Banquet Speech

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Ellen McGrattan

Some people call economics the dismal science. You know, I think they're right. I work at the Fed and I'll tell you that there is nothing more exciting for the guys I work with than talking about depressions and crises. It's pretty dismal stuff. But I'll tell you, the most dismal thing about these discussions is the realization of how little we really know.

- People say that it is obvious that the recent financial crisis was the source of the downturn in real activity. But, none of the standard theories with financial frictions back them up. The shocks in these models typically affect the wrong marginal conditions and generate time series that are empirically inconsistent with US data.

- People say that the actions of the Fed and the Treasury prevented a larger downturn. But, none of the standard theories of money—and here I mean theories with the Fed following a Taylor rule to set the Fed Funds rate— none of these back them up. The impact of changes in the Fed Funds rate, even when driven down to zero, is just too small.

- People say that the recent downturn reminds them of the Great Depression. But even a cursory look at the data says otherwise. For example, in the Great Depression, productivity fell significantly. No one knows why, but it did. Over the last few years, productivity growth has been

high. In fact, generations in the future may look back at 2008-2009 period and say that the U.S. performed very well. I guess the common link between now and the 1930s is that, again, no one knows what really happened.

Ok, this is a dinner speech and I probably shouldn't drone on about the dismal side of our science especially since there is a silver lining in all of this. We're professional economists and what I'm saying is: there is a lot of work to be done in economics. And, I don't mean just for those of us working in the trenches at the Fed. I also mean for economics professors like yourselves who will likely face much higher enrollments and more questions from inquisitive students. Students will want to know the answers to questions like: what caused the recent financial crisis and recession and what really happened during the Great Depression.

What I would love to see is a dramatic change in *how* we teach these future students. I want to emphasize the *how* and not the *what*. Economic theory is what it is. It will evolve, but I think journalists are very confused when they say that there is a lack of agreement amongst professional economists about basic economic principles. As a related aside, I did see a very funny You-Tube with Yoram Bauman, who calls himself the stand-up economist. He did what was essentially a stand-up comedy routine about the financial crisis at the ASSA meetings. At one point, he said that the U.S. economy looks like a hamster that has been running and running around its cage for seven years and looks completely exhausted. As a microeconomist, he would say what the hamster needs is some rest. On

the other hand, a macroeconomist looking at the tired hamster would say what it needs is methamphetamines. His punchline is: he's sure macroeconomists are right, but in two years that is going to be one ugly hamster! I recommend watching the whole routine, it is very funny.

Of course jokes with "on the one hand" and "on the other hand" are always a great way to make fun of economists, but there is more agreement than most people think. I think the lack of consensus is on *how* to tackle the hard questions. Economists should be more like engineers.

What do I mean by that? I mean that we should engage much more in a back and forth between predictions of our theories and the data – what I like to call doing "quantitative theory." If quantitative predictions of theory are way off, we shouldn't go shooting our mouths off about episodes like the recent financial crisis.

On this point, I have some ideas for the classroom and for day-to-day research.

In the classroom, I have tried a couple of things with graduate students from the University of Minnesota that have worked well. The first exercise for the students is the "Tell me what happened" game. I take a theoretical model, simulate time series from it, and add shocks to generate cyclical fluctuations. I don't tell the students anything about the model I use. Just for kicks, I also include a big event: a war, a depression, a crisis, anything that looks bigger than the normal business cycle fluctuations. For each dataset that I generate, I make up a name of a fake country, like Caitland. I came up with that because I have a daughter named Caitlin. Sometimes I

confuse the foreign students who don't quite know the English translations of country names. One student given time series for New Zoeland—named for my daughter Zoe—thought he was working with actual data from New Zealand.

What do the students have to do? The job of the students is to diagnose the time series. They have to tell me what is driving the normal fluctuations and what is driving the big events? Since I am the data-generating mechanism, there is a right and wrong answer. This is not easy but it is a lot easier than doing the real thing! At least they know that there is an answer. And, to me, it makes sense to do these exercises first, before having to the real thing.

A second exercise that I do with the students, one that complements the first, is "business cycle accounting." In a paper by the same name, Pat Kehoe, Chari and I showed that most macro theories in use today can be mapped to a prototype growth model with wedges –the wedges look like time-varying TFP, government spending, and tax rates but are actually standing in for shocks and frictions that we are trying to identify. You can think of the wedges as gaps in marginal conditions that we are trying to investigate.

What we showed is that there is an equivalence between the prototype model and a whole host of models with specific frictions and shocks given particular choices for the stochastic processes of the wedges. A sticky wage model with shocks to monetary policy is observationally equivalent to a prototype growth model with time-varying taxes on labor, with a judicious

choice for the stochastic process on the labor ta. The main idea is to use the business cycle accounting approach as a way of ruling out certain theories. For example, if the U.S. data were consistent with the sticky wage/agency cost model made popular by Bernanke and Gertler, then the business cycle accounting would pick up movements in certain wedges in the prototype model and not others.

Obviously, simpler exercises are needed with undergraduate students, but I think exposing them to some quantitative applications is useful. Even if we could get them to read the newspaper with a more critical or skeptical perspective, that constitutes progress.

What about day-to-day research? I would love to see more papers with the model predictions and actual time series in the same figure or table, side by side. In the hey day of the real business cycle literature, researchers took a lot of heat for direct comparisons with the data. In my view, it is as useful to know where the deviations lie between theory and data as it is to know where there is agreement. Either way, we've learned something. And, if there is a deviation, just put the word "puzzle" in your title. Ask Ed Prescott and Raj Mehra how that worked out for them.

I would also love to see journal editors accept good quantitative papers that may not have solved everything. I have never seen an application where one factor accounts for all of the puzzling patterns in our data.

So, I started by saying that people call our science the dismal science. Maybe it is not so dismal after all. Our science is sufficiently mature that we no longer are merely empiricists. We have some good theories that are

ready to be tested, and we have the computer power to do it. Now, we just need the nerve to accept that our theories may get us only part way to the answers we seek.

Thank you.