I recently received a letter from some graduate students at a top-ranking school asking me for some ideas about what to study so that they might learn some real economics. The letter reminded me of Peggy Lee's old song, "Is That all There Is?" Is it really true that the esoteric problem-solving toolkit (whose relevance and whose validity is highly questionable) that one learns in graduate economics classes is all there is to economics?

I suspect that the answer they were hoping to get from me was that there's more to economics, and here's some exciting new work that will give you purpose, show you the relevance of what you're studying, and turn around your life. Alas, that's not the answer they got. The answer they got from me is that graduate economic education is a slog; it is meant to be a slog, and unless you stay highly focused on the toolkit, you won't get through graduate school. So my advice is to forget "big think" for now and study the tools you are being taught.

Having given that advice, I have to admit that I had the very same feelings when I was in graduate school. And when I asked essentially the same question of a top dissident economist I got essentially the same advice that I give now. he said "Don't spend too much time thinking about what you're doing now- just do it-or you'll never make it through graduate school. Save all that big think stuff for presidential addresses in the future."

Having given them that advice, I should also admit that I didn't follow it-that was back in the 1970s when no self respecting student would follow the advice of any older (over 30) person. But it was good advice then, and remains good advice now. The reality is that the graduate economics educational system is designed to weed out "big think" students who don't mind their existence proofs and quasi-logical exercises. That isn't all bad; learning the techniques and tools is a good exercise of the mind; knowing them will be useful in doing meaningful research in the future. Once students get tenure they will be allowed the freedom to address some "big think" issues, if you haven't been co-opted, or lost your identity, in the process of getting it.

Let me explain my position. Most of the techniques that students learn in graduate school are useful; the techniques developed because they solved problems that serious researchers grappled with. The problem with grad school for me is not the techniques; it is that students aren't provided a context for

their use. Students are generally told to study techniques for techniques sake, and their classes seldom give them any real sense of how those techniques will be useful in solving real problems.

Different people have different levels of toleration for learning techniques for technique's sake. "Big think" low tolerance students need some side reading to cleanse their palette and keep them going; these readings give them a counterweight to prevent their sinking into the seemingly infinite Sea of Technique. As long as the side reading remains side reading, and complements rather than substitutes for the study of techniques, it probably won't hurt too much. What follows are some suggestions of counterweight readings for low-tolerance students.

In micro, Nicholas Georgescu-Roegen comes to mind. I remember reading his The Entropy Law and the Economic Process in grad school and being completely blown away; it opened up lots of new ways of thinking. In grad school I had a Chicago-style micro course. Perhaps that is the reason that I am less convinced than is Deirdre McCloskey that Chicago-style textbooks are the way to learn microeconomics. In my view the Chicago approach is simply useful way of thinking and approaching policy issues.

If you have not been introduced to Chicago-style economics in your classes, (and fewer and fewer students are-it's not even being taught much at Chicago any more) getting some flavor of it is worthwhile. But I wouldn't suggest reading Chicago-style textbooks as an introduction to the Chicago approach as Deirdre often suggests doing; instead I'd read George Stigler's The Economists as Preacher or Stephen Landsburg's The Armchair Economist: Economics and Everyday Life. I'd also read some of Gordon Tulluck's pieces; he's often much more biting than any of the Chicago authors.

If you are susceptible to the Chicago bug, I'd read some Richard Thaler (perhaps his Quasi Rational Economics) as an antidote, and as an interesting introduction into behavioral economics, if you're not getting any ofthat in your micro class. I'd also read some Albert Hirschman (for example: The Passions and the Interests or Exit Voice and Loyalty) to keep some broader perspective.

In macro, I remember reading G.L.S. Shackle's and Paul Davidson's works to give me some perspective. They remain relevant today. However, in general I have a much harder time suggesting counterweight readings in macro; the problem is that many of the complicated models learned in macro classes are so lightweight in "big think" space that any "big think" reading quickly sinks the model, making

it hard to stay focused on learning those models. If you're in a particularly destructive mood, you might look at some of Alien Kirman's or Donald Saari's work that calls into question much of what is done in the aggregation procedures in macro. Then try to go back and do some representative agent, rational expectations modeling. (Actually, wait until you passed the macro prelims before you read any of these.)

In my view macro issues are best approached through a study of complex systems. A good place to begin thinking about complex systems is in the writings of Hayek. His Abuse of Reason and "The Use of Knowledge in Society" along with much of his later writing on constitutional law issues have convinced me that there's much more to Hayek than I originally thought. If you haven't been introduced to complexity, and want a readable popular book that pulls you in, take a look at Waldrop's Complexity; it is a fun read. The actual complexity work is much more of a slog, but you can see some of it in a digestible form in The Economy as an Evolving Complex System (edited by Philip W. Anderson, Kenneth J. Arrow, and David Pines).

A reasonable justification for taking a complexity approach can be found in Duncan Foley's "Complexity and Economic Education" in the volume I edited entitled The Complexity Vision and the Teaching of Economics. It puts into perspective what most students want, but aren't getting out of their classes.

As a counterweight to what is learned in most econometrics courses, reading Deirdre McCloskey is a definite must. Her Rhetoric of Economics is worth reading, but the Journal of Economic Literature article of the same name may be a more efficient introduction to her views. Also see her JELarticle, "The Standard Error of Regressions" [March 1996] with Steven Ziliak. You also might take a look at Tom Mayer's Truth vs. Precision in Economics, as well as some of David Levy's rantings on empirical work.

As a counterweight to the sometimes almost irrelevant policy discussions in many classes, I'd read Armatya Sen's work. You can find a number of references in his Nobel Prize Lecture. That lecture provides as careful a summary of where we are in social choice theory as I have seen. Sen thinks deeply about actually applying economics to real world policy within a formal setting, and about designing new tools and concepts that will make that application possible. Good stuff, and good ideas for dissertations.

Finally, some general books with interesting articles about economists include Passion and Craft: Economists at Work (edited by Michael Szenberg) and A Guide to How to Do Economics (edited by Steven Medema and Warren Samuels). My two collections, The Lost Art of Economics and Why Aren't Economists as Important as Garbagemen, are easy reading, and make a few useful points. A book that I have just finished rereading is Ronald Coase's Essays on Economics and Economists; it had some thought-provoking insights.

But let me leave you with a final warning. "Big think" reading can be bad for your grades if not your health; it should only be approached once you have exceeded your "little think" toleration threshold. Until you have gotten tenure, it's far better to take my earlier advice, and assume that "little think" is all there is.

David Colander

Middlebury College

David Colander: Department of Economies, Middlebury College, Middlebury, VT 05753. E-mail: Colander@middlebury.edu.