



THE UNIVERSITY OF
CHICAGO

DEPARTMENT OF STATISTICS

Statistics Colloquium

LARS PETER HANSEN

Department of Statistics and Department of Economics
University of Chicago

“Risk, Ambiguity, and Misspecification: Decision Theory, Robust Control, and Statistics”

MONDAY, APRIL 10, 2023, at 4:30 PM

Jones 303, 5747 S. Ellis Avenue

Refreshments before the seminar at 4:00 PM in Jones 303.

ABSTRACT

“Deep uncertainties” call for devising prudent courses of action. To help do that, we bring ideas from robust control theory into statistical decision theory. Decision theory in economics has its origins in axiomatic formulations by von Neumann and Morgenstern and the statisticians Wald and Savage. Since Savage’s fundamental contribution, economists have provided alternative axioms that formalize a notion of ambiguity aversion. Meanwhile, control theorists created another way to construct decision rules that are robust to potential model misspecifications. We reassess axiomatic foundations of modern decision theory to incorporate prior ambiguity across a family of models simultaneously with concerns about misspecifications of likelihood functions. By building on ideas from dynamic programming, our representations have recursive structures that preserve dynamic consistency.

Joint Tom Sargent (NYU)