

Abstract: We present the first in-depth empirical characterization of the costs of trading on a decentralized exchange (DEX). Using quoted prices from the Uniswap Labs interface for two pools – USDC-ETH (5bps) and PEPE-ETH (30bps) – we evaluate the efficiency of trading on DEXs. Our main tool is slippage – the difference between the realized execution price of a trade, and its quoted price – which we breakdown into its benign and adversarial components. We also present an alternative way to quantify and identify slippage due to adversarial reordering of transactions, which we call reordering slippage, that does not require quoted prices or mempool data to calculate. We find that the composition of transaction costs varies tremendously with the trade’s characteristics. Specifically, while for small swaps, gas costs dominate costs, for large swaps price-impact and slippage account for the majority of it. Moreover, when trading PEPE, a popular ‘memecoin’, the probability of adversarial slippage is about 80% higher than when trading a mature asset like USDC.

Overall, our results provide preliminary evidence that DEXs offer a compelling trust-less alternative to centralized exchanges for trading digital assets.

@misc{adams2023costs, title={The Costs of Swapping on the Uniswap Protocol}, author={Austin Adams and Benjamin Y Chan and Sarit Markovich and Xin Wan}, year={2023}, eprint={2309.13648}, archivePrefix={arXiv}, primaryClass={cs.CR} }

[arXiv.org](https://arxiv.org/abs/2309.13648)

## **The Costs of Swapping on the Uniswap Protocol**

We present the first in-depth empirical characterization of the costs of trading on a decentralized exchange (DEX). Using quoted prices from the Uniswap Labs interface for two pools -- USDC-ETH (5bps) and PEPE-ETH (30bps) -- we evaluate the...