"Like a Dog Walking on its Hind Legs": Krugman's Minsky Model

I recently fired a stray shot at Paul Krugman over his joke paper "The Theory of Interstellar Trade" (Krugman 2010), for which I have duly apologized. However in that apology I noted that Krugman has also recently published a draft academic paper presenting a New Keynesian model of debt deflation, "Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo approach" (Eggertsson and Krugman 2010), and I observed that I wish this paper was in fact a joke. Here's why (this is a modified extract from my forthcoming second edition of Debunking Economics, which will be published by Zed Books in about September or October this year).

Though I applaud Krugman for being probably the first neoclassical economist to attempt to model Minsky after decades of ignoring him, the model itself embodies everything that is bad in neoclassical economics.

This reflect poorly, not so much Krugman—who has done the best he can with the neoclassical toolset to model what he thinks Minsky said—but on the toolset itself, which is utterly inappropriate for understanding the economy in which we actually live.

There is a pattern to neoclassical attempts to increase the realism of their models that is as predictable as sunrise—but nowhere near as beautiful. The author takes the core model—which cannot generate the real world phenomenon under discussion—and then adds some twist to the basic assumptions which, hey presto, generate the phenomenon in some highly stylized way. The mathematics (or geometry) of the twist is explicated, policy conclusions (if any) are then drawn, and the paper ends.

The flaw with this game is the very starting point, and since Minsky put it best, I'll use his words to explain it:

> Can "It"—a Great Depression—happen again? And if "It" can happen, why didn't "It" occur in the years since World War II? These are questions that naturally follow from both the historical record and the comparative success of the past thirty-five years. *To answer these questions it is necessary to have an economic theory which makes great depressions one of the possible states in which our type of capitalist economy can find itself.* (Minsky 1982, p. xii; emphasis added)

The flaw in the neoclassical game is that it never achieves Minsky's final objective, because the "twist" that the author adds to the basic assumptions of the neoclassical model are never incorporated into its core. The basic theory therefore remains one in which the key phenomenon under investigation—in this case, the crucial one Minsky highlights of how Depressions come about—cannot

happen. The core theory remains unaltered—rather like a dog that learns how to walk on its hind legs, but which then reverts to four legged locomotion when the performance is over.[1]

Figure 1: http://www.life.com/image/53019060;

Krugman himself is unlikely to stop walking on two legs—he enjoys standing out in the crowd of neoclassical quadrupeds—but the pack will return to form once this crisis ultimately gives way to tranquility.

The scholarship of ignorance and the ignorance of scholarship

Krugman's paper cites 19 works, three of which are non-neoclassical—Fisher's classic 1933 "debt deflation" paper, Minsky's last book *Stabilizing an Unstable Economy* (Minsky 1986), and Richard Koo's *The Holy Grail of Macroeconomics: Lessons from Japan's Great Recession* (Koo 2009). The other 16 include one empirical study (McKinsey Global Institute 2010) and 15 neoclassical papers written between 1989 (Bernanke and Gertler 1989) and 2010 (Woodford 2010)—5 of which are papers by Krugman or his co-author.

Was this the best he could have done? Hardly! For starters, the one Minsky reference he used was, in my opinion, Minsky's worst book—and I'm speaking as someone in a position to know.[2] Anyone wanting to get a handle on the Financial Instability Hypothesis from Minsky himself would be far better advised to read the essays in *Can "It" Happen Again?* (Minsky 1982), or his original book *John Maynard Keynes* (Minsky 1975)—which despite its title is not a biography, but the first full statement of the hypothesis.

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[1] Samuel Johnson's aphorism, that something is "like a dog's walking on his hind legs. It is not done well; but you are surprised to find it done at all", is one of those phrases that was offensive in its origins—since Johnson used it to deride the idea of women preaching—but utterly apt in its usage today.

[2] I actually posted a comment to this effect on Krugman's blog when he announced that he had decided to read Minsky and had purchased this book.

Krugman's ignorance of Minsky prior to the crisis was par for the course amongst neoclassical authors, since they only read papers published in what they call the leading journals—such as the *American Economic Review*—which routinely reject non-neoclassical papers without even refereeing them.[3]

Almost all academic papers on or by Minsky have been published in non-mainstream journals—the American Economic Review (AER), for example, has published a grand total of two papers on or by Minsky, one in 1957 (Minsky 1957) and the other in 1971 (Minsky 1971). If the *AER* and the other so-called leading journals were all you consulted as you walked up and down the library aisles, you wouldn't even know that Minsky existed—and most neoclassicals didn't know of him until after 2007.

Before the "Great Recession" too, you might have been justified in ignoring the other journals—such as the Journal of Post Keynesian Economics, the Journal of Economic Issues, the Review of Political Economy (let alone the Nebraska Journal of Economics and Business where several of Hyman's key papers were published) because these were "obviously" inferior journals, where papers not good enough to make it into the AER, the Economic Journal, Econometrica and so on were finally published.

But after the Great Recession, when the authors who foresaw the crisis came almost exclusively from the non-neoclassical world (Bezemer 2009; Bezemer 2010), and who were published almost exclusively in the non-mainstream journals, neoclassical economists like Krugman should have eaten humble pie and consulted the journals they once ignored.

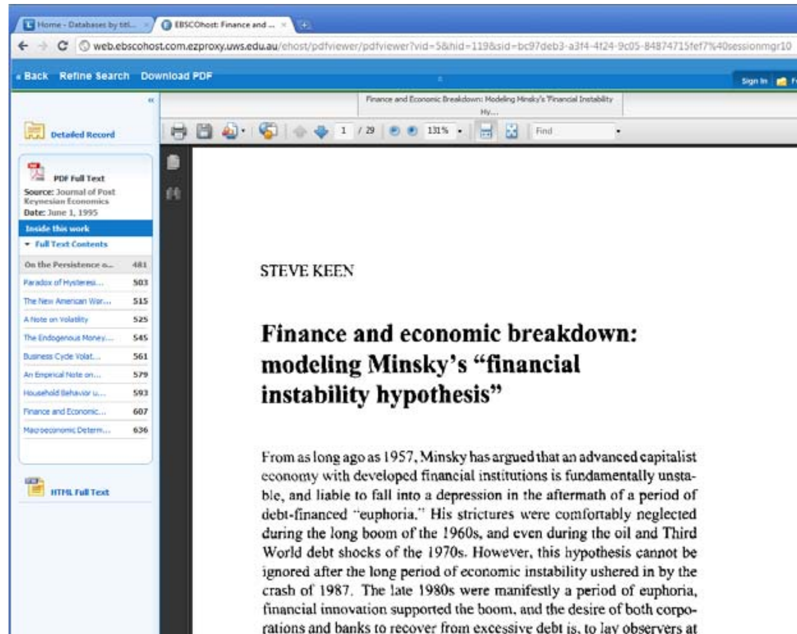
That might have been difficult once: which journals would you look in, if all you knew was that the good stuff—the models that actually predicted what happened—*hadn't* been published in the journals you normally consulted? But today, with the Internet, that's not a problem. Academic economists have as their bibliographic version of Google the online service Econlit, and there it's impossible to do even a cursory search on Minsky and not find literally hundreds of papers on or by him. For example, a search last month on the keywords "Minsky" and "model" turned up 106 references (including three by yours truly--Keen 1995; Keen 1996; Keen 2001, and one more will probably be there now ; Keen 2011).

Figure 2: The result of a search on "Minsky" and "model" in Econlit

[3] My forthcoming paper "A monetary Minsky model of the Great Moderation and the Great Recession" (Keen 2011) was rejected unrefereed by both the *AER* and the specialist *AER: Macroeconomics*, before being accepted by the *Journal of Economic Behavior and Organization* (see http://www.sciencedirect.com/science/article/B6V8F-5230PMJ-3/2/92723a633380b2d8e131c0fa0fd6df07).

27 of these are available in linked full text (one of which is also by yours truly--Keen 1995; see Figure 3), so that you can download them direct to your computer from within Econlit, while others can be located by searching through other online sources, without having to trundle off to a physical library to get them. To not have any references at all from this rich literature is simply poor scholarship. Were Krugman a student of mine, he'd get a fail for this part of his essay.

Figure 3: My paper which is downloadable directly from Econlit



STEVE KEEN

Finance and economic breakdown: modeling Minsky's "financial instability hypothesis"

From as long ago as 1957, Minsky has argued that an advanced capitalist economy with developed financial institutions is fundamentally unstable, and liable to fall into a depression in the aftermath of a period of debt-financed "euphoria." His strictures were comfortably neglected during the long boom of the 1960s, and even during the oil and Third World debt shocks of the 1970s. However, this hypothesis cannot be ignored after the long period of economic instability ushered in by the crash of 1987. The late 1980s were manifestly a period of euphoria, financial innovation supported the boom, and the desire of both corporations and banks to recover from excessive debt is, to lay observers at

So in attempting to model a debt crisis in a capitalist economy, Krugman has used as his guide Fisher's pivotal paper, Minsky's worst book, and about 10 neoclassical references written by someone other than himself and his co-author. How did he fare?

Minsky without money (let alone endogenous money)

One thing I can compliment Krugman for is honestly about the state of neoclassical macroeconomic modeling before the Great Recession. His paper opens with the observation that:

> "If there is a single word that appears most frequently in discussions of the economic problems now afflicting both the United States and Europe, that word is surely "debt"" (Eggertsson and Krugman 2010, p. 1)

He then admits that private debt played no role in neoclassical macroeconomic models before the crisis:

> Given both the prominence of debt in popular discussion of our current economic difficulties and the long tradition of invoking debt as a key factor in major economic contractions, one might have expected debt to be at the heart of most mainstream macroeconomic models—especially the analysis of monetary and fiscal policy. *Perhaps somewhat surprisingly, however, it is quite common to abstract altogether from this feature of the economy.* Even economists trying to analyze the problems of monetary and fiscal policy at the zero lower bound—and yes, that includes the authors—have often adopted representative-agent models in which everyone is alike, and in which the shock that pushes the economy into a situation in which even a zero interest rate isn't low enough takes the form of a shift in everyone's preferences. (p. 2; emphasis added)

However, from this *mea culpa*, it's all downhill, because Krugman makes no fundamental shift from a neoclassical approach; all he does is modify his base "New Keynesian" model to incorporate debt as he perceives it. On this front, he falls into the neoclassical trap of being incapable of conceiving that aggregate debt can have a macroeconomic impact:

> Ignoring the foreign component, or looking at the world as a whole, the overall level of debt makes no difference to aggregate net worth -- one person's liability is another person's asset. (p. 3)

This one sentence establishes that Krugman has failed to comprehend Minsky, who realized—as did Schumpeter and Marx before him—that growing debt in boosts aggregate demand. Minsky put it this way:

> If income is to grow, the financial markets… must generate an aggregate demand that, aside from brief intervals, is ever rising. For real aggregate demand to be increasing… it is necessary that current spending plans, summed over all sectors, be greater than current received income … It follows that over a period during which economic growth takes place, at least some sectors finance a part of their spending by emitting debt or selling assets. (Minsky 1982, p. 6)

Schumpeter made the same case in a more systematic way, by focusing upon the role of entrepreneurs in capitalism. He made the point that an entrepreneur is someone with an idea but not necessarily the finance needed to put that idea into motion.[4] The entrepreneur therefore must borrow money to be able to purchase the goods and labor needed to turn her idea into a final product. This money, borrowed from a bank, adds to the demand for existing goods and services generated by the sale of those existing goods and services:

> THE fundamental notion that the essence of economic development consists in a different employment of existing services of labor and land leads us to the statement that the carrying out of new combinations takes place through the withdrawal of services of labor and land from their previous employments… this again leads us to two heresies: first to the heresy that money, and then to the second heresy that also other means of payment, perform an essential function, hence that processes in terms of means of payment are not merely reflexes of processes in terms of goods. In every possible strain, with rare unanimity, even with impatience and moral and intellectual indignation, a very long line of theorists have assured us of the opposite…

[4] Sometimes they do of course, but in order to clarify his argument Schumpeter considers the case where an entrepreneur does not have pre-existing money and must therefore borrow to finance his venture.

> *From this it follows, therefore, that in real life total credit must be greater than it could be if there were only fully covered credit. The credit structure projects not only beyond the existing gold basis, but also beyond the existing commodity basis.* (Schumpeter 1934, pp. 95, 101; emphasis added)

This argument is a pivotal part of my analysis, in which I define aggregate demand as the sum of income plus the change in debt—as regular readers of this blog would know.

Krugman also has no understanding of the endogeneity of credit money—that banks create an increase in spending power by simultaneously creating money and debt. Lacking any appreciation of how money is created in a credit-based economy, Krugman sees lending as simply a transfer of spending power from one agent to another, and *neither banks nor money exist in the model he builds*.

Instead, in place of the usual neoclassical trick of modeling the entire economy as a single representative agent, he models it as two agents, one of whom is impatient while the other is patient. Debt is simply a transfer of spending power from the patient agent to the impatient one, and therefore the debt itself has no macroeconomic impact—it simply transfers spending power from the patient agent to the impatient one. The only way this can have a macroeconomic impact is if the "impatient" agent is somehow constrained in ways that the patient agent is not, and that's exactly how Krugman concocts a macroeconomic story out of this neoclassical microeconomic fantasy:

> In what follows, we begin by setting out a flexible-price endowment model in which "impatient" agents borrow from "patient" agents [where what is borrowed is not money, but ""risk-free bonds denominated in the consumption good" (p. 5)], but are subject to a debt limit. If this debt limit is, for some reason, suddenly reduced, the impatient agents are forced to cut spending; if the required deleveraging is large enough, the result can easily be to push the economy up against the zero lower bound. If debt takes the form of nominal obligations, Fisherian debt deflation magnifies the effect of the initial shock. (Eggertsson and Krugman 2010, p. 3)

He then generalizes this with "a sticky-price model in which the deleveraging shock affects output instead of, or as well as, prices" (p. 3), brings in nominal prices *without money* by imagining "that there is a nominal government debt traded in zero supply… We need not explicitly introduce the money supply" (p. 9), models production under imperfect competition (p. 11)—yes, the preceding analysis was of a no-production economy in which agents simply trade existing "endowments" of goods distributed like Manna from heaven—dds a Central Bank that sets the interest rate (in an economy without money) by following a Taylor Rule, and on it goes.

The mathematics is complicated, and real brain power was exerted to develop the argument—just as, obviously, it takes real brain power for a poodle to learn how to walk on its hind legs. But it is the wrong mathematics because the analysis compares two equilibria separated by time rather than

being truly dynamic by analyzing change over time regardless of whether equilibrium applies or not, and wasted brain power because the initial premise—that aggregate debt has no macroeconomic effects—was false.

Krugman at least acknowledges the former problem—that the dynamics are crude:

> The major limitation of this analysis, as we see it, is its reliance on strategically crude dynamics. To simplify the analysis, we think of all the action as taking place within a single, aggregated short run, with debt paid down to sustainable levels and prices returned to full ex ante flexibility by the time the next period begins. (p. 23)

But even here, I doubt that he would consider genuine dynamic modeling without the clumsy neoclassical device of assuming that all economic processes involve movements from one equilibrium to another. Certainly this paper remains true to the perspective he gave in 1996 when speaking to the *European Association for Evolutionary Political Economy*:

> I like to think that I am more open-minded about alternative approaches to economics than most, but *I am basically a maximization-and-equilibrium kind of guy*. Indeed, I am quite fanatical about defending the relevance of standard economic models in many situations…

He described himself as an "evolution groupie" to this audience, but then made the telling observation that:

> Most economists who try to apply evolutionary concepts start from some deep dissatisfaction with economics as it is. *I won't say that I am entirely happy with the state of economics. But* let us be honest: I have done very well within the world of conventional economics. I have pushed the envelope, but not broken it, and have received very widespread acceptance for my ideas. What this means is that *I may have more sympathy for standard economics than most of you*. My criticisms are those of someone who loves the field and has seen that affection repaid.

Krugman's observations on methodology in this speech also highlight why he was incapable of truly comprehending Minsky—because he still starts from the premise that neoclassical economics itself has proven to be false, that macroeconomics must be based on individual behavior:

> Economics is about what individuals do: not classes, not "correlations of forces", but individual actors. This is not to deny the relevance of higher levels of analysis, but they must be grounded in individual behavior. *Methodological individualism is of the essence.* (Krugman 1996; emphases added)

No it's not: methodological individualism is part of the problem, as the Sonnenschein-Mantel-Debreu conditions establish—a point that neoclassical economists have failed to comprehend, but whose import was realized by Alan Kirman:

> If we are to progress further we may well be forced to theorise in terms of groups who have collectively coherent behaviour. Thus demand and expenditure functions if they are to be set against reality must be defined at some reasonably high level of aggregation. The idea that we should start at the level of the isolated individual is one which we may well have to abandon. (Kirman 1989, p. 138)

So while Krugman reaches some policy conclusions with which I concur—such as arguing against government austerity programs during a debt-deflationary crisis—his analysis is proof for the prosecution that even "cutting edge" neoclassical economics, by continuing to ignore the role of aggregate debt, is part of the problem of the Great Recession, not part of its solution.

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