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The Economics Major Post Meltdown: Need for Revision?

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> *God put macroeconomists on earth not to propose and test elegant theories but to solve practical problems. The problems He gave us, moreover, were not modest in dimension. The problem that gave birth to our field—the Great Depression of the 1930s— was an economic downturn of unprecedented scale, including incomes so depressed and unemployment so widespread that it is no exaggeration to say that the viability of the capitalist system was called in question.* Gregory Mankiw 2006)

There is little disputing Mankiw's vision of the beginning of macroeconomics. And with the current slump possibly the deepest since the Great Depression, interest in the subject has spectacularly reignited. As a New York University student said last November, "Now we can actually see the examples while they happen, instead of relying on history. It's been the most engaging class ever."[1] The same thought was echoed in a Stanford professor's declaration "What's happening now affects every one of us. It provides an unparalleled laboratory of real-world applications upon which to test theories."[2] Even though jobs are more difficult to come by during the recession, accounting and economics (though not finance) are still among the top fields in securing jobs and good starting salaries for their graduates.[3]

This would seem to be fairly good news for someone like me, the chairman of an economics department. At the college where I teach, which is like most other institutions, the number of students deciding to major in economics having leveled off in 2005-2007 began to increase again two years ago. (The number of majors nationwide grew between 1995-2005, according

[1] Samantha Gross, "Financial crisis spurs student interest in economics." USA Today, 24 November 2008.
[2] Julian Guthrie, "Students learning from financial crisis." San Francisco Chronicle, 26 October 2008.
[3] I restrict my review here to the economics major alone. There are many who are also thinking about the finance major, or the business major more generally, but because I do not work in a business college – like almost half of my academic brethren in the economics profession – I have no special insight into their plight.

to the most recent report of the Committee on Economic Education of the American Economics Association.)

And yet the profession is nervous about more than just the number of students in its classrooms. Important questions have arisen about what we teach and how we teach it. One is whether we teach too much mathematics because that is what is valued in academic research. Only a very small share of economics undergraduates will ever do research, leading skeptics to ask whether many professors are vainly trying to replicate themselves in their better students by getting them to focus on narrow empirical and mathematical calculation rather than "big-think" questions. Favoring mathematics, critics claim, has led students to develop into financial engineers, the 'quants' that are often blamed for creating derivatives, credit default swaps, collateralized debt obligations and other instruments that "no one understands".

The second question is whether or not economics rests on a set of unexamined assumptions, especially that which posits the existence of rationally calculating self-interested actors. Among social scientists economics is often seen as the most conservative discipline. In fact polling data shows the median economist to be a moderate Democrat, as Bryan Caplan (2007) noted in The Myth of the Rational Voter, though one who typically supports free trade and the idea that markets do a good job of allocating most goods. That said, this rationally reductive and highly individualistic view of man is certainly widespread within the profession, at least as a heuristic simplification.

For most of its practitioners economics is understood to comprise two great sub-domains, macroeconomics and microeconomics. Macroeconomics (most of us just say “macro”) the newer of the two, attempts to understand the behavior of economic systems as a whole. In some sense it can be seen as a historical phenomenon, having emerged out of efforts to understand and grapple with the hyperinflation of the 1920s and the Great Depression of the 1930s. Microeconomics, by contrast, examines the behavior of individual producers and consumers, and how they react to changes in prices, wages, etc. Paul Samuelson’s textbook, first published in 1948, was initially responsible for drawing the distinction between macro and micro, as he developed the “Keynesian multiplier” analysis many of our students still learn.

Today most economists find the macro-micro distinction somewhat inadequate, antiquated, and surpassed by more elegant models. For many the goal is how to tie the macro and micro together. Microeconomics has at its base the assumption of purposeful action toward objectives that are defined only as “self-interested”. Macroeconomics, studying large aggregated data, lacked in its early forms a comparable “micro-foundation.”

About forty years ago, economists started to forge links between the domains by investigating how people actually form expectations, how labor unions actually behave, and how bubbles actually burst, among other things. Some economists also started looking more carefully at the problems inherent in economic data, where the most interesting phenomena cannot always be observed directly and reliance must be instead placed on proxies. All this has created a more internally complex profession. As a result, having a complete undergraduate department has increasingly come to mean having a specialized assortment of faculty members who don’t fit neatly into any overarching category. A department’s language in discussing its faculty thus

becomes one of diversified portfolios: "we need someone in health economics, labor economics, environmental economics!" In most departmental faculty listings you'll now find a whole passel of fields; seldom will you see a department that tries to do a few things well and candidly tells students wanting to study other areas "we're not for you."

Thus, the level of specialization in a field that only seventy years ago was itself a specialization has mushroomed. While colleagues in an economics department will talk among themselves about any number of things, their research interests are generally so narrow that no two are likely to possess the same focus. One finds fellow specialists at conferences, where perhaps twenty sessions occur simultaneously, by looking for the session that's in your very select field. And the number of journals steadily grows as more and more young economists seek outlets for their recondite inquiries.

All this has served to separate academic macroeconomists from potential audiences. First, the policy world has seldom made use of the more elaborate models and insights of recent research. Modern macroeconomics, for instance, is quite clear that monetary policy should be governed by transparent rules (preferably drawn up by economists and "conservative" central bankers.) While many central banks now use a method of operating monetary policy called "inflation targeting" that involves such clear communication, the United States' Federal Reserve System continues to prefer flexibility over definiteness. As one observer put it, contradicting the received academic wisdom "Greenspan proves… that central banks can produce desirable outcomes while wielding substantial discretionary powers." [Needs citation] And as Michael Bordo and Anna Schwartz (2004) observed the IS-LM model is still taught to many

undergraduates but seldom to graduate students because it is not seen as sufficiently tied to micro-level for professional use.[4] Nonetheless, it is still used in a synthetic form by policymakers and theorists alike *on those occasions when they speak to each other.*

Second, the economics major takes on a different character as one moves from the undergraduate to the graduate level. The undergraduate majors, who go to hold the lion's share of operational positions in business, finance, and government, use a set of pedagogical tools to learn most of their basic theory that are not often employed by economics PhDs. The undergraduate curriculum usually features a key course entitled "principles" that covers nearly the entire field at a level of intellectual abstraction thought accessible to most students. For those willing to go deeper there is "intermediate theory", which plows the same ground as "principles" but with more emphasis on formal mathematical models, but still using many pedagogical devices. (Many of them meet the IS-LM "modl" there.) Beyond that point in the undergraduate curriculum, "apply, apply, apply" becomes the watchword in most subfields – making full use of all those specialists we hire!

But advanced graduate work does not expect much application except in one's own field of specialization. There the goal is deeper and deeper analysis, which expects greater and greater rigor. A course in "mathematical economics" is often expected in the Ph.D. student's first year. It would, in fact, be unusual for that student not to have *two* courses in "econometrics" – the use of statistical methods to answer empirical questions in economics. Rather than "apply, apply, apply", the new graduate student "tools up" so as to do professional economic research.

[4] The letters are an abbreviation for the two equilibrium conditions graphed, investment equals savings and liquidity preference equals the money supply.

Most undergraduates never work in a job where they'll be called "economists". Most of them aspire to work in business, particularly in banks and financial services. As one of my colleagues often says to our seniors, look for a job called "analyst", because that's what we've trained you to be. "Economists" typically hold PhD's, of which about a thousand a year are minted in the United States. So when people think of economics and economists they will, if they're being accurate, be thinking about the fellow with all the methodological tools, but not necessarily the guy making decisions out there in the real world.

Would it have helped to have undergraduates – those who end up in the front lines of the financial world – be more trained like graduate students? It seems unlikely. The economics major in a frontline financial firm works with others trained in statistics, mathematics and the hard sciences. There's a whole area of study that became popular in the last decade called "financial engineering". Students learn more tools there, but no history. Columbia University's master's program in financial engineering provides training in "stochastic processes, optimization, numerical techniques, Monte Carlo simulation, and data analysis … study portfolio theory, derivatives valuation, and financial risk analysis." Two 1997 Nobel Prize in Economics winners, Myron Scholes and Robert Merton, even worked for an investment house using modern finance techniques. That firm, Long-Term Capital Management, failed spectacularly in 1998, with the Federal Reserve Bank organizing its buyout in a precursor to the current meltdown.[5]

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[5] It is worth noting here that finance often pays better than economics, both in academia and the corporate world. The latter drives the former: It is easier for a finance professor to find consulting opportunities than many economists. Macroeconomists tend to consult governments, which may explain why fewer free market proponents are attracted to macroeconomics than micro (Milton Friedman notwithstanding.) The number of opportunities for consulting has diminished in this downturn for all groups, but finance perhaps more so.

> *Macroeconomics -- even with all of our computers and with all of our information -- is not an exact science and is incapable of being an exact science. It can be better or it can be worse. – Paul Samuelson. (Clarke (2009))*

Some people refer to economics' increasing use of mathematics and statistics as "physics envy". Indeed, in 1871 Stanley Jevons mused that only the lack of "a perfect system of statistics" stood "in the way of making Economics an exact science." But that Jevons quote – often cited by those hurling the charge of envy – is misunderstood. In the same paragraph Jevons also noted that one cannot measure gravity directly, but only by measuring its effects on objects in motion. Likewise, we cannot readily measure of the effect of expectations, preferences and emotion on buying and selling; we can only infer them from the more objectified things that we can measure. It is only these "objects" that can then be mathematized. Still, the increasing use of mathematics and statistics in economics is an undeniable fact.

In 1991 the Commission on Graduate Education in Economics (COGEE) of the American Economic Association (Krueger 1991)) released a report with recommendations for "reasonable requirements" in mathematics and statistics as well as economics, and the provision of students deficient in these capabilities with remedial instruction. David Colander notes that in his survey in 1999, that

> *No school changed its mathematical requirements in response to the commission's report... If anything, mathematical requirements have been raised. (The majority of the commission members felt that at whichever institution he or she represented the level of mathematical sophistication needed by incoming graduate students had increased.) (Colander 2007, p. 12)*

The parenthetical note is important in determining motive. While everyone may have perceived a need for the profession *as a whole* to teach more "economic intuition" and focus

less on mathematical tools, nobody wanted to be the first one to attempt it. Technical expertise is like weapons in an arms race – everyone wants everyone else to disarm first. Why? Colander notes Paul Samuelson's observation that economists work more for the praise of their peers than for public applause.

> *Elite economists are more likely to stay within academic institutions and use their skills to advance the knowledge of their peers. A few are hired as consultants, textbook writers, or court witnesses, but devoting too much time to such activities is looked down upon by the profession. (ibid., p. 8)*

But this is an observation made, Colander goes on to note, about those who teach at the top fifty PhD granting institutions. What about the rest of the profession?

Wherever economists may teach they recognize that mathematics is difficult, making it a universally recognized emblem of programmatic superiority. If a majority of your program's students earned 600 on their SAT math section, or 700 on the GRE, you can lard on math requirements in thick scoops. But if you teach economics in a non-selective institution where students have lower math aptitude, doing the same repels them in droves. One observer found that a calculus requirement in the economics major discouraged students from majoring in economics only at schools having a lower mathematics requirement for admissions. (Nicklay 2009)

But since mathematics is only a tool for understanding human behavior, its use is a delicate balance of technique and artistic application. For decades economists have heard warnings about measurement errors and the fragility of models. Academic economists couch their papers in warnings about the limits of their studies. But for the users on Wall Street – who often are not the economics major but the engineer or statistics major, because only the latter

learned all the tools – what matters is getting an application that is operational for their firm. The warnings require understanding something they have not learned. Maybe the best use of the employee with a B.A. in economics would be to get the quants to read the warning labels. But they have not learned that either.

As earlier mentioned, most economics majors are not planning to become economists. There are about 25,000 economics majors at any given time, about equal to the total number of economic PhDs in the United States. A majority of my own students go on to work in business, with only a handful doing any kind of graduate or professional study (about evenly split between economics, business administration and law; with a few others in mathematics and statistics.) While many tell me that they wish they had taken more mathematics or statistics (particularly economic forecasting, a course taught at our institution but not at many others), we have many examples of successful alumni who never learned calculus or remember much about regression analysis.

Is that really a loss, a failure, a watering down of the major? Certainly not.

In recent years a series of books have appeared for use in undergraduate courses stressing "principles". Each seeks to foster the development of "economic intuition" by reducing the number of models taught and using numerous real-world examples to "apply, apply, apply". Leading titles include "The Economic Naturalist", "Discover Your Inner Economist", "The Undercover Economist" or "Why Does Popcorn Cost So Much at the Theater?" If we are not

going to make our students into economists, so the thinking goes, we can still get our students to *think like* economists.

Of course, what it means to think like an economist depends on whom you ask. I'd argue that there are three mental traits that tend to differentiate economists from the general population. Economists think of trade as being mutually beneficial: Both sides like what they receive in exchanges as compared to what they give up. To the untrained, by contrast, trade is a zero-sum game. Economists also focus on the role prices play in allocating resources, while those outside economics often think of prices as simply allocating wealth, that is to say, picking winners and losers. And interestingly, according to Caplan's *Myth of the Rational Voter,* economists tend to be more optimistic about the past, the present, and the future.

Perhaps it is optimism then that prevented economists from anticipating the onset of the current economic crisis, not overspecialization or mathematical obsession. But, if so, does it mean that it was a Pollyannaish faith in markets *per se* that obscured the impending collapse? That was surely the conclusion of some. One book title proclaimed "The Gods That Failed: How Blind Faith in Markets Has Cost Us Our Future." And Pope Benedict XVI called for a "true world political authority … To manage the global economy; to revive economies hit by the crisis; …" To this, many economists might respond that there is a worse error, the fallacy of the "man in charge" that many such critics risk making. William Easterly, an economist formerly head of research at the World Bank, sums it up as follows:

> *There are government leaders, to be sure, but they are only one among many different power centers in the political system, society, and in the economy, all with sharply conflicting interests and tools to effect change, and so any individual leader has very limited power to change things. This is true of both authoritarian and democratic systems. You may want one of those leaders to*

> *act on a particular problem, which is fine, but you should not think that leader is the Man in Charge.* (Easterly 2009)

That is a classic economist answer. Economists know the world is complex, that economies can't be masterfully controlled, and that it is foolish to try. Most non-economists view such a response as callous and uncaring, the antithesis of "hope and change".

When economists are called to task for being hired guns for free markets, those who espouse free markets respond by showing how the present crisis stems from already-too-much government. Monetary policy, housing policy and regulatory forbearance all get some blame for what happened, in this view. My class in money and banking this summer, dominated by finance majors, created a credible list of *seventeen* possible explanations, ranging from market to government failure. It was too soon, the class concluded, to parcel out the blame.

Still economists have their own form of hubris, a penchant for posturing about being able to come up with physics-like scientific analyses of their chosen problems. For a period of time we talked about a "Great Moderation", which was true: we had a period of good-to-great growth in living standards, stable prices, and little resulting intellectual challenge to economic theory. Did we believe that "Great Moderation" was the result of academic economists' advice finally being heeded? Perhaps. A number of economic researchers, including me, had written articles about how to operate monetary policy using better-designed institutions, and for a time they seem to be having their effect, thus furthering the "Great Moderation's" course. By the 1990s and early 2000s, more and more central banks had taken on exactly those qualities we had recommended … and yet they then proceeded to lead us into the current debacle and the

"Great Moderation's" end. What had seemed successful before suddenly produced massive failure. Economists are now sifting the rubble to see whether the advice we gave made any difference, good or bad, or whether our method, focus, upbeat spirit, and approach to education need to be reevaluated. One thing they are certain to find there is humble pie.

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