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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