BOOK REVIEW

EXPLORING GENERAL EQUILIBRIUM

Fisher Black, Cambridge, Massachusetts: The MIT Press, 1995, xii + 318.

Reviewed by

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A thought-provoking and challenging work, *Exploring General Equilibrium* by the late Fisher Black is a book which is sure to stimulate a great deal of discussion and argument. The book consists largely of Black's thoughts on, and explanations of, the phenomena which occupy macroeconomists—business cycles, unemployment and growth. Black's view of the world, though, in which practically all phenomena have a competitive equilibrium explanation, is so radically different from anything in the macroeconomics mainstream, and is articulated in this book with such persistence, that one cannot help but come away from reading it with at least a small change in perspective and perhaps even a bit of skepticism for the mainstream research which Black is wont to criticize.

The book is organized into three parts. In the first, Black lists what he sees as the main stylized facts to be explained, the key factors that 'matter' for explaining them, and a number of factors which, while common in many of today's macroeconomic models, are either inconsistent with Black's view of general equilibrium or simply "unnecessary." This section of the book sets the tone for the rest of the book and reveals much about the way Black thinks about economics. Thus, the 'stylized facts' which Black enumerates combine well-known observations—as the stability of the shares of national output going to capital and labor—with others that are little more than opinion, for example Black's contention that total labor compensation, were it properly measured, would be highly correlated with hours worked over the business cycle.

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Under factors that matter for explaining the stylized facts we find Black emphasizing the role of capital in production—to Black encompasses all the diverse forms which capital, human and physical, tangible and intangible, can take on. According to Black, the only sensible way in which this input can be measured is at market value, where available, and estimated market value otherwise. Changes in the 'size' of the capital stock so measured, over short horizons, will largely be due to changes in the 'unit value' rather than the number of units. These changes in unit value reflect changes in the 'relevance' of the particular capital goods we own, which depends on both tastes and technology.

Hence, to Black there is no meaningful way, using aggregate data, to distinguish between 'taste shocks' and 'technology shocks.' In fact, the main input to the aggregate production function combines elements of both.

In the second part of the book, Black presents a dozen or more thumbnail sketches of models, each designed to explain a particular fact and no more. The exercises in this section, which Black would call "examples" of the general equilibrium framework, rather than "models," are precisely what Black means by the phrase "exploring general equilibrium." Exploring general equilibrium does not mean writing down a large-scale model to encompass a broad array of features of the aggregate economy. It means, rather, constructing specific examples which help us explain particular pieces of economic reality.

It also in the second part that Black develops his central theory of business cycles, which is based on a time-varying match between tastes and technology. A central feature of Black's theory is that capitalist production takes time, often a great deal of time. Investments in all forms of capital, both physical capital and human capital, must be made under conditions of uncertainty about future tastes and technology, with the degree of uncertainty greater the longer is the time to maturity. At any given point in time, when the current state of tastes and technology are made known, we will find that our past investments have led to either better or worse matches between wants and resources along many dimensions. When the match is "good"—in retrospect we find that we have invested in producing the particular things we value most highly—times are good; when the match is bad, the opposite is true.

I think that this is a fascinating theory, though one which, as even Black admits, probably cannot be written down in a tractable form. This is because detail is central to the theory—the vast detail of tastes and technology, all the dimensions along which very specific investments can turn out to be successes or failures. Black's inability to articulate an operational model that one can do something with, in the sense of generating quantitative answers to interesting questions, will be a put-off to many readers. They will probably feel, as I did at times in reading this book, that this is "armchair theorizing." I think that Black would probably agree, with the qualification that this sort of theorizing may be all we can really hope to achieve for the time being. The very assumptions which we make in order to render our models tractable destroy the detail which, in Black's view, is essential to understanding the phenomena we wish to understand.

Finally, the third and longest part of the book contains Black's thoughts on "Issues" and "Readings," the former consisting of nearly every topic of recent macroeconomic discourse, from 'adjustment costs' to 'Tobin's q,' and the latter made up of over two hundred articles, primarily in macroeconomics. Regrettably, Part III has very much a 'scatter-shot' feel to it. The issues and readings are treated in alphabetical order, rather than organized thematically, so that much of the same ground is covered over and over again. In many cases, more cogent arguments could have been made by combining fragmentary discussions of obviously related subjects into more extended analyses, for example Black's separate discussions of "quits and layoffs" and "separations."

Given the manner in which the book is put together, reading *Exploring General Equilibrium* can be frustrating and, at times, infuriating—a bit like panning for gold. When an extremely smart economist decides to do some scatter-shooting, though, you can be sure that there are at least a few nuggets in store. Such is the case with *Exploring General Equilibrium*.