

Title: Randomness Does Not Break the Curse of Dimensionality Unless the Dynamic Program Is Trivial

Abstract: Rust (1997) developed a randomized algorithm that can solve discrete-choice dynamic programs to any degree of accuracy in polynomial time, under some assumptions. Rust believed these assumptions are relatively permissive, and thus suggested that randomness can be a powerful remedy against the curse of dimensionality of dynamic programs. However, I show that Rust's assumptions rule out all but a trivial class of dynamic programs. I argue, therefore, that we should not consider randomness as a countermeasure against the curse of dimensionality.