

When Nakamoto Meets Nash: Blockchain Breakthrough Through the Lens of Game Theory

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Abstract

We discuss the deep connections between Blockchain Technology, Computer Science and Economics. The talk surveys the ways the Blockchain disruption raises fundamental challenges that have a deep game theoretic nature. We focus on four major open questions:

1. The need for a game theoretic *endogenous* theory of the utility of Money Systems that can model friction, fairness, and trust.
2. The need to incentivize trust in both *consensus* and *execution*. A need for a game theoretic theory of Consensus and analogue to Byzantine Fault Tolerance. A need for a game theoretic framework for *scalable validation*.
3. The challenge of incentivizing *fairness* and *chain quality*. Can we use notions of robust equilibrium to provide better notions of fairness?
4. The open question of how Blockchains can incentivise *welfare*. The need for a theory of Blockchains as *public goods*.

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