Comments on Angrist and Pischke's paper by Judea Pearl

Overturning Econometrics Education (or, do we need a "causal interpretation"?)

My attention was called to a recent paper by Josh Angrist and Jorn-Steffen Pischke titled: "Undergraduate econometrics instruction" (A NBER working paper) http://www.nber.org/papers/w23144?utm_campaign=ntw&utm_medium=email&utm_source=ntw

This paper advocates a pedagogical paradigm shift that has methodological ramifications beyond econometrics instruction; As I understand it, the shift stands contrary to the traditional teachings of causal inference, as defined by Sewall Wright (1920), Haavelmo (1943), Marschak (1950), Wold (1960), and other founding fathers of econometrics methodology.

In a nut shell, Angrist and Pischke start with a set of favorite statistical routines such as IV, regression, differences-in-differences among others, and then search for "a set of control variables needed to insure that the regression-estimated effect of the variable of interest has a causal interpretation". Traditional causal inference (including economics) teaches us that asking whether the output of a statistical routine "has a causal interpretation" is the wrong question to ask, for it misses the direction of the analysis. Instead, one should start with the target causal parameter itself, and asks whether it is ESTIMABLE (and if so how), be it by IV, regression, differences-in-differences, or perhaps by some new routine that is yet to be discovered and ordained by name. Clearly, no "causal interpretation" is needed for parameters that are intrinsically causal; for example, "causal effect", "path coefficient", "direct effect", "effect of treatment on the treated", or "probability of causation".

In practical terms, the difference between the two paradigms is that estimability requires a substantive model while interpretability appears to be model-free. A model exposes its assumptions explicitly, while statistical routines give the deceptive impression that they run assumptions-free (hence their popular appeal). The former lends itself to judgmental and statistical tests, the latter escapes such scrutiny.

In conclusion, if an educator needs to choose between the "interpretability" and "estimability" paradigms, I would go for the latter. If traditional econometrics education is tailored to support the estimability track, I do not believe a paradigm shift is warranted towards an "interpretation seeking" paradigm as the one proposed by Angrist and Pischke.