a story of the solitary academic working away at his maths in search of that "Eureka!" moment. Each was able to attach himself to places, networks, and communities of economists and mathematicians that facilitated his research, the intersection here being the Cowles Commission and its moment of concern for pure theory of the general equilibrium variety under the leadership of Tjalling Koopmans. Each, though, drew different things from these communities, perhaps nowhere better reflected than in the different ways that they set about proving existence.

Though Düppe and Weintraub eschew discussion of the minutia of assumptions and fixed-point theorems, these are far more than character actors in the story—playing no small role in professional perceptions of the different proofs and who had "best" found the holy grail of equilibrium's existence.<sup>1</sup> Generality, elegance, and simplicity (none of which admit to a singular definition) contended for honor within the still very small community of economists who could actually understand what Arrow, Debreu, and McKenzie—to say nothing of the several others who were churning out existence proofs at this time—had put down on paper. In the end, "priority" was determined by the standards of the community, not by the calendar.

As Düppe and Weintraub show, Arrow was rather indifferent about priority; his concern was about the implications of existence for doing economics and then for moving on, for he had many other fish to fry. Debreu, who believed that his joint proof with Arrow was less than fully satisfactory and so set about refining it in subsequent work, was almost wholly unconcerned with economics and the implications of existence for economic analysis, and yet felt compelled to insist on a generality-based priority over McKenzie's first-in-time proof. McKenzie, for his part, set about building a career in other theoretical realms and as the architect of Rochester's economics department, all the while convinced of his own priority and the missed opportunities that had come from the profession's adjudication.

An unsophisticated reading of *Finding Equilibrium* will see in it a vindication of McKenzie against decades of unjustifiable neglect. And, indeed, that may be one of the

---

<sup>1</sup>This is the one area in which, in this reviewer's mind, the authors fall short. The details of the different modeling strategies are an important part of the context here and played no small role in the authors' respective perceptions regarding priority. As such, some more detailed discussion of *why* different sets of assumptions, different fixed-point theorems, and so forth were used, and of the implications, would have added a further important contextual layer.

intended messages of the book. But it is far from the only one and certainly not the most important. The book is, at its heart, about the processes by which knowledge is created, diffused, received, and processed. This is not the story of an isolated scholar—or scholars—but one of several scholars working simultaneously on similar problems, each embedded within particular communities and bringing to their work the personal baggage that conditions both that work and their attachments to it.

The book is also illustrative of the perils of writing the history of recent economics, where authorial relationships with subjects can come into play; the subjects, upon whom one relies for some of the raw data, have vested interests in how the history is to be written; and the author herself may have been a participant in that literature or in other ways had a role in forming the extant perception of the relevant history. Those of us attempting to write the history of economics in the post-WWII period struggle with these issues on an almost daily basis. But the ability to interact with the players in one's history holds out the possibility of arriving at insights that are fundamentally important to these histories but lost in histories of the distant past. ("So, Adam, what, precisely, *did* you have in mind with that single reference to the "invisible hand" in your *Wealth of Nations*?) We take the bad with the good, knowing that future generations of historians will add to, and at times correct, the histories of the present.

*Finding Equilibrium* is a testament to the importance of writing the history of recent economics. The fact that it is a gripping read—"unputdownable," as Roger Backhouse so aptly puts it in his jacket blurb—only adds to the impressiveness of Dütte and Weintraub's accomplishment. May it have many imitators.

Steven G. Medema  
*University of Colorado Denver*

## REFERENCE

- Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green. 1995. *Microeconomic Theory*. New York: Oxford University Press.