Lessons from Lars

Gala Honoring Lars Peter Hansen

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I got my economics Ph.D. from Chicago in the summer of 1987—over a quarter of a century ago. At that moment in time, my infant research agenda was largely a spillover of Lars' own powerful agenda. Over the intervening time period, though, our career tracks have led us in different directions. Somewhat to my surprise, by the end of my academic career in 2009, I generally found myself being labeled as an economic theorist by most other economists. (I say "most other economists" because I generally found that theorists themselves wanted to label me something else!) And in 2009, I left the academe to become a monetary policymaker. That's a step that Lars has not made—at least not yet.

So, Lars and I have taken different paths in our lives. Nonetheless, Lars has been a role model for me throughout my professional life—a person whose example I've striven to follow. Through our interactions over the past 25 years and more, he has taught me many important lessons. I'll use my brief time to talk about two of those lessons: the power of mathematics and the value of persistence.

I'll start with the power of mathematics. Early on in his time as my adviser, Lars gave me a page and a half of comments on what was to become the main chapter of my dissertation. Unfortunately, I'm not much of a pack rat, and so I have not kept a copy of those comments—now, they'd probably be worth millions on eBay.

But one of Lars' comments has stuck in my mind. It was typically pithy: Use L^∞, not L^2. I'm sure that most of you are having the same reaction that I did at the time: What? Abandon the wonderful inner product structure of L^2? That's sure going to make the proofs a lot harder. I'm sure that you can all empathize with the deep longing for inner products that I felt back then.

I went away and thought about this statement—use L^∞ and not L^2. After some period of time—really, no more than a decade or so—I figured out why Lars had said what he said. So, when Mikhail Golosov, Aleh Tsyvinski and I wrote a paper together on optimal taxation in the early 2000s, we followed the advice that Lars had given me as a student and used L^∞ as the basis of our mathematics. By doing so, we were able to show that our results were surprisingly fundamental, in the sense that they could be derived in a wide class of seemingly disparate economic models.

I think that this little story is illustrative of what I see as a basic message from Lars' research: It takes harder mathematics—in my story, L^∞ math—to get closer to economic fundamentals. A lot of economic and econometric analysis relies on a host of auxiliary assumptions that really have nothing to do with economics—for example, assumptions about serially independent errors. We can cross our fingers—but we have no way of knowing whether these auxiliary assumptions are ultimately responsible for our results.

To a remarkable extent, Lars' econometric and economic analyses dispense with these auxiliary assumptions. Doing the analysis without those assumptions requires harder math. But here's the true irony. Because the harder math allows us to get rid of the technical assumptions, the harder math gets us much closer to understanding the core implications of economics itself. And I believe that this is exactly why the generalized method of moments has become so widely used in economics and other social sciences.

Let me move on to the second of the lessons that I learned from Lars that I want to mention today: the value of persistence. The power of Lars' remarkably assumption-free approach to asset pricing is now obvious to us. But I was there almost at the beginning—and, 25 years ago, I remember that the approach seemed overly abstract and mathy to many. It took persistence on Lars' part to overcome those sentiments and get his ideas the widespread acceptance that they now enjoy.

My own experience as a researcher was that persistence was incredibly important. Whenever I came up with a new idea, I was told—by many people—that the idea had to be wrong. Time would pass. And many of those same folks would come and tell me that they had decided that the idea was not wrong. Instead, they had a fresh criticism—they had decided that the idea was obvious to the point of banality. For you young researchers out there, that's called "winning them over."

So, those are two of the many lessons that I learned from Lars—the power of mathematics and the value of persistence. I'll close by saying *why* I have been able to learn those lessons from him. One reason is that, of course, Lars is remarkably brilliant. But another is that Lars is remarkably generous with his time and his thinking. I used to work at the University of Iowa back in the early '90s. I remember one of my colleagues there saying of Lars, "Lars Hansen makes everyone who ever talks to him a better economist." Enough said.

Thanks, Lars.