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MONEY THAT ISN'T

A Qualitative Examination of the Adoption of the 1 Pesewa Coin and Biometric Payment Cards in Ghana

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ABSTRACT: The introduction of a new form of money into society can be deemed successful if it is adopted and integrated into the daily financial practices of a large part of the society. In other words, both central banks and the general society play a role in money objects becoming money. On occasion, social rejection of new money objects occurs, such that official legal tender is not accepted or put to use as a medium of exchange in financial transactions, resulting in financial deadweight. Using qualitative data on coin use subsequent to Ghana's 2007 redenomination of the Cedi as well as the introduction of the e-zwich card, an electronic payment system, this paper explores two such cases of social rejection of a money object. Due to the role that society plays in adopting money objects, attempts to encourage adoption of money objects must include bottom up strategies.

Introduction

From stock-piled cowrie shells (Arhin, 1995) to password-protected electronic money mobile wallets on mobile phones, the nature of and access to money in Ghana has evolved greatly over the past 500 years (see Figure 1, and Guyer, 1995). The introduction of Automatic Teller Machines (ATMs) to Ghanaian consumers by Trust Bank in 1993¹ heralded a new age

1. Personal communication, Ecobank representative, 2016. Other sources have cited 1980s and 1995 as when ATMs were introduced to Ghana.

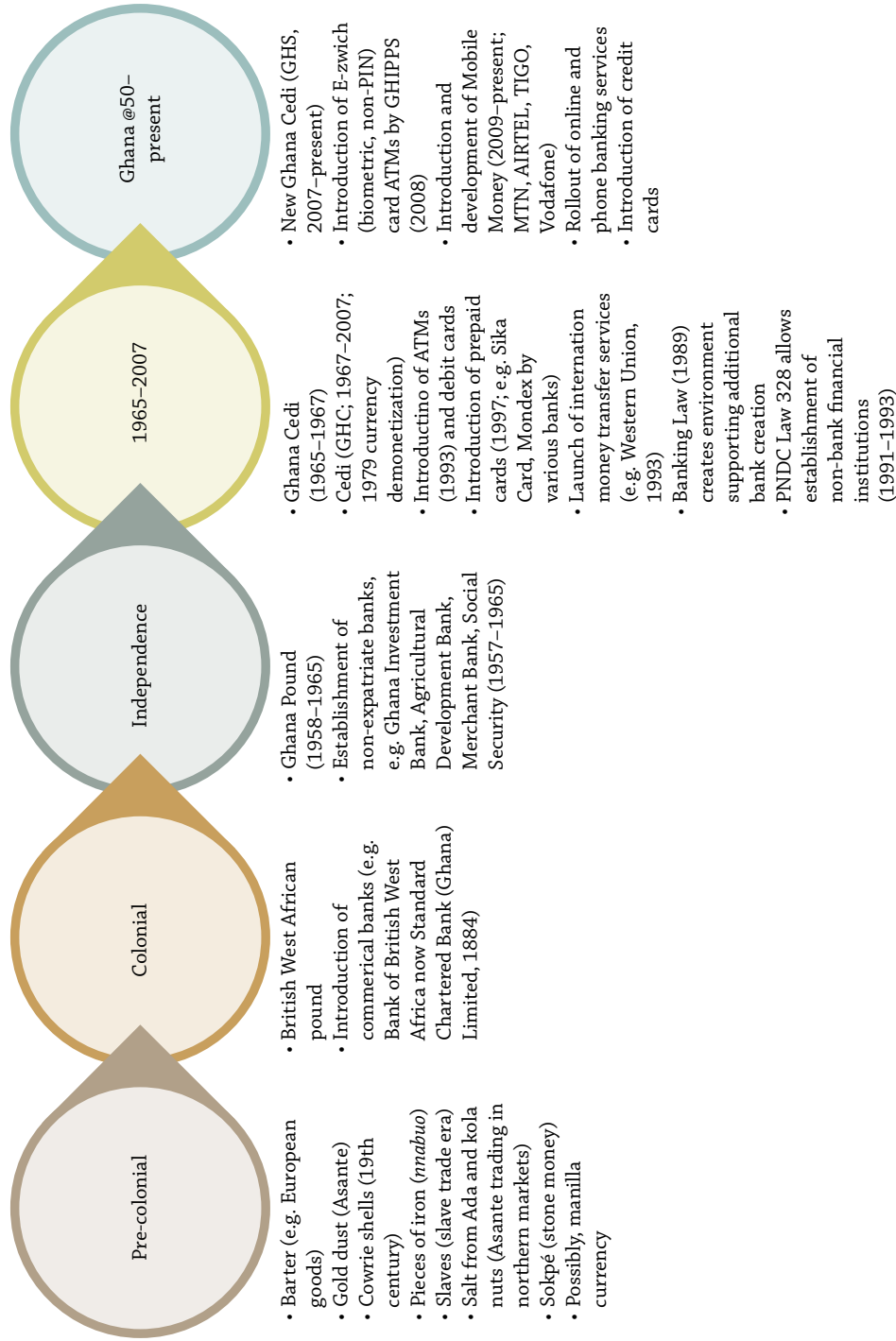


Figure 1. Money and Banking in Ghana: A Brief History

in the Ghanaian consumer's relationship to money. It signaled an era of technology-enabled consumer access to cash in the formal banking sector. No longer were bank tellers the gatekeepers of people's savings and current accounts: banked Ghanaians had the option of conveniently accessing their cash after banks were closed. From 2009 onwards, technology-enabled financial inclusion has been made accessible to those outside of the formal banking sector as well. This trend has occurred via mobile network operator-controlled, mobile-phone based, money management platforms which could be used to remit money, pay bills, and purchase airtime. Such products, called Mobile Money, available in different brands affiliated with Ghana's Mobile Network Operators (e.g. MTN, Airtel), had a relatively slow uptake in Ghana compared to other African markets such as Kenya (Maurer, 2012). Yet over time, money and technology are increasingly interfacing in the world of the Ghanaian consumer.

The metamorphosis of money in Ghana and other African contexts has been shaped not only by technological advances such as those briefly discussed previously, but also by a variety of other influences including international relations (such as colonialism and independence; Fuller, 2008), domestic politics (Fuller, 2015), banking legislation (Bawumia, 2015), inflation (Bank of Ghana, 2007), and consumer behavior. Rather than simply being passive users of products designated as money by external forces, consumers actively participate in determining the contexts in which such money is used (Zelizer, 1989). Currently, while Ghana is largely a cash-based economy, its financial ecosystem includes non-cash bank alternatives such as cheques, card-based bank products, and mobile money. Thus, consumers have a variety of products to choose from to conduct everyday financial transactions. While the impact of financial technologies has been the focus of much recent research (Maurer, Nelms, and Rea, 2013), few studies have explored the role of consumer agency in determining what becomes money. We argue that by choosing what to use and what not to use as tools for spending and saving, consumers play a role in determining the validity of some money objects and repudiating others. In other words, consumers play an important role in determining what is money, as well as what is not.

In this paper, we examine how Ghanaians negotiate—in their everyday practices of paying for goods and services and saving—which objects designated as money do or do not become money. Bringing together perspectives from marketing, economic psychology, and the anthropological study of money, we examine the experiences of Ghanaians with two specific cases of “money”: the 1 pesewa coin and e-zwich—a biometric smart card. Money product launches are typically introduced into markets at

much cost to the launching agency or institution. It is thus important to learn from instances when such introductions are unsuccessful. We begin with our exploration with a discussion of money as a product. We then analyze our two selected Ghanaian cases. We argue that while architects of national financial systems may be in charge of deciding and mandating the specific money objects a group of people should use, they are not in complete control over the functions that money objects are imbued with. It is the people, who to a large extent, determine the specific functions of an intended money object, including whether or not the object(s) that are supposed to be used as money actually function as such.

Money as a Product

The theoretical framing of our inquiry is premised upon the assumption that a money object (the form in which money occurs) can be considered a product. Products have inherent characteristics (attributes) that make them useful to people (Golder, Mitra and Moorman, 2012). Consumer decisions about product use are driven by consumer perceptions of product attributes (Holak, 1988). Money products are inert objects that societies adopt as money by imbuing them with functional attributes and harnessing qualities that these objects innately possess.

Levitt (1983) suggests the existence of two categories of product attributes: core attributes (basic product functions) and facilitator attributes (additional qualities that go beyond the simple). In order for a product to be useful or successful, it must first meet its core or basic attributes. If the first attribute is unmet, it often renders the second unnecessary. Money products are inert objects that societies adopt as money by imbuing them with the basic functions of serving as a medium of exchange, unit of account, store of value, and standard of deferred payment (Coulborn, 1938). Additional desirable attributes of money are recognizability, portability, durability, stability of value, and homogeneity (Jevons, 1876; Galbraith, 1975; Onoh, 1982).

Consumer willingness to use a product is informed by the evaluation of the product's relative advantage (the degree to which an innovation is perceived to be better than the product it is replacing), compatibility (the degree to which an innovation is perceived as being compatible with the consumer's existing value system, experience, and needs), complexity (the degree to which an innovation appears difficult to understand and use), triability (degree to which an innovation can be experimented with on a limited basis), and observability (the degree to which the results of innovation are visible to others) (Rogers, 1995). Clearly, multi-factorial

decision-making processes on the part of the consumer are important determinants of product uptake. The role of the consumer and society in shaping what becomes and does not become money is often overlooked. According to Furnham and Argyle (1998), money objects become valuable and are able to function as such because of the qualities *society* confers on them. Similarly, Wray (2010) argues that it is *society* that determines the value of money and thus decides its use as a medium of exchange, and not the money object per se. For Wray, the value that society places on money is as important as the government's wish to have money become an object of value. These arguments resonate with the heterodox approach to money which states that a money object is made viable through its institutionalization within the context of social relations, which is supported by existing monetary and fiscal policies.

Baker and Jimerson (1992) argue that culture can influence the uses of money, as well as its allocation, control, and sources. In some cases, this cultural influence can result in the use of parallel currency systems within a community with restrictions on the use (Polanyi, 1957) and users (Einzig, 1966). Even though modern money practices have largely eliminated the use of multiple forms of currency within one economy,² modern technologies have afforded today's consumers multiple payment systems with varying degrees of intersection with technology and, as we will later illustrate, varying degrees of motivations to use or reject.

Money That Wasn't

Good examples of money should be both legal and commercially acceptable (Furnham and Argyle, 1998). History has shown that issuers of money forms and products are not always aware of this and thus are sometimes unsuccessful in controlling what their citizenry uses as money. For instance, Saul (2004) recounts five decades of active rejection of francs in two areas of Francophone West Africa. He observes that between 1897 and the 1940s, traders in the Volta Region (modern day Burkina Faso) expressly refused to accept the French colonial government-issued francs and centimes as payment for goods, preferring its predecessor the cowrie shell. The latter had long served as a form of money used to pay for low value goods and served as a means of calibration of the value of other types of

2. The idea of special monies persists in some contexts. Today though, what defines special monies is typically a function of the source (Douglas, 1967) or its allocation (Zelizer, 1989), and not necessarily the nature of the money object itself.

parallel currencies (e.g. salt, cattle) and goods. Saul also notes that community elders, who partly controlled the circulation of cowrie shells in the society due to a high emphasis on storing the shells, refused to save francs, suggesting that francs were not viewed as a good store of value. Such a perspective was in fact justified since the value of the franc fell relative to the dollar, between 1900 and 1920. Grain sellers—for a period—declined to bring their produce to the market in order to avoid being paid in notes. Francs and centimes were not accepted as replacements for cowries in religious and rite-of-passage ceremonies. Franc notes were not accepted in villages at all. Collectively, the populace deliberately ignored directives prohibiting the use of cowrie shells as money, even though such behavior was deemed an offense “punishable without trial” (Saul, 2004, p. 79). In part, the rejection of the colonial government-issued notes and coins was a political statement, an expression of resistance to colonial control. It was also a reflection of the products not being perceived as user-friendly, but rather inconvenient to use and store compared to previous money forms: too light to handle, too easy to misplace, requiring different storage strategies from what had already been established for cowries, and requiring frequent interactions with money changers for access to alternative forms of currency—a service that came with a transaction fee. In other words, the new coins and notes were deemed neither advantageous to use nor compatible with existing money handling and storage systems, experiences, and needs of money users. While cowrie shells were eventually phased out, this only occurred after generational, economic, and administrative change.

Similar cases of consumer rejection of money objects have been noted elsewhere. The British colonial government in Nigeria faced similar obstacles as the French did when it attempted to phase out manila currency (Naanen, 1993). In Anglophone West Africa, the silver coins which were circulated with the release of West Africa’s first colonial currency were hoarded by the indigenes (Guyer, 1995). In 1992, merchants in Zaire (current-day DR Congo) pointedly refused to use the newly minted 5 million Zaire banknote. This action led to an indefinite bank closure due to the shortage of bank notes (Guyer, 1995). More recently, the global jury is still out on whether cryptocurrencies, such as Bitcoin (launched in 2009: Swartz, 2014) and Ethereum (<https://www.ethereum.org/>), will be widely accepted as a viable alternative to cash.³

3. Created to be non-country, non-central bank affiliated electronic value forms that could be used as peer-to-peer means of exchange and as a store of value, cryptocurrencies are currently more known for their association with illegal activity and investment volatility than for their money-related functions. Currently, most cryptocurrencies are

It is important to note that the rejection of money objects can be directed towards an entire set of products (as in the case of French francs and centimes and cryptocurrencies), or to a particular object within a group of options (as in the case of the Zairean banknote). New product introductions in general however have a high rate of failure (Montoya-Weiss and Calantone, 1994), reinforcing the need for both academia and industry to better understand the factors that facilitate or impede new product success. Literature on new product introductions identifies customer product perceptions as critical to the success of new products (Henard and Szymanski, 2001), explaining perhaps why some new products are easily and quickly adopted whilst others are not, a phenomenon often blamed solely on the attributes of the product itself.

Money That Isn't: An Overview

This paper examines customer perceptions of money product attributes in two cases of non-adoption of new forms of payment in Ghana. Both money products were introduced because they had attributes seen as improvements on existing media of payment. However, both forms of payment ended up not only being under-utilized, but effectively rejected, indicating alternative consumer product evaluations. These incidents are consistent with Mitra and Golder's (2006) assertion that what is delivered to customers and what customers perceive is often not the same. Ghana is a useful case study specifically because both the 1 pesewa coin and the e-zwich card had disappointingly low uptakes. Though the two forms of payments were different (one was physical and one electronic), their adoption failures could be traced to similar issues of product attributes, marketing and customer perception. We examine the disconnect between consumer needs, values, and extant money-related behaviors and the attributes of the new payment forms that led to separate instances of "money that wasn't."

Methodology⁴

The data presented in the current analysis was obtained through semi-structured individual and focus group interviews. Eighty merchants were

not accepted as a means of payment for goods and services in many brick and mortar establishments, although a few such as Bitcoin appear to have a growing financial ecosystem especially for online transactions.

4. Data for the present study was collected as part of a larger program of research largely sponsored by the Institute of Money, Technology and Financial Inclusion

interviewed (a combination of store owners, managers, and employees—in the case where the store was manned by just one person) in English or Twi (depending on the interviewee's preference) at 11 separate locations in Accra. The rest of our sample consisted of consumers who were recruited through personal contacts and active recruiting in public spaces, which also served as the venues for the interviews, (markets, malls, offices, and sidewalks) in different suburbs of Accra. The ages of respondents ranged from 19 to 71 and levels of education ranged from elementary school to professional degrees. The interviews focused on a variety of money-related behaviors. Interview data was supplemented with secondary data.

Legal Money That Isn't: The Case of the 1 Pesewa Coin

In July 2007, Ghana's Central Bank redenominated Ghana's currency by a factor of 10,000, a decision that was hailed by some as a necessary "exercise in national revitalization" and a step towards economic rationality (Barrett, 2007), whilst others argued that redenomination would trigger inflation (*Ghanaian Chronicle*, 2007). The new money objects introduced into

conducted between 2009 and 2011 to explore the use of cash, bank money substitutes (such as checks) and electronic forms of money in different socioeconomic groups in post-redenomination Ghana. Some of the findings of this program of research are published elsewhere. For example, Mensah, Kang, and Dzokoto (2016) examined consumer adoption and perception of mobile money in Ghana. Opare-Henaku, Mensah and Dzokoto (2013) explored Ghanaians' perception and evaluation of the new Ghana cedi. Dzokoto, Twum-Asante, Opare-Henaku, and Anderson (2013) examined the role of coins in the post-redenomination economy. Dzokoto, Mensah, and Opare-Henaku (2013) reviewed the impact of the currency redenomination on monetary gift giving in Ghana. Dzokoto, Mensah, Twum-Asante, and Opare-Henaku (2010) studied the Money Illusion Effect in post-redenomination Ghana. Access to information about Ghana's history of money in Ghana was supported by a research travel grant to the first author by Virginia Commonwealth University's Humanities Research Center in 2015. The grant facilitated a visit to the British Museum to study money artifacts.

The analysis and discussion for the current study focuses on data obtained from the aforementioned program of research that addresses the 1 pesewa coin and e-zwich. Interviews that addressed these two money forms were extracted from the larger database and analyzed thematically. Data was collected one to three years after the currency redenomination. It is possible that memories in individual accounts of the redenomination experience may have altered or faded during that time. On the other hand, three years is a reasonable time period for all initial problems with the redenomination (e.g. logistical difficulties such as shortage of new currency) to be resolved, as well as for a collective narrative about the use of the new money objects to evolve.

Table 1. Denominations of Ghana's Currency, 2007

Old Currency	New Currency
N/A	50 cedi note
N/A	20 cedi note
N/A	10 cedi note
N/A	5 cedi note
20,000 cedi note	N/A
10,000 cedi note	1 cedi coin
5,000 cedi note	50 pesewa coin
2,000 cedi note	20 pesewa coin
1,000 cedi note	10 pesewa coin
500 cedi coin*	5 pesewa coin
200 cedi coin*	N/A
100 cedi coin*	1 pesewa coin

*The use of coins under the old denominations had gradually been phased out as inflation rendered them useless.

Ghana's economic marketplace included new cedi notes as well as a variety of coins such as a 1, 5, 10, 20, 50 pesewa coin and 1 cedi coin. (See Table 1.)

Coins featured prominently in the New Ghana Cedi currency options but the use of coins required an alteration of the behavior of Ghanaian consumers due to the inflation-driven phase-out of the 100, 200 and 500 cedi coins in the previous iteration of the national currency. Many of our respondents reported still carrying out their monetary transactions in the old value system (e.g. quoting prices in the old denominations and thus avoiding mentioning pesewas) although they used the new currency as the medium of exchange. People also preferred the portability of notes to the inconveniences associated with the storage and transport of coins (Dzokoto and Mensah, 2010). While this was true of all coins, the 1 pesewa coin fared even worse than the higher value coin options.

The 1 pesewa coin was the smallest of the coins, with the national coat of arms on one side, and an image of Ghana's Adomi Bridge and a palm tree on the other. (See Figure 2.) Our interviewees revealed two major attributes of the 1 pesewa coin that resulted in negative consumer perception. First, many respondents reported that they found the 1 pesewa coin physically unattractive and thus deemed it inferior compared to the other coins that were introduced. This was in part driven by its propensity to tarnish more quickly than other coins. The attribute of perceived physical



Figure 2. Front and back of a 1 pesewa coin. (Photograph by Vivian Dzokoto.)

unattractiveness is inconsistent with patterns of money use prior to the currency redenomination. Physical unattractiveness was a common feature of many of the lower value notes; they were generally dirty and worn due to frequent handling and circulation in the economy. But while the physical state of low value notes generally resulted in negative comments, it did not result in an outright rejection of the lowest value note in circulation. A second general theme concerned perceived uselessness. Many respondents indicated that they did not find the 1 pesewa coin useful since prices of goods in the market that involved pesewas were quoted in and/or bargained for in figures rounded to the nearest 5 or 10 pesewas; thus there was no need for the 1 pesewa coin in terms of change.

The collective narrative of rejection for this particular form of the new currency was very highly entrenched in our sample of interviewees. It was particularly salient in the low income segment of the population who—in terms of economic value—could have benefitted the most from its use. We observed that many individuals who lived on 1–2 dollars a day stated that they would not pick up a 1 pesewa coin from the ground if they came across one, while they would most likely pick up higher value coins. This assertion was later confirmed in an experimental study⁵ by Dzokoto, Twum-Asante, Opare-Henaku and Anderson (2013) that involved surreptitiously dropping different denominations of coins in public places in Accra and

5. This was a replication of the classic study by Adrian Furnham (1985) in which value was associated with the speed of picking up a “lost” coin by passers-by.

observing the relationship between the value of dropped coins and the speed with which a passerby who noticed the coin would pick it up. While there was generally a strong correlation between the value of the coin and pick up speed, not a single participant picked up a 1 pesewa coin.

Why were people uninterested in picking up discarded 1 pesewa coins? On the one hand, for those with beliefs in the potency of supernatural forces it is possible that discarded objects such as money may be viewed as spiritual traps (somewhat similar to a Trojan horse), such that physical contact with the object results in evil forces gaining access to a person for nefarious purposes. On the other hand, none of our participants mentioned this concern specific to the 1 pesewa coin. Instead, participants who acknowledged negative associations towards money found on the ground considered that such beliefs applied to all values of money, and not specifically the lowest denomination of the pesewa. A few people might—this subset of our interviewees admitted—make an exception for the 1 cedi coin because of its value. We therefore surmise that the rejection was a function of the coin itself. Consistent with our analysis, some of our respondents who worked along a particular sector of our research location reported being amused by the supposedly “useless” tendency of a particular individual who went around at night picking up discarded 1 pesewa coins along a stretch of road. The behavior was considered practically useless, not spiritually dangerous.

Why then did people reject the 1 pesewa coin? The attribute of perceived lack of usefulness of the 1 pesewa coin deviates from its mathematical value. The general response suggests that the coins were not perceived as fungible (convertible). Numerically, five 1 pesewa coins are equivalent in value to a 5 pesewa coin, and ten 1 pesewa coins are equivalent to a 10 pesewa coin. Mathematically speaking therefore, multiple 1 pesewa coins could be used to give change even in situations where prices were rounded up to the nearest 5 or 10 pesewas. Similarly, one hundred 1 pesewa coins collectively have the same purchasing power as a single 1 cedi coin. Yet, the general tendency by majority of Ghanaian consumers was not to view the 1 pesewa coin as one hundredth of a cedi, such that if one collected enough of them, one could use them to purchase something of a higher value. Instead, the perceived attribute of uselessness was a predominant theme in interviewees' explanations of 1 pesewa coin non-use. The notion of fungibility associated with value is not new: Raghurir and Srivasta (2009) hypothesize the existence of a denomination effect (different rates of perceived fungibility depending on whether an amount is in the form of a large currency denomination versus smaller units). In their

study, Raghurir and Srivasta observe that money occurring in large denominations was considered psychologically less fungible than equivalent amounts in multiple smaller denominations. Hence, individuals would be less likely to spend money if possessing 100 dollars in the form of a 100 dollar bill than they would if they had five 20 dollar bills. In the case of the 1 pesewa coin, however, we see the direction of the perceived fungibility being reversed such that the lowest denomination is practically perceived as not fungible at all. Since money, by definition is fungible,⁶ and the 1 pesewa coin was not perceived as fungible, then by extension, the 1 pesewa was not perceived as money.

Our interview findings are consistent with national discourse on the issue. The 1 pesewa coin-rejection phenomenon was so prominent in the wider Ghanaian population (Ghana News Agency, 2009; Quartey, 2011) that the Governor of the Bank of Ghana publicly stated that the rejection of the 1 pesewa coin by the general public was “a worry to the Bank of Ghana,” and the Bank’s webpage launched an internet survey to ask readers whether the new notes and coins had met their expectations (Bank of Ghana, 2009; Ghana Business News, 2011) and threatened legal action against all those who refused to accept it. Research by Dzokoto and Mensah (2010) indicate there is no item that costs 1 pesewa, and most merchants (except the few major department stores in metropolitan areas) do not accept 1 pesewa coins as a form of payment. A 2012 Ghanaian local news feature archived on YouTube highlights the extreme negative reactions of street vendors, market women, and taxi drivers to the 1 pesewa coin, using descriptors such as wrath-evoking, causing people to see red, and eliciting steam from the ears (www.youtube.com). In addition, there was mention of the coins evoking feelings of embarrassment from the spenders. However, the main driver of the lack of commercial acceptance was not due to individuals who had 1 pesewa coins being too embarrassed to spend them. Rather, when individuals attempted to pay for goods or services with the lower value coin, vendors promptly handed the coins back to the customer. The interviewees of the news segment were willing to go on record to explain their outright refusal of the low value coins. Each of them observed that there was no point in accepting the coins as payment because they (the

6. It should be noted that there is literature addressing exemptions to the fungibility of money assumption (e.g. Thaler, 1990), but those exceptions are generally in the contexts of different groupings, allocations, or pots of money (e.g. current account, retirement account, household account [chop money], school fees, etc.).

recipients) would not be able to spend them because the coins would not be accepted by other people. The argument was that the coins would neither be accepted by other customers as change, nor would they be accepted by other vendors as part of a bill settlement. In other words, the 1 pesewa coin was perceived as not being able to circulate in the economy due to consumer rejection. The rejection of the 1 pesewa coin by vendors was based on their assumptions about the potential behavior of others, a strategy reminiscent of game theory. The anticipated barriers to circulation of the 1 pesewa coin (rejection by others in the immediate future) encumbered the circulation of the 1 pesewa coin by rejection as a form of payment by a customer.

The assumption about the behavior of others that led to the rejection of the 1 pesewa coin hints at pathways through which money objects circulate within the Ghanaian economy. Obviously, given that the 1 pesewa coin was legal tender, it was in fact fungible. Banking institutions were actively involved in the circulation of all coins and notes. Department stores such as Shoprite and MaxMart issued the lowest denomination coin as change and accepted it as payment. However, those settings appeared to be one of the few sectors of the Ghanaian financial ecosystem where this was the case. In the markets and on roadsides, where the bulk of Ghanaian commerce for daily consumables occurs, the 1 pesewa coin simply wasn't money. The assumption that the 1 pesewa coin could not be spent by vendors indicated the lack of interfacing between the formal banking sector and popular attitudes.

Inflation over the years following redenomination (from under 10% in 2012 to 18.40% in 2015) (Ghana Statistical Service, 2015) and utility and fuel price hikes during the same period have resulted in marked price increases and, consequently, even less opportunity and therefore incentive to use the 1 pesewa coin in markets and along roadsides. Price increases tended to involve rounding up to the nearest cedi or 5, 10, 20 or 50 pesewas. While inflation over time may have been the cause of the official demise of the 1 pesewa, we argue that it was the perception on the part of ordinary people that the 1 pesewa coin was not fungible that struck the first lethal blow. This perception is aptly captured by Yaw Owusu, a young Ghanaian artist who uses the 1 pesewa coin as material for art installations. (See Figures 3 and 4.) His artwork questions the interaction between the state and society in determining what is deemed acceptable and beneficial to the citizenry. By repurposing the 1 pesewa coin as the building block of his installations, he highlights its non-fungibility and rejection by Ghanaians as a legal tender.



Figure 3. Yaw Owusu, *All That Glitters . . .*, 2016. (Photograph by John K. Aggrey, with permission of the artist and Gallery1957.)



Figure 4. Detail from Figure 3 (Owusu, *All That Glitters . . .*) showing new and tarnished 1 pesewa coins used for artwork. (Photograph by John K. Aggrey, with permission of the artist and Gallery1957.)

Money as E-Value

As Gilbert (2005, p. 361) pointed out, money is simultaneously “a symbolic referent, a social system, and a material practice.” The materiality of notes and coins allows for money to have secondary attributes beyond its primary functions as medium of exchange, store of value, unit of account, and a standard of deferred payment: Money has a wider social use. Politically, it has been used to identify the leadership of a country (Fuller, 2008); used as a symbol of independence (Mudd and Fagin, 2008); and as the basis for forming new nations (Fuller, 2009). Money—in the form of notes and coins—also contributes to a sense of national identity (Helleiner, 1998). These secondary functions of money stem from its physical properties and the use that the elements of money's physicality can be put to. In this information age however, technology has facilitated the existence and use of money that is intangible, or material-less—electronic money.

“[E]lectronic money” means electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions . . . and which is accepted by a natural or legal person other than the electronic money issuer. (Article 2(2) 2009/110/EC of the European Parliament and Council of 16/7/2009)

E-money products can be hardware-based or software-based, depending on the technology used to store the monetary value. (European Central Bank, n.d.)

Electronic money eliminates the need for the collocation of parties involved in a financial transaction for the transfer of funds to occur. Electronic money can be accessed by consumers through a variety of software, hardware, and related accessories including the internet (e.g. in online banking), debit cards, credit cards, and mobile phones. Table 2 compares four means used to access electronic money in Ghana: cards, biometric cards, and two different mobile phone systems.

Mobile Money has had resounding success and transformed some African markets such as Kenya and Tanzania (Maurer, 2012), but has not dominated the Ghanaian market to a similar extent. The adoption of plastic as an alternative to cash in Ghana has been slow, with initial connectivity fluctuations hampering the efficiency of card-based transactions (Attah-Botchway, 2014). Many of our respondents, merchants and consumers alike, reported an overall preference for cash as a reliable medium of exchange. Merchants primarily attributed this preference to the undependable transaction network, while customers (particularly those who did not

Table 2. Comparison of Electronic Payment Options in Ghana

Money Product	Non-Biometric Cards (ATM Only, Debit, Credit)	Biometric Smart Card	Mobile Money	Mobile Payment Platforms
Location of value	Linked to evaluate in bank account	Evalue stored on card	Evalue stored in ewallet on phone	Evalue stored in ewallet on phone
Driver	Issuing bank	GhIPSS, but bank-issued	Mobile Network operator	Independent financial institution
Brands in Ghana	Visa Visa Electron MasterCard Etransact Bank ATM cards	e-zwich	MTN Mobile Money Airtel Money Tigo Cash Vodafone Cash	Text N Pay Etransact
Requires	Point of Sale (POS) machine to swipe card to transfer the value to the vendor	Point of Sale (POS) machine to swipe card to transfer the value to the vendor	User to initiate financial transaction on phone. No Point of Sale (POS) machine required	User to initiate financial transaction on phone. No POS machine required.
Security Features	Personal Identification Number (PIN)	Fingerprint (stored on card during set up process)	Personal Identification Number (PIN)	Personal Identification Number (PIN)
Connectivity required for operation	Yes	Can operate both offline and online	Yes	Yes

have cards, or had cards but rarely used them) cited lack of trust, security concerns, lack of knowledge, and limited availability for use as major barriers. While these concerns were the case for all cards, e-zwich fared differently in public opinion from bank-issued debit and credit cards.

Money That Isn't: The Case of e-zwich

The e-zwich card was introduced to Ghana in 2008 by the Ghana Interbank Payment and Settlement Systems Limited (hereafter GhIPSS). This institution was set up in 2007 by Ghana's Central Bank, but is independently operated. In addition to launching the e-zwich card, GhIPSS is responsible for establishing, operating, and maintaining electronic payment system infrastructure for Ghana's financial institutions. In line with this mandate, which is crucial for the smooth operation of Ghana's formal financial sector, GhIPSS operates the national payment switch (an online system responsible for settling automated banking and payment transactions), the Cheque Codeline Clearing System (an online system responsible for the electronic clearing of processed cheques), and Ghana's Automated Clearing House (an online system that handles the settlement of inter-bank credit and debit transfers; GhIPSS, n.d. [a]).

The e-zwich card is the same size as a regular debit or credit card. Noticeably absent from the front of the card is information generally found on credit and debits cards: the name of the card holder and the card's expiration date. (See Figures 5 and 6.) These are not necessary given the design and security protocols associated with the e-zwich smart card system. The e-zwich card has some advantages over other forms of electronic money currently in use in Ghana. First, it is secure in a unique way because unlike other cards that require Personal Identification Numbers (PIN), e-zwich card transactions are authorized via user fingerprint.⁷ This security feature eliminates the hassle of memorizing a PIN and the need to input it when conducting a financial transaction, both of which serve as a barrier to ATM card use by some. Biometric payment systems have been successfully

7. According to the e-zwich POS brochure, the verification of a customer's thumbprint during a financial transaction occurs in less than one second through rapid match-on-card electronic analysis. The process utilizes a POS-integrated sensor that enables instantaneous fingerprint capture and electronic processing using "powerful cryptographic algorithms," MorphoSmart™ module fingerprint analysis—presumably to determine the match between an encrypted copy of the digital fingerprint image stored on the card and an encrypted copy of the one captured by the POS—and transaction verification. (Ingenico, n.d.)



Figure 5. Front of e-zwich card issued by Standard Chartered Bank Ghana Limited. (Photograph by Vivian Dzokoto.)

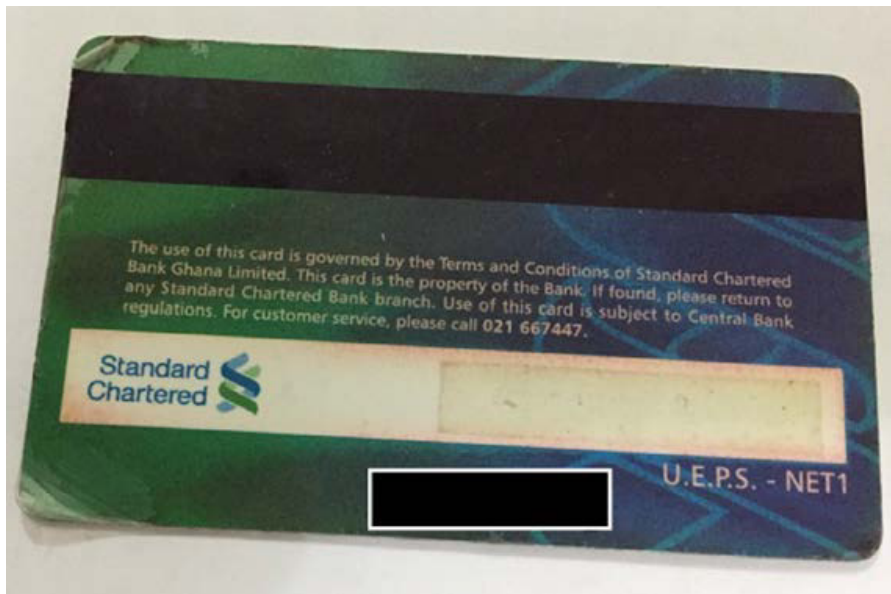


Figure 6. Back of e-zwich card issued by Standard Chartered Bank Ghana Limited. Number on back of card has been redacted. (Photograph by Vivian Dzokoto.)

launched in other African countries including South Africa and Namibia (Breckenridge, 2010).

A second advantage of the e-zwich card over other forms of emoney access in Ghana is that the e-zwich POS supports both online (settlement) and offline (cash deposit, cash withdrawal, and sale) transactions. This much touted dual capability of the e-zwich system ensures that financial

transactions can occur even in areas of the country that have low quality connectivity. When a customer conducts a transaction, the amount of the purchase is deducted from the total previously loaded on the card. Even though e-zwich wallets can be linked to a bank account, the electronic value in an e-zwich card is loaded on the card itself. As such, no communication with a financial institution is necessary to conduct a transaction. While the card needs to be issued by a bank, it can be operated independent of a bank account and at no cost to the user. As such, individuals do not need to be bank account holders in order to acquire and use an e-zwich card. Given that about 70% of Ghanaians are estimated to be unbanked (World Bank Group, 2014), the e-zwich card is designed to serve as a pathway to financial inclusion for the unbanked. At the time of data collection, e-zwich could be used as a means of payment in some retail outlets, largely in malls that had e-zwich Point of Sale Devices, making it a limited use cash-alternative.

An added benefit of the electronic system on which e-zwich operates is the ability to reduce salary fraud in the public sector. For example, Ghana's National Service Scheme reported the elimination of 35,000 ghost names from the payroll in 2015 due to a move from paper-based salary payment systems to electronic systems. This reportedly saved the government of Ghana GHC146 million which would have been paid to non-existing workers (Yeboah, 2016a). Also, electronic payment systems are processed much faster than paper-based payment systems, which could eliminate delays in payments of salaries, a common occurrence in the Ghanaian public sector. It should be noted, though, that these benefits would derive from most electronic payment platforms and not just the e-zwich system (Yeboah, 2016a).

Despite these personal and social benefits, our interviews revealed several major attributes that resulted in negative popular perceptions of the e-zwich card. First, cardholders and merchants perceived e-zwich as being inconvenient to use. In particular, consumers mentioned limited availability of POSs, with a resultant need of a continual search for shops with a POS in order to use the e-zwich card. For such customers, it was simply more convenient to pay for goods and services in cash, since that was universally accepted. In the shops where e-zwich POSs were available, customers had to go through an additional step to pay for their goods: e-zwich point of sale machines were typically not kept at the counter. Thus, customers were checked out at the counter and then had to go elsewhere in the store to pay for their goods. This may have been in part because most establishments that offered e-zwich payment options had only one e-zwich POS. Furthermore, the initial number of people trained to operate e-zwich POSs was low (in our fieldwork, there usually appeared to be only one person

on duty at a given establishment) and this may have hampered the use of functioning POSs. A similar sentiment was observed in interviewees who were paid through the e-zwich system, such as the system piloted by the National Service Scheme. These participants tended to withdraw all their cash from the card as soon as they were able, a task sometimes impeded by breakdowns of the e-zwich ATMs.

A second factor, reported as extremely frustrating by consumers and merchants alike, was the reported constant breakdown of deployed POSs, which hampered the use of the card in identified e-zwich locations. It is unclear whether or not the e-zwich system actually had more breakdowns or connectivity problems than other card systems. Some retailers mentioned that due to limited customer demand, they tended not to keep the machines charged, and so if a customer requested it, they would be told that the machine was “not working.” While this was true, it was also a misrepresentation of fact, and may have contributed to the assumption that the e-zwich machines tended to break down often, when in some cases they were simply not charged. Another vendor misrepresentation problem was noted by GhIPSS’s Chief Executive Officer, Archie Hesse, in a May 2016 news briefing:

There are instances that I have been to some shops where you see it boldly written that e-zwich payments are accessible there. But if you try to do any payment, the machine will tell you the system is not working. Then you ask the shop attendant why and she will say “it is [a] network problem.” But the system does not require a network. So I ask them to bring it, and I show them how to use it. So sometimes it is a problem of the merchants not knowing how to use the system because they are not familiar with it. So from my experience, the fact that a merchant says the system is not working does not necessarily mean in reality the system is not working. (Yeboah, 2016b)

Third, some of our interviewees were unable to distinguish between e-zwich and other electronic payment forms such as Mobile Money, which—as illustrated in Table 2—operates on a different platform and does not require POSs. Due to inadequate awareness about non-cash payment forms at the time, many respondents thought that e-zwich was Mobile Money. Given that individuals who did not have bank accounts would need to know enough about the product and then make a trip to a bank to request an e-zwich card, the lack of awareness of the different kinds of emoney access options served as a major barrier to the initial uptake of e-zwich.

Another barrier to increased awareness and popularity of the e-zwich card was the fact that e-zwich cards had to be issued by banks. Banks, however, preferred to market their debit and, in some cases, credit cards, both

of which yielded them more significant profits. As such, there appeared to be no incentive for banking institutions to promote e-zwich card use to their customers.

In sum, the reasons interviewees provided for rejection of e-zwich appear to be primarily a reflection of difficulties with the efficient running of the platform, a knowledge gap, competition from other card-based products, and operational inconveniences, rather than any intrinsic attributes of the physical card itself. e-zwich's architecture suggested a great product with technological considerations appropriate for a developing country with less than ideal connectivity quality and reach. However, because it failed to meet its basic attribute of convenience in terms of payment function, its added attributes of safety and security were not valued and not factored into consumer evaluations. Thus, the card's many advantages⁸ did not appear to be advantages to users who were more concerned with the lengths they had to go to find retailers with functioning and charged e-zwich POS devices.

Money That Could Be?

Financial institutions in Ghana have not abandoned either of these two money products. Efforts to solve the 1 pesewa coin problem in Ghana have been spearheaded by the Bank of Ghana. First, several unheeded appeals have been made for the general public to refrain from discarding the 1 pesewa coins and to use them (Apeadu, 2010). Unfortunately, the experience in Nigeria (Philips, 1992; Adebayo, 1999) and Francophone West Africa (Şaul, 2004) suggests that money behaviors are not necessarily responsive to the appeals of governments or financial institutions, especially when in the minds of the people they do not make economic or practical sense. The possibility of legal action against vendors who reject the 1 pesewa coin has been contemplated (Ghana Business News, 2011) but is unlikely to happen. A one point media reports even suggested that a newly designed 1 pesewa coin would be minted (Ghana Business News, 2011). Missing from this picture are community-driven efforts to increase the functionality of coins. The success, for example, of the introduction of the "top-up" offertory (a separate offertory created specifically for the donation of coins) by churches illustrates what the community can do to increase coin use

8. e-zwich's advantages include granting the holder easy access to bank accounts and smart card accounts to carry out a variety of transactions such as sales, withdrawing cash, money transfers, loading money onto cards, and checking balances easily while minimizing the risk of losing cash through carelessness, robbery, fraud, or impersonation.

(Dzokoto and Mensah, 2010). Community-driven efforts to increase the functionality of coins, or support from the private sector (e.g. through the introduction of coin-machines or professional coin changers, both of which would charge a commission) could complement government efforts at increasing coin usage and acceptability. On the other hand, with the current inflation rates and resultant increases in prices, the utility of coins less than 10 pesewas is decreasing. As such, the 1 pesewa coin may be phased out, just like some of the coins in the previous iteration of the cedi were phased out due to inflation.

Similarly, efforts to improve e-zwich card usability have occurred primarily at the technology level. As part of its interoperability mandate, GhIPSS implemented a national switch platform. All banks connected to the national switch now have interoperable systems, meaning that a customer with a card issued by Bank A can use an ATM operated by Bank B. (Previously, banked Ghanaian customers could access cash exclusively from their own bank ATMs.) This implementation allowed e-zwich cards to be used at all ATMs nationwide, as long as the ATM was connected to the national switch and was e-zwich compatible (Ghana Business News, 2011; "Banks begin integration," 2012). Additionally, the introduction of hybrid POSs made it possible for vendors to process all card payments (e-zwich and non e-zwich) using the same machine (GhIPSS, n.d. [a]).

Efforts to increase e-zwich card attractiveness was achieved in partnership with banking institutions. e-zwich cards are designed to hold multiple electronic wallets which can be used for different purposes. As such, it is possible to use one or more wallets on the cards as a savings tool, while accessing funds for spending on a separate electronic wallet on the card. A 2010 news report indicated that several banks were offering interest on money stored on the card ("Seven Banks," 2010). The goal of this initiative was to offer e-zwich customers an incentive for enrolling in the e-zwich program as well as for keeping money on the card instead of cashing it out.

Additional efforts to increase e-zwich card use were led by GhIPSS and Bank of Ghana in collaboration with some government departments and deposit-taking institutions (Bank of Ghana, 2008). Initiatives included e-zwich salary payment pilot programs including the one mentioned previously in which employees of the National Service Scheme received their salaries via e-zwich cards. National Service monthly allowances were centrally loaded onto e-zwich cards on the day of payment. According to Boadi (2014), National Service Personnel experienced the inconvenience of few machines with frequent breakdowns, in addition to charges on withdrawals. Initially, e-zwich users could access money from their cards only via e-zwich specific ATMs. There were unfortunately a limited number of them,

creating geographical obstacles to accessing cash. Hybrid ATMs—affiliated with banking institutions—were later introduced (Yeboah and Pavic, 2009) to increase access. However, access problems remain. For instance, GhIPSS (n.d. [b]) reported a total of 29 e-zwich ATMs (hybrid and e-zwich only) in the Greater Accra region. This a small number compared to the 67 ATMs in the same region by just one of Ghana's 30 banks in the same year (Ghana Commercial Bank, 2016). The availability of e-zwich ATMs is expected to increase upon the completion of a national ATM integration project (GhIPSS, 2016b) and upgrade of ATM equipment. While transactions using POS devices are free, transaction fees are associated with cash withdrawals, money transfers, and using out-of-network ATMs. While the transaction amount is framed as small (GhIPSS, n.d.[c]), Boadi (2014) observes that the idea of being charged for transactions hampered the desirability of e-zwich smartcards. Finally, the access problem was exacerbated by service outages. These were perceived as frequent, and implied that there was a high likelihood that traveling out of one's way to an e-zwich ATM to withdraw cash could very well not result in the desired outcome. It is unclear whether the reported breakdowns were always technical in nature, or whether the cash supply in the machines was frequently exhausted and not replenished quickly enough to meet customer demand. In the case of the latter, it is likely that in the future, hybrid ATMs may minimize the obstacle of ATMs running out of notes. Collectively, these difficulties resulted in the majority of National Service Personnel discarding their cards after the completion of their service. This "forced use" of the card therefore did not trigger long term, self-initiated card use. A second pilot program involved partial payment of salaries of employees of the Controller and Accountant General's Department. At onset, the limited number of deployed POSs at various locations nationwide discouraged people from using the e-zwich card (Ablordeppey, 2014).

At the end of 2015, it was announced, per a directive from the Ministry of Finance, that after a successful pilot program, government workers would be paid using e-zwich cards effective mid-2016. The directive resulted in significant resistance from 12 national unions and professional associations.⁹ The unions and associations that rejected the directive highlighted

9. The Health Service Workers' Union, Ghana Registered Nurses Association, Ghana Medical Association, Ghana Physician Assistants Association, Ghana Pharmacists Association, Ghana Association of Certified Registered Anesthetists, Ghana National Association of Teachers, Teachers and Educational Workers Union, National Association of Graduate Teachers, Coalition of Concerned Teachers, Judicial Service Staff Association of Ghana, and the Civil and Local Government Staff Association of Ghana.

problems with e-zwich card use. Some described e-zwich as “dysfunctional” and “*kakai*” (frightening), and others objected to “the attempt at a unilateral imposition of the programme on workers within the public service” which they described as “heartless and devoid of consideration of hardships being encountered by users of the E-Zwich card” (Badu Jr., 2016). For instance,

Speaking to “Citi News,” the Vice President of the National Association of Graduate Teachers (NAGRAT), Angel Carbonu, said the unions would continue to fight against the payment plan. . . . According to him, there is nothing wrong with the e-zwich platform but the workers should be given the right to choose their own mode of payment. . . . Mr. Carbonu also indicated that his union will continue to fight the seemingly [sic] imposition of the ezwich payment platform until it is scrapped completely. . . . “Our position remains that e-zwich is a money card . . . Yes we support the idea and the principle that we should make our country a cashless society, but we do not impose one platform on people. There should be options.” (Adogla-Bessa, 2016)

As a result of the resistance, it was proposed that only 10% of salaries would be loaded on to e-zwich cards. However, due to continued resistance, the planned implementation was suspended altogether.

General Discussion and Conclusion

Several studies on money have always assumed that money “is” and thus have explored the “what’s,” “why’s” and the “how’s” of it. Ghana’s redenomination of the cedi and its issuance of the e-zwich card have extended the discussion on the interface of money and society by demonstrating that there can be instances when money simply “isn’t.” Both actual and perceived product attributes affected the adoptability and usage of the e-zwich card and the 1 pesewa coin. The 1 pesewa coin which was introduced by the government of Ghana as part of the currency redenomination was rejected since the attributes of the money object did not meet the needs of the populace. Similarly, the e-zwich card which was also introduced in a bid to make Ghana’s economy a cashless economy also backfired amidst technical difficulties, lack of reliable POSs devices, and active resistance by vendors and potential users.

The parallels between these two Ghanaian cases and other incidents previously discussed are remarkable. They highlight the oft-forgotten reality that a money product does not fully become so until society accepts it as such. Money “isn’t” always readily accepted by society once it is introduced. Because of the power that society holds in deciding whether or not an object becomes money, there is the need to better consider, acknowledge,

and factor in user concerns in the design, adoption, implementation, and marketing of money as a product. According to Ho and Wu's (2011) research into perceived attributes of innovations, consumer perception of relative advantage is positively related to acceptability and is therefore one of the most effective factors for predicting product acceptability. A potential product adopter's subjective perception of an advantage can be measured in terms of economic factors such as social status, convenience, economic gains, and low cost. An innovation that offers a greater advantage is thought to have greater acceptability and a higher diffusion speed.

Perceptions of autonomy in the determination of payment platforms in a financial ecosystem that supports multiple payment options (as in the case of e-zwich) or alternative currencies (as was the case in the colonial Volta region) can be an important consideration in determining whether money *is*. The feeling that individual agency is being blocked by authorities can become a source of politically-situated resentment, and the resentment can fuel active resistance to product adoption. This seems to be especially relevant in free market economies (and approximations thereof), where consumers are used to seeing products compete with one another and having only the "fittest" survive. Essentially, in such settings, customers have a right to choose from available options based on their needs, expectations, existing practices, and understandings of products. Customers thus may experience frustration when this right to choose is impeded. On the other hand, it could be argued that an employer—within the confines of the law¹⁰—has the right to decide the means by which it will pay its workers. In some historical circumstances, employees were paid in other forms of currency. For instance, African soldiers who fought in WWI and African colonial administration employees across the continent were paid in colonial currency, not the prevailing local currencies of the time. The situation here however has more to do with the technology through which payment occurs. Do workers have a choice? In contemporary South Africa, for example, workers have complained that electronic payroll limits their ability to juggle their expenses among formal and informal sources of credit and financial services (James, 2014). The argument could also be made that an employer has the right to update its decisions regarding employee remuneration strategies as it sees fit, especially as it relates to the efficiency of the payment process. For instance, transitions to cashless platforms can

10. Ghanaian law requires that "every contract of employment shall stipulate that the whole of the salary, wages and allowances of the worker shall be made payable in legal tender in addition to any non-cash remuneration and accordingly, a contract of employment that contains provisions to the contrary is void." (Labour Act of 2003, Section 67)

make payment systems more efficient than cash-based ones. A tension can arise in circumstances where the two positions (those of the employer and the employees) are incongruent such that the convenience and realities (actual and perceived) of the user are not acknowledged and validated by the party in a position of authority. This seems to have been the case in the professional unions' reaction to e-zwich in 2016, as well as the reactions to the franc in the colonial Volta region two centuries prior.¹¹

In both the case of the 1 pesewa coin and e-zwich, the money product's poor usability (determined by considerations such as ease of use and convenience of use) played an important role in its rejection. In cases where similar products have been successfully taken up consumers found them more useable. For instance, the introduction of the M-Pesa mobile money system was a resounding success in Kenya partly because it was recognized by potential consumers as a more convenient means to remit money than sending physical cash via someone (Maurer, 2012). It also eliminated the need to keep visible amounts of cash on one's person,¹² which decreased the likelihood of the bearer getting robbed. In other words, M-Pesa was perceived as useful and filled a niche in which the new product was more convenient to use than its predecessor (money in the form of cash). In contrast, e-zwich did not appear easy for vendors to use because it initially involved maintaining a separate POS device, training employees to use it (and clearly many employees were not trained in the e-zwich POS), and keeping the machine charged whether there was customer demand for the machine or not. For e-zwich card holders, the card was not easy to use because vendors did not consistently provide e-zwich POS services. Thus, the card could not be consistently or conveniently used as a means of payment. While the migration of different banks to the national switch and the introduction of the hybrid POSs did make e-zwich more useable in theory, it is likely that the new developments were not successful in countering the original e-zwich narrative internalized by Ghanaian society. The hampered functionality of the product was seen as static despite the reality that its functionality had improved due to technological advances. In the case of the 1 pesewa coin, nothing was done to counter the collective narrative of perceived uselessness.

The power of the collective narrative is important to consider. It impacts society's validation of objects designated as money by issuing authorities. As illustrated by our reviewed examples, society co-creates a narrative based on initial information from preliminary experiences with

11. The authors thank William M. Maurer for feedback on this section of the manuscript.

12. Kenyan shillings are available in denominations of 50, 100, 200, 500 and 1,000, and a meal for one person at an inexpensive restaurant in 2015 cost 500-800 KSh.

the new object. This narrative then shapes subsequent consumer behavior. The narrative captures aggregated perceptions and experiences of individual engagement with the product. If the generated narrative is positive, then adoption of the product is supported. A negative narrative, on the other hand, discourages would-be users from engaging with the product. The created narrative is not held to scientific or journalistic standards requiring accuracy and fact-checking. Instead, it is greatly influenced by the collective understanding of the product. The emergent narrative—which becomes the perceived reality about the product—may thus be limited in its accuracy and comprehensiveness. Thus, a narrative such as “the 1 pesewa is not legal tender” generates behavior of not accepting a 1 pesewa coin as payment because of the belief that no one else will.

Finally, design aspects are important to consider. Research by Mensah and Dzokoto (2011), indicated that one of the problems of the ill-fated 1 pesewa coin was its propensity to tarnish quickly. The other coins (specifically the 5 pesewas, 20 pesewas and 50 pesewas coins) also appeared to be rusting. This hastened the non-acceptance of the already “undesirable” coins. The physical appearance and packaging of the product apparently failed because it could not sustain its physical qualities over a period of continued usage.

In conclusion, money is many things. It is a source of status and power, a symbolic referent, a social system, and a material practice (Gilbert, 2005). In the various forms in which it may occur—both tangible and intangible—it is also a product that requires commercial acceptability and endorsement by society in order to fulfill the role for which it was designed. It therefore behooves agencies involved in the introduction of money products to society to consider elements of product design, marketing, and implementation from the perspective of the consumer so as to ensure that the product's functionality is consistent with the consumer's sense of agency, as well as needs, preferences, and existing money practices. Otherwise, just as in the past and the present, the future may present us—in Ghana and elsewhere—with more cases of money reminiscent of the paradox of Schrodinger's cat—money that both *is* and *isn't*.

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