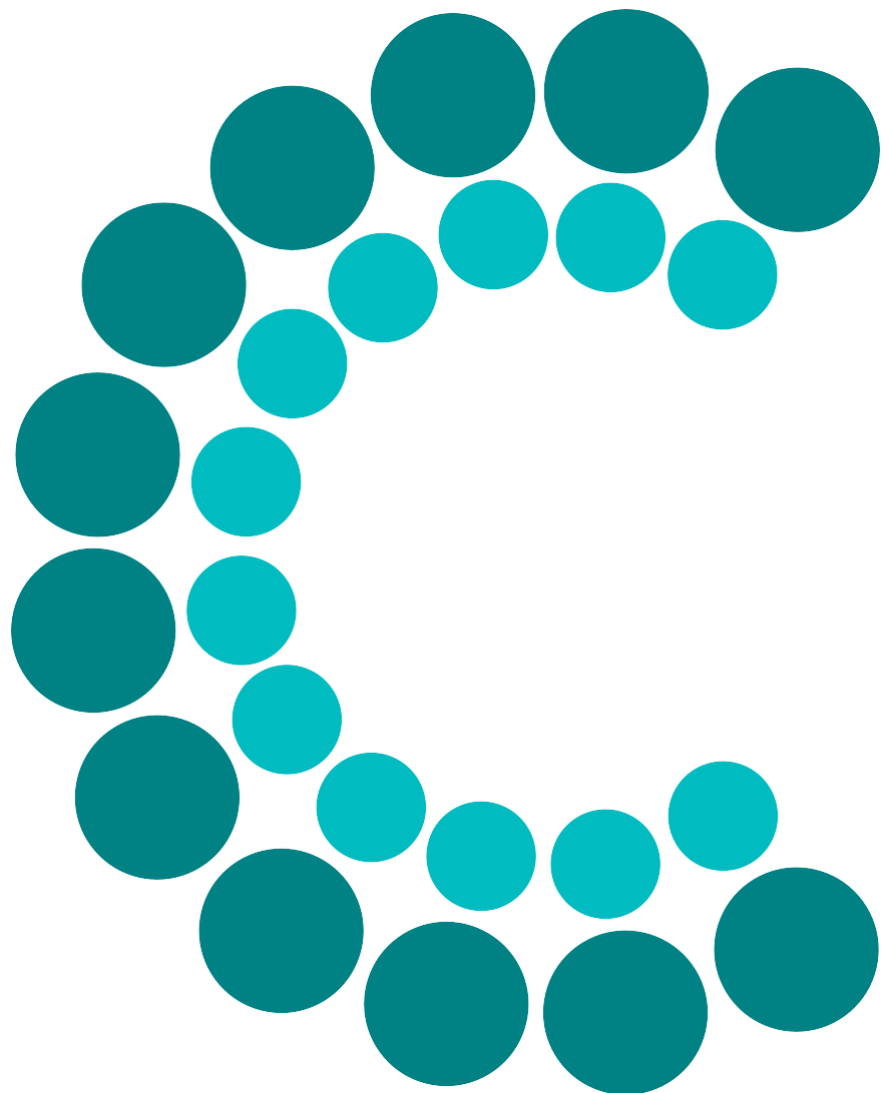


# IJCCR

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## IJCCR 21 (Summer 2017) – ISSUE 2

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### Editorial

*Georgina M. Gómez*

The Bright and the Dark Side of Virtual Currencies. Recent Development  
in Regulatory Frame-work 1-18

*Milenko Josavac*

What is the potential for community currencies to deliver positive public  
health outcomes? Case study of Time Credits in Wisbech,  
Cambridgeshire, UK 19-32

*Gemma Burgess*

Sharing is Caring: Mediterranean Time Banking in a Multidimensional  
Crisis Scenario 33-50

*Lucía del Moral-Espín*

Which characteristics of communities boost time-banking? Case study of  
the United States 51-64

*Katerina Gawthorpe*

Let's change: a critical study of the aims and practices of a local  
exchange trading scheme 65-83

*Arianna Bove*

---

### IDEAS FOR DEBATE

A new type of money for a Mayan community to build resilience in a  
context of economic crisis 85-97

*Ranulfo Paiva Sobrinho, Claudia Maricusa Agraz Hernández, Karla  
Vanessa Córdoba Brenes, Juan Osti Sáenz, Ademar Ribeiro Romeiro*



# International Journal of Community Currency Research

VOLUME 21 (SUMMER)

## EDITORIAL

The International Journal of Community Currency Research keeps adapting to a rapidly growing field in which practitioners, policy makers and academics share spaces and exchange ideas. This Summer Issue of Volume 21 introduces a new section called *Ideas for Debate*. The new section was created to discuss projects and innovative initiatives from our researchers in the field. These are not academic articles in the strictest sense but well-educated proposals and opinions informed by theory and previous research. They aim at inviting comments and stimulating debate. Their appeal lies in the novelty of the proposals and their social relevance, a concept that is increasingly becoming a catch-word in academic circles.

The sharing of spaces in equal footing among practitioners, scholars, activists and policy makers constitutes the DNA of this journal and its mother organisation, the Research Association on Monetary Innovation and Complementary and Community Currency Systems (RAMICS.org), so being socially relevant is “old news” for us. IJCCR has been publishing socially relevant and empirically grounded research since it was founded over 20 years ago by Colin C. Williams and later Gill Seyfang. The 4<sup>th</sup> meeting in Barcelona in May, 2017 was further proof that the Community and Complementary Currency research networks engage participants from various walks of life.

This summer issue also brings less good news. Due mainly to budgetary reasons, we were unable to do the English proof reading of our articles by native speakers. Instead, we had to trust proof-reading to software that does basic grammar and spelling corrections. We are aware that it is a poor replacement for the human beings that do this work, but it is the second best option we will have to live with. We had to resign language elegance and can only guarantee that the level of English is sufficiently readable and conducive to the exchange of knowledge across readers with different mother tongues.

We wish to announce that the next issue of the IJCCR (Winter 2018) will be edited by Ariádne Scalfoni, organiser of the 3<sup>rd</sup> *International Conference on Social currencies in social and solidarity economies: innovations in alternative development* in Salvador de Bahia, Brazil. The special issue will compile a selection of papers presented at the event.

Georgina M. Gómez

Chief Editor



# International Journal of Community Currency Research

2017 VOLUME 21 (SUMMER) 1-18

## THE BRIGHT AND THE DARK SIDE OF VIRTUAL CURRENCIES RECENT DEVELOPMENT IN REGULATORY FRAMEWORK

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### ABSTRACT

The scope of this article is to examine the positive (bright) and negative (dark) aspects of virtual currencies by critically assessing the relevant literature. In addition, the findings from the bright and dark side are the groundwork for the discussion of how crime prevention units and financial supervisors addressed to specific issues with virtual money. On the bright side, virtual currencies can provide a reasonable level of privacy but are not fully anonymous. Second, the academic discussion about the price stability of Bitcoins is split into two opposing groups. Critics find that the decentralised feature of virtual currencies is a significant disadvantage of the technology because it seriously reduces the flexibility to respond to economic shocks. In contrast, supporters argue that centralised operations by monetary authorities are actually inducing financial instability. Third, virtual currencies charge in overall less fees for payments and achieve similar processing speed compared to electronic payment systems. On the dark side, virtual currencies mainly operate outside the banking system and do not endanger the global financial stability at this stage of development. Second, technical improvements in the technology could increase consumer protection similar to established payment services. Finally, the lack of physical contact provides more options for money laundering and tax evasion than traditional ways do. In conclusion, the global legislation is still hesitant to implement a robust regulatory framework. As such, the effect of the recent legislation by crime prevention units and financial supervisors remains toothless.

### KEYWORDS

Virtual currencies, Bitcoins, anonymous, decentralised feature, regulatory framework

### ACKNOWLEDGEMENTS

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## 1. INTRODUCTION

In a short period of time, virtual money has developed into a viable payment medium and is enjoying increasing popularity. The technology represents the emergence of a new form of currency but contains many essential differences to traditional money. Proponents of the technology argue that the decentralised feature and the anonymity of virtual currencies can provide an efficient infrastructure for the transfer of money. Furthermore, the capability to make payments for physical goods and services at any time and to conduct international transfers at low fees attracted large corporations and increased the appetite to continue expanding the use of virtual currencies. In contrast, some are concerned about consumer's protection, security threats and illegal issues. In effect, virtual currencies have been linked to numerous types of crimes (e.g. money laundering, tax evasion or theft) mainly because of its anonymous characteristics.

At the same time, the development of effective regulatory to prevent the creation of "Wild West" conditions and to combat crimes is still at an early stage. In fact, virtual currencies operate outside of the regulated banking and financial system. In addition, virtual money has global reach and operates through different jurisdictions. As a result, activities of virtual currencies are difficult to monitor and to regulate.

Innovation in this pace of development is also questioned in academic literature. Many studies have been written on the merits and demerits, drawbacks and advantages of virtual currencies. In fact, the discussion on the concept is often divided into two opposing groups. First, the followers of the technology who question the old (or traditional) banking system and hail virtual currencies as the future of money. Second, the critics of the technology who warn about the potential to disrupt the established banking system and the elimination of third party validation.

The present paper is answering the following questions related to both the bright and the dark side of virtual currencies:

- 1) What is the discussion behind the perceived benefits of virtual currencies?
- 2) What are the encountered issues related to the use of virtual currencies?

The insights about the bright and dark aspects of virtual currencies is the groundwork to answer the following question:

- 3) How problematic issues with virtual currencies have been addressed by crime prevention units and financial supervisors?

This paper is structured as follows: In chapter 2, the term virtual currencies is defined and relevant background details with the past development stages are presented and described. Chapter 3 is divided in two parts: 1) First, specific benefits such as anonymity and privacy, quantity of money with price stability and transaction speed and cost is critically discussed. Second, the chapter depicts the problematic issues of virtual currencies such as system vulnerability, consumer protection and anonymity in terms of money laundering and tax evasion. In chapter 4, the recent development is discussed and its implications for crime prevention units (e.g. anti-money laundry authorities) and financial supervisors. In conclusion, the findings from the research are summarised and the answers to the questions of the project are provided.

## 2. DEFINITION AND RELEVANT BACKGROUND

The field of interest is wide-ranging and filled with confusing terms. As a result, the overlapping terminology and potential sources of confusion needs to be addressed. This chapter defines the concept of virtual currencies, the technical aspects of the innovation and the relevant background information to understand the following discussion.

The European Central Bank (ECB) has defined virtual currencies in their policy schemes in October 2012. The ECB money matrix is shown in the following figure:

Figure 1: The money matrix based on the European Central Bank (ECB)

|              |             | Money format                      |   |
|--------------|-------------|-----------------------------------|---|
|              |             | Physical                          | Digital                                     |
| Legal Status | Unregulated | Certain types of local currencies | <b>Virtual currency</b>                     |
|              | Regulated   | Banknotes and coins               | E-Money<br>Commercial bank money (deposits) |

Source: Based on the ECB (2012).

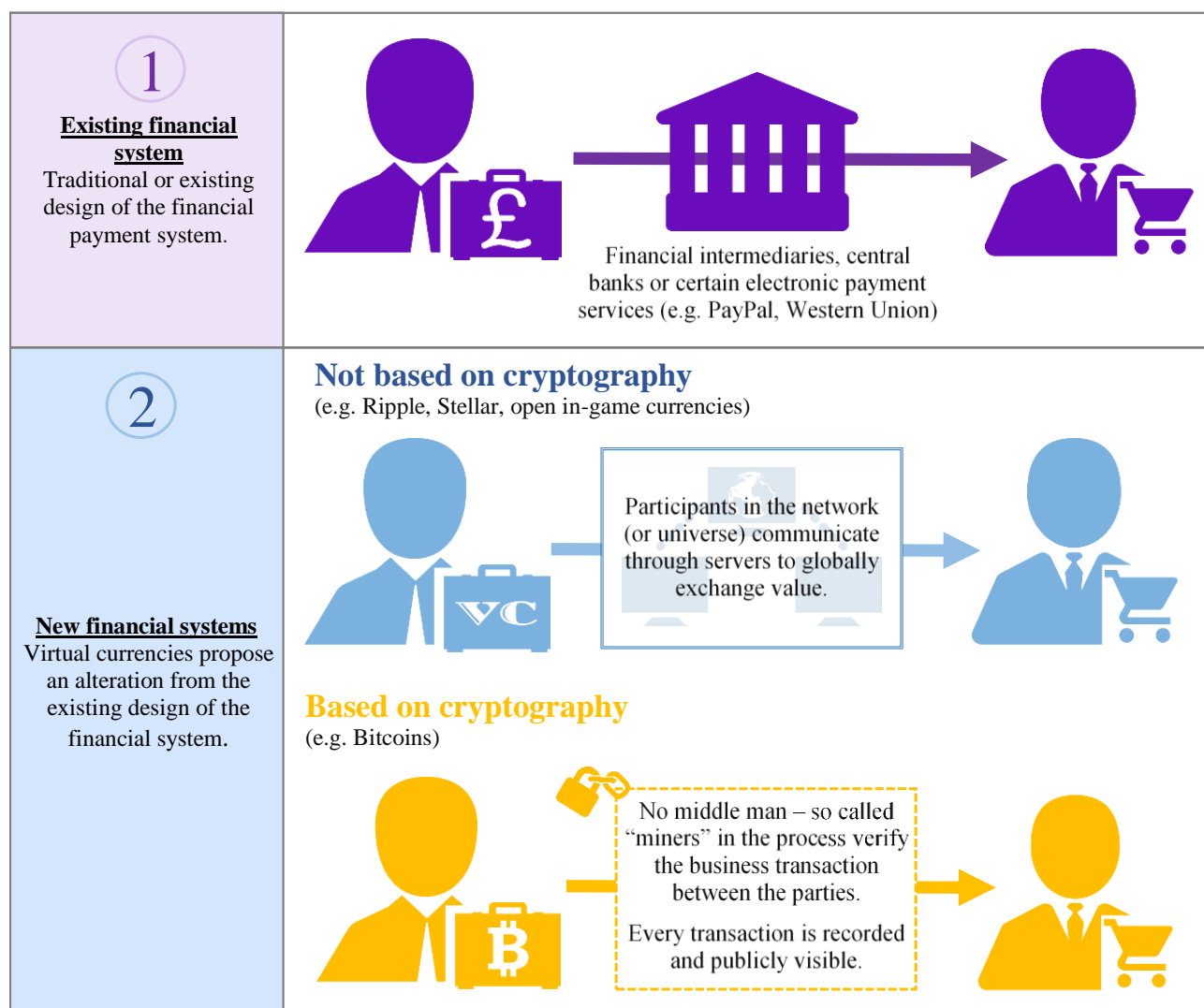
According to the ECB (2012), a virtual currency is “unregulated, digital money”. In 2012, virtual currencies were mostly unregulated but policy makers caught up in the recent years. For the purpose of this project, the term “virtual currencies” is defined as follows:

“Virtual currencies are defined as digital money, which is issued by independent and decentralised entities, and propose an alteration from the traditional design of the financial system.”

A virtual currency is a pure internet-based medium of exchange and exist not in tangible forms such as coins or banknotes (e.g. Pound Sterling or Euro). As a result, electronic payment systems which use national currencies are excluded. More precisely, e-commerce, online banking, credit and debit card systems or any other electronic ways to transfer money such as PayPal, Amazon Payments or Google Wallet are not considered. The independent and decentralised nature of virtual currencies refers to the issuer of money. For traditional currencies, central banks, monetary authorities or government entities are in charge for the supply of money. In contrast, virtual currencies get along without a central authority and usually the developer (respectively a mathematical algorithm) is responsible for the money supply. In addition, virtual currencies suggest a paradigm shift from the existing design of the financial system. As such, virtual currencies may be used to buy or sell real goods and services. For example, closed in-game currencies are not considered as a viable alternative for traditional currencies.

From a technical perspective, the essential feature of virtual transactions is the lack of a “middle-man”. Traditional payment systems usually involve a trusted intermediary in the business process. In effect, the lack of a contributing third party permits anonymous transactions between the involved parties. In addition, it makes it a fast and low cost medium to facilitate payments at any time. The following figure illustrates the 1) traditional payment systems and 2) particular payment systems with virtual currencies.

Figure 2: Simple illustration of the payment process

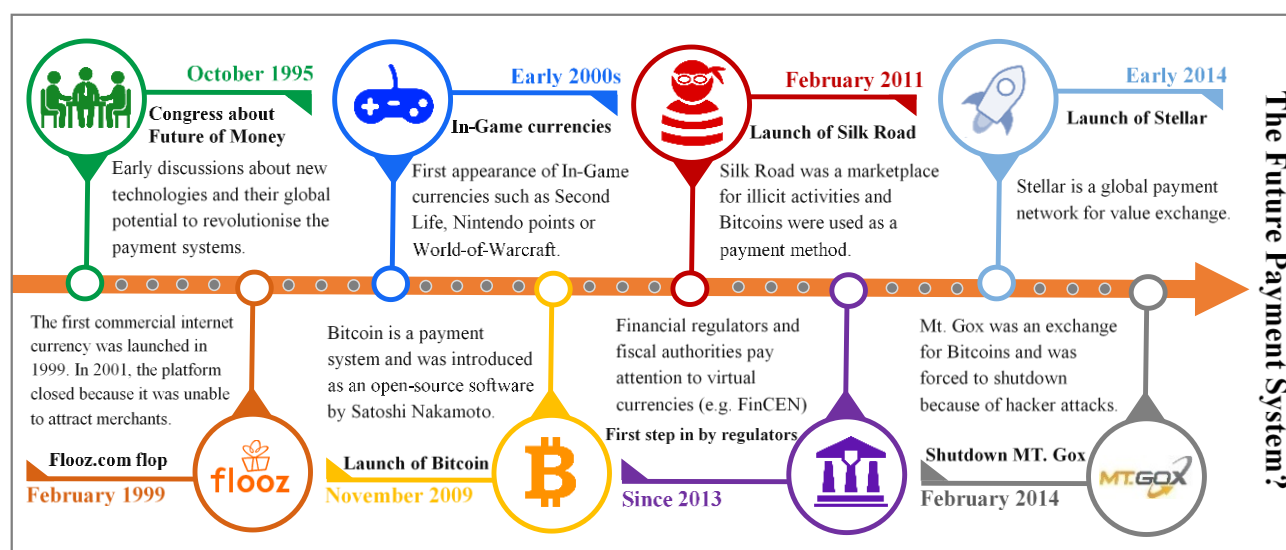


Source: Own illustration based on Stellar – how it works (2016) and Bitcoin – how it works (2016).

A variety of virtual currencies is in circulation such as Ripple, Stellar, online game currencies or cryptocurrencies. The majority of virtual currencies are based on cryptography and Bitcoins are the most prominent one (Turpin, 2014). Online game currencies are known to be the predecessors of cryptocurrencies but are mainly used to facilitate in-game transactions (Kim, 2015). In other words, currencies in multiplayer online games are usually not developed to conduct transactions for real goods and services. According to Richter et al. (2015), the number of virtual currencies is increasing continuously and this gives a positive outlook for a new payment system.

The following illustration serves as an overview for the discussion part and illustrates the key events in the development and the encountered issues of virtual currencies:

Figure 3: Timeline of virtual money



Source: Own illustration based on various sources.

Discussions and hearings on the future of money took already place in the 1990s (e.g. congressional hearing on the future money, October 1995). However, the first attempts of creating internet currencies were not successful (e.g. flooz.com or e-gold). According to Satran and Writer (2013), early internet currencies mostly failed to reach a broad audience and to attract large firms. The term “virtual money” was first mentioned in online games and it was used as a payment medium to upgrade game characters. Such game currencies were used for in-game purposes and were not designed to leave the game universe. In the past few years, virtual currencies gained traction and found a path to the real world. The first exchange platforms were launched in 2009 (mostly based on the cryptography) in which virtual money can be bought, exchanged or used to buy and sell real goods and services. After an unspectacular launch, the first troubles began shortly afterwards. For example, virtual currencies have been used as a payment medium for online black market Silk Road. Such cases cast a shady light on virtual money and increased the mistrust in the technology. As a result, regulators around the world are critically eyeing the development and reforming the legislation. Nevertheless, virtual currencies are still ubiquitous and reject to fail. As such, the topic generates interest in the academic literature and makes it a noteworthy field to review.

### 3. DISCUSSION ABOUT THE BRIGHT AND THE DARK SIDE

This chapter refers to the defined question 1 and 2 and outlines the perceived pro-arguments (bright side) and con-arguments (dark side) of virtual currencies:

- 1) What is the discussion behind the perceived benefits of virtual currencies?
- 2) What are the encountered issues related to the use of virtual currencies?

Each discussion is structured as follows: First, the argument is briefly explained. Second, the arguments of both camps are presented. Third, a summary of the findings is presented. In conclusion, a personal statement is made.

#### 3.1 The Bright Side of virtual currencies

Based on its unique nature, virtual currencies appear to offer some potential benefits. The list of perceived advantages is long and many of them are hotly debated in the literature. As a result, the paper focuses on three arguments which seem to achieve the most attention from academics, namely the anonymity aspect in terms of privacy, the decentralised nature and its influence on the price stability, and the transaction speed and costs.

##### 3.1.1. Argument 1: The anonymous nature as privacy enabler

The argument focuses on the perceived anonymity of virtual currencies and its implication on privacy interest of their customers. Privacy and the ability to keep some things entirely to yourself is strongly correlated to the anonymous character of virtual currencies. Especially virtual money is known to be untraceable and anonymous be-



cause there is no contributing third party in the online transaction. However, some argue that virtual currencies are actually not truly anonymous and the lack of traceability is an illusion.

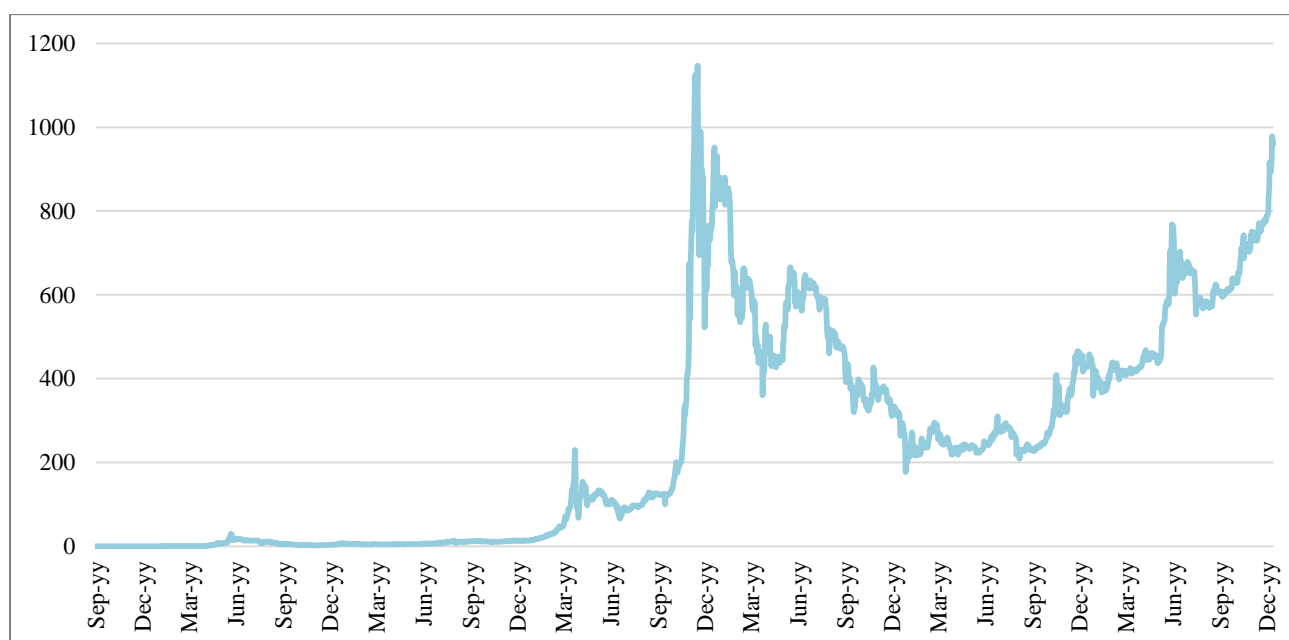
Online privacy is an important feature especially for payment systems based on cryptography. Some users wish to stay anonymous for legitimate privacy concerns. For example, a patient may prefer to not disclose private information about payments (respectively health issues) to a party other than the medical centre. As a result, the lack of an intermediary allows the parties to remain nearly anonymous. In other words, it works like an internet-based exchange of cash. According to He et al. (2016), holders of virtual money are referred as “pseudoanonym”. The term pseudoanonym refers to the identity in the internet and holders of pseudonyms do not reveal information about their true name in the real world. From a practical aspect, every user needs an account to execute online transactions, which functions like a virtual wallet. By opening an account, the user receives an explicit identification string (or address), which is not assignable to the user’s real world identity. As a result, virtual currencies are known as privacy enablers because of a high level of anonymity. In contrast, some argue that true anonymity is difficult to achieve since every transaction is recorded, publicly available and linked to users of virtual currencies (Saxena et al., 2014). The purpose is to provide incentives to users to verify their transactions and to improve transparency about the business process. In addition, certain providers of virtual wallets assure a strong privacy for their consumers, but simultaneously claim that their technology is not anonymous. Even more, some exchange platforms (e.g. Bitcoin) recommend to their consumers to hide their addresses with appropriate tools. According to Trautman (2014), such “anonymiser tools” are a safe way to veil account information and to ensure privacy in the World Wide Web. In addition, users may enhance their privacy by manually creating a variety of “virtual wallets” for different purposes. Both allow users to isolate their transactions and to erase the trace of the initial source. However, Androulaki et al. (2013) argue that the current settings adopted by certain platform providers are not enough to protect the privacy of their customers. The authors find that even if privacy-seeking customers are manually creating new addresses, behaviour-based techniques can track the source by 40%.

In summary, virtual currencies are known as privacy enabler because it is difficult to trace users back to their real-world identity. In fact, holders of virtual currencies are able to use pseudonyms to disclose information about their true name in the real world. Nonetheless, every transaction is publicly available and linked to the individual parties. The use of anonymiser software or the creation of a variety of virtual wallets can improve privacy interests. At this stage, virtual currencies can provide a reasonable level of privacy but are not fully anonymous. In my opinion, the anonymity feature is a very critical aspect because it can be used for legit and illicit purposes. An increase in interference by third parties such as supervisors or exchange providers may result in a convergence with the existing payment systems. As a result, the benefits from the anonymous nature such as privacy interests could diminish in the future. In fact, the right mixture of anonymity seems to be a balancing act.

### **3.1.2. Argument 2: The decentralised nature and its effect on price stability**

The global adoption of virtual currencies depends on its price volatility. A difficulty is to discuss the subject on a general standpoint because a wide range of virtual currencies with different setups exist. Thus, the focus of this argument is on cryptocurrencies, especially Bitcoins. In the following figure, the change in value of Bitcoins from 2010 to 2016 is illustrated:

Figure 4: Bitcoin Price from 2010 to 2016



Source: Own illustration based on the data from CoinDesk (2016).

The following discussion is structured in two stages to provide additional insight about the price stability: First, the potential causes for the observed price instability of Bitcoins (as displayed in the figure) and its problematic nature for being a future money is explained. Second, the technical backgrounds of the money supply and its influence on price stability is critically assessed.

According to Simonite (2013), the wild ride in price of Bitcoins in 2013 was due to speculators in the market. In fact, the exchange rate fluctuated strongly from 125.49 per Bitcoin in October 2013 to its all-time peak of 1147.25 per Bitcoin in December 2013. The author justified its statement that Bitcoins were actually not used to buy commodities or services and the rise was only triggered by speculative gains. In effect, the impact of currency speculator in the Bitcoin universe tends to be unambiguous. Although the volatility decreased in the past three years and the price per Bitcoins seems to be more stable, some researcher raise concerns about this dormant state. Investors might be waiting until the value rebounds in the future. In effect, Ron and Shamir (2013) find strong evidence that the majority of coins are divorced from the financial flow and investors in virtual currency markets hold Bitcoins primarily as an investment asset. The authors examined the hoarding behaviour of Bitcoin users and found that around 45% of users are active and move coins between accounts whereas the residual 55% are entirely idle. In doing so, the authors excluded those users who experimented with the technology in the early stage or lost their keys to the virtual wallets to achieve a more realistic estimation. The relative illiquidity diminishes the appeal as a new financial payment system and its potential as future money.

For the second section, it is important to consider the mechanical aspect of the money supply to draw conclusions about the price stability. National currencies usually apply a floating exchange rate. As such, central banks can interfere in the currency market by buying or selling their domestic currencies. In contrast, cryptocurrencies are decentralised and are not pegged to national currencies. As a result, Bitcoins act widely independent and are not influence by monetary regimes. Based on Meiklejohn et al (2013), the supply of Bitcoins is determined by a mathematical algorithm with a maximum number of 21 million coins, so called deflationary economic model. For example, when coins are removed from circulation, the remaining Bitcoins will gain in value. Consequently, as the value of Bitcoins increases, the number of coins needed to purchase a certain commodity decreases. Some argue that the observed fluctuation in value is a weakness of the system itself. According to Polasik et al. (2015), the capped Bitcoin supply seriously reduces the flexibility to respond to economic shocks. The inability to adjust the monetary flow mechanism makes it difficult to counter volatility of unemployment and inflation rates, which can result in a recession. The authors further discuss drawbacks of replacing national currencies by one global currency. A takeover by Bitcoins would erode the benefits from monetary seigniorage, which is the difference be-

tween the face value of the currency and the cost of creating money. The loss of profit from printing money may result in fiscal distress for governments. In effect, Bitcoins would effectively end the monopoly of national central banks to print money and its perception as liquidity provider of last resort.

In contrast, proponents argue that the decentralisation feature is a strength of cryptocurrencies and the rescue operations by monetary authorities is a malfunctioning of existing financial structures. Prominent academics argue that central banks in their role as lender of last resort are actually inducing financial instability by amplifying banks to expand their credit to an unbearable level (e.g. Ludwig von Mises, 1953). In addition, recent empirical work by Hayes (2016) finds that the modern economic environment became too complex and the aspect of human fallibility is causing increasing problems for central banking. The author argues that a simple rule-based framework on the cryptography approach could be beneficial in a complex world and would be a rational and robust substitute to the predominant monetary policy.

In summary, some academics argue that the decentralised characteristics and the capped money supply of virtual currencies such as Bitcoins is a serious disadvantage of the technology. The inability to regulate the money supply by a central authority seriously reduces the flexibility to respond to economic pressure. In contrast, some researchers argue that the rescue operations by monetary authorities is a malfunctioning of the old system. As such, central monetary authorities are inducing financial instability with their influence on the money supply. According to me, the innovation has not progressed beyond the experimental stage. As such, the lack of adoption by the general public makes it difficult to draw conclusions about the future price stability. However, the general acceptance of money as a medium of exchange relies on confidence of the community. I personally doubt that virtual currencies can achieve the same confidence as national currencies without any central authority as safety backup. In other words, it is difficult to imagine that individuals can fully trust a system based on a mathematical algorithm instead of an authorised entity. In addition, the aspect about the capped money supply is another critical element. In my opinion, the limitation to take action in times of economic pressure makes it a blunt sword. The next economic crisis is undeniable and the inability to regulate the money supply makes it a more vulnerable system.

### **3.1.3. Argument 3: Benefits from transaction speed and costs**

The following argument examines the benefits of virtual currencies in terms of speed and costs. In effect, the lack of intermediaries makes it a fast moving, low cost alternative to facilitate online transactions. However, a variety of convenient substitutes such as Paypal, Amazon Payments and Google Wallet are available. In contrast to virtual currencies, such electronic payment systems use traditional units of currency (or fiat money) in the retail transaction and operate usually as trusted intermediary to enable the transfer of money. According to Polasik et al. (2015), electronic payment services are substitutes to virtual currencies and an available alternative to the traditional use of money.

Some argue that the comparative advantage of virtual currencies is diminished, since retail payment providers advanced their checkout procedure and refined the payment process. In effect, Polasik et al. (2015) argue that user-friendly improvements such as an easy-to-use interface had an essential influence on the usage and the processing speed of electronic payment systems. In contrast, virtual currencies based on the cryptography are often criticised for being too technical and too complex for the general public. The BIS (Bank for International Settlements, 2015) further state that established payment systems achieve a similar processing speed even for large-value transactions. Another aspect is the fee structure, which depends on the type of transaction and on the electronic payment provider. Paypal for example charges no cost for the membership and for transferring money through their services. But if a member wishes to receive money, the fee is 3.4% plus 20 pence per transaction whereas any currency conversion and cross-border payment fees are not included (Paypal - fee structure, 2016). In contrast, the transfer of virtual money (or data) between users is in theory without incurring transaction fees. However, Kim (2015) put forward that virtual currencies such as Bitcoins requires small fees to prevent congestion in data networking by many small transactions. The author further argues in terms of indirect fees such as costs to run and maintain the exchange platform. Moreover, holders of virtual currencies need to consider also conversion costs, if they wish to convert to a national currency (BIS, 2015). As a result, the transfer of virtual currencies is not associated with zero costs.

Nevertheless, virtual currencies charge relatively small fees in comparison to other payment technologies. According to PWC (PriceWaterhouseCoopers PWC, 2014), virtual currencies such as Bitcoins dominate payment providers such as Paypal or Square regarding fee structure. Especially in conducting low-value transactions, Bitcoins are advantageous over mainstream payment systems. In addition, Richter et al. (2015) further argue that cryptocurrencies may be beneficial for individuals with international operations. In the existing banking world, the fee structure is not always straightforward because financial transaction varies strongly on the amount and the internationality. This usually involves paying high fees to financial intermediaries. As a result, virtual currency payments offer attractive incentives for savings-conscious individuals or entities especially in cross-border trading.

In summary, virtual currencies charge indirect fees such as costs to run the exchange platform or conversion costs if users wish to convert to a national currency. However, in overall virtual currencies charge lower fees than established payment systems, especially for small-value transactions and cross-border trading. Regarding processing speed, electronic payment systems are able to achieve equal processing speed even for large-value transactions. Even more, established payment systems provide a better interface which has a considerable influence on the transaction process. Although, virtual money has the essential ingredients for being a globally accepted payment system, it could not overtake mainstream electronic payment systems or traditional currency yet. In my opinion, the majority of the public still does not understand the mechanism of virtual currencies and its potential to revolutionise the payment system. Some improvements in the usability (e.g. user-friendly interface) might help to build a wider and trust-based customer base.

### **3.2 The Dark Side of virtual currencies**

In this chapter, three arguments on the critical development of virtual currencies are presented. These con-arguments refer to the controversial discussion on system vulnerability and its impact on the financial stability, the consumer protection from a technical perspective, and anonymity as an enabler for money laundering and tax evasion.

#### **3.2.1. Argument 1: System vulnerability and impact on the financial stability**

Some academics outline the threat of hacker attacks on decentralised virtual systems. Especially cryptocurrencies such as Bitcoins have a long track of troubles with hackers. The most prominent attack on virtual currencies was the collapse of Mt. Gox in 2014. Mt. Gox was a major exchange platform of Bitcoins and was handling 80 percent of all transactions at its peak (The Wall Street Journal, 2014). Apparently, hackers forced the exchange platform to shut down because \$390 million worth of Bitcoins disappeared. For many critics, the case Mt. Gox is the ultimate proof of the system vulnerability and the reason why virtual money cannot work in the real world. However, proponents of the technology argue that virtual currencies are still in an experimental stage and will achieve more safety and soundness with a broader scope.

Some argue that virtual currency systems are especially vulnerable to attacks by criminals and experienced hackers are able to breach even sophisticated security systems. Based on the ECB (2015), hackers can target individuals by stealing the keys to their virtual wallets or system-wide by disrupting the underlying infrastructure. As a result, users of virtual currencies are forced to rely on the network because no trusted third party is available to mitigate risk. In effect, the interference by hackers is omnipresent and widely documented. Richter et al. (2015) highlight several attacks such as unauthorised access to accounts or theft of virtual money, in which criminals used security flaws in the system. Plassaras (2013) is further concerned about the implication of a wide-spread adoption of virtual currencies and the ability of regulators to ensure the safety and soundness of the financial system. The author believes that if virtual currencies continue to grow in influence and usage, they can constitute a threat to the global economic stability. In other words, the decentralised characteristic of virtual currencies makes it prone to speculative attacks on the reserves of national currencies. The author concludes that regulators need to be aware of the development of virtual currencies and they should start to prepare before future conflicts arise. In effect, the absence of regulatory authorities already led to large disturbances in the virtual world with millions of losses to illegal activities. According to the report of TCH (The Clearing House, 2014), certain disruptions may have been avoided if regulations about safety and soundness of virtual currencies were implemented prematurely.

In contrast, some argue that virtual currencies cannot endanger the financial system because they have a limited relationship to the real economy. According to Yusen (2015), virtual money does not fulfil all fundamental functions of real money at this stage. The researcher finds that virtual currencies do not satisfy the function as a payment medium and as a world currency. However, the author includes that virtual currencies can obtain these characteristics in the near future once the general public and legal authorities pay more attention to its development. Yermak (2014) discusses further challenges for virtual currencies being a real currency. Due to its present configuration (e.g. decentralised, not largely regulated and no third party), virtual currencies bypass the established banking network and operate outside the regulated financial system. As a consequence, virtual money suffers to reach a broad acceptance. The author believes that virtual currencies still act more like a speculative investment and they do not satisfy the criteria of being a serious alternative for real money. In effect, the relatively low number of transactions confirms this statement. According to the ECB (2015), the amount of Bitcoin transactions is estimated at 69'000 per day compared to 274 million online payments per day solely in the EU.

In the recent years, countless hacker attacks and various security loopholes cast a dark shadow on virtual currencies. As a result, financial safeguards around the world are improving the regulatory and law enforcement framework. Nevertheless, virtual money does not seriously threaten the financial stability because it does not affect the mainstream business at this stage of development. However, improvements in the system stability may have a positive impact on the usage of virtual currencies in the future, which increases the incentives for regulators to pay more attention to its development. Especially cryptocurrencies seem to attract hackers more than any other payment system. In effect, anyone with a connected device can potentially launch a hacker attack. However, the argument that virtual money is especially more vulnerable is difficult to be understood by me. It should be possible to advance the technology to increase the safety and stability of the payment system. As such, virtual currencies can overcome serious flaws of previous hacker attacks in the future and achieve a similar system security as existing payment systems.

### **3.2.2. Argument 2: Consumer protection from a technical perspective**

The literature referring to consumer protection is a controversial subject of virtual currencies and correlates strongly with the lack of a middle man in the business process. Based on its widespread nature and its interference with other topics, it can be discussed from different angles. For example, the consumer protection in terms of the anonymous nature, the current safety regulation and legislation or the technical properties of the innovation. As a result, the argumentation of this dark-sided argument is approached from its technical nature in relation to other payment systems.

Some doubt that virtual money can become a trusted system, even if regulators achieve certain standards of consumer protection. The main issue put forward by critics is that virtual currencies are not backed by a middle-man in comparison to the majority of traditional payment systems. In the case of a complete system breakdown or hacker attacks, virtual money is commonly lost and getting it back is unlikely. According to the WSBI (World Savings and Retail Banking Institute, 2016), virtual money usually do not have any safety nets such as reimbursement guarantees. In other words, it is equivalent to losing your wallet in the real world. As a result, consumers of virtual money need to rely on the robustness of the system and are considerably exposed to fraudulent activities. In addition, Böhme et al. (2015) state that online transaction from virtual wallets are irreversible. In other words, every online payment is final and consumers are unable to cancel unintended or fraudulent transactions. In effect, cryptocurrencies such as Bitcoin do not provide an undo function in their algorithm. According to the authors, this technical characteristic increases the transaction risk for the users and is an advantage for traditional payment services with a payment reversibility function.

Although these technical issues appear to be legitimate, adherents of virtual currencies argue that certain technological innovations can assure the consumer protection. Anderson (2014) states that certain technological improvements could provide security standards equivalent to current credit or debit cards holders. The author documents the technical capability to allow authorised payments for services based on cryptography. From a practical perspective, a trusted third party proceeds with the payment only if all involved parties approve the transaction. In other words, the intermediary reverses the online transaction in the case of a disagreement between the parties. However, the author includes that such multiple authorisations is not intended to capture all transactions (e.g. small-value payments) because it is not a standard feature of cryptocurrencies. In addition, the fundamental

benefits such as anonymity, transaction speed and low transaction cost are considerably diminished. Furthermore, several platforms introduced more attractive consumer conditions. For example, some providers of exchange platforms increased the consumer protection by providing a refund in certain cases (Consumer Financial Protection Bureau, 2014). Yet, this is not the norm and the majority of platforms deny any responsibility for unauthorised transactions from their private accounts.

In summary, some are concerned that virtual currencies can ensure the consumer protection and become an accepted system. The statement refers to the lack of a middle man, which usually provides a reimbursement guarantee. Another aspect is the irreversibility of transaction, which increases the transaction risk for the users. In contrast, technological improvements could provide security standards equivalent to traditional payment services. Furthermore, the virtual currencies based on cryptography are usually capable to allow authorised payments for services similar to established payment systems. It is not surprising that sophisticated innovations such as virtual currencies are facing challenges in terms of consumer protection. In my opinion, the main obstacle for virtual currencies in the future is to obtain a reasonable level of consumer protection without diminishing its pioneering benefits. If providers of virtual exchange platform are working constantly to ensure system security and consumer protection, it should be possible to attract a wider clientele.

### **3.2.3. Argument 3: Anonymity in terms of money laundering and tax evasion**

Virtual money is basically not illicit and consumers usually conduct legal transactions. However, many financial supervisors went public and warned consumers about the possible risks such as fraud, theft of digital wallets or inadequate disclosures related to virtual money (e.g. European Banking Authority, 2013). Indeed, criminals also discovered the exceptional benefits from virtual currencies and misused it for their own interest. The list of illicit activities in the virtual economy is long: Drug dealing, terrorist financing, trading weapons or distributing child abuse material. According to Tropina (2014), criminals prefer virtual currencies as a payment medium because of the physical absence, the possibility to operate in different legal systems, the convenient usability, the speed of processing and the ability to implement automated transactions. Nonetheless, the most discussed issue in terms of criminal activities is that of the anonymous characteristics. As mentioned above, anonymity can be used for feasible purposes such as enabling privacy and for evil purposes such as illegal operations. The focus of this argument is on the dark nature of anonymity in the particular cases of money laundering and tax evasion.

According to Irwin et al. (2013), virtual money laundering has crucial benefits over money laundering in real-world. The lack of face-to-face contact and the difficulty to identify the individual parties reduces the possibility of detection by law enforcer. However, the high level of anonymity is related to an increase in complexity and time. In other words, money laundering in the virtual world is more sophisticated and time consuming than money laundering in the real world. Furthermore, the authors document that the level of effort increases exponentially with the sum of money. In practice, virtual money laundering in a large-scale involves spreading different amounts over multiple wallets (or addresses). Bronk et al. (2012) further state that there are many ways to ensure anonymity in the virtual economy. For example, by placing different amount of funds, using various exchange providers, operating internationally or by flagging transactions as non-monetary payments. In fact, even if online transactions are publicly visible, lawbreakers can lay a false trail to mask their true identity. In addition, the authors claim that by combining the anonymous nature of virtual currencies with privacy enhancing technologies (e.g. anonymiser software such as tor networks), the chances of exposure by law enforcement shrink even more.

From a fiscal perspective, taxation authorities are increasingly concerned about the anonymity aspect. In effect, the cyberspace tends to be especially attractive for tax avoidance. According to Gruber (2013), virtual currencies possess two characteristics of a traditional tax haven. Firstly, the technical capabilities to open an unlimited number of wallets, which enable to hide private information and stay anonymous. Secondly, the lack of a robust and clear legal framework which makes it ideal for tax fraud. Bal (2014) includes that current anti-tax evasion programs are inefficient since exchange platform of virtual money operate mainly independent. In other words, the lack of a sovereign jurisdiction which could provide private information about tax payers decreases the effectiveness to combat fiscal evasion dramatically. Marian (2013) agrees and states that governments still underestimate the urgency of the potential problems. The benefits of virtual anonymity could potentially lead to a shift from traditional to cyber tax evasion. The author believes that tax evaders, which use bank accounts in tax haven countries (so called offshore accounts), could switch in favour to virtual currencies.

In summary, the lack of face-to-face contact makes it a better tool for money laundering than money laundering in the real world. In effect, there are many ways for cybercriminals to hide their true identity by using specific software or by laying false trails through multiple accounts. In addition, some argue that the innovation, due to the lack of a robust and global legal framework, has the potential to a global shift from traditional to cyber tax evasion. In my opinion, the anonymous nature fuelled significantly the misuse of virtual currencies for illegal purposes. In fact, the web environment and the lack of a legal framework provides a suitable platform for illicit activities. However, money laundering and tax evasion are not a new phenomenon. I believe that with an accurate legislation in place, cyber money laundering or tax evasion could be considerably reduced. Simultaneously, it should be possible to maintain a reasonable level of privacy with a decrease in anonymity. In doing so, established payment systems could serve as a reference model to ensure privacy for legal purposes and to combat illegal activities.

#### **4. RECENT DEVELOPMENTS IN THE REGULATORY FRAMEWORK**

The insights about the bright and dark aspects of virtual currencies is the groundwork for the following discussion. Since virtual currencies provide both unique benefits and concerning drawback for the global community, policy makers are debating on how to approach this new technology. While certain legislation is scheduled, unsolved problems are still controversially debated. This chapter is framed with the following question:

- 3) How incurred issues with virtual currencies have been addressed by crime prevention units and financial supervisors?

The question is captured from two angles because the literature provides a wide-ranging spectrum of regulatory approaches. The first part refers to the anonymous nature in terms of money laundering. As mentioned in the previous chapter, criminals misused the anonymity feature for money laundering and crime prevention units are proposing approaches to conquer such illicit activities. The second part focuses on the classification of virtual currencies. A key issue for policy makers is the legal tender status and the implied controversial debate of whether virtual money fulfil all functions of real-world money.

##### **4.1 Approaching the anonymous aspect in terms of money laundering**

Raman (2013) argues that while the anonymous character of virtual currencies poses challenges for law enforcement, policy makers are able to introduce effective legislation. The exploitation by criminals can be addressed in a similar way as other payment systems – e.g. with an adequate anti-money laundering program and “know-your-customer (KYC)” controls. The KYC control is an authentication procedure, which would require account holders to register with their true identity (e.g. name, date of birth and home address). In fact, users of electronic payment systems such as Paypal and Google wallet need to verify their identity before processing online transactions (Paypal - KYC, 2016 and Google Wallet - KYC, 2016). In addition, several studies believe that the KYC approach is effective in conquering the dark-sided effects of anonymity (Irwin et al., 2014). In fact, the EU policy makers are currently reforming the anti-money laundering program, namely Anti-Money Laundering Directive (AMLD). The AMLD draft proposes users of virtual currencies to register in a database to enable the traceability to their identities in the real world. In other words, the addresses of their virtual wallets are linked to their real-world identity. From a practical perspective, the exchange platforms are required to make users register with their real-world details. A possible approach could be to request identity documents from their customers. In cases of suspected fraud or irregularities, legal authorities are able to conduct in-house inspections. The rationale behind the KYC approach is to help prevent the misuse of virtual currencies and to trace the trail of the source.

In conclusion, the KYC approach would effectively end the pseudo-anonymity as described in the chapter before. The interference by a third party has also serious privacy implications for holders of virtual currencies. In other words, it enables the access for government authorities to financial and other sensitive information. As such, the concerns about the potential erosion of privacy interests through government operations appears to be legit. However, the concerns of its potential to invade privacy stands in opposition to the benefits of preventing illegal activities. According to me, the KYC approach is the right tool to combat money laundering and to assure a reasonable level of privacy for legitimate users. Furthermore, the increase in government oversight could have a positive impact on the use for legal purposes. In overall, the proposed approach should decrease the shady reputation of virtual money.

## 4.2 Approaching the legal tender status

The second part is divided in two sections: First, a controversial debate about the classification of virtual money is conducted by taking into account the relevant literature. Second, the recent development about the legal tender status<sup>i</sup> is provided and its implications for virtual currencies. In fact, the legal tender status is strongly correlated to the question of whether virtual money is equivalent to real money.

The literature largely agrees that the term “money” needs to meet three functions (Mankiw, 2014): “A measure of unit, a medium of payment and a store of value”. As a result, if a medium is capable to meet all functions, it would be regarded as money independent of its legal status. The following review refers to the crucial question whether virtual money fulfil the economic functions of traditional money. Some academics argue that virtual currencies do not function like real-world money and as such do not fulfil all characteristic for being a true alternative. In contrast, some studies highlight the comparative advantages of virtual money and its potential benefits in the future.

The FinCen (US Financial Crimes Enforcement Network FinCen, 2013) published a guideline about the legal tender status of virtual currencies in the United States of America. Based on the statement, virtual currencies do not possess all functions for being a real currency. While the guideline acknowledges virtual currencies as medium of exchange, it lacks certain characteristics for being a legally-backed currency. Yermak (2013) puts forward several obstacles of virtual currencies being a real currency. According to the study, a key weakness of Bitcoins is the disconnection from the banking system. This argument refers to the lack of a legal-backed deposit insurance for Bitcoins users. For example, in the event of insolvency of a virtual exchange platform, holders of Bitcoins do not get a comparable level of protection as deposit-takers of a bank. In other words, a statutory deposit insurance for users is mandatory to fulfil the function as store of value. Another obstacle to satisfy the function as medium of exchange is the limited ability to denominate consumer loans. The existing banking system is usually based on the fractional-reserve concept. The term “fractional-reserve” refers to the required portion a bank must hold as deposit (or vault cash). However, if a bank issues a loan it simultaneously creates new money. In fact, the amount of money which can be issued through loans depends on the monetary policy of the central bank (e.g. by setting an interest rate target). In contrast, the decentralised nature of virtual currencies indicate that each unit is unique and additional units cannot be created through loans. As such, every loan is linked to the effective supply of virtual money. According to Hanley (2013), the inability to create new money through loans limits the expansionary power of virtual currency for being a successful substitute of traditional money.

On the other side of literature, Cassar (2015) argues that virtual currencies have notable comparative advantages over traditional currencies. In his paper, the author has defined different attributes of traditional currencies and compared it with the features of virtual currencies such as Bitcoins. From a store-of-value aspect, Bitcoins could become a stable storage of value if solid and transparent regulations are implemented. According to the author’s opinion, virtual currencies have to meet the characteristics to satisfy the function as medium of exchange and to be an appropriate alternative to traditional currency. Even more, the author believes that government and regulators will decide about the legal tender status of virtual currencies in the near future. McKinney et al. (2015) agrees and claims that virtual money is an equivalent or substitute to traditional currencies and fulfils similar functions to traditional money, in particular the function as medium of payment for goods and services. However, the authors are concerned about a shift from hard (e.g. physical coins and banknotes) to online transactions, since virtual currencies are growing in influence and simultaneously the confidence in legal-backed currencies suffered in the recent years. As a result, McKinney et al. (2015) believe that regulators and legal authorities need to develop the regulatory framework, before it reaches a critical turning point in the global economy. In other words, policy makers need to address the legal tender question of virtual currencies at this stage of development.

The Japanese financial authorities have passed the first milestone in regulating virtual currencies. According to Toobin (2016), the new jurisdiction brings more government oversight and induces more stability in the virtual economy. The purpose is to stem the issues with money laundering and to improve the consumer protection. An important aspect of the jurisdiction is the classification of the legal status of virtual money. Although the first proposal suggested virtual money to be legal tender, the policy maker repealed the jurisdiction to “asset-like values”. As a result, Bitcoins and other virtual currencies are legally defined as “object”, which are useable for exchange purposes and to make payments for goods and services. In other words, a virtual currency is officially not money and as such not equivalent to traditional money.



Until today, virtual currencies seemed to have received more attention from crime prevention units rather than monetary regulators of financial systems. However, the recent developments in Japan or in the European Union are clear signals from policy makers around the world to breach into the virtual world. In my opinion, these actions are a positive sign for the future outlook of virtual money but they have also considerable limitations. It is likely that new legislation will stimulate the growth and will improve the trust in the virtual economy. Especially for legal purposes, the jurisdiction should have a positive effect on the growth. As such, even more conservative firms might consider to enter into the virtual economy. In contrast, virtual currencies are only recognised as “method of payment” by the Japanese government. As a result, the opportunity to officially align virtual currencies with established payment systems is missed. The reluctance of jurisdiction about the legal status might be a sign of uncertainty about the appropriate regulatory structure or governments simply hesitate because it challenges the monopoly of their own national currency. In addition, the majority of the global legislation is hesitant to regulate virtual currencies. In fact, the new legislation by the Japanese government is like a drop in the bucket. The key issue is that national policy makers are independent and do not work in the same direction. If criminals want to misuse virtual currencies for illicit activities, they can avoid strict regulations by exchanging money overseas. In overall, the effect of the recent development in legislation remains toothless.

## 5. CONCLUSION

In this chapter, the main findings from the research are presented.

### 5.1 What is the discussion behind the perceived benefits of virtual currencies?

The first benefit deals with the anonymous nature of virtual currencies as privacy enabler. The innovation allows to register with pseudonyms and to create multiple account to disclose personal information. However, every transaction between the parties is recorded and publicly available. Until today, virtual currencies can provide a reasonable level of privacy but are not fully anonymous.

The second bright-sided argument focuses on the decentralised feature and its influence on the price stability. Since the money supply of virtual currencies is predetermined by a mathematical algorithm, some academics argue that this characteristic considerably reduces the flexibility to respond to economic pressure. In contrast, the opposing group argues that rescue operations are a malfunction of the old system and monetary authorities are actually inducing financial instability.

Finally, the last bright-sided argument refers to the transaction speed and costs of the innovation. Virtual currencies do not charge zero costs because of indirect fees such as costs to run the exchange platform or conversion costs for the exchange into national currencies. Nevertheless, the innovation charges lower fees in comparison to electronic payment systems such as PayPal, in particular for small-value transactions or international trading. However, electronic payment systems achieve a similar processing speed even for large transaction compared to payments with virtual money.

### 5.2 What are the encountered problems related to the use of virtual currencies?

The first argument refers to the system’s vulnerability and the impact on the financial stability. Some academics are concerned that a wide-spread adoption will affect the safety and soundness of the financial and economic stability. Indeed, several cases of hacker attacks on exchange platforms are widely reported. Nevertheless, virtual currencies operate mainly outside the real economy and do not seriously threaten the financial stability at this stage of development.

The second dark-sided argument refers to consumer protection from a technical angle. Since virtual currencies do not provide a middle man in the process, some academics do not believe that virtual currencies can ensure the consumer protection and become a trusted system. In addition, cryptocurrencies such as Bitcoin do not provide an irreversibility function in their payment process, which increases the transaction risk for users. However, technical improvements in the system could improve consumer protection similar to electronic payment services. For example, the technical capability to allow authorised payments similar to those of established payment systems (e.g. Paypal).

Lastly, the final dark-sided argument refers to the misuse of anonymity in the particular cases of money laundering and tax evasion. Some argue that the lack of physical contact makes it a better tool for money laundering and tax evasion. In fact, there are many technical possibilities for criminals to hide illicit activities such as the use of specific software for enabling anonymity or by laying false trails by opening various accounts. In addition, the lack of a robust and clear legal framework makes it a suitable platform for tax fraud at this stage of development.

### **5.3 How incurred issues with virtual currencies have been addressed by crime prevention units and financial supervisors?**

The first part of the question refers to the approach to combat the misuse of the anonymous nature in the case of money laundering. Law enforcement and crime prevention units are proposing an adequate anti-money laundering program and “know-your-customer (KYC)” controls to combat such illicit activities. Similar to users of established electronic payment systems (e.g. Paypal or Google Wallet), holders of virtual money must register with their true identity. The proposed approach has also significant implications for privacy interests. Although the concerns about the potential disintegration of privacy appear to be legitimate, the increase in government oversight should also have a positive impact on the use of virtual currencies for legal purposes and on its shady reputation.

The second part focuses on 1) the discussion of whether virtual money fulfil all functions of traditional money and 2) its legal tender status. Academics are split into two groups about the functions of virtual money: Some academics argue that virtual money do not possess all characteristics for being a real alternative for traditional money, especially because of the disconnection from the existing banking system. The opposing group claims that virtual money satisfy all functions of money and policy makers must decide about the legal tender status in the near future. However, the recent development in Japan suggest that policymakers are still uncertain about the legal classification of virtual money. In fact, virtual money is still not considered as money by law. As a result, virtual currencies is still lagging behind established electronic payment systems on a legal basis. Nonetheless, the key issue is that national policy makers work mainly independent and any non-global legislation is largely inefficient. In overall, the impact of the recent legal development by crime prevention units and financial supervisors remains toothless.

## **6. FUTURE RESEARCH**

Finally, a highly interesting and worth monitoring field for future research is how policy makers will face the challenges of system vulnerability. The decentralised characteristic of virtual currencies allows exchange platforms to operate largely independent. As a result, the crucial question is how financial supervisor should address to security flaws in the network or the potential disruption of the underlying infrastructure. In other words, how central authorities can assure the system stability to guarantee the safety and soundness of the innovation itself. It seems that academics paid less attention to the issue because virtual currencies do not seriously endanger the financial stability at this stage of development. Nevertheless, virtual currencies could breach into the financial mainstream with a wider customer base. As such, the potential implications could appear on the screen of financial supervisors and become an important subject in the regulatory agenda.

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## **Endnotes**

<sup>i</sup> The legal tender is a recognised medium of payment and generally issued by a central monetary authority (e.g. central bank). In other words, it is a declared medium of exchange by monetary law. Traditional currencies such as national currencies (e.g. US Dollar or Pound Sterling) are legal tender. In contrast, virtual currencies are usually not classified for legal tender status.

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## WHAT IS THE POTENTIAL FOR COMMUNITY CURRENCIES TO DELIVER POSITIVE PUBLIC HEALTH OUTCOMES? CASE STUDY OF TIME CREDITS IN WISBECH, CAMBRIDGESHIRE, UK

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### ABSTRACT

There is evidence that increased levels of community engagement and social participation can improve population health. Community currencies such as Time Credits are one way to support and encourage people to be more involved in their local community. As a result, they have attracted investment by local governments in the UK, with the hope of finding new ways to work with deprived communities, improve individual outcomes that lead to better health, and reduce the use of public services at a time of financial austerity.

The aim of this research was to evaluate the health related outcomes of volunteering through Time Credits in Wisbech, Cambridgeshire. The conceptual model developed during the research shows how Time Credits were expected to influence some of the social determinants of health and, by doing so, enhance health outcomes and reduce health inequalities. This in depth empirical study shows the potential of such activity to support pathways to better health, but equally demonstrates the challenges in quantifying such outcomes and in evidencing any reduction in the use of public services as a result.

### KEYWORDS

Time Credits, Public health, Volunteering, Inequality, Social Isolation

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The Cambridge Centre for Housing and Planning Research (CCHPR) carried out this research in collaboration with Spice, the Cambridgeshire County Council Community Engagement Team, Cambridge Housing Society, and the Cambridge Institute of Public Health (CIPH).

## 1. INTRODUCTION

Whilst community currencies that focus on time exchange have an ethos of exchanges built on a sense of obligation and reciprocity, rather than price determined by supply and demand, they are also a pragmatic response to ongoing financial austerity. In the context of the demands of an ageing population on adult social care services, and of a rise in socially related health problems putting pressure on the health service, local government is constantly seeking new ways to improve community health and to reduce the demand on costly public services. Co-production of services by public authorities with social enterprises, third-sector organisations and local communities is a way to try and deliver services in new ways and to do more with less.

The Cambridgeshire Time Credits programme is jointly funded by Cambridgeshire County Council and Cambridge Housing Society. It was established in July 2014, following a successful completion of a nine-month pilot in Wisbech. Support for the development of multiple Time Credits networks across the county emerged as a response to the budget cuts that forced the County Council to identify new ways to engage local communities and to build community resilience.

The Public Health Practice Evaluation Scheme (PHPES) enables people who are introducing innovative public health initiatives to work in partnership with the National Institute for Health Research School for Public Health Research (NIHR SPHR) to conduct rigorous evaluations of their effectiveness. This scheme is particularly focused on local initiatives. Under this scheme, the aim of the research was to evaluate the outcomes of Time Credits in Wisbech, Cambridgeshire, with a focus on health outcomes. The goals of the research were to determine the initiative's potential to tackle social exclusion and loneliness, and to assess the extent to which it can improve wellbeing and increase community cohesion and social capital. This in depth, empirical study enabled an analysis of the potential pathways to better health that might be facilitated through participating in earning and spending Time Credits, a complementary currency that recognises time spent volunteering with Credits that can be spent on a range of activities. The research shows the potential of such activity to support pathways to better health, but equally the challenges in quantifying such outcomes and in evidencing any reduction in service use as a result.

## 2. THEORETICAL CONTEXT: COMMUNITY APPROACH TO PUBLIC HEALTH

One of the key contexts for the research was the recognition of the value of tackling health inequalities through community engagement. An important approach to reducing health inequalities is through improving social capital and reducing isolation (O'Mara-Eves et al, 2013; Public Health England, 2015). Chronic stress arising from factors associated with poverty – including lack of social capital, lack of control over life choices and inability to participate in the life of the community – has been linked to negative health outcomes, especially in relation to mental health (Quinn and Knifton, 2012).

There is solid evidence that increased levels of community engagement and social participation have a positive impact on health behaviours, physical and emotional health, and self-confidence, especially among disadvantaged populations (O'Mara-Eves et al, 2013; Public Health England, 2015). These benefits are so widely acknowledged that the National Institute for Health and Care Excellence (NICE) guidance endorses community engagement as a strategy for health improvement (Public Health England, 2015: 6).

The social and economic determinants of health affect people's health by determining what resources are available to them (Markkanen and Burgess, 2016). Variation in these resources (i.e. the social and economic determinants of health) results in 'health inequalities'. These are differences in people's health due to social, economic and geographical factors. Within the UK, in spite of universal access to health services, poor health remains strongly linked to social and economic disadvantage (Hawe and Shiell, 2000; NICE, 2012: 1).

The social and economic determinants of health that cause health inequalities are modifiable. Housing, education, employment, income, access to public services and personal behaviour can all be improved to enhance health outcomes and reduce health inequalities (O'Mara-Eves et al, 2013:3).



Reduction of health inequalities is one of the two overarching aims set out in The Public Health Outcomes Framework for England, 2013 -2016. Changes in the levels of health inequalities, however, can take years, or even decades, to manifest. Movement towards these outcomes, on the other hand, can be measured along the way (Markkanen and Burgess, 2016). The Department of Health considers that one of the four indicators to measure progress towards these overarching long-term goals is via improvements to the social and economic determinants of health.

The conceptual model developed during this research shows how Time Credits were expected to influence some of the social determinants of health and, by doing so, to enhance health outcomes and reduce health inequalities. The model is presented later in the paper with an indication of where the research identified the strongest evidence.

### 3. TIME CREDITS

Time Credits are a way of recognising and celebrating the time people spend volunteering with a local organisation, community group, volunteer group or a statutory sector service provider. In exchange for their contribution, the volunteers 'earn' a Time Credit note, one for every hour they give. These can be 'spent' on a range of leisure and other opportunities, typically donated by organisations, local businesses and corporations, to allow the community members to take advantage of their spare capacity. They can also be spent on activities run by other community members, on activities at the organisation they were earned with, and to trade time and skills with other individuals.

Time Credits are a development of the traditional time banking model. Edgar Cahn is often accredited for 'inventing' time banking, building his Time Dollars model in the 1980s (Weaver et al, 2015) as a means of rebuilding social networks and neighbourhood support in response to reduced social spending in the US (Boyle and Bird, 2014; Gregory, 2012). The first UK time banking project was set up in 1998 in rural Gloucestershire and the movement has grown rapidly since then (Seyfang, 2003 and 2004; Boyle and Bird, 2014). In 2014, Timebanking UK (the umbrella organisation for time banks) had some 300 member organisations whose members had exchanged over 2 million time credits (Boyle and Bird, 2014).

Time banks are typically community-based organisations that provide the framework for giving and receiving services in exchange for units of time. One hour of time helping another member of the network equals one time unit, which can then be used to buy an hour of someone else's time (Cahn, 2004). The underlying logic is that of reciprocity and equality: the participants are encouraged to spend as well as earn time units, and everyone's time is valued equally; in other words, the value is the time the participants give rather than the skill (Gregory, 2014).

Time banking has been developed on the idea of there being two economies: the 'market economy' and the 'core economy'. The market economy relies on people's material, intellectual, financial and physical assets that can be traded at a commercial price in a competitive market (Granger, 2013). It picks and chooses the people, communities and specialised skills it needs, enabling those with marketable skills and resources to get more while excluding people who lack these skills and resources, such as the poor, the elderly, the frail and the uneducated.

The 'core economy', on the other hand, consists of the non-monetary, unmeasured sector of the economy comprising family, neighbourhood and community, including unpaid housework and caring for family and relatives (Boyle, 2003; Cahn, 2004). In the 'core economy', exchanges are built on a sense of obligation and reciprocity rather than price determined by supply and demand. Unlike the market economy and the skills associated with this, the 'core economy' is often taken for granted and given little value (Cahn, 2004).

Co-production is a conceptual framework for bridging the two economies and elevating the function of the 'core economy' to a level equal to that of the market economy (Cahn, 2004). It regards the role of the social support provided by family and neighbours as essential in underpinning everything else in the economy and builds on a notion of all people as assets. Even those typically excluded from the traditional job market, such as the old, the young, the uneducated, disabled and ill, are regarded as capable of making an important contribution as everyone has something valuable to give (Boyle, 2003).

The concept of co-production was originally developed to describe the involvement of ordinary citizens in the production of public services (Pestoff, 2006: 17). In very general terms, co-production means working together for an agreed outcome. In relation to services, the term co-production is typically used to refer to a situation where professional services are designed, developed and/or delivered with, or by, people, instead of for them (for example, see Needham and Carr, 2009). Co-production may be best described by its underlying principles and values of mutuality, reciprocity and equality (Boyle, 2003; Boyle et al, 2006; Boyle and Harris, 2009; Scottish Government, 2011).

In recent years, the concept of co-production has been widely adopted to refer to the organised involvement of citizens in the production of public services – a practice that has become increasingly regarded as essential for sustaining the current levels of service provision in the changing economic context (Pestoff, 2006). In health and social services, for example, service user co-production can enable service providers to tap into their clients' non-financial assets, including skills, experiences and the ability to provide mutual support, to help improve these services (Needham and Carr, 2009).

Set up in 2009 by a social enterprise called Spice, Time Credits is an example of an adaptation of the time banking model that enables organisations and existing service providers to play a greater role. Like time banks, the Spice model uses Time Credits as a way of rewarding people for volunteering, only in this case the individual participants give their time to a local organisation, community group, volunteer group or a statutory sector service provider. In exchange for their contribution, they 'earn' printed Time Credit notes, one for every hour they give, which they can then 'spend' on a range of leisure and other opportunities, typically donated by organisations, local businesses and corporations to allow the community members to take advantage of their spare capacity (Weaver et al, 2015).

#### 4. TIME CREDITS IN WISBECH

Wisbech is a historic inland port on the River Nene to the north of Cambridgeshire. Agriculture and food production are central to the town's economy, but the nature of the employment created is often unattractive to young local people, low-skilled, seasonal, erratic and insecure, and employs a high proportion of migrant labour. The town has above average levels of deprivation and a range of challenging social issues (Durrant and Burgess, 2016). High levels of recent migration have caused local tensions.

In contrast with Cambridgeshire as a whole, Wisbech is at the centre of a cluster of wards with high levels of deprivation and contains the two most deprived wards in the county, with some wards seeing the highest proportion of benefits claimants in Fenland (Durrant and Burgess, 2016). Life expectancy is 6.8 years lower for men and 5.0 years lower for women in the most deprived area of Cambridgeshire, Waterlees ward in Wisbech, than in the least deprived (Cambridgeshire JSNA 2014/15).

Other indicators where public health outcomes in Fenland are significantly worse than the average for England are excess weight and obesity amongst adults, and physical activity below the recommended levels (ibid). Levels of smoking are generally higher, as are fuel poverty and mental health referrals for both adults and children (ibid). Children in Fenland experience some of the highest levels of various 'vulnerability factors' relating to health, family or their environment, leading to relatively poor outcomes in later life. These include poor educational performance for both children and parents, low levels of breastfeeding and high levels of teenage pregnancy and young mothers, the overcrowding that is a specific issue in Fenland, as well as above average levels of hospital admission and self-harm (ibid). Skill levels are low and there is persistent worklessness amongst the local indigenous population. Local services, including local community focused organisations, have experienced budget cuts and continuing insecurity in funding (Durrant and Burgess, 2016).

There are 16 active local organisations where people can earn Time Credits. These include schools, homeless hostels, children's centres, an adventure playground and a project supporting people into employment. Activities that volunteers can do to earn Time Credits include reading with children, running after school clubs, gardening, office work, working in a café and kitchen, and litter picking. Volunteers can spend Time Credits on activities such as the

gym, swimming, going to the cinema, having beauty and hair treatments, attending social events and going to the theatre.

## 5. METHODOLOGY

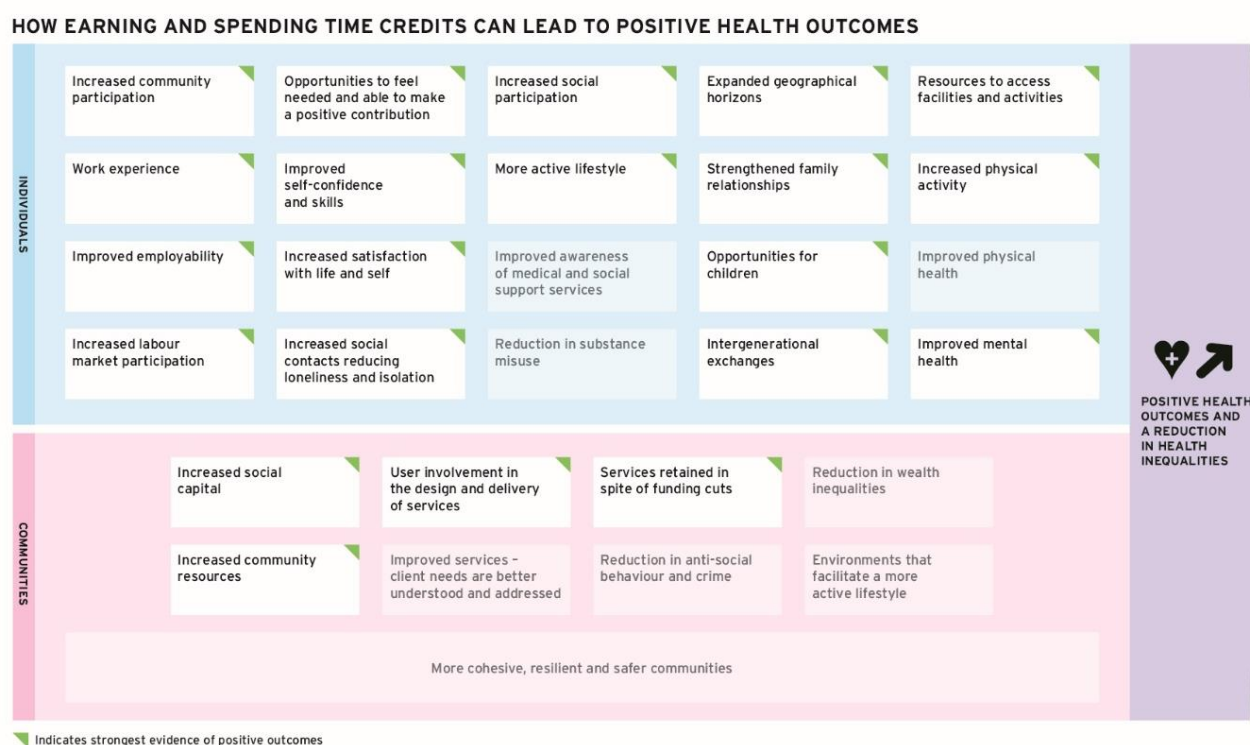
The aim of the research was to evaluate the outcomes of Time Credits in Wisbech, Cambridgeshire, with a focus on health. The research took a mixed methods approach using both quantitative and qualitative tools. It included interviews with key stakeholders, a literature review and a systematic review of the existing evidence of time exchange and health outcomes. Secondary data analysis and a longitudinal survey with Time Credits members was conducted, with an additional survey to existing members. In depth, face to face interviews were conducted with individual volunteers and with members of partner organisations. The research drew on ethnographic approaches to seek to understand both the individual and institutional context in which Time Credits function, in order to determine the relationships they have to public health outcomes.

## 6. RESEARCH FINDINGS: HOW TIME CREDITS CAN LEAD TO POSITIVE HEALTH OUTCOMES

### 6.1 Positive outcomes for volunteers

A conceptual model was developed to guide the research (Burgess, 2017). It was amended to reflect the research findings and shows how earning and spending Time Credits can lead to positive health outcomes (see Figure 1).

Figure 1: Developing a model to demonstrate how earning and spending Time Credits can lead to public health outcomes



### 6.2 Non-traditional volunteers

The research suggests that the Time Credits project has been successful in engaging with one particular category of volunteers. These 'non-traditional volunteers' (a term used by local organisations) can be defined as having

little or no history of volunteering. The term refers to people who tend to be unemployed or on very low incomes, are in receipt of state benefits or may have long-term physical and mental health issues. They may be socially isolated and, crucially, have previously had little engagement with local community organisations. For this group, the research identified that the experience of earning Time Credits was overwhelmingly positive with strong evidence of both direct and indirect health benefits. The key pathways to health for this group are associated with improved confidence, community and social participation, and a reduction in loneliness.

### **6.3 Better physical and mental health**

The research found that earning Time Credits can have both direct and indirect health benefits for individuals (Burgess, 2017). People have experienced improvements in their physical health.

'I was told that I need to keep my weight down. So I thought, if I come here, it's better for me. If I'm on my feet all day, that'll help me keep my weight down instead of sitting next door in my room all day, moping all the time, and succumbing to depression.'

They have also seen improvements in their mental health.

'Since I've been working here, my depression has been a lot better and I've got a lot more confidence to talk to people...I'm more confident and upbeat, and I get up at a reasonable time.'

### **6.4 Reduced loneliness and social exclusion**

A key finding has been the way in which earning and spending Time Credits has reduced loneliness and social exclusion.

'I was getting lonely. I thought what am I going to do with myself?...I come out and I feel like wow, I've got my energy back.'

Earning and spending Time Credits has enabled people to feel that they are making a positive contribution, with positive knock on effects on their self-worth and wellbeing.

'It has made me feel that I'm a person again. I feel appreciated. I'm not just a person at home doing housework.'

### **6.5 Case study – 'Alice'**

Alice had previously had a career working with children but poor health had kept her from working for nearly a decade. Time Credits made it possible to return to working with children at the Orchards School, something she loves doing. After a period of volunteering, the school gave her a formal paid job. Volunteering gave her an opportunity to share her skills and to make use of her previous experience and training. Most importantly, she became a valued member of a community:

'When I went to the first Time Credits meeting, at that point, I never ever had anybody come visit me....the only people I spoke to were my neighbours. I always worried, because I am diabetic, if I'm ill that nobody would find me. Now, I go to that school every day, I may go in sad but I come out with a smile on my face...I finally got somebody, who, if I don't turn up at school, they will come looking to see if I'm alright.'

### **6.6 Skills and employability**

The research found evidence of improved self-confidence and skills development. Volunteering gave people work experience and, in some cases, paved their way into paid employment.

'They have to learn about work patterns, that you have to start on time, not take cigarette breaks whenever you like. They found this very difficult. Even what to wear is hard to learn. These are skills we take for granted....Some volunteers are now employed....I hope they are financially better off but the greater thing is that they feel better about themselves.'

## 6.7 Strengthening families

An important finding has been the way in which Time Credits have supported the strengthening of family and wider relationships. Families do activities together and, for some children, spending Time Credits is the only time they do anything outside the house as a family.

'One lady, her kids never left the house but she will use Time Credits to take them out in the holidays.'

## 6.8 Case study – 'Peter'

Peter was living in a hostel halfway house and had begun volunteering in the Ferry Project kitchen after his release from prison. Now he volunteers most days and treats it like a job. Peter described how he had learnt new skills and found a new passion. He feels like he's giving something back to the community. He enjoys the voluntary work and it gives him a sense of achievement, and hopefully a route into paid employment. Spending Time Credits has enabled him to rebuild his relationship with his wife and daughter:

'We are on benefits and the money only stretches so far....using the Time Credits, it gives me enjoyment to take my little girl to the movies with what I have earned. If it wasn't for the Time Credits, we wouldn't be doing that many things with her. And because we go out more, we are closer as a family.'

## 6.9 Outcomes for organisations and the community

The research found that being able to offer Time Credits has enabled local organisations and services to recruit more volunteers and to increase their capacity. But it has also challenged stereotypes and brought diverse people together in a way that makes the local community more cohesive.

'It has also changed staff attitudes. Some staff thought that "these people" volunteering would be a hindrance not a help. Then they realised that they have skills. The staff started to see them in a different way...Understandings have changed.'

It has led to a recognition of the skills that exist in the community and a desire to nurture and support people into employment.

'But what I am most proud of is getting people into jobs. These people would not apply for jobs and now they have paid jobs.'

The use of Time Credits has allowed organisations to develop a more reciprocal relationship with volunteers and, in some cases, to engage people in the design of services in a more co-productive way.

'When people have nothing, it's nice to be able to offer them something in return for their efforts.'

# 7. CHALLENGES AND LIMITATIONS

The research identified a number of challenges and limitations in securing positive health outcomes through volunteering with Time Credits. There are some pathways to positive health outcomes through earning and spending Time Credits, shown in Figure 1, that the research was not able to identify strong evidence for. These included improved awareness of medical and social support services; reduction in substance misuse; improved physical health; improved services, client needs being better understood and addressed; reduction in anti-social behaviour and crime; reduction in wealth inequalities; environments that facilitate a more active lifestyle; more cohesive, resilient and safer communities. Although theoretically possible, there was no strong evidence of these outcomes. This section of the paper discusses some of the challenges that may preclude the clear achievement of positive health outcomes.

## 7.1 Hoarding Time Credits

Some people hoard their Time Credits rather than spend them which means they are missing out on the benefits that come from spending Time Credits.

'I save them. I have a huge 'wodge' at the moment.'

Gifting Time Credits is encouraged within the model and some of the volunteers interviewed had given Time Credits to family or friends. The accumulation of Time Credits without spending them is a phenomenon noted in many systems of complementary currencies and, whilst this might pose a challenge to realisation of the notion of reciprocity embedded in the ethos of time exchange (Clement et al 2017), it also prevents the realisation of the potential health benefits that could be achieved through spending Time Credits.

## 7.2 Issues around value

A particular challenge is the recognition that volunteers place a clear value on the time they have spent volunteering and want to see this value reflected in the spend activities. Volunteers do not necessarily want to spend their Time Credits on low cost activities, such as after school clubs that cost £1, or discos and events with a £2 entry fee, when they can spend them on higher cost activities, such as the cinema, which might otherwise be prohibitively expensive.

'We can't charge two Time Credits and only £2 as that is two hours of time for people who have earned them.'

Some organisations have offered spend opportunities which take time and resources to organise and had no volunteers want to participate. In some cases, this has been because volunteers felt they could get 'better value' on other spend opportunities.

'They are always thinking about getting their value. Value is a big thing. And being able to go together. People understand value. They don't want to spend their Credits if it is not good value. Some will say "it is below minimum wage if I work for an hour and spend it on that". When we did bingo, no one took it up because it was only £2. After school clubs are only £1. When [two Time Credits volunteers] took their kids to the cinema, they walked a mile and a half to the cinema and made it into a whole day out, they went to McDonalds afterwards. It was the only thing their children did in the holidays.'

There is also a potential problem relating to the development of a black market for Time Credits, where people sell Credits on at a low value; this devalues the currency but also raises the problem of people using the cash to spend on unhealthy behaviours such as drinking alcohol.

## 7.3 Lack of spend activities

Volunteers in Wisbech only use a small range of spend activities. At the moment, most volunteers spend their Time Credits on going to the cinema, going swimming, and on hair and beauty treatments, with some also spent on social events. These are very valued. However, it does mean that the project is very reliant on three external organisations being willing to continue to accept Time Credits.

In addition, the majority of interviewees felt that there was a lack of local spend opportunities in the area.

'Spend is limited because of our geographical area.'

This is partly because Wisbech is relatively isolated and because many volunteers cannot afford transport.

'But it is hard to spend them here as none of the volunteers can afford transport. It would be ideal if they could spend them on transport, like get on the bus. But you can't spend them on things like that. So spend is difficult. That's the trouble, there are lots of rules.... So there are only two main options to spend them on. There is not much else in Wisbech. And none have transport. There just isn't much local spend.'

## 7.4 Challenges in developing internal spend opportunities

One of the key challenges identified by organisations in working with Time Credits has been developing spend opportunities that are internal or community based. Community spend aims to provide local and accessible activities so people don't have to travel to find ways to spend their Time Credits. Most are reliant on volunteers spending their Time Credits on external activities, most frequently the cinema, swimming and the gym. Organisations face a number of constraints in developing their own spend options. One is staff time and resources available.

Some staff are already over-stretched and trying to offer spend opportunities outside of their working hours, or the opening hours of their organisation, is too difficult. Sometimes there has been no take up because people are nervous about doing things that feel out of their usual comfort zone and immediate circle of acquaintances.

'We tried day trips to the sea and joined with [Time Credits organisation] but no one came as they did not want to go on the bus with other people they did not know.'

Organisations also said that people prefer to spend Time Credits on something they can do as a family, often also with other families, and will not spend on more individualised activities. One challenge for organisations has been negotiating how to offer Time Credits when they also use volunteers for fundraising activities. Some organisations have taken the view that their staff have always volunteered for certain fundraising activities, that too many Credits would be accrued, and that it is not appropriate when relatively large amounts of money are being raised. This has created some tension within organisations.

'We won't pay Time Credits for an event earning over £500. And if the staff are happy doing things anyway, like the disco, they don't need to earn Time Credits. It was very difficult. Some people did not speak to me for a while.'

Other organisations have also not offered certain activities as spend opportunities as they charge for these as part of the organisation's fundraising and need the income.

'Spending opportunities are hard and budgets are so tight. We would like to say use the Time Credits for the school disco but it is money making for fundraising so it would take funds away from the school. We have a summer fair but it is for fundraising. We don't rent out rooms much but we need what we get and can't rent them out for free.'

Some felt that they could not charge Time Credits for certain activities as they would have to charge actual cash to other organisation members and thought this would create tension and was against their ethos.

'We could offer something here but, if we charge Time Credits, we would have to charge money to other people and they would complain. They already pay rent so people would see it as a problem if we charged them for things here.'

Organisations are aware of the rationale to develop internal and community spend opportunities, and of the expectation to deliver a community spend offer, but felt they were doing what they could within the constraints they face.

'We can't come up with it given the circumstances. I am only paid 9 to 3 in term time and I have my own pressures outside of work and my own family. But if I thought it would work, I would give up the time. We offered it and no one took it up. No one took up the after school clubs. They don't think it is good value.'

## **7.5 Pressures on staff**

Generally, managing Time Credits within an organisation does take up staff time; most said that it took up more time than they had expected but that it was not unmanageable.

'I am so short of time. It is overwhelming sometimes. Things like the data input spreadsheet could easily slip so as soon as I get half an hour I start.'

Monitoring and data input is time consuming but people manage, although they stressed that they could not cope with any more than the existing monitoring.

'The admin part is ok if you keep on top of it. It is more time consuming than I expected but it is manageable. I wouldn't want it to be any more.'

Some organisations have found that offering Time Credits can incur organisational costs, for example, when paid staff have to oversee earning opportunities and so other paid staff are needed to cover their normal duties. However, it is worth recognising that these additional costs can be offset by, for example, a reduction in the cost of garden maintenance.

'One of the difficulties with Time Credits is that although they can be earned through activities such as tending to the garden, it often requires a paid staff member to also be there, overseeing the earning activity. As a result, enabling the residents to earn Time Credits comes at a cost as more paid staff are required to cover the time other paid members of staff are spending supervising the Time Credit earners.'

## 7.6 The network

Wisbech has a fairly well developed partner network and they come together quarterly at a network meeting. Those who attend find the meetings useful in part, mainly because they like to hear what others are doing and check that they are doing ok. However, communication between partners is limited to the meetings and the same people tend to go to the meetings every time. Some staff said that they do not have time to attend.

'We don't have much contact with the other Wisbech partners except at the network meetings. They are sometimes useful but it is often the same issues mentioned and the same people who go.'

Organisations are encouraged to identify how network meetings will best serve the development of their Time Credits initiative, to take a lead in shaping future meetings and to suggest and deliver content.

## 7.7 Challenges in offering Time Credits

There have been internal problems at some organisations unrelated to Time Credits that have made maintaining a volunteering system difficult. There are also a small number of organisations that are keen to join the Time Credits network but have struggled to find the best way to offer Time Credits. This is the case for a couple of organisations that already have volunteer schemes in place, and so have been trying to think of a slightly different way for people to volunteer and earn Time Credits. There can also be an issue of equity, where it is deemed inequitable to offer Time Credits to the volunteers in one local organisation when there is another branch of the organisation whose volunteers would not be able to earn Time Credits because they are out of the project catchment area.

## 7.8 Existing volunteers

The qualitative research identified evidence of positive outcomes for volunteers. However, the strongest benefits may be concentrated on a core of regular, non-traditional volunteers. For the people who were already volunteering, but had subsequently been offered Time Credits, they were a nice thing to have, but they were not critical in motivating them to volunteer and there had been little change in their circumstances.

'I first came into contact with the school when my daughter started but I started volunteering about four years ago when my son went to pre-school. When Time Credits started, I was already volunteering and I would do it without them.'

A further example is a volunteer who was in employment and was already volunteering before being offered Time Credits.

'I have children at the school. I have a teaching degree. I have been a dental nurse for eight years but I miss teaching....I wanted to do something for me. I enjoy my job but I like being with children....I would volunteer without Time Credits but it is a bonus. I help groups, reading, with music classes. I prefer to volunteer rather than to increase my hours at work. Even if I increased my hours, I would still volunteer.'

Volunteering is very important to them, but they were already regular volunteers and there is little evidence that for this group there are additional health related benefits generated by earning Time Credits for the activities. There are potential benefits accrued from spending Time Credits, although some of this group had not explored opportunities to spend their Time Credits. It is apparent that earning Time Credits is potentially transformative for some volunteers but is not a profound experience for others.

## 7.9 Structural context

It is important to be realistic about what offering Time Credits can achieve. In a place where there are fundamental structural issues of poverty, deprivation, unemployment, low levels of education, poor health and poor lifestyle



choice, one community project cannot be expected to 'fix' these problems, particularly in a context of reduced funding for local services.

## 8. CHALLENGES AND LIMITATIONS

The biggest remaining gap in evidence is that of quantification. The research has found evidence of positive outcomes from some volunteers, but it has not been possible to quantify the degree of change. There are several reasons for this. In order to measure change in people's health, wellbeing and circumstances, a baseline of these measurements is needed before people begin volunteering and this should be taken again, after a period of time, to capture any change. However, the Wisbech project was quite well established by the time the evaluation began and the sample of people who joined as new volunteers during the research was not large enough to collect a robust sample of measurements. For attempts to measure and quantify change to be successful, they need to be built into a project to collect data from the beginning, rather than retrospectively. There is also a need to establish a meaningful comparator of similar people who did not join the Time Credits scheme.

There was also a degree of research fatigue amongst the study population. As Wisbech was the pilot for Time Credits in Cambridgeshire, volunteers had already been surveyed about their views of the project. There was also a reluctance to participate in some forms of data collection, such as surveys, possibly reflecting confidence and literacy levels, and people preferred to share their experiences in dialogue through interviews.

As Batterink et al (2017) point out, requests to study the impact of complementary currencies prevail, as investors look for quantifiable records to justify their financial support to such schemes. One of the repeated requests from local government during the research was whether evidence could be collected to demonstrate a return on investment. However, without being able to quantify any degree of positive change, it is not possible to demonstrate measureable savings to health and adult social care, the ultimate goal of the Council's investment in the programme. The research has identified potential pathways to better health but there is a lack of quantifiable evidence.

This does also in part reflect the circumstances of the particular group of volunteers active in Wisbech. Few had immediate or high level health needs, so any benefits are likely to only be realised over the long term. There are few older people who volunteer who are in receipt, or likely to be in receipt in the near future, of direct support from adult social care services. There is no direct evidence of any reduction in service use in the short term.

Benefits in terms of any reductions in the use of public services are likely to be long term. It would therefore be difficult to measure them over these time periods and to attribute them to participation in volunteering. As mentioned, there is also a general context of poverty and poor lifestyle that weighs against the immediate benefits of volunteering. Time Credits are also a diffuse intervention so establishing cause and effect between earning and spending Time Credits and the specific outcomes is difficult, particularly when there may be other types of engagement with volunteers through other means. The issue of cause and effect is important. Whilst this research with people earning and spending Time Credits showed some benefits e.g. in terms of physical and mental health, it is possible that the highlighted benefits could be linked to the development of mutual exchange systems and solidarity in general (rather than solely as a result of earning or spending Time Credits). These, however, might be based on different types of community currency, and also on volunteers with little interest in Time Credits, as in the case of the existing volunteers.

There is strong qualitative evidence of positive change as a result of earning and spending Time Credits, particularly amongst 'non-traditional volunteers', but any direct health changes have not been proven beyond the qualitative evidence. The evidence is also of positive changes in the known determinants of health, rather than in actual measurable health improvements. For example, there is evidence of improvements in social isolation, and therefore an implied potential improvement in health, because loneliness is a known and proven determinant of poor health, but actual health improvement has not been evidenced. There was no direct evidence of a reduction in health-related services and this was not mentioned in interviews.

## 9. CONCLUSION

Time Credits are a relatively simple concept, but they are a complex community intervention with numerous interconnected outcomes and multiple pathways to positive change in relation to health and health behaviours. The research shows that earning Time Credits can have both direct and indirect health benefits for individuals. People gained a sense of purpose and felt that they were making a positive contribution to a community which increased their life satisfaction and improved their mental health. They became more physically active and more socially connected. There is also evidence of increased confidence and development of skills and work experience to support moving into paid employment.

Spending Time Credits gave members resources to access activities and services that they would not otherwise be able to afford. Time Credits were spent on activities which lead to a more active lifestyle, such as swimming, with direct health benefits. They were also spent on family activities which lead indirectly to positive health outcomes by improving social capital, social participation and overall wellbeing.

However, one of the main characteristics of Time Credits, and the improvements in social relations they bring, may not only lie in giving a fair value to labour but also in the equity and sustainability of the exchanges that the Time Credits enable. As described above, some of the volunteers interviewed complained about the lack of spending opportunities for their Time Credits, or were not prepared to spend them on services they considered to be of too low value. This may be helped by a more effective economic and organisational commitment on the part of local government, especially towards increasing sustainable spend opportunities for Time Credits earned by non-traditional volunteers. Whilst it may not sit easily with the current ethos and management structure of Time Credits, it may be useful if the system could enable non-traditional volunteers to spend part of their Time Credits on sustainable local food, services and local public transport.

Additional research would benefit from focusing on the issue of quantifying positive change, attributing positive change to the use of the community currency and establishing any direct and indirect savings to public services as a result. This could mean a longitudinal study tracking people over the longer term and specifically monitoring their use of services over this time. It would also require mapping additional support and influences on participants. This would probably also require a comparator group of similar people to track who did not volunteer. Further studies would need to consider using measures other than self-reported health, which are notoriously inaccurate, and correlations between self-reported health and direct measures of health are generally only low-to-moderate. Research more focused on specific target groups such as older people or people with mental health problems for example, may show more observable impacts of volunteering on specific vulnerable groups where impact might be more salient. A further piece of research would be to test whether the findings from the study in Wisbech are similar in different geographical areas and socio-economic contexts.

Time Credits provide opportunities to be active citizens, to share experiences and skills, and to make positive contributions that foster a sense of inclusiveness. The research suggests that Time Credits are a way to engage local people to develop more inclusive, cohesive and resilient communities. However, being able to quantify such outcomes in such a way that would enable a robust calculation of a return on investment was not feasible, and the evidence of positive change to health and health determinants is very qualitative.

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## SHARING IS CARING: MEDITERRANEAN TIME BANKING IN A MULTIDIMENSIONAL CRISIS SCENARIO

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### ABSTRACT

Time banks (TB) have spread all over Europe as part of a wider expansion of alternative economic spaces. Much of the existing literature has focused on UK and US time banking models, while TBs in other regions have been overlooked. This article contributes to a feminist understanding of time banking in a crisis context and, specifically, analyses possible particularities of Mediterranean TBs on the basis of case studies from Emilia Romagna (Italy) and Andalucía (Spain). The article describes the methodology and introduces the perspectives of Feminist economics before outlining the origins and development of time banking initiatives in both countries. The second section explores the history and characteristics of the selected TBs, presenting details of their objectives, member motivations and exchanges. The discussion analyses the contributions of Feminist economics to the understanding of time banking, and the conclusion provides a summary of the most important ideas.

### KEYWORDS

Time banking, Alternative economic spaces, Feminist economics, Multidimensional crisis, Mediterranean region

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## 1. INTRODUCTION

Time Banks (TB) have been defined as “community building initiatives which enable people to exchange goods and services using time as money” (Seyfang 2004, p.1). The basic principle of time banking is that people use units of time as currency (1 unit/credit = 1 hour of labour), with each person’s time valued identically regardless of the type of services provided. Essentially, this means that all skills are considered to be of equal value with the currency lying in the time it takes to deliver these. Every TB shares this same basic schema of “an-hour-for-an-hour”.

Much of the existing literature has focused on time banking models from the UK and the US (Valor and Paoikonomou 2016), with most papers describing TBs as a social innovation tool oriented toward community building, usually operating in areas of social exclusion, confined to unskilled personal services and dependent on grant funding (North 2003; Seyfang 2004; 2006; Dittmer 2013). This literature describes a degree of dependency that can be largely attributed to the central role of the paid ‘time-broker’ considered essential to the adequate development of any project. This ‘time-broker’ is a salaried member of staff responsible for managing the project, maintaining and updating the database of requests / needs and offers / abilities, organizing events and searching for partners and funding.

Although radical economic geographers have tended to focus more on alternative or social currencies than on TBs (Dittmer 2013), their insights have thrown some light on the general dynamics of alternative economies where these are defined as “circuits of consumption, exchange and production sustained over space and time” which “disrupt and destabilize the irrevocable association of ‘economy’ with ‘capitalism’” (William, Aldridge, and Tooke 2003, p.17). Some of the more critical authors state that institutional support for time banking derives from the neoliberal intent to dismantle the welfare state, citing the interest shown in TBs by advocates of the ‘Big Society’. “Fitting time banking into this narrative ensures its utilisation within neoliberal ideologies, rather than [in the] enact [ment of] local community resistance” (Gregory 2014, p.171). North (2003; 2014) states that as TBs are oriented toward community building and not toward solving the problems of the capitalist industrial system, unlike alternative or counterculture currencies such as Local Exchange Trading Systems (LETS), TBs should really be considered complementary currencies. However, authors such as Blanc (2011) place TBs within the group of second-generation community currencies and defend their radicalism and non-capitalist character, stating that the emphasis on the time element in time banking contradicts key temporal aspects of neoliberal theory and practice, even where these are adopted as a tool within the Big Society (Gregory 2014).

The premise for the present article is that, while the previously mentioned authors undoubtedly make an important contribution, these approaches alone are unable to provide a full understanding of the issue of time banking in Europe. Descriptions of the characteristics of time banking in the UK and the US do not always reflect the reality of many TBs in other European countries. In order to fill this gap, Feminist Theory in general, and a Feminist economics approach in particular, can contribute to a broader consideration of the institutional framework directed at facilitating or not facilitating this type of exchange. Applying this Feminist economics approach to the study of TBs, provide useful multidimensional lenses through which to view this question, as will be explored in the theoretical review section.

The aim of the following pages is to explore the differences between TBs situated in South European Countries and those in the UK, with particular emphasis on widening understanding of the origins, evolution and particular features of time banking in two countries of the Mediterranean region: Italy and Spain. This objective is to be understood in the wider context of the analysis of how different options in the distribution of care costs among the market, state, community and family contribute to explain different patterns of alternative economic spaces. This will be attempted through the case study of two Mediterranean TBs (Modena TB, in Emilia Romagna, Italy, and Ecolocal TB in Seville, Andalucia, Spain). It is important to highlight that case studies analyse the complexity and unicity of a process or phenomenon in its real context. Therefore, their main objective is not the generalization but the documentation of multiple perspectives and conflicting viewpoints and the comprehension of the dynamic of change (Simon 2009). The choice of two TBs from different geographical areas will allow for the illustration of local trends and patterns arising from significant changes to the welfare regimes derived from a multidimensional crisis scenario; an issue of major interest to Feminist economics.

Italy and Spain can both be classed as falling within the Mediterranean welfare regime Esping-Andersen (1999). This model has been criticised and analysed in greater detail by feminist scholar such as Threlfall, Cousins, and Valiente (2005), who proposed the notion of a 'Mediterranean gendered social policy regime'. According to Moreno-Mínguez (2007), this regime relies largely on familiarism and an asymmetric distribution of paid and unpaid family labour between men and women. The materialization of this regime is not homogeneous, however, and there are important sub-regional particularities. In Italy and, to some degree, in Spain, high levels of decentralisation in social policies reinforce regional diversity: while Emilia Romagna is characterised by robust local welfare services rooted in a long tradition of a strong and mobilized civil society and left-centre governments, socio-economic indicators in Andalucía show deeply-rooted, historical delay and relatively weak regional and local public services. In relation to that, the importance of family network contributions to welfare in Andalucía has been studied extensively (Rodríguez Pascual 2008; Barbadillo 2008) and it is possible that these have been reinforced in recent years in response to the recession.

By comparison, the UK (together with United States, Canada, and Australia) falls under "the liberal regimes" (Esping-Andersen 1990); a group of states also classed as Schumpeterian workfare states (Wheelock, Oughton, and Baines 2003; Jessop 1993). Among these regimes, state interventions are clearly subordinated to market mechanisms and individuals are fundamentally considered market actors and encouraged to seek welfare via the market (Gálvez-Muñoz, Rodríguez-Modroño, and Domínguez-Serrano 2011). Feminist criticisms of these perspectives have added a further strand to the analysis in terms of the strength or weakness of commitment to the 'male-breadwinner model', where the UK comes out as having a "strong male-breadwinner model" (Lewis 1992, Gálvez-Muñoz, Rodríguez-Modroño, and Domínguez-Serrano 2011). Understanding the diverse underlying systems will help to explain the development of the different time banking models.

The next section describes the approach and methodology and it is followed by a theoretical framework presenting Feminist economics perspectives. The findings are presented in the form of: (i) a summary of the origins and development of time banking in the two countries, exploring the history and characteristics of the selected TBs, and; (ii) data produced by TB members and managers, including objectives, member motivations, types of services exchanged and discourse on the crisis. The discussion explores time banking in relation to Feminist economics approaches, before the key ideas presented in this article are summarized in the conclusions.

## 2. APPROACH AND METHODOLOGY

This article adopts a case study approach focused on two Mediterranean TBs operating on the premise that such an approach is particularly useful when the boundaries of the studied phenomena and the context are not clearly evident (Yin 2003) and where a deep understanding of the political, sociological, and cultural context is therefore desirable (Yin, 2003; Simons, 2009). Following well-established practices, a mixed-method approach has been used with a combination of:

- 1) Micro-Ethnography, and Netnography<sup>i</sup> through: a) participant observation of TB offices and management activities, social events, member meetings, and exchanges of services; b) document analysis: newspapers, articles, leaflets, and TB reports and evaluations; c) individual and group interviews of 22 TB members and managers, plus 5 key informants and evaluators; d) digital and social media coverage (blogs, digital platforms, Facebook, YouTube channels); e) participant observation in three regional and two international TB conferences.
- 2) Questionnaires (with open and closed questions) to TB members of Modena and Ecolocal. (with a total of 112 questionnaires returned: 47 from TB Modena, 65 TB Ecolocal). In both cases men were slightly overrepresented as respondents.
- 3) Statistical analysis of TB databases (member profiles, offers / demands, exchanges) and the responses to questionnaires.
- 4) Analysis of interviews with the Atlas.ti software.

The Atlas.ti (V.7) software "offers tools to manage, extract, compare, explore, and reassemble meaningful pieces from large amounts of data in creative, flexible, yet systematic ways" (Friese 2012). In this project, it was used to

select, organise, code, and analyse quotations from interviews. The coding process consisted of two steps: first, an initial general code list was generated from the prior literature review and; second, open-coding was implemented to catch emerging and particular aspects of the TBs. Codes were used as classification devices, with different abstraction levels, in order to create sets of related information units that could be later compared.

The participant TBs were chosen following interviews not only with their managers but also with the managers of another six TBs in each region who provided information about different time banking projects. They were selected because all shared some common characteristics:

- Both are urban and community TBs (not directly run by city councils). Italian and Spanish practitioners usually distinguish between municipal and community TBs, the former are promoted and managed directly by the city councils while community TBs are created and run by associations, citizens' organisations and movements, with or without public grants.
- Both were accessible and open to collaboration in the research.
- Both had a high degree of permanence over time (some of the other TBs contacted and interviewed at the beginning of the research period had not survived).

Ecological TB was contacted in 2007. The researcher attended the TB launch and became a member herself. As a result, she attended most of the TB member meetings over more than eight years and made several exchanges. In 2009, she became a member of the self-managed coordination team; a position that gave her access to internal discussions and management tools and skills. Modena TB was contacted for the first time in May 2009 in preparation for a four-month research visit to the city (June-September 2009). In March 2014, the researcher returned to Italy and stayed in the city for a short period for further interviews and participant observation. Communication with Modena TB remained open between 2009 and 2014 in the form of emails, document exchange and annual updates on developments within the TB.

### 3. THEORETICAL FRAMEWORK. A FEMINIST ECONOMICS PERSPECTIVE

Edgar Cahn is recognised as the creator of the time dollar projects adapted to form the basis of the UK TBs. These projects were originally built upon the ideas of 'core economy' and 'co-production' (Cahn 2004), with recognition of the social contribution to wellbeing made by tasks related to care and the non-monetarized economy, and in response to the need to redefine economics. It is true that this author stresses the importance of the non-monetary sphere of exchanges and work fundamental to daily life, however, when analysed through a feminist lens, his proposal is rather disturbing due to its rather shallow treatment of the question of patriarchal regimes, institutions and power relations. Cahn fails to engage with the theoretical complexity of care work and does not consider the extensive feminist literature on the topic.

Feminist theorists have long reflected on the problems posed by unitary conceptualisations of households and communities, considering how gender inequalities are constructed and contested within these spaces (Arwal 1997, Harding 2008). Within this framework, feminist economists (together with feminist economic geographers and feminist sociologist) have specifically engaged with the theorization and analysis of care work. Feminist Scholarship is defined by its strong social and political commitments. Therefore, acknowledging that these contributions are fundamental to any attempt at a more radical redefinition of work, care, sharing and citizenship in society, the following paragraphs cover some of the concepts offered by Feminist economics that can lead to a better understanding of TBs and its potentialities as a tool for social change.

Although feminist economists cannot be identified with one particular paradigm or monolithic approach, their approaches tend to share five main components, namely the: a) incorporation of caring and unpaid labour as fundamental economic activities; b) use of wellbeing as a measure of economic success, in particular from the capabilities approach (Sen 1984, 1993, 2004); c) analysis of economic, political, and social processes and power relations; d) inclusion of ethical goals and values as an intrinsic part of the analysis; and, e) interrogation of differences by class, race-ethnicity, and other factors (Power 2010).



The origins of Feminist economics can be linked to the 'discovery of unpaid work' (Himmelweit 1995) and the 'domestic labour debate' of the late 1960s and 1970s (Molyneux 1979; Dalla Costa 1972).<sup>ii</sup> These initial conceptualisations of domestic work were useful but also reductionist in a way that obscured many of the distinctive features of this form of labour. This was due to the tendency to mirror, apply and validate a model of wage labour in manufacturing, rather than developing the analysis of care labour on its own terms (Himmelweit 1995, p.1). As a result over recent decades, discussion has moved from the notion of 'domestic work' to a wider definition of 'care work' and 'care services' (Borderías, Carrasco, and Torns 2011).

This change of perspective rejects the abstract individualism of neoclassic approaches. For example they have focused on the disarticulation of the independency/dependency dichotomy by demonstrating that it is not only those we usually consider dependent (children, the elderly and people with long-term illness) who need care, but also individuals usually considered independent (healthy adults), as they still require sympathy, emotional support, the provision of a listening ear, etc. and as every individual in society has needed, or will need, some type of care at given moments of their life cycle (nurture and care as a child or future care in old-age). Fineman, extending her previous work on dependency, has developed a theory of vulnerability as a way to problematize the 'autonomous' subject of liberal law and politics (Fineman and Grear 2013), i.e. the *Homus Economicos*. Moreover, from the 1980s another increasingly important line of research into paid care work has described a distinction between the idealized hypothetical market of impersonal exchange and real markets with their dimensions of provisioning, relationships, emotions and incomplete commodification (Folbre and Nelson 2000; Ettlinger 2004).

In addition to these, feminist economists have made an important contribution to welfare regime analysis, showing how different options in the distribution of care costs among the family, market, state and community, what Razavi terms the "care diamond" (2007), can determine a diversity of situations regarding women's employment, demographic behaviours, and household strategies in different countries (Gálvez-Muñoz, Rodríguez-Modroño, and Domínguez-Serrano 2011; Lewis 1992). Over recent years, feminist economists have also performed a rich analysis of the turbulent times in which we are living, proposing conceptual widening of the term 'crisis' to mean a 'multidimensional crisis' (Gálvez-Muñoz and Torres 2010; Pérez-Orozco 2014; Gálvez-Muñoz 2014). This outlook claims that the 'crisis' started well before the credit crunch in 2007, as, in reality, the crisis process includes the notions of: the 'social reproduction crisis' or crisis of care (Benería 2008; Pérez-Orozco 2006), as has materialized in global care chains (Hochschild 2000); together with the ecological crisis, analysed in Ecofeminist approaches highlighting how the patriarchal social structures that oppress women also oppress and harm nature (Mies and Shiva 1996; Warren, Cheney, and Cheney 2001; Herrero 2013), and the values and political crisis (Pérez-Orozco 2014), potentially related with the ideas of post-democracy and post-political existence (Mouffe 2005; Swyngedouw 2011). In addition to this, some Feminist researchers have also focused on the differentiated impacts of recession and austerity measures on women and men, and on gender equality around the globe (Gálvez-Muñoz and Torres-López 2010; Elson 2010; Bettio et al. 2012; Addabbo, Rodríguez-Modroño, and Gálvez-Muñoz 2013).

Simultaneously, over the past 25 years, feminist economic geographers have also analysed reproductive labour and the gender order. They have drawn attention to the cultural construction and interaction categories of difference like gender, class and race, challenging some of the more generalized categories and frameworks of analysis within Economic geography such as regional development, labour, the market, the state and, more recently, the crisis and financialization (MacLeavy, Roberts and Strauss 2016, Pollard 2012). Authors such as Gibson-Graham (2006; 2008), have explored the language of 'diverse economy framing', analysing large economic spaces where the commons are maintain and expand and where there is a prevalence of alternative socioeconomic relations and work logics beyond those of capitalist market-oriented exchange. By showing how non-capitalist initiatives have the capacity to penetrate capitalism, these authors liberate and offer alternative scripts, which enable the recognition, expansion and legitimation of these alternative economic and social forms. In their own words: "Our agenda is to destabilize the discourse of capitalocentrism that situates a wide range of economic practices and identities as the same as, opposite to, a complement of, or contained within capitalism." (2008, p.223). Their work has strongly influenced Economic Geography literature about "alternative economic spaces" (see Leyshon and Lee 2003) and can be consider a fundamental bridge between radical geographers and feminist economists (see del Moral-Espín 2016).

#### 4. FINDINGS: A MEDITERRANEAN HISTORY OF TIME BANKING

This section will explore the origins of time-banking in Italy and Spain and the history of the two selected TBs, identifying some similarities while also highlighting other features reliant on specific constraints particular to Emilia Romagna or to Andalucia. This exploration is guided by Feminist economics perspectives and addresses some key topics within this subdiscipline. One fundamental issue to take into consideration is that although the origins and trajectories across countries may vary, time banking does reveal one strong common feature, as women seem to be overwhelming represented in all TBs (Boyle 2013): 65% to 67% of membership in the Italian National Association of TB (personal communication 2015); above 65% of the total membership of Timebanking.UK (del Moral-Espín 2013); and, over 68% of members in Spain (Valor and Papaoikonomou 2016).

Scholars such as Seyfang (2004, 2006), Dittmer (2013) and UK practitioners (Simon 2010) have reported on the roots and developments of TBs in Europe in terms of a UK adaptation of the US Time Dollar model created by Edgar Cahn in the 1980s<sup>iii</sup>. However, Blanc (2011) acknowledges that the original schemes for the Italian TBs are believed to have developed independently of Cahn's model (Blanc 2011). In fact, the origins of continental European time banking lie in the Italian women's movements and socio-political debate on social time and urban timetables in 1980s Italy, which could be seen as a continuation of the mentioned 'discovery of unpaid work' and the 'domestic labour debates'. Feminist claims for a more equitable distribution of domestic and care work were embedded into a bill proposal promoted by the 'female section' of the Italian Communist Party in 1990. The proposal, known as *Le donne cambiano i tempi* (Women Change the Times), called for expanded provision of public services and specific co-responsibility and work-life balance measures, along with a full redistribution of total working time (Sezione Femminile PCI 1990). While the proposal was not adopted by Parliament, some significant theoretical and operational impacts were seen in practice with the development of less ambitious laws and regulations relating to the reformation of urban timetables and the development of Italian TBs (Torns 2001; Lagarreta 2014). In Italy, the very first Banca del Tempo (TB) initiative was started in 1991 in Parma (Emilia Romagna) But it was not until 1995, that a new type of TB was born in Santarcangelo di Romagna (again in Emilia Romagna) with strong backing from the City Council Equal Opportunities Committee. This TB was the first to establish the philosophy, rules, and instruments common to most Italian TBs today (Amorevole 2005).

The model was swiftly applied in other cities of the region and, later, in other Italian cities. By 1997, there were 24 TBs in operation, and the number had risen to 53 by 2015 in Emilia Romagna alone, according to the official TB regional platform. Many local policies supporting TBs were originally backed by Local Public Administration reform law stating that the mayor had the power to coordinate opening and closing hours for public services. Some years later, a national law concerning family care and parental leave (Act 53 / 2000) included a specific article on time banking (Art. 27). This article allows local administrators to promote and support TBs by providing offices, funds and training. It also makes it possible for City Councils to become members of the TBs and to exchange services (without this substituting their institutional activity). Despite receiving some degree of support (which have reduced more recently due to recession and budget cuts), most of the TBs in Italy are run by "volunteers" or in return for time-payment, in a way that really distinguishes them from the UK model.

The first TB in Spain opened in 1998 in Catalonia using the Italian women-led model (Torns 2001; interview with Josefina Altés, 2012). It took some time for the first initiatives to follow in Andalucia, and even longer for the general public to become involved. By 2010, only 14 of the 163 TBs in Spain were in this region, however, just two years later the situation had clearly changed, with the number of TBs rising to 40 in Andalucia and 291 across the country (Gisbert 2012). The total number of TBs appears to have remained stable in recent years. Although the survival rate of TBs is generally relatively quite low, new TBs are constantly being created and currently there are more than 50 TBs in Andalucia. Despite the acceleration, no national or regional laws have been passed on TBs apart from one in the region of Galicia (North-West Spain). Time policies and urban timetables plans (which are regulated by the national law for the effective equality of women and men) have not seen strong development in Spain, with a few notable exceptions such as Barcelona city. At regional level, TBs have received some support from the Andalucia Regional Government, in particular through the Equality and Social Welfare Council. The Andalucia 'White Book on Active Aging' recommended TBs as an active aging tool (Consejería para la Igualdad y Bienestar Social 2010) and, from 2010, the Andalucia Women's Institute (an agency dependent on the Equality and Social Welfare Council) has offered an online training course to support women's associations in launching and managing TBs. The social explosion of May 2015 was also a key milestone and a great catalyst for the TB move-

ment. The outbreak of the 15M or *Movimiento de los indignados*, in May 2011, led to the formation of neighbourhood assemblies, many of which developed community TBs. Although these frequently folded quite soon after they were created, they were a good example of practices that reproduce and expand the commons. In any case, today Municipal TB with paid time-brokers coexist with community TB run by its members.

#### 4.1 Two TBs. Diversities and similarities in the Mediterranean region

Modena TB is one of the oldest surviving TBs in Emilia Romagna. It was created in 1998 by people with political experience and with backing from the District Council. The group formed the *Banca di Tempo Modena* (Modena TB) as a non-profit volunteering association open to everyone and for the sole purpose of time banking. In the words of one member: "There are no particular requirements [to become a member] except for the willingness to share the sort of pleasant exchanges that used to happen among neighbours and friends in the past" (Modena TB Webpage, 2008).

Modena TB has received on-going local and regional public support throughout its lifetime in the form of: office space, computers, training and networking, and restricted, almost symbolic, annual funding. The cost of running the TB is relatively low because it is run by members on a time-paid non-professional basis, meaning that the members who devote time to the management and coordination tasks are rewarded with time credits in the same form as any other service exchange. Regardless of this, every member pays a small annual fee (€10 in 2014) to cover TB expenses in order to avoid dependency on public grants. When told of the existence of paid professional time brokers, members of this TB found the concept bizarre. They were totally unaware that such a model existed and rejected the possible benefits of the professional paid-work model as this would mean losing their autonomy from public agencies. While this TB is a stand-alone association, it also has important links with local grassroots movements and initiatives on cooperative and ethical production and consumption such as the local Degrowth networks.

The number of members of Modena TB has increased significantly over time: from 45 in 2006, through 125 in 2010 to 162 in 2013. Over the same period, the average age of members has decreased (although only 11% of members are 35 years-old or younger) and the number of men has increased slightly (up to 32% although it is still a feminized space). The education level has increased (28% of members hold a graduate or postgraduate degree) but also the unemployment rate within members, up to 7.5% in 2013. Data collected from interviews suggest that these changes may be connected to the take up of digital and social media following the election of a new, younger president (a woman) in 2006. Modena TB has a high rate of annual exchanges in comparison with other TBs in the region, totalling 1,926 services and 6,169 hours exchanged in 2013, of which 1,427 hours and 505 services were office and management hours (data provided by the secretary of Modena TB).

Over in Spain, the *Ecolocal TB* was created in 2007 by an environmental educators' association known as *El Enjambre sin Reina* (EsR - The Swarm with no Queen) founded in the same year. This TB is just one of the many projects developed by this association over the years in connection with other groups including academics, feminists, environmentalists, and consumers (urban gardening, agroecology, food sovereignty and gender or gifting bazaars). Since 2011, both the association and the TB have been housed in a social co-rented space known as *La Rendija* (meaning a narrow gap) a coworking space shared by associations, workers cooperatives and NGOs (not by individuals or freelancers) which includes a "self-managed production and consumption space" in the form of a shop where local and ethical products are sold. In this sense, once it is a good example of diverse economy practice and of communing in the sense that Gibson-Graham and other diverse economies researcher gives to the term.

Of all the projects, the TB has demonstrated the greatest continuity over the years, but it outgrew the physical office long ago, moving onto a digital platform (launched in 2009) and reducing administration to a minimum. The TB was initially developed on a purely voluntary basis by a group of 4-7 people, most of whom were members of EsR. As the initiative developed, EsR started contracting members part-time to coordinate association activities including the TB, sometimes for terms of up to 6 months. Funding for this was provided by a small local council grant for solidarity projects which was available some years but not others.

The Ecolocal TB has no membership fee and, unlike Modena TB, members sign up only once with no need to re-new their membership each year. This fact alone may go some way toward explaining the high number of TB members (278) at the close of 2013. Women make up more than 60% of members and almost half of all members are aged between 25 and 35 years, with an average age of 34. Approximately 48% of members have a university degree and 25% have postgraduate qualifications. Despite the levels of qualification, unemployment among members stands at almost 41%, possibly as a reflection of general unemployment in Andalusia (the highest rates in Spain), mainly among women and young people.

Fewer exchanges are made here than in Modena, with just 72 services and 108 hours exchanged in 2013. When looked through feminist economic lenses, these figures are somewhat misleading though, as they hide much of the reproductive and management work necessary to maintaining the TB, and also do not account for many of the workshops and events held by EsR promoted or attended by TB members. There are currently two other TBs in the city of Seville. It is interesting to note that one of these is run municipally by the local services, while the other developed from a 15M neighbourhood assembly.

**Table 1. Modena and Ecolocal TB characteristics**

|   | Modena (founded in 1998)                                       | Ecolocal (founded in 2007)                                      |
|---|--|---|
| <b>Promoter</b>                           | District Council & Independent Association                     | Non-profit Organization (stand-alone)                           |
| <b>Manager</b>                            | Self-managed / Time-paid                                       | Professional/ Voluntary/ Time-paid                              |
| <b>Funds</b>                              | Members & Regional and Municipal grants                        | Self-raised & Regional and Municipal Grants                     |
| <b>Nº Members (2013)</b>                  | 161  | 278   |
| <b>Nº Services/Hours Exchanged (2013)</b> | 1832 Services 4503 hours                                       | 74 Services 127 hours   |
| <b>Challenges</b>                         | Increasing workload, intergenerationality, Digital Competences | Low number of exchanges, hegemonic logics/neoliberal identities |

Source: Author generated.

When looking for commonalities, some elements of similarity can definitely be found, between these two Mediterranean TBs. Both of these are relative independent of the type of grants and contracts that determined the diverse areas and potential membership of many British TBs, and they are both promoted on an Association basis. Again, both of them are mainly coordinated by members, either on a time-based or volunteer basis, while British TBs usually have a more professionalized profile and a higher degree of dependency due to the central role of the paid 'time-broker'. In keeping with the literature (Amorevole 1999; Torns 2001; Boyle 2013; Valor and Papoikonomou 2016; Carnero, Martinez, and Sánchez-Mangas 2014), survey data analysis and interviews in the course of this research show that the socioeconomic profile of the people involved in Spanish and Italian TBs is generally of an educated middle-class person whereas the target population for many British TBs lives exclusively in deprived areas (Seyfan 2002).

In both cases, Modena and Ecolocal, the TB management has been promoted and facilitated in recent years through intensified use of digital technologies, promoting decentralized network management. From almost exclusively 'pen-and-paper' beginnings, the two entities have now incorporated digital technologies to become 'combined TBs' (del Moral-Espín and Pais 2015). This means that each member can access a password-protected digital platform where they can: view other member profiles; post offers and requests; view those of other members; contact each other; transfer time credits once the exchange is completed; and, comment on and rank the quality of those services.

#### 4.1.1 Objectives and motivations

In its promotional leaflet, the objectives listed by Modena TB aim to recreate the 'good-neighbourhood-relationships' of former years, breaking down isolation and improving quality of life.

"The exchange of time that we promote here, is not a mere exchange of equivalents, precisely because of the qualitative value of time. The exchange of skills also becomes an exchange of existence (...). The emphasis is not on the service itself (which would be performed effectively by any professional), but on the quality of relationships for which the service is just the means to a higher end." (Modena TB webpage).

Ecolocal TB expresses its intent in different terms, stating its objectives as being to promote: a) equal valuation of all forms of knowledge and activity as a way to counter social and economic inequalities; b) social networks and the fight against social isolation; c) awareness of our own abilities and those of other people; d) equality (men-women; young-old; native-migrants) (Ecolocal TB Secretary 2011).

The objectives and member profiles of these TBs are reflected in the types of motivation acknowledged by Ecolocal and Modena TB members in the questionnaire. The survey included an open question on why members had joined the association and analysis of the answers showed four main categories of response: sociability; political / philosophical beliefs; material / practical need or supply; and use of leisure or free time / other.

**Table 2. TB Member Motivations**

|                                  | Modena TB |    |        | Ecolocal TB |    |        |
|----------------------------------|-----------|----|--------|-------------|----|--------|
|                                  | % f       | %m | %total | %f          | %m | %total |
| <b>Socialization</b>             | 24        | 24 | 24     | 6           | 12 | 9      |
| <b>Political / Philosophical</b> | 32        | 36 | 34     | 52          | 39 | 45     |
| <b>Material / Practical</b>      | 24        | 16 | 20     | 13          | 15 | 14     |
| <b>Leisure time&amp;Others</b>   | 16        | 28 | 22     | 29          | 33 | 31     |

Source: Author generated on basis of TB members' survey

The first marked element seen in the responses is the strong presence of political / philosophical motivation (34% of the responses in Modena TB and 45% in Ecolocal TB), with both women and men stating these were a significant element in their decision to sign up. The full answers refer to ideas such as: "moving away from the dependency on money", promoting social or even revolutionary values, constructing a different kind of society, or promoting the Degrowth movement. They express deep discontent with the current economic system which confirms the idea of crisis of values and political crisis ("the monetary system is corrupt and manipulating"; "there is excessive commodification and reification of social relationships"; "personal commitment to my political option: anti-capitalist, antimilitarist and ecological") while also stating that the TB is "a community ruled by the values of trust, and caring" and a tool via which to promote "another economy" and "an alternative life". Some members adopt an expanded definition of work that clearly connects with ideas of Feminist economics:

"We're corrupted by the idea that the real work is salaried work. It's almost a myth, it isn't fair but that's how it is," (Male 1, Ecolocal).

For Modena TB, socialisation is the second most cited motivation, although this is also bound up with material or practical motivations in the case of most women. By 'socialisation' members mean: not feeling alone and isolated, meeting people of different ages and profiles, or "becoming part of a community that shares a set of values". This seemed to be especially important for people in their 50s or the retired:

"After working for more than 40 years (...) I had to take retirement (...). I found plenty of company in the TB. I needed to be surrounded by people" (Female 2, Modena).

On the other hand, only 9% of Ecolocal respondents showed this kind of motivation (more men than women). None of those interviewed admitted to having social needs but some mentioned making friends as a secondary effect or as the outcome of other people's motivations:

"For example, I met one of my best friends at a TB meeting. She was vegetarian and I was interested in learning more about vegetarian cooking, so we started talking and meeting" (Female manager-member 2, Ecolocal).

Members of both TBs transmitted some degree of a nostalgic (and somewhat idealized) vision of the virtues of trust, mutual help and community life in the past that they believed have been lost in modern times. This appears to be a common element in the discourse of TB members and managers in Italy, just as it is in Spain and the UK. This particular element reveals that time banking practices more greatly resemble the ideas of 'sharing in' (extending the circle of people who can enjoy the benefits of the shared resource, desire for and experience of a feeling of unity and a degree of sense of self) than to 'sharing out' (dividing a resource among discrete economic interests) (Belk 2010).

The importance of material and practical motivations tended to be minimized in interviews with members and managers of both Mediterranean TBs. However, in the survey they were mentioned by 20% of Modena members, with a clear bias toward women. Many respondents referred to very specific services, some of which are related to domestic and care work. The full answers reflect the fact that these motivations may change over time:

"At first, I was just looking for a cat sitter for the weekend, and then I fell in love with this idea of mutual help" (Member, Modena TB blog).

Only 14% of Ecolocal members express this category of motivation. Their statements explain that they are unemployed or have part-time or precarious jobs and that time banking allows them access to certain kind of services they could not otherwise afford. The interesting point is that, when asked for details about these services in the interviews, they describe exchanges relating to what could be considered alternative lifestyles: alternative therapies, massage or "home-created, modern-style" haircuts.

Finally, the category of "leisure time and other" was marked by 22% of respondents in Modena and 31% in Ecolocal. In both cases, this response is more common in men than in women. Many full responses expressed ideas such as: making the best of my free time, keeping active and busy, but also curiosity or the ease of becoming a member:

"It is a simple thing, it does not require any money and, therefore, it is risk-free because you can try and, in the end, if it doesn't work, you haven't lost anything" (Female 1, Modena).

The types of motivation or use expressed by the members relate to their behaviours within the TB in an interesting manner. Interviews have shown that members, frequently 'charge' less time than they actually spend in providing services, and that they seem more willing or capable to offer and give services than to receive; an element that appears to be a general trend in time banking (Boyle 2013; Valor and Papaoikonomou 2016). In some cases, especially in the case of Modena TB, members may even accumulate time credits that they do not actually expect to spend, developing a form of volunteering behaviour which is somehow contradictory to the time banking philosophy (an element also mentioned in the literature from the UK and US). No degree of 'free-ridership' may therefore be detected.

#### **4.1.2 Time-Banking and the multidimensionality of the crisis**

"I believe it is a non-economic crisis, it's more of a values crisis than an economic crisis and people are already opening their eyes" (Female 2, Ecolocal).

The expansion of TBs in southern European countries is frequently viewed by the international press as an outcome of the recession and rising unemployment rates (see Cha 2012 and Moffett and Brat 2012). It is undeniable that time banking has continued to expand in recent years, but the data collected shows this should be related to the context of multidimensional crisis, this is not just to the financial crisis but to a political, ethical and environmental crisis, as well as, crisis of care. In short, with a multidimensional crisis in the sense that feminist authors (but not only) gives to the term. The origins of the Mediterranean TBs can be linked to the reaction of women's movements to the crisis of care and their members' philosophical motivations can be related with the idea of a crisis of values and political crisis. Policies oriented to the promotion of TB in the regions has not tended to target unemployed people, or to have employability as a main objective. Social equality and work-live balance have been their major focus of attention.

Modena TB was established in 1998 in a prosperous city (Muzzioli 1993) where poverty was viewed not so much in terms of scarcity of money but in a lack of family, friendship, or neighbourhood relations and networks

(Malagoli 1999). As was also the case of many other TBs in the region, its foundations were based on the perception that there were more social needs than the household and public policies were able to resolve. Even today, this TB does not seem to be especially attractive to unemployed people. Modena TB manager members acknowledge that while the needs and aspirations of members may have changed, and while mutual aid is perhaps more important than ever as a result, the types of services exchanged have remained largely unchanged over time.

Ecolocal TB was also launched in 2007 before the stronger impacts of the financial crisis were felt and before cuts and structural adjustments were put into practice in Spain (in 2010) (Gálvez-Muñoz and Rodríguez-Modroño 2014). There has been no radical increase in active membership and exchanges over these years. Despite the high unemployment rate among TB members, both managers and members firmly disconnect time banking from material deprivation, linking it instead to a social and intellectual desire for change. They state that many of their younger members in particular were in a precarious situation well before the recession hit. The environmentalist philosophy of the entity permeates all its activities, which are oriented toward sustainable lifestyles rather than being mere cost-saving behaviours. Moreover, as the quote which opens this section shows, Ecolocal TB members frequently report that the crisis extends far beyond the financial aspects and relate this with the proliferation of initiatives such as TBs.

As the next section demonstrates, and as the literature highlight (see Pollard 2012), feminist scholarship provides with useful analytical resources on the crises. Therefore, it can contribute to a better understanding of how these practices are related to them. This is something fundamental for the development and empowerment of critical responses within this scenario.

## 5. DISCUSSION: FEMINIST ECONOMICS AND MEDITERRANEAN TIME BANKING

The previous sections threw some light on various elements connecting time banking with Feminist economics. These features start with the fact that TBs reject market-centrality prices and behaviours by refusing any parity and convertibility to the official currency. Moreover, the TB hour-for-hour format turns the whole hegemonic approach to the economy upside down, negating the very definition of different types of labour and their subsequent different values. This facilitates the visibilization and revalorization of unpaid and care work as a fundamental aspect of social reproduction (Picchio 1992).

Then again, the characteristics of care work can be recognized in TB exchanges. TB exchanges involve both material (a bike mended, food, a massage) and non-material aspects (relationships, emotions), thereby promoting the idea of multidimensional wellbeing. Thirdly, as the principle of the TBs is based on reciprocity, they promote the recognition of universal vulnerability and interdependency, and, at least theoretically, rejects the idealisation of the 'autonomous' subject of liberal economics, law and politics and contributes to the construction of alternative conceptions of wellbeing as promoted by the capabilities approach (Sen 1993, 2004). In more specific terms, TBs offer potential as a tool for the reinforcement of relevant capabilities for gender equality as at least 12 out of the 14 capabilities proposed by Robeyns (2003)<sup>iv</sup> can be promoted through time banking (del Moral-Espín 2013). Moreover, the TB approach expands the spectrum of economic possibilities; an element that is particularly pressing at times of a multidimensional crisis.

Despite all these issues, time banking does contain some contradictions of its own; contradiction which can hinder its potential as empowerment tool. For instance the underlying tenet: 'everybody has something to give, everybody needs something' is a key element in time banking. In practice, however, the day to day operation of the TBs studied shows that members are reluctant to ask for services while they are more likely to offer them. This shows a tendency toward the denial of their individual vulnerability even among people who theoretically accept the notion of interdependency; a point that has also been analysed in the field of consumer research. Belk himself reflects that "Sharing may also be inhibited because some people seek to avoid feeling dependent on others who are willing to share their resources" (2010, p.728). As "reasons against may include more than the logical opposites of reasons for" (Chatzidakis and Lee 2013, p.198), further research in this field is needed to provide important insights on the contradictions of time banking. In addition to this, data show that not everybody will benefit equally from time banking; while women show a high enrolment rate, the analysed Mediterranean TBs reveal that, at least in some contexts, they may be less active members than men. The question whether this may be due

to structural time use inequalities and the more intense time-pressures experienced by women (Wajcman 2015) remains open.

As was said above, Feminist economics has shown how various gendered regimens lead to a variety of situations regarding gender equality. The approach taken in this paper is that these different regimes may also contribute to an explanation of the various patterns seen in time banking. The emergence of Italian TBs in the early 1990s was driven by campaigning women and socio-political debates relating to the unequal distribution of time and work, expressed in terms of the acknowledgement of power relations and gender inequalities and problems arising from the care crisis. Despite being a Mediterranean region, Emilia Romagna had strong local welfare structures in place (supported by a long tradition of socialist government and civil mobilizations) that favoured the development of these initiatives and their autonomy. In contrast, the weaker social welfare system in Andalucia and the parallel importance of family networks did not originally provide vigorous institutional support for time banking in the first place while, at the same time, favouring the emergence of alternative initiatives.

The wider literature in general, confirm how neoliberal ideas have promoted a general trend toward reorganization of the state role in social reproduction, moving away from redistributive concerns and welfare rights, towards more productivist and cost-saving concerns in an open economy. In specific terms, the development of British TBs can be related with personalization as a new focus of social policies and social entrepreneurship as a means by which to deliver public services (convening social and non-market elements and business elements). In this sense, this kind of TB would confirm the approaches cited by North (2003; 2014) which state that TBs should really be considered complementary currencies and not alternative or counterculture currencies.

Conversely, the Modena and Ecolocal TBs would confirm the vision of authors such as Blanc (2011), who place TBs within the group of second-generation community currencies (which could be considered as diverse economies projects) and defend their radicalism and non-capitalist character, stating that the emphasis on the time element in time banking contradicts key temporal aspects of neoliberal theory and practice. These two Mediterranean case studies, despite their contradictions, seem to have been created and developed in response to a set of factors connected to a context of a multidimensional crisis and not just the financial one. In this sense, they reveal a clearer alternative or heterotopic nature which can be connected with the idea of 'communing' where the commons are not essentially classed as material things but as social relations and constitutive social practices, created through co-operation in the production of our life (Caffentzis and Federici 2014). This idea of communing must be fundamentally interrogated from feminist perspectives. Feminist literature has repeatedly stressed how women's time and unpaid work is used as safety net in difficult times, contributing to family and community wellbeing to the detriment of the women's own personal wellbeing (Gálvez-Muñoz 2014). Where this premise is accepted, any claims for the decommodification of social reproduction must be balanced against a claim for the redistribution of work and time between men and women, and the exclusion of this aspect may well lead to the reproduction and intensification of gender inequalities. Time banking can shed some light on this process but also some shadows.

## 6. CONCLUSIONS AND FINAL REMARKS

The origins of time banking in continental Europe date back to the early 1990s and the socio-political debate of the gendered use of time and urban timetables in Italy. For more than a decade all over Europe, the number of initiatives grew steadily, but unequally and slowly, producing a range of different time banking models. In spite of this diversity, the academic literature has tended to focus on UK and US TBs, leaving the forms of TB developed in other European regions in the shadows. This article proposes that the perspectives of Feminist economics can be used to both bring these overlooked time banking models into the light and to facilitate a better understanding of time banking within the context of a multidimensional crisis.

This article is based on a mixed-method research, including case studies of separate TBs in the regions of Emilia Romagna and Andalucia. Time banking can take a wide range of guises according to individual community needs and desires. However, exploration of the issue has revealed many commonalities among both TBs in terms of organisational model and scope alongside differences with respect to UK TBs. The analysis of the cases show how the origins of Mediterranean TBs are rooted in feminist and women movements around work and time inequalities, how their development is to be related with social policies about care, family and gender equality, and how they materialization reveal the complexity of a crisis which goes beyond the financial aspects. Moreover, in these



Mediterranean TBs, the socioeconomic profile of the people involved in both cases is of highly-educated individuals, mostly women. Even though the number of unemployed members has also been on the increase, both Spanish and Italian managers and key informants state that their members are not characterized by monetary deprivation. In fact, time banking in both situations has undeniably experienced an accelerated growth, although the trajectory of the TBs analysed contradicts the hypothesis that this peak is directly connected to a recession context. Also, the objectives of these two TBs and the motivations of their members reach far beyond the provision of access of social services, being closely connected to notions of alternative lifestyles offering some form of solidarity.

Feminist economics has long reflected on the diversity of time and work attribution and remuneration, reclaiming the visibility and the critical potential of care and unpaid work, while revealing the interdependency and vulnerability of every human being. When time banking is analysed through the lens of Feminist economics, the characteristics of care work can be recognized in TB exchanges and time banking can, therefore, be identified as a practice that, at least theoretically, rejects the idealisation of the 'autonomous' subject of liberal economics, law and politics. This expands the spectrum of economic possibilities but, more concretely, allows TBs to offer potential as a tool for the reinforcement of relevant capabilities for gender equality. Moreover, these feminist analysis bring into light the opportunities of considering gendered welfare regimes when analysing the development of different time banking models, especially in a context characterized by the dismantling of welfare states and growing inequalities (patrimonial, income and gender inequalities).

The future profile of these practices is still to be determined. This paper firmly suggests, however, that the concept of time banking must engage completely with feminist perspectives. Only this will make it possible to truly tackle the contradictions revealed by the studied time banking practices, something fundamental if we want TBs to have the greatest possible positive impact in the promotion of wellbeing and the empowerment of people and their communities.

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## Endnotes

<sup>i</sup> 'Netnography' is a qualitative methodology which involves the adaptation and conduct of ethnography over the internet. It is a method specifically designed to study online cultures, communities and social media such as news-groups, blogs, forums, social networking, podcasting, videocasting or photosharing sites. See for example Kozinets (2010, 2014).

<sup>ii</sup> There is a vast amount of literature on the topic. For a review of the UK and US context, see Molyneux (1979).

<sup>iii</sup> "Fare Shares", the first UK TB was set up in 1998 in the small town of Stonehouse (Gloucestershire). By 2002, there were 36 operational TBs with over 2,100 members, all of which had been established by local authorities or agencies, and all of which employed a time broker (Seyfang 2003). Authors such Seyfan and Smith (2002, in Seyfan 2003) were quick to claim that these TBs represented a significant qualitative impact, particularly as they were attractive to marginalized social groups with large support needs. In recent years, the charity has worked with public, private and community sector organisations across the UK to achieve important advances for TBs in the UK in terms of tax exemption, disregard of benefits and charitable status. Time banking has successfully adapted to apparently opposed policy discourses in mainstream government. Under the New Labour government (1997-2010) TBs were viewed as a tool with which to address social exclusion. More recently, they attracted the attention of the Coalition Government under David Cameron in keeping with core ideas of the 'Big Society' and 'personalization'. In fact, Timebanking.UK (the UK national TB umbrella organisation to "link and support TBs across the UK by providing inspiration, guidance and practical help" (Web Timebanking UK 2012) helped develop some of the key messages used to draw TBs into national debate of the Big Society concept (Timebanking.UK 2011, p.3). By June 2008, 130 TBs, involving around 10,000 people, were already registered on the Timebanking.UK network and the number had risen to 280 by 2015.

<sup>iv</sup> Following Sen's work, Robeyns (2003) proposes 14 relevant points for an evaluation of gender inequality in Western societies: 1 Life and physical health; 2 Mental well-being; 3 Bodily integrity and safety; 5 Political empowerment; 6 Education and knowledge; 7 Domestic work and non-market care; 8 Paid work and other projects;

9 Shelter and environment; 10 Mobility: being able to be mobile; 11 Leisure activities; 12 Time-autonomy; 13 Respect; 14 Religion.

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## WHICH CHARACTERISTICS OF COMMUNITIES BOOST TIME- BANKING? CASE STUDY OF THE UNITED STATES

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### ABSTRACT

This paper empirically examines the characteristics of communities with successful time banking schemes. Dataset for this study consists of 909 counties in the U.S, 314 of these counties employ a time-banking currency. The selected factors in this study are captured by 13 variables that affect the number of exchanged hours, namely income inequality, social security, unemployment rate, a set of poverty and income variables and various industry composition indicators. This paper aims to statistically model which specific characteristics of local communities significantly impact the number of hours exchanged. The research especially focuses on the factors of inequality and poverty. The hypothesis tests the assumption that an increase in hours exchanged corresponds to higher income inequality, higher unemployment density, and social-security benefits to constituents. The outcome of the model partially contradicts this hypothesis. The findings indicate a higher portion of impoverished, low-income families as well as an increase in the income inequality variable to negatively affect the number of hours exchanged. Oppositely, in line with previous literature, the result of the model supports joblessness and social security as positive indicators and reveals retail-trade as a significant factor for the successful operation of a time bank. More thorough examination of such findings discloses reasons behind such patterns. A suitable policy is proposed in the end of this paper.

### KEYWORDS

Alternative currency, Social movements, Time banks, Cross-Sectional analysis

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## 1. INTRODUCTION

The time-banking movement's chief objective is to help unemployed, impoverished and marginalized individuals. It is a small but significant social revolution which helps societies worldwide. The United States belongs among capitalist societies distressed by these issues of poverty, discrimination and long-term unemployment.

At the beginning of the twenty-first century, the United States began to experience an increase in extreme poverty of families mostly composed of single mothers with children living on less than two dollars a day. This destitution is mapped for the time period from 1996 to 2011 (Pager & Shepherd, 2008). Shaefer & Edin (2013) mention during the same time period an unexpected increase in the share of single mothers joining the workforce. Another difficulty has become income inequality, specifically the top three per cent of Americans holding more than the poorest 90 percent of families (inequality.org).

These negative manifestations within a developed capitalist economy have prompted social activists to launch time-banking schemes. More than four hundred time banks currently operate in the United States. This type of complementary currency is specifically designed to fight social decadence. Ed Collom (2005) states that the chief goal of these grassroots movements is to help individuals on the outskirts of the society. The evaluation of an individual's time, where one hour equals one time-credit, attempts to initiate social cooperation regardless of one's income. Every participant is motivated to find his or her skills to offer in this alternative market. Individuals of the mainstream labour market, along with minorities, find their new potential to succeed by interacting with other participants of the time bank.

Seyfang (2003) reveals time currency to be of minor importance to the users. It is the formation of informal mutual help, the creation of new weak ties and community-building that constitutes the reasons for participation. Although the membership of these time-banks is relatively small, it provides a building block for stronger social networks, tackles issues of social exclusion in deprived areas, boosts mutual cooperation along with civic engagement and promotes social capital (see North, 2010, p92). The effect of this movement could potentially be enormous. Local community networks, with strengthened ties among participants, as well as between them and their community, might help create a more resilient community, less dependent on a conventional competitive market.

The origin of this type of complementary currency can be traced to the 1980s when attorney Edgar Cahn presented Time Dollars in Miami, Florida with the intention of improving the wellbeing of older people (Cahn, 2000). Since then the number of time banks has sky rocketed from one in the 1980s to over four hundred currently circulating (community.timebanks.org). According to Cahn, five new time banks have emerged every week in the U.S. since 2012 (Cahn, interview cited in Lietaer & Dunne, 2013, p. 81). Collom (2005), Seyfang (2002) and North (2003) describe time-banking as more successful at surviving than LETS and Hours systems. The number of time banks in operation continuously rises. Collom (2007) finds 59 time banks in the U.S., Collom et al. (2012, p. 53) identifies 128 active time banks and in 2014 I encountered over 400 of these systems.

Despite the pace of their emergence and the sizable amount of active time banks, the concept of time-banking still remains empirically an under-researched area. Collom (2005) provides a quantitative analysis, however, for community currencies in the United States. Collom (2007) also describes the factors affecting membership to an American time bank, by analysing the answers of a questionnaire given to 505 members. The most extensive study on time banks in the U.S. is from Collom et al. (2012).

This study adds to the body of knowledge on this topic with new findings from a thorough quantitative analysis of the socio-economic context of counties in which time banks seem to prosper the most in the United States. To meet this ambitious task, a cross-sectional method, with 13 exogenous variables, is applied to a dataset consisting of 909 counties. The outcome of this study contradicts previous studies such as Collom et al. (2012) and includes new variables of interest such as income inequality, social security or industry composition.

The outline of the study is as follows. To begin with, the literature review summarizes the previous findings on this topic, followed by the methodology section. A discussion of the results summarizes the findings of the empirical model. Finally, conclusion of the study can be found in the end of this paper.



## 2. LITERATURE REVIEW

Over fifteen thousand participants of time-banking in the United States have provided one hundred and fifty thousand exchanges with a value of over 1.5 million hours of beneficial services ([community.timebanks.org](http://community.timebanks.org)). The prevalence of time bank patronage in communities throughout the United States justifies an inquiry into the socio-economic characteristics driving their prosperity. Interest in the economic characteristics is derived from their importance as an initial driver for participation. Collom (2007) and Collom et al. (2012) reveals the most crucial motivation for joining a time bank as the expansion of one's purchasing power. Respondents consider the "needs motivations" to obtain necessary goods and services (G&S) a more powerful reason than "values motive" for joining time banks (Collom, 2007; Collom et al., 2012).

Answers to the inquiry about suitable conditions for prosperity of a time bank could then assist a policy maker when deciding on a community for the adoption of a pilot time-banking project. Organizers of already existing time banks could better understand the reasons behind the size of the rates of exchange.

To unveil those desirable factors and form expectations about their effect, we need to first look behind the scenes of time-banking for some common patterns. As already mentioned, the initial reason for launching time-banking projects was the goal to provide the elderly with essential services (Cahn, 2000). Provision of help from young generations to older ones supports intergenerational relations (Collom, 2008). Evidence also highlights the ability of time banks to involve marginalized people with health problems or otherwise socially excluded individuals in order to gain mutual help (North, 2010, p. 88). A study by Seyfang (2006), describing London's time bank, supports the idea of time-banking as an empowering tool for socially excluded groups. Seyfang (2003) also understands the importance of social characteristics for analysing the composition of a time bank's membership. More than half of the participants of a UK Time bank are from ethnic minorities and almost half are disabled or have long-term limiting sicknesses (Seyfang, 2003). In this study, the "SocSecurity" variable reflects the percentage of the population receiving social-security benefits representing an instrument for marginalized, disabled but also retired individuals.

Seyfang (2003) contributes to the studies about the composition of the membership. According to Seyfang, 30 per cent of the elderly and 71 per cent of women constitute the membership of a UK time bank. North (2010, p.98) finds about 58 per cent of time-banking participants are women. Similarly, Carnero et al. (2015) shows a local Spanish currency's most common representative user as a female who is, single, middle aged, highly educated and unemployed. They find a clear trend between the unemployment rate in Spain and the number of individuals registered in Spanish time banks. The study explains the high level of female participants due to women's more frequent ejection from the labour market, and views the time bank as an opportunity for unemployed participants to enter the new labour market with the use of this currency (Carnero et al., 2015). Although Collom (2012) does not find unemployment rate as a predictor of participation in three studied American time banks, Seyfang (2003, p. 702) reveals 80 percent of the UK Time bank members are jobless. Additionally, Collom (2005) mentions unemployment as a significant indicator of the environment where local currency movements organize. The unemployment rate, as the first mentioned economic factor potentially affecting time-banking projects, enters the regression equation of this study.

Collom research (2007) reports time bank members as white, highly educated females with low incomes. Such study parallels with the article of Williams (1996a) in terms of a representative participant of a local currency being a highly educated low-income individual. Alike, Seyfang (2006, p.6) and Seyfang & Smith (2002) report 58 per cent of participants in the UK time-banks as households with income below 10 000 pounds a year. The evidence for the Dane County Time bank indicates over 20 per cent of the Time bank's membership to fall below poverty level (North, 2010, p. 97).

The character of the time-banking currency itself, where one's hour is valued equally, deters more demanded skilled services (Lee et al. 2004). In turn, this currency is suited to help poor less skilled individuals without viable opportunities in the mainstream economy. Collom (2012) identifies members of three analysed American time banks living on a low income. The empirical study of Collom (2005) also reports poverty next to household income and unemployment rates as significant characteristics of the environments where local currencies tend to operate. In questioning the direction of the effect of low-income membership on exchanged hours, the quantita-

tive part of Collom's research signals low-income participants as more active in the Community Exchange time bank (Collom, 2012, p. 124). The inclusion of the unemployment variable into the model in this study will enable the testing of the link between exchanges in a time-bank currency and the proportion of poor individuals in a county.

Income inequality, as a possible determinant of time-banking membership, constitutes another variable analysed in this study. The equal valuation of an individual's hour in a time-banking scheme offers a vision of equality among members in times when current monetary systems, with interest-rate yielding currencies, aggravate the wealth concentration into the hands of a few (Lietaer & Dunne, 2013, p. 49). In the scenario of high income-inequality, big corporations are aware about their negotiating power in terms of setting wages for highly competitive low-paid jobs. As more and more individuals fall under the poverty line and are desperate for work, the corporations are free to reduce salaries for longer hours of work. As a consequence, income inequality can divide communities, harshen neighbourly relationships and pressure citizens to base opinions according to one's accumulated income.

As consequence, marginalized, excluded, less fortunate individuals might miss a bridging element to obtain necessary resources or aid from others. Time banking offers an opportunity to lessen the distressing effects of income inequality on a society. It supports an exchange of free of national currency and interest-rates, connecting the needs of marginalized individuals with offers from others regardless their income status (North, 2010). In a similar way, the local currency Green Dollars helped underemployed individuals during neoliberalization in New Zealand (North, 2007, p. 129 – 148).

North (2014) argues another local-hour currency, Ithaca Hours, which like time-banking projects, aims to provide additional income to impoverished individuals. Ithaca Hour's chief objective is to mitigate wage inequality in the city of New York (North, 2014). Lietaer & Dunne (2013, p. 185) also note the tendency of local currencies to distribute wealth rather than to concentrate it. Regarding specifically time-banking projects, the equality vision of time-banking schemes itself might help to boost membership (North, 2010, p. 93). The time-banking regime increases dependence of income upon the length of work rather than upon one's evaluation of provided goods and services (Boyle, 2002; Seyfang, 2006, p.787). The importance of the idea of equality, behind the success of time-banking schemes, will be tested with an income-inequality variable representing an exogenous variable in the model.

Industry-composition represents the last characteristic of a county contributing to the success of a time bank. Given the lack of literature questioning this factor, various industry categories are examined, ranging from agriculture, forestry, hunting, mining and fishing, construction, manufacturing, wholesale trade, retail trade, transportation and warehousing and utilities, information, finance, insurance and real estate, rental and leasing, professional scientific services and management, administration and waste management, education, health care and social assistance, arts, public administration and other services. The prior expectation concerns retail trade as a significant variable since local businesses appear to be important members entering transactions with other local currencies (See North, 2007; Seyfang, 2003; Collom, 2007).

The empirical analysis in this study will incorporate these factors supported by the previous literature to test their significance for the success of the time-banking schemes. The success is then defined by the number of exchanged hours between members of the time bank. This approach focuses on the efficiency factor. One could argue that the number of exchanged hours is not the characteristic that identifies the most favourable outcome for time banks. Cahn & Gray (2013) note the evolution of time banks away from their original focus on mere efficiency to help win "the war on poverty," towards more normative principles. Nevertheless, given the short period for which time-banking schemes operate on average in the United States, as will be shown later, time banks need to focus on efficiency to survive and subsequently be able to serve some additional principles.

### 3. DATA & METHODS

The literature review identifies a time-bank's objective is to help marginalized groups, improve civic participation rate and offer an alternative way of exchange to low-income and/or unemployed individuals. This study in turn aims to empirically analyse if next to other selected characteristics, time-banks tend to succeed in counties with a

high unemployment rate, a significant percentage of impoverished individuals or with a sizable portion of receivers of social security. The outcome identifies 13 significant socio-economic characteristics of counties as important factors affecting the success of time-banking projects.

Such an ambitious collection of data was accumulated from various sources. The dataset for this study composes of 909 American counties. Socio-economic variables for this dataset are available on the website of the American community survey. Collection of the variables pertaining to the number of exchanged hours originates on the Community Time banks website. The method of data collection for the length of an operation of a Time bank consists of a record analysis. The collection of this dataset relates to the end of the year 2014.

Representing the hypotheses presented above, data for the following indicators were gathered for every county: Exchanged Hours, Circulation, Population, Unemployment, Retail-trade, Poverty, Poverty of Families, Poverty of Young Families, Poverty of Married Couples, Poor Families, Wealthy Families, Inequality, Income and Social Security. The description of these variables can be found in the Appendix.

In terms of the methods used, the cross-sectional data for 909 American counties enabled the construction of a regression model. According to the Harvey-Collier test, the true relationship between endogenous and exogenous variables is linear. Therefore, the regression model takes the form of a linear regression. The variables enter the regression equation in their original form except for the Income variable. The Income variable is log-transformed for interpretation purposes as all other income and poverty variables are expressed in percentages. The statistical significance of the Income variable appears unchanged regardless of its form.

As the models do not display any misspecification problems and the diagnostic tests prove the estimators to be "BLUE", the models estimated are a rather simple version of a cross-sectional regression. Simultaneity also should not be a threat since the calculation of economic determinants on the American community survey website does not include the operation of time banks along with the circulation of time dollars.

Exchanged Hours is then the only endogenous variable. It appears as the same one in all of the models. This dependent variable measures an average number of exchanged hours per time bank in a county. Every model varies from the previous one by the composition of the included exogenous variables standing for poverty or income indicators. Only one of these sets of factors enters a single model to control for multicollinearity.

The summary statistics of the variables from all models are presented in the Appendix, Table 1. The data itself provide an interesting insight. An average longevity of an American time-bank operation is one and half year. The longest currently circulating time dollars pertain to Sobrante Park Time banking in Oakland, California. The most successful documented time bank, in terms of hours exchanged, is Ward County time bank with 1,000,535 hours exchanged. For a comparison, the average number of hours exchanged in an American time bank is 5,308.949. The average number of members for American time-banks is 49. Counties on average host one Time bank with an exception of District of Columbia where 9 time banks co-exist.

Economic characteristics of selected counties are the following: Clarke county Georgia with the highest poverty level in the U.S. of 39.5 percent accommodates the high percentage of individuals with material deprivation; in contrast the American average is 13.6 percent. In regards to the issue of inequality, the average portion of individuals under the poverty level is 14.1, which is higher than the percentage of rich individuals, 7.38 percent on average. On average the richest families earn a 15.55 times higher income than the poorest ones. The highest inequality takes place in Orleans Parish County Louisiana where the richest acquire a 39.05 times higher income than the poorest ones. The next section concerns the discussion of the regression models' outcome.

#### 4. DISCUSSION OF THE RESULTS

The outcome of the regression model is displayed on the Table 2 in the Appendix. Regarding diagnostic tests, according to Goldfeld-Quandt test and Harrison-McCabe test there is no evidence of heteroskedasticity of the error term. No strong correlation between predictor variables is present according to the Variance Inflation Factor test and no autocorrelation is detected following the Durbin-Watson test. The statistical significance of individual variables does not differ regardless which poverty or income variable enters the equation indicating a robustness of the core model.

The description of the resulting coefficients along with the explanation behind their size follows. The circulation appears as the first strongly statistically significant variable at the 1 percent level. Following my intuition, the longer a Time bank is in operation, the more hours are exchanged. Variable Population is not statistically significant therefore excluded from the model. Insignificance of the Population Indicator is in accordance with the study of Collom (2005).

#### 4.1 Poverty variables

This is one of the most interesting results concerning poverty variables. All poverty variables appear as statistically significant in the model. In detail, the poverty variables of interest are the variable "Poverty" denoting impoverished individuals, "PovertyFam" indicating families living in poverty, the variable impoverished families is composed of married couples "Poverty Married," and the variable standing for the families in poverty consisting of members under 18 years old with children less than 18 years old denoted as "PovertyYoung".

While all these poverty indicators are statistically significant, in accordance with the study of Collom (2005), they negatively affect the number of hours exchanged. In comparison, the result of the model indicates the unemployment rate as a favourable factor for influencing the number of exchanged hours as other studies suggest (see Collom, 2005). Poverty though does not equal unemployment; in fact, individuals who fall below the poverty level can belong to the working class. The correlation coefficient between unemployment rate and poverty is interestingly low 0.478.

At present, the developed capitalist society of the United States faces an increase in individuals living below the poverty line. The young generation is for the first time less educated and poorer than their parents (Becker, 2010). Chain stores benefit from stronger bargaining power on the labour market with numerous unskilled workers. Employees in turn earn lower salaries for a longer workweek. This scenario, to an extreme, happened during the neoliberalization of New Zealand called "working poverty". In 2004 most members of poor families worked long hours while still staying below the poverty line. According to North (2007, p. 146) this group of impoverished individuals had little time to participate in the alternative currency movement "Green Dollars". Participants frequently exchanging the local currency were not those viewing it as a survival mechanism (North, 2007, p. 147). Following this pattern, unskilled, impoverished but employed individuals might lack the time to search or benefit from alternatives such as time banking.

Analysing the composition of membership in a Time bank in the UK by Seyfang (2002, 2003) signals those most active as being unemployed, socially excluded, commonly retired or those having long-term disability or limiting sickness. These individuals all have a sufficient amount of time to spend on participation in time banking.

Time banking schemes demand time in hours as those are what enter the transaction. Without time, individuals with low income can hardly offer their skills on this alternative market. North (2007, p. 120) finds a similar result for a local currency, Kor in Hungary, where the lack of membership was apparently caused by the long-hour workweek resulting in deficiency of time for participation. The study of Shaefer & Edin (2013) also supports this explanation by noticing the growth of extreme poverty in the United States along with an unexpected rise in the share of single mothers joining the workforce during the same time period. Collom (2007, p. 42) sees the lack of free time as the most common limitation to active participation in time bank exchanges among members. Similarly, Collom (2012, p. 185) identifies "being too busy" as the most frequently mentioned limitation of Hour Exchange Portland members. Collom (2012) also finds a lower give-to-receive ratio for employed participants. Working activists with a lack of time offer fewer G & S. Work obligations are reported as an important preventive factor for the attendance of time bank social events (Collom, 2007, p. 42). For employed individuals living with a lack of financial support, time might be too valuable a good to engage in time banking. Finally, Williams (1996b) reveals a similar tendency for the system LETS where low-income members seem to provide lower number of services than high-income members.

The book of North (2010, p. 89) provides additional possible explanation for such regression outcome. That is, the balance of an account denominated in a time bank can stay negative. For example, according to Collom (2012, p. 114) about 18 per cent of Hour Exchange Portland members and 17 per cent of Community Exchange members have held some debt. Participants might buy more services than they offer. This fact gives low-income classes an

opportunity to take advantage of time banking without offering their own skills. Unskilled poor people or people without time to sell their services might benefit from such a concept. The result is that the numbers of hours exchanged could appear considerably smaller in the presence of poor individuals whose demand exceeds supply than in counties where individuals offer the same amount of services as they demand.

In summary, a high concentration of those in need; poor young families with little kids in potential demand for babysitting or poor elderly individuals, do not seem to necessitate hourly exchanges. Poor Families variable standing for families with income below twenty-five thousand dollars reflects this pattern as well. The more impoverished individuals or families, the less number of exchanges within a time bank take place.

## 4.2 Wealthy families

Oppositely, the variable Wealthy Families is statistically significant at the 1 percent level with a positive sign. In contrast, the study of Collom (2012) finds a lower number of exchanged hours for employed members of the Community Exchange time bank in the United States. The Rich Families variable in turn affects the sign of the Income variable. The interpretation behind the positive causality leading from Wealthy Families to Exchanged Hours follows the one for Poor Families in an opposite manner.

The well-educated (see Carnero et al., 2015) high-income class of individuals, making over two hundred thousand dollars, can take advantage of having sufficient resources to substitute working hours for those spent by engagement in social cooperation, building social capital and helping their community. Rich people with that level of income might represent owners or managers of companies, those in charge of decision-making processes, considering the support of an alternative currency movement in their community. A higher proportion of rich individuals increase the probability that some owners of prospering companies are going to support or accept exchanges in a time-bank currency. The more there are managers and owners in a county, the higher chance for the success of a time-bank currency. A boost in time dollar exchanging is more likely once the owners of stores agree upon the acceptance of a local currency. This pattern is supported by the significance of the Retail-trade variable.

## 4.3 Retail-Trade variable

In search of the industry-composition of a county contributing to the success of a time-banking scheme, I have tested different industry-types ranging from agriculture, forestry, hunting, mining and fishing, construction, manufacturing, wholesale trade, retail trade, transportation and warehousing and utilities, information, finance, insurance and real estate and rental and leasing, professional scientific services and management, administration and waste management, education, health care and social assistance, arts, public administration and other services. Retail-trade appears as the only statistically significant variable from this set. More pervasive retail trade in respect to other types of industries indicates more traded hours in a county.

The use of time dollars in exchange for G&S does not have to necessarily occur on a person-to-person level (Dittmer, 2013, p.7). Agencies are often participants in these systems as well. Local stores benefit from accepting time dollars as a means of exchanging produced local G&S such as for example the ARROYO S.E.CO network (see [www.asntb.com](http://www.asntb.com)). The Tucson Time Traders website also contains information about the engagement of local businesses into the transaction of services as repair, carpentry or plumbing ([timetraders.metasofa.org](http://timetraders.metasofa.org)). Similar services are part of exchanges with the Dane time bank ([assets.danecountytimebank.org](http://assets.danecountytimebank.org)) In a community with a higher concentration of retail trade, individual businesses might find more partnered companies for mutual cooperation with time banks as well as individuals finding more opportunities for their earned alternative currency.

The trading of these small-scale services provides the evidence behind the significance of the retail-trade variable. Seyfang (2006) contributes to this idea by noting American local businesses as donators of surplus goods and services to the participants in exchange for a time currency. Collom (2012), in studying three American time banks, records types of goods entering transactions. Entrepreneurial members commonly produce goods and sell them for time dollars and environmental organizations sell event tickets (Collom, 2012, p. 103).

The existence of a wide range of G&S providing for participants of a local currency movement is crucial for its success (See North, 2007). North (2007, p. 143) views a limited number of retail traders accepting an alternative currency, "Green Dollars" in New Zealand as the biggest obstacle to its proliferation. Seyfang (2003) identifies a

deficiency of skill-provision attractive to members of a UK time-bank as a burden for exchanges of time dollars. Collom (2007, p. 42) finds a better variety of services as the most frequent desire for time bank members. The absence of market goods and services denominated in time dollars commonly results in the failure of the currencies. This case the study supports the importance of retail trade for a time-banking scheme to become successful.

#### **4.4 Income inequality**

The inequality variable is statistically significant at the five percent level. Although theories suggest a positive effect of inequality on the demand for time dollars, the evidence proves otherwise. An increase in inequality tends to reduce the number of hours exchanged. The negative sign of the coefficient for the Inequality variable might originate in the negative effect of the Poverty variable. About 100 million people in the United States, one in three Americans, either live in poverty or barely above the poverty level (Federal register cited in Lietaer & Dunne, 2013, p. 12). If higher inequality means deepening poverty for low-income classes relative to the income growth of rich individuals, the resulting sign becomes consistent with this explanation. To accept/reject this hypothesis, the growth of individual values for the nominator has been compared to the drop of values in the denominator when the inequality variable rises. The outcome of this simple mathematic operation concludes in favour of a faster decrease of the denominator in respect to the increase of the nominator, which supports my hypothesis.

Finally, the composition of the Income Inequality variable depends on the income dispersion for families. The display of the regression results indicate a higher response of hours exchanged to increase of the portion of families with income below ten thousand dollars relative to those above two hundred thousand dollars. This could explain why the Exchanged Hours variable is responsive to the inequality variable in a similar pattern as with Poor Families.

#### **4.5 Social security variable**

The result of the Social Security variable corresponds to the theory. This variable reveals to be statistically significant. Disabled, not working or retired individuals seem to improve the participation score of Time banks. This outcome is in accordance with the previous literature. Time banks have been initiated to help marginalized, elderly or otherwise disabled groups. Social Security is an instrumental variable for these socially excluded groups and retired individuals receiving social benefits. It is also important to note the difference between this variable and the Poverty one. In fact, the correlation between these two is very weak, 0.135. The main difference is that individuals on social security might enjoy more free time to participate than impoverished ones as the first ones are commonly unemployed or retired. The correlation between individuals with social security and retired ones is 68 per cent.

#### **4.6 Unemployment**

In a similar fashion, unemployment rate is a significant statistical variable at the 1 percent level. This outcome corresponds to Carnero et al. (2015). Time banking creates a new opportunity for unemployed individuals to offer their skills and goods. In respect to the poverty rate, unemployed individuals or those who are disabled might benefit from more free time to join a time-bank. Similarly, an alternative currency like "Green Dollars" helped individuals to get work, obtain experience and create networks (North, 2007, p. 145).

This enumeration of significant factors is not conclusive; they rather represent economic characteristics. Seyfang (2006) for example identifies the policy context as a crucial environment for the success of Time banks.

### **5. CONCLUSION**

Time banks have been designed to help marginalized, elderly, impoverished, and unemployed individuals with the intention of creating a more equal society. This paper starts by hypothesizing the portion of material deprivation, retail-trade industry, joblessness, disabilities and inequality in a community representing significant factors affecting the number of hours exchanged. The findings of the cross-sectional regression analysis affirm the significance of these variables.

The outcome indicates a higher proportion of unemployed individuals and those receiving social security benefits to serve as a positive characteristic boosting the number of hours exchanged. This result corresponds to previous literature on this topic. Retail trade has also positive effect on the number of hours exchanged.

On the other hand, higher portion of impoverished individuals as well as more sizable inequality in a county show to negatively affect the number of exchanges in a community. This finding is in discrepancy with the original hypothesis. Poverty and inequality do not seem to contribute to the success of a scheme but rather the opposite. The higher the gap between poor and rich in a county, the lower the amount of exchanged hours in a county. The concentration of poor individuals results in a lower number of exchanges between time bank members as well.

Participants need to possess spare time to engage in exchanges of time. Impoverished but full-time working members commonly lack such luxury. Next, Poor activists might benefit from demanding more goods and services than supplying them regardless their negative time-bank balances. These factors negatively affect the final number of hours exchanged. Conversely, the higher percentage of rich individuals, as well as increase in per capita income in a county, results in an improvement of the number of exchanges measured in hours.

Policy-maker, who inspects a place to launch a Time bank project, should examine the structure of population ahead of time. Community with a high concentration of low-income class does not guarantee a success in terms of number of exchanges. While this group of people might be in need of an alternative market to buy G&S, it can lack time and skills to offer demanded G&S in return.

Managers of a time bank might still decide to help low-income members. Then a sufficient amount of higher-income members or individuals with more time to actively participate, such as those receiving social security or those who are unemployed, could compensate for the negative balance or lack of transactions among impoverished families. A strong retail-trade industry may then secure a good variety of products or services which individuals might enjoy in exchange for hours.

It is necessary to note the sensitivity of this analysis to the assumption about the number of exchanges in hours to represent the right determinant of a time bank's success from the standpoint of time-banking organizers. If the aim of time banks is to maximize the number of membership regardless the number of hours exchanged, then the strategy would certainly differ.

This study also assumes territorial similarity of the counties and the size of the circulation of individual time banks. An additional study could support the outcome with findings from the analysis of the link between the socio-economic variables evolving in neighbourhoods more closely approximating the geographic areas where these time banks operate.

Subsequent research could provide an insight from individual time banks explaining the negative sign for Poverty, Poor Families and Inequality variables, as well as draw on more extensive policy implications. Cross-sectional analysis applied in this study is a rather limited empirical tool. A panel-data model could be another more advanced tool for supporting the conclusion of this model.

## APPENDIX

### Description of individual variables:

ExHours: To obtain average number of hours exchanged in a county, the number of exchanged hours as presented on the Community time banks website is divided by the number of Time banks operating in a county.

Circulation: The average of years time-banking schemes in a county have been in operation.

Population: Population of a county.

Unempl: This variable stands for the percentage of the unemployed civilian labour force in a county.

Retail-trade: This variable corresponds to the percentage of civilian employed population with an age 16 and over in the industry of retail trade in a county.

### Poverty variables:

Poverty: Percentage of families and people whose income in the past 12 months was below the poverty level in a county.

PovertyFam: Percentage of families whose income in the past 12 months was below the poverty level in a county.

Poverty Young: Percentage of families under 18 years with related children under 18 years old whose income in the past 12 months was below the poverty level in a county.

Poverty Married: Percentage of families composed of married couples whose income in the past 12 months was below the poverty level in a county.

### Income variables:

Poor Families: The value of this variable reflects the percentage of families with income and benefits below twenty five thousand dollars calculated in a county in 2014 inflation-adjusted dollars.

Wealthy Families: This variable stands for the percentage of families with income and benefits above two hundred thousand dollars calculated in a county in 2014 inflation-adjusted dollars.

Income: Per capita income in logarithmic form in a county in 2014 inflation-adjusted dollars.

Inequality: Variable Inequality between families' income in a county was computed following the Decile dispersion ratio with income values collected from the American community survey (For Decile dispersion ratio see <http://web.worldbank.org/>). To follow the computation of this ratio I have divided the average income of the ten per cent families with the highest income by the average income of the ten per cent families with the lowest income. The advantage of this ratio is its easy interpretation expressing the income of rich as multiple of that of poor.

SocSecurity: Percentage of incomes consisting of social security calculated in 2014 inflation-adjusted dollars in a county.



**Table 1: Summary statistics**

|                        | MIN   | MEDIAN | MEAN     | MAX          |
|------------------------|-------|--------|----------|--------------|
| <b>Circulation</b>     | 0.00  | 0.00   | 1.53     | 10.00        |
| <b>Unempl</b>          | 3.10  | 6.65   | 6.91     | 12.80        |
| <b>SocSecurity</b>     | 16.10 | 31.30  | 31.47    | 61.60        |
| <b>Retail-trade</b>    | 4.90  | 11.30  | 11.55    | 17.50        |
| <b>Poverty</b>         | 4.10  | 13.60  | 14.10    | 39.50        |
| <b>PovertyFam</b>      | 2.70  | 9.40   | 9.94     | 29.10        |
| <b>PovertyYoung</b>    | 4.20  | 19.15  | 19.08    | 44.10        |
| <b>Poverty Married</b> | 0.70  | 4.10   | 4.73     | 15.80        |
| <b>Rich Families</b>   | 0.80  | 5.80   | 7.38     | 26.80        |
| <b>Poor Families</b>   | 3.92  | 13.60  | 14.04    | 35.65        |
| <b>Income</b>          | 9.76  | 10.25  | 10.29    | 11.08        |
| <b>Inequality</b>      | 9.79  | 15.55  | 16.73    | 39.05        |
| <b>ExHours</b>         | 0.00  | 7.00   | 37.66    | 838.00       |
| <b>Exchanged Hours</b> | 0.00  | 0.00   | 5,308.95 | 1,000,535.00 |

Table 2: Results

|                        |                   |                   |                   |                   |                   |                   |                   |                      |
|------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------------|
| <b>(Intercept)</b>     | <b>-19,136.76</b> | <b>-31,065.50</b> | <b>-20,217.23</b> | <b>-16,279.80</b> | <b>-19,777.69</b> | <b>-20,536.14</b> | <b>-20,594.91</b> | <b>-1,087,676.44</b> |
|                        | (-4.724)***       | (-5.908)***       | (-5.042)***       | (-3.752)***       | (-4.918)***       | (-5.137)***       | (-5.147)***       | (-3.601)***          |
| <b>Circulation</b>     | 1,993.58          | 1,993.21          | 1,985.14          | 1,867.40          | 1,966.38          | 1,964.10          | 1,954.68          | 1,967.95             |
|                        | (7.532)***        | (7.552)***        | (7.478)***        | (7.073)***        | (7.423)***        | (7.402)***        | (7.357)***        | (7.468)***           |
| <b>Unempl</b>          | 992.34            | 697.00            | 947.76            | 905.60            | 1,050.40          | 975.84            | 902.10            | 821.33               |
|                        | (3.227)***        | (2.641)***        | (3.070)**         | (3.016)***        | (3.220)***        | (3.094)***        | (2.980)***        | (2.995)***           |
| <b>SocSecurity</b>     | 178.02            | 293.07            | 218.68            |                   | 190.86            | 222.64            | 181.59            | 255.77               |
|                        | (1.925)*          | (3.133)***        | (2.401)***        |                   | (2.076)**         | (2.446)**         | (1.948)*          | (2.810)***           |
| <b>Retail-trade</b>    | 833.95            | 1,146.05          | 799.81            | 1,081.20          | 776.55            | 768.44            | 861.76            | 1,122.39             |
|                        | (2.322)**         | (3.006)***        | (2.224)**         | (3.381)***        | (2.164)**         | (2.138)**         | (2.378)**         | (2.976)***           |
| <b>Poverty</b>         | -309.56           |                   |                   |                   |                   |                   |                   |                      |
|                        | (-2.634)***       |                   |                   |                   |                   |                   |                   |                      |
| <b>PovertyFam</b>      |                   |                   |                   |                   | -384.95           |                   |                   |                      |
|                        |                   |                   |                   |                   | (-2.496)**        |                   |                   |                      |
| <b>PovertyYoung</b>    |                   |                   |                   |                   |                   | -180.96           |                   |                      |
|                        |                   |                   |                   |                   |                   | (-2.344)**        |                   |                      |
| <b>Poverty Married</b> |                   |                   |                   |                   |                   |                   | -562.07           |                      |
|                        |                   |                   |                   |                   |                   |                   | (-2.235)**        |                      |
| <b>Rich Families</b>   |                   | 321.24            |                   |                   |                   |                   |                   |                      |
|                        |                   | (2.857)***        |                   |                   |                   |                   |                   |                      |
| <b>Poor Families</b>   |                   |                   | -274.39           |                   |                   |                   |                   |                      |
|                        |                   |                   | (-2.347)**        |                   |                   |                   |                   |                      |
| <b>Income</b>          |                   |                   |                   |                   |                   |                   |                   | 7,843.04             |
|                        |                   |                   |                   |                   |                   |                   |                   | (2.924)***           |
| <b>Inequality</b>      |                   |                   |                   | -219.80           |                   |                   |                   |                      |
|                        |                   |                   |                   | (-2.001)**        |                   |                   |                   |                      |
| <b>Obs.</b>            | 221               | 221               | 221               | 221               | 221               | 221               | 221               | 221                  |
| <b>R<sup>2</sup></b>   | 0.2779            | 0.2818            | 0.2732            | 0.2478            | 0.2646            | 0.2731            | 0.2715            | 0.2831               |

Notes: t-value in parenthesis. p-value < 0.1 \*, 0.5 \*\*, 0.01 \*\*\*

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## LET'S CHANGE: A CRITICAL STUDY OF THE AIMS AND PRACTICES OF A LOCAL EXCHANGE TRADING SCHEME

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### ABSTRACT

The paper presents the findings of ethnographic research and a survey of a Local Exchange Trading Scheme in North-East London and asks the question of whether the scheme delivers on the aims and objectives of its members. The research found that whilst its members express a strong politically motivated desire for an alternative to the prevailing economic system, the LETS scheme falls short of delivering on those ambitions. The findings raise the question of whether there is anything intrinsic to this form of local community currency that leads it to be more inclusive, egalitarian and fair.

### KEYWORDS

Alternative money systems; complementary currency; alternative currency; local economy; sustainable economy; common; local exchange trading systems.

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## 1. INTRODUCTION

As the economy is under attack as the cause of an ongoing crisis, the political establishment continues to fall short of providing solutions, economic agency is systemically incentivised to assume a rentier role and public services and welfare infrastructures are disbanded, communities and grassroots organisations come to fulfil tasks that were once the remit of political and economic institutions. The breakdown of trust in the current system of production and reproduction, both economic and political, makes alternative economies more pivotal than ever to our understanding of current possibilities and chance for change. The exploration of how alternatives work, of their pitfalls and potential, is the purpose of the following discussion and case study of LETS.

Local Exchange Trading Schemes (LETS) are forms of local currency issued by and for communities that operate alongside and as an alternative to the national currencies issued by banks. They are hard to explain because they sit at the interstice between the economy and the political. Whilst their initial set-up indicates an act of strong political will, their running follows rather loose *laissez-faire* economic principles. Experience tells us that where LETS succeed, they bring about significant positive outcomes; where they fail, they are symptoms of local issues worth addressing. Previous research, broadly divided, characterises LETS as either an alternative money system, or as a community building organisation. Some argue that the benefits of LETS are so great, they ought to be incentivised by governments; others dismiss them as little more than ideologically motivated self-activity.

This paper, instead, engages in a discussion of the challenge to define LETS in a review of academic literature, government research, and members' attitudes, and then presents a case study that seeks to: first, provide insights into the members' motivation for participating in the scheme; second, question whether it delivers on the expectations of its advocates and members; third, explore the internal organisational dynamics of its exchanges. The case study is of a LETS in the North-East London borough of Waltham Forest (WFLETS). The questions above are addressed using the methods of participatory ethnographic research, a survey, and a transaction analysis of the accounts.

## 2. BACKGROUND, CONTEXT AND RATIONALE

LETS are understood to belong to the realm of alternative economies. But what are they alternative to? LETS are said to provide an alternative to competitive economies in the form of cooperative economies, offering a substitute to commercial transactions in the form of community exchange (Kennedy et al., 2012). They are perceived to enable communities to foster a sense of identity by enhancing the local circulation of goods and services, give a non-alienated and human face to currency (often named after a local personality or landmark), and allow for a means of exchange that is free of interest, debt and inflation and their correlative effects (Croall, 1997; Kennedy et al., 2012; North, 1999). What is a LETS? A LETS is a mutual exchange scheme, one of the possible formats of alternative, complementary or community currencies alongside service credits such as time dollars and time banks, other local currencies, and barter markets (Seyfang and Longhurst, 2013). It is a 'first generation' complementary currency, and one with the greatest longevity (Blanc, 2011). A LETS is usually started by recruiting members, collating their details and their offers into a database, and furnishing each member with a 'cheque book': in the scheme, no physical currency is exchanged apart from cheques. Someone wanting a service or commodity pays the person delivering the service or commodity an amount the parties agree on, and as one goes into debt, the other gains credit, the overall balance remaining zero. On leaving the scheme, or in some cases periodically, the unwritten assumption is that one would bring one's balance to zero or above, but it is perfectly legitimate to stay in debt, and accumulating credit does not grow any value in interest, which has posed some problems for the scheme in the past.

Why pick this scheme? The LETS scheme was selected as an object of study for several reasons. The initial reason for my interest was that it is increasingly difficult to hold the distinction between the private and the public, as governments have embraced the market mechanism as regulator and allocator of social utility and public expenditure (Barnes, 2006; Berkes, 1989; Berry, 2006; Casarino and Negri, 2008; Curcio and Özselçuk 2010; Hardt and Negri 2009; Horwitz, 1981; Hyde, 2010; Perry and Rainey, 1988). In approaching the case, I was motivated by a desire to carry out a micropolitical empirical investigation of the workings of what I would term the common. The common is the *tertium non datur* of the private and the public, a space or set of practices of self-organisation of

common resources for the common good. Specifically, I have long been interested in studying technologies of the common, that is, practices of organisation that are based upon a sharing of resources that are neither privately nor publicly owned, but rather utilized by different groups and individuals in a manner that upsets and exists to a degree in contradistinction to the opposition between private and public.<sup>1</sup> The emphasis on technology is intended to point to the potential replicability of these practices and their transformative power for society en large. LETS was selected primarily because it seemed to function as a potential technology of the common; moreover, it has existed in the United Kingdom for some time, making longitudinal comparisons viable, and has proliferated across the country at times of economic hardship such as the present one, displaying great flexibility and a high degree of replicability.<sup>2</sup>

LETS were first established and grew in size during the 1980s and 1990s. At the peak of their success, by the end of the 1990s, over 450 LETS had been set up in the UK alone, involving around 40,000 people.<sup>3</sup> Seyfang and Longhurst counted 250 more recently and LETS remain the most diffuse model of complementary currency worldwide (Seyfang and Longhurst, 2013). Much attention is currently paid to the so-called sharing economy, or peer-to-peer based sharing of resources and services (Gold, 2004; Schor, 2014), as well as digital currencies such as bitcoin (Weber, 2016; Smith and Weismann, 2014). It was felt that an investigation of a scheme like LETS could contribute to the current debate not only on technologies of the common, but also on alternative currencies, communities, and the sharing economy as a whole.

One characteristic of LETS is that the scheme presents itself as a simple, common sense and basic idea, something that is easy to join and enjoy. The LETS and Complementary Currencies Development Agency (LETSLINKUK), a network of all existing schemes in the United Kingdom, states that 'LETS is readily available, interest free, and it stays local.' Despite this, LETS are not actually so easy to define or categorise. From some angles, they look like a marketplace: a place where skills, intellectual property, labour and resources are exchanged by means of a currency. From other angles LETS look more like a voluntary community organisation, association or club within which skills, intellectual property, labour and resources are organised and commanded. In this sense, LETS bridges the classical distinction between economics and organisation (O'Doherty et al., 1999; North, 2000). For the purpose of this paper and reasons that will become clearer in the course of the discussion, I define LETS as 'an organisation of exchange', that is included in the economy as an instituted process. After a brief survey of its definitions in the existing literature, the paper presents an analysis of the reasons people take part in the scheme.

### 3. DEFINITIONAL CHALLENGES: ALTERNATIVE MONEY SYSTEM OR COMMUNITY BUILDING ORGANISATION?

Given its local nature, it is difficult to establish whether the existence of LETS as a scheme owes more to it being a community organisation than an economic practice. This ambiguity explains the relative lack of interest in the scheme shown by mainstream economists. An exception, Schraven indicatively argues that 'in general, experiences in existing LETS do not provide a good basis for economic theorising because the actions and motivations of a large number of their members are based in ideology rather than self-interest' (Schraven, 2000: 1). Fare and Ahmed (2014) go as far as to suggest that epistemological and methodological barriers inherent to the discipline of economics prevent it from contemplating research into complementary currencies altogether. When describing the gift economies of the Polynesian islands, Mauss famously stated: 'it is something other than utility that makes goods circulate in these multifarious and fairly enlightened societies' (Mauss, 1952: 70). It would be tempting to see LETS as types of gift economies too.

Whilst the schemes are often perceived to meet the needs of those with no access to other means of satisfying them, and although people who engage in them do gain, I would argue that the nature of this gain is neither always purely economic nor most significantly so. Or rather, it is not economic in the manner in which we have become accustomed to think of the economy as the restrictive sphere of preference-driven market transactions of utility maximising self-interested individuals guided by a particular version of capitalist rationality. This system of mutual exchange, based on indirect reciprocity, appears to fall more under what Bourdieu would call gratuitous activities.

*'By measuring all activity against the unambiguous standard of monetary profit, the most sacred activities are also constituted negatively as symbolic, that is, with the connotations often carried by this word as devoid of concrete material effect, in a word, gratuitous, in the sense of disinterested but also useless' (Bourdieu, 1972: 228).*

Lending credence to Schraven's argument that their actions result from ideology rather than self-interest, the literature produced by LETS suggests that many of the initiators of the schemes are motivated by aspirations over and above the creation of a community currency: they feel that the current structure of the money system does not work. LETS schemes are seen to carry forward the tradition of common tender or local money (*moneta*) largely in use in market towns across Europe up until the first half of the nineteenth century in parallel to the official legal tender (gold and silver) which the sovereign had the exclusive right to issue. The movement towards the homogenisation of currency and the demonetisation of local tender is interpreted as one that largely favoured and incentivised the use and function of money as a means of accumulation, as a store of value, rather than of exchange.

Opposed to this, many schemes point to the experiment in the Austrian town of Wörgl in the 1930s, where Silvio Gesell's theory of accelerated money was first applied, as a successful example of the alternative potential of local currencies and a good representative of their economic ethos (Blanc, 1998; De La Rosa and Stodder, 2015; Suhr, 1989; North, 2007). The argument is that the introduction of currency monopolies and demonetisation of local currencies was primarily motivated by concerns for power rather than economic efficiency. As evidenced by Rolnick and Weber (1994) the argument finds support in the history of inflation: prior to the introduction of modern money inflation was at minus 0.5 per cent per year, after it, it rose to 6.5 per cent per year (Rolnick and Weber, 1994). This approach seeks to reinstate the function of money as a medium of exchange over and above, if not in opposition to, its function as a store of value or a measure of value (Ingham, 1999). Complementary to this approach is the view of LETS as 'simply a community information system attached to its own market-place. A locally initiated, democratically organised, not-for-profit community enterprise which provides a community information service and records transactions of members exchanging goods and services by using the currency of locally created LETS Credits'.<sup>4</sup> Unlike other informal and alternative market systems that have historically developed at times of recession with an explicit poverty relief agenda, such as barter, labour exchanges or food banks, LETS project the image of an eco-friendly smart lifestyle option open to all, more of an enterprise and a marketplace than a traditional form of community organisation (Bowring, 1998). This self-characterisation has inspired a libertarian strand of research on LETS that positively regards the market mechanism as the best gatherer of information about social preferences and needs. As a market unhinged from any form of government intervention, local exchange schemes are considered good aggregators of information about community preferences. In this strand of literature, money, if redesigned, could function 'as an information system representing knowledge about assets and resources' (Kennedy et al., 2012: 10) and local currencies could potentially become the perfect tool of economic feedback controls (Jacobs, 1985), whilst, in addition, preserving regional economies from the shifts and turmoil of global financial markets.<sup>5</sup>

It is worth noting at this point that despite the lack of interest of economic science, LETS have attracted the attention of the Bank of England and research was commissioned to establish their impact on its operations. According to the Bank Charter Act 1844, only the Bank of England is permitted to issue banknotes in England and Wales. Rather than condemning them as illegal enterprises, the report compiled by Naqvi and Southgate displays a lukewarm interest in the potential that LETS have to address the negative externalities of the market in favour of local and sustainable economies. However, their report concludes that 'as illustrated by Table A, current UK local currency schemes are small (both individually and in aggregate) [...]. This means that they should not pose any significant risk to the Bank's objective of monetary stability' (Naqvi and Southgate, 2013: 7). The authors argue that the size of the schemes is nearly insignificant and thus no call for concern, effectively equating LETS to voucher systems that merely call themselves currencies.

As previously mentioned, LETS is an exchange system of goods and services that relies on indirect mutuality. The exchange is supposedly voluntary and, unlike barter, it involves no immediate commitment to reciprocity. The local currency enabling the exchange itself has no value, but is not directly linked to any one measure of value. Within different communities, discussions abound as to whether units of measure should or should not resemble, improve on, or simply ignore the units of measure of the mainstream economy. For the Bank of England, this is no



insignificant fact. They see that if consumers mistakenly associate local currencies with banknotes, the risk is that 'such a perception could generate a spill over effect if, for example, a successful counterfeit attack on a local currency were to reduce confidence in banknotes or, in the event of failure, if consumers were to incorrectly expect recompense from the Bank' (Naqvi and Southgate, 2013: 1). In any case, on the point of exchange traders are free to agree a price in the local currency and this freedom creates a sense of trust and participation. The question remains, however, of whether LETS require a critical mass to work as an alternative money system, and the extent to which the possibilities of experimenting as alternatives are fully explored in the price setting agenda of the groups. For now, the scheme remains small enough not to pose a threat beyond the level of critique.

**Table 1. Scale of some UK Local Currency Schemes**

| Paper instrument      | Value in circulation | Population of area |
|-----------------------|----------------------|--------------------|
| <b>BoE notes</b>      | £54.2 billion        | 63.7 million       |
| <b>S&amp;NI notes</b> | £6 billion           | 7.1 million        |
| <b>Bristol Pound</b>  | £250,000             | 1 million          |
| <b>Brixton Pound</b>  | £100,000             | 300,000            |
| <b>Lewes Pound</b>    | £20,000              | 17,000             |
| <b>Totnes Pound</b>   | £8,000               | 15,000             |
| <b>Stroud Pound</b>   | £7,000               | 13,000             |

Source: Bank of England, local currency scheme websites, ONS and Bank calculations as of 2013 cited in Naqvi and Southgate, 2013.

Academic research on alternative money systems enumerates LETS amongst other experiments more as a way of illustrating the problems with the current structure of money than presenting a viable and sustainable alternative to it (Kennedy et al., 2012; Lietaer, 2001). The view is that LETS schemes are successful because of their local nature and scaling them up would effectively undermine their purpose and ethos. The 'green' credential of LETS has also been widely discussed (Shorthose, 2000; Bowring, 1998; Aldridge et al., 2003). Most notably, Seyfang (2006) argues that LETS ought to be incentivised in the framework of sustainable consumption and that environmental considerations are important factors in considering the impact of LETS. Seyfang's findings confirm that the principle of individual utility maximisation is not a primary consideration for trading, whereas sustainable local development is, and this is a major motivation for joining the schemes (Seyfang, 2001a).

The local and communitarian character of LETS has been amply discussed in existing research and presented as a strong drive to join the scheme. As Bowring has argued, 'since they operate with a medium of exchange whose value is only recognized by participating members of the local community, LETS are not subject to the predatory interests of highly mobile national and international capital nor dependent on the disruptive cycles of the boom and bust cash economy' (Bowring, 1998: 93). For this reason, many have also presented them as a useful instrument of community economic development, fostering environmental, social and economic sustainability, and potentially an organisation worthy of community led economic development support both from the national government and the European structural investment fund<sup>6</sup> (Doherty et al., 1999; Callison, 2003; Lee, 1996).

This perception that the scheme is rather more than an alternative money system brings us to the next part of our discussion of LETS as a community. Here we wish to draw attention to the manner in which LETS is experienced and perceived as a community building organisation. LETSlinkUK claims: 'Our main purpose has been to develop complementary currencies as a means of creating self-sufficient caring communities in a society of increasingly alienated individual consumers' (LETSlinkUK cited in O'Doherty et al., 1999). Because of this, a strand of research focuses on their potential both as a tool of local economic development and, importantly, as a poverty alleviation mechanism in economically deprived communities with high unemployment rates. LETS are frequently presented as not only a poverty alleviation tool but also as a social inclusion device (Doherty et al., 1999), a successful tool for delivering new informal employment opportunities to socially excluded groups (Seyfang, 2001b) and a radical new economic strategy (Seyfang, 2006).<sup>7</sup>

Due to their local embeddedness, it would be conceivable for the activities of LETS to be endorsed and encouraged by local authorities. Sometimes, this has been the case: Croall reports that by 1997 it was estimated that 25 per

cent of LETS in the UK were in receipt of some form of support from their local authority (Croall, 1997: 88). Much impetus for LETS backing was given under Local Agenda 21.<sup>8</sup> Boyle writes that following on from the results of the LA21 deliberations, by the late nineties around fifty British local authorities were supporting LETS 'as a cheap solution to tackling poverty and to make places less dependent on outside imports' (Boyle, 1997:13). Boyle reports that councils like Hounslow, Calderdale and Stockport had by then even set up their own LETS schemes. The local authorities that showed an interest in facilitating the scheme did so with the aim to tackle the social exclusion caused by economic deprivation and unemployment and reach out to groups that had fallen out of the formal economy and labour market (Aldridge et al., 2003; Wallace, 2001).

The community building potential of LETS, their ability to draw people together in exchanges that do not rely on charity but on mutuality, suggests that LETS could indeed be a powerful technology of social inclusion. All considered, however, it would be reductive to conclude that the appeal of LETS lies more in its potential to build stronger communities and facilitate social inclusion than in its economic promise to be an alternative money system and a more efficient and informative marketplace. Both elements are present in the findings of existing research. I shall now turn to examining the results of my own research of WFLETS.

#### 4. METHODOLOGY

In the first phase, ethnography and participatory research were used. Given the nature of LETS and the exploratory ethics of the research, it was deemed important to participate to a degree with it and, to that end, I was an active member of Waltham Forest Local Exchange Trading Scheme (WFLETS) for a period of one year. I did not aim to intervene in the project in an interruptive or transformative way, but to participate in a manner that was as normal as possible.

In the second phase, in addition to participant observation, a questionnaire was circulated to 200 active members of the scheme by post, with a return rate of 35 per cent. In designing the questionnaire, the intention was to investigate:

- The extent to which people participate in it to bring about alternative economies, and whether the sense of the possibility of alternative economies is changed through the experience of such participation.
- The motives behind participation in respect to the hypothesis that these schemes need to reach a critical mass for them to function as viable and realistic alternatives to existing economic behaviour.
- The stakes that members have in respect to the existing market economy and whether schemes like LETS reinforce or challenge these positions or do not affect them in any significant way.

Important to understanding the impact of the scheme, the survey also aimed to gather information on demographic and socio-economic indicators to establish the extent to which LETS members were representative of the communities they operate in, in this case, the London borough of Waltham Forest. I could explore this aspect by comparing the survey demographics with the results of the 2011 Census. In addition to this, I compared the only existing UK nationwide survey of LETS with the results of the national census. This was done to gain an additional perspective of how typical of UK LETS the case was, the extent to which the case study might provide information either on the workings of the scheme as a whole, or on the particular factors affecting it in the local community. A copy of the questionnaire can be found in the Appendix.

I decided to share the data gathered through the survey with the administrators of the scheme, as I felt the scheme would benefit from learning about itself, especially the motives and barriers to participation. The data was processed using SPSS.

In a third phase, I focused on the internal organisational dynamics of the scheme, and analysed public accounts of the movements and transactions of its members, with the objective of investigating the role of the organisers in the scheme.

## 5. FINDINGS

In this section of the paper, I discuss the results gathered through the survey.

### 5.1 Why do people participate in LETS?

By and large, they confirm that WFLETS members aspire to contribute to the creation of a new money system and sustainable alternatives. Members of the scheme display a high level of dissatisfaction with the current state of affairs: when asked how they perceive the mainstream market economy, 78 per cent of respondents believe that it fails to satisfy most human needs, 84 per cent that it fails to match supply with demand, 69 per cent that it creates poverty and unemployment, and 60 per cent that it excludes people. One respondent commented: 'The mainstream economy creates desires which are seen as needs, and breeds dissatisfaction.' For another respondent, 'LETS puts value on services and items that the mainstream economy deems valueless.' The comments reveal that their contrast with the mainstream economy is a strong motivational factor for joining LETS. The scheme is attractive because it provides an escape from mainstream market interactions that members deem alienating, impersonal, and characterised by lack of trust. A feeling of trust, personal interaction, connection, and the non-profit driven nature of the scheme are strong appeals for its members. Although LETS is an alternative currency, it does not seem to be experienced as 'money,' and this also makes it desirable. Many remark that exchanging without money is more rewarding.

In the questionnaire, the question of whether people participate in order to bring about alternative economies was largely answered positively. In intention, at least, this suggests that LETS are alternative money systems and their members do aspire to change the mainstream economy by taking part in them.

The results of the survey confirm that people approach LETS with the expectation of joining a local community organisation. When asked why they joined WFLETS, most respondents claim that they want to be more involved in their community, followed by those who want to experiment with alternative economies or save money. Some want to socialise, and only a minority joined because they had a specific need they wanted to address or because they were eager to provide something. In order of importance, members ranked the needs LETS addresses in the following way:

**Figure 1: Needs addressed by LETS**



### 5.2 Do LETS, in practice, help redress social and economic imbalances?

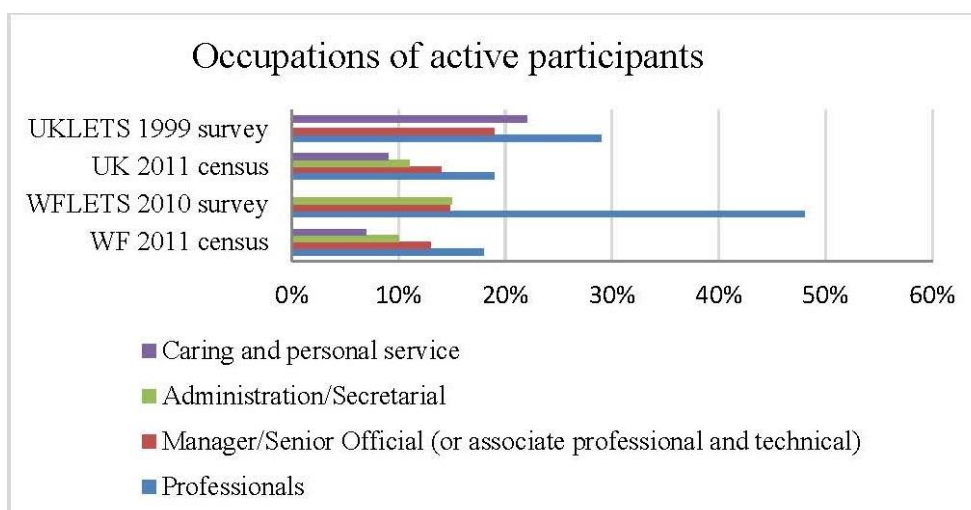
Previous empirical studies of the scheme have often concluded that the situation of LETS members outside the scheme tends to be reproduced within it. For instance, in their article 'Recasting work: the example of Local Exchange Trading Schemes', Aldridge et al. examine the potential of LETS to create 'alternative' work relations: 'LETS are used both as a strategy for engaging in productive activity outside of domestic activity and paid employment, and as a strategy for challenging work relations in paid employment' (Aldridge et al., 2001: 565). Despite their potential as ways of recasting work relations, Aldridge et al. have to conclude that people 'in clerical or

manual occupations face the same inequities of the formal economy' (Aldridge et al., 2001: 569). This is a question the survey of LETS also aimed to address. Given the motivations expressed by its members, how far do LETS succeed in practice to provide a space for alternative social and economic relations, and help redress the social and economic imbalances that members experience as highly objectionable?

Following the UK-wide survey designed by Jane Tooke and Theresa Aldridge and deposited in the UK Data Archive, the survey of WFLETS investigated the class composition of the membership. At both the national level and in the case study presented here, the findings suggest that LETS tend to attract a large majority of people in professional occupations (Figure 2).

In order to further explore the potential and the practice of LETS as an alternative, the survey also asked how the services offered on LETS relate to members' formal waged work. 72 per cent of respondents said that they do not offer on LETS what they mainly do for an income or even as a hobby. Most respondents (81 per cent) claim that they offer what they would really like to be doing for a job or income, and 93 per cent that LETS is solely for pleasure, while only 36 per cent claimed that LETS helped them use skills they could not sell in the mainstream economy.

**Figure 2: Occupational status**



In the ethnographic phase, it was observed that if a person has assets recognised in the formal economy, the scheme helps valorise them; the skills and services one is able to sell outside the scheme bear a similar value within it, with some commanding a higher price than others. This can be largely dependent on the way prices are negotiated within the scheme but despite the appreciation of the freedom to set prices, the majoritarian trend indicates that prices tend to reflect and reproduce the measures, both in terms of wages and in terms of valorisation of knowledges and skills, that exist outside of the scheme in the mainstream economy.

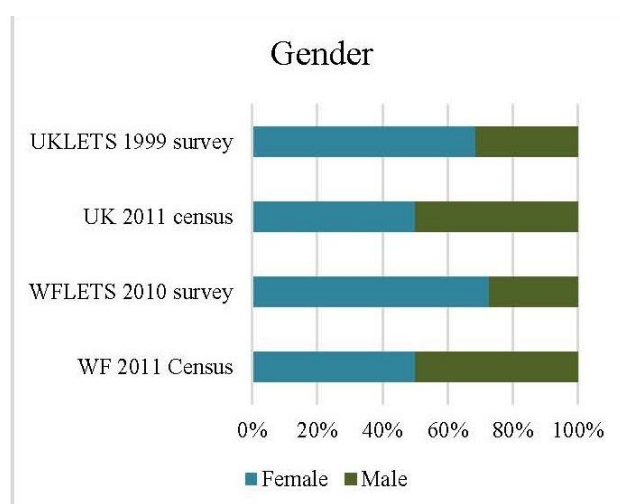
Aside from confirming existing research, this indicates that in practice, those who suffer the consequences of an unequal and unfair economy outside of LETS potentially benefit from the scheme proportionately less than better-off members. My research confirms previous studies that when it comes to the poor, the unemployed, and 'recasting work', where LETS organisations manage to reach out to members in that position, rather than economic deprivation and lack of work opportunities, they tend to succeed in alleviating the effects of social isolation arising from unemployment. The question is whether they manage to reach out. In fact, contrary to the belief that 'LETS and Time Banks membership tend to be homogeneous, skewed towards those on low incomes with time to spare, and what Simmel calls higher spheres of labour – the professions – tend to be underrepresented' (Dodd, 2014: 344), several studies indicate that the poor and unemployed have been deterred from trading on the basis that it

could affect their receipt of jobseekers' allowance. The effects of this ambiguity are pointed out by Fitzpatrick: in his pilot study, LETS members on benefits are reported to have a 'haven't asked, don't tell' attitude to the authorities, but '10 in 12 interviewees expressed a fear of being found out and penalised, and most said they would leave the scheme if necessary' (Fitzpatrick, 2000: 114). Fitzpatrick asserts the employment ethic embodied in the benefit system 'prevents from flourishing the broader view of work, citizenship and participation that many LETS members possess' (Fitzpatrick, 2000: 116). 60 per cent of our respondents also felt that unemployment benefit authorities should refer applicants to the LETS in their area.

### 5.3 LETS, representation and social inclusion

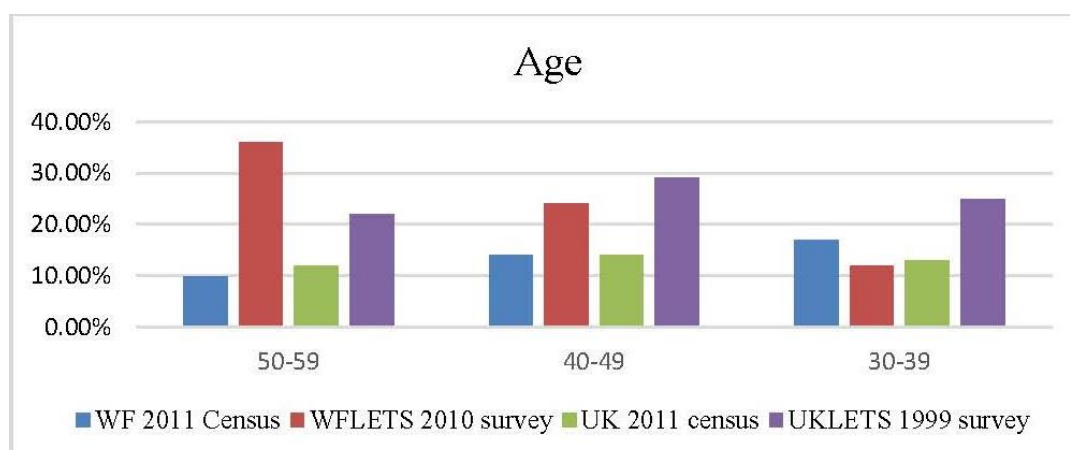
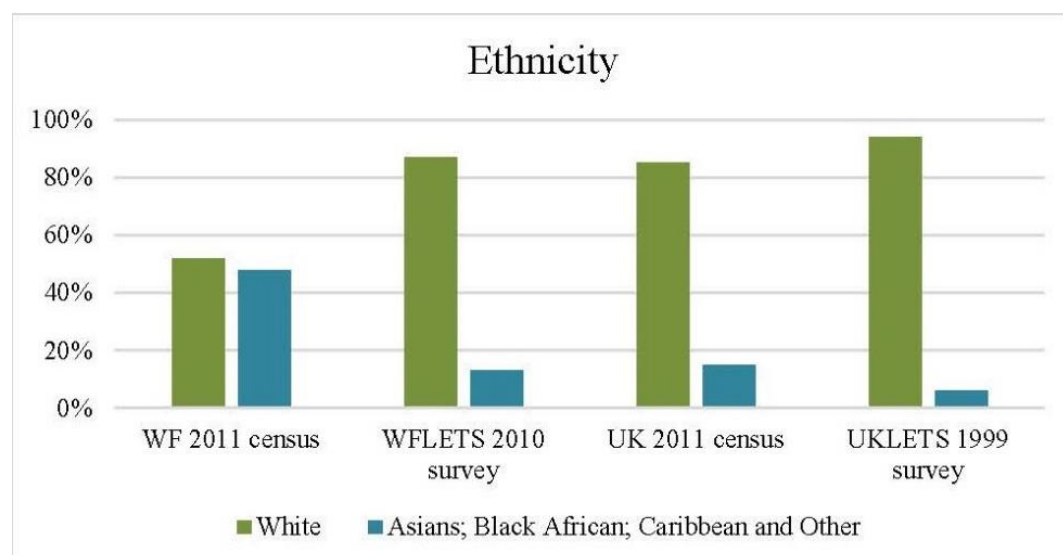
Data on the economic and social status of members of LETS can help us understand the role of the scheme in the framework of dynamics of social inclusion and exclusion. From the data gathered on WFLETS it is possible to form a picture of how representative the membership in the scheme is of the demographics of the rest of the population. What follows are these findings, comparing data from our survey of WFLETS with census data at the level of the borough of Waltham Forest on the one hand, and data from the UK-wide survey of LETS by Tooke and Aldridge with data from the national census on the other. I am aware that this national survey is 15 years old, but in the absence of more recent data, I had no better options.

**Figure 3: Gender**

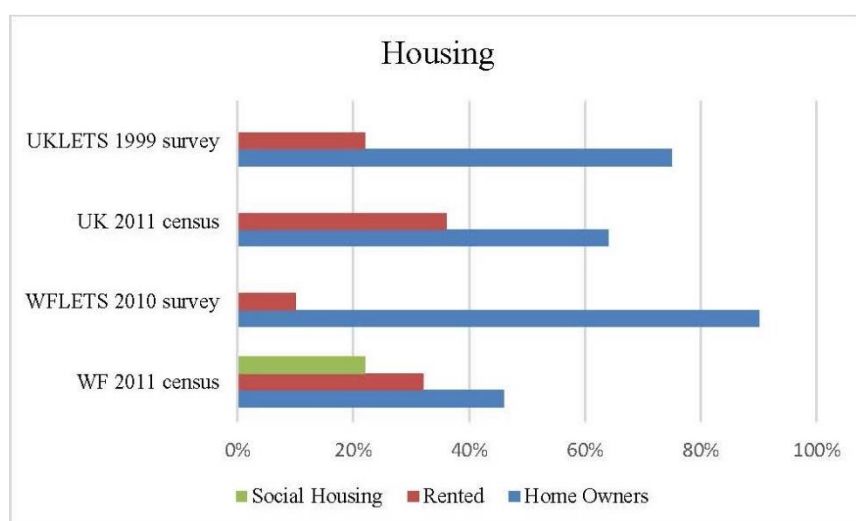


In terms of gender (Figure 3), there is a higher percentage of women than men in LETS, both at the level of the borough, and at the national level. This is to be expected if one sees LETS as part and parcel of the wider informal economy which includes self-provisioning work (housework), unpaid community work (in networks of neighbours or extended family) and paid informal work (monetised exchange that is unregistered for tax purposes) (Williams and Round, 2000).

LETS members also tend to be middle aged or above, with a mean of 40-49 years old in the UK and 50-59 in the scheme selected for analysis (Figure 4). However, a significant result of the survey is the disproportionately high percentage of white members in the Waltham Forest scheme (87 per cent), entirely at odds with the local population which has a white population of 52 per cent. The disparity is also present at the national level, although the gap is nowhere near as wide (Figure 5). This is certainly a striking disparity and would call for further, more tailored investigation as well as intervention for the organisers of the scheme. In this the data does not portray a community organisation that helps social inclusion.

**Figure 4: Age****Figure 5: Ethnicity**

Finally, another significant factor of economic status is the percentage of home owners in the scheme (90 per cent) compared to those in the borough (46 per cent). Relevant to this is that one of the predominant findings of our open questions in the survey was that members felt there was a shortage of provision of DIY, gardening services and general home improvement and maintenance in the scheme, suggesting that many of the people involved in LETS are property owners who might be seeking services that 'add value' to their assets. Far from appearing to be a poverty alleviation device, the data suggests that whilst declaring to seek an alternative to the mainstream economy, members also try to ameliorate their conditions within it.

**Figure 6: Housing**

## 6. LETS AND ORGANISATIONAL DYNAMICS

As far as the organisation is concerned, I was interested in seeing whether Radej's theory had support, that: 'In each network we usually find a small number of highly-connected members, many less-connected members, and massive redundancy. Network is vulnerable to the emergence of informal hierarchical organisation on higher scales of the network system that is not the result of democratic selection on the lower scale' (Radej, 2009: 4). To this end, the transactions between members were analysed and payments to WFLETS members from the administrative account were compared with overall totals of members' exchanges. The payments monitored were for services for the organisation of LETS including catering and event organisation, meeting attendance (including AGMS and EGMS), enrolments, all administrative tasks and secretarial duties and marketing. These can be considered as activities to reproduce the scheme. As of 20 October 2010, the total number of members of WFLETS was 613, which includes both active and inactive. The total earnings in the local currency, BEAMs, amounted to 76,192.77 which was calculated by subtracting from 108,195 (the total income), the administration's income of 32,002. This is an average of 124 BEAMs per person outside of the administration. However, once one deducts the organisational cost of the scheme from the actual income from exchanges within the scheme we get a total of 24,494 and an average earning of 40 BEAMs per member.

Findings from the analysis of transactions suggest that those involved in the running of LETS have a stake in the scheme that is different from other members'. If one subtracts the total income of those clearly identifiable as having been paid for administration from the total figure of BEAMs, i.e. 35,387,<sup>9</sup> this gives us 40,805. Excluding the organisers or administrators, the remaining 563 members thus have an average income of 72 BEAMs compared to 707 BEAMs per organising member. It is reasonable to believe that the situation is actually more extreme and the first figure might be exaggerated but due to lack of data this is impossible to verify. It does not take into account, for instance, the minimum of 10 BEAMs earned for joining the scheme i.e. + 6,130, nor BEAMs earned by renewing membership in sterling by standing order. In any case, the data available does suggest that ordinary members' activity is on average 10 per cent of that of members of the organisers.

Looking at expenditure, the total amount spent by all members, minus that spend on administration is 56,175.84 (107,874.14 – 51,698.30) whereas the total expenditure by the organisers is 21,112. This means that the consumption of other members' services by those who work for LETS administratively is an average of 422.24 compared to (56,175.84 – 21,112/ 563) 62.2 per non-organising member.

It is difficult to draw clear conclusions from this data but it does seem to point towards the following tendencies: there is a strong correspondence between increased organisational involvement and increased trading; there is a higher level of consumption of services by members involved in the administration, which may well be mirrored



by increased production of ordinary member-to-member trades too. However, there are cases where an almost exclusively organisational activity is matched by high levels of consumption of ordinary members' services.

Whilst this is likely to be an outcome of the best intentions to keep the scheme alive and active, it is important to recognise that, because of these dynamics, the scheme runs the danger of producing structures and practices that lend themselves to a form of exploitation in terms of the real economy. In this, as in the setting of prices and consequent status of members' bargaining power, despite the strong political desire to produce alternatives expressed by members as their motivation to participate, LETS does not seem immune from the inequalities of the mainstream economy.

## 7. CONCLUSION

In conclusion, LETS is a bottom-up, self-regulating community initiative, an organisation of exchange expressing strong political needs to foster non-alienated, community-based interactions and mutual support. When asked why they participate, members claim that they are motivated by a political desire to build alternatives to a mainstream economy that they find deeply dissatisfying. The study indicates that whilst expressing themselves in the search for a different organisation of the economy and exchange, their priorities and hopes for change are political and social. However, the community exchanging goods and services created by the scheme is not representative of the local community in important respects. This matters for two reasons: first because the extent to which LETS can redress the social and economic imbalances in the mainstream economy and be an alternative to it in practice needs to take into account the ability of the scheme and its members to involve groups that are affected by social and economic inequality, and reach out to the wider community. Second, if the scheme attracts professional, older, female, white, home-owning members of the community, with strikingly low levels of representativeness with regards to ethnicity and home ownership, its potential for social inclusion and poverty alleviation, so present in the literature, is being overestimated.

Another important factor measured in this case was the internal organisational dynamic of the scheme. The analysis of the dynamics of exchange demonstrated that administrative accounts generate the most movement and accumulation of currency via activities of recruitment, promotion, maintenance and general reproduction of the scheme. This confirms that the community building potential is being worked on, and the need for friendship and belonging is tended to. However, for the scheme to fulfil its ambition to be an alternative money system, a higher level of activity in and amongst non-organising ordinary members would need to occur. Without it, the dynamics of the scheme are skewed in favour of the administrators, and the extent to which organisational structures and activities intervene to create imbalances between members must be monitored to prevent exploitative outcomes.

Various definitions and challenges to the scheme in the literature and in practice have been reviewed in the hope that the discussion and findings can help future designers and researchers of alternatives and ultimately facilitate meaningful change.

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## Endnotes

<sup>1</sup> Michel Foucault defined technologies of the self those "techniques which permit individuals to effect, by their own means, a certain number of operations on their own bodies, on their own souls, on their own thoughts, on their own conduct, and this in a manner so as to transform themselves, modify themselves [...]" (Foucault, 1993: 203). When using the expression 'technology of the common' I am carrying this reflection forward onto a different plane of intelligibility, that of practices of organisation of common resources. For more, see Bove, 2005.

<sup>2</sup> For a geographical representation of LETS spread, see the LETS and Complementary Currencies Development Agency website that presents a map of regional links. <http://www.letslinkuk.net/regions/uk-map.htm> (last accessed 17 March 2016). For more recent maps and surveys, see also Seyfang and Longhurst (2013) and North (2007).

<sup>3</sup> Reported on the LETS and Complementary Currencies Development Agency <http://www.letslinkuk.net/> last accessed 17 March 2016.



<sup>4</sup> John Croft, "Frequently Asked Questions about LETS Schemes" in The Virtual Library on Microcredit, from The Global Development Research Centre, <http://www.gdrc.org/icm/lets-faq.html>

<sup>5</sup> See, for instance, Hayek who saw in the denationalisation of money a key to solving the problem of inflation. 'As soon as one succeeds in freeing oneself of the universally but tacitly accepted creed that a country must be supplied by its government with its own distinctive and exclusive currency, all sorts of interesting questions arise which have never been examined.' (Hayek, 1976: 13) LETS view of the working of markets is also consistent with Hayek's view that, making up for the fact that knowledge is 'not given to anyone in its totality' (Hayek, 1945), markets and currency become a tool for total knowledge. New technologies, information gatherers par excellence, have also been elected to play a vital role for deregulated money systems. The New Economic Foundation has already partnered with Transition Network to create Qoin, supported by the British Tudor Foundation and the Dutch Doen Foundation, to develop a set of IT infrastructures for what they call Community Currency 2.0. In fact, the P2P Foundation already hosts a long list of OS software designed to manage complementary, community or alternative currencies such as LETS.

<sup>6</sup> This includes money from the European Social Fund (ESF), European Regional Development Fund (ERDF) and European Agricultural Fund for Rural Development (EAFRD).

<sup>7</sup> Those in favour of the scheme believe it can play a positive role in the development of social and human capital. According to them, self-activity, whether in or out of employment, whether waged or not, is deemed economically desirable. This also bides well with the recent shift from welfare to workfare and its cognate effects in the formal labour market, amidst the incentivising of forms of free labour, internships, and, in general, work activities decoupled from the wage.

<sup>8</sup> Agenda 21 was the outcome of an international commitment to implement sustainable development at a local level, made at the Rio Earth Summit of the United Nations in 1992. For more on this, see Echebarria and Barrutia (2011).

<sup>9</sup> This figure does not include anyone paid for administration before 2003, nor does it [yet] include those paid by LETS in BEAMS to "write off bad debt", but it does include people who may have only attended a meeting and not undertaken any major administrative roles.

## APPENDIX

### Waltham Forest Local Exchange Trading Scheme members questionnaire

#### Membership of LETS

Are you currently a member of Waltham Forest LETS?

When did you join?

Has your membership lapsed?

Why did you join LETS?

*Tick one of the following options*

It seemed like a good idea

I had a specific need I wanted to address

I was eager to provide something

I wanted to socialise

I wanted to be more involved in my community

I wanted to experiment with alternative economies

I wanted to save money

Other (please specify):

If you are no longer a member, why did you leave?

Not enough time

I had nothing to offer

I didn't want or need what others were offering

I didn't feel part of the scheme

I didn't feel the scheme worked

I fell out with someone

I lost interest

Other (please specify):

|  |  |           |           |                   |
|--|--|-----------|-----------|-------------------|
| <b>Use of LETS</b>   |  |           |           |                   |
| <b>In your experience, did LETS address the desires you expressed above?</b>                       | Yes<br>No<br>Partially   |           |           |                   |
| <i>Please explain:</i>   |  |           |           |                   |
| <b>How do the services you've offered on LETS relate to your professional occupation?</b>          | I offered what I mainly do for income<br>I offered what I sometimes do for income<br>I offered what I usually do for a hobby<br>I offered what I'd really like to be doing for a job and income<br>My LETS involvement has nothing to do with work<br>LETS is solely for pleasure<br>Other (please specify): |           |           |                   |
| <b>How would you describe your participation in LETS?</b>  | Committed ___ Regular___ Occasional ___<br>Supportive but not active___ Not active ___   |           |           |                   |
| <b>Roughly speaking, how many transactions would you say you've made during your time in LETS?</b> | Bought (Beams)<br>Sold<br>No transactions  |           |           |                   |
| <b>Have you struggled to get something you need through LETS?</b>                                  | Always   | Sometimes | Rarely    | Never             |
| <b>It is sometimes easier just to pay someone in cash</b>  | Strongly agree   | Agree     | Disagree  | Strongly disagree |
| <b>Using LETS 'frees up your cash'</b>   | Strongly agree   | Agree     | Disagree  | Strongly disagree |
| <b>The mechanism to express needs and advertise services in LETS is:</b>                           | Efficient and effective  |           | Laborious | Ineffectual       |
| <b>LETS addresses different needs for different people</b>   | Social (friendship, belonging)   |           |           |                   |
| <b>Number the following list in order of importance (1 = most important for you)</b>               | Safety (security, community)<br>Physical (food, shelter)<br>Emotional (support, care)<br>Self-esteem (pride, respect)<br>Self-growth (career, experience)<br>Political (changing society and people)<br>Other (please specify):  |           |           |                   |
| <b>What unavailable goods and services would you most like to find available on LETS?</b>          |  |           |           |                   |
| <b>Government and economy</b>  |  |           |           |                   |
| <b>How do you perceive the mainstream market economy?</b>  | It satisfies most human needs<br>It matches supply with demand<br>The rich get richer and the poor get poorer<br>The economy excludes people<br>It creates poverty and unemployment<br>Other (please specify):   |           |           |                   |
| <b>Commercial exchanges are anonymous and thus preferable</b>                                      | Strongly agree   | Agree     | Disagree  | Strongly disagree |
| <b>Commercial exchanges are quicker and simpler</b>  | Strongly agree   | Agree     | Disagree  | Strongly disagree |

|   |  |               |          |                   |
|---|--|---------------|----------|-------------------|
| It is better to have exchange within the community  | Strongly agree   | Agree         | Disagree | Strongly disagree |
| The use of e-mail and the internet allows me to get closer to my community  | Strongly agree   | Agree         | Disagree | Strongly disagree |
| In your view, how does LETS differ from the mainstream economy?   | Please explain:  |               |          |                   |
| LETS and organisation   |  |               |          |                   |
| Everyone should become an organiser and be involved in the organisation of LETS   | Strongly agree   | Agree         | Disagree | Strongly disagree |
| LETS communities ought to be organised by a small group of people who facilitate exchange   | Strongly agree   | Agree         | Disagree | Strongly disagree |
|   |  |               |          |                   |
| LETS should be made up of a small group of close and committed individuals  | Strongly agree   | Agree         | Disagree | Strongly disagree |
| It would be reasonable in the future to pay LETS organisers in Sterling for the work that they do for the scheme  | Strongly agree   | Agree         | Disagree | Strongly disagree |
| The Local Council should employ or fund LETS organisers to start schemes in their community   | Strongly agree   | Agree         | Disagree | Strongly disagree |
|   |  |               |          |                   |
| Are you involved in the running of LETS (do you help with admin or organisation)?   | Often  | Occasionally  | Rarely   | Never             |
| Are you, or have you ever been on the committee?  | Yes<br>No  | For how long? |          |                   |
| Do you encourage others to join your LETS?  | Often  | Occasionally  | Rarely   | Never             |
| Are you involved in other community groups?   | Often  | Occasionally  | Rarely   | Never             |
| Do you attend LETS Annual General Meetings?   | Often  | Occasionally  | Rarely   | Never             |
| As an organiser of LETS I have felt that my standing in the community has increased   | Strongly agree   | Agree         | Disagree | Strongly disagree |
| Ethics and LETS   |  |               |          |                   |
| It's fine for people to work up a debt in Beams   | Strongly agree   | Agree         | Disagree | Strongly disagree |
| I sometimes resent giving my services on LETS   | Strongly agree   | Agree         | Disagree | Strongly disagree |
| Sometimes I feel I'm working for free   | Strongly agree   | Agree         | Disagree | Strongly disagree |
| I sometimes wish I could get paid Sterling for jobs I do on LETS  | Strongly agree   | Agree         | Disagree | Strongly disagree |
| I find people respect me more in my day job   | Strongly agree   | Agree         | Disagree | Strongly disagree |
| I get more satisfaction working in LETS than in my day job  | Strongly agree   | Agree         | Disagree | Strongly disagree |
| LETS should be entirely independent of Sterling   | Strongly agree   | Agree         | Disagree | Strongly disagree |
| What do you think the main barriers to people joining or participating in your local LETS are?<br>Please rank in order of importance (1 = most important for you) | Joining fee<br><br>Apathy<br>Concern over tax/benefits<br>Feeling they have nothing to offer<br>Image of LETS<br>Not understanding the concept<br>Feeling like they would not fit in with the group<br>Need for Sterling<br>Other community initiatives are more important<br>No time<br>Other (please specify): |               |          |                   |

|   |  |       |          |                   |  |  |  |  |
|---|--|-------|----------|-------------------|--|--|--|--|
| <b>The existence of similar schemes such as Streetbank, Ecomodo, Freecycle etc. is detrimental to LETS</b>                | Strongly agree   | Agree | Disagree | Strongly disagree |  |  |  |  |
| <b>The more schemes like LETS, the better</b>   | Strongly agree   | Agree | Disagree | Strongly disagree |  |  |  |  |
| <b>The more people that join LETS, the better</b>   | Strongly agree   | Agree | Disagree | Strongly disagree |  |  |  |  |
| <b>Unemployment benefit authorities should refer applicants to the LETS in their area</b>                                 | Strongly agree   | Agree | Disagree | Strongly disagree |  |  |  |  |
| <b>LETS has helped me use skills I could not sell in the mainstream economy</b>   | Strongly agree   | Agree | Disagree | Strongly disagree |  |  |  |  |
| <b>LETS has helped me spend less</b>  | Strongly agree   | Agree | Disagree | Strongly Disagree |  |  |  |  |
| <b>LETS has helped me put my ideals into practice</b>   | Strongly agree   | Agree | Disagree | Strongly Disagree |  |  |  |  |
| <b>People still try to pay as few and earn as many LETS units, like in the mainstream economy</b>                         | Strongly agree   | Agree | Disagree | Strongly disagree |  |  |  |  |
| <b>Like LETS, all banks ought to renounce their secrecy and publish the balance and turnover details of their members</b> | Strongly agree   | Agree | Disagree | Strongly disagree |  |  |  |  |
| <b>Demographics</b>   |  |       |          |                   |  |  |  |  |
| <b>What is your age?</b>  |  |       |          |                   |  |  |  |  |
| <b>What is your gender?</b>   | Male __ Female __ Other (please specify):  |       |          |                   |  |  |  |  |
| <b>Marital status</b>   | Single __ Married __ Divorced __ Co-habiting __ Separated __ Widowed __  |       |          |                   |  |  |  |  |
| <b>Is your partner part of LETS? (ignore if inapplicable)</b>   | Yes<br>No  |       |          |                   |  |  |  |  |
| <b>Please state your highest level of academic education</b>  |  |       |          |                   |  |  |  |  |
| <b>Subject Area</b>   |  |       |          |                   |  |  |  |  |
| <b>Trade Qualifications</b>   |  |       |          |                   |  |  |  |  |
| <b>How are you currently employed outside of LETS?</b>  | Full time __ Part-time __ Self-employed __ Irregularly employed __ Unemployed __ Retired __ Economically active student __ Economically inactive student __ Looking after home/family __ Disabled/Sick __ Other (please specify): __ |       |          |                   |  |  |  |  |
| <b>If in employment, how would you describe your occupation?</b>  | Manager/Senior Official __ Professional __ Skilled Trades __ Sales/Customer Service __ Technical __ Machine Operator __ Administration/Secretarial __ Unskilled __ Other (please specify): __  |       |          |                   |  |  |  |  |
| <b>Is your work mainly in the private or public sector?</b>   | Private sector<br>Public sector<br>Other (please specify):   |       |          |                   |  |  |  |  |
| <b>Do you look after children as a parent or guardian?</b>  | Yes<br>No  |       |          |                   |  |  |  |  |
| <b>Do you or your partner have family ties locally?</b>   | Yes<br>No  |       |          |                   |  |  |  |  |
| <b>Do you own your own home?</b>  | Yes<br>No  |       |          |                   |  |  |  |  |
| <b>If so, do you have a mortgage?</b>   | Yes<br>No  |       |          |                   |  |  |  |  |
| <b>Do you own more than one house?</b>  | Yes<br>No  |       |          |                   |  |  |  |  |
| <b>Do you live in rented accommodation?</b>   | Yes<br>No  |       |          |                   |  |  |  |  |

|   |   |
|---|---|
| <b>Please describe your ethnicity Tick one of the following options</b>   | White British ___ White Irish ___ White European ___ Other White ___ Mixed White and Black Caribbean ___ Mixed White and Black African ___ Mixed White and Asian ___ Mixed Other ___ Indian ___ Pakistani ___ Bangladeshi ___ Chinese ___ Other Asian ___ Black African ___ Black Caribbean ___ Other Black ___ Other non-White ___ Other (please specify): ___ |
| <b>Do you feel that your local LETS has an equal balance of participation between men and women?</b>  | Yes<br><br>No<br><br>I don't know   |
| <b>Please feel free to use this space to add any further comments</b>   |   |
| <b>Thank you for completing the questionnaire. We will be carrying out further research in the form of semi-structured interviews. If you are interested in taking part, please leave us your name and address.</b> |   |

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# IJCCR

**IDEAS FOR DEBATE**





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## A NEW TYPE OF MONEY FOR A MAYAN COMMUNITY TO BUILD RESILIENCE IN A CONTEXT OF ECONOMIC CRISIS

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### ABSTRACT

We present the proposal of a complementary currency, the Sodziles, to strength the local economy and social ties among the members of the Mayan community of Sodzil (Campeche, Mexico) that work in a mangrove restoration project. This project is important both for the conservation of mangroves and for the social and economic dynamics of Sodzil community. The Sodziles are backed by the restored mangrove ecosystem. We describe key local environmental, social and economic aspects, as well as the macroeconomic context within which the project is developing, specifically, the credit expansion and level of indebtedness in the various sectors of the country, and especially in Campeche State, where the restoration project is in process. From there, it was possible to identify that Mexico is close to a strong economic recession due to the high level of indebtedness of the sectors of its economy. The occurrence of this crisis may affect government funds to finance the restoration project, as well as economic activities such as construction works on which some of the Mayan descendants depend. There is no crisis yet, but it is important to consider the Sodziles as an option in case this crisis happens and also to ensure that the recovered mangroves are protected.

### KEYWORDS

Dollar standard, mangrove restoration, complementary currency, Maya community, money backed by mangrove restored areas

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## 1. INTRODUCTION

To propose viable solutions to complex socio-ecological problems, it is necessary to conduct the analysis by considering different perspectives (ecological, economic and social, for example) as well as multiple appropriate temporal and spatial scales (Brondizio et al. 2009, Ostrom 2009, Paiva Sobrinho 2014).

The problem to be solved is to minimize the negative impacts of an economic crisis on the population of Mayan descendants in Sodzil. We present the proposal of a complementary currency, the Sodziles, to strength the local economy and social ties among the members of the Mayan community of Sodzil (Campeche, Mexico) that work in a mangrove restoration project. This proposal is under development, and the first conversation with members of the community has already been held. This initiative arises from the field visit of the first and third authors of this article to the study area in partnership with the representatives of the mangrove restoration project.

The mangrove restoration project is important both for the conservation of mangroves and for the social and economic dynamics of Sodzil community. The restoration project is developed by the UAC (Autonomous University of Campeche) and the government of Mexico. This project has contributed to the restoration of hundreds of hectares of mangroves, as well as the social welfare of Mayan people working on the project activities, including channel construction to restore water conditions in the area, as well as reforestation on the edge of those channels with species typical of this ecosystem.

The project started in 2013 and so far contributed to the restoration of 600 hectares of mangrove forest in the Biosphere Reserve Los Petenes, in the Gulf of Mexico, Campeche State. In addition, directly and indirectly, it contributed to the increase in income of dozens of families in the community of Sodzil, see section 2 for details.

Funding for the early years of this project occurred in a period of economic expansion, characterized by the availability of credit granted by both private and government financial institutions, a process typical of the current international monetary system (Paiva Sobrinho, Romeiro, 2016).

Due to its importance, we describe key local environmental, social and economic aspects (section 2), as well as the macroeconomic context within which the project is developing (section 3). This macroeconomic analysis considered especially the credit expansion and level of indebtedness in the various sectors of the country, and especially in Campeche State, where the restoration project is in process. From there, it was possible to identify that Mexico is close to a strong economic recession due to the high level of indebtedness of the sectors of its economy. The occurrence of this crisis may affect government funds to finance the restoration project, as well as economic activities such as construction works on which some of the Mayan descendants depend. There is no economic crisis yet, but it is important to consider the Sodziles as an option in case this crisis happens and also to ensure that the recovered mangroves are protected. Several authors propose the use of complementary currencies for insulating local communities from external crisis (Cato and Suarez, 2012; Ryan-Collins, 2011; Szalay, 2011).

There is a reduced number of complementary currencies (CS) backed by ecosystems and this is the first CS proposal backed by restored mangrove areas. This is a potential contribution to ecosystem conservation alternatives since other initiatives, for example, payment for ecosystem services programs, are highly dependent on the fiat money supply (which tend to be scarce during periods of economic crisis).

## 2. AREA OF STUDY, DESCRIPTION OF THE COMMUNITY AND THE PROJECT AS WELL AS ITS ECOLOGICAL AND SOCIAL OUTCOMES

### 2.1 Study area

The state of Campeche has a population of about 822 thousand inhabitants (0.7% of Mexico's total population) and a population density of 14.3 inhabitants per square kilometer (INEGI, 2011). The state of Campeche also has about 90 thousand people who belong to a group or speak some indigenous language, and of these, about 3 thousand people do not speak Spanish, being the Mayan language the most frequent in the state.

In the area of particular interest of this text is the town of Sodzil, located in one of the only two access routes to the Los Petenes Biosphere Reserve. Sodzil is one of the haciendas that at the end of the nineteenth century and the beginning of the twentieth were characterized by henequen production, and later, in the second decade of the twentieth century were declining as a consequence of the revolutionary movement, leaving the nearby villages with few local sources of employment and a weak local economy.

The town of Sodzil has an approximate population of 400 people, mostly Mayan population, "ejidatarios" dedicated to subsistence agriculture, beekeeping, or domestic activities; and, above all, construction work in nearby cities such as Campeche and Merida. This situation forces men from Sodzil to spend their working week away from their families and their community, and to invest part of their income in the displacement to these neighboring cities, which limits their investment (both in time and money) destined to improve their living conditions and that of their families.

Additionally to such socio and economic scenario, there are also important environmental indicators that motivated the implementation of the conservation project in the area. In less than a decade, Campeche lost 14% of its mangrove coverage (over 7,000 hectares), mainly due to anthropogenic situations, as oil extraction, rapid urbanization and pollution. Climate change has also played an important role in this degradation.

The mangrove restoration project began in the area in March 2013 with funding from the National Forestry Commission (CONAFOR). The Autonomous University of Campeche (UAC), under direct supervision from the second and fourth authors of this article, carried out the restoration project execution.

Since the project's inception to the present, 600 hectares of mangroves adjacent to Jaina have been restored, in Los Petenes Biosphere Reserve (Figure 1).

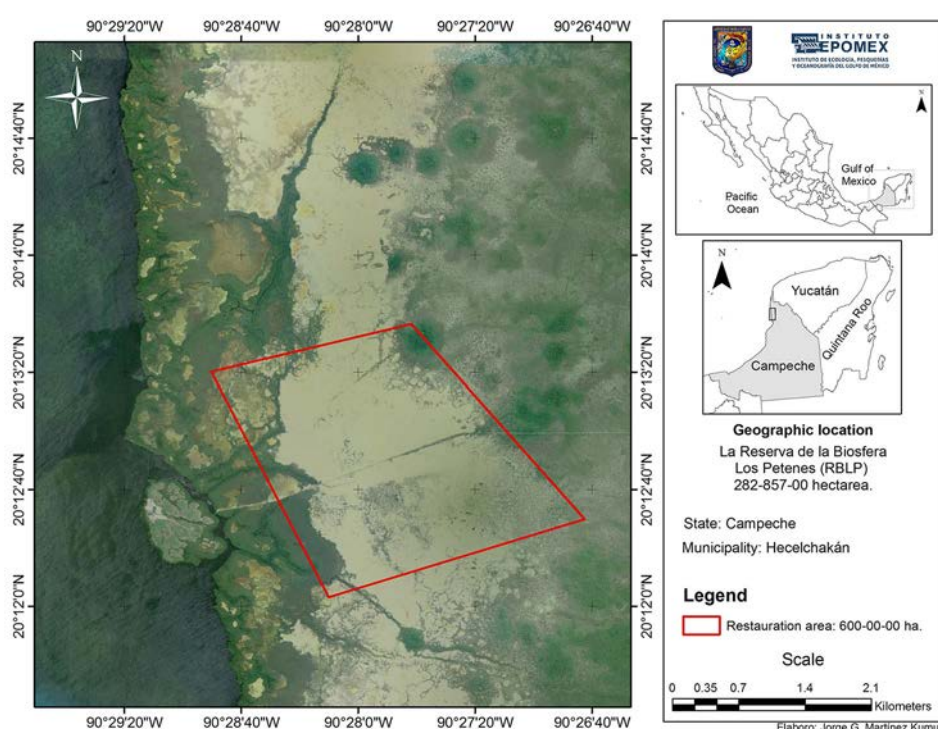


Figure 1. Restoration area located in the Biosphere Reserve Los Petenes, Campeche. Mexico.

The success of the restoration initiative resides in both the restoration strategy described by Agraz Hernández et al. (2016), and the involvement of local people from the Mayan communities of Sodzil, Pomuch, Chunkanan and Hecelchakan. Most workers (direct project partners) belong to the community of Sodzil, which is the one geographically closest to the project site. These people help in the construction and maintenance of channels and the reforestation on its borders.



The restoration was carried out in the study area by building 8 main channels, 69 secondary channels and 17 artificial lagoons (Figure 2 and 3). In addition, with the sediment removed during the excavation of the channels and lagoons cited above, there were built 81 artificial platforms.



Figure 2. Aerial view of the main, secondary artificial canals and artificial lagoons made by the community Sodzil.

The results of the hydrological rehabilitation established significant changes in the hydrological regime resulting from the construction of channels and artificial platforms, as well as the desalination of natural channels (hydrological rehabilitation). Since channels have achieved the increase in amplitude and variability of pore water levels, resulting in decreased water residence times and change in the pore water chemistry conditions.



Figure 3. Construction of the channels through manual excavation Sodzil community.

The built channels contribute to the restoration of mangrove ecosystem as follows:

- Dilute high salinity present in the sediment.
- Increase the diffusion of dissolved oxygen in the water passing between the particles sediment.
- Increase the supply of nutrients to the seagrass.
- Increase the areas of protection, shelter and reproduction of marine species.
- Increase habitats for migratory birds.

Dilution of salinity and increased oxygen diffusion between the particles sediment because of hydrological rehabilitation (digging canals), contributes to increased seedling survival of mangrove species in the field (Agraz Hernandez and Arriaga 2010). They also help to avoid water heating and evaporation along with sediment salinization. Increased fixing of mangrove seedlings helps to increase carbon sequestration in the sediment, contributing to reduced circulation of greenhouse gases in the atmosphere (Nam et al. 2016).

The construction of the channels required a financial investment close to 53333.3 Mexican pesos / hectare, including the maintenance of channels edge and reforestation of 220,000 seedlings of red mangrove (*Rhizophora mangle* L.) during four years.

## 2.2 Economic and social characteristics

This project has facilitated several social and economic outcomes for the community of Sodzil, including the following:

- Monthly injection of about 400,000 Mexican pesos in the local economy, through the payment of wages to workers who collaborate with the mangrove restoration as well as additional payments to other community members (mostly women) for the provision of services related to food supply for UAC officials in charge of the project.
- Each worker or laborer receives on average 1200 Mexican pesos per week. The project covers daily transportation costs from the village to the project site and back, increasing the amount of cash available to workers and their families, versus the basic costs of travel to find other sources of employment outside the community.
- Each worker receives the benefit of social insurance which also covers health needs of his family members (wife, children and parents of the worker).
- Laborers work 11 hours daily from 5:00 am to 16:00 pm, Monday to Friday. Of those, six hours are needed for transportation from Sodzil to the restoration area and back Sodzil, plus 6 hours of work. Saturday is a day to devote to activities related to the local economy and culture, as maize cultivation, livestock care, care of beehives, among others. Sunday is paid as a day of rest, based on the labor law.
- By having more time available during the weekend and more free money from his wages (the avoided transportation and accommodation cost to move to other communities to seek work), the project partners spend most of the time available with their families (share time with their children and wives), physical improvement of their homes, working on their land (planting traditional crops for self-consumption) and other work for community improvement such as building the characteristic stone walls of the area and the construction of wells (most of the available water in the area is subterranean).
- Workers express pride as a result of their work in the project and recognize the environmental benefits of the mangrove restoration process that will provide medium and long term positive results.

These project's positive outcomes may be at risk, considering the macroeconomic Mexican context and the current threat of an economic crisis, as described in section 3.

### 3. CURRENT INDICATORS OF THE MEXICAN ECONOMY UNDER THE DOLLAR STANDARD

The dollar standard monetary system is described by Duncan (2005) and Paiva Sobrinho and Romeiro (2016b). In simplified form this system can be characterized by a temporal behavior consisting of several stages: a) rapid expansion of credit by private and / or governmental financial institutions during which the families, business and government debt increases rapidly to levels that make it difficult to pay the interest; b) periods of credit contraction by private financial institutions and / or governments, due to problems related to the high level of debt existing in the main sectors of the (family and business) economy; c) periods when the government increases its borrowing to try to increase the level of economic growth; d) after the deleveraging process of the main economic sectors it can or not observe a new credit expansion phase (Paiva Sobrinho and Romeiro 2016a).

As explained by Paiva Sobrinho and Romeiro (2016a), accelerated credit expansion is related to a context in which some economic sectors are with low debt levels and there is a greater inflow of international financial resources to the country, usually through the current and / or financial account (balance of payments). Part of these resources are invested in the money markets, enabling financial institutions to expand credit allowing greater access to cash to finance long-term loans granted to customers.

Table 1 shows the main components of the balance of payments of Mexico since 2003. It can be seen that, with the exception of 2006, the financial resources that went through the financial account, fueled the current account deficit and contributed to the overall result of the balance (overall balance) is positive.

As explained (Duncan 2005, Paiva Sobrinho and Romeiro 2016a) the positive result of the overall balance implies an increase in Central Bank reserve assets (Figure 4), which, in turn, except when family and business sectors are over indebted, implies an increase in credit expansion by the financial sector (banks, for example) aimed at families, businesses and governments (Figure 5).

Table I. Main Elements of the Balance of Payments of Mexico.

|                          | 2003 | 2004 | 2005 | 2006 | 2007  | 2008  | 2009 | 2010  | 2011  | 2012  | 2013  | 2014  |
|--------------------------|------|------|------|------|-------|-------|------|-------|-------|-------|-------|-------|
| Current Account          | -7,2 | -5,3 | -5,1 | -4,8 | -9,0  | -20,3 | -8,3 | -4,9  | -13,2 | -15,9 | -29,7 | -24,0 |
| Financial Account        | 18,5 | 14,2 | 16,5 | -2,0 | 22,1  | 32,7  | 16,9 | 47,8  | 53,4  | 53,1  | 66,4  | 58,4  |
| Overall Balance          | 9,8  | 4,1  | 7,0  | -1,3 | 10,3  | 8,1   | 4,5  | 20,7  | 28,2  | 17,5  | 17,8  | 16,7  |
| Reserve Assets           | -9,8 | -4,1 | -7,0 | 1,3  | -10,3 | -8,1  | -4,5 | -20,7 | -28,2 | -17,5 | -17,8 | -16,7 |
| Net Errors and Omissions | -1,5 | -4,8 | -4,5 | 5,5  | -2,8  | -4,3  | -4,0 | -22,2 | -11,9 | -19,6 | -19,0 | -17,6 |

Source: International Financial Statistics – International Monetary Fund (IMF).

Billion USD

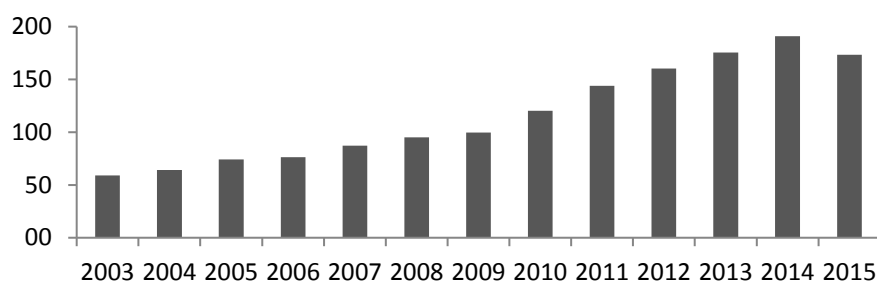


Figure 4. Mexico reserve assets minus gold.

Source: International Financial Statistics – IMF

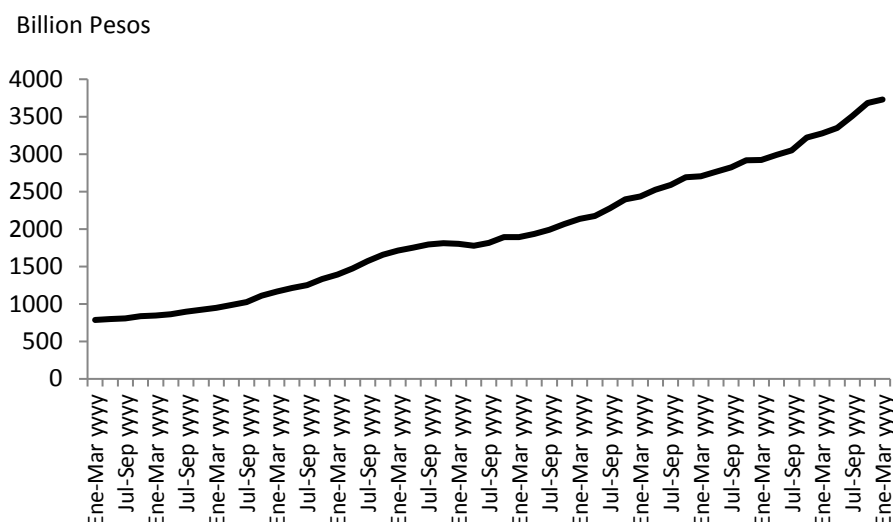


Figure 5. Credit expansion by commercial banks in the economy of Mexico.

Source: Banco de Mexico.

As it can be seen in Figure 4 reserve assets of Mexico, which are composed of international currencies, increased by more than 300% between 2003 and 2014.

Similarly, credit expansion increased by 400%, i.e., most Mexican economic sectors borrowed in excess, increasing their debt levels, as can be seen in figure 6.

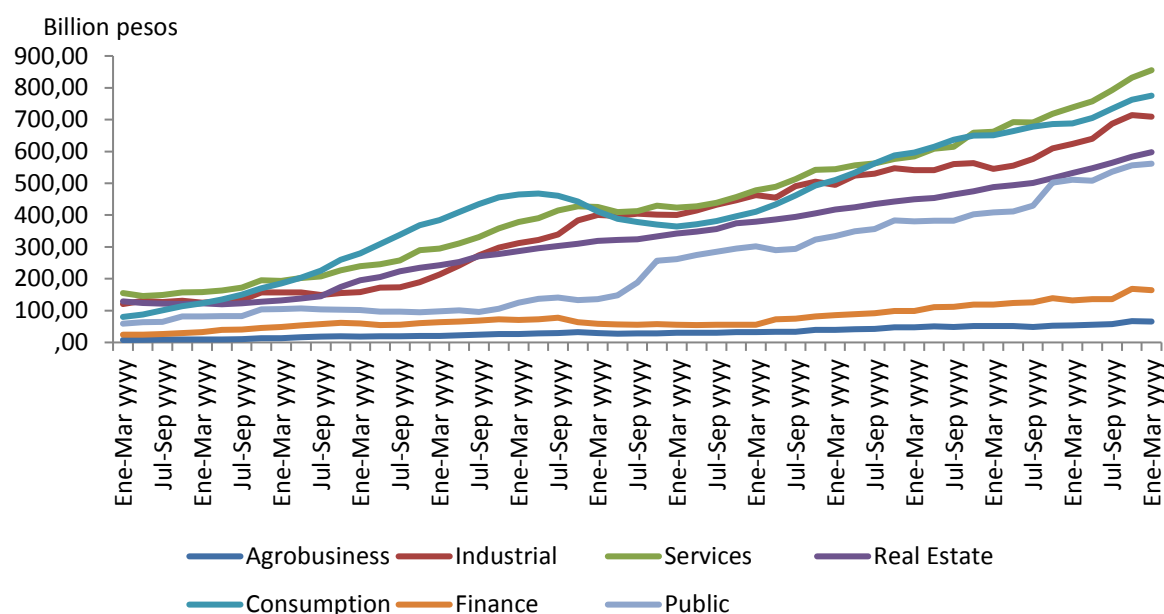


Figure 6. Credit expansion by commercial banks in Mexico by economic sector.

Source: Banco de México.

The following Mexican economic sectors with high debt levels are: public, real estate, industrial, services, consumption (households). According to the Bank of Mexico (2016), the level of debt in the state of Campeche increased by over 1500% between 2003 and 2015 (Figure 7). A similar pattern is seen in other Mexican states (Bank of Mexico, 2016).

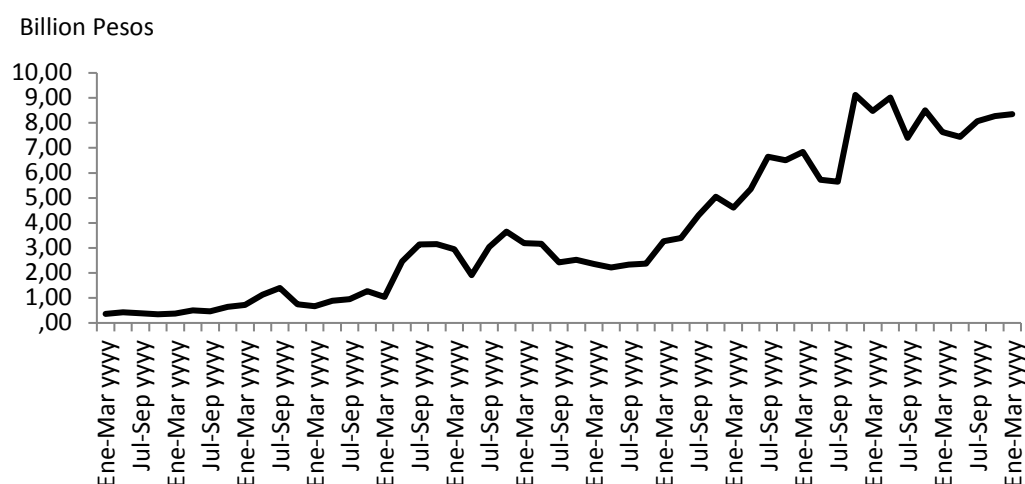


Figure 7. Credit expansion in the state of Campeche.

Source: Banco de México.

The economic crisis that occurred after 1973 (starting point of the dollar standard) show that when sectors of an economy reaches excessive levels of debt, recession is inevitable (Cechetti et al. 2011; Duncan 2005, Koo 2009, 2015, Milne 2009, Reinhart 2009).

The level of severity of the economic recession in Mexico is uncertain and will depend on the response of the central bank, federal government and mainly of the population. The level of indebtedness of the sectors of the economy is high and may reach a point where it is no longer profitable for financial agents that inject funds to the money market. When that time comes, these resources can be directed to other countries where there are still individuals, companies and governments with borrow conditions. That is, other countries that allow short-term financial returns.

### 3.1 The Bright Side of virtual currencies

An economic recession in Mexico could result in higher unemployment in the country, business bankruptcy, tax cuts and to reduce investments in environmental projects, such as the mangrove restoration project. Assuming that this negative scenario happens, it can affect the described project, consequently, Sodzil community could lose jobs in the project, generating lower inflow of financial resources in the local economy, and the loss of the additional social and economic outcomes of the project.

Some people from Sodzil works in agriculture and construction areas in neighboring communities. Since these sectors are highly indebted (Figure 6), the occurrence of that economic recession could generate a reduction in credit for such activities which would result in less job opportunities for people like the residents of the community of Sodzil.

With the economy of Mexico presenting risk of economic recession, a way to minimize the negative consequences that accompany periods of crisis, it is to use the knowledge related to the sustainability of complex flow systems (Ulanowicz et al. 2009, Lietaer et al. 2012).

A complex flow system is a system composed by interconnected nodes where the flow of something occurs. In ecological systems, nodes can be species and the flow can be organic/inorganic materials. In economic systems, nodes can be people, non-financial firms, banks, government institutions, and the flow can be fiat money.

The sustainability of complex flow system depends a tradeoff between resilience and efficiency. Greater the efficiency or resilience less is the sustainability of the complex flow system (Ulanowicz et al. 2009; Lietaer et al. 2012). Inserting complementary currencies increase the resilience of economic system and increase its sustainability (Lietaer et al. 2010).



Even if such scenarios do not occur, it is wise to learn from the lessons of the past and prepare actions that can minimize the negative consequences should they occur. In this sense, the increased resilience of the local economy is critical. Examples around the world show that the inclusion of different types of money in an economy helps to make it more resilient (Stodder and Lietaer 2012).

In this article, we adopt the following definition of money (Paiva Sobrinho and Córdoba Brenes 2016) "Money is an agreement made by a community to accept a standardized item to serve at least as a means of exchange." By "type of money" we mean the way money is created. Since money is an agreement, the community may establish different rules for determining, for example, how people can get the money, how it is created, who can create the money and other similar details.

The definition of money taken in this article is totally different from that proposed (McLeay et al. 2014) "money is a type of IOU (I Owe You)", which serves to maintain the hegemony of existing financial institutions. The type of money that these institutions create, has caused serious economic, social and environmental problems (Lietaer et al. 2012, Paiva Sobrinho and Romeiro 2016).

To avoid local negative consequences of the economic recession looming and increase the resilience of their community, some members of the Mayan community of Sodzil with the support of the technical team of the mangrove restoration project, decided to start the process of delineating a complementary currency, the Sodziles, a type of money backed by mangrove areas recovered, that is described in section 4.

#### **4. THE SODZILES: A TYPE OF MONEY BACKED BY MANGROVE AREAS**

The mangrove restoration project has contributed to achieve both ecological and social positive outcomes in their area of influence. In order to maintain such benefits even during the occurrence of a financial crisis, the proposal is to create a type of money backed by hectares of recovered mangrove ecosystem, a type of money that will only circulate in the community of Sodzil, taking hence its name: the Sodziles.

Basically, the community should identify needs that are not met and the resources available in the village. The Sodziles serve to connect those needs with the resources that are not being used (example, unemployed people, infrastructure, lands). Therefore, if said connection happens, it is necessary to establish rules regarding the activities that each person can undertake to get Sodziles, and the amount of Sodziles for each activity.

*What purpose could the Sodziles attend?*

The Sodziles could be created in order to promote:

1. Awareness of the mangrove ecosystem importance for the local communities' quality of life.
2. Conservation of mangrove areas restored, even if there is no active project in the area funded by Mexico's government funds.
3. Strengthening the local economy with goods and services exchanges between residents of Sodzil.
4. Positive relationships between neighbors, solidarity and mutual support to improve the common areas of the community.
5. Good environmental practices in homes and crops, such as collection of non-biodegradable waste for recycling and use of natural products for pest control.

##### **4.1 Community resilience to economic crisis**

The insertion of the Sodziles in the local economy has the potential to enable local handcraft production enterprises, local cuisine, among others local productive activities. In addition, Sodziles can motivate actions and community improvement that could become attractors for tour operators focused on cultural tourism.

*Who administrates the system and how it works?*

The Sodziles would be issued by a group of people in the community who receive training to administer the system. These people, together with the community, shall establish the operating rules of the Sodziles. System rules shall establish at least the following: a) the physical characteristics of Sodziles (paper, plastic or other), b) the exchange rate of the Mexican peso/Sodzil), c) the main function of the new money (medium of exchange and / or store of value), d) which activities are eligible for people to acquire the Sodziles, e) duration of Sodziles (if they possess validity, or not), f) conditions for local businesses to participate in the system in order to use the Sodziles.

The Sodziles can be used into the community of Sodzil, to interchange local products and services between its members. For example, if family A produces fruits and family B needs those fruits, family B can buy the fruits using Sodziles. The family A can now use those earned Sodziles to buy meat from family C or to fully or partially pay for a service provided by neighbor A or B. This way, community members can have the opportunity to save its Mexican pesos for further use (outside the community), allowing the main interchanges inside the community to continue even during national financial crisis, when Mexican pesos availability hits lower levels.

People can acquire Sodziles working in eligible activities, or, receiving donations from other who possess Sodziles.

*The support for Sodziles: restored mangrove areas*

The fact that the Sodziles are backed by restored mangrove areas means that such money will exist only if there are also restored mangrove areas. For example, the administration of Sodziles could establish a correlation between the amount of restored hectares and the amount of Sodziles issued each year: a greater number of hectares restored, will represent a greater amount of Sodziles available to the community.

Currently there are 600 hectares of mangroves restored by the project involving the participation of people from Sodzil. The project started in 2013 and restored, on average, 150 hectares per year. An estimated 53,333.33 Mexican pesos were needed to recover each hectare.

It is important to clarify that the issue of Sodziles should be proportional to the demand of the community and not exceed the total number of hectares of mangrove restored. For example, let's assume that each hectare of restored mangrove equals 10 Sodziles per year.

As there are 600 hectares of mangrove restored, it would have 6000 Sodziles annually. Let us assume that the community needs 3000 Sodziles. In that case, only the necessary amount of Sodziles will be issued. If the community needs 6500 Sodziles, then the administration only issues 6000, corresponding with the maximum area of restored mangroves. Those are some initial ideas on which the community must reflect to implement the system.

The design of a currency backed by restored mangroves is innovative and establishes a different use of the ecosystem. Traditionally, what happens is an exploitation of the biological mangrove resources in order to obtain in return a certain amount of the official country currency (López Hoffman et al. 2006, Sudtongkong and Webb 2008). In the case of Sodziles, the restored mangrove ecosystem becomes the support for the existence of the local currency and serves to address the needs not met by the official currency of the country, in this case the Mexican peso.

## 5. CONCLUSION

As a result of macroeconomic analysis of Mexico it was found that the country is close to an economic crisis because the sectors of its economy have a high level of debt, mainly the sectors of the State of Campeche.

This high level of indebtedness certainly could result in economic crisis, as happened in other countries. To minimize the potential negative effects that such economic crisis might cause in the local Mayan Sodzil economy, the Sodziles are outlined and its initial characteristics presented in the text.

The prototype of the Sodziles describes a type of money backed in areas of restored mangrove ecosystem. To justify the need for this kind of money, mangrove restoration project was analyzed considering ecological, social and economic aspects at different levels.

The Sodziles are still under development. The first conversations between people in the community yielded positive results and demonstrated an open attitude to the proposal.

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