

Evaluating Bitcoin's Disruptive Potential in Remittance Services: An Empirical Investigation

Extended abstract

For the past decade, the topic of international transactions, i.e. remittances, done by migrants and their impact on the countries' economic and social development has been of great interest to the research (Agesa & Kim, 2001; de la Briere, Sadoulet, de Janvry, & Lambert, 2002). With the total of \$435 billion in remittances that went to developing countries in 2014, remittances fulfil the role of an insurance tool (Amuedo-Dorantes & Pozo, 2006), credit relief (Taylor & Wyatt, 1996), and even serve as a stimulus for investments in personal enterprises (Woodruff & Zenteno, 2007; Yang, 2008). With the current remittance costs ranging anywhere between 6.35% and 11.09% for various remittance services and the global average costs amounting to 7.53% in the first quarter of 2016, World Bank (2016) mentioned that additional \$16 billion would be at households' disposal should the costs be reduced by 5 per cent points.

The total costs of transfers are often not transparent with regard to direct fees charged, exchange rates, taxes, and fees for the receiver, which results in the lack of competition between remittance service providers and ultimately drives up remittance prices even more (Maloumy-Baka & Kingombe, 2015). Similarly, transaction time, the ease of use, and availability have also been found important in remittance markets (Ullah and Panday, 2007; Kosse & Vermeulen, 2014). Yet, considering World Bank's latest failure in meeting its own objective set in 2009 to reduce the remittance costs down to 5 per cents by 2014, and United Nations' recently adopted goal of average costs of 3 per cents by 2030, finding and implementing potentially effective strategies seems to a substantial challenge.

Our paper proposes one such strategy - the blockchain technology, and more specifically the Bitcoin, by evaluating its disruptive potential in remittance services. Bitcoin, the first cryptocurrency and very first application based on the novel blockchain technology (Nakamoto, 2008), possess many characteristics that are valued in the remittance market (Folkinshteyn, Lennon, & Reilly, 2015): it has low transaction fees of about 0.1% of the transaction value (Möser & Böhme, 2015), it is faster than traditional remittance providers with an average transaction time of 10 minutes (Brito & Castillo, 2013; Maloumy-Baka & Kingombe, 2015), and also ensures complete transparency over transactions (Richter et al., 2015). However, its utilization in this area is still lacking (Böhme et al., 2015). We argue that Bitcoin could not only contribute to the increase in remittance growth overall, but that it also

possesses the potential to change the very nature of how remittance markets function. We argue that it has the potential to disrupt the current remittance market.

In order to assess Bitcoin's disruptive potential, we run a survey study. Using a sample of 149 respondents, first we focus on detecting perception differences between Bitcoin users (niche adopters) and non-users (mainstream customers) with respect to the previously mentioned characteristics. This allowed us to detect not only the group differences themselves (using t-tests), but also how Bitcoin's adoption by the non-users could be achieved (using logistic regression models). In addition, using the conjoint analysis approach, characteristics important for international money transfers are captured. Lastly, we assess Bitcoin's potential to serve as a low-end disruptive innovation in remittance.

Our results indicate that, with respect to Study 1, only transaction time ($\beta = 0.384$, $p < .1$) and exchange rate stability ($\beta = -0.510$, $p < .1$) have a significant effect on Bitcoin's adoption. In addition, we also find evidence that Bitcoin non-users found Bitcoin's transaction fee and availability significantly more important, while also being less concerned about its safety. Next, results from Study 2's conjoint analysis revealed that transaction fee had the highest relative importance (50.90%) among the studied features of remittance, followed by the exchange rate volatility (23.33%), transaction time (13.39%), and its convenience (12.38). Lastly, building on previous research and utilizing a framework on detecting low-end disruptions (Adner, 2002; Christensen, 1997; Christensen & Raynor, 2003; Govindarajan & Kopalle, 2006), we provide evidence that Bitcoin possess all of the characteristics typical for low-end disruptions: (1) it first underperformed on attributes that mainstream customers valued; (2) it offers features that were initially not valued by mainstream customers; (3) it is simpler and cheaper; (4) it appealed to a niche market; and (5) was subsequently valued by mainstream customers after performance improvements have been made on characteristics that mainstream customers value.

While considering the limitations of our research, notably its generalizability due to the rather small sample sizes of our studies and the typical issues arising when applying Likert-scales, we contribute to the extant literature in the following three ways: first, whereas previous research has mainly focused on Bitcoin's technical foundation, addressing e.g. anonymity (Reid & Harrigan, 2012), mining (Eyal & Sirer, 2014) or the cryptography (Bos et al., 2014), research regarding its economic value is still very scarce. Some scholars focused on its risks and potentials (Böhme et al., 2015; Brito & Castillo, 2013; Evans, 2014; Folkinshteyn et al., 2015), others investigated its ability as a financial instrument (Dyhrberg, 2015). However, research so far has not analysed Bitcoin's characteristics in a remittance

context from a user's perspective and has barely investigated its disruptive potential with respect to other markets. Therefore, this study is, to the best of our knowledge, the first to investigate the most relevant characteristics of Bitcoin for remittance services and to assess its disruptive potential. Second, although inefficiencies in the remittance systems have been identified, financial institutions have done little to resolve them and meet their goals. Considering several recent successful Bitcoin applications, such as the itBit or the R3 CEV blockchain project, Bitcoin has all the features to address mentioned inefficiencies. itBit has received the banking trust charter and is therefore able to provide asset protection and security (itBit, 2016; Popper, 2015). The R3 CEV blockchain project that gathered 42 banks and financial institutions (Allison, 2016) in its first experiment on the facilitation of the trading of debt instruments. In addition, building on World Bank's calculations, the UN expects to restructure the remittance markets. Bitcoin's implementation in the same could potentially provide households in the developing countries with approximately additional \$208 billion that could be used to boost their economies, without even accounting for any growth in the remittances' volume. Ultimately, we identified the characteristics Bitcoin non-users would find important in order to start using Bitcoin, thus laying a stepping stone for future research interested in investigating real applications of the Bitcoin well beyond both its current niche and remittance markets.

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