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‘Time averages, ergodicity and utility theory’

Abstract

Basic notions of ergodicity will be introduced and illustrated with simple stochastic processes. The concepts will yield a different perspective on utility theory: expected utility theory was devised to deal with diverging expectation values (18th century). Alternatively, expectation values can be avoided altogether by taking time averages. This eliminates conceptual issues with probabilities and with parallel worlds involved in expectation values. From the perspective of ergodic theory (20th century), utility functions are transformations that help extract ergodic observables from a non-ergodic process.

The term "ergodicity" is used here with its original meaning from statistical mechanics. The object of study in ergodic theory is the relationship between expectation values and time averages. Paul Samuelson introduced the same word with a different meaning in economics, where it is now sometimes used synonymously with uniformitarianism (the constancy of laws over time).

Date & time: Wednesday 12th June 2013, 15.00

Venue: CATS, LSE, Tw1, 11.01

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