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I am very glad to post a new empirical paper on Ethereum Gas Fee. https://t.co/2M5gKlifnk @ethereum @VitalikButerin @ethereumJoseph @eth_classic

7:44 AM - 17 Jan 2022

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Empirical Analysis of EIP-1559: Transaction Fees, Waiting Time, and Consensus...

Transaction fee mechanism (TFM) is an essential component of a blockchain protocol. However, a systematic evaluation of the real-world impact of TFMs is still absent. Using rich data from the Ethereum blockchain, mempool, and exchanges, we study the...

Transaction fee mechanism (TFM) is an essential component of a blockchain protocol. However, a systematic evaluation of the real-world impact of TFMs is still absent. Using rich data from the Ethereum blockchain, mempool, and exchanges, we study the effect of EIP-1559, one of the first deployed TFMs that depart from the traditional first-price auction paradigm. We conduct a rigorous and comprehensive empirical study to examine its causal effect on blockchain transaction fee dynamics, transaction waiting time and security. Our results show that EIP-1559 improves the user experience by making fee estimation easier, mitigating intra-block difference of gas price paid, and reducing users' waiting times. However, EIP-1559 has only a small effect on gas fee levels and consensus security. In addition, we found that when Ether's price is more volatile, the waiting time is significantly higher. We also verify that a larger block size increases the presence of siblings. These findings suggest new directions for improving TFM.

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image

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