

PhD defence: Christopher Henry

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Essays in Financial Development, focusing on nascent financial technologies

JURY

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ABSTRACT

It is increasingly clear that the area of payments -- how consumers and businesses choose to pay for things -- is at the forefront of financial development in many areas across the world. Nascent financial technologies are actually changing the way that economies function, and the number of payment innovations alone can be overwhelming to consider: Bitcoin, m-Pesa, Venmo, Apple pay, mobile payment apps, e-Transfer, and many, many more. This is not even to mention continuing innovations among more familiar payment methods that make them more secure and easier to use, for example contactless credit and debit cards. Even cash has undergone technical innovations, with paper banknotes being replaced in many countries by polymer notes having ever-advanced security features to deter counterfeiting.

Bitcoin provides a useful case study in the diffusion and impact of nascent financial payment technologies for several reasons. The original intention behind Bitcoin was in fact to do away with the need for central banks and their money, by functioning as a decentralized payments platform. In place of central banks issuing cash, or traditional financial institutions, these third parties were to be replaced by use of cryptography to secure transactions. Of course, intentions do not always reflect reality, and the trajectory of Bitcoin has been complicated to say the least. While it certainly can be (and is) used for transactions, many

have come to view it more as a 'cryptoasset' than a cryptocurrency.

This thesis contributes to two important questions about nascent financial technologies within the literature on the economics of payments: 1] What is the most effective way to collect data that can help us understand and assess the impact of new payments technologies on the economy? (Methodology) 2] What trade-offs are relevant for consumers when deciding on the adoption and use of new forms of payment technologies? (Economic modelling).

Correspondingly, this thesis is organized into two parts.

In Part 1 (Chapter 1-2), we take up methodological concerns. These are crucial for studying emerging technologies because there is often little consensus or data available to guide researchers; often, collecting useful data is a large part of the endeavor.

While there has been a long history of consumer (and merchant) payment surveys among central banks, Chapter 1 offers a unique opportunity to test and validate survey-based methodology for studying payment choice - specifically cash versus electronic card payments - using a novel dataset from Hungary consisting of the universe

of all retail transactions. Chapter 2 reflects ongoing work to measure changes in awareness and usage of Bitcoin in Canada. We report on results from the 2018 Bitcoin Omnibus Survey conducted by the Bank of Canada, while highlighting efforts to improve the survey instrument, data and accuracy of estimates.

In Part 2 (Chapter 3 and 4) we turn to economic modelling of consumer decisions. Chapter 3 confronts the standing assumption that adoption of new digital payment technologies will necessarily lead to a decline in cash usage. Based off our finding that Bitcoin owners tend to hold relatively large amounts of cash, we use advanced econometric techniques to account for possible sources of selection/endogeneity, and thereby uncover a clearer picture of what is driving this result. Finally, Chapter 4 investigates potential mechanisms behind the future evolution of Bitcoin adoption over time. Motivated by the literature on diffusion of technology, we examine empirical evidence on the role of both beliefs and network externalities in Bitcoin adoption.

KEYWORDS

Financial development, economics of payments, Fintech, Bitcoin, payment surveys, currency, cash, diffusion of technology, survey methodology.





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