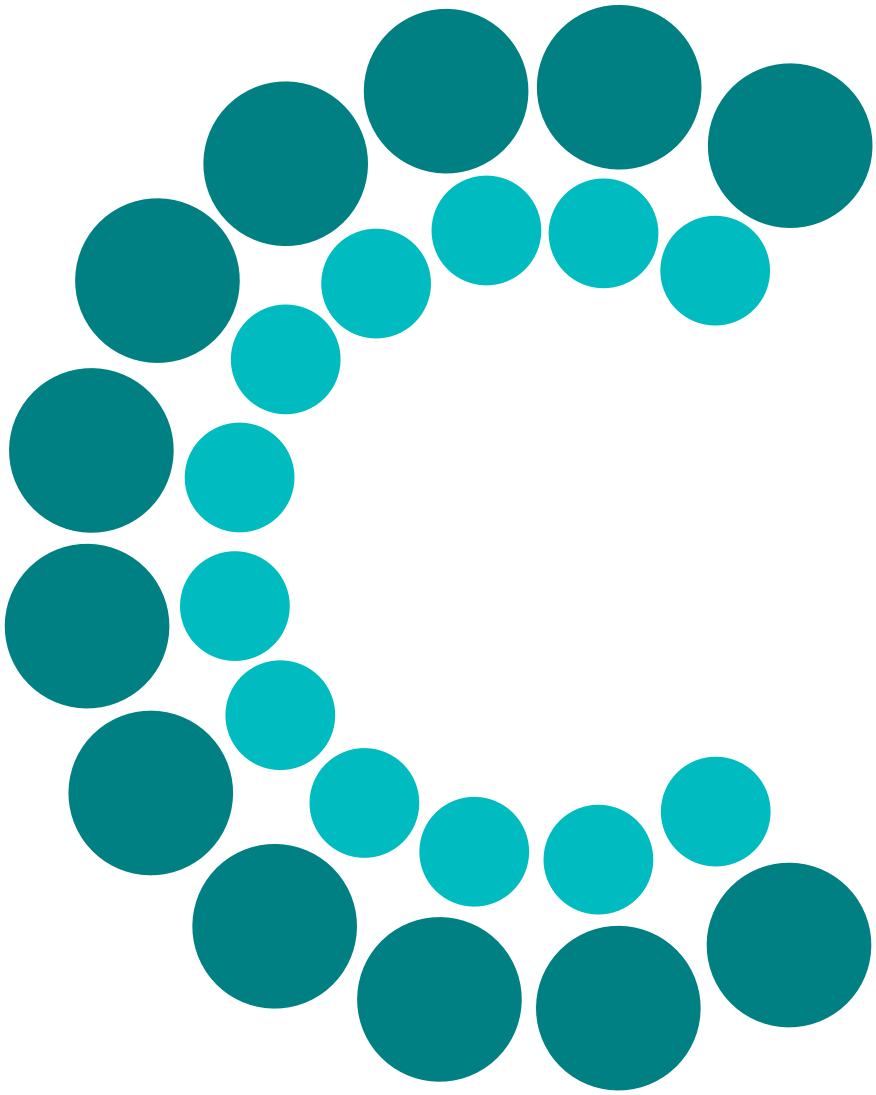
IJCCR

International Journal of Community Currency Research

VOLUME 19 (2015) SPECIAL ISSUE (SECTION D)

MULTIPLE MONEYS AND DEVELOPMENT

edited by Georgina Gómez



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Multiple Moneys and Development

IJCCR 19 (2015) SPECIAL ISSUE (SECTION D)

International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 1-5

INTRODUCTION: MONEY AND DEVELOPMENT

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This special issue of the International Journal of Community Currency Research (IJCCR) includes 15 papers that their authors presented in their earlier versions at the 2nd International Conference on Complementary and Community Currency Systems, 'Multiple moneys and development: making payments in diverse economies'. It was held at the International Institute of Social Studies (ISS) of Erasmus University Rotterdam in The Hague between 19th and 23rd June, 2013. It was organised as an event of the Civic Innovation Research Initiative in collaboration with the Qoin Foundation (Amsterdam), the think-tank New Economics Foundation (London), and the Palmas Institute (Brazil and Europe)[1]. The event was attended by almost 450 participants from 31 countries, including academics, practitioners, consultants, policy makers and representatives of grassroots organisations. This special issue seeks to reflect that diversity and includes articles on Complementary and Community Currency Systems from most corners of the world.

The second international conference on CCS in The Hague stems from the intention of a group of researchers to establish the tradition of meeting regularly to discuss advances in the production of knowledge on Complementary and Community Currency Systems (CCS). The first international conference, 'Thirty years of community and complementary currencies – what next?', was organised by a committee led by Jerome Blanc at the research centres Triangle (UMR 5206) and LEFI (EA 4012) and was supported by the University Lumière Lyon 2, its Chair of Entrepreneurship in Social and Solidarity Economy, the Institut des sciences de l'homme (ISH) and the ENS Lyon, where it was held[2]. The third international conference, 'Social currencies in social and solidarity economies: innovations in alternative development', will be held between October 27th and 30th, 2015 at the School of Administration of the Federal University of Bahia in Salvador, Brazil. The practice of regular meetings also aims at building bridges between communities of knowledge and communities of practice. Academics, practitioners, activists and policy-makers have participated in all events, while each group has had dedicated spaces for reflection according to their specific practices and needs. It remains a challenge to bring together the different groups and catalyse the forging of a community while respecting the different worldviews and demands entailed in this diversity.

1 Further support was received from the European Union North-West Europe Interreg IVB programme through the Community Currencies in Action Project, the Global Fund for Cities' Development (FMDV), United Nations Non-Governmental Liaison Service in Geneva, and the Veblen Institute. The event also received financial support from the Municipality of The Hague and the Dutch foundations Stichting Doen and Fonds 1818.

2 Financial support included the Veblen Institute for Economic Reforms and FPH (Fondation Charles Léopold Mayer pour le Progrès de l'homme), the Institut Caisse des dépôts et consignations pour la recherche, the Cluster 12 'Dynamiques sociales et territoriales' of the Rhône-Alpes Region, the Direction générale à la langue française et aux langues de France of the Ministry of Culture and Communication, the Co-operative RES and the Conseil General du Rhône.

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To cite this article: Gómez, G. (2015) 'Introduction: Money and Development' *International Journal of Community Currency Research* 19 (D) 1-5 <www.ijccr.net> ISSN 1325-9547

The event at ISS in The Hague opened with a working definition of CCS: social networks to exchange goods and services that use non-official means of payment. They are civic innovations by which citizens claim from the state the right to create means of payment and regain control over their resources. The conference closed with the question of whether there is a new global social movement that promotes monetary diversity and concentrates the contributions of academic research, progress in practical know-how and innovations in policy instruments for a more sustainable local economy.

The articles in this special issue of the International Journal of Community Currency Research have been selected for their connection to the main theme that "money matters in development" because it promotes the variations of socio-economic systems. The academic strand of the conference lasted two days and accommodated the presentation of 40 papers which are permanently posted at www.iss.nl/ccs2013. The research reflected in the papers covered a variety of subjects, dimensions, foci and used multi- and single-disciplinary approaches. In his closing speech, ISS Professor A.H.J Helmsing noted some important continental differences: while Japanese and Korean researchers focus on the awareness and motivation to participate in complementary currency systems and their effects on users, European researchers seem more interested in understanding the nature of the system, its design and how to make it work. In contrast, Latin Americans see Europe as promoting alternative local development initiatives while they themselves seem more concerned with monetary complementarity as a means to survival and income generation among low-income groups.

The predominant perspective of mainstream economics sustains that money is neutral and, hence, nothing but an instrument to facilitate payments and settle debts. This view shadows the importance of money and monetary innovations for development. Scholars and advocates of Complementary Currencies see much more in money than a tool to support payments and debts. To start with, there is some consensus among them that it is not just an instrument of the state but a social construction with various meanings and representations for the communities that circulate it. Money reflects values (economic, cultural, political and social) and in that sense it is a complex institution (Ingham 1998). It binds networks, supports social cohesion, transmits information and allows for variation and mutation of socio-economic systems (Nishibe 2012). From an evolutionary economics perspective, Complementary and Community Currency Systems enable transformations or mutations in the economic system that activists and practitioners strive to achieve by creating this new money. Most of their aspirations converge on the idea of a more "human economy" that would distance itself from the capitalist system centred on profit maximisation and self-interested behaviour, often resulting in environmental degradation. By being the result of collective action and solidarity, this money becomes a stepping stone to create an "autonomous geography" whose mere existence questions the characteristics of the prevailing economy (Pickerill and Chatterton 2006). Indeed, some complementary currency systems propose a significant political challenge to the widespread principle of "one country = one money", as expressed by Kuroda (2008).

Some of the schemes that have been part of the studies published in the IJCCR have strong emancipatory discourses and practices and the participants seek to create 'a human economy' that would de-link from the capitalist system to various extents. Other groups concentrate on the social networks that promote solidarity and social integration, on which they also depend, and that may achieve economic implications in the longer run, like facilitating the entry of the unemployed in the labour market. Some groups expect complementary currency systems to strengthen the local economy through buying locally with local money, and yet others prioritise the promotion of a low carbon economy that minimises transportation and so on. In terms of economic development, complementary currencies are perceived as the bloodstream of an additional economic circuit in the local economy that can alleviate the effects of unemployment and low-income, which makes the scheme attractive in the present economic downturn. Ultimately, complementary currencies create the opportunity to forge a new socio-economic system and it is up to their organisers and their circumstances to define in what ways and to what degree they will achieve a variation.

The list of potential benefits that complementary currencies could generate is certainly longer and promising. So, it has attracted the interest of policy-makers and multilateral organisations. However, the scheme is still relatively unknown to appeal to the general public. As Blanc (2012: 1) stated, "There is no historical evidence of such a growing wave of currency schemes since the beginnings of industrialisation at the turn of the 19th century", yet, the failure of CCS to scale up remains unexplained, quite like the question on whether they should scale-up, to what extent and on what grounds. Moreover, the academic visibility of research on monetary innovations and the variations of socio-economic systems that they support are still quite low, despite the fact that economic variation seems more necessary in the present economic and environmental crisis than ever before. Spain and Greece are pressed by these needs, for instance, and yet, complementary currency variations seem to be growing at a much slower pace than unemployment in the regular economy in these countries.

While in Europe and North America the schemes with unofficial currencies focus on promoting a more sustainable economy, in Latin America they are mainly seen as tools for income generation and the improvement of welfare. The Argentine CCS versions, called Redes de Trueque, were probably the benchmark in that regard and protected the lives and lifestyles of 2.5 million participants during the economic meltdown around the turn of this millennium, but they have practically become invisible to researchers and media since their demise around 2003. Brazil has taken over as the country where complementary currency

schemes are most active and dynamic, while its community currencies are often coupled with credit to run community or individual enterprises.

The difference in focus between Europe and Latin America motivated Helmsing to ask in his closing speech at the ISS conference in The Hague: is monetary diversity a pathology or a virtue? The question refers to the pre-conditions that allow for variations in money. In Europe and North America, complementary currency schemes appear as the offspring of democracy in a discourse of emancipation that leads empowered citizens to reclaim their rights to issue money and regain control of their local economies. In Latin America, in contrast, they seem to be a survival effort in the context of economic crisis although it is a survival effort that depends on collective action and, hence, civil society organisations with a strong sense of solidarity to sustain the action. Poverty appears as a permanent state of economic crisis, exclusion, and disempowerment which feeds the creativity and desire for a better future of communities and their organisations in developed as well as developing countries. The comparison between the CCS in France and Argentina and the innovative work in informal urban settlements in Kenya and Brazil explore these differences. They are a reminder that there is no basis to expect monetary mutation to go in one direction alone and that, they are bound to generate several variations in socio-economic institutions which relate to the conditions that generate the transformation.

This special issue is organised in two sections. The first section deals with the type of socio-economic system that emerges from the monetary variation represented by complementary currency systems and their embeddedness in the regular economy. The articles in that section explore meanings and effects of monetary diversity for business development (Brazil and Kenya), social and community regeneration (Korea, New Zealand and Japan), public services (Japan, Kenya, Brazil and Italy), employment creation and local economic development (short term and long term unemployed in France, poverty alleviation in Kenya and Brazil). The second section discusses various aspects of how complementary currency systems work and compare to each other. Specifically, the articles analyse the different logics, price-setting mechanisms, velocity of circulation, costs and funding sources to launch a CCS, the ways to construct bridges between them and advances on how to assess their success and viability.

THE SOCIO-ECONOMIC SYSTEM OF CCS AND THEIR EMBEDDEDNESS

Community development banks (CDBs) in Brazil are coordinators of various financial mechanisms that aim at restructuring poor and peripheral local economies. Marie Fare, Carlos de Freitas and Camille Meyer the development strategy of CDBs, which include an instrument to facilitate access to microfinance and a community currency, combined with vocational training programmes and support for business start-ups. Put together, these different activities constitute the endogenous and resilient territorial development strategy. The authors discussed the symbolic meanings conveyed by the currency of Banco Palmas, the first and most prominent CDB, and found that its local money serves as a medium for the institutionalization of the community organisations, among other roles.

William Ruddick, Morgan Richards and Jem Bendell report on the development of Bangla-Pesa, a complementary currency system that allows Kenyans in informal urban settlements to trade goods and services and meet sustainable development objectives. The system uses a 'collaborative' or 'mutual' credit model through a network of local business, whose owners often struggle to meet their basic needs. The paper documents the reasons for its creation, how it was launched, the immediate positive benefits upon launch, and some of the difficulties faced. Bangla-Pesa is shown to have facilitated, upon its launch, exchanges of roughly 50 Euros in value per day among 109 businesses, which is projected to raise living standards in the community primarily through the utilisation of excess business capacity.

The role of complementary currency systems on unemployment has attracted interest since research on CCS started. Maëlle Della Peruta and Dominique Torre refine the study of this relationship by building theoretical model that analyses virtual currency circulation inside a local community of unemployed people. They elaborate on the assumptions that the circulation of complementary currencies has two properties: they help unemployed workers to overcome the double coincidence of wants typical of barter exchange and they contribute to maintain or develop unemployed workers' skills and employability outside job. They find that the initial level of trust in the complementary currency and its properties are crucial. Moreover, they show that CCS, in general, have a positive influence on the rate of employment and on the expected utility of employed workers in comparison with a job market without a CCS.

Georgina M. Gómez explores the price fixing mechanisms in the Complementary Currency Systems in Argentina until 2006 and discusses in what ways these methods were different to those in the regular economy. The author found that prices in CCS did not follow those in the regular economy but were affected by relative supply and demand, production costs, and ethical and institutional factors. Each CCS group was organised as a price network in which critical prices - namely those of groceries bought in pesos - were used as reference for other prices. The result was a power asymmetry in favour of those who had pesos to get supplies in supermarkets. Some traders refrained from obtaining the maximum profit and preferred to ask for a "fair price", although notions of fairness and shared values varied widely, like the effectiveness of the institutional controls put in place to keep prices down.

Local communities in Japan are struggling to increase the number of participants in volunteer activities in order to revitalise local life. Ken-ichi Kurita, Masayuki Yoshida and

Yoshihisa Miyazaki refer to the problem of. To maintain the enthusiasm of active volunteers and entice new ones, CCS have been introduced as a reward to provide extra motivation. However, there is no evidence so far that CCS have appealed to the volunteers and the authors investigated whether CCS play a role in raising local residents' motivation to do volunteer work. They found that CCS can generally raise motivation, even in some of those people with a no-reward orientation. The results show that volunteer perceptions towards CCS and cash are dramatically different, although CCS have has the same monetary value as cash.

While agents desire to trust others, they are also reticent to do so against the evidence of opportunism. The ways in which CCS depend and create trust among participants is the object investigated by Robin Krabbe, who refers to ambivalent trust to address the conflict between trusting and not trusting others. The author investigated the potential of negotiated exchanges in a community to address the problem of trust, considering that complementary currency systems are a hybrid between monetary exchange and gift exchange. The article focuses on the case study of a recent project in North-West Tasmania, Australia, called CENTs – Community Exchange North-West Tasmania, which seeks to incorporate the concept of a reputation currency. Although in the early stages of development, CENTs is already showing potential to build trust via the concept of community exchange, albeit on an incremental basis.

Joonmo Kang and Baeg Eui Hong report on Community Currency Systems in Korea and found 43 groups that use them since 2012. They investigated how the coordinators envision the system using Q-methodology, a method to find the subjective views on the topic, and found four types of perceptions on community currencies: 'neighbourhood as a community' in which coordinators agree with mainstream economic values and view community currencies as a tool to revitalise the community and to empower local residents; 'alternative community' in which coordinators view currencies as the means to resist the dominant neoliberal ideology; 'community through eco-friendly affinity groups' in which the scheme is a tool to promote an ecologically-friendly lifestyle; and, 'ecological community' in which coordinators believe that it is an alternative to capitalism and to maintain an ecological community.

Complementary Currency Systems may solve or at least reduce the problem of financing public, solidarity and care economies with public resources. Maurizio Ruzzene concludes that time-based systems of measure, exchange and credit can foster sustainable financing of non-capitalist economies in a more economically efficient, localised and ecological ways. The key is to link alternative currencies to an average value of labour time, which can significantly widen their power, functions and economic role. Moreover, this can foster a new type of universal ecological protection against speculative finance and exploitation of resources, promoting a return to 'taking care' of ourselves, of others, of our community currencies and the world we live in.

COMPARATIVE RESEARCH ON CCS: HOW DO THEY WORK?

Since 2010 there has been an increasing proliferation of complementary currency systems in France and other European countries facing the Euro crisis. These Complementary Currency Systems are shaped by the interest in civic reclaim of the currency and the aspiration for a full-citizenship in which two principles stand out: participation and autonomy. Ricardo Orzi compares these aims with those of the community currencies in Argentina between 1995 and 2005 and discusses in what ways the French CCS may inspire the present social currencies in Argentina. Despite differences in the macroeconomic structures and context, the author concludes that present Argentine CCS may include various state and financial sector organisations and the civic dynamics of the 'consom-acteur'.

The organisational costs of launching a CCS are too often overlooks, as well as the question of who bears these costs. Rolf F.H. Schroeder analysed the different types of costs incurred in the launch of new Complementary Currency Systems and enquires about the appropriate means to finance such projects. The author explores external public and private sources. Self-financing appears to be a viable option but the burden to be carried by the participants by themselves is a significant constraint. In the final part, the author considers whether and how it can be possible to finance regional currencies that would have a significant economic impact. A scenario illustrates the potential of this feature with regard to the construction of new types of systems.

Josep Lluis de la Rosa and James Stodder analyse the velocity of several complementary currencies, notably the WIR, RES, Chiemgauer, Sol and Berkshares dollars. They seek to explain the diversity in their velocity of circulation. Using a comparative method between cases, the article explores a number of possible explanations on the differences in velocity, apart from prevailing demurrage approaches. For example, WIR velocity is 2.6 while RES velocity is 1.9 despite being similar currencies. The higher speed may be explained by WIR blended loans among other benefits and by the fact that there are nearly 20.000 unregistered members who contribute with their transactions.

The question of prices formation is appraised also in the context of Greece. Irene Sotiropoulou investigated how prices were set within the exchange network of Chania, Crete, and examined what prices reveal about the value of the goods offered, within the context of the local economy of the Chania area. The data have been gathered during regular visits to the open markets of the scheme since January 2012. The article attempts to contribute original research findings concerning prices in parallel currency schemes and the study highlights several important issues which arise in multiple currency practice.

Cooperation and interchange between complementary currency systems is not yet very common, perhaps because it has not been considered. Jens Martignoni describes com-

plementary currency as an instrument of cooperation and on the technical terms of trade to establish cooperation between such systems. Basic principles of interchange appear necessary for success, such as the ideas of trade balance, compensation funds, exchange rates and clearing, setpoints and limits, references, anchoring money and tolls and taxes. The author further discusses some aspects of governance and negotiation and presents a nested framework of rules adapted to currencies. A case study of CCS in the Zurich region is presented, where there is an on-going process of negotiation for a trade network.

Credibility and legitimacy are required to improve the design and implementation of complementary currency systems and to engage with public institutions and secure funding. However, only about a fourth of the studies touch upon impact evaluation processes. Christophe Place and Leander Bindewald review the literature and propose two complementary approaches to assess the impact of CCS: a prototype of an integral Impact Assessment Matrix based on the goals, objectives and performance indicators, and a tool based on the 'Theory of Change' methodology as a common, comprehensive and incremental approach for impact evaluation. Both propositions are currently being applied and further developed by the authors.

Complementary currencies can be considered successful in terms of the motivations that led to the creation of these currencies and the degree to which their initiators reach their original goals. Lukas Fesenfeld, Jan Stuckatz, Iona Summerson, Thomas Kiesgen, Daniela Ruß and Maja Klimaschewski draw on two explanatory factors for success: the motivation of the currency's founders and the degree of organisation. They reviewed seven CCS projects in Croatia (CROM), Germany (KannWas, Engelgeld), Greece (Ovolos, TEM) and the United Kingdom (Bristol Pound, Brixton Pound) and found that projects which pursue several different motivations are more successful than those with fewer goals. As for the degree of organisation, projects which score high on all dimensions of organisation are correlated with higher project success. They propose a typology of two groups: Type 1 has low diversity of motivation and organisation and Type 2 has high diversity of motivation and organisation.

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TERRITORIAL DEVELOPMENT AND COMMUNITY CURRENCIES: SYMBOLIC MEANINGS IN BRAZILIAN COMMUNITY DEVELOPMENT BANKS

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ABSTRACT

Brazilian community development banks (CDBs) have established various coordinated financial mechanisms aiming to restructure poor and peripheral local economies. Their development strategy includes an instrument to facilitate access to microfinance and a community currency, combined with the definition of vocational training programmes and support for business start-ups. Put together, these different activities constitute the endogenous and resilient territorial development strategy defined by CDBs. Little scientific literature has been devoted to the study of community currencies in this process. This article presents an overview of the symbolic meanings conveyed by the currency of Banco Palmas, the first and most prominent CDB. First, we present some historical and territorial characteristics of Banco Palmas. Second, we analyse the symbolic role of its currency: money as a bond/link (the building of the community on its territory); money as a medium for institutionalisation (of the community itself and to the exogenous actors, as to define a federative project); and finally money as a vector-catalyst (when the plasticity of money allows to explore its different formats and so, to adapt it to the new perspectives of community and territorial development).

ACKNOWLEDGEMENTS

We thank the Palmas Institute, especially Joaquim de Melo, Sandra Magalhães, and Asier Ansorena, and the Federal University of Bahia, especially Genauto Carvalho de França Filho, and Leonardo Prates Leal, for helping us in data collection

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To cite this article: Fare, M., de Freitas, C. and Meyer, C. (2015) 'Territorial Development and Community Currencies: Symbolic Meanings in Brazilian Community Development Banks'. *International Journal of Community Currency Research* 19 (D) 6-17 <www.ijccr.net> ISSN 1325-9547

INTRODUCTION

The concept of territorial development is becoming increasingly widespread in the world of research and among development actors and civil society. In this regard, the territory cannot be confined to *"a piece of the nation"* (Courlet, 2008: 12) or *"a piece of the land"* (Talandier and Davezies, 2009: 64); it must be understood as the social construction of a multidimensional collective space, where economic and social activities are "located" (Sack, 1986). This is core to the approach to the territorial economy. It allows the construction of the territory by local stakeholders to be taken into account (Pecqueur 2000; Courlet, 2008). Though the territory must be analysed as *"a system made up of actors who are linked together by social relations, dynamic relations that evolve over time depending on the relations, interactions that are established between them"* (Courlet, 2008: 10). This "complex system" is made of up various actors who interact depending on a specific choice of location for their relations and exchanges, which thus generates the territorial dynamics. Consequently, development is no longer considered as being only exogenous, but now depends also on *"a territory's capacity to endogenise its development"* (Courlet, 2008: 47). The territory is activated and revealed by stakeholders who cooperate to seek solutions in order to solve common problems. The territorial vision underscores the capacity of stakeholders in the territory to bring about a dynamic of endogenous sustainable development, especially *via* a bottom-up approach.

The territory is consequently a *"collective creation"* (Courlet, 2008 : 35), but how can this construction be promoted and the actual capacity of territories to develop their wealth and trigger sustainable territorial development be improved? To achieve this, territories develop dedicated tools at their level. Community and Complementary Currencies (CCCs) happen to be one of these tools and seem to meet the requisites for this imperative *collective creation* of sustainable wealth (Fare, 2011).

By CCC, we mean a specific accounting unit that complements the official currency and has been developed on the initiative of a group of agents that have formed a network or operate in a defined territory, with a view to accounting for and regulating exchanges of goods and services.

This text will focus on Banco Palmas, the first and most prominent Brazilian community development bank (CDB). CDBs have set the specific objective of promoting endogenous territorial development in order to create employment and income for the members of their community. CDBs have adopted a specific community currency in each territory (França Filho *et al*., 2012). Today, with over 100 CDBs nationwide, these community institutions are a major phenomenon in Brazil's solidarity economy and microfinance sector (Neiva *et al.*, 2013). However, there is very little scientific literature devoted to CDBs, and even less to their CCCs.

We focus on the symbolic dimension of money ; a dimension that is central in heterodox and sociological approaches of money (Ingham, 2004; Théret, 2007; Servet, 2012). Indeed, for institutional and socioeconomists, money is understood as being a fundamental social institution for all societies, whether or not they are market-based (Aglietta and Orléan, 1995, 1998; Théret, 2007). This point of view leads to understand money as a « total social fact » because money is related to the whole society, encompassing social, political, cultural, religious and economic spheres.

The Palmas currency seems to illustrate particularly the symbolic function of money. Indeed, it represents the symbolic response of an excluded community that issued its own currency. Tied up to the development strategy of Banco Palmas, this currency participates in asserting the community as an actor for the development of its territory. By doing so, this community currency challenges the traditional understanding of money as issued by state central banks.

Then, we wonder why and how the Palmas currency constitutes a symbol of affiliation to the same political, economic and social entity? To what extent does this currency represent territorial belonging and mobilise actors for local development? Considering the Palmas example, this article examines the social nature of money through its political, symbolical and economical dimensions.

We adopt a single in-depth case study approach (Yin, 2014). We focus on Banco Palmas (BP), as it is generally considered an example of successful CCC by the literature. However, the scientific literature on Banco Palmas is quite limited, with the exception of some national publications (França Filho et al., 2012; Neiva et al., 2013; Scalfoni Rigo, 2014). No international research focuses on the community currency, and its contribution to territorial development has not been clearly defined. Hence, this article proposes to fill this gap by presenting a descriptive case study that investigates associations between the symbolic meaning of the Palmas currency and the collective mobilisation for territorial development. The article does not determine causal relationships, but rather describe the characteristics of the progressive development of a poor area and the construction of a complementary currency system in this perspective.

One of the authors conducted an ethnographic fieldwork of three months (from September to December 2011) in Banco Palmas. He collected qualitative data through participant observation, face-to-face semi-structured interviews, and collecting secondary sources. Interviews have been conducted with eight Banco Palmas directors and managers selected for being involved in the organisation for a long time and possessing relevant knowledge on the topic. The interviews questionnaire consisted in three parts. The first part was related to the evolution of Banco Palmas and its partnerships with external organisations (mainly Central Bank, federal government, and public banks). The second part dealt with questions on the development strategy of Banco Palmas and its vision of territorial development. The third part focused on the role of the currency in the development strategy, its sustainability, and its articulation with the other financial and non-financial services provided by the organisation. These interviews were recorded and transcribed. We coded the data into two categories corresponding to our research questions: 1) the interactions of Palmas CCC with other services provided by

Banco Palmas, for mobilising local stakeholders, 2) the symbolic meaning of the currency. We also consulted national inquiries accomplished on Banco Palmas (França Filho et *al.*, 2012; Neiva et *al.*, 2013; Scalfoni Rigo, 2014; Silva Junior, 2008) and confronted it with a study realized by one of the authors (Meyer, 2012). These studies analysed Banco Palmas and its CCC from different points of view. However, crossing data and results allowed us to increase the construct validity of our analysis.

First, we shall begin by presenting some of the general characteristics of CDBs and look at Banco Palmas' history and community roots. Second, we shall focus on the symbolic meaning of the Palmas CCC: first, money as a bond/link, second, money as a medium for institutionalisation; and finally money as a vector-catalyst.

THE COMMUNITY DEVELOPMENT BANK (CDB) STRATEGY: AN INTEGRATED VISION OF TERRITORIAL, ENDOGENOUS AND COMMUNITY DEVELOPMENT

CDBs are solidarity finance organisations created and managed by civil society (Melo and Magalhaes, 2008). Following the definition given by the network of CDBs, they *"are interweaved solidarity financial services, of an associative and communitarian nature, directed towards job creation and income generation within the perspective of reorganising local economies, having as its foundation the principles of the solidarity economy"* (Neiva *et al.*, 2013, p. 108). They conceive "development" as something that strengthens and gives potential to the neighbourhood's endogenous energies: it involves promoting territorial capacities by creating and boosting solidarity networks of local producers and consumers, called "prosumholders" (*i.e.* identifying the inhabitants of the neighbourhood as *producers, consumers and stakeholders* in the development of their territory *via* their daily exchanges, support to and involvement in the CDB activities and structure).

The feeling and sense of territorial belonging are the cornerstone of the action of CDBs, as they coordinate various instruments that aim to build both an environment favourable to the development of local micro-enterprises, and an environment of trust, solidarity and well-being for the inhabitants of the neighbourhood (França Filho, *et al.*, 2012). They achieve this by facilitating access to various banking and financial products that are tailored to the specific needs and realities of low-income communities, such as microcredit for production and consumption, correspondent banking and CCCs (Hudon and Meyer, 2014). The aim is to boost inclusive and converging socioeconomic development for all territorial stakeholders. The economic and social activities are grounded in values of cooperation that aim to strengthen a *social-territorial capital*.

For full consideration to be given to CDB schemes, it is necessary to look at the context in which they emerged, were implemented and then deployed in Brazil. The rapid growth that the Brazilian CDBs' movement is experiencing today is inseparable from the history of the first CDB, *Banco Palmas*.

A gradual empowerment of the Conjunto Palmeiras' community

Banco Palmas is located in the *Conjunto Palmeiras,* a neighbourhood of 36,000 inhabitants among the poorest and most violent of the City of Fortaleza in Northeast Brazil (Borges, 2010). It came into being as part of the collective action and popular association movement that emerged with the first projects to develop this former favela (which only obtained official district status in 2007).

The territory of the *Conjunto Palmeiras* was initially made up of palm trees and dense vegetation. When the first inhabitants arrived in 1973 – they were displaced by force by the local authorities from different locations on the sea front, located 22 km from the Conjunto – there was no urban infrastructure available at the time (França Filho and Silva Junior, 2005). The new *favelados* were literally "dumped" in this no man's land from the trucks that transported them. They were consequently obliged to build everything themselves, without financial or social support from local authorities. The inhabitants were supported by priests from the Liberation Theology who "informed/educated" them in terms of their own capabilities and organisational skills.

In the following years, the *Conjunto Palmeiras Dwellers Association* (Asmoconp), in partnership with other neighbourhood organisations, regularly launched collective mobilization activities to demand access to water, sanitation, public transport, health centres, etc. from public authorities. The inhabitants created this association in 1981 as part of a community-based struggle against exclusion and the denial of the community's fundamental rights by public authorities. The action of Asmoconp and community leaders during the 1980s and 1990s built local capacity to urbanize the neighbourhood to a certain extent, and made a marked improvement to living conditions.

However, poverty remained endemic despite the development of the favela. Inhabitants were not able to bear the increase in the cost of living due to this urbanization (water, sanitation and electricity bills, and property taxes). In 1997, Asmoconp consequently set out to find alternatives to the negative externalities of its local development projects by organising 96 popular assemblies, along the lines of those that served to make the major development decisions in the past. Based on the observation that local wealth (human and monetary wealth) was being drained out of the community, these collective discussions identified the need to strengthen the local economy and facilitate the generation and circulation of income within the neighbourhood: indeed, as shown by the first local consumption mapping (1997), only 20% of household consumption was made in the neighbourhood, against 80% outside (Melo and Magalhães, 2008).

Banco Palmas came into being as a result of these analyses and debates. It was founded in 1998 and was initially designed as an Asmoconp project on the basis of available

information in the solidarity networks – without further research – on Grameen Bank's activities in Bangladesh. Banco Palmas was therefore intended to pool local energies, in addition to Asmoconp's mobilisation activities, in order to create employment and income for inhabitants. It relied on the experience and technical, economic and financial skills acquired by community leaders *via* the access to specific empowerment cycles and the self-management of neighbourhood development works, conducted over the past decade, with financial support from partners such as the German development cooperation agency.

A system based on territorial *experience*

In this respect, and after several progressive improvements to meet both needs and opportunities, the architecture of Banco Palmas' functions provides a response to a proactive structuring of the different sectors of the local economy. On the one hand, it allocates microcredit to producers in order to strengthen local provision and the neighbourhood's entrepreneurial dynamics. On the other hand, local consumption was boosted by recourse to various intermediation processes for trade services and community monetary transactions: initially via the credit card called Palmacard, subsequently via a barter club using the CCC Palmares and, finally, via the CCC Palmas (Melo and Magalhaes, 2005; Melo, 2009; Neiva et al.:108). The PalmaCard served as a manual credit card for giving families a weekly or monthly cash advance. The value of the Palmacard ranged between R$ 20 and R$ 100 (7 to 35 current euros) and allowed goods and services to be paid for in neighbourhood shops registered with Banco Palmas (Melo and Magalhaes, 2005). At the end of the month, debtors and creditors went to Banco Palmas for paying and withdrawing the value of the exchanges. In relation to the first Palmares currency, this was created in the context of a barter club based on the Argentinian model (Melo, 2009). The CCC Palmares – highly symbolically named that way as homage to a famous quilombo (community of fugitive slaves) in Northeast Brazil - served as a mean of exchange in the barter club organised by the Asmoconp. The barter participants collectively determined the prices. After having lasted four months, the barter club gradually lost strength due to the fact that families mainly came to swap their products for staple foods, which no one in the club had: the goods there consequently often shared the same characteristics (small handicrafts, clothes, cakes...).

The Palmas was created in 2002 on the basis of the results of the Palmares: it was designed as a barter club for which BP managers "broke down the walls" in order to include local shops and therefore provide the members of this club with a real diversity of products that they needed for their consumption. The Palmas is issued at parity with the national currency (1 Palmas is worth 1 real) and can only be reconverted into reais by retailers who do not manage to spend their community currencies in the local production and marketing circuit.

Right from the start, the objective was to prevent community wealth from being drained by the "outside" ("plugging the leaks"), particularly the city centre shops and neighbouring districts. The social, economic and financial tools, products and services that were created were designed to both strengthen territorial capacities and to create its own local economic circuit and a coordinated network of local producers and consumers living in the neighbourhood.

This coordination among local actors also includes other community institutions (schools, churches, traders', sports and cultural associations…). Indeed, Asmoconp and Banco Palmas have defined a "local public space" (Fraisse, 2011) in which inhabitants and their representatives collectively deliberate, in a direct participatory way, on the directions and projects to be supported and implemented by the community bank (and Asmoconp). This *local economic forum* (named FECOL) allows the institution to have an effective foothold within the realities of the neighbourhood.

Along these lines, the notion of "replicability" in other communities enhances the territorial quality of the CDB system. Since 2003, the latter began to be "transferred" to other communities living in favelas or rural areas who asked to join the same system of organisation, which is in line with their aspirations for local development. Instituto Palmas, a non-profit civil society association, is therefore the formal entity that provides visibility and opportunities for new partnerships with the community, particularly with several public banks. An initial agreement was established in 2005 with Banco Popular do Brasil, as part of the National Directed Productive Microcredit Program organised under the first Lula presidency. It also allowed Banco Palmas to develop its banking correspondent role, to reinforce its bank management and though to increase its legitimacy in the domestic financial landscape. Today, it has a microfinance portfolio worth over R$ 3 million (EUR 1.2 million) from the partnership with the Brazilian national development bank (Banco Nacional de Desenvolvimento Economico e Social, BNDES).

Furthermore, it works with the National Secretariat for the Solidarity Economy, international organisations (foundations, networks, NGOs), local authorities (cities, Federated States) and a number of national and international universities. The aim is to establish and strengthen new CDBs all over Brazil, and to promote the innovative joint venture between CCCs, microcredit, social programmes and bottom-up territorial development planning.

THE SYMBOLIC ROLE OF THE PALMAS COMMUNITY CURRENCY

The Palmas CCC was introduced in 2002 with initially two main objectives: localising consumption in the territory and stimulating reflection on the role the currency plays in territorial development (França Filho *et al.* 2012; Melo and Magalhaes, 2005). The core strategy relies on combining easier access to microcredit, vocational training, support for business start-ups, with a dedicated CCC. Indeed, a currency can be an engine that can boost grassroots territorial development. By linking up stakeholders in the territory, CCCs activate forms of proximity and creates synergies between them for a common objective. The active participation of citizens and all the socioeconomic and public stakeholders in the territory is indeed core to the process of defining and implementing a territorial

project (Fare, 2011).

As we presented in the previous section, Asmoconp and Banco Palmas have been built on the social capital made up of mutual assistance and solidarity during the first construction projects in the neighbourhood (Melo, 2009). The approach based on confrontation with the public authorities thus created a community united around issues related to improving living conditions over the long term: BP was, indeed, founded in 1998, 25 years after the creation of the favela from scratch.

When a CDB is launched, the CCC is the first element of both "media coverage" (relations with the press and institutional stakeholders) and community mediation (co-construction process and exchanges within and by the community) to be pointed out by the local stakeholders who are interviewed[1]. This is why we decided to identify and question the different senses of symbols that money carries.

After presenting the theoretical requirements, we will show how the Palmas currency strengthens the empowerment of the community. Then, we will analyse how the Palmas currency helps unite local stakeholders around a project of endogenous territorial development. Finally, we will study how the Palmas and its new variations draw new perspectives of territorial dynamics and mobilisation.

Money as an expression of the "social totality"

Confidence building is a key element for institutionalising the use of money as a symbol. As defined by Aglietta and Orléan (1998), confidence is results from several dimensions that are self-reinforcing.

Confidence is first and foremost based on symbols, collective representations and values of the payment community, which relies on the *"symbolic authority of the system of collective values and standards, which provides the basis for social belonging"* (Théret, 2007 : 25). It is a question of the collective adhesion to a set of values and representations at the centre of the social belonging, rooted in the Aglietta and Orléan's *"ethical confidence"* (1998). Here, the CCC is based on the social capital built up during the mobilisation for the construction of the neighbourhood and is strengthened by the development and empowerment objectives conveyed by Banco Palmas.

Secondly, *"methodical confidence"* results from routine and from the safety provided by the daily payment relations. This type of confidence emanates from daily lives and results from the implementation of procedures that reduce uncertainty and secure transactions.

These two forms of confidence are mutually self-reinforcing. Based on these two confidences, the understanding money as a symbolic system induces to interpret it as an horizontal relationship between users. Nevertheless, Aglietta and Orléan (1998) pointed out that, as appropriation, control, and power object, money should also be considered as legitimate through a "hierarchical confidence" and vertical relationships.

The latter is based on the third party, the sovereign authority or the collective authority, which provides an absolute guarantee of the acceptance of the money. The confidence in money is therefore widely dependent on the confidence given to its issuing entity. This hierarchical confidence is embodied, in our case, in the Banco Palmas institution, which *"defines the rules for using the money and provides the means for the ultimate settlement"* (*ibid.*: 28). BP therefore acts as a guarantor for the monetary relationship by developing principles of democratic and participatory governance (FECOL and Asmoconp). This space for internal debate should make it possible to determine the rules for the conditions of the issuance and circulation of the currency, i.e. to institutionalise it. As so, the FECOL forum has an empowerment function, as it allows an active learning about citizenship and provides a space for free debate for people who are traditionally excluded from the public space and whose voices are never listened to or taken into account in the definition of public policies and their implementation instruments. Consequently, over 90% of inhabitants think that BP is a source of new information and learning. Approximately 87% also feel that it is a place where community issues can be discussed, and for 98%, it is a space that helps people (Neiva et al., 2013 : 169).

Money puts simultaneously in relationship both "individuals together and with collective bodies representing the sovereignty of the group membership" (Theret, 2007 : 38). Then, money is attached to both its horizontal and vertical dimensions. The horizontal dimension serves to underline the links created by the currency within community members. The currency consequently tends to preserve this social capital, while strengthening it, since it represents a social convention specific to the neighbourhood inhabitants. The vertical dimension emphasises the legitimacy of BP in *representing* the social totality. The currency is the *expression* of the social totality: it reflects a membership link that connects every individual to the social whole. The currency is thus "an operator of social cohesion depending on a confidence that creates the recognition of belonging to a payment community" (Aglietta and Orlean, 2002 : 293).

The combination of these three forms of confidence is constitutive of money as an institution. The hierarchical confidence ensures the methodical confidence, to the extent that the sovereign authority has the power to change the rules that govern the methodical confidence. But the hierarchical confidence would be nothing without the ethical confidence, which legitimizes the hierarchical confidence.

These three forms of confidence are the prerequisites for acceptability and monetary use and therefore allow diverse symbols to be conveyed through the currency circulation within a community and/or a territory.

[1]See, for example, extracts from television reports on the ribbon-cutting ceremonies for Brazilian CDBs on the YouTube channel: http://www.youtube.com/playlist?list=PL1CF162F1DCD1A149.

A currency for empowering the community

We have seen that the Palmas currency is deeply linked to Conjunto Palmeiras' and Banco Palmas' history, and constitutes a strong sign of community' emancipation vis-à-vis the abandon of the territory by public authorities. As one of CDB's founding transgression (see the lawsuit filed – and lost – by the Brazilian Central Bank in 2003 for « counterfeiting money »), the CCC appears as the expression of the local community to reclaim and assert sovereignty in order to regain control over its territory and destiny. Thus the strategy deployed by Banco Palmas carries a political project of social transformation: by naming it a "local social circulating currency", the Palmeiras' community claims a political conception of money and builds its own identity through contesting the state sovereignty over the monopoly on money issuance.

Following Pickerill and Chatterton arguments (2006), it is possible to describe the territory built around the use of money and Banco Palmas as an "autonomous geography" in the sense that the objective is to create "spaces where people desire to constitute non-capitalist, egalitarian and solidaristic forms of political, social, and economic organisation through a combination of resistance and creation" (2006 : 730). At the heart of movement is the concept of autonomy, concept stated in the Conjuncto Palmeiras via the principles of self-determination, community empowerment and self-organization conveyed by the Liberation Theology.

Thus, the participatory mode of governance applied for the definition of the rules for the currency, during the popular assemblies and the FECOL, allows the *"construction of social ties and a form of citizenship to be learned* via *discussions and debates on the group's internal rules"* (Blanc 2006: 179). These discussions are based on a rationale to democratise the economy (Laville, 2011), as it is the users themselves who define their rules and produce their conventions. Consequently, the meetings allow members of the community to exercise greater control over their economic decisions and underscore the fact that the money is a common creation "imbued with the collective spirit". In other words, *"a community currency is simply a measure of exchange whose supply is limited only by the willingness of participants to trade"* (Hart, 2006: 139). The debates on money and its role in economic life therefore make it possible to learn more about economic concepts and financial mechanisms. This form of financial education is crucial in the context of a conscious reappropriation of the local economy by territorial actors.

This conceptual change involving the affirmation of the community's sovereignty over its future (and over the forms of its implementation) is concomitant with a change in social representations. The underlying system of values is indeed constantly turned towards the collective level and cooperation. These values depend upon a past that has been continually mobilised by Banco Palmas as a "reference" value. The aim is to make the change visible and embody it, and to integrate community action into a historical continuity, while regularly projecting it into a future defined on the basis of the continuous innovation of the socioeconomic programmes "tested" within the neighbourhood prior to being disseminated towards the outside.

In addition, the monetary plurality in the territory of the *Conjunto Palmeiras* and the discussions on the CCC make it possible to rethink the role of money and its impacts on territorial development (Fare, 2011). The Palmas thus has an educational and informative nature in terms of the currency being a vehicle for cooperation and mutual support, in contrast to its potential for exclusive self-enrichment.

In that perspective, development was clearly defined by Conjunto Palmeiras' community as being first of all *endogenous* because it mobilises local stakeholders for a common project supported by socioeconomic and financial instruments defined and created *ad hoc*. As this common project is built collectively, the related economic decisions and process are embedded in the structures (and tools) for the social organisation of the neighbourhood.

The Palmas currency is closely assimilated to the CDB system, for which it symbolised, as soon as it was created (including *via* its previous forms, the PalmaCard and Palmares), a change of attitude towards the economic sphere by promoting citizen intervention in economy and finance, thus reappropriation of development key-instruments and strategies, and a solidarity-based orientation for the community development process (Melo and Magalhaes, 2005).

These collective and participatory aspects consequently promote a change in the attitude of the multiple territorial stakeholders (inhabitants, retailers, producers, thematic associations for women and youth), which define themselves -and thus reappropriate- their own and common socioeconomic strategy (Fare, 2011). The CCC Palmas constitutes a symbol of the community's empowerment and reappropriation of the territory, insofar as it represents a socioeconomic convention that is specific to the neighbourhood, and designed by the community itself.

Its value depends on both the confidence in Banco Palmas (BP) and the solidarity bonds that are established in order to build the neighbourhood cohesion. Its geographical demarcation gives the neighbourhood distinctiveness, as it is different from its adjacent districts. The act of consuming using a CCC is therefore partly a citizen act of community affirmation and of the will to collectively build a shared territorial project.

The creation of a local currency is one of the core examples of sociability and trust brought about by BP (a "proximity of mediation"). The use of a specific currency as an agreement for the exchange and the redefinition of the status of "exchangers" determine new social ties. By the combination of these local relations, the CDB tends to create a multidimensional trust embedded in the territory perspective.

The symbolic dimension of the Palmas currency strengthens the empowerment of the community especially vis-à-vis the outside by creating a "symbolic universe" specific to the community and territory. In this sense, money institu-

tionalises the community. Once built and institutionalised, the community can develop a unifying and federative project.

Exploiting the Palmas symbolic meaning for territorial development

The complementary currency as a symbol of the appropriation of the territory

The development strategy implemented by Banco Palmas is based on the collective construction by the territorial stakeholders: it involves an endogenous development process supported by local capacities. In this respect, the Palmas is the symbol of the rallying and belonging to this territory and represents the symbol of this common project. Consequently, the CCC underscores this construction process for community identity in that it emerges from the community *via* collective discussions. As Sandra Magalhães, one of the funder of Banco Palmas, points out, the process for democratic appropriation is initiated in all the territories where a new CDB is established:

> "When we go to a municipality or community, we talk with the people about the meaning of money, why we work with a community currency, what are the benefits and challenges of working with money. From there, there is one thing that I find fascinating is the process of defining, how it will be called, why, what design it will be." (quote, interview – December 1rst, 2011)

Furthermore, CCCs acquire their territorial character in onomastics and iconography (see figure 1):

> "The definition of the name of the Bank and the Currency usually leads a discussion on what characterizes the community, what differentiates it, what makes it unique. This process impulses building a common identity and memory in which appear the most important battles, heroes and heroines, challenges and conquests. [...] The result of this collective construction [...] must express an identity, belonging and sense of pride." (Instituto Palmas 2011: 13).

The name Palmas clearly refers to the territory of the *Conjunto Palmeiras,* which was initially dotted with palm trees. The CCC consequently reflects the very name of Banco Palmas and its history, struggles and conquests (Melo, 2009). The name "Palmas" is indeed commonly used by inhabitants to refer equally to Asmoconp, Banco or Instituto Palmas, and the CCC.

Figure 1: Palmas currency for Banco Palmas

The currency has quite a simple design: the "Palmas" palm tree is on the front – it is the symbol of Banco and Instituto Palmas – with the monetary value, and on the back there is a horn of plenty, the bar code and the banknote number, along with a short text describing the role of the currency. The Palmas, the first CCC of a CDB, today appears as having a rather simple iconography. The CCCs of more recent CDBs indeed aim to be more representative of the territory's cultural characteristics. There may be natural elements (a crop plant, a specific bird…), popular festivals or people who have taken part in the construction of the neighbourhood (see figures 2 and 3). Consequently, the CCC as such constitutes a very strong social and community symbol, as Sandra Magalhães points out:

> "The ability to create yourself your own money, to have this power, that it is here because we decided that it would be like this, is great. And after you take this money and go buy the goods, this is a fantastic thing! We feel that people are surprised with this power." (quote, interview – December 1rst, 2011)

Figure 2: Cocais currency for Banco dos Cocais – São João do Arraial (*Carlos de Freitas, personnal collection)*

Consequently, 95% of the people interviewed (Neiva *et al.*, 2013 : 171) think that Banco Palmas' activities and its presence in the territory have improved the image of the community, notably with the community bank's reports on television. 98% of the community members interviewed by Silva Junior (2008 : 43) affirm that Banco Palmas contributed to the development of the district and 90% affirm that it contributed to the improvement of the living conditions of the district.

Figure 3: CDD currency for Banco Cidade de Deus – Rio de Janeiro (*Carlos de Freitas, personnal collection)*

In addition, Henry and Rafael, two inhabitants in the community, highlight the importance of Banco Palmas and the currency in the process for territorial construction and community mobilisation (Silva Junior, 2008):

> "The currency represents development. I do not know how it is financed, but people speak positively about it. It promotes development as it circulates in the Conjunto Palmeiras, and if it is spent in the community, it produces income for the latter." (Henry – quoted in Silva Junior, 2008)

> "Banco Palmas provides a way to transform the neighbourhood via culture and the solidarity economy [...] The circulation of the currency is interesting as in addition to being practical, it makes it possible for purchases and sales to be made in the neighbourhood." (Rafael - quoted in Silva Junior, 2008)

This positive vision contrasts with the traditional image of violence and poverty carried in this peripheral neighbourhood. The Palmas currency therefore raises the self-esteem of neighbourhood inhabitants, as declare the microinsurance manager Elias Lino dos Santos who grew up in Conjunto Palmeiras:

> "In my view, the currency [Palmas] is an extremely powerful symbol. [...] Poor people from around here, the community, the peripheral region of the Northeast region, which is the poorest region of a poor country [...] can create their money. This creates a lot of self-esteem and this self-esteem contributes to the BP being accepted and to the adherence of the community." (quote, interview - November 25th, 2011)

Based on a deep analysis of the local stakeholder CCC practices, the recent research conducted by Scalfoni Rigo (2014) confirms the preliminary results presented in this article. According to Scalfoni Rigo, the Palmas currency has the "capacity of influencing the dynamic of the local socio-economic relationships and contributing significantly in the transformations for improving the inhabitants living conditions in territories" (2014: 248). Then, the Palmas currency carries pedagogical, symbolical and political meanings that valorize the territory, its community, its history and culture.

The complementary currency as a symbol of the territorial development project

The understanding of the currency as a symbolic link between the members of a community and the territorial development project is highlighted by the practices of CDBs. The symbolic function of the currency is indeed also expressed by its impacts. The CCC seems a vector and catalyst for territorial development by redirecting consumption towards the local level. It has made it possible to "embody" this transition and raise the awareness of the community members in terms of purchasing in the neighbourhood – a mission that has been accomplished since the inhabitants now mainly consume inside the neighbourhood (see Figure 4) and the share of local consumption has stabilised in recent years (Neiva *et al.*, 2013). Consequently, the Palmas currency continues to be a crucial tool in raising the awareness of the relation to the economy and is a vehicle for greater social cohesion. Its success is primarily determined by the changes in economic behaviour that it has strengthened and the social convention between users that it represents.

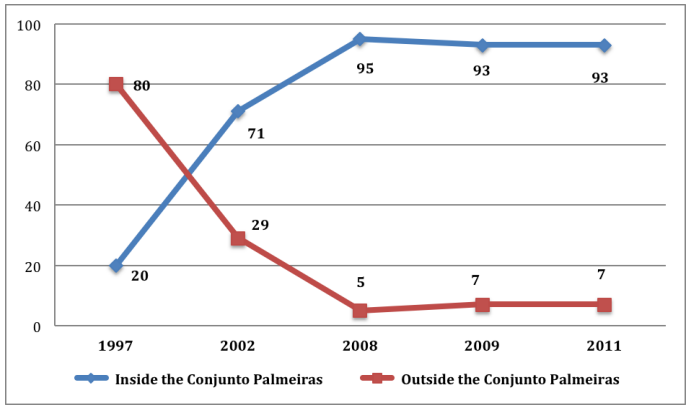

Figure 4: Gradual internalisation of consumption in the Conjunto Palmeiras (as a %) *Sources: Melo (2011)*

While the Palmas currency, in its current form, was introduced in the same year (2002), the reasons for the increase in internal consumption cannot be detached from an extensive mobilisation and awareness-raising campaign for inhabitants organised over the same period. The phenomenon of the localisation of consumption can indeed be put down to the joint communication operations of Asmoconp and Banco Palmas. From 1999 onwards, the two institutions developed the campaign "Compre no bairro, é mais emprego" (Buy in the Neighbourhood for More Employment)[2] which complemented the availability of two

[2] This campaign comprised educational work based on video films, a play and a photo novel. These materials were dissemi-

other Palmas avatars: *PalmaCard* and *Palmares*. This internalisation of consumption, the main objective of BP and the CCC, was subsequently scaled up in the following years and reached 93% of purchases inside the neighbourhood in 2011. In other words, while the currency is one of the tools for territorial mobilisation, it is closely in line with the overall strategy for endogenous development defined by Banco Palmas.

New projects for mobilising the community

Despite the gradual internalisation of consumption in Conjunto Palmeiras, the use of the Palmas currency is decreasing (Scalfoni Rigo, 2014; Meyer, 2012). According to Joaquim Melo, coordinator of the Instituto Palmas, there are two main reasons to explain this reduction. First of all, the neighbourhood inhabitants are now used to making their purchases in the *Conjunto Palmeiras*. It is therefore no longer necessary to physically use the currency to stimulate internal consumption, as the change in behaviour – initial goal of the CCC - has been widely adopted. Secondly, the decrease of use of the CCC is partly due to the different devices of financial inclusion provided by Banco Palmas, such as the possibility of opening a bank account through the correspondent banking role BP plays for public banks (Meyer, 2012; Scalfoni Rigo, 2014).

The increase of private credit cards and the cash transfer program Bolsa Familia also contributed in decreasing the demand for consumption credits in CCC. Consequently, neighbourhood inhabitants have had more access to conventional currency mainly through an increase of income, and access to traditional financial services. We can also point out the abandon of communication campaign from Banco Palmas, in opposition to the many instruments used at the launch of the Palmas currency to publicise its role within the community (popular campaign, booklets, photo-story, etc.).

It is therefore no longer the use of the CCC, but the symbol it conveys that matters. In this respect, and in this particular case, it is because the currency has become "invisible" that it would indeed show that it is completely integrated into the territory and into the collective conscience of the members of the community. The Palmas thus appears as the territorial symbol for the sense of belonging for the community members: it still constitutes a vector and catalyst for community's expression and ability of differentiation and innovation. It has also highlighted the leading role of the Banco Palmas in territorial development. This is shown by *"the social integration process [which] can be summarised as an emergence process for a social confidence and the socialisation of confidence"* (Blanc, 1998: 456).

Three elements highlighted by Scalfoni Rigo (2014 : 12-13) illustrate these considerations. First, on the 90 inhabitants she interviewed, 79 lived in the neigborhood for more than five years; out of which 90 per cent knew the existence of the Palmas currency. Despite the lack of Palmas circulating (and the lack of impact on sales for traders), the acceptance network of retailers for payments in Palmas is still significantly wide today. Second, it offers great legitimacy to Palmas and to its issuer, the BP. The fact of belonging to the neighbourhood issuing its own currency still *justifies* the membership to this acceptance network. Third, given the actual context of diversity for means of payment provided to the community thanks to the BP's activities since its creation, most of the residents interviewed answered having no interest in using the currency (38%) or not having felt the need to use it (17.7%). Therefore it could be possible to stimulate new interests by identify news needs or news forms in which a renewed use of the Palmas could be considered.

Consequently, the symbolic role of the currency continues to be a tool that is mobilised, particularly as part of the pedagogy and awareness for territorial development. In this respect, Banco Palmas has defined three projects for new community currencies in recent years (2012/2013). Indeed, once the community is instituted via symbols (including the Palmas currency) and the territorial project is defined collectively, and when trust is established (via all symbolic dimensions) and the legitimacy of the BP is confirmed, then positive conditions exist for using the currency-symbol to mobilise local actors on other projects.

First of all, the *Palminha* is a CCC created in May 2013 for children between the age of five and eight. It aims to transfer this culture of local consumption, as well as the heritage of past struggles, to the new generations. It aims to be a bridge between the different generations and a tool to transfer values and representations promoted by the Palmas "social technology". Joaquim Melo underlines that its *"concern is for the new generation: children who become adolescents and who have not been part of all this process (…) The* Palminha *is a community currency for children. They can buy sweets, small inexpensive items; (…) to work on the concept of local consumption"* (quote, interview - December 12th, 2011).

A thousand children in the neighbourhood are taking part in this programme. It includes introducing the currency (15,000 Palminhas, from 5 to 50 centimes, which can be used in neighbourhood shops that accept the Palmas), the creation of a play and songs to raise awareness, as well as a solidarity fair where it is possible to buy educational and recreational products in Palminhas (notebooks, pens, rubbers, etc.).

In January 2012 – and for a year – Banco Palmas also developed a new medium of exchange in electronic format. It allowed payments to be made from mobile phone to mobile phone, but only in the geographical area of the *Conjunto Palmeiras.* This implementation was made possible through partnerships with the public bank *Caixa Economica Federal,* the phone company *Vivo* and the *Mastercard* payment system. Following disagreements with the project partners over the flexibility, quality of support and communication required for the penetration of the

nated during community events and in public spaces (such as associations, schools…) and showed inhabitants that they could find all the products they needed in the neighbourhood, without having to get them from outside – with the related waste of time and money. Furthermore, various wall paintings showed – and still show – these messages throughout the neighbourhood.

programme within the community, particularly with retailers, Banco Palmas decided to end the project in late 2012 in order to improve the development more independently *via* the Palmas Lab, Instituto Palmas' innovation and research laboratory for solidarity finance created in August 2012 to facilitate the BP management, and consequently the Palmas. These electronic currency programmes may allow a wider and cheaper dissemination of the CCC and, at the same time, the collection of data on the bottlenecks to its circulation, the circuits at work in the transactions between inhabitants and retailers, etc.

This also highlights the plasticity of the currency to the extent that the technical choices or forms of money (see Palminha) will direct the use of money to achieve the objectives for the resilience of the community and its constant innovation.

Finally, as part of the community mobilisation, which started in 2010 for the exceptional international events that Brazil are hosting in 2014 and 2016 (the Football World Cup and Olympic Games, respectively), the Banco and Instituto Palmas have decided to launch a programme "Banco Palmas Na Copa" (BP in the Cup). It aims to attract tourists who will go to the sports events held in Fortaleza, towards local communities by promoting their production and also by communicating on the Palmas CCC and its objectives to strengthen a solidarity economy and endogenous local development. In this respect, a first series of events took place in June 2013 as part of the Confederations Cup: a seminar, a reception desk for tourists at Fortaleza international airport where it was possible to exchange international and national currencies for the Palmas (in the context of the negotiation with certain hotels on the seafront for them to accept the Palmas) and a caravan linking up CDBs around Fortaleza. The aim was to promote a "Cup currency" in order to raise the awareness of the tourists and promoters of these international events in terms of the consequences that this type of event has on local communities.

As we see, Banco Palmas stimulates an in-depth examination of the role of the money in our societies and the opportunities for the reappropriation by citizens of this everyday instrument.

CONCLUSION

In this article, we intended to illustrate the symbolic functions conveyed by the currency with the example of Palmas. In this sense, community currencies are a vehicle for mobilising and creating networks for territorial stakeholders through the symbolic values they carry (territorial and community identity, emancipation, institutionalisation and empowerment, base for co-involvement of stakeholders, marketing for alternative values and local development paradigm…).

For us, the combination of three forms seem to highlight the symbolic dimensions of Palmas currency : first, money as a bond/link unifying a community in a territorial building process; second, money as a medium for institutionalising the community itself and to the exogenous stakeholders and defining a federative project; third, money as a vector-catalyst since the plasticity of money allows to explore its different formats and so, to adapt it to the new perspectives of community and territorial development). This view of the money clearly refers to approaches to the money as a social link: as an operator of social belonging, it symbolises the society as a totality, by actively contributing to its construction and its reproduction (Théret, 2007).

Here, the Palmas currency plays a key role since, on the one hand, it strengthens the links between neighbourhood stakeholders and, on the other hand, it mobilises them around a common project. We then assist to a self-reinforcing phenomenon.

This mobilisation thus products a "coalition for development" that survives even the *leverage* tool used to create the dynamic: the CCC itself that tends to "disappear". In this sense, currency *"Far from being an irreversible cut-off […] again contributes to forging solidarity among the members of the groups to which, unlike communities in the past, individuals freely adhere by seeking together what could be the common good. At many levels, these uses can here and now help to find, reconsider and redefine the interdependence of societies and of their members thanks to a renewed spirit of reciprocity"* (Servet, 2012: 374).

However the currency, if it appears as a necessary condition for territorial development process, is not sufficient. In other words, the currency came after the project (and therefore it was implemented to serve the strategy of the Banco Palmas) and has been (and still is) manipulated to serve the social and collective construction of territories and a political project of inclusive territorial development. Therefore it had the effect of placing Banco Palmas and its strategy for inclusive territorial development as the main reference, the main local institution and collective objective, inside the community but also outside, in front of national and international public and local authorities, academics, NGOs.

In our opinion, two lessons can be extracted from this analysis.
First, the process of territorial development requires ownership by local actors. This ownership can be promoted through symbols, including a currency. What is important is not the currency in itself, but what it represents and the political project it carries.

This process highlights the very nature of money. It is this "universal social [link] sharing a political, economic, and symbolical nature" (Théret, 2007 : 38). This highlights, on the one hand, the plasticity of money: it is oriented by defined goals but also by the need of creating a collective sense of belonging. As such, it is continuously updated in its forms and uses in relation to the life in the community. Thus, the original objective of locating consumption in the territory being reached, a new definition of the symbolic functions of the Palmas currency is necessary. In this sens, according to the Instituto Palmas coordinator: "the social currency is not an instrument, a piece of paper; it is a philosophy" (quoted in Scalfoni Rigo, 2014).

Second, it illustrates the necessity of adopting a socio-economic and a monetary approach that examine actual monetary practices (and not merely abstract monetary

functions). An approach of this sort thus mobilises socio-economic methodology to reveal the multidimensional nature, the logics and the impacts of the monetary facts and practices being examined. It mobilises a comprehensive set of tools, starting with observation of monetary practices, and progressively formulating theoretical concepts and elaborating them on the basis of experience. This orients research towards production of highly contextualised primary data generated directly by the actual practice of fieldwork.

Finally, this empirical research illustrates the necessity of mapping and determining precisely how CCC are accepted, interpreted and used by local stakeholder. If Banco Palmas and its currency are usually considered as an example, other CDBs are also worth of scientific investigation. For example, Banco dos Cocais or Banco Maricá are currently experimenting new forms of CCCs by linking the latter to a public policy agenda. In these cases, other dynamic and symbolic meanings shall be carried by the currencies, and would probably offer complementary perspectives on the results summarised in this article.

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International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 18-30

COMPLEMENTARY CURRENCIES FOR SUSTAINABLE DEVELOPMENT IN KENYA: THE CASE OF THE BANGLA-PESA

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ABSTRACT

This paper is a report on the development of a complementary currency system that allows Kenyans in informal settlements to trade goods and services and meet sustainable development objectives. The system in this report, Bangla-Pesa, uses a 'collaborative credit' model through a network of local business, whose owners often struggle to meet their basic needs (also known as 'mutual credit'). The paper documents the reasons for its creation, how it was launched, the immediate positive benefits upon launch, and some of the difficulties faced. Bangla-Pesa is shown to have facilitated, upon its launch, exchanges of roughly 50 Euros in value per day among 109 businesses, which is projected to raise living standards in the community primarily through the utilization of excess business capacity. After only a week of circulation – Bangla-Pesa represented an estimated 22% total trade among community members. This system's implementation and governance model are detailed with the aim of improving upon and replicating the model for future sustainable development programs.

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To cite this article: Ruddick, W., Richards, M. and Bendell, J.. (2015) 'Complementary Currencies for Sustainable Development in Kenya: The Case of the Bangla-Pesa' International Journal of Community Currency Research 19 (D) 18-30 <www.ijccr.net> ISSN 1325-9547

1. INTRODUCTION

Sustainable development is widely understood as a form of progress that incorporates economic, social and environmental factors (Adams, 2008). Monetary and financial services innovation is viewed by many development actors as a way forward for sustainable development and poverty elimination. Leveraging the financial lending world for the benefit of the poor was one of the key motivations for Micro-Finance as envisioned and championed by the Nobel Laureate Mohammed Yunus. But according to Bateman (2010) over the years micro-finance has been used by many as a tool for usurious profit making, rather than empowerment, as it has often been used to entice poor people into high interest loans. While concerns grow over microfinance, traditional donor funds for development are declining in various regions, as a result of the Western economic crisis. In this context, novel approaches to financing development need to be considered.

One possible innovative mechanism for financing development is to "monetize" the spare capacities of business networks in the areas targeted for development assistance, by creating a new means of issuing and clearing credits amongst businesses. These systems are sometimes called 'mutual credit', 'reciprocal exchange', 'complementary currency' or, the term we use here: 'collaborative credit' (Bendell, 2014). In a collaborative credit system, according to a common agreement, peers extend credit to each other, which is often denominated in a non-monetary currency they create to measure the value of exchanges. The success of such systems for networks of large businesses in developed nations is one reason for such a hypothesis.

In corporate circles, these collaborative credit systems are often referred to as Reciprocal Trade, or Barter Networks, and have been used for decades by corporate networks to weather inflation, economic slumps and external market competition. According to Z/Yen (2011) they have been a key tool in improving cash flow, increasing working capital, and providing a source of interest free credit. For example, the WIR bank in Switzerland started in 1934 and registered over 60,000 businesses by 2010, all of which trade using a credit alongside the national currency to support one another and defend against monetary fluctuations. Notably, Studer (1998) gave an in depth analysis of the famous WIR Bank in Switzerland in which the WIR was been identified as one of the key tools keeping Switzerland's business community stable. Stodder (2000) concluded the WIR CC's ability to promote economic stability by producing a counter cyclical effect with the Swiss Franc.

There is some evidence that collaborative credit systems can benefit small-scale community empowerment programs (Bendell and Greco, 2013; Greco, 2009). Practitioners, as well as some published academic literature, suggests that CCs can have an effect on economic sustainability, which can be loosely defined as a community's resilience from the negative effects of internal and external economic forces (Z/Yen 2011). Beneficial social impacts sometimes result from CC's ability to create networks and promote social services. Environmental sustainability may also be enhanced through a CC's ability to promote localization and fund environmental services (Ruddick 2011). However, some analysts argue that collaborative credit systems have limited positive impacts at community level (Dittmera, 2013).

Despite being a technological and logistical hub for East Africa, over 50% of Kenya's population lives in extreme poverty (Kristjanson 2010). One manifestation of this poverty is rapidly growing informal settlements (slums). Alder (1995) describes informal settlements as densely populated areas where residents have little or no property rights and often occupy the bottom economic tier of society. These communities face numerous challenges due to glaring socio-economic marginalization, lack of property rights, poor education levels and minimal access to infrastructure, health and social services. According to a Habitat (2003: Table B.2) study, the annual urban population growth rate in Kenya will be 3.14 percent over the next 8 years, reaching 21 million people in 2020. The study went on to state that in developing nations over 50 percent of urban populations live in informal settlements and as much as 70 percent in Kenya. Due to their size and rapid growth all over the world, sustainable development efforts should be directed towards such informal settlements.

Informal settlements may be especially well suited to reap the benefits of collaborative credit systems due to their density and diversity of businesses, acute scarcity of a medium of exchange, lack of market stability and absence of public services. Further, Kenya has a rapidly shifting cultural context which can be quick to adopt new economic systems and technologies, as evidenced by the near ubiquitous use of mobile phone banking. From this, we determined that an informal settlement in Kenya represented an ideal location to introduce and analyse the effectiveness of collaborative credit s as a development intervention.

This paper will examine whether the benefits of CCs that are being realized by networks of corporations in developed nations, could apply in impoverished communities, such as informal settlements. The case study analysed here is the Bangla-Pesa, a collaborative credit clearing system, or reciprocal exchange which involves agreements to trade goods and service using a determined amount of credit, in the form of a printed voucher, usable by everyone in the network. In May 2013, 109 businesses were participating, to utilize their excess capacity and assist in local economic stability. After only a week of circulation community members were using Bangla-Pesa for an estimated 22% of their trades. As collaborative credits become more widespread, special attention must be paid to analyse and mitigate their risks and propose governance models to keep these systems safe to use and free from abuse. Therefore, this paper reports lessons learned in Kenya and suggests paths forward in implementation, research and monitoring and evaluation related to using collaborative credit systems as a tool for sustainable development.

Organizations like Red Cross have been using "Complementary Currencies" in the form of food vouchers to meet aid objectives for decades. In these systems, selected food distributors are chosen and vouchers are given to the needy that can be redeemed at such chosen distributors. However, initiatives like the Bangla-Pesa provide new means of exchange that are not dependent on donor funds, and are not yet widely practised within the development assistance community. Therefore innovations in collaborative credit systems need urgent study, which we seek to address in this paper.

This paper begins with a description of the establishment of the Bangla-Pesa. This description is based on notes made by the lead author of this paper, William O. Ruddick, who is a principal initiator of the Bangla-Pesa program. Then the paper outlines the theoretical basis for this work, which helps to define the project objectives to evaluate. We outline the methodology for a rapid evaluation of the impact of the Bangla-Pesa, and present initial results, before discussing the significance of and lessons learned from the Bangla-Pesa case.

2 PROGRAMME DESCRIPTION

Koru-Kenya (Koru) is a Kenyan community based organization whose purpose is to grow communities' ability to access their own abundance. It is a partner with Community Forge, a Swiss non-profit from which Koru derives much of its inspiration. Koru initiated the Bangla-Pesa program in the Kenyan informal settlement near Mombasa known as Bangladesh by organizing roughly 200 small businesses into the Bangladesh Business Network (BBN). Network members use a collaborative credit to mediate exchanges of goods and services. The Bangla-Pesa is the unit of credit within this collaborative credit clearing (or multilateral reciprocal exchange) system which provides a means of exchange complementary to official money. The Bangla-Pesa was used with a value on parity with the Kenyan Shilling in order to represent member's goods and services. The community officially launched the Bangla-Pesa on May 11th 2013. Baseline data in this paper was collected in April 2013, and follow up surveys were conducted in the weeks following the launch. In this section we summarise the initial steps in the establishment of the programme.

In November 2012 Koru's team began discussions with community members and elders to determine if the program would be welcomed. This initiative was loosely based on the experience of a previous exchangeable complementary currency scheme in 2010, called the Eco-Pesa (see Box 1).

Finding no resistance and much enthusiasm, the program began with community discussions co-facilitated and mobilized by a local youth group. These and later meetings represent crucial elements of program implementation as they provide both avenues through which to explain collaborative credits and opportunities for community members to become involved in the creation of such systems. Initial meetings were held with more than 100 local business owners covering topics including: benefits and challenges of using a collaborative credits, barter and how it is already being used in the community, and how money is used for barter and in general in the community. In the workshops, a demonstration was done to simulate barter systems and collaborative credits using coloured paper, which helped to identify how a collaborative credit system could increase economic activity. These activities, as well as a network mapping exercise and subsequent discussion, made participants aware of the interconnectedness of the business community and the potential for increasing local trade.

Project coordinators then discussed the potential benefits of different types of Complementary Currencies in these workshops. The proposed system was described as "mutual credit" in which every business, after passing some criteria, would be allocated vouchers redeemable with any member of the network. Businesses receiving the vouchers would be required to accept as much as they spend, seeking to always return to the initial amount. The discussions highlighted some potential challenges, including:

- *Challenge:* If a member spends all his or her vouchers without accepting vouchers for the purchase of goods or services at their shop. *Solution:* Use guarantors, so that, before becoming part of the network and being given vouchers, a business must have 4 other business that will vouch for them. These businesses promise to spend vouchers with and receive vouchers from the new business, as well as accept them from customers if the new business refuses.

	2013		2014												2015			
Research Activities	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Initial community meetings																		
Baseline survey																		
Launch / relaunch																		
Legal wrangles																		
Follow-up surveys																		

Figure 1: Schedule of Various implementation and research activities

- *Challenge:* If someone accepts vouchers but then doesn't spend them back into circulation. *Solution:* Select a community liaison that educates and encourages businesses to spend their vouchers on a daily basis.

Discussions also identified challenges with administration, the need for guarantors to back up member commitments and systems to deal with problems. The community embraced the program with the hope that that one potential benefit would be steady trading in the community when Kenyan Shillings were scarce. The community then suggested that the program be monitored closely, that the collaborative credits be printed with denominations of 5, 10, 20, and 50, and the CC be called Bangla-Pesa. Bangla is the short form of Bangladesh and Pesa is the Kiswahili word for money.

After business group meetings as described above and several focus group sessions, the Bangladesh Business Network had its first large group meeting on February 9th 2013 with 165 local business owners attending. The agenda included plenary discussions, voucher design, question and answer sessions as well as small group demonstrations. During the demonstrations people were given 200/= of mock Bangla-Pesa (represented by coloured paper 2-5's, 3,-10's, 3,-20's 2,-50's). Each demo participant was also given white cards where their goods and services were listed along with the cost. They were instructed to buy and sell as much as possible but stay within trading limits such that: when they have less than 200 they should sell more and when they have more that 400 Bangla-Pesa they should buy more.

Based on previous meetings, five facilitators of the network were chosen, representing Community Health Workers, Youth, Elders and Men's and Women's businesses, and helped to gather the other 165 business owners for the meeting. During this meeting, attendees decided that the five facilitators should constitute an interim committee for the network. These committee members would be responsible for accounting, administration, registration, networking, care taking and organizing community service work within the network. At the launch meeting in, each business would be given vouchers representing 400 Bangla-Pesa and half of this would be retained as an annual membership fee to facilitate the five committee members with a monthly allowance and to pay for community service work. Security printing of the vouchers for businesses was set to take place in the following months and the vouchers distributed publicly at the Launch event. Videos of Complementary Currency projects in other areas were shown; including Berkshares, Brixton Pound, Bancos Palmas and Eco-Pesa.

In accordance with concerns raised in the group meetings, local business needed four guarantors in case of default before gaining admission to the network. If a BBN member spends their credits at other members and then refuses to accept a minimal level of Bangla-Pesa in their own store, the guarantors must resolve the issue, accept those credits at their own businesses, or loose membership. Similarly, although valuing Bangla-Pesa at parity with the Kenyan Shilling is purely by consensual agreement, operationally, failing to accept BP at the determined rate would lead to suspension and eventual expulsion of the member and his/her backing group. Generally, this should be handled through pressure from buyers and sellers and a good amount of anchoring by the committee members' acceptance of the vouchers.

Following these meeting and prior to the launch event, 200 local businesses registered as interested in the program. 137 local business owners attended the launch and 56 members who had completed the registration and backing process received Bangla-Pesa. The number of members issued Bangla-Pesa grew to 109 in the following week. The definition of a business member of the program falls in line with the concept of a prosumer, someone who both produces and consumes goods and/or services locally. Anyone who could verify that they had goods and services to offer locally and could spend money locally could be a business member, such as a mother who cooks food from home. See Table 1 for more details on the types of members.

The community wanted the vouchers to be visually interesting. Therefore the Bangla-Pesa artwork was done by a local artist, Karol Opondo, Head of Art Department at The Mombasa Academy, Kenya. The computer graphics and security printing were done by Punchlines Ltd. (Kenya's top security printers based in Nairobi). Micro-lettering, specialty paper, serial numbering and UV ink are the primary means of reducing the risk of counterfeit. Bangla-Pesa vouchers are security printed in four denominations; 5, 10, 20 and 50. Since the highest denomination of Bangla-Pesa is valued at 50 Kenyan shillings and the vouchers' circulation is severely geographically limited, the incentive for counterfeiters was deemed to be minimal. The vouchers read, "Bangladesh Business Network Voucher" and in Kiswahili say "Uchumi Machinani - Tushirikiane" which translates to "Grass-roots Economy – We Work Together". Graphically the vouchers depict the labour of women and pictures symbolic to the community. Care was taken to ensure that users would understand that these are vouchers from the business network.

The morning of the launch, members of the business network processed through Bangladesh, led in song by the Bangladesh Business Network (BBN) Committee, and following a woven basket containing the Bangla-Pesa, which was escorted by local security officials. During the launch, the Alpha and Omega youth group performed a drama detailing the uses of Bangla-Pesa and addressing various community concerns. The dramas left people laughing, clapping, and better informed. Afterwards the community was briefed on some findings from the baseline data collection, helping members understand the size, seasonal and weekly fluctuations, and gender inequalities in the economy. Members also listened to speeches by the Committee Chairman Alfred Sigo and Josephat Kioko, who talked about the benefits of Eco-Pesa, the predecessor to Bangla-Pesa used in Kongowea, Kenya. Then, the proposed Bangladesh

Box 1: The Eco-Pesa Experience

Eco-Pesa was the first complementary currency system implemented in Kenya by the founders of Koru-Kenya. Lessons learned in this system provided vital guidance in designing its successor, Bangla-Pesa. According to Ruddick (2011), from 2010-2011 the Eco-Pesa program improved health and environmental conditions in Kongowea, a Kenyan slum. The Eco-Pesa system began with donor directed funding targeting environmental rehabilitation and health programs. Donor funds were held as backing for printed vouchers which were used for several donor desired activities such as waste collection. The community members who took part in the donor sponsored activities received Eco-Pesa and then used it among 75 participating community businesses. Businesses then used it amongst each other and finally redeemed a set amount each month for the original donor funds in Kenyan Shillings.

The issuance of Eco-Pesa occurred in three stages:

1) 75 businesses received 50 Eco-Pesa to use among themselves. These businesses were allowed to purchase more Eco-Pesa at a 20% discount and to redeem their Eco-Pesa with a 20% charge.

2) Eco-Pesa was issued directly to community members to pay for waste collection and tree planting services and redeemed at the same value as Kenyan Shillings from businesses. This happened at 3 major community events.

3) The project collected 20 tonnes of trash and planted thousands of trees, and businesses registered an estimated profit increase of 20% based on surveys with participants. The pilot program confirmed that informal settlements in Kenya would be willing to use and would benefit from a complementary currency. It also showed that health, environmental and economic issues could be addressed simultaneously and successfully through the introduction of a complementary currency.

While successful in many ways, there were issues identified with the program that informed the creation of Bangla-Pesa. Namely:

- Too few businesses were involved compared to the number in community, limiting the diversity of goods and services available. Since spending opportunities were scarce, few businesses took advantage of the ability to purchase Eco-Pesa.
- There was a general lack of incentive to purchase Eco-Pesa because national currency is too valuable to give up.
- The program was donor dependent, so, once all the issued Eco-Pesa was redeemed for the donor funds, the program ended.

When designing Eco-Pesa's successor, Koru-Kenya addressed these problems in the following ways:

- A larger initial number of community businesses were involved in the inception of Bangla-Pesa.
- The community was assisted to form the Bangladesh Businesses Network in order to own the program.

The Bangla-Pesa was based on a collaborative credit system backed by members' goods and services rather than donor funds.

The issuance of Bangla-Pesa occurred in two stages:

1) As members are registered they receive 400 Bangla-Pesa. 200 of this is given to the community fund held by community representatives.

2) The Community fund is used by community representatives to pay for social service work, such as youth collecting trash

Businesses Network's constitution was read and discussed in detail. Members of the Network asked pointed questions about issues like voting rules and tribal equity in leadership, clearly communicating their understanding and investment in the Network.

Finally, members possessing completed registration forms, with 4 co-signers and the approval of the network's committee, received 400 Bangla-Pesa and a marketing sticker for their shops. Each member returned 200 Bangla-Pesa as their registration fee. This registration fee was designated to facilitate community activities such as trash collection and health care, after an initial three month period which allows the network time to strengthen its use and understanding of Bangla-Pesa. The 400 Bangla-Pesa issued to each member was not offered as a gift or donation, but rather as a voucher for their own goods and services, which upon usage by the the member must be redeemed at their business.

Following the launch, more members completed the registration and backing process to reach a total of 109 members with Bangla-Pesa. Each member received vouchers in the following denomination: two 50's, two 5's, three 20's and three 10's. Hence the total number of individual Bangla-Pesa vouchers in the community came to 1,090. As the Bangla Pesa should be traded for goods and services with the same value as they would with Kenyan Shillings, this constitutes 21,800 Kenyan Shillings worth of goods and service. Continuous monitoring of the program resulted in the data collected for analysis in this paper.

3 THEORETICAL BASIS

The use of collaborative credits as a tool for development rested upon two underlying assumptions. The first is that businesses in slums have excess capacity. By this we mean businesses have excess stock, some of which is perishable and goes to waste at the end of the day, as well as excess time in which they could be offering their services. The second assumption is that there is unmet demand for these goods and services because there is a scarcity of means of exchange or because existing direct barter techniques are inappropriate or ineffective. In other words, people have goods and services to offer and others desire to purchase these services, but because of poverty (in national currency), the excess capacity goods and services are not being used, and demand is not being met.

Collaborative Credits have the potential to bridge this gap by introducing a structured means of exchange that allows

businesses to exchange a voucher representing their excess goods and services. Because the voucher is redeemable at any shop in the network, it creates flexibility not present in direct barter. And, because the value of the voucher is tied to Kenyan shillings, it allows easy trade of goods at well-known and established prices. As an example, most households in Bangladesh use maize flour, vegetables, and charcoal (for cooking) every day. Imagine you are a mother of three selling peanuts, (a high-demand supplemental food in Kenya). Your stock will go bad after a certain period of time. If members of your community don't have sufficient funds to purchase peanuts, you will lose the money spent to purchase your stock, and you will not have money to purchase the goods you need. The official money supply in an informal settlement is highly volatile and unpredictable which makes it hard for businesses buying stock to know whether customers will have official money on hand, on any given day.

Now, imagine a collaborative credit is introduced into this situation. You use this voucher to purchase maize flour. This voucher is essentially a promissory note (IOU) promising to pay an amount in peanuts or other goods and services equal to the value of the flour. The person selling maize flour can then use the voucher to buy well water. The water vendor can use the voucher to buy vegetables, and the vegetable dealer can use the voucher to buy charcoal for cooking. The women selling charcoal can then return to you and exchange the voucher for the peanuts you promised to repay when you used the voucher to purchase maize flour. In this situation, excess stock that might have gone bad (maize flour, vegetables, and peanuts) and excess services that might have gone unused (well water collection) were purchased through the exchange of a voucher which represented those excess capacity goods and services.

From this, we hypothesize that the introduction of a collaborative credit should lead to an increase in sales as people exchange their excess capacity goods and services using Bangla-Pesa.

However, if there is no or insufficient excess capacity in goods and services, the Bangla-Pesa will not increase sales, rather it may simply replace the use of Kenyan shillings for some exchanges. Returning to the example above, if you as the peanut seller are able to perfectly predict market instability and purchase enough peanut stock to meet (but not exceed) the demand for your product, they you will sell all your peanuts and experience no spoilage. Similarly, if this is the case for the vegetable and flour vendors, they will experience no spoilage. And, if all the water the well is capable of producing each day is sold every day, the capacity of the well is also exhausted. In this idealized situation, there is no room for sales increases due to the introduction of an alternative means of exchange. So, the voucher would simply replace some portion of the already existing total sales, rather than facilitating trades which would not otherwise have happened (due to poverty in Kenyan shillings).

Thus, the null hypothesis is that the introduction of a collaborative credit will not lead to an increase in total sales, but rather replace some portion of sales in Kenyan shillings.

We also expect Bangla-Pesa to increase consumption, as business women and men are able to exchange their excess goods and services for items they might otherwise have been unable to purchase. In addition, the use of Bangla-Pesa should allow business owners to weather market instability more effectively, as they can exchange in Bangla-Pesa even when Kenyan shillings become especially scarce due, for example, to the outpouring of funds from the community which accompanies the payment of school fees every January. However, we focus here on sales because measuring the effect of Bangla-Pesa on stability and consumption patterns will require a longer interval between the introduction of the currency and analysis of the currency's effect.

4 RESEARCH METHODOLOGY

4.1 Baseline Survey

In order to capture the effect of Bangla-Pesa on business owners, their livelihoods, and their families, we performed a baseline survey with the 200 businesses who pre-registered for inclusion in the Bangla Business Network. These businesses are estimated to represent as much as 90% of the store-front businesses in the area. Given a prosumer definition of business it is non-trivial to identify the total number of current or potential businesses in the community. This sample is non-random, as businesses self-selected into the sample. However, this study does not seek to generalize findings to the entire business community, but rather seeks to compare the characteristics of business owner's pre- and post- introduction of Bangla-Pesa. Thus, we do not see the non-random nature of the initial survey as problematic for our analysis.

Trained community members interviewed business men and women on their business, personal, and family characteristics. The interview schedule was written in Kiswahili and the interview was conducted in Kiswahili, which is an official language of Kenya and familiar to nearly all residents. Both the interviewers and the business owners were compensated for their time according to local rates in Kenyan Shillings. Each survey was individually checked for missing or illogical data and some participants were re-contacted to resolve these inconsistencies. When these errors could not be resolved, the data was coded as missing.

4.2 Baseline Survey Variables

Appendix A. lists all variables for which the baseline collected data. For the purpose of this paper, we use data from the variables described below.

Types of businesses was measured by asking participants to identify the category or categories into which their busi-

ness fell or to specify the type of business they own if it was not included in the categories given.

Daily sales were measured by asking participants to quantify their minimum, average, and maximum daily sales for good, normal, and bad periods. For this paper, we define minimum sales as minimum sales during bad periods. We define average sales as average sales during normal periods, and we define maximum sales as maximum sales during good periods. Thus, the variables presented below represent the farthest extremes and most central experiences of business owners.

Excess capacity can be measured as the difference between the average daily sales and the maximum sales during good periods. Maximum sales in good periods represent a rough measurement of the amount of goods or services a business is capable of producing. Average sales in normal periods are a measurement of what goods and services are usually consumed. The difference between these two measures represents a business's excess capacity, the added goods and services a person could sell if there was a means of exchange present which allowed consumers to actualize their demand for products.

4.3 Survey Wave 2

During the initial week of Bangla-Pesa distribution, 105 businesses received Bangla-Pesa. 69 of these businesses pre-registered and were thus included in the baseline survey. One week after the introduction of Bangla-Pesa, surveyors initiated follow-up interviews with those 69 businesses. Of those 69 businesses, only 49 were successfully contacted and completed a survey, yielding a response rate of 71%.

Because the sample of businesses which participated in the follow-up surveys is not a random sample of those businesses who received Bangla-Pesa, we cannot be sure the results of this study accurately represent the experiences of the entire network of individuals using the vouchers. Those individuals who pre-registered to receive Bangla-Pesa and those individuals successfully contacted for a follow-up interview are likely better known to members of the committee and villages elders, because both these groups of people helped contact and pre-register individuals who might be interested in becoming part of the Bangla Business Network. This suggests participants in our sample are likely better connected to the local drivers of this project and perhaps likely to more enthusiastically use Bangla-Pesa. Thus, we might consider the results presented here, if they are not representative of the entire business network, to represent those members of the network experiencing the greatest benefit from the program.

4.4. Wave 2 Variables

The Wave 2 survey measured the following variables which we included for analysis:

- *Bangla Pesa Spent Daily* was measured by simply asking respondents how much Bangla-Pesa they used on a daily basis
- *Number of Businesses Where the Business Owners Spend Bangla Pesa* was measured by asking participants to identify the number of businesses at which they shop with Bangla-Pesa.
- *Total amount of Bangla Pesa Spent at Businesses* was measured by adding the amount of Bangla-Pesa respondents listed after identifying where, on what, and how much Bangla-Pesa they spent at each location they frequented with the voucher.
- *Number of Bangla Pesa Customers* was measured by asking respondents to identify the number of people who spend Bangla-Pesa at their business(s).
- *Bangla Pesa Customers as a Percent of Total Customers* was measured by asking respondents to estimate the percentage of their total number of customers who use Bangla-Pesa.
- *Total Bangla Pesa Accepted from Customers* was measured by adding up the amount of Bangla-Pesa listed after identifying who, on what, and how much Bangla-Pesa customers spent at their business.
- *Minimum Bangla Pesa Received Per Day, Average Bangla Pesa Received Per Day,* and *Maximum Bangla Pesa Received Per Day* was measured by asking business owners to list the minimum, average, and maximum amounts of Bangla-Pesa they receive per day.
- *Current Balance of Bangla-Pesa* was measured by asking respondents how much Bangla-Pesa they currently have.

4.5 Control Group Baseline Survey

Although data for the control group survey will not be analyzed for this paper, a control community was selected and surveyed. The Bangla Business Network Committee identified another informal settlement of similar size, socioeconomic status, and business composition as Bangladesh. The control group survey perfectly mirrored the Bangladesh baseline survey except all mention of Bangladesh and the creation of a business network was removed from the survey. Interviewers followed the same procedures for data collection and compensation amounts were identical to those used in Bangladesh. In total, 209 business owners were interviewed for the control group study, making the sample size comparable to the Bangladesh baseline.

5 RESULTS

Table 1 below details; what types of businesses BBN members operate, how many businesses fall into those types, what percentage of the network those types constitute, and sales minimums, averages, and maximums for those businesses. The vast majority of business owners deal in some

sort of food item, cooked, raw, or pastries. Figure 2 ranks those businesses according to their average daily sales. Shop keeping by far pulls in the most sales revenue in the network, followed by beverages, schools, and porting. Grain milling, selling soap, and selling yeast had the least sales

Figure 2: Average Sales by business type

revenue. Overall, sales within the network range from an average 310 Kenyan shillings per day to an average 1600 Kenyan shillings per day, or approximately 3-15 Euros per day in sales (not profits). This suggests a high degree of volatility in the network economy, as sales in good periods are more than triple sales in bad periods. Although not measured in this study, the presence of Bangla-Pesa in the community may also reduce this volatility as people have access to a means of exchange even in times of market instability and can continue to make sales using that currency. The last column in Table 1. subtracts the average daily sales from the maximum daily sales: this represents the value of their excess capacity, the amount of goods and services they could sell, if demand was fully met because a means of exchange was present. On average businesses have, 1,039.26 ksh worth of excess capacity. This means that in an idealized situation, given sufficient means of exchange, businesses in the network could be doing around 9 Euros of trade more per day. Should business owners, in an ideal situation, be able to sell all of this excess capacity, they would increase their sales by 144%.

6.2 Bangla-Pesa Usage

Of the 49 businesses interviewed for the follow-up survey, 12 had not yet begun to use their Bangla-Pesa. The descriptive statistics below (Table 2) detail usage rates amongst those who were spending and accepting Bangla-Pesa.

Table 1. Businesses Types, Sales, and Excess Capacity in the Bangla Business Network

Business Type	Freq	Percent	Min Sales	Avg Sales	Max Sales	Excess capacity
Cooked Food	65	29	374	796	1,343.1	547
Raw food	46	20	338	865	1,530.8	666
Pastries	36	16	356	780	137.9	608
Shop Keeping	25	11	1,120.5	2,576.2	6,911.9	4,335.7
Charcoal	25	11	348	695	152.4	827
Salon	22	10	316	560	1,688.1	1,127.9
Clothes & Shoes	15	7	241	886	1,666.7	780
Water	11	5	339	695	1,622.2	927
Sewing	11	5	361	438	1,061.1	623
Porting	11	5	382	1,036.4	2,318.2	1,281.8
Construction	10	4	343	613	1,514.3	902
Carpentry	7	3	470	471	1,480.0	1,008.6
Media and Electronics	5	2	580	988	1,700.0	713
Beverages	4	2	650	1,412.5	2,500.0	1,087.5
Transportation	3	1	385	2,066.7	2,066.7	1,616.7
Photocopy	3	1	133	800	800	483
Health	3	1	200	500	500	-
Soap	2	1	60	200	200	80
Lamp Oil	2	1	150	650	650	300
Ironing	2	1	75	4,250.0	4,250.0	3,700.0
Cybercafe	2	1	175	400	400	-
Yeast	1	0	30	250	250	190
School	1	0	400	2,500.0	2,500.0	1,200.0
Grain Mill	1	0	80	1,000.0	1,000.0	800
Photo Studio	1	0	50	250	250	-
Farming	1	0	100	400	500	100
Airtime	1	0	-	-	-	-
Network Average	-	-	310	720	1,600.5	1,039.3

Notes on table

Because some network members identified owning more than one type of business the frequency will not sum to 225 (the current number of network members) and percentages will not sum to 100.

Sales and excess capacity data are reported in Kenyan Shillings

Dash indicates that either missing or incomplete data prevented accurate calculation of the variables.

Table 2. Bangla-Pesa Usage Statistics

Variable	Sample	Mean	Std. Dev	Min	Max
BP Spent Daily	37	69	49	13	200
No. of businesses where BP spent	37	4	2	1	10
Total BP spent at those businesses	37	132.30	93	30	345
No. of BP customers	37	4	2	0	10
BP customers as % of total customers	35	62	38	0	100
Total BP accepted from customers	34	141	104	5	450
Miniumium BP recieved per day	37	48	42	0	200
Average BP recieved per day	36	65.00	46	0	200
Maximum BP recieved per day	36	93	61	0	200
Current balance of BP	28	148	103	0	500

Table 3. Perceived Changes in Sales

Variable	Increased		Stayed the same		Decreased	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Total Sales	30	83	4	11	2	6
Bangla Pesa Sales	19	53	12	33	5	14
Kenyan Shilling Sales	24	69	7	20.00	4	11

On average, business owners reported using around 70 Bangla-Pesa a day at four other member businesses. As stated, 12 members reported not yet using the Bangla-Pesa. If we assume these usage rates are the same for all 109 individuals using Bangla-Pesa, 82 people were likely actively using Bangla-Pesa for a total daily exchange of 5,740 Bangla-Pesa.

Business owners also reported receiving 65 Bangla-Pesa a day at their businesses from around 4 customers. This suggests businesses were both spending and receiving Bangla-Pesa at a similar rate and from a similar number of individuals. And, in fact, they tended to be both buying and selling goods from a very nearly the same group of 4 businesses. Each trade was for items valued at between 5-170 Ksh, with an average of 34 Ksh.

5.3 Sales Changes

As shown in Table 3, the vast majority of people using the Bangla-Pesa felt that their business was benefiting from the vouchers. 83% reported that their total sales were increasing, and only 2 people reported decreases in sales.

Returning to the hypotheses detailed above, we expected the introduction of Bangla-Pesa to increase sales as businesses were able to use the vouchers to exchange their excess capacity. Based on perceptions of individuals within the network, this appears to be the case, given that 83% of

respondents within our sample reported sales increases. Further, our null hypothesis was that Bangla-Pesa would simply replace sales in Kenyan shillings, rather than result in increased sales due to the trading of excess capacity. If this were true, we would expect to see a drop in sales in Kenyan shillings. Only 4 people registered such a reduction specifically in Kenyan Shillings. This suggests that for the other 89% of the network, at least, Bangla-Pesa exchanges did not replace trades in Kenyan shillings but represent separate, additional transactions.

Although we did not numerically measure sales increases, we can estimate how much sales may have increased using the baseline survey data. Average daily sales in Bangla-Pesa represent 22% of the average daily sales in Kenyan Shillings reported by businesses in the baseline survey. At the very least, then, businesses were doing around 22% of their trades in Bangla-Pesa. However, this number remained the same for those businesses who reported that their sales in Kenyan shillings had remained stable. This suggests the 22% of daily trades done with Bangla-Pesa represent additional sales which might not have happened without this means of exchange (at least for those people whose sales in Kenyan shillings remained the same). And, since most people reported an increase in total sales, it seems likely they are experiencing a similar increase in sales due to the use of Bangla-Pesa. Given that we estimate businesses have an excess capacity which represents 144%

of their average sales, just one week of Bangla-Pesa usage may have helped businesses owners achieve 15% of this potential increase.

6. DISCUSSION

The rapid evaluation of the programme just one week after introduction of the voucher provides a snap shot of its potential. Should the program continue, given the 22% of daily trade in Bangla-Pesa in the community evidenced in our results, we expect to see members of the network spending less Kenyan Shillings on their basic needs (in local goods and services). These Kenyan Shillings that have been "freed" can then be redirected to increasing living standards through the purchase of more nutritious food, for example, or for business investments, like buying additional stock from outside the community. Hence, we would expect to see an equivalent rise in the amount of Kenyan Shillings in the Network overall. Our baseline data showed that, during good periods, trade was at least twice to three times as much as in normal periods. Should the trade in Bangla-Pesa seen in the first week of circulation continue, we would expect the raise in overall sales to continue toward an optimal point at which all excess capacity in the community is utilized. We would also expect to see less variability, hence more stability in sales weekly and seasonally. Finally, should membership fees in Bangla-Pesa be used for community service work, we expect to see increased community cohesion and living standards. This is due to more collective community work being done for the benefit of the community as a whole.

Systems like the Bangla-Pesa also offer sustainable development solutions with rapid and quantifiable social returns on investment. Based on our initial results, this 22% increase in network trade would result in roughly 4.500 Euros of new trade in the community after three months. This is more than the entire 4.000 EUR cost of implementation, materials, materials development and research.

National and international oversight to ensure standards in implementation and issuance is important to prevent over issuance. The amount of Bangla-Pesa issued to the businesses was decided after in depth discussions and analysis of the local economy. Project implementers deemed that 200 Bangla-Pesa per member was an adequate starting amount to facilitate local exchanges without interfering with members' ability to purchase stock and other items outside the community.

In the field of community banking and national CC policies, the organization, Strohalm, in the Netherlands has spearheaded work with Bancos Palmas and other programs centred in South America. Authors such as Freire (2009) offer detailed analyses of Strohalm's CC systems and their accompanying legal frameworks in Brazil over the last decade. Lietaer (2004) offers a compelling analysis of the diverse CCs of Japan and why some have succeeded and others have failed. While these forerunners have helped set precedent for CCs around the world, there is still much to be done to establish these programs in countries like Kenya.

While the Eco-Pesa program ran for a year with no legal challenge in Kenya, an article by a local newspaper in May 2013 claimed that Bangla-Pesa was a secessionist plot and that the community was no longer using Kenyan Shillings (King 2013). This resulted in 6 people placed in jail, including one of the authors, William O. Ruddick. The 6 faced charges of forgery by the Central Bank of Kenya but were eventually cleared of all charges in August 2013, when the Kenyan's Director of Public Prosecution found that no laws had been broken. The program was re-launched with the support of the local government in November 2013 and, as of August 2014 has over 200 businesses, including schools, clinics and churches, using Bangla-Pesa daily. Also with the support of the local government, the Bangla-Pesa program was fully incorporated into the constitution of the Bangladesh Business Network which is a legally registered Community Based Organization.

Mobile phone trading systems offer an alternative to such legal challenges, with additional beneficial properties. Thus, in time, business issued vouchers will not need to be printed. Mobile phone money transfer has been pioneered in Kenya via Safaricom's M-PESA system, which nearly 70% of the population uses (Hughes 2007). However, these systems are not feasible currently because the tariffs are too large for the small amounts of Bangla-Pesa used for each transaction. For small transaction, below 100 Ksh, M-PESA can charge more than 20% per transaction according to current tariffs (Safricom 2013). So, customers use the system for transferring sums large enough to warrant this

expense. We continue to explore options regarding the use of electronic complementary currencies, as such a system would allow for nearly perfect, comprehensive, real-time data collection, as well as reducing the other costs and inconvenience related to printing and wear and tear of physical vouchers. We believe such a system would be well received by communities like Bangladesh and represents a viable option for future projects, if transaction costs can be minimized or eliminated.

7. CONCLUSIONS

While complementary currencies like Eco-Pesa offer a multiplier effect to existing aid programs, collaborative credit programs like Bangla-Pesa, created and backed by local business networks, could represent a self-determined form sustainable development. After only a week of circulation, Bangla-Pesa helped community members tap into an estimated 22% increase in their sales through capacity trading. This is a substantial increase for a community of people living in poverty. With an implementation time of 6 months and implementation cost of roughly 4.000 Euros, these systems appear to represent viable and cost effective sustainable development tools.

A network of micro-enterprises coming together to co-own and create their own collaborative credit could be considered the next step in cooperatives and micro-finance, which can transform the economies of people living in poverty. The positive results in a short time suggest collaborative credits like Bangla-Pesa are promising sustainable development solutions in poverty stricken areas. However, we see an immediate need for both further and more sustained research and international support to promote legislation and understanding amongst policy makers and regulators to avoid future programme disruptions due to confusion and lack of regulation.

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APPENDIX 1

Variables from Baseline study

Business characteristics

- Legal status of businesses
- Type(s) of business(es)
- Items/services offered
- Minimum, average, maximum daily sales during ordinary, good, and bad periods
- Numbers of customers on weekdays, Fridays, and weekends during ordinary, good, and bad periods
- Proportion of customers from Bangladesh
- Good and bad days, weeks, and months
- Reasons for good and bad periods
- Use of business logbooks, registers, and receipts
- Cash on hand and savings
- Use of Banks, Micro-finance, saccos, and Merry-Go-Rounds for savings and/or investment
- Employees and salaries/payment mechanisms

Personal and family characteristics

- Age
- Gender
- Birthplace
- Education
- Languages and literacy
- Household headship
- Family composition
- Relationship status
- Hours spent on housework daily
- Use of cell phones, m-pesa, and the Internet
- Involvement in community activities
- Money given to and received from family
- Spending habits

International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 31-41

VIRTUAL SOCIAL CURRENCIES FOR UNEMPLOYED PEOPLE: SOCIAL NETWORKS AND JOB MARKET ACCESS

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ABSTRACT

Complementary currencies develop all around the world, taking various forms (material or immaterial) and fulfilling various functions. They are frequently introduced in order to promote local economy development and to fight against social exclusion. In this paper, we analyze the particular case of virtual currency circulation inside a local community of unemployed people. We elaborate on the assumptions that the organization of LETS and the circulation of complementary currencies have two properties: (i) they help unemployed workers to overcome the double coincidence of want necessity of an informal sector founded on barter exchange; (ii) they contribute to maintain and develop unemployed workers' skills and employability of unemployed workers outside job. We study the global properties of a job market associating traditional short-term and long-term unemployment to the organization of LETS. Using a search theoretic model, we find that the initial level of trust of agents in the complementary currency(cies) but also the effective properties of this(ese) currency(cies) inside the LETS are crucial for LETS to become survive and becoming permanent. We also find that if the stationary equilibrium of the job-market includes LETS, then LETS have a positive influence on the rate of employment, on the expected utility of employed workers, and are Pareto improving when the benchmark case is a job market without any LETS.

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To cite this article: Della Peruta, M. and Torre, D., (2015) 'Virtual social currencies for unemployed people: social networks and job market access' *International Journal of Community Currency Research* 19 (D) 31-41 <www.ijccr.net> ISSN 1325-9547

1. Introduction

Today, there are 4000 alternative local currencies in circulation around the world[1]. Each one has particular characteristics. They can be exchanged by a material or an immaterial way, into a network including firms or formed by a group of individuals. Units of complementary currencies can be bought (SOL, Bristol and Brixton Pounds) or created by a mutual exchange of services (LETS). They often allow an extra purchasing power to their users. Users of complementary currency can benefit from a supplementary unit when they purchase it or from some discounts granted by retailers participating. LETS members can benefit from a fixed sum of currency when they enter the system or from a credit when they initiate to purchase into the LETS.

Most of complementary currencies promote social issues. They have generally been created in order to develop local economy and to fight against social exclusion. They permit exchange without official currency without reducing traders to barter. LETS members do not need any banking affiliation. They only have to accept units of complementary currency in payment of goods and services provided to other members. These units have to be spent inside the LETS by the acquisition of other goods and services produced / provided by other members. Thereby, complementary currencies improve the efficiency of informal sector activity.

LETS can thereby attract low income people (especially unemployed and retired people) who want to maintain a minimal level of consumption and preserve or develop skills for future employment. In United Kingdom and in United-States, low-income and unemployed users then became the target audience of complementary currency systems (Seyfang, 2001, 2002, 2003; Collom, 2011; Lasker *et al.*, 2011).

LETS are then useful to fight against social exclusion and to maintain unemployed people at a good level of employability. An open question is however to evaluate their capacity to improve the level of activity. Is this form of organization only able to increase the size of the informal sector and to maintain unemployed workers in a parallel economy, or has it also a real interest for the formal economy as a whole? Do LETS and complementary currencies reduce social exclusion by reducing unemployment, or only by generating a parallel economy? Are they able to enhance welfare? These are the questions that tackle this article.

Local exchange systems are not known for creating jobs directly, which was evidenced by surveys linking LETS and employment (Williams *et al.*, 2001). Except complementary currencies explicitly introduced to provide jobs to unemployed people (Woergl in Tirol and the Palmas in Brazil), LETS employ mainly volunteers to manage, control and organize the system. If they do not directly create jobs, could they create ones indirectly? It is the issue that we tackle in this paper.

1. Some stylized facts

The stylized facts on which we elaborate in the further sections attest that unemployment spells, especially long ones, cause irreversible damages on unemployed people, like a loss of motivation and a depreciation of skills (Mincer and Ofek, 1982; Pissarides, 1992; Böheim and Taylor, 2002; Edin and Gustavsson, 2007). According to World Bank definition, long-term unemployment refers to the number of people with continuous periods of unemployment extending for a year or longer. Long-term unemployment concerns both developing and developed countries. Indeed, long-term employment represented 52% of the total unemployed workers in 2012, 61% in Ireland, 81% in Montenegro and 39% in Sri Lanka (World Bank Indicators). International Labour Organisation (2014) published a report on "Global Employment Trends" around the world and warned of serious consequences of long-term unemployment. After the 2007-2008 financial crisis in US and the 2010-2012 sovereign debt crisis, especially in advanced countries, the average of unemployment spell has increased, sometimes has doubled. The main issue arising from long-term unemployment is the degradation of specific skills (related to the previous job) which affects the probability of re-employment. In fact, non-participating in the job market increases the risk of skills obsolescence. In addition, longer is the unemployment spell, faster are the loss of specific skills, deteriorating significantly employability and the probability to re-enter the job market. Long-term unemployment is also associated to social issues, such as a decreased life satisfaction and stigmatization (ILO, 2014). Long-term unemployment has a "scarring effect" on unemployed people (Heckman and Borjas, 1980, in Flaig *et al.*, 1993; Mooi Reci, 2008; Cockx and Picchio, 2013). During inactivity, unemployed workers do not exercise their job and cannot maintain or improve their valuable experience and their knowledge. Therefore, their human capital depreciates (Heckman and Borjas, 1980, in Flaig *et al.,* 1993). Unemployed then enter a dynamics whose outcome depends on the path. Those who do not find a job quickly have greater difficulties to find one later (Flaig *et al.*, 1993). The "hysteresis effects" literature points out this human capital depreciation and examines its consequences on labour market interactions. At work, employees increase their productivity by improving everyday their specific skills and experience. When they lose their job, they do not lose immediately their competences. The depreciation of skills accelerates when the unemployment period extends many months and years. Unemployed workers then become less rapid, make mistakes, are less adapted to team work and hierarchical interactions.

Finally, workers improve their employability by learning from themselves or from others at work, by practising team work, from being able to meet the daily

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1According to the French newspaper Liberation in May 2014

work schedules. Employability is then a positive function of time spent in activity and its depreciation is positively correlated with unemployment length. (Killingsworth, 1982; Mincer and Ofek, 1982; Desjardins and Warnke, 2012). Employers are thus reluctant to hire long-term unemployed people, due to their human capital depreciation during inactivity spells. They prefer to recruit short-term unemployed, or workers already in job, considered as "more competitive" (Bourdet and Persson, 1991, 1991a).

2. LETS and employability improvement

However, unemployed workers can undertake actions to reduce skill depreciation during an unemployment spell (Johnson and Van Doorn, 1976). They can maintain some level of activity in the informal sector. They can also follow free training sessions, interact with employed workers, or try to stay in touch with a professional environment. LETS offer them advanced opportunities to maintain competences during inactivity spell. Inside LETS, unemployed members increase opportunities to meet a demand for the services they provide. Obviously, members generally prefer to offer services related to their previous job, for which they have competences, rather than to launch a new activity or a secondary activity (Peacock, 2001). Doing that, unemployed people have then the possibility to maintain and actualize their specific skills and, in this way, to improve their employability. Participating in a LETS is similar to self-employment jobs (launching an activity and offering services against remuneration), without the risks related to self-employment activity (no administrative and accounting issues) and with the help of the organizers who are in charge to connect members (Gomez and Helmsing, 2008; Williams *et al.*, 2001). That's in that way LETS can help unemployed workers to re-enter the job market.

But LETS can provide another benefit to their members. Unemployed workers, following the loss of their job, can also lose a part of their social network, which conducts to a loss of a part of professional information like job opportunities (Williams, 1996). Here again, LETS can help unemployed workers to face this problem. By linking members, LETS fights again social exclusion by re-constructing and extending the social network of unemployed people (Williams, 1996; Seyfang, 2001, 2002, 2003; Ozanne, 2010; Lasker *et al.*, 2011). LETS can also improve unemployed employability in another way. Surveys conducted in LETS in UK and in Argentina concluded that LETS encourage the development of self-employment (Williams C.C. et al., 2001; Gomez and Helmsing, 2008). Developing an activity into a LETS provides advantages to members, as developing a client base which will continue to buy those products outside the LETS (Williams C.C. *et al.*, 2001), testing products to evaluate if they are valuable on the formal market (Williams C.C. *et al.*, 2001). A LETS provides also a self-training for the subsequent development of a micro-enterprise (Gomez and Helmsing, 2008). In the survey conducted by Williams C.C. et al. (2001), of 810 LETS members respondents, 10.7% explain that "their LETS had helped them become self-employed". And, in the survey conducted by Gomez and Helmsing (2008), in Clubs de Trueque in Argentina, 78 of 140 respondents tested their activity in the regular economy, of which 40 respondents were still active after one year.

The topic of the following sections is to explore the way a virtual complementary currency can emerge or not into a community of unemployed people. When it emerges, the objective is also to understand by which mechanism this complementary currency – because it improves employability of users – is also able to increase the levels of employment and of welfare of the whole economy.

Thanks to the possibilities offered by the complementary currency in LETS, unemployed workers exchange each other services and goods for an extra income. This is a first property of LETS. To offer these products, they maintain their levels of skills and competences, and particularly the levels of those skills related to their previous jobs (Peacock, 2001). We then assume in this paper that participating in a LETS avoids any loss of skills and productivity during unemployment spell, as pointed out by literature (Mincer and Ofek, 1982; Pissarides, 1992; Böheim and Taylor, 2002; Edin and Gustavsson, 2007) and maintains the level employability of long term unemployed people inside LETS (Flaig *et al.*, 1993). Our main research question is to clarify the influence of LETS on the level of employment.

On order to answer it, we build a benchmark model *à la Diamond* analyzing the transition of workers between three positions on the job market: workers can occupy a job position; they can, also be short-term unemployed workers or finally long term unemployed workers. The dynamics of the model depicts the moves of workers between these three positions according fundamentals of the economy and their own employability. We take stationary equilibrium of this benchmark as the reference position: it corresponds to a position of the economy such that the value of real variables – including the number of employed and unemployed workers – remains unchanged during time. This stationary equilibrium defines a stationary level of unemployment: workers losing their jobs are each period replaced by the same number of newly recruited workers.

With these assumptions, we ask three questions: (i) on which condition such LETS can *survive* or not at stationary equilibrium? (ii) Which is the influence of such LETS on the level of employment?[2] (iii) What is the effect of LETS on welfare, measured in this case as the average net utility of employed and unemployed workers?
The following sections answer these questions. We first define a benchmark model distinguishing short term and long term unemployment. We introduce a LETS in this model with the property to maintain skills of workers outside employment. We then study the changes in the stationary equilibrium of this job

[2]As the official statistics of unemployment, the level of unemployment that we consider includes all unemployed workers, inside or outside the LETS

market after the introduction of LETS. The main results of this setting are (i) that trust inside and outside LETS are important determinants of the permanence of LETS (Lemmas 1, 3 and 4), (ii) that when permanent, LETS increase the level of employment (Proposition 1), (iii) that in this case, they improve welfare without generating conflicts of interest (Propositions 2 and 3).

2. The benchmark model

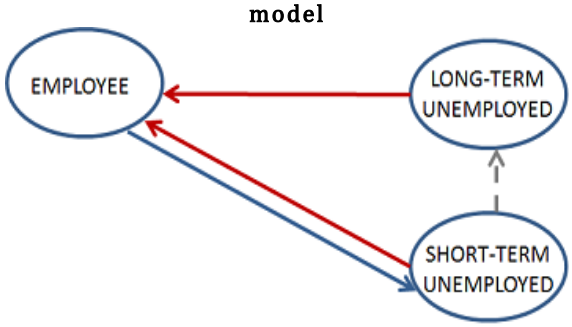
The benchmark model depicts an economy with n workers where the probability to observe employment opportunities decreases during the time each worker remains unemployed. To simplify the setting we suppose that the in the economy, workers can take three possible positions:

- The employed workers are in proportion e of the total active population. They earn the periodic wage w and have the probability q to lose their job at the end of the period.

Unemployed people distribute in two sub-categories.

- The short-term unemployed workers have been fired during the previous period. They are in proportion s: they receive the unemployment benefit b and have the probability α to find a job during the current period. If they do not observe any opportunity of employment or observe an opportunity and do not obtain the job, they integrate the group of the long-term unemployed workers[3].
- The long-term unemployed workers have been fired since more than one period. They are in proportion l. They receive the same unemployment benefit b than the short-term unemployed ones but their probability to observe an opportunity of employment is only α' with $\alpha' < \alpha$ (1).

Figure 1. Transition pattern in the benchmark model



The model is analyzed at stationary equilibrium, which is a state such that (i) the number of employed and unemployed workers remains constant during time, once the environment remains unchanged, and (ii) the expected intertemporal utility a worker occupying a given position is also constant during time. The condition (i) determines stationary amounts of e, s, and l satisfying equations (1), (2) and (3):

$$qe = \alpha s + \alpha' l \quad (1)$$

$$qe = s \quad (2)$$

$$(1-\alpha)s = \alpha' l \quad (3)$$

with by definition, $e + s + l = 1$. Solving the system gives the equilibrium level of employment $e = \frac{\alpha'}{(1-\alpha)q+\alpha'(1+q)}$. The study of this expression in comparative statics shows that employment increases with the capacity to find a new job in each position of the job market, and with a decrease of the rate of destruction q of existing employment positions. Long term unemployed workers are in proportion $l = \frac{q(1-\alpha)}{q(1-\alpha)+\alpha'(1+q)}$ and short term unemployed ones are in proportion $s = \frac{\alpha' q}{q(1-\alpha)+\alpha'(1+q)}$. A comparative static analysis also shows that their number increases with the increase of the rate of destruction of jobs q, and decreases with an increase of their probabilities α and α' to find a job as short term or long term unemployed workers.

The intertemporal utility associated with each position after consumption is deduced from the Bellman equations (4) to (6):

$$V_e = (1-q)\ \frac{w+V_e}{(1+r)} + q\ \frac{b+V_s}{(1+r)} \quad (4)$$

$$V_s = \alpha\ \frac{w+V_e}{(1+r)} + (1-\alpha)\ \frac{b+V_l}{(1+r)} \quad (5)$$

$$V_l = \alpha'\ \frac{w+V_e}{(1+r)} + (1-\alpha')\ \frac{b+V_l}{(1+r)} \quad (6)$$

where V_e, V_s and V_l figure respectively the intertemporal utilities of an employed worker, a short-term unemployed worker and a long-term unemployed one after consumption, while w and b represent respectively the instantaneous wage of an employed worker and the unemployment benefit of an unemployed worker[4]. The system (4) to (6) also solves and gives the equilibrium values of the intertemporal utility in each position that a worker can occupy on the labor market. The instantaneous components of their utilities are respectively given by themonetary value of wages w and of the unemployment benefit b. Each intertemporal utility is a function of the parameters q, α, α' but also w and b. The study of V_e, V_s and V_l in comparative statics states that (see Appendix 1) each intertemporal utility increases with w, b, α and α' and decreases when q increases. All these relations are intuitive: smaller is the probability of a worker to be fired, greater is his utility in each position of the job market. The same intuition is confirmed concerning the influence of the potentiality to be hired when unemployed on utilities. The other comparative statics properties have also intuitive contents.

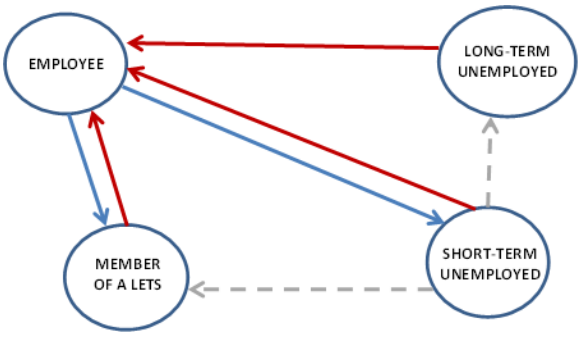
[3]As work-force is there homogeneous, there is no reason to distinguish here between the cases where no opportunity has been observed and the case where only irrelevant opportunities have been observed.

[4]We suppose as a simplifying assumption that this benefit does not vary with the time each worker remains unemployed. When it decreases during time – which is a reasonable assumption –, the results of the paper are strengthened.

3. Introducing a LETS

A LETS is introduced in this section as a network providing two kinds of services. First, the LETS provides the possibility to exchange informally services among unemployed people, without being limited by the "double coincidence of needs" condition. The complementary currency then increases the efficiency of the informal sector. The instantaneous benefit from being unemployed then increases from b to b'. Second, the LETS maintains the level of skill of unemployed workers and their capacity to face in the job market with an unchanged probability α to be successful at each period[5]. The use of a complementary currency is however nothing but evident for workers more able to accept barter then to trust a private system of intermediation eventually founded on the capacity of other unemployed workers to accept as payment this complementary currency. Outside LETS, workers have heterogeneous levels of confidence in the properties of the complementary currency and in the potentiality of the LETS in general. Suppose as a working assumption that the levels of confidence of employed workers on the reliability of complementary currency are then given by a coefficient λ_i defined on a segment[0,1]. When λ_i is close to 0, worker i has a low level of confidence into the complementary currency; when λ_i is close to 1, this level of confidence is conversely high. With LETS, A fourth position then emerges for workers, besides the three positions analyzed in the benchmark model. It corresponds to the participation to a LETS. The transition process between the four possible positions of the job market is then depicted by Fig (2):

Figure 2. Transition pattern in the model with LETS



With the introduction of the LETS, when an employee loses his/her job, he/she becomes an unemployed worker and faces two possibilities: becoming a "traditional" unemployed worker (namely a short-term unemployed worker) or participating in a LETS. A short-term unemployed worker can also decide to join a LETS before becoming a long-term unemployed worker. When inside a LETS, an unemployed worker experiences the complementary currency and its level of confidence evolves upward or downward. This level then evolves from it initial level λ_i to λ with $0 < \lambda \leq 1$. λ reflects the effective properties of the LETS and depends both of the objective reliability of the complementary currency and of the organization of the LETS. As a first approximation, λ will be taken as given[6].

As there are two possible positions that unemployed workers can occupy outside LETS, there are also two possibilities to join LETS for unemployed people, namely joining them directly just after being fired, or after a first attempt to recover a job as a short term unemployed worker. As it is more valuable to be a short term unemployed worker than a long term one, workers joining LETS directly correspond only to the highest values of λ_i. Those joining them only after a while correspond to smaller values of λ_i as they are only interested in LETS when there have to choose between LETS and the few efficient long-term unemployment worker position. A second consequence can then be deduced from the above assumptions: it is expressed in Lemma 1:

Lemma 1. *If an unemployed worker integrates a LETS with a level of trust λ_i smaller than the level of trust λ of the unemployed workers inside LETS all workers integrating LETS only leave them as employed workers.*

Proof: Consider the worker i such that $\lambda_i < \lambda$. If this worker is a short-term unemployed worker having failed to find a job, his/her choice is between becoming a long term unemployed worker, *i.e.* having an utility equal to $(1-\alpha')\frac{b+V_l(\lambda_i)}{(1+r)} + \alpha'\frac{w+V_e(\lambda_i)}{(1+r)}$ and becoming a member of a LETS, *i.e.*, having an utility equal *to* $V_c(\lambda_i) = (1-\alpha)\frac{\lambda_i b'+V_c(\lambda_i)}{(1+r)} + \alpha\frac{w+V_e(\lambda_i)}{(1+r)}$. If he/she chooses to integrate a LETS, the second term is greater than the first one. When this same unemployed worker is inside the LETS, his/her intertemporal expected utility is $V_c(\lambda) = (1-\alpha)\frac{\lambda b'+V_c(\lambda)}{(1+r)} + \alpha\frac{w+V_e(\lambda)}{(1+r)}$ if he/she remains in the LETS and $(1-\alpha')\frac{b+V_l(\lambda_i)}{(1+r)} + \alpha'\frac{w+V_e(\lambda_i)}{(1+r)}$ if he/she leaves the LETS. It is easy to verify that if $V_c(\lambda_i) = (1-\alpha)\frac{\lambda_i b'+V_c(\lambda_i)}{(1+r)} + \alpha\frac{w+V_e(\lambda_i)}{(1+r)} > (1-\alpha')\frac{b+V_l(\lambda_i)}{(1+r)} + \alpha'\frac{w+V_e(\lambda_i)}{(1+r)}$, then $V_c(\lambda) = (1-\alpha)\frac{\lambda b'+V_c(\lambda)}{(1+r)} + \alpha\frac{w+V_e(\lambda)}{(1+r)} > (1-\alpha')\frac{b+V_l(\lambda_i)}{(1+r)} + \alpha'\frac{w+V_e(\lambda_i)}{(1+r)}$. When unemployed, the worker i will then never leave the LETS before finding a new job. Suppose then that, in the same situation, agent j is such that $\lambda_j > \lambda$. Then as inside the LETS, the inequality $V_c(\lambda_i) = (1-\alpha)\frac{\lambda b'+V_c(\lambda)}{(1+r)} + \alpha\frac{w+V_e(\lambda)}{(1+r)} > (1-\alpha')\frac{b+V_l(\lambda_i)}{(1+r)} + \alpha'\frac{w+V_e(\lambda_i)}{(1+r)}$ also holds for agent j. Agent j then also remains in the LETS until his recruitment ■

Note that if all the agents choosing to join the LETS

[5]As pointed out by one of the anonymous referees of the *International Journal of Community Currency Research*, one can consider that participation to LETS changes initial skill and adds something else. The structure of this model does not allow to keep it tractable with an heterogeneous workforce. An extension of this work could however consider this property of LETS, with the help of numerical simulations if an analytical treatment is not possible

[6]In a more complex setting, λ could be made dependent on time and on the members of the LETS.

have a level of confidence in the complementary currency higher than λ, the LETS can emerge or not at equilibrium. Suppose for instance that the agent i with the smallest λ_i choosing to join the LETS is such that λ_i is far greater than λ: in this case, one may have $(\lambda_i b' + V_c(\lambda_i)) < b + V_l$ but also $(\lambda_i b' + V_c(\lambda_i)) > b + V_l$. When we consider the economy out of stationary equilibrium, *i.e.* on a path converging to equilibrium, the size of the LETS change from one period to the other. Suppose that in this case, the agent i with the smallest λ_i choosing to join the LETS is such that λ_i is far greater than λ. In this case, this threshold agent is immediately deceived by the efficiency of the LETS (as he would have be happy to participate to the LETS only if $\lambda \geq \lambda_i$). As unemployed workers only differ by their initial level of trust λ_i and not by their effective level of trust λ when they are in the LETS, all unemployed workers having integrated the LETS will then be deceived too when the worker i is deceived. They will leave the LETS and this last will collapse. The opposite case is when the threshold entrant i is such that $\lambda \geq \lambda_i$. In this case, this threshold agent has the good surprise to observe that the LETS is more safe and efficient than he expected. As all agents are homogenous inside the LETS, all entrants will then remain in the LETS which is in this case sustainable.

Another property on utilities is interesting to prove:

Lemma 2. *When a worker i never chooses to integrate a LETS, his/her intertemporal utility does not depend on his/her level of confidence in the LETS.*
Proof: When the agent i is in this case, its instantaneous utility is given by w when he/she is employed, or b when he/she is unemployed. Accordingly, his/her expected utility never depends on λ_i ■

At last a third interesting property is easy to prove:

Lemma 3. *At stationary equilibrium, all workers (employed or not) devoted to join LETS when unemployed, expect (perfectly) at its level λ the trust of the complementary currency inside the LETS.*

Proof: Suppose that its remains employed workers with a level of trust λ_i such that $\lambda_i \neq \lambda$ and planning to join LETS when fired. Then, the expected utility of these agents as employed workers will move subsequently, once they will have joined LETS. We are then not yet at stationary equilibrium. At stationary equilibrium, all current, past or future participants to the LETS are then the same perfect evaluation λ of the acceptability of the complementary currency ■

With the help of lemmas (1) to (3), the stationary equilibrium of the economy can be deduced.

1. The equilibrium size of the LETS

Like for the benchmark model, the stationary equilibrium is characterized by the stationarity of the population and of the expected intertemporal individual utilities in each position of the job market. Given lemmas 1, 2 and 3, if stationary equilibrium exists, two distinct subpopulations coexist at equilibrium. The first sub-population gathers workers integrating the LETS when unemployed and expecting perfectly the level of acceptability of the complementary currency / the level of efficiency of the LETS. The second sub-population is characterized by those workers who remain outside LETS when unemployed. Their level of trust in the complementary currency / evaluation of the efficiency of the LETS are heterogeneous but as they do not use LETS. This heterogeneity has no influence of their utility, whatever the position they occupy on the job market. The threshold agent separating the two sub-population is the agent i^* such that λ_i^* is just sufficient to decide him/her to join the LETS if he/she is not recruited directly as a short-term unemployed worker and not leaving this LETS after having observed λ. Knowing λ_i^* is then crucial to determine the size of the two sub-populations. If λ_i^* is close but smaller than λ, the LETS is sustainable and its size given by $(1 - \lambda_i^*)(1 - e^*)$, *i.e.* by the number of unemployed workers having an initial trust in the LETS higher than λ. Obviously, if λ is large but also λ_i^*, the size of the LETS remains small. In other words, if the complementary currency has a good level of acceptability (λ is large) but that the LETS creates few new utility or has few advantages regarding employability (λ_i^* is also large), the LETS remains small and restricted to those agents with a high level of trust before integrating the LETS. In the opposite case, *i.e.* when the advantages of LETS are important regarding utility creation and employability (λ_i^* is small), its equilibrium size is large too. In summary, the level of trust is an important determinant of the size of the LETS but its importance decreases with the fundamental properties of the LETS.

Note that the stationary equilibrium can correspond to cases where the LETS finally collapses. It is the case when λ is very small. In these cases, all unemployed workers integrating initially the LETS finally leave it for the traditional long-run unemployment position. We could consider that this situation becomes realistic if the development of the informal sector in the LETS convinces Government to undertake actions able to cut the unemployment benefits of the members of the LETS or to make the use of complementary currencies illegal. It is also the case if there are more classical crises of confidence with non-reliable management of the complementary currency inside the LETS.

If we concentrate on the cases where the LETS does not collapse, the agent i^* is obtained as the solution of the following equations system of 7 equations. First, the equations determining the expected level of utility of an agent i in each relevant position of the job market when his/her level of trust in the LETS is given by:

$$V_s(\lambda_i) = \alpha \frac{w + V_e(\lambda_i)}{(1+r)} + (1 - \alpha) \frac{\lambda_i b' + V_c(\lambda_i)}{(1+r)} \quad (7)$$

$$V_e(\lambda_i) = (1-q)\ \frac{w + V_e(\lambda_i)}{(1+r)} + q\ \frac{b + V_s(\lambda_i)}{(1+r)} \quad (8)$$

$$V_c(\lambda_i) = \alpha\ \frac{w + V_e(\lambda_i)}{(1+r)} + (1-\alpha)\ \frac{\lambda_i b' + V_c(\lambda_i)}{(1+r)} \quad (9)$$

Equations (7) to (9) solve in $V_e(\lambda_i)$, $V_s(\lambda_i)$, and $V_c(\lambda_i)$, providing then, as a function of λ_i, the expected intertemporal utility in each position he/she stays, of an agent *i* planning to integrate a LETS if he is not recruited as a short-term unemployed worker. The following equations (10) to (12) correspond to the expressions of the expected intertemporal utilities for workers preferring not to integrate LETS when they are unemployed.

$$V_s = \alpha\ \frac{w + V_e}{(1+r)} + (1-\alpha)\ \frac{b + V_l}{(1+r)} \quad (10)$$

$$V_e = (1-q)\ \frac{w + V_e}{(1+r)} + q\ \frac{b + V_s}{(1+r)} \quad (11)$$

$$V_l = \alpha'\ \frac{w + V_e}{(1+r)} + (1-\alpha')\ \frac{b + V_l}{(1+r)} \quad (12)$$

Note that equations (10) to (12) replicate exactly the benchmark utility equations (4) to (6) since the situation/utility of workers never joining LETS does not change with the introduction of LETS. Finally, the seventh equation is obtained equalizing expressions of $V_s(\lambda_i)$ obtained as solution of the system (1) to (3) and of V_s solution of the system (4) to (6), as a function of parameters $(w, b, b', q, \alpha, \alpha')$. Lemma 4 summarizes this stage of the resolution of the model:

Lemma 4. *When LETS do not collapse, the proportion of workers integrating LETS when they are unemployed is given by* $(1-\lambda_i^*)$ *where* λ_i^* *expresses as* $\lambda_i^* = \frac{b(1+g(-1+\alpha+q-\alpha gq+\alpha' gq))+(-\alpha+\alpha')gw}{b'(1+g(-1+\alpha'+q-\alpha gq+\alpha' gq))}$ *with* $= \frac{1}{(1+r)}$.

Proof: see Appendix 2.

One can easily verify that the size of LETS increases with α and decreases with α', *i.e.* increases with the decrease of the instantaneous probability to be recruited, for a long term unemployed worker. Comparative statics also shows that this population increases – as predicted by intuition – with $\lambda b'$, *i.e.*, with the performances of the complementary currency and more generally of the organization of the LETS.

2. Effects of complementary currency and LETS on employment and welfare

It is now possible to solve the remaining equations providing the missing conditions to determine the instantaneous size of the LETS at equilibrium, the level of equilibrium employment and the proportion of agents remaining instantaneously outside of LETS as unemployed workers. These proportions are solution of the system made by equations (13) to (16). Among these five equations, only four are independent and introduced in the resolution system:

$$qe = \alpha s + \alpha c + \alpha' l \quad (13)$$

$$q\lambda_i^* e = s \quad (14)$$

$$(1-\alpha)s = \alpha' l \quad (15)$$

$$(1-\lambda_i^*)s = \alpha c \quad (16)$$

with by definition, $e + s + l + c = 1$.

The system solves easily[7] and provides the stationary proportions of workers, occupying each position (e^*, s^*, l^*, c^*) of the job-market when the stationary equilibrium includes non-empty LETS. These expressions are complex combinations of the parameters but however help to provide the two main results of the paper:

Proposition 1. *When LETS do not collapse, they increase the level of employment.*

Proof: see Appendix 3.

This result interprets easily: as they help workers to find a job easily, LETS increase the supply-side efficiency of the job-market. When workers are unemployed, with the help of the LETS technology (including the complementary currency), long-term unemployed workers maintain their competencies at the same level they had as short-term unemployed workers. Without considering any feed-back from the job-market demand side, the global effect of the LETS is then to enhance the employability of unemployed people and results in a global positive effect on the job-market and on the employment level[8].

The result of Proposition 1 is strengthened by the following proposition:

Proposition 2. *The intertemporal utility of employed workers increases at stationary equilibrium when there are active LETS.*

Proof: Employed people *e* associate two sub-populations. The first has the size $\lambda_i^* e$ and gathers all workers who do not integrate LETS when there exist. For this population, the expected intertenmporal utility given by V_e is the same than in the benchmark model. The second sub-population has the size $(1-\lambda_i^*)e$. The expected intertemporal utility of each member of this second sub-population of LETS members or potential members is given by $V_e(\lambda)$, solution of the system (1) to (3) where λ_i is taken equal to λ . After calculations,

[7] with the help of *Mathematica* software as the previous ones.

[8] In another paper, the authors present an analysis of the demand-side effect, in a bi-sectoral model, involving a first-necessity goods sector and a technological goods one. The effect of LETS in founded positive on the demand side of the technological goods sector, negative on the first-necessity (formal) goods sector and ambiguous at the aggregate level (M. Della Peruta and D. Torre, 2012)

$V_e(\lambda) = \frac{g(b(-1+g-\alpha g)q+(-1+\alpha)b'\alpha\lambda_i q+(-1+q-g(-1+\alpha+q))w)}{(-1+g)(1+g(-1+\alpha+q))}$, with $g = \frac{1}{(1+r)}$ which is greater than V_e. The expected utility $\lambda_i^* V_e + (1-\lambda_i^*)V_e(\lambda)$ of employed workers is consequently greater than V_e, the intertenporal utility of employed people in the benchmark model ■

A last proposition proves that there are not conflicts of interest between the members of LETS and the other workers, employed or not, when a part of unemployed workers are members of LETS.

Proposition 3. *When they have no significant influence on the demand of labour, LETS are Pareto-improving when the benchmark is the economy without LETS.*

Proof: For all agents i such that $i < i^*$, the expected intertemporal utility does not change with the introduction of LETS, whatever the position they have on the job market. For the other ones, the utility strictly increases in each position (when we substitute to the "inside LETS" position to the long-term unemployment position). These observations correspond a Pareto-improving situation ■

The organization of LETS and the use of the complementary currency(ies) do not weaken the properties of the traditional unemployment positions and decrease the advantages of those choosing to remain outside LETS when they are unemployed. This is why this result is obtained. If we suppose that the success of the informal sector, boosted by the complementary currency properties, has a negative influence on the demand of labour in the formal sector, then there would be a trade-off between the positive effects of LETS on employment and welfare, as captured by propositions 1, 2 and 3, and their negative effect on the efficiency of the formal sector. Smaller is the substitution between the goods and services circulation in LETS and outside them, or greater is the additional revenue generated in LETS allowing LETS's members to buy goods not available in LETS, greater is the propensity for LETS to have a positive effect on the job-market demand size (Della Peruta and Torre, 2012).

4. Concluding remarks

This paper analyzes the global effects of a social virtual currency circulation between unemployed workers into a community. We elaborate on the following stylized fact: when they integrate a LETS, unemployed workers are able to maintain their skills, to reduce capital depreciation occurring during unemployment spell, and to preserve and extend their social network. These benefits have a positive effect on unemployed workers employability and enable them to re-enter the job market more quickly. We first introduce a benchmark search-theoretic model with two possible positions for unemployed workers: short term unemployed workers have a higher instantaneous probability to find a job than long term ones. We then introduce LETS having two properties: (i) they improve, because of the use of a complementary currency, the potentiality to buy and sell goods and services in the informal sector, and (ii) they maintain professional skills outside job. With these assumptions, our theoretical model predicts that LETS can emerge or not, maintain or collapse if they emerge, according the initial level of trust inside workers population. When LETS are permanent, we find that if they have no influence on the demand of labour, they increase employment, the level of expected utility of employed workers, and are Pareto-improving when compared to the benchmark case without LETS.

As expressed, confidence on the complementary currency appears to be a necessity for the emergence of LETS. Only workers who have good expectations on the acceptability of complementary currency are able to integrate the LETS. The effective level of trust in the complementary currency inside the LETS is also important. But it is not the only determinant of the success of the LETS. Other determinants are the gain of utility that members can expect from their transactions, and also, in our model focusing on unemployment, the advantages in terms of employability for unemployed workers in the LETS. The policy recommendations resulting from these observations are quite simple. The first condition for LETS survival when they are mainly constituted by unemployed workers is that unemployed workers could find inside the LETS an additional earning (and utility) and overall a possibility to maintain their skills or to develop new ones. There should in this case not be too many legal or fiscal restrictions to their development: their capacity to improve employability, then the level of employment, has to be considered even if they contribute to develop a not fully controlled informal sector. Local authorities can also promote or create these systems, in the context of an adapted regulation, on the basis of the argument concerning social and economic benefits, just like they maintain of unemployed workers' employability (Blanc and Fare, 2012). This is for instance the case of the TEM in Greece, a local currency supporting a LETS network. Local authorities acknowledged economic and social benefits from this system, and proposed that a part of local taxes be paid in TEM.

An out-of equilibrium analysis, founded on numerical simulation could also be interesting to observe the phases of emergence or collapse of LETS. Another extension would be to add demand-side effects generated by LETS on the job-market, *i.e.* the capacity of LETS to increase or not the demand for the goods and services produced by the formal sector.

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Appendix

Appendix 1: The benchmark model

Derivation of e, s, and l:
Equations (1), (2), (3) and identity $e + s + l = 1$ provide (only) 3 independent conditions which allows to find the value of the three variables after solving the system made by three of them. These values are $e = \frac{\alpha'}{\alpha'+q-\alpha q+\alpha' q}$, $s = \frac{\alpha' q}{\alpha'+q-\alpha q+\alpha' q}$, and $l = \frac{q(1-\alpha)}{\alpha'+q-\alpha q+\alpha' q}$.
Derivation of V_e, V_s, and V_l:
Equations (4), (5) and (6) provide 3 independent linear conditions allowing to find the stationary values of V_e, V_s and V_l. These values are:

$$V_e = \frac{bg((-1+\alpha g-\alpha' g)q + g(-1+g-\alpha' g + (-1+g)(-1+\alpha g-\alpha' g)q)w)}{(-1+g)(1+g(-1+\alpha'+q-\alpha g q+\alpha' g q))}$$
$$V_s == \frac{bg(-1+\alpha+g-\alpha g+g(-1+\alpha g-\alpha' g)q) + g(\alpha(-1+g)-\alpha' g)w)}{(-1+g)(1+g(-1+\alpha'+q-\alpha g q+\alpha' g q))}$$
$$V_l = \frac{bg(-1+\alpha'+g-\alpha' g+g(-1+\alpha g-\alpha' g)q)-\alpha' g w)}{(-1+g)(1+g(-1+\alpha'+q-\alpha g q+\alpha' g q))}$$

with $g = \frac{1}{1+r}$.

The comparative static analysis is made after expressing the derivatives of V_e according to q, α and α'.

$$\frac{\partial V_e}{\partial q} = \frac{bg(-1+\alpha g-\alpha' g)+(-1+g)g(-1+\alpha g-\alpha' g)w}{(-1+g)(1+g(-1+\alpha'+q-\alpha g q+\alpha' g q))^2} - \frac{g(1+(-1+\alpha')g)(-1+\alpha g-\alpha' g)(b-w)}{(-1+g)(1+g(-1+\alpha'+q-\alpha g q+\alpha' g q))^2}$$
$$\frac{\partial V_e}{\partial \alpha} = \frac{g^2(1+(-1+\alpha')g)q(b-w)}{(-1+g)(1+g(-1+\alpha'+q-\alpha g q+\alpha' g q))^2}$$
$$\frac{\partial V_e}{\partial \alpha'} = \frac{(-1+\alpha)g^3 q(b-w)}{(-1+g)(1+g(-1+\alpha'+q-\alpha g q+\alpha' g q))^2}$$

Given the definition values of parameters, the first term is always negative, while the other ones are still positive.

Appendix 2: The model with LETS

Proof of Lemma 4:
Expression of V_e, V_s, and V_l are the same that in Appendix 1. Expression of $V_e(\lambda_i)$, $V_s(\lambda_i)$, and $V_c(\lambda_i)$ are solutions of equations (7) to (9):

$$V_e(\lambda_i) = \frac{g(b(-1+g-\alpha g)q + (-1+\alpha)b'\alpha\lambda_i q + (-1+q-g(-1+\alpha+q))w)}{(-1+g)(1+g(-1+\alpha+q))}$$
$$V_s(\lambda_i) = \frac{g((-1+\alpha)b'\lambda_i(1+g(-1+q)) - \alpha(bgq+w))}{(-1+g)(1+g(-1+\alpha+q))}$$
$$V_c(\lambda_i) = \frac{g((-1+\alpha)b'\lambda_i(1+g(-1+q)) - \alpha(bgq+w))}{(-1+g)(1+g(-1+\alpha+q))}$$

with $g = \frac{1}{1+r}$
Derivation of λ_i^*: the threshold value λ_i^* of the level of trust of the agent indifferent between integrating a LETS or joining the long-term unemployed worker position is given after equalizing V_s and $V_s(\lambda_i)$:

$$\frac{g((-1+\alpha)b'\lambda_i(1+g(-1+q)) - \alpha(bgq+w))}{(-1+g)(1+g(-1+\alpha+q))} = \frac{bg(-1+\alpha+g-\alpha g+g+g(-1+\alpha g-\alpha' g)q) + g(\alpha(-1+g)-\alpha' g)w}{(-1+g)(1+g(-1+\alpha'+q+\alpha g q+\alpha' g q))}$$

The solution is $\lambda_i^* = \frac{b(1+g(-1+\alpha+q-\alpha g q+\alpha' g q))+(-\alpha+\alpha')gw}{b'(1+g(-1+\alpha'+q-\alpha g q+\alpha' g q))}$.

Proof of Proposition 1:
Derivation of e, s, l, and c: These sub-populations are solutions of equations (13) to (16) which provide:

$$e = -\frac{\alpha'\alpha}{-\alpha'(\alpha+q)+\frac{(1-\alpha)(-\alpha+\alpha')q(b(1+g(-1+\alpha+q-\alpha gq+\alpha' gq))+(-\alpha+\alpha')gw)}{b'(1+g(-1+\alpha'+q-\alpha gq+\alpha' gq))}}$$

$$s = \frac{\alpha\alpha' q(\alpha'(1+g(-1+\alpha+q-\alpha gq+\alpha' gq))+(-\alpha+\alpha')gw}{h+k-p+a}$$

$$l = -\frac{(-1+\alpha)\alpha q(b(-1-g(-1\alpha+q-\alpha gq+\alpha' gq))+(\alpha-\alpha')gw)}{b'(1+g(-1+\alpha'+q-\alpha gq+\alpha' gq))(-\alpha'(\alpha+q)+((1-\alpha)(-\alpha+\alpha')q(b(1+g(-1+\alpha+q-\alpha gq+\alpha' gq))+(-\alpha+\alpha')gw}$$

$$c = \frac{\alpha' qb' g(-1+\alpha'+q-\alpha gq+\alpha' gq)+b(-1-g(-1+\alpha+q-\alpha gq+\alpha' gq)+(\alpha-\alpha')gw}{h+k-p+a}$$

with

$$h = \alpha^3 gq(b(-1+gq)+w)$$
$$k = \alpha' q(b'+b' g(-1+\alpha'+q+\alpha' gq)+b(-1+g-g(1+\alpha' g)q)-\alpha' gw)$$
$$p = \alpha^2 q(b(1+g(-2-\alpha'+q+gq+2\alpha' gq))+g(\alpha' b' g+w+2\alpha' w))$$

and

$$a = \alpha(b(1+g(-1+q))q+\alpha'^2 g(b'+b' gq+q(bgq+w)) + \alpha'(bq-b'(-1+g(1+q(-1+gq)))+gq(b(-2+q+2gq)+2w)))$$

A comparison between the values of e in the benchmark model and with LETS shows that, whatever the values of parameters:

$$\frac{\alpha'}{\alpha'+q-\alpha q+\alpha' q} < \frac{\alpha\left(\alpha q(b(-1+g-\alpha g+g(-1+\alpha g)q)+\alpha gw)+\alpha'^2 g(b'+b' gq+q(bgq+w))+\alpha'(bq-b'(-1+g+g(-1+\alpha g)q)+gq(b(-1+\alpha+q-2\alpha gq)-2\alpha w))\right)}{\alpha' b'(\alpha+q)(1+g(-1+\alpha'+q-\alpha gq+\alpha' gq))}.$$

International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 42-52

PRICE SETTING MECHANISMS IN COMPLEMENTARY CURRENCIES IN ARGENTINA'S REDES DE TRUEQUE

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ABSTRACT

Complementary currency systems are based on principles of solidarity and contestation of the regular currency systems, so their prices may differ from those in the regular economy. This study aims to explore that assumption and discusses in what ways and for what reasons some prices are different. Based on data collected in Buenos Aires during 2004, it researched the ways in which various prices in the Argentine *Redes de Trueque* followed those in the regular economy or internal considerations of the system, as relative supply and demand, production costs, and ethical and institutional factors. It found substantial evidence against the assumption that prices in the CCS were a direct conversion of prices in pesos. Each node was organised as a price network in which critical prices -namely those of groceries bought in pesos- were used as reference for other prices. The result was a power asymmetry in favour of those who had pesos to get supplies in supermarkets, but some traders refrained from obtaining the maximum profit and preferred to ask a "fair price". Notions of fairness and shared values, however, varied widely, like the effectiveness of the institutional controls put in place to keep prices down.

ACKNOWLEDGEMENTS

I would like to acknowledge the leaders and participants in the *Redes de Trueque* who provided the information for this study and the partial funding of WOTRO/NWO grant WB 46-494.

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To cite this article: Gomez, G. (2015) 'Price Setting Mechanisms in Complementary Currencies in Argentina's Redes de Trueque' *International Journal of Community Currency Research* 19 (D) 42-52 <www.ijccr.net> ISSN 1325-9547

INTRODUCTION

Prices are crucial in economic systems and have attracted the attention of economists for a long time. With the rapid replication of complementary currency systems around the world, experts start to wonder whether price setting processes would be different in complementary and regular currencies. Within economics, two main perspectives explain the formation of prices. The neoclassical approach sees prices as expressions of the relative scarcity of goods in markets, including money as a good, while the Keynesian school sustains that prices represent production costs plus a profit margin. In recent times, economic sociology has also generated approaches that are complementary to the former and brings ethical and moral components into the analysis of price setting, including the status attributed to the possession of certain goods, the institutional regulation of exchanges, the role of regulators, risks and uncertainties.

Complementary currency systems are based on principles of solidarity and contestation of the regular currency systems, so they may enhance the ethical and moral considerations in price setting. In what ways do they do that, if at all? Complementary Currency Systems, of which the Argentine Redes de Trueque (RT) are an example, are economic systems with a set of institutions that include the circulation of its own currency. This currency is issued in the particular embeddedness of local networks with a relatively high level of social cohesion and shared motivations. In the case of the Argentine RT, with mainly low income members, the issue of price formation was critical to examine how resources and benefits were distributed, as well as the implications of cumplementary currencies on inequalities and power asymmetries. Despite its relevance, price formation in complementary currency systems has received limited attention, possibly because it is assumed that prices in the CCS follow those in official currency. This is not necessarily the case and studies in Argentina highlight the existence of price variations between different networks and localities, noting that these differences gave way to speculation and arbitration but not analysing the causes for these variations (North, 2007; 2008; Gomez 2009; 2010; Plasencia y Orzi, 2005; Pereyra, 2006).

This article discusses pricing mechanisms in the Redes de Trueque between August 2004 and up to December 2006, which is the last period for which data has been collected and on which the RT still had a significant scale of 100.000 participants. The article aims at explaining price differences for common products in different localities and complementary currencies. It contends that no single type of exchange rate existed between the official currency and each of the complementary currencies, neither in a single locality nor in the same network. Prices were fixed in relation to various factors and reflected important inequalities in income and power. A number of non-economic factors came into play, such as social relationships, values shared or resisted among participants, and the inequalities and power asymmetries of different groups with and without access to official currency.

Data was gathered over three periods of fieldwork: the first trimester of 2003, the second half of 2004, and the last trimester of 2006. Extended open interviews with the principal network leaders and organizers facilitated the compilation of a list of nodes (exchange or market venues) that operated at that time. Forty four nodes were visited in different parts of the country, with special attention to dimensions like their scale of operation, articulation to other networks, location in poor and middle class neighbourhoods, and suburban and semi-rural localities. A semi-structured questionnaire was used in a survey with participants while they waited to enter the nodes or at times when they were not engaged in their trading activity, and resulted in a total of 386 questionnaires. The data collection was part of a bigger research project; the data used in this study focuses on three large nodes (above 200 participants) that used the same complementary currency, although mention to other nodes is also done where appropriate. This study also resorted to participatory observation information during trade hours. Three research assistants supported the data gathering.

The next subsection presents a number of perspectives on price determination in Economics and Economic Sociology. The objective is neither aimed at creating a debate on the different theories and their level of adequacy and applicability in explaining prices nor to dive deeply in any particular theory, but rather to provide a brief overview of each of them to draw meaning and rationale for the process of price determination in the Redes de Trueque. Sections three and four discuss the price setting mechanisms of different categories of commodities, respectively goods in excess demand in contrast to goods in excess supply, and products and services made specifically for sale in the Trueque. Section five analyses the embeddedness of price setting in power relations and shared values, while section six explores the role of interpersonal networks in the nodes.

THEORIES ON PRICE DETERMINATION

Price formation has been explained differently within the main strands of Economics, each one focusing on a particular aspect of the production and distribution processes and their relationship to money. Neoclassical theories attribute prices to equilibria between markets' supply and demand. Prices reflect the relative shortage of goods and are assumed to express all the information required to carry out trade. Economic agents accept these prices as part of a reality that cannot be altered without affecting the optimal performance of markets (Dornbusch, 1994). The neoclassical perspective attributes a central role to prices as mediators between sellers and buyers, but does not offer a substantive explanation of the process by which prices are determined.

In addition, monetarist theory postulates that prices represent a relationship between the quantity of money in circulation and the quantity of products within an economy. It is not a theory of price formation per se, but seeks to explain variations in prices relative to money. According to this

perspective, if the amount of money in circulation increases or the quantity of products decreases, the proportion of money and goods changes and this causes variations in prices (Dornbusch, 1994). This is a theory of inflation that assumes rather stable relative prices that are modified altogether according to an exchange relationship with money. In relation to CCS, it is often assumed that there is a more or less fixed relationship between prices in complementary currency and those in the regular economy, as if there was an exchange rate between them. The rapid expansion of notes in circulation due to forgery and improper management in the Redes de Trueque, for instance, is seen as one of these changes in the relationship between complementary currency and goods which caused hyperinflation in the Redes de Trueque and this in turn generated loss of confidence and the demise of the networks in 2001 and 2002 (Hintze 2003; Hintze 2005; Shea McClanahan 2005; North 2007; North 2008).

The Keynesian school explains prices as the cost of production plus the addition of a profit margin which depends on the market structure. In a monopoly market, the producer has greater liberty to set prices in comparison to producers participating in markets with many bidders (Bowles and Gintis 1993) or in which state intervention in prices is significant (Arestis, 2001). Downward revises the contributions of various scholars that follow this perspective (Downward 2000) and unveils that Hall and Hitch were pioneers in undertaking a series of interviews with business owners in 1939 and framed a theory of price determination of "total cost" (Hall and Hitch 1939). The authors sustained that under conditions of uncertainty, companies establish prices by adding a profit margin to the total costs because the objective is not to maximize profits by equating costs and marginal revenues but to ensure benefits over the long term, which requires a combination of rules of thumb and accountancy methods. In this way, prices result from the production process. Kalecki (1971) added that large companies acting as oligopolies determine prices based on their average cost of production in the short term as well as on their competitors' prices for similar products (Kalecki, 1971: 44, cited in Downward, 2000).

Within economic sociology, Jens Beckert (Beckert 2011) argues that there are other factors that affect pricing, namely its embeddedness in social relations, and not only considerations of supply and demand or cost recovery plus a profit. Beckert identified three strands of studies that focus on social networks, cultural values and institutions to explain pricing processes. The first group of studies focuses on social relationships and social networks that affect prices. Relationships of trust may priviledge doing business with known partners and this has an impact on prices. Uzzi (1999) in the United States found a similar pattern in the relationship of businesses with their banks: a trustworthy financial partner may offer access to information and a lower risk, so it is preferable to pay a bit more than to deal with an unknown bank. In a later study, Uzzi and Lancaster (2004) analysed the relationship between businesses and their corporate lawyers and found that fees paid to lawyers depended on the length of the business relationship between the parties. In turn, the search for social status motivates buyers of luxury goods to pay high prices that are unrelated to production costs or supply shortages. "Markets are structures that reproduce roles", Beckert asserts (2011: 765).

The second group of studies in Economic Sociology focuses on cultural values and the construction of social meanings. Zelizer (1979, 1981) studied the tension between cultural values and money and discovered that there is a group of 'objects' for which it is unacceptable to even fix prices, because that would violates fundamental social values. For example, in modern societies the sale of humans or of human organs is sanctioned, although they were normal in many societies in the past. The same reasoning applies to goods of high cultural, historic and religious value. At the other side of the expectrum, some prices depend upon meanings that are time and geographically bounded. Consumers pay a higher price for fair trade and organic food products because it fits cultural values of environmental preservation and social justice (Stehr and others, 2006). The willingness to pay more or less for a product merely because of the moment in which it was designed does not depend on production costs or shortages of supply, but relates to cultural practices that define it as a reason worth paying for.

A third group of studies, according to Beckert (2011), focuses on the ways in which institutions and power asymmetries between actors influence prices. Some businesses reflect in their prices their power over other market actors. For example, large enterprises may engage in price wars to drive smaller competitors out of the market, even incurring in losses of profitability (Roy, 1997). Max Weber already described prices as an instrument of market domination in Economy and Society (Weber, 1968). Power asymmetries are expressed in the form of quality standards, intellectual patents, franchises, requirements of after-sales service provision, and sanitary and environmental regulations among the various norms that regulate the process of price setting, and which also serve to exclude weaker competitors.

In summary, economic theory offers two perspectives on the formation of prices: the equilibrium between supply and demand, and the sum of costs plus a profit margin. Economic sociology focuses on the embeddedness of prices and Beckert identifies three factors that affect price formation: social networks, cultural values and institutions with power differences.

SUPPLY AND DEMAND AS DETERMINANTS OF PRICES

The Redes de Trueque were semi-open economic systems, embedded in the regular economy yet partially separated from it by the use of complementary currencies (créditos) of voluntary acceptance among its members. Most observers of the Argentine Redes de Trueque assume that their prices followed those in the regular economy, as if partici-

Node	Locality and meetings	Origins	Characteristics of participants and coordinators	**Content overview**
Rocanegra	Camino General Belgrano (Lanús). Meetings held on Tuesdays and Thursdays at 14hs.	It was the abandoned regional fruit market. It was taken over by a grassroots' organization of picketers for various income generation initiatives like the node. Used créditos of the RGT.	A clear majority of participants were structural poor, had minimal assets and received state subsidies. Coordinators charged an entrance fee, afterwards barely intervened in exchanges. Infrastructure, security, hygiene and maintenance were deficient.	Inconvertible schemes; quite small openness to external economic activities
La aceitera/ El Comedero	Av. Calchaqui, (Quilmes Oeste). Meetings held on Wednesdays and Saturdays at 14 hs, Saturdays and Sundays 9:30.	It was an abandoned oil factory. It was taken over by collaborators of the RGT founders after 2001, so it was the main node of the RGT group and was used to launch its new créditos.	A mix of structural poor and new poor, in similar proportions, some travelling considerable distances to attend. Coordinators charged a hefty entrance fee, afterwards barely intervened in the exchanges. Infrastructure, security, hygiene and maintenance were minimal.	Inconvertible schemes with time currencies; frequent partnerships, especially with local governments
Cuartel IX	Camino Negro (Loma de Zamora). Meetings held on Wednesdays at 15hs and Saturdays at 14hs.	It was an abandoned regional fire station. The founders were local and had a fair bond with the founders of the RGT and to local politicians.	A clear majority of participants were structural poor, had minimal assets and received state subsidies. Coordinators charged a low entrance fee and then walked around the tables watching prices and hygiene. The pesos of the fees were used to buy groceries to sell in the node at low prices. Basic infrastructure, hygiene, security and maintenance were reasonable.	Convertible schemes; local businesses are included; interest of partnerships with local governments

Table 1. Characteristics of the three nodes visited

pants converted prices in official currency (pesos) into prices in complementary currencies (créditos), but that was not the case because there was no fixed exchange rate between the two currencies. The crédito was not tied to the peso and there was no collateral in pesos backing the créditos. Moreover, the Redes de Trueque nested a variety of rules and institutions that affected actors' decision-making, such as prices. Some products were made for sale in créditos and those prices were set within the nodes, while products that could not find buyers in pesos were effectively sold in créditos for prices unrelated to their scarcity or abundance. In absence of a straight relationship between prices in regular and complementary currencies, this study sets to unfold the factors that affect price setting in créditos.

The neoclassical theory of price determination as equilibrium between supply and demand was the point of entry of the study. A first distinction was thus made between basic needs, in excess market demand among the low-income public of the nodes, and second hand clothes, in clear excess supply in all the nodes visited. Three nodes were selected for the comparison because of their proximity, their use of the same crédito, and their similar scale in membership (details in Table 1). They differ in the enforcement of rules in the hands of the coordinators and the income strata to which the participants belonged.

A clear majority of participants were structural poor, had minimal assets and received state subsidies. Coordinators charged a low entrance fee and then walked around the tables watching prices and hygiene. The pesos of the fees were used to buy groceries to sell in the node at low prices. Basic infrastructure, hygiene, security and maintenance were reasonable.

At the beginning of the markets the researchers collected data on prices of five groceries with various vendors in the three nodes: 1) kilo of wheat flour, 2) kilo of sugar, 3) 1.5 litre bottles of cooking oil, mainly sunflower oil, 4) kilo of 'yerba' infusion dry leaves, and 5) cans of tomato paste. Many of the vendors had bought these products in local supermarkets in pesos and sold them in the nodes in créditos. Prices varied from one vendor to another within the same node; the cheapest one would sell faster than the most expensive one. The first observation was the absence of one exchange rate between créditos and pesos within the same day for each node; prices varied by hour and depended on the perceptions of different vendors. Some participants explained that they would often queue to enter the node for several hours before it opened in order to ar-

rive first at the stalls selling groceries at lower prices. Price differences for each product, however, were rather limited (a maximum of 70% for tomato paste and a minimum of 10% for fluor). Price variations happen in the regular economy too, so products are sold for different prices by various vendors, and the same pattern is found in complementary currencies.

The reasons why participants would sell their goods at a higher or lower price in the same node are not explained by neoclassical theory of supply and demand because these were constant within a node and should have derived in the same prices. During fieldwork, the researchers asked participants who sold groceries how they determined their prices. Half of them offered all five of the articles listed in table 2 and had bought them in pesos from near-by supermarkets to sell in the Trueque for créditos. Different vendors used different methods to fix their prices, irrespective of the demand for their goods on a particular day, because they used different "exchange rates" between currencies, had different perceptions of the excess demand and were guided by different ideas on the "right price" to ask, which means that they thought that it would be possible to ask for more créditos but that would not be "fair". In contrast, the majority of them referred to their exchanging activity in regular and complementary currencies as 'their work' and denominated this trade as "their business, like any other". Some commented that they had been vendors most of their lives and did not see their activity as being any different to any other apart from using several currencies.

Table 2. Prices for groceries listed in 'arbolito' credits

	Flour	Sugar	Oil	Mate Leaves	To-mato
Rocanegra	12-15	15-16	32-40	16-22	12-22
La aceitera	22-28	33	50-65	22-32	25-28
Cuartel IX	10-11	12-15	30-35	15-18	14

About a third of the participants who sold groceries, in turn, admitted that they had obtained the goods for free from charity donations, family members and state subsidies (for example, the program MasVida distributed groceries for infants). They thought that they should avoid charging "high prices" for goods that they did not pay for and many said that they guessed a price that would follow the prices for that product of other vendors in the node. Others used the calculation method of thinking what they hoped to obtain, like a certain quantity of pastries or toiletries they want to buy in exchange for the flour or oil that they had on sale. If they could not sell them by the end of the day, they could take them to other nodes.

While all three nodes surveyed used the same complementary currency and were located within an hour of each other, prices in créditos varied between them. This was the second observation in relation to prices and the differences between them allowed for speculation by participants that saw the arbitrage between nodes as an opportunity to make a profit. For instance, some would buy the flour subsidised with entrance fees in Cuartel IX for 10 créditos and sell it two days later at La Aceitera for 28 créditos. Participants could generally identify the vendors that did this, and a few actually refrained from trading with them. In addition, there was circulation of traders between nodes with a different choice of products. In La Aceitera, participants in a node that used the same complementary currency and was located as far as 150 kilometers away (in the city of Pergamino) explained that they were able to sell groceries in La Aceitera for prices far higher than what they would charge in their localities, so at the end of the day they would collect more créditos. All of them also tried to purchase goods which were in shortage in their nodes but with a wider choice at La Aceitera (toys, school supplies, second hand shoes and clothes). They travelled on a minibus that charged them half of the fare in pesos and half in créditos, and offered the service once a month. This movement allowed participants in more remote nodes to have access to goods that were common in an urban setting.

The excess demand for groceries was a constant problem in the Trueque since its beginning and was observed by other researchers (North, 2007; 2008). It resulted from participants' income poverty and their problems to cover basic needs in pesos. Some participants emphasised that they absolutely needed to buy them in the nodes because they only had créditos. The trade of groceries between one node and another reflected differences in levels of supply and demand, which derived in the price variations anticipated by the neoclassical economics literature. According to that perspective, however, relative differences in supply and demand per locality would disappear in the long run, as well as price variations that derive from them, because more vendors would move to the places where there is excess demand in order to obtain a higher profit. In complementary currencies these price differences between localities did not disappear because trading between locations was too costly, required transportation infrastructure and was often considered socially unacceptable.

So, despite considerable circulation of vendors between nodes and similar prices in the supermarkets where groceries were bought, prices did not converge to a specific level per node or type of complementary currency, as would have happened if an exchange rate existed. Within a node, supply and demand were constant and should have translated in a single price per product per node, but they did not because of the ways in which the goods were obtained and because the perceptions of the levels of supply and demand varied between participants.

Another factor that caused variations in prices related to the embeddedness of prices. About halft of the participants with groceries referred to "fairness" in their price setting, independently from the ways in which they had obtained the goods. An elderly poor woman in Cuartel IX fixed prices

in relation to her need and her perceptions of the needs of others. She explained that she received a box of groceries from the municipality which included oil and sugar. "I have diabetes and cholesterol, so I cannot use those things. There are many things in the package that I cannot use, but it helps me anyway, because I bring these groceries to the Trueque, I sell them, and with the créditos I buy other things that I can eat. But I always remember that the box was given to me for free and there are people with children who need food, so I don't charge the full price. You cannot do that", she said.

So while some participants saw the nodes as markets in which different levels of supply and demand per locality offered an opportunity to make a profit, others considered values and "the others' need" when fixing their prices, more in line with Beckert's (2011) conceptualisation of prices as embedded within a shared morality. Participants' willingness to apply some sense of social justice diverged, however, and this contradicts the neoclassical economics' assumption that sellers invariably charge the highest price possible to maximise profits –some did and some did not, and many did not know what the maximum possible price was–. Certainly, in absence of a reference exchange rate between currencies, vendors of basic groceries were the primary "price setters" of each node and their considerations to fix prices affected all other prices. They were the stronger side of the market, as referred by Bowles and Gintis (1993).

While basic groceries were in excess demand in all nodes, second-hand goods were in excess supply. Some of the items were not particularly sought after, so vendors normally returned home with unsold goods. There was a great variety of clothes on sale, among which cotton jogging trousers for children and jeans for men in good condition were present across all the nodes, so these items were chosen for the price comparison. These prices also varied substantially (prices were up to four times higher) and Table 3 presents the averages per node. Almost half of the participants with clothes on sale said that they followed the prices "of the others", while another third related to the prices of the groceries they were hoping to buy (Table 2) and the remainder could not give a clear explanation. A participant in Rocanegra said that she was hoping to purchase a bottle of oil with the credits she would obtain from selling her second-hand jeans, which she had received from a neighbour for whom she worked as a cleaner. This participant had tried to directly barter the jeans for oil, but the seller of the oil was not interested in the trousers so the exchange did not go through. She was eventually willing to sell the jeans for "whatever amount of créditos I can get, in order to buy food". This obviously increased the variability and unpredictability of the prices of second-hand goods and transferred price setting powers to the vendors of groceries.

The origin of the goods on sale partially explains the price-setting methods of second-hand clothes. As much as 70% of the vendors of second-hand clothes had got them as gifts from other persons, family members and charities, namely religious groups. Among them, 15% sold clothes they had found as waste in the streets and public places. One participant made a living as a waste-picker, mainly scavenging for bottles and cardboard, but at some point she started collecting clothes and toys to sell in the Trueque. "I find it incredible what the rich throw in the garbage. Sometimes I find clothes, shoes or things that are in good condition. In the mornings I wash everything, in the afternoon I come to the Trueque and sell them for prices similar to the others, in order to buy food and other things I need. At night I go out with my cart and pick through waste. I am always busy and wouldn't allow anyone to call me unemployed. What is unemployment like?", she affirmed.

	Adult Jeans	Children's jogging pants
Rocanegra	35	20
La aceitera	50	30
Cuartel IX	30	20

Table 3. Price of second-hand clothes

The third finding of the study related to sellers of second-hand goods, who asked for prices that varied substantially in relation to the way in which they had obtained them, their assessment of the interest and capacity of the buyer to pay for the goods, and their own need to obtain créditos to pay for groceries.

PRODUCTS BASED ON OWN LABOUR

In addition to industrially manufactured goods traded in the nodes in créditos, about a third of the goods on sale in the Trueque were specifically produced for the Trueque, so they had a more distant relationship to considerations of supply and demand for groceries or to notions of an exchange rate with the regular currency. Producers combined their own labour, necessary to make goods, with ingredients bought in pesos in supermarkets or in créditos in the nodes, and used their household utilities paid in pesos (gas to bake bread in an oven, electricity to make garments with a sewing machine, etc.). While the previous section centred on supply and demand as determinants of prices for manufactured goods, this section will focus on goods that were produced for and exchanged in complementary currency. The link between the production and the pricing methods was best studied by the postkeynesian pricing theories.

The researchers monitored prices of goods with a labour component that could be found in all nodes, namely French bread and ready-to-bake pizza dough. The prices of these products varied substantially per node and between nodes, even more than the prices of groceries but less than the prices of second-hand goods. The maximum variation was noted for prices in créditos of the pizzas, in La Aceitera they would sell for 330% of the sale price in Cuartel IX. Participants that produced goods generally indicated that they calculated the reward for their labour was an addition

to the costs of the inputs. They explained that they added the cost of the ingredients and "a little more for my work", which is consistent with the postkeynesian theory of price determination that was advanced by Hall and Hitch (1937) and Downward (2000), based on a profit-margin added to the production cost. How much was "a little bit" depended mostly on the perceptions of the participants, again, and oscillated around 25%.

In the case of services, participants mostly referred to a general equivalent such as flour or sugar. Table 5 shows relative prices of produced goods in terms of a kilo of sugar, which was used in the research as a general equivalent to calculate prices. Table 5 also shows the hourly rate for child care and gardening because those were services on offer in all three nodes.

Table 5. Prices for services and products sold at La Aceitera

Prices in k of sugar	Kilo of bread	Pizza dough	Baby-sitting (female labour)	Gardening (male labour)
La aceitera	0.7	0.9	0.75	1
Regular market	1.3	2	2	3

The comparison of relative prices shows that labour in the Trueque was paid substantially less than in the regular economy, and this finding stands for goods as well as for services. While the relative prices of French bread and sugar in the Trueque was 0.7 (that means that the price of 1 kilo of bread was equivalent to 0.7 kilo of sugar), the relative prices of those two goods were 1.3 in a supermarket in regular currency (1 kilo of bread would cost as 1.3 kilos of sugar). Upon suggesting that labour was rewarded less in the Trueque than in the peso economy, participants noted that they "cannot charge more" because potential buyers did not have sufficient income to pay more. Besides, they took into account a number of non-economic aspects. "I don't have a job, so I prefer to have some créditos when I sell my bread, over nothing at all. At least I don't stay at home depressed and I buy the flour in the node, anyway", a participant said. It is worth noting that women normally received a smaller pay for child care than men did for gardening, although these services have the same price in the regular economy.

The different rewards for labour in créditos and in pesos hinted that the Trueque was less appealing in economic terms but rewarded participants with a pleasant activity and social relations. For example, some would buy groceries in supermarkets and would exchange them only with participants who used them as inputs to produce food, of which they were regular buyers. In the Billinghurst node, a participant who made pastries wrote her weekly needs and passed the list to another participant who had a low-waged job. This participant would go to a supermarket, buy the items in the list and exchange them with the baker for a given quantity of pastries and pies that they had previously agreed on. The baker had all the ingredients necessary to make pastries, some of which were pre-sold to that trading partner, and she would sell the rest in the node. This activity was her primary source of income. Both participants were interviewed separately to discuss the exchange. The buyer spent six pesos in the supermarket to buy ingredients and exchanged them for a tray of pastries that, according to his calculations, cost him nine pesos in a neighbourhood formal bakery, meaning that he had saved three pesos. The baker calculated that the cost of the ingredients was "around five pesos", but since she did not have access to pesos, she could not have bought them anyway. She would sell the tray of pastries in the node for the equivalent in ingredients of eight pesos, so the baker considered that her labour had generated an income in créditos equivalent to three pesos. This means that her small production scale, the impossibility of accessing pesos and the fact that they were sold in créditos put her pastries at a lower price than in a bakery, yet it was the only way in which she could transform her labour capacity into an income. The currency in which her income was valued did not seem important to her and these two traders had actually developed an incipient friendship. These combinations of trade and friendship are discussed in section 5.

THE EMBEDDEDNESS OF PRICES: AUTHORITY AND MORALITY

The moral embeddedness of price determination affected individual perceptions of supply and demand, as well as the level of mark-ups that could be considered acceptable. Moreover, the informal authorities of the nodes also exercised pressure on prices based on these loose notions of fairness. Institutions in the Trueque were informal, coupled with barely any state presence, and the coordinators of the nodes were the main authority figure at the local level. The participants accepted their legitimacy, however informal, by virtue of being the ones that had organised the nodes and set some of the rules prevalent in them, like the time and date when markets were gathered, the crédito used, the collection of fees, and the products and participants that were allowed or banned. The authority of the coordinators was seen not only as legitimate but often as desirable, even if they did not always exercise it as the participants expected.

In practical terms, when the prices in créditos for groceries were perceived as too high, some of the coordinators pressured vendors to lower their prices and they advised the participants to refrain from buying until prices were reduced. At times they even expelled sellers with prices considered abusive. Coordinators controlling prices were observed in the Cuartel IX de Lomas de Zamora, and also in Barrio Billinghurst in General San Martín. Their efforts were partially successful in practice: at times vendors

would lower their prices, while at others they refused to do so and took their commodities to nodes where coordinators were less active. In turn, buyers sometimes admitted that they needed the groceries on sale so direly that they were willing to pay any prices for them, which validated high prices for groceries, and indirectly, for all the prices in the node. The powerbase of the coordinators was quite limited and whoever had access to official money to buy groceries in supermarkets was in a position to exploit those who depended upon the Trueque for their survival. Regular money granted them market power over those who only had products, créditos or their labour for sale. Nevertheless, the nodes where coordinators made use of their authority and intervened to control prices were generally cheaper than nodes with less active coordinators. The downside to this was that cheaper nodes attracted those who speculated and held créditos to purchase products at lower prices and resell at higher prices in more expensive nodes. So, coordinators needed to be active in various fronts and the tools they had to exercise their authority were, like everything in the Trueque, the informal institutions (unwritten and uncodified) that derived from tacit or implicit agreements.

The nodes did not appear to be spaces for the construction of a specific morality but to recapture cultural values that many defined as lost, like "the respect for each other we used to have" (interview with an elderly male vendor). The perceptions regarding the morality and fairness of the Trueque, however, varied greatly among participants and many described the nodes as spaces of fierce competition and survival of the fittest. About 25% of the participants agreed with the statement that the Trueque was "like any other business", no difference between the economy in créditos and the one in pesos, and said that they set the prices that maximized their profits "in the same way that everyone else does". At the same time, 52% took into account the "needs of others" and expected others to do the same because, they insisted, "we cannot keep on ripping each other off". A minority of 11% held an image of the Trueque as an economy with a shared ideology or morality. Strongly ideological statements referring to a "fair economy" were rare among participants, although common among the organisers. The remainder of the participants interviewed did not have a particular opinion.

The notion of social justice or fairness relates to the values studied in economic sociology (Beckert, 2011; Stehr, 2006). What was considered "fair" in the Trueque translated into expressions such as "no one should leave the node as looser" or "everyone has a right to earn a little without taking advantage of the others" (interviews with female vendors in Cuartel IX and La Aceitera, respectively). Participants generally perceived that the regular economy in pesos was "less fair" because it did not take into account the necessity of the buyers to access certain critical goods or the capacity of vendors to resign the maximum profit while setting prices. Moreover, they felt that the regular economy had excluded them and pushed them to a situation of unsatisfied needs and wants, so they had to try and make a living in the Trueque with complementary currency. The feeling of being excluded from the regular economy was the extent of what participants had in common with the others and anything beyond that was created on a person-to-person basis.

THE HUMAN FACTOR AND RECIPROCITY

While shared values and representations of fairness stayed in the background in the nodes, interpersonal relationships affected price setting behaviour in the ways advanced by Beckert (2007). Some vendors would set different prices for different buyers, according to whether they knew them or liked them or not, and referred to them with affection, often calling them "the friends of the node". These participants constructed small networks of interpersonal relations and trading, in which exchanges were closed and prices were lower than those offered to the general public. The participants who belonged in these small networks had been regular members of the nodes for a number of years and had established a reputation as producers or vendors for a number of reasons (quality, hygiene, fair prices and so on). They placed orders with one another – always the same vendors- for certain quantities each week. They completed these exchanges first, and later placed the remaining items for sale to other participants, whom they did not know or for which they had little affinity. Some vendors shared that they had sold their entire production before entering the node and stayed mainly for the social contact. Their prices were fixed internally within the networks, in reference to groceries purchased in the supermarkets with a minimal mark-up, and escaping in a certain way the power and influence of those who had access to pesos and indirectly set the nodes' prices. The exchange of breads, pastries, empanadas, pies, pizza dough and pasta in this manner was observed in all the nodes.

Participants also made references to "sharing" and "belonging" to particular networks within the nodes. A prosumer in Billinghurst would produce cannelloni stuffed with different fillings based on the orders received. She once made a large quantity for the baptism of a participant's niece and explained, "That is the beautiful part of the Trueque. It isn't only about the sales but about sharing things with each other like a family moment". Individuals who engaged in interpersonal networks in the nodes would also help each other in different ways. For example, one of the participants would go to purchase while another would stay at the table to keep an eye on products or help with sales. They would lend one another small sums of créditos and would celebrate birthdays or other social events together. Women who performed unpaid work at home and the elderly emphasized that meeting people in a similar situation of economic exclusion was important and beyond the economic impact of what they could trade. Participants were asked how many people formed part of their interpersonal networks. While the majority was unable to give a precise answer, they estimated between 10-20 people.

The embeddedness of exchanges in networks of interpersonal relations hence restricted the mark-up added to

costs. Prices were invariably lower for those who were part of the closed networks than for the others. Some participants would not even sell any of their products to strangers. "I don't sell anything to exploiters who double their prices in créditos because they destroy the Trueque. I know I will manage to sell everything, anyways", said a 78 year old woman who sold homemade croissants in Cuartel IX. These interpersonal networks existed mainly in the larger nodes with several hundreds of participants.

CONCLUSIONS

This study found multiple answers to the question of what determined prices in complementary currencies in the Argentine Redes de Trueque. There is substantial evidence against the popular assumption that prices in créditos were a direct transformation of prices in pesos, as if an exchange rate existed. Prices in créditos varied between nodes, even if these were in the same locality or used the same currency. Moreover, prices differed within one node and for different buyers from a single seller.

This study has arranged goods on sale by categories and explained the prices in each category by a combination of theoretical perspectives. The first price category was of industrially manufactured goods resold in the Trueque. Among these, groceries were the main example of goods in excess demand and second-hand clothes were in excess supply. These prices varied within a node because vendors of groceries had different perceptions of the excess demand on that specific day and venue and had different appetites for obtaining the maximum profit possible. Traders referred to their individual notions of the "right price" to ask for, and even if they hinted that it would be possible to ask for higher prices, they thought that these would not be "fair". Some participants got groceries for free and calculated their sale prices by what they hoped to obtain in exchange, similarly to sellers of second-hand goods, who took the prices of "the others" as their main reference to set prices. While Neoclassical theory considers prices as equilibria between supply and demand levels, transactions in the Trueque were made at several prices that co-existed with permanent excess supply and demand because trade was embedded in diverse values and power relations and responded to mixed personal motivations and perceptions. Heterogeneity in price-setting mechanisms is present in the regular economy, too, even if it is guided mainly by profit maximisation, as shown by Beckert's review (2011). CCS accommodate for a range of price diversity and mixed motivations in one market.

In absence of an exchange rate between complementary and official currencies, vendors of basic groceries were the primary "price setters" and indirectly fixed a price level for the node. There was a clear power asymmetry in favour of those who had pesos to get supplies in supermarkets over those who did not have them, and depended on the Trueque for their survival. Regular money granted them market power over those who only had goods, créditos or their labour for sale. The use of a complementary currency, therefore, does not automatically overwrite the power asymmetries that favour agents with goods in excess demand in any economy, what Bowles and Gintis (1993) termed the "strong side of the market". However, complementary currencies facilitate proximity at the local level and constrain competition, so they also trigger a sense of fairness among vendors that can afford to do so when they are confronted with the realities of lower-income buyers.

The second price category was of goods that were produced specifically for sale in the Trueque. The Keynesian perspective of price formation was preferred because it relates the price-setting to the production process. Vendors of these goods added the costs of the ingredients and a small percentage for their work and a price comparison showed that this mark-up in the Trueque was lower than in the regular economy both for goods as for services. A lower mark-up in complementary currency goes in line with its restricted circulation, and the status of the nodes as secondary outlets for traders who are unable to sell their goods in regular currency. It also signals more flexibility than the regular economy because complementary currencies allow participants to take into account their buyers' incapacity to access goods in the regular economy. In general, an economic activity in complementary currency appears as a less attractive option for those vendors engaged in the maximization of profits but it is the preferred option for those looking exactly for a less demanding and less competitive space. CCS give those producers the chance to participate in a social space with a pleasant activity while earning a small income at the same time.

Institutional controls and shared values embedded trade and affected prices. The authority of the coordinators was used to keep prices in check in the nodes in similar ways as discussed by Polanyi (1992) and Beckert (2011) in the regular economy. The legitimacy of the coordinators of the Trueque derived from their role as organisers of the scheme and was mostly accepted. However, not all coordinators exercised their role as regulators and not all vendors were prepared to charge anything but the maximum possible, so they moved to other nodes where price restrictions did not apply. Prices in complementary currency are difficult to control in this way precisely because it is a scheme of voluntary participation from which vendors can opt out at any time. In turn, CCS are based on a set of assumptions of goodwill, so they are rarely endowed with enforcement mechanisms or rules to control opportunistic behaviour. These controls are left to notions of fairness or a shared morality, like the consideration of the needs of both buyers and sellers, but these do not necessarily perform.

In principle, the use of complementary currency facilitates the creation of an economy embedded in notions of fairness and sustainability, in which the needs of all could be taken into account, but in the case of the Argentine Trueque the notions of fairness and morality and the realistic chances of practising them varied widely. Some participants described the nodes as spaces of fierce competition and survival of the fittest, while others projected a rather idyllic image of recovering moral values. The use of complementary currency, on its own, was not enough to create

social cohesion and, in fact, where social cohesion pre-existed, the use of créditos seemed to make further progress in promoting an economy of shared values. The feeling of exclusion from the regular economy was the extent of what most participants had in common with the others and anything beyond that was created on a person-to-person basis.

The final factor affecting prices relates to reciprocity and the combination of exchange and gift considerations in networks, as studied in Economic Sociology by Uzzi and Lancaster (2004), for example. Vendors set different prices for various buyers, according to their relationship with them, the time they had known each other, and so on. The interpersonal pricing mechanisms shaped sub-networks with a limited amount of participants who refered to each other with affection and to the others as strangers. Women who performed unpaid work at home and the elderly emphasized that meeting people in a similar situation of economic exclusion was important for them and beyond the economic impact of what they could trade.

A repeated expression in terms of pricing mechanisms was "following the others" and this was particularly problematic, because most of "the others" did the same, so everyone used each others' prices as references. Each node was thus organised as a price network in which critical prices -namely those of groceries bought in pesos- were used as references for other goods on sale in the node. If those reference prices were different across nodes, then the rest of the prices would also differ because each node was a price network. In addition, critical prices per node varied according to the sellers' perceptions of supply and demand, notions of fairness and so on, and these differences created more than one level of prices co-existing in each node at any given time. The smaller interpersonal sub-networks were a second layer of price networks in which sellers discriminated their prices.

It is precisely in the creation of small price networks with mixed motivations that complementary currencies are different from regular currencies. On the one hand, price setting mechanisms do not vary substantially between regular and complementary currencies. Prices show power asymmetries and sellers of goods in excess demand can make binding decisions and take advantage of those with goods in excess supply or only their labour to sell. In both types of currencies the respective authorities may intervene to push prices down, and vendors may set different prices for different buyers, depending on how close or familiar they are. On the other hand, CCS are less demanding and less competitive than the regular economy. They have lower barriers of entry and looser standards, are more inclusive of producers who are unable to sell their goods in regular currency and do not automatically sanction those who have inaccurate perceptions of excess demand or may be inclined to ask for a "fair" lower price. CCS blend motivations, so they offer a chance to producers who are excluded from the regular market and cannot run losses, but who may not wish or may not be able to maximise profits. Moreover, vendors in CCS are individuals, who are confronted face to face with the personal situation of the buyers. A personalised relationship between buyers and sellers may exist in the regular economy too, but within a mixed landscape in which traders are often large and anonymous companies who have no direct contact with their trade partners. The absence of a single price per product in complementary currency is the consequence of these blended motivations that embed price setting processes, in addition to lower competitive pressures and personalised trade relationships.

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International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 53-61

WHAT KINDS OF VOLUNTEERS BECOME MORE MOTIVATED BY COMMUNITY CURRENCY? INFLUENCE OF PERCEPTIONS OF REWARD ON MOTIVATION

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ABSTRACT

Local communities in Japan are struggling to increase the number of participants in volunteer activities in order to revitalize local life. To maintain the enthusiasm of active volunteers and entice new volunteers, a new type of reward to increase motivation is needed. Accordingly, community currencies (hereafter, CCs) have been introduced as a reward in an attempt to provide such a source of motivation. In particular, local residents have been expected to participate in volunteer work more frequently in return for receiving CCs; however, there is no evidence yet as to whether CCs arouse their motivation to do volunteer work. In this study, we investigated whether CCs play a role in raising local residents' motivation to do volunteer work. Our conclusion is that even some people with a no-reward orientation are likely to have their motivation raised by CCs, rather than diminished. This result shows that their perception towards CCs and cash is dramatically different though CCs have the same monetary value as cash.

ACKNOWLEDGEMENTS

The authors would like to thank the Toda Oar committee and the respondents for assistance with our research. This research was supported by grants from the Foundation for the Fusion of Science and Technology (FOST).

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To cite this article: Kurita, K., Yoshida, M. and Miyazaki, Y. (2015) 'What kinds of volunteer become more motivated by community currency? Influence of perceptions of reward on motivation' International Journal of Community Currency Research 19 (D) 53-61 <www.ijccr.net> ISSN 1325-9547

1. INTRODUCTION

In Japan, all local communities are striving to increase the number of participants in volunteer activities, in an effort to revitalize local life. In order to maintain the enthusiasm of active volunteers and to entice new volunteers to take part, a new mechanism is needed to increase motivation. Accordingly, community currencies (CCs) have been introduced as a new type of reward by organizations such as NPOs, municipal governments, and merchants' associations in an attempt to provide such a mechanism.

Rewards with monetary value have a tendency to undermine voluntary workers' motivation, while not offering any reward at all leads to difficulties in continuity of voluntary work. For example, Ariely (2010) and Frey (1997) argue that giving money to volunteers might undermine their motivation under some conditions. However, unlike individual monetary rewards, CCs might not undermine volunteer's motivation, and have now come to be expected.

Volunteers receive CCs as a reward for participation in certain activities. Cleaning up the neighborhood, helping at festivals, and mutual assistance like caring for a pet or shoveling snow all count as volunteer activities. Some people take part frequently in voluntary work, while other local residents rarely do so. As a result, the burden of voluntary work falls disproportionately on the shoulders of certain people, such as housewives and retired employee. Thus, a new framework is needed that will encourage participation by local residents. In an effort to raise volunteers' willingness to participate, CCs are being introduced in local communities throughout the country.

Local residents can use CCs for either commercial or non-commercial transactions (Kurita et al., 2012). Commercial transactions include using the currency in local shopping districts, at local festivals, and when paying for administrative services. They can buy almost all of the items at local shops using CCs. Non-commercial transactions include use as recompense for voluntary activity or mutual assistance. In this way, CCs can be used for a variety of transactions involving goods and services. Therefore, it was expected that local residents would be eager to receive CCs. However, there is no evidence yet as to whether CCs will contribute to arousing their motivation to do voluntary work. Thus, some local residents view the introduction of CCs negatively. For instance, some hold the opinion that participation in local activities is by nature done voluntarily, and rewards ought not to be given. During a simple verbal survey conducted in Tokyo's Musashino City, a toy shop owner gave the opinion that people who do voluntary work ought to do so without reward. The criticism is that CCs undermine volunteers' virtuous desire to work for no reward. It has also been pointed out that CCs might even have an adverse effect on motivation. Therefore, the question remains whether CCs will arouse local residents' motivation to do voluntary work.

In this study, we investigated whether CCs play a role in raising local residents' motivation to do voluntary work. One feature of our conclusion is that, unsurprisingly, those people who have a reward orientation are more likely to have their motivation raised than are those with a no-reward orientation. In addition, it is interesting that even some people with a no-reward orientation have their motivation raised, rather than undermined.

The structure of the paper is as follows: Section 2 summarizes previous research focusing on rewards and incentives, Section 3 describes the research perspective of the study explaining the effects of reward orientations on motivation, Section 4 explains the research methods used for this study, Section 5 provides findings and data analysis, Section 6 presents discussions on the data analysis, and Section 7 presents the conclusion.

2. PREVIOUS RESEARCH

There have been various types of studies tagged with "perception of CCs," "reward," and "incentive" as their key words. For example, Kaplan (2011) and Thiel (2012) both analyzed perceptions of CCs. Kaplan investigated differences in perceptions between merchants and consumers and revealed how perceptions differ depending on standpoint, and how that influences behavior. Merchants see CCs as a means of increasing sales, and try to encourage more users through word of mouth and advertising. Consumers, on the other hand, see CCs as a means of revitalizing the local economy, and so make their purchases in local shops rather than at major stores. Thiel believes that people regard CCs as having both a functional and a symbolic aspect. The functional aspect refers to the range of uses for CCs. The symbolic aspect refers to the ethics of using CCs. People see CCs not only as a means of exchange for purchasing goods and services, but also as a kind of ethical money, which revitalizes the local economy. Thiel claims that people's perceptions of CCs affect its circulation.

On the other hand, Frey (1997) and Ariely (2010) both have researched the relationship between reward and motivation for doing voluntary work. Frey has established that in some cases, money can undermine voluntary workers' enthusiasm. Why does giving money in exchange for volunteer activities hamper motivation? Frey argues that human motivation is divided into two categories: "extrinsic" and "intrinsic." "Extrinsic" refers to motivation by the belief that one will receive any sort of monetary reward. In contrast, "intrinsic" motivation refers to motivation that is derived internally, such as self-respect, self-determination, or civic virtue. Economists hitherto have argued—from a perspective focusing only on extrinsic motivation—that monetary rewards are strong motivators for individuals. However, this economic theory does not apply to all situations. Specifically, having money as a form of reward can damage self-respect and sense of self-determination of voluntary workers, and thereby undermine their enthusiasm for the work. For them, voluntary work is not interchangeable for money because it is noble. In these circumstances, the reward has the effect of undermining their

intrinsic motivation. Likewise, Ariely discusses how money can taint relationships between friends and acquaintances. He also discusses people's motivation in terms of two categories: "social" and "economic" exchange. Benevolent behaviors without thought of recompense are believed to be morally justifiable in a social exchange. On the other hand, behaviors in return for monetary rewards are justified in an economic exchange. People usually switch their behavior between the two categories for different situations. Thus, mixing up the two exchanges could lead to some problems. For instance, Ariely notes that by giving money as a token of thanks to a relative who has provided a meal, or to a friend who has lent a hand in some matter, one runs the risk of sullying one's relationships with them.

Kaplan and Thiel have thought deeply about people's perceptions of CCs, but they have not considered the function of CCs as a means of reward. Frey and Ariely, on the other hand, have thought deeply about the relationship between money and people's motivations, but they have not researched the relationship between CCs and people's motivations. Research hitherto has not dealt sufficiently with the question of whether CCs, which have recently been introduced as a form of reward, do in fact increase people's enthusiasm for work. Consequently, virtually no attention has been given to the phenomenon of the co-existence of cases where CCs do serve to enhance voluntary workers' enthusiasm alongside cases where it does not. Focusing on the domains neglected by previous research, Kurita has investigated the relationship between perceptions of reward and perceptions of CCs, but has not fully considered whether CCs can motivate local residents (Kurita, 2010).

3. RESEARCH APPROACH

Our research objective was to examine the best reward for fostering volunteer motivation. The best reward depends on the type of voluntary work and people's perceptions of a proper reward in return for their participation. Thus, identifying the best reward for participant's motivation is one of the key factors affecting the continuation of voluntary work done in local communities. In the context of this research issue, the present study examined whether CCs could motivate local residents' participation in voluntary work. In particular, we looked at their perceptions of reward, or the way they think of a reward as a proper means of compensation for voluntary work. Rewards for voluntary work include a gift such as candy or chocolate, a coupon, cash, and so on. For example, people who see any kind of reward as unnecessary in voluntary work are not oriented towards any reward. They have a strong resistance to receiving cash, vouchers, or token gifts as recompense for their activities. Indeed, when they are given something in return for volunteering, it dampens their enthusiasm. In contrast, people who believe that some kind of recompense is needed for voluntary work are oriented towards reward. They show little resistance to receiving cash, vouchers, or token gifts as recompense for their activities. Their enthusiasm rises when they receive some sort of recompense. At the same time, these orientations (reward/no-reward) are not fixed traits in any one individual. Rather, it could be that they are context dependent, so that a person's reward orientation changes according to the voluntary activity. In other words, people vary widely in what they view as appropriate rewards for activities.

Given that CCs with monetary value are a form of reward, they may cause voluntary workers with a strong no-reward orientation to lose their will to work, but increase the will to work in those with a strong reward-orientation. Thus, it is important to focus on local residents' different perceptions of reward. People's perceptions may lead to very different reactions to the same stimulus, depending on the situation and their experiences (Katona, 1951). Accordingly, people's perceptions of a new reward, namely CCs, may vary greatly from one individual to another.

Even among those with the same orientation towards rewards, some may accept CCs, while others reject them. Some people will see CCs as a reward that is somehow less valuable than cash, yet more special than token gifts. Other people, though, may see them as a better kind of reward than either cash or token gifts. Reactions to CCs vary greatly according to a combination of reward orientation and perception of CCs (Table 1). For instance, the local residents in the top-left quadrant (II) of Table 1 have a no-reward orientation, and yet see CCs as an excellent reward because they can contribute to the revitalization and development of local communities. While they do have monetary value, CCs do not undermine such people's motivation, and instead might succeed in raising it. On the other hand, those residents in the bottom-right quadrant (IV), have a reward orientation, but see CCs as an inferior kind of reward because they can only be used in a specific region in Japan. Note that we have simplified the classification of the perceptions of reward in order to help readers easily understand the argument. In reality, it is difficult to divide people's perceptions of reward into two categories, as there are many patterns of perceptions.

Given that people's perceptions of rewards and CCs vary, there will be cases where CCs raise motivation and cases where they do not. In other words, the differences in people's perceptions of reward and perceptions of CCs most likely have a strong influence on whether or not CCs enhance their motivation. This is the perspective we have taken as the basis for the present research study.

Table 1: Combinations of perceptions of rewards and perception of CCs.

		Perception of CCs: Superior Reward	Perception of CCs: Inferior Reward
Perception of reward	No-reward	II	I
	Reward	III	IV

4. RESEARCH METHOD

This study targeted the CC known as Toda Oar (hereafter, Oar), used in Toda City in Saitama Prefecture. The Oar are issued and managed by the Community Currency Toda Oar Management Committee. The Committee is managed by a number of volunteers. The Oar was first trialed in 2003. The initial purpose was to revitalize citizen activity and encourage mutual assistance. In the beginning, the Oar was used as "Eco-money," which was issued only to encourage mutual assistance. However, in response to the limited circulation problem of "Eco-money", the Oar has started to be accepted in local shops as from 2004. Moreover, the original six-month time limit for using the currency was extended to 3 years. The unit of this CC is the Oar, and at present 10-Oar and 100-Oar bills are in circulation. One Oar is equivalent to one yen (Figure 1).

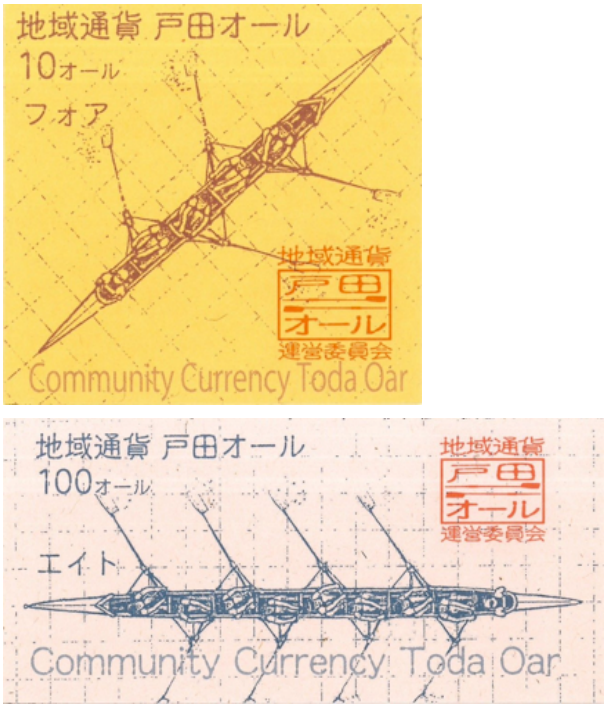

Figure 1: The current Toda Oar

There are three main ways to acquire the Oar. The first is to become a Toda Oar supporter by paying the 1,000-yen membership fee, for which one receives 1,000 Oar. The second is to receive a grant based on a cash contribution by a donor. Some groups and local residents can receive up to 20,000 Oar from the Committee. The third is by taking part in an event organized by one of several groups. The groups organizing events obtain the Oar from the Committee by paying cash. Local residents can obtain the Oar by taking part in a cleaning up program, an ink cartridge recycling program, or an entrepreneurial experience program aimed at children. There are six main ways to use the Oar. First, they can be used as recompense for mutual assistance. Second, they can be used as contributions to support groups and the Committee. Third, they can be used in local festivals. Fourth, they can be used in local shops that participate in the program, of which there are about 100. Fifth, they can be used in the shop and cafeterias in Toda city hall. Finally, they can be exchanged for bus tickets to use in the city.

The Oar is a typical Japanese CC that can be used for both commercial and non-commercial transactions. Commercial transactions include its use in shops, at festivals, and in exchange for bus tickets. Non-commercial transactions include its use as a reward for voluntary activities or for mutual assistance, or for participation in educational programs. It can be used by elementary, middle and high school children as well as by adults. Furthermore, there are a variety of volunteer activities that allow people to acquire the Oar, and the Oar is expected to foster local people's participation in volunteerism.

A questionnaire survey was carried out to determine if CCs could foster individuals' motivation. The questionnaire asks about people's preferred type of reward in certain situations as well as their attitudes towards rewards in general. Ideally, we would observe whether there are any changes in participants' motivation before and after the introduction of CCs; however, it is difficult in practice to find a location where such a social experiment could be carried out. Therefore, we constructed a questionnaire designed to observe changes in their perceptions if a new reward were to be introduced in a given situation.

In the questionnaire, the types of reward that could be chosen increased as the questions continued, as we believed this would help identify what other types of rewards would be chosen by those who chose CCs. For example, in the first question, the choices of reward for voluntary cleaning up work were a verbal thank you from the organizer of the event or a certificate that included a message of appreciation from the mayor. The second question had the same two choices plus a third choice of a cake worth approximately a hundred yen. The third question added a further option: that of receiving CCs. The final question added the further option of receiving 100 yen in cash. By adding reward options one at a time, we could identify the perceptions of reward of those who chose the third option (CCs).

For the purposes of this study, we asked about five levels of reward. The relative positions of the five rewards can be seen in Figure 2. The further left you go, the stronger the no-reward orientation becomes, and the further right, the stronger the reward orientation becomes. Words of thanks and certificates represent rewards in the form of language, and thus have next to no monetary value, and are the closest step to the "no-reward" position. At the other end of the spectrum, cakes and cash have value that can be counted in yen, and this strong monetary value places them closest to the "reward" position. As mentioned in Section 3, individual differences in the perception of CCs vary greatly. Some residents see them as close to the "no-reward" position because they encourage voluntary activities in the community, while others may see them as a reward with monetary value. Strictly speaking, "no-reward" means receiving no kind of reward at all, regardless of psychological or monetary value. However, because doing voluntary work will

result in receiving one of these kinds of rewards, we excluded "receive nothing at all" as a response.

In order to observe whether perceptions of reward have any effect on choosing CCs, a respondent was classified as having a reward orientation if he chose "cakes" as soon as that became an option; he was classified as having a no-reward orientation if he chose a language reward, regardless of what form it took. Thus, the element of monetary value that starts with cakes as an option is used as the criterion for differentiating between reward and no-reward mentalities. The questionnaire also asked about respondents' perceptions of the various rewards as motivation for a cleanup activity.

The survey was carried out with people face-to-face at festivals held in September and October 2012. We randomly asked visitors to the event to participate in our questionnaire, and 94 responded. Of these respondents, we specifically selected students aged up to 18 years old as our target research group, in order to examine the effect of CCs on their motivation. Thus, the number of selected respondents was 56. The questionnaire included questions about reward selection only for individuals who were aware of the Oar; if they were unaware of the Oar, they would not have been able to accurately understand the questions. In Toda, there is ample opportunity for students to obtain the Oar. They do so by taking part in various programs organized by the Committee. Students can also take part in toy exchange events, cleaning up programs, or ink cartridge recycling programs to obtain the Oar. Thus, Toda has multiple programs that allow students to obtain CCs, and we assumed that they would understand the meaning of our questions.

The respondents were not a randomly drawn sample from the larger population of students who had used the Oar. Thus, it is difficult to be certain that they were a representative sample of the larger population. However, since there is no list of users of the CC, the data acquired here are valuable, and may shed light on the relations between CCs and reward orientation, and generate hypotheses that future research can test.

There were 56 respondents, divided by age as follows: elementary school (ages 6 to 12), middle school (ages 13 to 15), and high school (ages 16 to 18). Elementary school children accounted for 75% of the total sample (Table 2). Boys and girls were equally represented with 28 of each (Table 3). All of the respondents who answered the question on their awareness of the Toda Oar (55 people or 100.0%) said that they were aware of it, and all but two (54 people or 96.4%) had experience receiving and using it (Tables 4 and 5). One respondent did not answer the question about awareness, which accounts for the discrepancy in the n value.

Table 2: Age distribution

Grade	n	Percent
Elementary School (age 6 - 12)	42	75.0
Middle School (age 13 - 15)	4	7
High School (age 16 - 18)	10	18
Total	56	100.00

Table 3: Gender

Gender	n	Percent
Male	28	50.0
Female	28	50.0
Total	56	100.0

Table 4: Awareness of Toda Ora

Gender	n	Percent
Aware	55	100
Not Aware	0	0
Total	55	100.0

Table 5: Experience using Toda Ora

Figure 2: The relative positions of the five rewards

Experience	n	Percent
Yes	54	96
No	2	4
Total	56	100.0

5. RESULTS

Figure 3 shows the rewards chosen by reward orientation as a tree diagram. The reason why the number of respondents was 55 is that only one person did not answer one of the questions. We conducted the surveys using questions about voluntary cleaning up work and assisting elderly women, but the results were almost the same. Thus, in this paper, we only report on the case of voluntary cleaning up work. This figure shows how people change their preferences for rewards after the new reward is added to the question at each level. The first level of each tree shows the ratio of those who chose the cake to those who did not. Those who chose the cake at this stage were designated as having a reward orientation, while those who did not were designated as having a no-reward orientation. Next, at the second level of the tree is the ratio of those who chose CCs to those who did not for each of the two reward orientations. Finally, at the third level of the tree is the ratio of those who chose cash to those who did not for each node at the second level. Thus, this tree diagram describes the effect reward orientation has on the choice of CCs.

First, let us look at the ratio for reward orientation. The proportion of those with a no-reward orientation was somewhat high: 56.4% preferred "no-reward," compared with 43.6% who preferred "reward." Next, let us look at the choice of CCs for each of the reward orientation categories: 79.2% of those with a reward orientation chose CCs, while 51.6% of those with a no-reward orientation did so. Therefore, reward orientation does have an effect on choice of CCs. Most of those who have a reward orientation are highly likely to have their motivation enhanced by CCs, but this effect is reduced for those with a no-reward orientation. Finally, let us look at what happens when cash is added as an option, so we can see better the relationship between types of reward and motivation. Of those people with a reward orientation who had chosen to receive CCs, 52.6% now preferred to receive cash in return for cleaning up work, compared with a mere 18.8% of those who had a no-reward orientation. This implies that approximately half of those with a reward orientation will feel more motivated if they receive cash rather than CCs. On the other hand, most of those with a no-reward orientation can have their motivation enhanced by receiving CCs, but not further enhanced by receiving cash instead. We observe that those with a no-reward orientation have a perception that allows them to accept CCs, but not cash. Next, let us look at those who did not choose CCs: 80% of those with a reward orientation chose the cash, while 13.3% of those with a no-

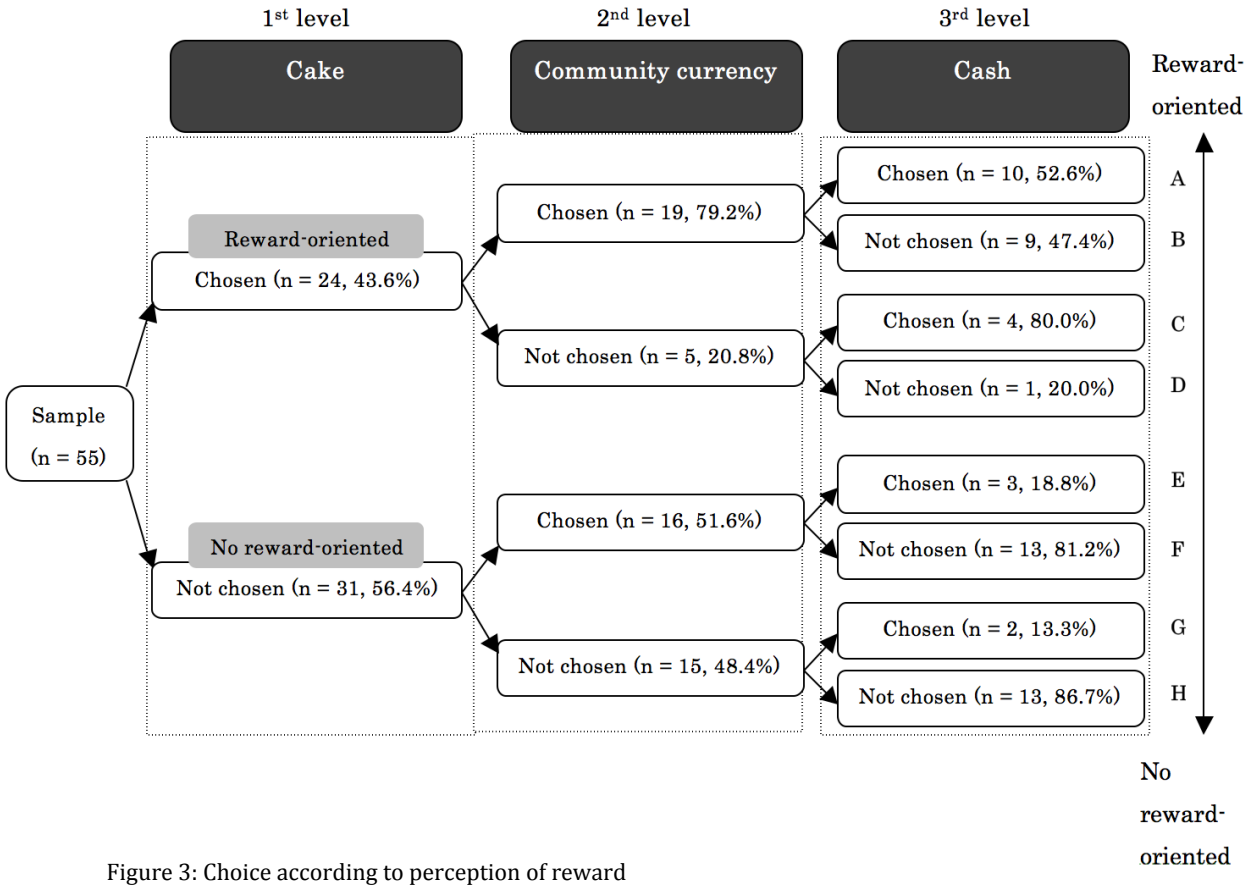

Figure 3: Choice according to perception of reward

reward orientation did so. For most of those with a reward orientation, cash is a better motivator than CCs. We can interpret this as meaning that such people do not see CCs as an appropriate reward to raise their motivation and chose cash, which has a clearer monetary value. Contrasting with this, neither CCs nor cash seems to enhance the motivation of most of those with a no-reward orientation. These individuals do not feel more motivated when receiving any reward that has monetary value. Such people have a strong preference to do voluntary work without reward.

In summary, we confirmed from the analysis that there are various patterns regarding how to choose rewards. In Figure 3, the further down the vertical double arrow you go, the stronger the no-reward orientation becomes, and the further up the arrow you go, the stronger the reward orientation becomes. Each letter along the arrow corresponds to a type of person with a different pattern of reward orientation.

6. DISCUSSION

We have seen from the present analysis that CCs with monetary value can motivate people who have a reward orientation. If CCs are introduced as a new reward in communities, local residents with a reward orientation are likely to be more motivated than before, because a reward with monetary value clearly motivates people with a reward orientation.

With respect to those with a no-reward orientation, some interesting results were found. CCs with monetary value will not necessarily demotivate all of those with a no-reward orientation, but may in fact enhance the motivation of some. Furthermore, when we examine the relationship between types of reward and motivation by analyzing the choice to take cash, we notice that some people with a no-reward orientation opted to take CCs but refused to take cash (See category "F" in Figure 3). Thus, those with a no-reward orientation may see cash as an incompatible reward for voluntary work, but feel that CCs act as an incentive even though they have a monetary value. This suggests that some people with a no-reward orientation recognize CCs as being different from cash, despite both rewards having the same monetary value. In other words, some of those with a no-reward orientation might perceive CCs not simply as a money substitute, but as a special kind of reward that recognizes the value of voluntary work.

Earlier research has shown how giving money can undermine people's motivation. It is possible that in some cases, money serves to undermine voluntary workers' intrinsic motivation (Frey, 1997). Ariely, on the other hand, points out how human relations between friends and acquaintances can be undermined when an instrument of market forces, such as money, is introduced into these social relationships (Ariely, 2010). He claims that when we are asked by a friend or acquaintance to do something for them, we would rather receive a non-monetary present than money. Thus, social psychology and economic psychology have dealt in-depth with the relationship between money and motivation, separating between social and market domains. However, it is difficult to analyze the social and market domains using this analytic framework. From this perspective, CCs with monetary value might be seen as a reward, similar to cash, that undermines volunteers' motivation.

We have focused on the overlap between social and market domains that has been long neglected by traditional research. The data from the present study indicate that although CCs have monetary value, they represent a social domain that can motivate voluntary workers without undermining their dedication. This suggests that CCs have both social and market functions, and can motivate not only reward-oriented people, but also no-reward oriented people. This is a very different feature between CCs and cash, because cash demotivates no-reward oriented people. From the perspective of revitalizing local communities, CCs serve both social and market functions, and are effective for evoking a feeling of participation by no-reward oriented voluntary workers. Thus, CCs can be effectively used as a type of currency that has both social and market functions, without undermining the virtues of a no-reward orientation.

7. CONCLUSIONS

This study examined whether CCs arouse motivation in local residents to do voluntary work. The findings show that CCs may well enhance motivation in those with a reward orientation, and can enhance motivation in people with a no-reward orientation. In principle, those with a no-reward orientation ought to refuse any reward for doing voluntary work, but if the reward is in the form of CCs, then their motivation may be enhanced. This is because they might see CCs as a special kind of reward, different from cash. In some cases, in spite of it having monetary value, CCs can succeed in enhancing the motivation of those with a no-reward orientation, rather than undermining it.

This conclusion has significance for those intending to issue CCs to motivate local residents. Hitherto, voluntary work has usually been rewarded with token gifts, such as cakes. Organizers who rely on volunteer workers have wanted to offer them something as a token of thanks. Since cash and coupons might be a disincentive to volunteers, rewards have generally been cakes, pens, and similar token gifts. However, as the present study shows, some people do not regard cakes as an incentive. Changing the reward from a cake to CCs means that those students with a reward orientation who chose to have a cake will still have their motivation enhanced. In addition, some of those who did not choose cakes will also have their motivation enhanced by being rewarded with CCs. Therefore, CCs can function as compensation for voluntary work, despite the fact that they have monetary value. Changing the reward to CCs may well invigorate some local residents' participation in voluntary work.

It has been said that one of the reasons why the use of CCs has not become more widespread to date in Japan is that the goods and services that it can be used to purchase are

too limited. To remedy this, strategies have included convincing new shops to accept CCs, and seeking support from local administrations. As the range of establishments where CCs can be used grows, it is expected that people will be happier to receive this form of reward. Thus, efforts are being concentrated on making CCs more convenient to use. Such strategies are effective in spreading the use of CCs, but at the same time, ideas for increasing circulation that consider people's perceptions of reward and perceptions of CCs are needed.

To this end, the following three points are important for future research. First, further examination of how people with a no-reward orientation perceive CCs is needed. Those with a no-reward orientation whose motivation is enhanced by CCs tend to refuse cash. It is not clear, however, why they accept CCs that have the same monetary value as cash, and how they perceive CCs. These questions need to be investigated further by conducting qualitative research. The second point concerns factors that affect the formation of people's perceptions of reward. The factors in question might be expected to include education, experience of doing voluntary work, and regional characteristics. People's life experiences form their perceptions of reward, and affect their perception of CCs. Further research is also needed regarding whether a perception of reward can change once it has been formed. Addressing these questions will aid in devising plans for spreading the circulation of CCs. Third, this study was limited in that it was conducted only with local students who knew about CCs; thus, it is difficult to generalize the results, and important for future research to employ a sample including the adults.

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APPENDIX: QUESTIONNAIRE

Question 1. If you did 30 minutes of cleanup work at a festival, what kind of reward would you want to receive?

Q1-1. If you could choose between these 2 rewards, which one would motivate you more? Mark only one option.

1. A word of thanks from the organizer
2. A certificate bearing words of appreciation from the mayor

Q1-2. If you could choose between these 3 rewards, which one would motivate you the most? Mark only one option.

1. A word of thanks from the organizer
2. A certificate bearing words of appreciation from the mayor
3. A cake worth about 100 yen

Q1-3. If you could choose between these 4 rewards, which one would motivate you the most? Mark only one option.

1. A word of thanks from the organizer
2. A certificate bearing words of appreciation from the mayor
3. A cake worth about 100 yen
4. 100 Oar of Toda Oar community currency

Q1-4. If you could choose between these 5 rewards, which one would motivate you the most? Mark only one option.

1. A word of thanks from the organizer
2. A certificate bearing words of appreciation from the mayor
3. A cake worth about 100 yen
4. 100 Oar of Toda Oar community currency
5. 100 yen in cash

Question 2. If you did 30 minutes of garden weeding for a local elderly woman, what kind of reward would you want to receive?

Q2-1. If you could choose between these 2 rewards, which one would motivate you more? Mark only one option.

1. A word of thanks from the elderly woman
2. A certificate bearing words of appreciation from the mayor

Q2-2. If you could choose between these 3 rewards, which one would motivate you more? Mark only one option.

1. A word of thanks from the elderly woman
2. A certificate bearing words of appreciation from the mayor
3. A cake worth about 100 yen

Q2-3. If you could choose between these 4 rewards, which one would motivate you more? Mark only one option.

1. A word of thanks from the elderly woman
2. A certificate bearing words of appreciation from the mayor
3. A cake worth about 100 yen
4. 100 Oar of Toda Oar community currency

Q2-4. If you could choose between these 5 rewards, which one would motivate you more? Mark only one option.

1. A word of thanks from the elderly woman
2. A certificate bearing words of appreciation from the mayor
3. A cake worth about 100 yen
4. 100 Oar of Toda Oar community currency
5. 100 yen in cash

Question 3. Do you know about the community currency Toda Oar? Answer Yes or No.

Question 4. Have you ever received or spent the community currency Toda Oar? Answer Yes or No.

Question 5. What do you think are the best ways to spend the Toda Oar? Choose 2 answers.

1. To give and receive as a token of thanks for helping someone
2. To give and receive in return for local voluntary work
3. To give and receive as a gift
4. To use for buying things in shops and at local festivals
5. To exchange for yen in cash

Question 6. When you take part in voluntary work, do you like to be praised for doing so? Answer Yes or No.

Question 7. When you take part in voluntary work, do you like to receive some kind of reward? Answer Yes or No.

Question 8. How old are you? _____ years.

Question 9. Are you in primary school? Answer Yes or No.

Question 10. Sex (M・F)

International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 62-71

BUILDING TRUST: EXPLORING THE ROLE OF COMMUNITY EXCHANGE AND REPUTATION.

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ABSTRACT

This paper identifies trust as a current crucial challenge for sustainability. Our increased reliance on exchange, specifically where the exchange involves ambivalent trust is a further aspect of this challenge. Ambivalent trust refers here to conflict between our desire to trust others and a reticence to do so, given evidence of opportunism, particularly with regard to strangers. Negotiated exchange is proposed as necessary to account for ambivalent trust. This paper seeks to investigate the potential of addressing ambivalent trust via negotiated exchange using community exchange. Community exchange is a hybrid currency system between monetary exchange and gift exchange. This paper uses the case study of a recently commenced project in North-West Tasmania, Australia, called CENTs – Community Exchange North-West Tasmania, to analyse these dynamics. CENTs aims via a series of stages to build trust and then incorporate the concept of a reputation currency. Although in the early stages of development, to date CENTs is showing potential to build trust via the concept of community exchange, albeit on a necessarily incremental basis.

ACKNOWLEDGEMENTS

I would like to acknowledge the support of Associate Professor Fred Gale and Associate Professor Robyn Eversole both from the University of Tasmania for their support in writing this paper.

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To cite this article: Krabbe, R. (2015) 'Building trust: exploring the role of community exchange and reputation' International Journal of Community Currency Research 19 (D) 62-71 <www.ijccr.net> ISSN 1325-9547

1. INTRODUCTION

The co-evolution of social and ecological systems has involved dramatic changes to our environment and significant levels and variety of unintended consequences (Ison, Roling et al. 2007). This paper focuses on one particular unintended consequence, that of decreased levels of trust. Trust is a fundamental requirement for any social species to survive (Valentini and Kruckeberg 2011). It has become even more important in recent times given our increased levels of interdependence, particularly with unfamiliar others. Here trust essentially refers to the requirement that individuals must have confidence they can meet both their basic physical needs and psychological needs through interaction with others and the environment. There can be no cooperation and no individual or collective action unless a minimum level of trust both in each other and in our broader environment can be maintained (Lewis and Weigert 2012). This includes a confidence we will not be deliberately harmed during interaction with others or the broader environment. This becomes even more significant whereby Beck and Levy (2013) note that modern society is accompanied by increased risks to our wellbeing. In turn a major problem for trust is our ability to control self-interest in the face of stress, that is, threats to our sense of security. Claims by authors such as Dawson (2012) of trends of increasing individualism support the view that levels of self-interest are problematic in the modern era, likewise evidence of dysfunctions such as corruption, many other forms of crime and increasing litigation. This paper hypotheses that we could be approaching "peak trust", where trust could be reaching such a low level as to compromise the functioning of our social systems. On the other hand, there are also signs that there is mobilisation towards the increasing of the underlying bases of trust (Rifkin 2009). For example, civil society may be consciously or unconsciously seeking to ameliorate the effects of what many commentators report as a reduced capacity of governments to respond to the complexity of modern times to meet human needs (Adler and Heckscher 2005), and in doing so are promoting trust.

This paper seeks to firstly analyse some of the reasons why trust may be significant for sustainability. The second aim is to investigate ways in which community exchange may be able to increase trust. In particular, it is proposed community exchange may be able to help address ambivalent trust via the use of negotiated exchange. Towards these aims this paper will proceed as follows. The methodology will be outlined in the next section. The concept of sustainability will then be briefly discussed. Trust (particularly generalised trust) will then be examined for its significance to sustainability, and the rationale given for the concept of ambivalent trust. The significance of norms will then be discussed in relation to their influence on human behaviour, assumed as a crucial element in maintaining trust. Community exchange will then be briefly analysed as a mechanism of progressing towards building trust. The case study of Community Exchange North-West Tasmania (CENTs) will finally be discussed in terms of outlining a succession of stages towards trialling a reputation currency as a mechanism to scale up community currencies beyond the small group level, with the aim of building both community capacity and generalised trust.

1.1 Methodology

Grounded theory was the main methodology used for this paper. As Linden (2006) notes, grounded theory is particularly useful for the study of complex, dynamic systems. It relies on continuous comparison of data (Strauss and Corbin 1994) which for this dissertation originated from a range of largely inter-disciplinary areas such as socio-economics, ecological economics, neuro-economics, economic anthropology, political economy, political ecology, security studies and peace studies. Data was sourced from not only monographs and journal papers, but also newspaper articles, the grey literature and the non-print media. The core categories around which data was sought was in relation to trust, the satisfaction of human needs, and the effect of governance on human need satisfaction in general and trust in particular. In using grounded theory the purpose was to generate concepts and examine relationships between the concepts that help explain and account for human behaviour in relation to sustainability. It involved a cyclical process of collecting, coding and analysing the data to produce the theories inductively (Strauss and Corbin 1994). Instead of developing hypotheses early in the research which may reflect researcher bias, the research seeks to engage with the perspective of those entities or people within the system (Strauss and Corbin 1994).

Ethnography and participant observation were the other main methodologies used. This was based on a case study, involving analysing a new project in North-West Tasmania, Australia called CENTs – Community Exchange North-West Tasmania. A period of observation was conducted between the 1st of January 2013 and the 30th June 2013. The researcher is a participant in CENTs and therefore was able to gain insight via participant observation into the dynamics of the project over this period. Document analysis also formed part of the methodology where the official governance documents were scrutinised to shed light on the extent to which the project had evolved to date to deal with trust and/or a lack of trust.

2. SUSTAINABILITY AND TRUST

This paper is based on an assumption that integral to sustainability, in essence human survival and thriving, is how well our social systems and ecosystems function to ensure human needs are met. It is further assumed that well-functioning social systems will contribute substantially to well-functioning ecosystems (however it is outside the scope of this paper to discuss this further). In turn this paper identifies trust as a major requirement of well-functioning social systems. As has been discussed, trust provides the fundamental basis by which people can confidently interact with other while being reasonably confident of meeting their own needs. A common definition of trust is "to have a firm belief in" (LaTrobe University 1976). What

is generally implied for example in the substantial amount of social capital literature, is trust in goodwill (Adler 2001). In other words confidence in reciprocity is important, that one will not be treated as a means for someone else's ends. Trust includes confidence that one will not be exploited, in the literal sense of not being used for profit or personal gain, and therefore the belief that others are willing and able to act in our own best interest. This aligns with the conception of trust provided by Fukuyama (quoted in Lawrence 2009; pg 325), who uses the term social trust, that is the level of trust in a society, as "the expectations that arise within a community of regular, honest cooperative behaviour, based on commonly shared norms, on the part of the members of the community". Without the confidence that in interaction with others, we will be able to meet our needs social interaction would not be possible, and given that humans are social species, well-functioning social systems would be much more difficult to achieve.

Four further points are noted about trust. Positive social relationships depend on trustworthiness, which currently is compromised by ambivalent trust. The meaning of ambivalent trust is indicated by the definition of ambivalence as 'having opposite and conflicting feelings about something" (LaTrobe University 1976). It is contended that an unintended consequence of genetic-cultural evolution, in particular increased interdependence has generated a conflict whereby we still have an innate need for self-determination, but this need is often thwarted by culturally evolved governance systems. The result is that while we have a need to contribute to the meeting of our own needs, to those of others and to society in general, we are not actually compelled to contribute and/or there are fewer and fewer opportunities to contribute. Structural unemployment is one significant contributor to this lack of opportunities (Ford 2013). Although reciprocity is an innate norm and hence we tend to believe that at least those we have regular contact with are likely to be co-operators (Fehr, Fischbacher et al. 2002), evidence that levels of opportunism also exist (Rees 2010) leads to a level of ambivalent trust. We want to trust that others will do the right thing by us and for our systems in general, but we also know that in some cases it is naïve or 'blind trust' (Gambetta 2000) to believe that everyone will behave in that way.

The second point is as Wollebæk (2012) et al state, generalized or systems trust is in the first instance influenced by socialisation; we gain personal trust through repeated interaction during the socialisation process. Community initiatives such as community exchange is one important way that repeated interaction can lead to increased trust. Lastly the concept of transitive trust is useful in alluding to how reputation can become the basis of generalised trust. This concept can be traced to the literature on trust and reputation systems via information technology (that is, online service provision), whereby "trust can be calculated through opinions gained from a network of interconnected contacts" (Lawrence 2009). If A trusts B, and B trusts C, then A trusts C; it is not necessary for A to know C directly. In other words, a third party can verify the trustworthiness of an individual.

Trust is identified by Adler (2001) as the coordinating mechanism of communities which is more effective (for example by lowering costs, in particular transaction costs) than the market and state with their coordinating mechanisms of self-interested exchange and command and control (Rodríguez-Pose and Storper 2006). Coordinating mechanisms in essence refer here to the means by which people are motivated to cooperate firstly for self-provision and secondly to contribute to the provisioning of others. Substantial resources (such as for the judiciary) are expended in many societies due to a lack of trust (Nock 1993), that is, the belief that there is a high probability that people will engage in opportunism, in particular wariness of exchanging with unfamiliar others.

It can be seen therefore that any collective action does require trust. Face to face relationships as the essence of geographic communities are the basis for interpersonal trust to develop, when people have regular contact with each other (Bachmann 2001) and are able to verify for themselves the goodwill or otherwise of the members of their community. However over time we increasingly have come to rely on impersonal exchange which by definition does not involve regular face to face relationships, yet trust is still required if efficient systems are to be maintained. Trust in broader systems, here called generalised trust, but also known as institutionalised or abstract trust (Bachmann 2001; Covey 2006; Wollebæk, Lundåsen et al. 2012) is then needed to ensure large-scale cooperation. Generalised trust is defined as a general level of confidence that people in general will act during exchange interactions in the interests of the individual, and that norms and institutions also support both the interests of the individual and the collective. This brings us to the topic of norms; the next section will discuss the power of norms, and their relation to trust.

3. NORMS AS RULES, INSTITUTIONS AND HABITUAL BEHAVIOUR

Norm are assumed in this paper in the first instance to refer to an abbreviation of "normal behaviours", which points to the power of norms as a motivating mechanism: we have an innate need to be seen as "normal", and generalised trust relies on 'normalcy'. This paper adopts McAdam's (1997) definition of norms as "informal social regularities that individuals feel obligated to follow because of an internalized sense of duty, because of a fear of external … sanctions, or both" (also see Parisi and Wangenheim 2006).

Norms function in a social sense to reconcile self-interest with other-interest, in other words, norms are vital to co-operation and engendering collective action. Norms along with institutions can be seen as providing the "rules of the game" (Masahiko 2007); the means by which incentives are provided and the actions of large numbers of individuals coordinated. Innate norms such as strong reciprocity, self-interest and wariness of strangers (also known as recipro-

cation wariness, see Perugini, Gallucci et al. 2003) have all evolved to solve problems in the past, which Boyer and Peterson (2012) call the 'naturalness of institutions" or "intuitive institutions". Over time there have been many significant changes in our socio-ecological environment, including the numbers of people that we exchange with and the extent of division of labour and therefore levels of interdependencies. For much of our history we only exchanged largely with those we had face to face relationships with, and division of labour was limited. Our natural wariness of strangers seems to have evolved into a wariness of reciprocal exchange beyond small groups. This paper maintains that since we have an innate motivation for reciprocal exchange, and we have the capacity to change norms that govern exchange processes, we can re-establish norms of reciprocal exchange to those we are unfamiliar with. While norms necessarily involve habitual, unconscious behaviours which are difficult to change, recent research on plasticity of the brain does indicate a human ability to change deeply ingrained behaviours (Tomer 2012).

Innate norms are distinguished in this paper from learned norms, in that innate norms are genetically 'hard-wired', while learned norms originate via cultural mechanisms, in particular by social (largely unconscious) learning, including imitation (Buenstorf and Cordes 2008). The norm of strong reciprocity includes both positive and negative reciprocity, which refers in turn to internal and external sanctioning. Sanctioning refers to rewards and punishments, as a result of co-evolution we gain internal rewards (pleasurable feelings) when we engage in reciprocal exchange, and experience internal punishments (unpleasureable feelings such as guilt or shame) when we fail to reciprocate (Kolm 2008). Negotiated exchange, as one of the topics of the next section, recognises that internal sanctioning is not a perfect mechanism to ensure we always act pro-socially, including to overcome ambivalent trust, hence some form of external sanctioning is warranted.

4. RECIPROCAL AND NEGOTIATED EXCHANGE

The aim of this section is to highlight the difference between reciprocal exchange and negotiated exchange. In essence reciprocal exchange is based on trust since it relies on the assumption of the dominance of the norm of 'give and you shall receive', that is, reciprocity, without having to use external means of ensuring compliance of reciprocity. The main significance regarding reciprocal exchange is that it has proven over millennia that it operates effectively at the small group level and does show potential to be scaled up to the broader level by the use of reputation. Reciprocal exchange refers to the giving of benefits for benefits received (Lawler, Thye et al. 2008), without concern about timely equivalence and therefore no formal accounting mechanisms are used. Reciprocal exchange typically occurs in families and small groups where no record is kept of who does what for whom; in families kin altruism is the invisible hand which ensures basic needs are met. Merely returning a favour however is not sufficient for ongoing cooperation; rather negative sanctions are required as well to ensure those who do not reciprocate are punished for example by the use of shame (Bicchieri and Muldoon 2012). An assumption of this paper is that often in families and small groups the use of negative sanctions has been diluted and has become less adequate in governing behaviour, hence the need for small group sanctions to be supplemented by external sanctions, in the first instance via negotiated and contractual exchange. In general therefore reciprocal exchange assumes little or no levels of ambivalent trust, and therefore currently cannot generate sufficient levels of pro-social behaviours.

Negotiated exchange however does take account of ambivalent trust, which involves a level of external compulsion to reciprocate. Negotiated exchange refers to using communication such as deliberation to reach agreement on the nature of the exchange, such as what resources are provided by whom, and the nature of the return benefit. Contractual exchange refers to reciprocity backed up by legal sanctions with the expectation of timely equivalence dependent on rigorous accounting mechanisms. Monetary exchange is an obvious case of contractual exchange with severe consequences for sustainability, as will be discussed. It is unrealistic however to rely on only reciprocal exchange in the short term; limited cognition (Nock 1993) and opportunism norms (ambivalence) indicate that negotiated and contractual exchange still have a role in increasing confidence in other media of exchange apart from money. The concept of communities and community exchange will now be discussed to help analyse their capacity for decreasing reliance on money as a medium of exchange.

5. COMMUNITY

The definition of community that Gintis (2002; pg 421) proposes is used here, being "a group of people who interact directly, frequently and in multi-faceted ways". Therefore it is connection rather than affection which is important, and the reliance on direct and frequent interaction implies the significance of place, therefore this paper use a geographic conception of community. This concept of community used for this paper brings together a number of other concepts – such as localism (Curtis 2003; Stoker 2008), voluntarism or intrinsic motivation (DeCaro and Stokes 2008), decentralisation (M'Gonigle 1999), social capital (Bowles and Gintis 2002), non-monetised exchange (Altman 2005) and of networks (Ison, Roling et al. 2007). For instance Gintis (2002) regards the essential elements of social capital – such as trust and reciprocity - as comprising the basis of community governance. And Ison et al (2007) point to community-based networks as based on social learning as the basis of a third alternative to the market and state as governance mechanisms.

All these concepts point to human interaction outside the market and the state spheres, and in one sense could ultimately be related to the motivation that Arvanitakis (2009) ascribes to why we seek community, being "the desire to share hope, trust and a sense of safety". Likewise Soder (2008) notes that feelings of community are increased

when community members trust that others in the community will help them in times of need, indicating the importance of safety and security as motivation to seek community involvement. This highlights Adlers (2001) thesis of trust as a coordinating mechanism operating via communities as an alternative to hierarchy and markets.

For this paper one particular advantage of geographic communities is that face to face interaction can be seen as the foundation of interpersonal trust. Therefore just as Hinrichs and Kremer (2002) note that people's specific economic and social relations with others in the community shape their experience of community, experiences with community also shape generalised trust. It is in geographical or place based communities that we inevitably engage in exchange and social interaction, and where social learning occurs. And as Lehtonen (2004) implies, participation, dialogue and deliberation are easier in community settings than in non-face-to-face situations. The literature on deliberative democracy (Pelletier, Kraak et al. 1999), participative democracy (Eriksson 2012), and agonistic democracy (Crowder 2006) all point to the many advantages and further to the imperative of deliberation. As Holland (in Spash 2008) notes, deliberation can lead to participants to modify their values and beliefs particularly in negotiating conflict, and a 'collective conscience' can emerge (and continually evolves) via discourse and reflection (Pelletier, Kraak et al. 1999).

The limitations of communities include a tendency to be exclusive, where members privilege their own members and may be hostile to non-members (Schragger 2001). It is difficult to separate the dysfunctional effects of community action between the distorting effects of maladaptive institutions (Beddoe, Costanza et al. 2009), and the amplifying effect of collective action on the weaknesses of human nature. For example, humans appear to have inherited a wariness of strangers, which may be fairly benign in an individual, but at the group level can lead to substantial violence (Eidelson and Eidelson 2003). This paper assumes that both maladaptive institutions and the amplification of human weaknesses can impact on the extent to which communities can manage trustworthy behaviours of their members. In other words, communities by themselves are not necessarily always functional; being embedded in wider networks such as co-governing with the State may be necessary, particularly in the short term. Networks therefore are identified as being able to assist communities in being more open and inclusive. To summarise, communities appear to have a 'unique capability' (Pillora and McKinlay 2011) of having the flexibility and motivation to develop and spread specific norms, with the proviso of being supported by wider networks. The potential of community exchange to develop and spread specific norms will now be discussed.

6. COMMUNITY EXCHANGE

This paper uses the term community exchange to cover what many others describe as community currencies (Seyfang and Longhurst 2013), complementary currencies (Smith and Seyfang 2010), local currencies (Colley 2011), and/or social currencies or social money (Primavera 2001; Primavera 2010). Using Lietaer and Hallsmith's (2006: p 2) description, these all refer to "an agreement to use something else than legal tender (i.e. national money) as a medium of exchange, with the purpose to link unmet needs with otherwise unused resources".

A number of inter-related benefits of community exchange can be identified supporting the rationale for experimentation with these as an alternative to money. Firstly the case is made however of the problematic aspects of monetary exchange. Adam Smith (in Smith 1998) in his work "The Wealth of Nations" theorised that people acting from their natural self-interest would lead to an efficient market mechanism which would maximise the gains from trade to benefit all. As Lynch (2008) notes therefore "legitimated market egoism" is morally defensible, even required behaviour for all citizens. However therein lies the view of a number of writers that market society carries the "seeds of its own destruction" (Belousek 2010), specifically that it undermines the moral foundation on which it depends. This paper identifies the basic conundrum that for the market to operate, it requires not only self-interest and competitiveness, but it also requires a level of trust that there is a limit to which people will act in their own self-interest and disregard the interest of others. However as Vohs et al (2006) state, "money evokes a view that everyone fends for him- or herself". Levels of corruption and litigation are but two examples of 'market failure', the failure of the market to ensure sufficient levels of cooperative behaviours. Market exchange therefore depends on a fine balance between self-interested behaviours and other regarding behaviours, but appears to be too successful in promoting self-interested behaviours. As mentioned, this paper assumes that it is self-interestedness that is a major issue for sustainability, that is that it makes the maintaining of functioning social systems difficult. Therefore monetary exchange can be seen as problematic for sustainability in this sense.

Finally as Einstein (2009) notes, "Money as we know it today has crisis and collapse built into its basic design". Greco (2009) links this to the interest bearing nature of money which means that when money is created through loans requiring interest to be paid, even more money must be created in the future to pay back the interest. Thus a 'debt imperative' creates a 'growth imperative' - the amount of money must grow over time, which means that the volume of goods and services must grow over time as well. As perhaps increasing number of authors are noting, continual economic growth is not possible in a finite world (Jackson 2010; Alexander 2012; Douthwaite 2012). This is one of the fundamental issues compromising sustainability, but which is accompanied by substantial "societal self-deception" (Blühdorn 2007).

A third sense in which money can be seen as problematic is that money is kept artificially scarce (Greco 2001), resulting in the detrimental effect of a lack of money to mediate the fulfilling of basic needs. Authors such as Seyfang (2001)

have highlighted the connection between weak economies where money is particularly scarce and the popularity of community exchange systems. Argentina and Thailand are two examples of countries that have experimented with community exchanges linked to economic crises. At one level therefore, community exchange can address the problem of the lack of money in communities, and to recognise the vital work towards social reproduction which is generally under-valued in our current systems (Seyfang 2001).

Community capacity building is a further specific benefit of community exchange, particularly in terms of progressing towards community provisioning. The success of community exchange initiatives is in fact strongly correlated to the percentage of needs that can be met within the community. Colley (2011) estimates that perhaps at most 5% of needs currently tend to be met within community exchange schemes, therefore 95% of needs have to be paid for with the national currency. This indicates the huge potential for communities to increase capacity by increasing the percentage of needs met within the community such as via import replacement (while recognising however that there is a limit to the amount of needs that can be met within the community). In turn one important strategy for increasing the percentage of needs that can be met within community currency projects is inter-trading, that is, trading between initiatives that operate as separate groups. As will be discussed, the Community Exchange system that CENTs uses to manage trading is part of a worldwide network; a major feature of this system is the facilitation of trading with other groups.

7. REPUTATION CURRENCIES - BUILDING SYSTEMS TRUST

Inter-trading brings the issue to the fore of trust in potential trading partners, and the importance of reputation in facilitating that trust. Gothill (2011) refers to the significance of reputation (note that couch surfing involves those with some spare room in their house offering short term accommodation for travellers, mostly for people they have never met before); in the following quote:

"Apart from scalability, currencies in the broader sense change market dynamics. If one individual is able to receive guests into their homes through Couch Surfer, even without a realistic expectation of reciprocation from the guest, it is partly from generosity, of course. However, the currency amplifies this motivation, since it gives the host a reward for their gift. This reward is increased reputation in the Couch Surfing community. Reputation is of course intrinsically valuable in its own right: we tend to value the experience of being seen as trustworthy, helpful or otherwise generous. In addition, reputation is something which the host can leverage to become a guest themselves. A history of generosity on Couch Surfer helps the individual to receive gifts of accommodation back, from other people.

Currencies which measure social capital in such systems of exchange are in fact abundance-based: they can be created by anyone, according to need and an agreed set of rules. That is: anybody who wants to gain a reputation currency to leverage in the future can do so, simply by providing value in a recognised system of exchange. The abundance mentality is assured by the fact that our ability to earn such currencies depends only on our capacity to create value for others" (p 1).

For this paper, reputation refers to the definition of Josang et al (2007: p 622) as "a collective measure of trustworthiness (in the sense of reliability) based on the referrals or ratings from members in a community". There is an emerging body of work emanating from the field of information technology on trust and reputation systems, in response to the problem of trust in the huge increase of electronic exchange (Miller, Resnick et al. 2002). Since one issue being addressed in this paper is the loss of confidence in the capacity for reciprocity with unfamiliar others and with some familiar others, then communication of a person's ability to cooperate becomes important to building generalised trust. Eisenegger (2009) delineates between social reputation, which he defines as one's ability to "adhere to social norms and values in a responsible way" , functional reputation (level of competence) and expressive reputation (includes emotional intelligence), but all three can be seen as important in building generalised trust.

As Graeber (2012) states, reputation currencies tend to be a hybrid between the gift economy which tends to operate at the family level, and the pure market economy, in other words they involve patterns of exchange which can facilitate increased trust in reciprocity, but which guard against ambivalence. While there is still much work to be done to outline a practical proposal for a reputation currency, the general model proposed here would consist of something like affinity groups meeting regularly, part of which would be to update the reputation records of all in the group, according to such criteria as number of trades, the quality of the trades, quality of communication and general level of adherence to norms decided on by the group. It is the discussion in calculating scores/ratings that are perhaps as useful as the ratings themselves. The case study will now be analysed for its potential to build trust while accounting for ambivalent trust.

8. COMMUNITY EXCHANGE NORTH-WEST TASMANIA (CENTS)

The Community Exchange North-West Tasmania (CENTs) initiative began in 2011 with a grant from Skills Tasmania, the state government body responsible for the administration of vocational education and training in Tasmania. Skills Tasmania was interested in the potential of community exchange to increase the employability skills of people who are registered as unemployed. The project planning of CENTs to date can be seen to involve at least four phases: the governance stage, the building phase, the feedback stage and the reputational currency stage, with the latter two being the most experimental and largely untried elsewhere. The project is currently still in the building phase (with the governance phase to some extent being ongoing).

While there are many aspects of this project that could be discussed, two points are the focus for this paper. The first is the need felt in the initial stages to cater for ambivalence of contributions and ambivalent trust. Both to overcome this and to promote inter-trading, the second aspect is the planning of a reputation currency.

The governance phase firstly involved deciding on the structure of the system to be used (partly because of the large number of different systems available), and negotiating with government departments about the ruling of the status of CENTs "earnings": both of these took much longer than expected. The system that was chosen was a global network system originally set up in South Africa, called "The Community Exchange System (CES)". As Coetzee (2010) notes, it has experienced rapid growth from 123 exchanges in 17 countries in 2009 to 218 exchanges in 28 countries in 2010. It allows any individual in any exchange in any country to trade with anyone else in any other exchange.

With regards to government agencies, as is the experience elsewhere (Seyfang 2001), state pensions are not affected by involvement in CENTs, and credits only need to be counted as income for taxation purposes if they relate to a person's occupation. This, along with the issue of the time banking model on which CENTs is based, whereby everyone's time is valued equally (Boyle 2003), highlights broader questions relevant to the growth of CENTs. The issue of equality of valuation of time is one crucial aspect of CENTs, in terms of the difficulty of attracting people who can earn a much higher wage differential in the 'normal' economy for which there is not the space to discuss in this paper. Another aspect relates to whether there is scope for a further blurring of the public/private distinction such that work done in the CENTs project can be performed by those claiming state pensions, even when the work performed is of a private nature. Pension recipients of course can engage in CENTs on a completely separate basis to their receiving a state pension. However there does appear to be a major barrier as Williams (1996) notes, whereby one needs a level of self-confidence in ones skills to engage in community exchange projects, which may be a problem for those who have not been able to find employment, where, for example, self-esteem may be an issue (Hoare and Machin 2009). An element of compulsion (along with encouragement) in this case may assist with engaging job seekers in community exchange projects via Job Services Agencies. These are agencies that are contracted in Australia to 'manage' jobseekers, assisting them with finding employment, and ensuring they confirm to the requirements of 'mutual obligation', which as Breunig et al. (2002) state has led to increasing demands of job seekers to engage in 'meaningful activity'. However opportunities to provide meaningful activity in the public sphere are limited; what is much less limited are opportunities in the private sphere. CENTs members have a large variety of 'Wants' that are currently unmet, many of them requiring practical skills which can be learnt 'on the job' – increasingly recognised as an effective way of learning for those disengaged from formal education.

One current barrier however to pursue formal involvement of job seekers with a project like CENTs is the prohibition of any arrangements which may be perceived as taxpayers money being used for private benefit. As we become increasingly interdependent however, the separation between public and private benefits tends to blur (Lynch 2007), and transparency for example may be a more pertinent principle. The building phase of the CENTs project aims to progress negotiation with the state over these structural issues which are currently creating a situation of an increasing number of job seekers having barriers to engaging in 'meaningful activities'. As Taylor (2003: 2) notes," if a currency system can be seen to do things beyond itself, i.e. training, or environmental or socially just projects, outside of simply providing 'individual to individual' trading, then the government is more likely to negotiate … [the rules]".

Setting rules in CENTs is an aspect of governance which is still currently evolving. Specifically much of governance arrangements evolve in response to experiences arising from interaction within initiatives. For example, one early experience in the CENTs project was of two traders who joined CENTs but then had to be de-registered following the discovery of indiscretions as members of another community exchange group. Specifically the members had accumulated a large debit as members of the previous group, and then left the group without a reasonable attempt to reduce the debit. Since there were signs that the members may repeat the same pattern in CENTs, after a warning they were de-registered. This contributed to the nature of the current rules, regulations and recommendations– for example, there is a limit to which members accounts can go into debit, and:

"The accounts of members exceeding this limit without approval will be "locked". This will allow the members in debit to earn units but not to spend until they have reduced their debit balance" (CENTs 2013).

Other issues have been in relation to differences of understandings between both parties of what is to be supplied, hence the following recommendation:

"In the spirit of CES/LETS, it is recommended that both parties have a written or verbal agreement before entering into a transaction and have a clear understanding of the units per hour, monetary requirements and specific instructions for the job which is fair and just to both members. This should be exchanged in an email prior to effecting trade so as there is documented evidence as to what has been agreed" (CENTs 2013).

Both these quotes illustrate the extent to which it has been necessary to actively attempt to reduce instances of abuse of trust in order to build trust in the overall system.

A brief note about the building phase of the project- given the relatively low numbers of the target population (ap-

proximately 110,000 people live in the North-West region of Tasmania), and the generally conservative nature of its culture, the growth in the membership in a fairly short space of time has been very encouraging (from 4 in December 2012 to 63 in May 2013, to 154 in December 2013).

The third phase of the project (tentatively planned to occur from 2015) will focus on building on the current ad hoc giving of feedback. This is mainly from the receivers of a good or service to the providers, but it could involve other types such as 360 degree feedback, where the suppliers also give feedback on their interaction with receivers. Feedback is an important concept in socio-ecological systems which in one sense can merely be described as an influence or message that communicates information about the results of a process or activity back to the source of that process (Capra in Sundkvist, Milestad et al. 2005). Two ways that feedback can promote generalised trust are highlighted here. The first way is to reinforce internal sanctioning. It is assumed that there are two main elements to the evaluation of the quality of how well someone has performed a task for someone else; one's own evaluation and the evaluation of the buyer. Feedback either confirms or disconfirms our own evaluation, and can be a valuable learning tool particularly to the extent our own evaluation differs from the buyers. Overcoming ambivalent contributions is a further rationale for promoting feedback. For example feedback does not have to be restricted to a trade eventuating, it can also be useful when attempts are made to trade, but the seller is not forthcoming in communicating about supplying a particular good or service. Of course the reasons for the latter can vary widely and unfounded presumptions of ambivalence on the part of the potential seller can be very damaging. Reflexivity is therefore important to guard against this occurring. Feedback also acts to increase communication in general and therefore can act for example as a stimulus for deliberation. In conveying expectations about the quality of goods or services provided, there is the opportunity for the modification of values and beliefs. Feedback therefore can be seen as important in increasing generalised trust.

The fourth phase, which is currently envisaged as beginning in 2016, involves working towards a reputation currency, which could also involve the use of affinity groups. An affinity group is a group of people who in the first instance engage in learning and discussion together, and in the process offer mutual support (Seyfang, Haxeltine et al. 2010). Partly by knowing each other's strengths and weaknesses, the group can reinforce internal sanctioning to promote particular norms or behaviours. Greco (2009) uses the term "co-responsibility", where each member of the group shares the risk of other members in their group being opportunistic and ambivalent contributors. As Greco (2009) notes, keeping these groups small enables high levels of trust and 'democratic self-regulation'. Secondly generalised trust depends on these groups interacting with other affinity groups to enable inter-trading and increased confidence in strong reciprocity.

An immediate reaction about the suggestion of affinity groups may be that social engineering such as this implies would never be palatable to a large amount of the population, who value individualism and privacy, and have low levels of confidence in the feasibility of 'forcing' people to interact with others, who may be neighbours but nonetheless may not have a prior close relationship. However many workplaces today have that very same dynamic – they are comprised of people who do not choose each other as workmates. For up to 40 hours a week and sometimes more, people cooperate (more or less) with others towards particular goals (which furthermore individual workers often have no say in). The human species has therefore proven we are more or less capable of coordinating our actions particularly when concrete goals are involved.

CENTs is already working towards creating sub-groups based on geographical areas, each sub-group could then have a number of affinity groups. The main aim of the sub-groups is to have a coordinator for each group, who can help facilitate trade and build interpersonal and hence generalised trust. The issue however for inter-trading with for example groups in other states of Australia is of trust where there is in even further instances of social distance, hence the significance of reputation.

9. CONCLUSION

This paper sought to address the significance of trust for sustainability and then to analyse some of the potential of community exchange to increase trust. The two main hypotheses this paper has proposed to address these research questions are that firstly trust is vital for sustainability since it is ultimately the only basis by which humans can interact to ensure human basic needs can be met. The corollary is that trust provides the basis for cooperative behaviours that can be maintained in the long term. Secondly, community exchange particularly to the extent it involves face to face relationships as a basis for interpersonal trust, providing in turn a basis for generalised trust, is proposed as having significant potential to increase trust and hence sustainability. Furthermore since community exchange is based to some extent at least on basic needs it is more likely to attract a wider support than if it focussed on non-basic needs. Community exchange uses negotiated exchange as a hybrid between gift exchange and monetary exchange to account for ambivalent trust. It recognises that there is currently likely to be insufficient levels of trust necessary to support a "leap of faith" in trusting those we don't know. Reputation is one mechanism which can help increase generalised trust by the use of third party verification of trustworthiness. The Community Exchange Network Tasmania (CENTs) project illustrates the potential of community exchange to use negotiated exchange and reputation to increase both trustworthiness and trust. As Greco (2009) states, the fundamental requirement in any currency system is to assure reciprocity, whereby participants must contribute as much value to the community as they take out. Restoring this as a basic norm is one ultimate aim of the CENTs project.

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International Journal of Community Currency Research

Volume 19 (2015) Section D 72-80

COMMUNITY CURRENCY IN KOREA: HOW DO WE ENVISION COMMUNITY CURRENCY?

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ABSTRACT

Community currency schemes were first introduced in Korea in 1998. Since then, there have been many efforts to use them but no report or academic research on the topic in Korea. Thus, we conducted a field investigation to identify the scope of community currency schemes in Korea and as of 2012 we found 43 groups which use them. The design elements were also investigated but most groups were in an under-developed state, therefore design elements were unidentifiable. Furthermore, we investigate how the community currency coordinators in Korea envision the system using Q-methodology, a method to find the subjective views on the topic. The result shows that the perception on community currency can be divided into four types: 'Neighborhood as a community' in which coordinators agree with mainstream economic values and view community currencies as a tool to revitalize the community and to empower local residents; 'Alternative community' in which coordinators view currencies as the means to resist the dominant neoliberal ideology; 'Community through eco-friendly affinity groups', in which the scheme is a tool to promote an ecologically-friendly lifestyle, and 'Ecological community', which represents coordinators who believe that it is an alternative to capitalism and a way to maintain an ecological community.

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To cite this article: Kang, J. and Hong, B. (2015) 'Community Currency in Korea: How do we envision community currency?' *International Journal of Community Currency Research* 19 (D) 72-80 <www.ijccr.net> ISSN 1325-9547

INTRODUCTION

The social welfare system, represented by social insurance and social assistance programs, has been the primary tools for solving social risks incurred by the market economy. Under the premise of full employment, social welfare secures household income with social insurance and supplements with social assistance. However, this adamant belief on the traditional welfare state as the only mechanism for solving social problems is anachronistic. The system which once-hoped to seamlessly resolve contradictions of capitalism no longer seems sustainable in today's post-industrial society.

Fitzpatrick and Cahill (2002: 5-9) offers an acute fundamental criticism of the current welfare state. The first is the subordination of the traditional welfare system to the "logic of productivism". In the world where efficiency encroaches upon every aspect of our society and material prosperity reigns as the ultimate virtue, social welfare system is no exception to productivism. Second, the modern welfare state reinforces the narrow conception of 'labor'. The current conception of 'labor' excludes the talents and time of those who are unable to market their skills in the formal job market (Seyfang, 2001). Being part of the labor market has become the only way to provide not only the source of material security but also one's self-identity or social participation. In the midst of a labor market that plays out a survival of the fittest, a sense of nobility is no longer embedded in one's labor. Rather people continuously torture themselves to secure a better position in the labor market. The third aspect is the exclusion of voice of the public in the process and practice of social welfare policy. The rights to welfare are derived from the collective effort of the people, yet the current system has degenerated the people into 'clients' receiving well-being from experts or bureaucrats. The welfare state also faces socio-demographic changes—such as an aging population, the rise of youth unemployment and non-permanent worker, change in family structure, etc—and new social risks, such as environmental degradation and climate change.

Thus, the need for a new perspective in social welfare policy to initiate fundamental progress and revitalize discussions seems apposite. As part of this effort, this research attempts to look at community currencies, one of the alternative initiatives of social welfare system. Since the early 1980s, community currencies have sprouted around different parts of the world. Historically, more than 5,000 different community currencies have been created (Martigoni, 2012). Recent findings show that 3418 community currencies remain active worldwide as of 2012 (Seyfang and Longhurst, 2012).

Korea is one of many countries which has a considerable number of active community currency groups. The first creation of a community currency dates back to 1998 during the nation's economic crisis. The introduction of community currency to Korea was part of an effort to fill this hole in the welfare system. The welfare system of Korea consists of four kinds of insurance, which are the national pension, national health insurance, employment insurance, and occupational health and safety insurance. The National Basic Livelihood Security System functions as a basic social safety net to help tackle inequality. However, there are still many holes in this safety net. After the first introduction of community currency, the new institution proliferated increasing its number to more than 30 within two years. However, as the ailing economy started to recover, these initiatives suddenly dwindled. In less than a decade facing another global financial crisis, the currencies held in abeyance started to regain interest in Korea. Nevertheless, community currency has been academically very under-researched. Amongst the few that exist, all are based on the case of Hanbat LETS or Gwacheon Poomasi. No study has yet to taken a macroscopic approach.

Thus, in order to grasp the overall scope of the community currency, one of the goals of this research is to investigate how many currencies exist in Korea. Furthermore, it investigates how the practitioners envision community currency. North (2000, 2012) provides a discerning view on the causes of inertness of community currencies. He argues that without a clear goal, those who envisioned a social movement using community currency ended up following the design element that were handed down to them. As a result, the field collectively became "past dependent" and was "locked in" to a narrow range of options rather than adapting to "stimuli from the field they are operating" (North, 2012). Taking North's argument as a point of departure, this research inquires how the practitioners envisage community currency by sorting them into different types. Moreover, the paper examines the common design elements of each type.

The following part of the paper will present an overview of community currencies in Korea. A brief historical background of the institution of community currency initiatives will be viewed. Part three describes the methodology used to analyze the perception of community currencies of the practitioners and its application. Then, part four lays out the results of the analysis. The paper concludes with a summary and policy implications for future development of the community currencies in Korea.

COMMUNITY CURRENCIES IN KOREA

Community currency was first introduced in Korea in 1996 in the Green Review, a journal focusing on ecological ideas. In March of 1998, the first community currency called the 'Future Money (FM)' was introduced by a NGO advocating the new social movement. Chun (2006) writes that the advent of community currency "coincides with the IMF's monetary relief regime" during Korea's economic crisis and attracted media as one of the alternative policies to alleviate unemployment. The new institution was regarded as an "alternative economic movement to cope with the economic crisis" that can rescue many of those who lost their jobs (Chun, 2006). Many advocates nostalgic for the Korean traditional sense of community believed that the new policy might be the modern version of Dure, a traditional Korean custom of collective labor within agricultural commu-

nities, or Pumasi, an example of a gift economy, another custom of exchanging labor by individuals or very small group of people. Many still refer to community currencies using the concept of Pumasi—and many use the name of these traditional customs for their currency.

Within 2 years, more than 30 groups—among them are the Korea Center for City and Environmental Research, Green Korea, UNESCO Korea, Buddhist Center for Environmental Studies—began to implement community currencies (Shim, 2005). Hanbat LETS and Gwacheon Poomasi—the two of the oldest remaining active groups since 2000—were created during this period. These two initiatives have been successful and lasted over the years, despite arduous conditions. For instance, the two groups have more than 600 and 150 active members respectively and the amount of yearly exchange is approximately 90 million won, approximately equivalent to $90,000 and 70 million won, approximately equivalent to $70,000, respectively as of 2011.

Despite the rapid spread of the system during this period, many became inactive within a couple of years. Park (2009), a founding member of Hanbat LETS and an activist, suggests possible reasons the new community currencies failed to develop in Korea during this period. First, most groups that started community currencies were not fully committed, i.e. these groups considered community currency as a trial rather than being fully committed to the program. These groups were mostly either NGOs or environmental organizations; they implemented the institution as only one of many programs under their management.

Table 1. Community currencies in Korea

	Currency Name	Group Name	Year Established	Type
1.	Future Money(FM)	Minesa	1998	LETS
2.	Songpa Money(SM)	Songpa Pumasi	1999	Time Dollar
3.	Duru	Hanbat LETS	2000	LETS
4.	Ari	Gwachun Poomasi	2000	LETS
5.	Sarang	Gumi Sarang Gori	2004	Time Dollar
6.	Neurlpoom	Bondong Social Welfare Center	2005	LETS
7.	Songee	Saha Poomasi	2007	LETS
8.	Munwha	Seongnam Cultural Foundation	2007	LETS
9.	Ssiaht	Korean Women Workers Assn.(11 Chapters)	2008	LETS
10.	Seorae	Seocheon LETS	2008	LETS
11.	Durak	Jeonpo Social Welfare Center	2008	LETS
12.	Poom	Seocho Volunteer Center	2009	Time Dollar
13.	Sarang	Gwanak Social Welfare	2010	LETS
14.	Hanul	Kangnam Welfare Center	2010	LETS
15.	Garden	Banghwa11 Welfare Center	2010	LETS
16.	Sarang	Pyunghwa Welfare Center	2010	LETS
17.	Nuri	Ujungbu LETS	2009	LETS
18.	Saleh	Silsang Temple	2010	LETS
19.	Bau	AnsungBau	2010	LETS
20.	Nurli	Woori Jari	2011	LETS
21.	Pyeongwha	Incheon Pyeongwha LETS	2011	LETS
22.	Nuri	Seongnam Nuri	2012	LETS
23.	Moon	Seoul Welfare Foundation(8 Districts)	2012	LETS
24.	Nyang	Yeonsugu Office	2012	LETS
25.	Byul	Haja Center	2012	LETS

Without full commitment, the system easily died out. Second, these inexperienced groups were overzealous at the beginning but lacked preparation, which led to failure of the system. The last reason is the lack of federal support and networking between groups. With the downturn of community currency, it was reported that only 10 groups remained and were mostly inactive.

Nevertheless, after the global financial crisis in 2009, community currency started gaining interest once again. This time it was not only from NGOs but it received support from local governments as well. For instance in 2012, the Seoul Welfare Foundation, a non-profit institution found by the Seoul Metropolitan government conducting research in social welfare and implementing social welfare programs, launched a new community currency program, e-Poomasi, in one district in 2011, eight districts in 2012, and plans to extend the program to rest of the districts in the future—each of them operating autonomously. Also, in 2013 Gangwon Province, one of the nine provinces with more than 1.5 million residents announced that it plans to launch a province-wide community currency by 2016—launching a few pilot projects in 2014.Outside the public sector, some NGOs and social welfare service centers also gained interest in the scheme, hoping to promote a sense of community under its community welfare agenda.

Despite the arising interest in community currencies schemes, no statistical report exists in Korea. Thus, this research conducted a field investigation to gather information about the unknown active groups. Due to limited information, we relied on the snowballing method of asking door to door. In order to see the community currencies in more detail, the design elements of each group were also investigated using the framework of design features by North(2000). North(2000) discusses community currency design features that are more conducive to the development of the system. He identified those features as currency design features, account management processes, organizational features, and promotional approaches.

As of 2012, we found 43 groups in Korea that adopted the schemes as one of their programs or were solely dedicated to community currency. Of these groups 25 (listed in Table 1) adopted a currency and the rest consists of autonomous regional chapters or districts running their own currencies from two groups. The Korean Women Workers Association has separate community currencies in its eleven regional chapters. This nationwide NGO first decided to start community currency and eleven chapters have been separately running its own community currencies, albeit having the same currency name of Ssiaht, meaning seed in Korean. Also, the Seoul Welfare Foundation first started in 2011 with one pilot currency in Eunpyung District, it has the system set up for all 25 districts in Seoul but eight districts have officially started in 2012; each district autonomously runs its currency. The foundation provides the online platform, helps the initial build-up in each district, coordinates co-operation with local groups and in some cases provides funding for programs which can help the publicity of the system.

Out of the 43 groups, 40 groups adopted the LETS system, whereas three runs the Time Dollar system. However, the Time Dollar groups were mostly inactive, having nearly no recognizable service exchanges at the time of the research.

However, as we investigated the design features of all the groups and classified the common design elements, that with the exception of Hanbat LETS and Gwacheon Poomasi, nearly all other groups in Korea still remain underdeveloped in terms of their systematic structure. Other than the two, the earlier groups just have the titular title of community currency as one of their group's programs and the groups started within the past five years are still in their initial growth phase. Thus, most groups were too premature or inactive for their design features to be determined; thus, these groups that are just beginning resort to few active members for their services.

The critical limitation of the community currency groups in Korea corresponds to North's (2012) 'past-dependent' and

	Description
Value Free Approach	Non prescriptive. Complementary currencies are value-free tools to be used by all for their own individual reasons.
Focus on Economic Development	Complementary currencies can help develop economies, and involve businesses in providing significant new levels of economic activity.
Organisational Development	Developing specialized currencies that work within organizations and their customers/users.
Focus on Social Exclusion	Helping those in poverty with a ladder to help them access mainstream job and training opportunities.
Environmental Focus	Building localized more environmentally sustainable economies.
Social Movement Approaches	Currencies as a tool for help build a fairer, humane, peaceful, ecological economy as an alternative to the mainstream economy.

Table 2. Typology of motivations for developing complementary currencies. Source: North (2000)

'lock in' effect argument. Interviewing the groups has showed that the newly-started groups rely on the currency design from Hanbat LETS. The administrators at Hanbat LETS have launched their own program to help set up community currencies in other regions. This is because there is hardly any information on the system of design elements scheme provided in Korean other than the two successful cases of Hanbat and Gwacheon. Each group has various aims, goals, and perceptions, but the designs of the scheme show uniformity rather than adapting to the field in which they are operating. North (2000) suggests that many community currency experiments had "lack of clarity" about its goals and objectives and their design elements seemed to be the case in Korea as well. Thus, the next pertinent step was to ask about the perception of community currency shared by its coordinators or practitioners—how do people involved in community currency envision community currency?

METHODOLOGY AND APPLICATION

To explore how the practitioners of community currency in Korea envision community currencies, this study uses Q-methodology. This method is used to study people's subjective understanding and shared perspectives on the topic. Barry & Proops (2000) suggest that Q-methodology is an appropriate methodology to study how one thinks about the subject, since it combines qualitative and quantitative analysis to extract the underlying discourse or the 'idealized' type among the collective of the individuals.

Q-method is conducted by performing a technique called a Q-sort. In a Q-sort, each subject of the study is presented with the same set of Q-statements. These are statements—in most cases, they take the form of written cards—related to the research topic which "corresponds to the concept or perspective in question". Then, each subject of the study will sort the given statements by rank-ordering the statements along a continuum specifying their level of agreement or disagreement on a symmetric agree-disagree scale according to one's subjective perception of the topic. The set of result showing high correlation, using the factor analysis, represents the shared understanding of the topic among the respondents (Zechmeister, 2006:158-159).

This research collected statements using both the 'ready-made' and 'naturalistic' methods. The method of collecting statements is two-fold: 'ready-made' and 'naturalistic'. The 'ready-made' method collects statements from already existing materials and references related to the topic, whereas the 'naturalistic' method use interview and written narratives to collect statements (Mckeown& Thomas, 1988). First, we collected existing materials and references related to the topic, e.g. newspaper articles, academic papers, books, media etc. Statements considered as representing the perception of community currency—how the practitioners envision the system—were selected, statements such as "I think community currency is …", "I think community currency should be …", and "I think community currency must …" Also, we collected statements through structured interviews with practitioners of community currency and an academic expert. Interviews were recorded and transcribed, relevant statements to the topic were extracted and stated according to the above form. Furthermore, a document submission method was carried out through survey via email to the members of the Korean Community Currency Network. After collecting and extracting the data, approximately 200 Q-statements were initially selected to form the Q-population.

Of the two methods of sampling the Q-population, unstructured and structured (Kim, 2008, 97~99), a structured Q-sampling method was conducted to derive the Q-sample in this study. North (2000)'s 'typology of motivation for developing community currencies', as shown in Table 2, was used as a conceptual model to form the Q-sample. This typology was derived from North's research which laid out six different motivations for developing community currencies using qualitative methods in five different countries.

Using North's typology, a total of 30 Q-Statements were selected to form the final Q-sample; 36 statements were selected initially, however it was condensed into 30 statements after a pre-trial test. In order to test the reliability of the selected Q-samples, the Q-samples were reviewed by a community currency expert in Korea. Table 3 shows the final Q-statements selected.

Each subject of the study, called a P-sample, was given randomly assigned 30 Q-statements in a form of 5x8 cards and was asked to rank the each statement in a classification board. We used a snowball sampling method of recruiting participants among their network to select the P-sample as there was no existing list of groups. The study was administered to 29 active coordinators or ex-practitioners who have worked in the field in the past 3 years from 22 different active groups in Korea in the spring of 2012. Each Q-sorting was administered separately followed by an interview regarding the Q-sort and interviewee's perception on community currency. The individual Q-sorts were then analyzed using the program PQMethod 2.11, which uses factor analysis with a varimax rotation.

RESULTS

Q-analysis suggested that that there are four different ways in which practitioners perceive community currency, allowing for practitioners to be classified into four different groups. The four types of community currencies envisioned by the coordinators or practitioners were named as the following: Neighborhood as a community, Alternative community, Community through eco-friendly affinity groups, and Ecological community; the four types cumulatively explained 62 percent of the total variance within the data. Each type, shared view of the practitioners of community currency, allows us to ascertain the common characteristics they hold which distinguish them from other types. Out of the 29 participants, ten were type 1, seven were type 2, four were type 3, and four were type 4. Four of the participants were shown to be part of more than one type.

	Q-Statements
1.	The use of community currency by big companies can help spread the institution.
2.	Community currency is not only for those aiming an alternative to capitalistic society, but everyone should be able to participate.
3.	Community currency should not be partial to any ideological value.
4.	Community currency is an institution for everyone who is living in the local community rather than being a group sharing certain ideological values.
5.	Community currency groups should take emphasis on 'efficiency'.
6.	Community currency can compensate local stores and people who are dedicated to our local community.
7.	Community currencies will strengthen our local community network.
8.	Community currency's ultimate goal is to revive the local economy.
9.	Community currencies can develop local products and services.
10.	Community currencies will revitalize the local economic network.
11.	Community currency can invigorate certain activities (e.g. education, volunteering, medical services, tutor, etc) without using the national currency.
12.	Community currency is a tool to invigorate groups' services or the use of its product.
13.	Community currency can help spread or strengthen other programs run by the group.
14.	Community currency is more of a tool to achieve our goal, rather than being a goal itself.
15.	Community currency is one of the tools that can help achieve the groups' goals.
16.	Community currency can help those who are excluded from society.
	Q-Statements (continued)
14.	Community currency is more of a tool to achieve our goal, rather than being a goal itself.
15.	Community currency is one of the tools that can help achieve the groups' goals.
16.	Community currency can help those who are excluded from society.
17.	Community currency can create local jobs.
18.	Community currency can provide opportunity to those who are far away from mainstream social services, e.g., housewives, elderly.
19.	Community currency can help the local community to be a beneficial setting to its members.
20.	Community currencies can help people empower themselves by developing the skills that are not utilized in the market.
21.	Community currencies can promote the consumption of local agricultural products.
22.	Community currencies allow us to build a bio-regional society.
23.	Community currency can promote the reuse of products and the sale of locally created products
24.	Community currency can help build a small eco-friendly community.
25.	Community currency can promote eco-friendly life styles, e.g., recycling.
26.	Community currency is fundamental resistance to the capitalist system.
27.	Community currency is an alternative method which allows us to overcome the dogma of competition in mainstream economy.
28.	Community currency allows us to break away from the capitalistic wage based 'work' society.
29.	Community currency is a grass-root community movement.
30.	Community currency could change our perception of 'work' from a 'wage earning activity' to a 'valuable activity'.

Table 3: Q statements

Common characteristics of each type should be discussed before examining the each type. All four types shared a negative view on Statement 1 (The use of community currency by big companies can help spread the institution.). They were skeptical of incorporating big companies which imply that coordinators are leery of trying to attempt to make the scheme more attractive to mainstream organizations. It could be assumed that this might be why, unlike some cases of some private companies incorporating community currency internationally, there has not been such an attempt in Korea. Also, all four types also had a similar view on Statement 9 (Community currencies can develop local products and services.); they either were neutral or held a slightly negative view on the statement, which suggests that the coordinators are doubtful that the scheme can have a compelling effect in the capitalistic system.

Type 1: "Neighborhood as a community"

The first type envisioned community currency as to build a neighborhood as a community. For those in this type, the most important goal of community currency is to restore the weakened local community spirit. For example, they strongly agreed with Statement 19 (Community currency

can help the local community to be a beneficial setting to its members). They also strongly believed in Statement 20 (Community currencies can help people empower themselves by developing the skills that are not utilized in the market.). One practitioner, in an interview, stated "I want to have an impact on our community by using community currency to strengthen the residents of our local community's capability and to build leadership". Another who belonged to type 1 said, "…in a world where money buys everything, the relationship we used to have in the old days with our neighbors can't be seen anymore… through community currency we can revive the poomasi movement and restore and restrengthen our local community".

At the same time, those in type 1 also indicated that they were strongly against using community currency with an anti-capitalistic ideological motive. They strongly opposed to statements with ideological meanings, e.g., Statement 28 (Community currency allows us to break away from the capitalistic wage based 'work' society.) and Statement 26 (Community currency is fundamental resistance to the capitalist system.). They believed that "everyone can participate in community currency" rather than "believing it's a system for the few with certain values" (Statement 4) and "it should be an institution for everyone rather than for those aiming to incubate an alternative value against capitalistic society" (Statement 2). One participant of the study stated "I am doubtful of the notion that we can change the dominant ideology or the market economy".

Compared to the other type, we can see that factor 1 takes a more value free approach as described by North (2000). It strongly agrees with Statement 4 and Statement 2. Also, strongly disagreeing with Statement 29 (Community currency is a grass-root community movement.) and 15 (Community currency is one of the tools that can help achieve the groups' goals.) suggests that it is opposed to North's "social movement approach". Type 1 takes community currency as means to achieve its goal, but unlike other types, it does not have an ultimate goal underlying its implementation.

We can see that those in type 1 accede to the mainstream economic values and envision community currency as a tool for reviving the community and also focuses on empowerment of the residents. It is not a tool to achieve an alternative ideology. Rather, it seeks to revitalize our community and develop the values hidden within individuals.

Type 2: "Alternative community"

The statement, with which type 2 respondents most strongly agreed were Statements 30 (Community currency could change our perception on 'work': from a 'wage earning activity' to a 'valuable activity'.), 20 (Community currencies can help people empower themselves by developing the skills that are not utilized in the market.), 27 (Community currency is an alternative method which allows us to overcome the dogma of competition in mainstream economy.), and 29(Community currency is a grass-root community movement.). Those in type 2 also believed in the restoration of community spirit and interaction with neighbors, individual empowerment, etc. For instance, one said "… one has competence in something and they should develop that skill which they can share with the community resulting in strengthening the community…" However, the most noticeable characteristic of type 2 is that they take an anti-capitalistic view. He added, "…I believe (community currency) is a way to recognize those who are excluded from the capitalistic market."

The analysis of strongly opposing to Statement 3 (Community currency should not be partial to any ideological value.) argues that those in factor 2 are very value-oriented. Furthermore, in comparison to other types, it strongly agreed with Statements 30 (Community currency could change our perception of 'work' from a 'wage earning activity' to a 'valuable activity'.), 27 (Community currency is an alternative method which allows us to overcome the dogma of competition in mainstream economy.), 29 (Community currency is a grass-root community movement.), 28 (Community currency allows us to break away from the capitalistic wage based 'work' society.), 26 (Community currency is fundamentally a resistance to the capitalist system.), which are statements encapsulating North's social movement approach. For instance, one interviewer stated that:

> "… capitalism has its goods, but everything has good and bad. And I think the use of community currency could be one alternative method to solve this problem. Our goal is to change the irrational society, go back to the world where we can live a basic life with our money. This is our biggest value and goal…"

Thus, we will name type 2 as "alternative community" due to their strong advocacy of the anti-capitalistic ideology The view of coordinators in type 2 is that they believe community currency is an institution that can revive the community spirit and strengthen the local network. However, all of this lies under their critical consciousness against capitalism. They are using community currency as a tool to seek this ultimate goal of achieving alternative concept of society.

Type 3 "Community through eco-friendly affinity groups"

To a greater extent, type 3 showed similarities to type 1. Those in type 3 were against the approach of taking community currency as a social movement. They were strongly against Statements 26 (Community currency is fundamental resistance to the capitalist system.), 28 (Community currency allows us to break away from the capitalistic wage based 'work' society.), and 27(Community currency is an alternative method which allows us to overcome the dogma of competition in mainstream economy.). Also, similar to type 1, they too think "community currencies can help people empower themselves by developing the skills that are not utilized in the market" (Statement 20).

However, the key difference between the two is this group's emphasis on being environmental friendly. They believed that "community currency can help build a small eco friendly community" (Statement 24) and that "it can promote the reuse of products and the sale of locally created products" (Statement 23). Compared to other factors, they strongly believed that "the use of community currency can promote eco friendly life styles such as recycling" (Statement 25). Type 3 saw the possibility of promoting environmental friendly ideas in a community currency but there is a disparity between the 'environmental approach' of North(2000) which advocates fundamental ecological change. Those in this type do not approach the use of community currency by taking account of the macroscopic picture of society. They were against the statements that indicated effect of community currencies at a macro level, i.e., Statement 30 (Community currency could change our perception on 'work' from a 'wage earning activity' to a 'valuable activity'.) and Statement 16 (Community currency can help those who are excluded from society.). The interviewer "has never even considered the thought that community currency as a movement against capitalism". The result suggested that those in type 3 considered community currency as an 'affinity group' that instead support eco-friendly lifestyles, and took community currency as a tool to translate their thought into action. Thus, type 3 was given a name of 'Community through eco-friendly affinity groups'.

Type 4 "Ecological community"

As with type 1 and 3, type 4 encompasses similar perception to that of type 2. It demonstrates the disposition of North's social movement approach. For example, strongly agreeing to Statement 26 (Community currency is fundamental resistance to the capitalist system.) and disagreeing to Statement 3 (Community currency should not be partial to any ideological value.) suggests that those in type 4 view community currency with a certain perspective. Up to here, it is similar to type 2, however, its endorsement of Statement 24 (Community currency can help build a small eco friendly community.) and 21 (Community currencies can help the consumption of local agricultural products.) also indicate that it has an ecological perspective. They aim to build a local community built in a specific geographical area. Moreover, people in type 4 emphasize the importance of maintaining a small community. One practitioner classified as part of type 4 said:

> "As I have participated for few years, I have come to the conclusion that (our group) works better if people with similar values work together. After all, community is formed with group of people who are like-minded. So I think a community is a social group that shares a common value".

Type 4 is named an 'Ecological community' due to their view of community currency as a tool to building an alternative ecological society against capitalism for sharing similar ideological background.

CONCLUSION

This paper deals with one of the alternative social welfare policy that has been recently gaining interest in Korea, community currency schemes. This paper is the first academic effort on the scope of community currencies in Korea. We found that there are 43 community currencies in Korea in 2012. However, the system is still very underdeveloped and was yet to be considered as an effective alternative policy. The possible explanation might be rooted in the fact that these groups take the form of mutual assistance, which is based on the voluntary actions to fulfill the need for social welfare—which results to being small and unprofessional (Gilbert & Terrell, 2005).

Thus, in order to develop a strategy to develop the scheme, it is important to recognize the aims or the objective of the group (North, 2000). This paper investigated how the practitioners envision community currency using Q-methodology. The result shows that there are four different groups of participants with different views on community currency: Neighborhood as a community, Alternative community, Community through eco-friendly affinity groups, and Ecological community. Although each group has different views on what they want to achieve, they all seek to overcome the limitations of mainstream capitalism and seek viable alternative methods for realizing a solidarity economy.

The implication of the paper is that as previous literature in Korea are mostly based on case studies; it is the first time that it presents the macroscopic standpoint on the community currency schemes in Korea. The overall picture of the how the coordinators of the scheme think about the objectives and the goals lays out the foundation for field practitioners and academics; furthermore it shares the Korean experience to the global audience.

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International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 81-93

BEYOND GROWTH: PROBLEMATIC RELATIONSHIPS BETWEEN THE FINANCIAL CRISIS, CARE AND PUBLIC ECONOMIES, AND ALTERNATIVE CURRENCIES

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Associazione Decrescita

ABSTRACT

Financing non-capitalist (public, solidarity and care) economies with current monetary resources raises many economic and environmental problems. This research focuses on the opportunities offered by alternative currencies as a possible solution and discusses their limits. We demonstrate how time-based systems of measure, exchange and credit can foster sustainable financing of non-capitalist economies in a more economically efficient, localised and ecological way. The key is to link them to an average value of labour time, which can significantly widen the power, functions and economic role of alternative currencies. Above all it can foster a new type of universal ecological protection against speculative finance and exploitation of resources, promoting a return to taking care: of ourselves, of others, of our community currencies and the world we live in.

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To cite this article: Ruzzene, M. (2015) 'Beyond growth: problematic relationships between the financial crisis, care and public economies, and alternative currencies' *International Journal of Community Currency Research* 19 (D) 81-93 <www.ijccr.net> ISSN 1325-9547

INTRODUCTION

The current financial crisis is linked to an assumption of economic growth and monetary institutions to sustain it, and these require a widespread revision. The regulatory functions of monetary policies, their instruments, and their ability to account for the socio-environmental costs of economic growth are particularly problematic. This paper will focus on the structural problems of financing Public Economies and Care Activities (PE&CA) in the tertiary or post-industrial age. Care activities encompass all services and productive activities geared to taking care of "commons", namely people and their work, natural resources and cultural heritage. I will refer mainly to some significant problems derived from financing PE&CA with resources obtained by prevailing methods of wealth production, subordinate to the payment of various kinds of interest, rents and profits.

PE&CA cannot systematically grow in productivity as required by capitalist principles and this creates difficulties for economic growth as well as for a balanced development of PE&CA. In turn, PE&CA decision-makers are exposed to the trade-offs involved in growing indebtedness, reducing the volume of activities, or pursuing increased productivity by exploiting every available resource, especially labour, and such issues call for new sources of funding and new credit systems, appropriate for sustainable socio-economic development. I will particularly consider the possibilities of financing PE&CA through developing mutual credit systems without interest, based on time units of average social value, managed electronically by communities and governments deeply rooted in their territories. Hypotheses on new interest free credit systems will be mainly based on the experiences resulting from the various attempts to build Alternative Currencies (AC), spreading all over the world in recent decades. I endeavour to go beyond the limits and incongruences revealed by the prevalent experiences of AC, while drawing on any useful tools related to their development.

I use the term alternative currencies in a broad and generic sense to indicate systems of exchange, payment and credit which are different from official monetary systems, and also different from each other. Their diversity or otherness may concern their characters, functions and origins. In Latin, "alter - natus" means different in origin, so in relation to this otherness, all alternative currencies can be used alternatively, meaning at different moments or in different fields and for different projects according to the approach taken. In this rather generic sense, the term alternative currencies may include the notions of local and community currencies, or even complementary currencies, according to the scheme outlined in Blanc (2011) and Gomez (2009). Being alternative or different from official, national and macro regional currencies do not necessarily imply competition with or antagonism towards them; although it makes competition or antagonism possible, mainly because official currencies claim a monopoly or exclusiveness, so they tend to exclude any alternatives in the functions traditionally fulfilled by money.

There have been no major experiences yet at the local or national level of interest-free credit systems to finance public economies but the depth of the current crisis demands the construction of socioeconomic forms and relations that do not yet exist. This need is evident from an analysis of the structural problems afflicting tertiary societies, and it is clearly necessary to go beyond the main approaches of social research which have been hegemonic for several decades. Prevalent social theories tend to limit research to collecting pure empirical data or analysis of individual and "single group" experiences. More precisely, there is a preference for practices and solutions that play out in the interpersonal dimension, according to the methodological individualism that has become dominant among many academics and activists with the advent of neoliberal culture and politics (for different interpretations and responses, see North, 1990; Bhaskar, 1998; Toboso, 2001).

The approach used in this paper diverges from the above for at least two reasons. First, I give precedence to analysis of the dynamics and problems in larger, long-standing public institutional dimensions. Second, I tackle options for imagining the rebuilding of new socioeconomic forms, and I try to do that on the basis of analysis of structural problems emerging in tertiary societies rather than on the basis of prevalent experiences and schemes of AC. For example, the increasing importance of the local-regional currency is derived from the current separation between economy and territory, due to neoliberal and financial globalisation. It also derives from the fact that in post-industrial societies most services, particularly care-related, are only available and enjoyed locally, which explains the low rates of foreign trade of services in OECD countries (OECD, 2005: 14). In the same way, the importance of labour time in a model of interest-free credit does not spring from some kind of "socialist nostalgia" but from the importance of individual work, especially in care-related activities in advanced tertiary societies.

I deal with the main issues of the tertiary or post-growth age in the first part (sections 2-3). In the second part I focus on problems of financing PE&CA by alternative currencies, mainly from a sustainability -ecological and economic- perspective (sections 4-5). In the third part I consider some problems and potential related to financing PE&CA by means of time based credit systems (sections 6-7). Briefly, I consider the need to expand the main functions usually attributed to AC. I question the prevailing reduction of AC to mere medium of exchange and tool of economic growth (for small and often "closed", self-referential communities). Finally I consider their role in developing alternative social security systems and more adequate socio-economic programming, both necessary for sustainable development of post-industrial societies.

2. BASIC LIMITS OF THE CURRENT SYSTEMS TO FINANCE PE&CA

A major problem arising from the current financial system with regard to PE&CA is the interaction of two facts, which together have serious consequences:

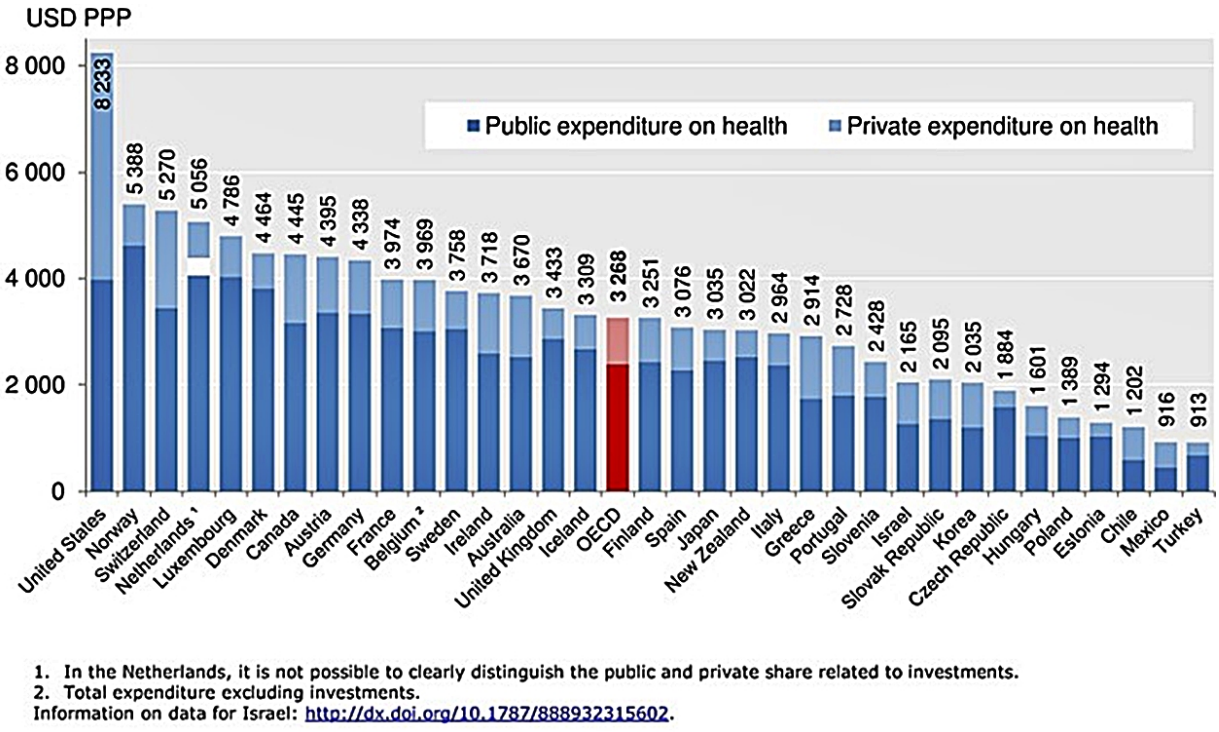
- The current financial system requires continuous growth of monetary resources in order to pay interest on loans, rents on factors of production, and profits for business activities.
- Public economies and care activities generally cannot produce such growth, especially in the current tertiary phase of socioeconomic development (Bell, 1973; Gadrey, 1992; Atkinson, 2005).

The main consequences of these facts are pretty obvious but are hardly considered by current political and theoretical approaches. If care activities as health services are financed under conditions requiring payment of interest, rents and profits, then the costs of services on offer increase without improving productivity and quality, indeed often making them worse (Ruzzene, 2005:127-129; Ruzzene, 2008: 253-254; Kane, 2012). At the present time, the USA spends 2.5 times the OECD average for health services (total health expenditure per capita, public and private), as shown in Figure 1 (OECD Health Data, 2012). OECD Health Data 2012 also shows that in countries like Italy and France, where most health services are public, the costs are lower and the volume of services provided is generally higher,(OECD, 2012: 8-10). However, high interests paid on money increase public debt, and public economies financed by the current financial system become heavily indebted unless they increase either the amount of financial resources obtained outside current financial circuits or their total income from consumers' purchasing power (Fitoussi, 1997). The interests generated by speculative global financialisation forces PE&CA to reduce activity and assets, at least in the medium and long term, and the current tertiary stage of economic development shows both protracted stagnation of production and decreasing income (Gallino, 2009; Picketty, 2013).

These problems are aggravated rather than caused by the prevalently speculative nature of current financial systems. Speculation increases the risk and uncertainty of economic activity and this means increasing interest rates irrespective of any possibility of real productive growth (Aglietta, 2008: 54-57). Further increases in prices of many services follow, together with impoverishment, but such phenomena were already evident in the 1970s, before speculative financialisation became dominant, and their persistence needs to be explained because it is present in different economic systems such as welfare states and neoliberal economies.

The service economy cannot achieve continuing systematic increases in productivity, as already noted by some scholars (Bell, 1973; Lorenzi et al., 1980). The main reason for the fall of overall productivity is that most services (particularly in the PE&CA) are performed individually and their productivity cannot grow up according to the princi-

Figure 1. US spends 2.5 times the OECD average (total health expenditure per capita, public and private, 2010 or nearest year) Source: OECD Health Data 2012



1. In the Netherlands, it is not possible to clearly distinguish the public and private share related to investments.
2. Total expenditure excluding investments.
Information on data for Israel: http://dx.doi.org/10.1787/888932315602.

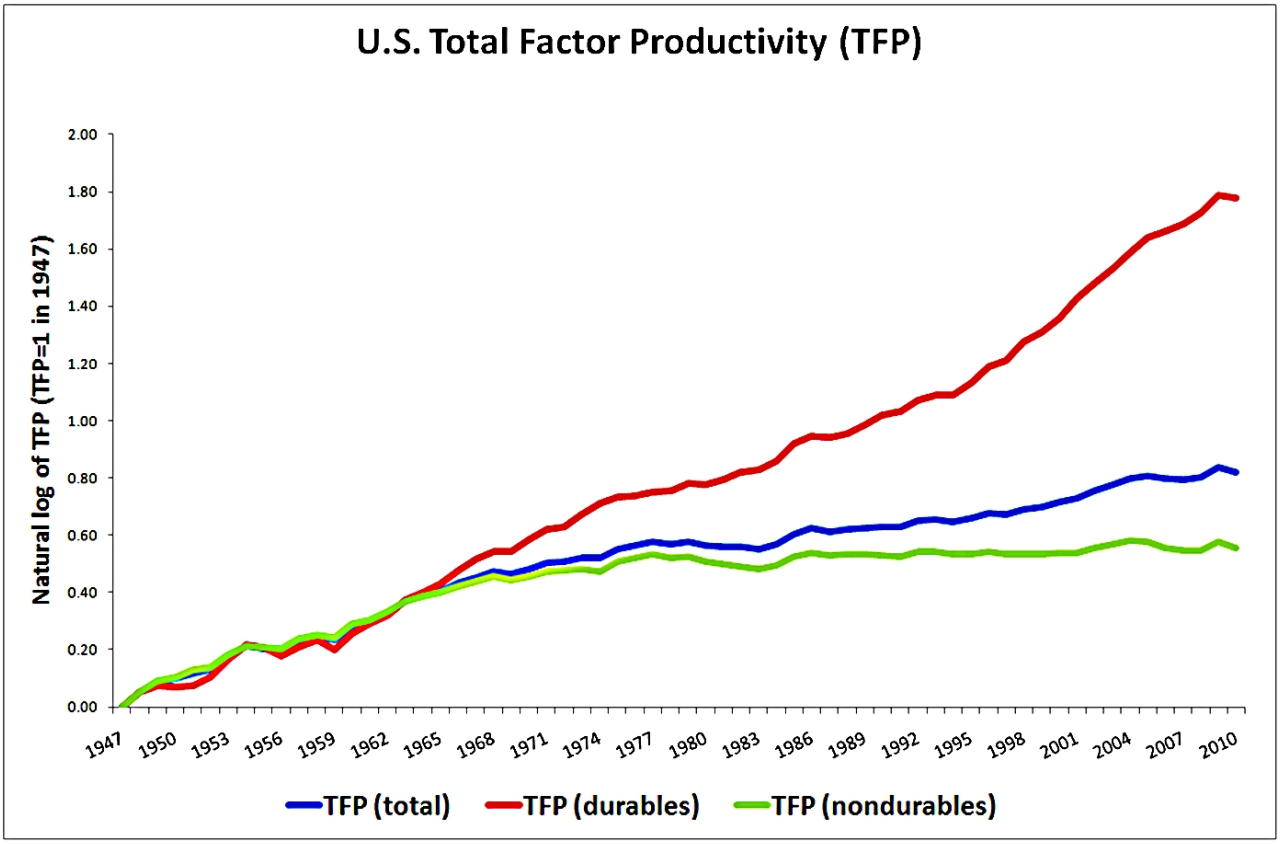


FIGURE 2: US Total Factor Productivity (TFP). Source: http://noahpinionblog.blogspot.it/2011/04/tfp-and-great-stagnation.html

ples of scale economies and intensification of production time. A calculation of the total factor productivity in the US is depicted in Figure 2 and shows this problem. Most of individual service activities, especially those concerned with "care", cannot be divided and recombined by mechanised industrial systems to obtain systematic productive growth (Ruzzene, 2005:121-123), and individual service activities not only concern PE&CA. They concern also most marketing services, economic and legal mediation activities as well as other professions for profit that prevail over industrial activity in advanced economies, reducing growth perspectives and increasing cost of social reproduction.

The high cost of social reproduction in post-industrial systems evidently depends on several factors. It firstly depends on environmental degradation and the growth of assets to cope with this, and secondly on the development of financial assets, especially speculative ones, which pose an enormous weight in developed countries. Nowadays the increasing cost of financing public economies is largely due to interest on debt, especially high in countries with high public debt like Italy (Baranes, 2012; Gesualdi, 2013), but all this happens mainly because high interest rates are applied to services activities and commons without any possibility of systematic economic growth according to mass production principles (Ruzzene, 2005: 127-133). Increases in the costs of health services, private schools and insurance services are particularly evident when these services are subject to "marketisation" and capital valorisation, as in the USA, where they have become the largest expenditures in family budgets (OECD, 2007).

Finally, capitalist economic growth, which for centuries reduced the real costs of goods produced on an industrial scale along with the growth of low-middle class real incomes, has gradually lost its economic functions and social appeal. This is evident in the case of PE&CA, but problems have become serious since individual service activities have become a major sector of all post-industrial societies.

3. RELATIONS BETWEEN CAPITALIST ECONOMIES, PE&CA IN THE TERTIARY AGE AND NEO LIBERAL POLICIES

The relationships between the capitalist economy, financial systems and PE&CA are controversial and ambiguous, even paradoxical, in many respects. On the one hand, current economic systems depend on PE&CA almost inevitably, while PE&CA needs financial systems and in some ways also seems to need unceasing economic growth to develop, which only capitalist systems seem able to provide. On the other hand the development of PE&CA causes severe economic problems for the capitalist economies and these problems hinder, rather than sustain, further expansion of PE&CA.

These controversial or even contradictory relations respond to the constitutive principles of capitalist economies, and also the more specific aspects typical of the tertiary

phase and of current neoliberal policies. The insatiable drive for monetary growth is a most important constitutive principle of capitalist economies. As stated by Karl Marx, it generates degradation of the natural and social environments and almost all the economic crises, whether short-term or systemic, that have manifested with the development of modern capitalism. To maximise the effects of monetary growth, it is necessary to ignore environmental impacts and other externalities and give free rein to competition for scarce resources. Furthermore, together with other constitutive principles of capitalism, the pursuit of monetary growth generates many structural short-term economic crises: production surplus, accumulation surplus, speculative bubbles and demand shortages (for a reconstruction of the dynamics of economic crises, see Rosier, 2003).

Because of its negative effects on the environment, capitalist economic growth also generates the need for a whole host of recovery activities, social reintegration, preservation of human and natural resources, and their social relationships. In traditional societies the guidelines for care were "symbolic values" embedded in most work and productive activities (Sahlins, 1985), while in capitalist society the development of PE&CA as a separate or specialized system becomes necessary because it obeys principles that are largely different to those applied in most economic (capitalistic) sectors.

Individual service activities in the PE&CA oppose capitalist economic growth for at least two reasons. PE&CA cannot meet the need for continuous productivity growth and its development responds to needs, rhythms and rationale of care that are substantially different from those of economic growth (Gadrey, 1992: 76-79) and which are determined by competition in the exploitation of resources and money accumulation. PE&CA cannot achieve the goals of a dissipative growth economy, based on intensification of time and linked to the inflationary devaluation of money, because it takes place slowly, gently, and rooted in the environment (Ruzzene 2008: 253). Thus the growth of PE&CA helps capitalist socioeconomic systems to reproduce in a more balanced manner, reducing some of their negative effects, although it also generates new contradictions, especially in the economic sphere.

In contrast to the prediction of Marx and the sociologists of the automated society, the post industrial age is not characterised by progressive displacement of human labour in favour of machines. Instead we observe an economic prevalence of individual working activities, especially "repair and care-related services" for the environment, people, marketing and the legal systems (Gadrey, 1997; Albrecht and Zemke, 2002; OEC, 2005). The current tertiary phase is also characterised by the dominance of speculative financial activities affecting public institutions and the national and international laws, and this means an evident dominance of the financial (monetary) capital over the productive (fixed) capital. Most costs are now for individual service activities rather than for big industrial plants. More precisely the fall of overall productivity and fewer investment possibilities in traditional mass production sectors favour the development of speculative finance because it offers a better chance to increase money for the financial system and for the cultural, administrative and political elite (Gallino, 2012; Piketty, 2013; Aglietta and Rebérioux, 2004).

The most obvious result is unsustainable growth of debt, public and private, supported by the global financial system through high interest rates consistent with the high risk of speculative ventures of financial systems. It is a vicious circle based on the granting of free debt-money creation for purely speculative purposes that can only be broken by the withdrawal of this concession, giving back to communities the full control of their own monetary institutions.

4. PROBLEMS IN ACHIEVING ECONOMIC AUTONOMY OF PUBLIC ECONOMIES AND CARE ACTIVITIES

The problems outlined above indicate that it is necessary to finance PE&CA in a new way, not dependent on interest payments and exploitation of labour and natural resources. For several reasons, the finance of public economies depends on tax revenue and money-based methods of exchange and calculation of social wealth (Bosi, 2006; Bresso, 1990), but the current fiscal crisis and the market failure of commons and PE&CA indicate that the current tax, exchange and monetary systems must be radically modified. Two changes are particularly important:

- broad fiscal reform that modifies the relationships between the tax office, contributors and available resources, and shifts taxes from labour to appropriation and exploitation of environmental, human and natural resources belonging to communities;
- the development of substantially different credit systems, not bound to continuous growth of money and interest or rent payment, but to reproducible resources like labour.

Before considering the options to finance PE&CA by alternative systems of exchange and credit, like alternative currencies, we first have to look into the more general difficulties of funding PE&CA in a socio-economic sustainable way and which are related to the construction of a Sustainable Care Economy. I discussed elsewhere the main problems of funding PE&CA through environmental, carbon and green tax (Ruzzene, 2008: 254-255).

The most appropriate sources for financing a sustainable care economy depend on the principles on which they are based. Like any ecological approach, a Sustainable Care Economy should favour autonomy, equality, cooperation, solidarity, responsibility and economic balance. Only a sufficient level of responsible autonomy can promote the widely accepted development of equality, cooperation and economic balance, while sufficient levels of responsible autonomy should be felt not only in the individual capacity for judgement and choice but also in the economic self-

sufficiency of social systems. Adequate economic self-sufficiency of the Sustainable Care Economy is necessary because dependence on wealth produced by the growth economy means depending on its underlying exploitation of resources and environmental devastation, but economic self-sufficiency is not easy for PE&CA and requires certain economic and socio-cultural conditions.

The main economic difficulties hindering the economic self-sufficiency of PE&CA depend on the fact that not everyone can pay for the services it provides. It is often a question of meeting primary needs that have become "civil rights" (such as healthcare and education). In turn, it is a matter of caring commons, access to which cannot be denied to anyone and care of which is in the general, local and universal interest. However, care activities cost and their costs increase with increasing degradation of the environment, which is largely due to capital-growth-oriented activities. These have to pay for care and repair activities through taxation, but care economies cannot totally depend on wealth produced by the capitalist logic.

The mentioned difficulties of PE&CA can be reduced if we widen the fields and activities included in Care Economies, rather than reducing them as occurs today. If we want extension of Care Economies to have a positive value, we have to extend the concept of care to taking care, which is taking care of (or responsibility for) the environmental and existential implications of any kind of productive and economic actions. From this point of view, the taking care principles need to be reintroduced into all the activities producing goods and services, in particular those that are outside the logic of continuous monetary growth and exploitation of available resources.

We should go beyond the narrow traditional view of "care activities" as informal activities outside economic relations, such as unpaid domestic work which remains substantially non-autonomous (for different approaches to "taking care", see Tronto, 1994; Bubeck, 1995; Held, 2006; Eisler, 2009). If private services take responsibility for environmental, physical and social implications, they can also be part of Care or Ecological Economies. The concept of Care or Ecological Economies includes public economies but also social and solidarity economies. These have grown significantly in recent decades but have not yet found adequate forms of funding to defend their principles (Arnpserger, 2013; Utting, van Dijk and Matheï, 2014). We also have to go beyond the concept of "care" related to health alone, such as medical and healthcare in general. Care services in their specialist form will of course continue to exist in a complex society, but the economic conditions under which they can develop should change, growing as Care Economies that respect the needs of people and labour, social environments and all the forms of life on the planet.

Care economies must also take care of economic resources, which are indeed limited and scarce. They must rediscover the principles of saving and reasonable employment of existing resources (natural and labour) for a better balance with respect to their environments and inter-community relations. On this basis, public and private economies can sustain and help each other, mutually widening their supply and demand of services and goods in a sustainable way. On the same basis, the growth of care economies can provide better conditions for economic autonomy of public economies and a private sector inspired by care principles.

It is generally thought that attributing economic value to care activities and many public services implies commoditisation, which denies the principles of "disinterest" and "giving" that should be hallmarks of care activities as traditionally organised (Bosi, 2006; Ribault, 2007). However, attaining economic independence for PE&CA does not necessarily mean their commoditisation or the reproduction of impersonal egoistic economic relations. Where possible, it is a question of counting the economic costs sustained in implementing PE&CA, which are and should mainly be costs of labour (if we exclude rents, profits and interest on money) and of care for commons.

The reintroduction of care principles in many production sectors may slow down the possibilities of productive growth, both for single agents and overall (Ruzzene, 2008; Arnsperger 2013). However, it is also easy to understand that the recovery of taking care principles can greatly increase the quality of products, services, relations and environmental contexts, and this must somehow be assessed and compensated, especially in the existing highly competitive societies where commitment to protecting and caring for common life conditions can mean losses, bankruptcy and an end to all activity for many firms.

Sectors such as the social and solidarity economy, organic agriculture, traditional trades and industry organised around taking care cannot compete unless sustained and protected by national and local governments and communities. Public economies also need to be sustained and all of this could be done by setting up alternative funding systems and providing new, more stable, balanced and locally-based conditions of demand. Some forms of Alternative Currencies seem to meet such conditions quite well but they cannot be bound to dissipative monetary growth and they also need to overcome the problems and limits they encountered in the past.

5. POTENTIAL, LIMITS AND PROBLEMS OF THE USUAL APPROACHES TO ALTERNATIVE CURRENCIES

The theory and practice of alternative currencies (AC) have an important role in drawing attention to social and democratic re-appropriation of the functions of creation and management of money, as envisaged by T. Greco already in 1994. In turn, certain approaches and instruments related to AC can be useful for sustainable funding of PE&AC for a number of reasons.

Certain models of AC can provide favourable credit conditions without requiring payment of interest or rent and possibly without causing inflation (Kennedy, 1995). Thus their use can enable PE&CA to escape the pressure of con-

tinuous monetary growth and debt, especially public debt, as we shall see in the next sections. AC can also promote more territorially based economic exchange and credit relations, as shown by certain types of local or regional currencies, such as WIR in Switzerland and RES in Belgium (Kennedy, Lietaer and Rogers, 2012; Bendell and Greco, 2013). AC can favour fair relations based on cooperation and solidarity as in most community currency systems (Seyfang and Smith, 2002; Collom et al., 2012). Finally, certain alternative credit and accounting systems, such as time-based currencies, may provide more solid criteria and evaluation tools for economic development, helping to restore a sense of measure or limit in the creation of social wealth (Ruzzene, 2005, 2008; Serra, 2006).

However, the design of sustainable finance for PE&CA requires adequate forms of economic computation, especially for costs sustained by individuals and the communities. The problems that have so far hindered a solid development of AC for sustaining Care Economies must also be tackled appropriately. These two aspects are linked and their solution requires giving AC a wider basis in order to affect the institutional contexts of PE&CA, especially the determination of local and national policies. Here lies the major limit of past attempts to build AC systems.

AC show rather disappointing economic results, and poor economic sustainability was particularly evident in the disproportion between the resources required to start and maintain AC and the limited economic benefits accruing to users (Aldridge and Patterson, 2003; Krohn and Snyder, 2008). This is one reason why in most cases AC have been relatively short-lived, and why a crucial problem in their reproduction was the difficulty of financing their running costs (Schroeder, 2013). Difficulties related to social context, such as unfavourable laws, add to limits based on the theoretical models on which most AC have been built.

Some of the problems linked to the constitutive principles of the major theoretical models of alternative currency are related to demurrage or programmed depreciation, and energy and time-based credit systems (Ruzzene 2008 and 2009). The mechanisms of demurrage reproduce the "dissipative" principles of capitalist economies because they encourage a view of economic growth as a process without limits, or limited only by the availability of money and its speed of circulation, to which demurrage contributes (Goldschalk, 2012). The main energy-based currency models, such as the one developed by F. Soddy, generally do not consider the main costs of post-industrial capitalist systems, which are mainly the costs of care, conservation, repair and maintenance of socioeconomic systems themselves (as well as energy and human systems). These costs are largely labour-related but they should also be assessed in qualitative terms, e.g. in terms of gratification, alienation or loss of meaning, which is loss of "sense" or care principles. We look at the main limits of time-based currencies in the next section.

There are also some limits from practical attempts to develop AC, of which there have been thousands in recent decades but which have not succeeded in playing a sufficiently incisive role for the many issues they sought to tackle (Lee, 2003; Amato and Fantacci, 2006; Ruzzene, 2009; Gomez, 2012; Dittmer, 2013; Cooper, 2013). We can identify four types of problems in attempts to build AC systems:

a) there is a tendency to pursue incoherent, contradictory objectives, such as declaring ecological aims while the real major aim is to increase production and consumption of goods, albeit locally, or pretending to be immune from the inflationary growth of money while remaining linked to the official currency, often for lack of a solid value base, as in the demurrage currency conceived by Silvio Gesell (Ruzzene, 2008: 256);

b) except for time-based currencies, the lack of any valid reference of value makes it necessary to maintain convertibility with official money, which also implies legal problems for the "parallel currency" (Blanc, 1998);

c) a widespread preference for individual and interpersonal action has limited the experience of AC to small groups, or to the restricted area of barter of services and goods of minor importance, as for time banks (Offe and Heinz, 1997);

d) emphasis on the immediate experience of "here and now" leads to neglect of the systemic and long-term problems of monetary and financial systems (Ruzzene 2009:212).

Davina Cooper describes the main problems of English LETS as "problems of an organisational structure whose plural temporalities did not combine", and she identifies "three reasons for this: the lack of an overarching temporal design; the inability of new normative practices, combining different temporalities, to develop; and the power of wider, prevailing temporal pressures" (Cooper 2013: 49). With regards to more specific economic issues, prevailing AC models strictly exclude the store-of-value function. They are not conducive to a resource-saving function (natural resources and labour), especially in the long term, and would rather exclude any form of economic saving even for old age or future necessities (except for a few care-service credit systems such as the Fureai Kippu).

The function as store of value is fundamental for today's official monetary systems, especially because it is a function that the official monetary systems are fulfilling in an unsatisfactory and dissipative way. Speculative commoditisation of pension and security savings is a strong point of capitalist monetary and financial systems but also most problematic. Neglect of these issues also significantly limits the emancipatory potential of AC. Finally, most AC experiences still tend to be relegated to a complementary role with respect to official money and finance, and this also greatly reduces the influence of AC in challenging speculative finance, even after revelation of its self-serving and economically irrational nature.

The current financial crisis, which is especially visible in the funding of PE&CA, however, obliges us to find new solutions that are ecologically and socially acceptable as well as economically efficient.

6. SYSTEMS OF CREDIT IN TIME UNITS (BASED ON AVERAGE VALUE LABOUR) TO TACKLE DEBT AND ENVIRONMENTAL CRISES

The link between financial crisis and private and public debt demonstrates the failure of the economic policies of recent decades, both neo-Keynesian and neo-liberal, namely the fallacy of stimulating economic growth by simply increasing financial flows (Ruzzene, 2012: 202-205). Above all, it demonstrates the unsustainability of financing public economies by cash flows obtained by growth-orientated and inflationary, dissipative principles. The problem of public debt is now explosive for most European economies and it is necessary but not sufficient to renegotiate this debt, especially in the case of Italy (Baranes, 2012; Gesualdi, 2014). Paradoxically, one of the most appropriate ways to restore the autonomy of public and care economies is to exploit paths already opened by welfare politics and speculative finance, reversing the perspectives.

Following development of Keynesian policies, the end of the gold standard and the empowering of agents to create enormous amounts of factitious money, we are experiencing a gradual liquidation of the store-of-value function of official money and full development of its pure accounting function, in a debt money system (Guttmann, 1998; Bell, 2001; Baches, 2004). We "simply" have to transform the store-of-value function into a social security savings function and the existing impersonal monetary credit system into a mutual credit system. This can be done by developing already existing systems of account, exchange and credit based on time units (or labour time), and such systems can also tackle and solve some of the problems in prevailing AC, for three reasons.

Time-based credits have their own independent value basis that does not require convertibility with the official currency, while not excluding it. Time-based units do not lose their value over time and this makes them suitable for developing functions of long term credit without inflation and thus without requiring payment of interest. Exchange and credit systems based on labour time units can finally sustain greater equity in the exchange of goods and services, even between distant communities with different levels of productive development (Ruzzene, 2008:256).

However, as already pointed out, even exchange and credit systems based on time units raise problems, especially in the form in which they are commonly developed, i.e. time banks. Time banks seem to hinder exchange of services having different hourly economic value and which are different in terms of fatigue, gratification or training, because they generally imply agreement on strict equality of the hourly value of labour exchanged. Secondly, they do not seem to allow the value of goods and resources already expressed in official currencies to be calculated.

These problems can be overcome by reference to a labour activity of "average social value", that can be applied either remaining in a pure system of labour-time accounting, as in the Fureai Kippu credit system, or if conversion of accounting in official currencies into accounting in time units is sought, as in Ithaca Hours currency (Lietaer, 2001; Jacob and al., 2004; Hayashy, 2012). In the latter case reference is made to an hourly wage of average value (i.e. the average value of an hour of labour accounted in official currency) to convert all prices in official currencies into time units.

In the Fureai Kippu system, exchanges of care services are all accounted in standard time units, whereas the exchange value of the different services can significantly vary. For example hours for body care can be valued double with respect to hours spent for shopping. Exchange values and all claims are however still recorded in standard time units, which remain stable and unchanging in time, but the original Fureai Kippu scheme did not consider costs sustained in official money, nor allow exchange of credits for care services with other kinds of services (Hayashy, 2012).

Ithaca Hours, a paper currency not backed by national currency, can consider costs and values expressed in official money and enable exchange of any good or service with any other, still referring to time units as elective means of exchange and accountability. It does this by linking the value of the Ithaca hour currency to 10 USD, which was an approximate "average" (somewhat more than the minimum) hourly wage in Thompkins County (US), the socio-economic context in which Ithaca Hours was first implemented, in the 1990s. If the time units refer to an average hourly wage, all costs incurred in the production of a good (or delivery of a service) can be considered, including those in official currencies, making it possible to exchange all kinds of goods and services in time units, but the Ithaca Hours system mainly faces the problem of the cost of printing high quality paper currency, and a relatively low volume of exchanges (Jacob and al. 2004).

The main problems with Fureai Kippu and Ithaca Hours centre on the ways to determine an average hourly wage or maximum and minimum wages to calculate the hourly wage rate. An average hourly wage (and maximum and minimum wages) can be established by an empirical and statistical method or by an ethical and political method, and both raise some difficulties. In an empirical approach, existing maximum and minimum hourly wages can be used to statistically determine an intermediate or average value of labour time, but existing exchange or contractual rates may reflect large inequalities in the distribution of income and social wealth. In an ethical approach, communities using time-based credit systems can determine the socially acceptable maximum and minimum wages (i.e. the resulting average hourly wage), but such decisions require mediation and arbitration, which is why the ethical approach can also be defined as political. The exchange value of different activities can be fixed between the maximum and

minimum wages established by the agents themselves or by the managers of the credit system. But then both the empirical and ethical methods raise problems, especially with regard to wider sharing of the choice made, and if the goal is to get a widely accepted average value of labour time it seems reasonable to find a compromise between the empirical and the political approaches.

Although reference to an average value of labour time raises difficulties it may significantly extend the use of time-unit credits for exchanging goods and services of different value and also for accounting costs in time units as well as official currencies. None of the advantages of time-based credit systems are lost. The necessary condition is that all credits always be recorded solely in standard time units (as in the Fureai Kippu system), never in official currency. Once recorded, an hour credit unit will be always "one hour". While official currencies depreciate at a high rate, credits recorded in time units have significant advantages over credits recorded in official currencies, even if they do not accrue interest, mainly because the interest paid to depositors for their money is always less than the real rate of inflation (Ruzzene, 2012: 202-204).

These characteristics could facilitate the large-scale development of credit systems in time units without interest, especially to finance public economies and households, reducing their debts. Credit systems in time units may also finance interest-free loans for the purchase of public and private housing (Serra, 2006:62-65), today subject to heavy interest rates that keep people in servitude to financial capital. Moreover, the possibility of converting all the costs sustained by PE&CA into time units can improve socioeconomic development planning (Ruzzene, 2012:209-212). Identification of a solid and stable value in labour time can sustain individual and community responsibility towards the social and environmental costs of production; i.e. it makes economic activity observe limits on the basic resources (mainly labour) available to a community for commodity production and consumption, as well as for care and restoration of the environment.

The growth of Sustainable Care Economies, based on time-credit units, has limits as well, like any natural growth process, and can continue only as long as there are hours of labour available for work and care activities in a community. This also implies that any growth of a Care Economy and of time-based credits cannot lead to unlimited growth of debt, but necessarily limits the dissipative capitalist economy and possibly also the use of debt money. However, account and credit systems in time units have major benefits especially for security and retirement saving, by enabling a new pension system inaccessible to speculative finance. This could significantly extend the functions and goals of AC, and it can reduce the gap between the resources required to start and maintain AC and the economic benefits accruing to users.

7. SOME ADVANTAGES AND POLITICAL PROBLEMS OF FINANCING CARE ECONOMIES WITH TIME-BASED CREDITS

The advantages of recording retirement savings in time units (hours of work) instead of official currency are important in countries plagued by enduring high inflation and high public debt. These conditions persisted in Italy for 40 years and productive stagnation has now reigned since the 1990s, mainly due to entry into the tertiary stage of development. Italy is therefore an ideal case in which to demonstrate the advantages of a time-based credit system over official currency and finance.

In Italy 100,000 lira saved in 1970 was equivalent to a month of work (180 hours) of average value. In 2010, 40 years or a working life later, the same amount saved (100,000 lira or €50) is the mean wage for only one day of work. If this saving had been recorded in time-based credits in 1970, it would still have been the equivalent of a month of work or 180 hours in 2010, which is now worth about €2000 (4,000,000 lira). This means that by keeping their value, time-based credits would have multiplied in value by about 40 compared to savings in official money, or the latter would have depreciated to one fortieth the value of time-based credits (Ruzzene 2012:101-103). The next big financial crisis will probably largely destroy the private pension fund system. Public finance will again have to come to the rescue, and this will inevitably increase the level of Italian public debt, also undermining the public pension system.

All this could be avoided by recording pension credits and other savings in time-based credits (after converting current official currency values into hourly wages of average value, i.e. standard time units). The benefits of time-based credits are not limited to individual savers and investors: they can reconcile the needs of individuals, public economies and the community. Individuals can benefit from a time-based credit system because it protects their savings from the intrinsic inflation of official money in tertiary societies. They can prevent destruction of their savings by the increasingly frequent and dramatic financial crises, and public economies can avoid paying interest and accruing public debt. Time-based credits are also positive for communities, which can finance public economies and care-related activities free of interest, profits and rents on money.

A new system of welfare and investment in Care Economies would be based on a mutual credit network between individuals and their communities, accounted in time units and based on the total assets of the community: mainly commons and hours of work available for public economies and care activities. With these features, the time-credit system for welfare and investment in Care Economies could promote a large autonomous economic sector, partly competing with capitalist principles and growth. It could run without inflation, without private credit concentration, and

without the usual fraudulent or dissipative abuse inherent to capitalist modes of money creation.

A first practical implementation of this perspective could be to write off public debt: a) recover all monetary resources (mainly pension funds) delivered to the global financial system; b) pay the public debt with the sum recovered; and c) convert individual sums used to offset public debt into personal security claims, issued to individual members of communities by their public organizations, social security and health systems, etc. In other words, pay in official currency savings now and convert into time unit credits to create reliable pensions and quality care services when needed (Ruzzene, 2013).

To engender confidence in long-term credit securities issued without interest, their value must at least be maintained in time. Today the only basis of value that does not depreciate with inflation is a time unit based on an hour of average value work. This means that after decades of working life, any amount paid by an individual towards social security in time units (hours/months of contribution) is returned exactly by the community organizations in care services or in mutual credit time units, instead of being skimmed like the pension funds currently managed by the dissipative financial system. Only the "exchange value" of a specific type of work can change in the medium and long term, not the "measure" in time units, and this means that the value of all credits counted and recorded in time units remains unchanged even in the medium and long term.

However, as we shall see especially with regard to public debt, there are other problems which are more cultural and political than technical, economic or legal. Development of a system of interest-free time credits should not encounter legal problems since no laws prohibit developing credit in time units between individuals and their local communities, but the credits must be attributed to a bearer and not circulate formally as currency. While circulating, they must maintain their "nominative credit" character, acceptance of which depends on a voluntary agreement between individuals and organizations of the community (Ruzzene, 2009; 2012:208-210).

Time credits can work as a quasi-currency (because they can act as means of exchange and unit of account) but they are not exactly currency. They are not imposed automatically and impersonally like legal tender but rely on a real contractual agreement. They have no impersonal embodied (or commodified) value but are simply records of mutual credits in working time. All this obviously implies that anyone can end the "contract" at any time, obtaining conversion of their time-based credits into official currency (after paying their time debts), but this could be done according to the conditions established by members when the network of community credits was built, as already occurs in many models of AC.

It is possible to maintain the "nominative" character of time credits and make them function on a large scale, as a quasi-currency, only if credits are recorded electronically and the system is managed by the community (i.e. by some of their organisations). This enables a large volume of exchanges to be recorded. Using electronic credit cards, there is no longer any need for manual records, and running costs are significantly reduced. To control the recording system and manage relations between members, ethical banks and other associations could play a major role, widening and significantly qualifying their field of activity. Finally, there are also various ways of solving problems of falsification and inflation or uncontrolled issuance of credit titles (Ruzzene, 2013).

The main challenge is the lack of trust and weak community bonds, that is, the problematic relations of individuals with their political communities. This is particularly severe between individuals and national political communities, i.e. centralised government, and these relations are much more difficult to control than those with local government. National community relations have weakened in recent decades for many reasons, including nation states' loss of capacity to govern the economy, corruption and endemic structural separation between national government, macro politics and the people (with regard to the crisis of the Italian State, see De Felice, 1996).

It seems difficult to use interest-free credit systems to finance public debt without restoring democratic decision-making and resource management of the political system, and we can think that political participation is more easily initiated at local level, where it is easier for people to control political agents and local administrations, and where relationships between individuals, organizations, political communities and environmental heritage can be more solid (Castoriadis, 1995; Fotopoulos, 1999; D. Held 2004).

Obviously the proposed system of credits can exacerbate tensions about competences, resource management and the right to levy taxes between local and national government, but this possibility is already implicit in the current systemic crisis and in the incapacity of nation states to govern their economies.

8. CONCLUSION: BACK TO "TAKING CARE"

We can say that the need for alternative systems of financing PE&CA is not only based on ecological and ethical assumptions. It also comes from the three types of economic problem illustrated in the opening paragraphs: problems about which prevailing political and theoretical practices are not yet fully aware. The first problem is that when current financial methods are applied to PE&CA, they not only increase the costs of care services and total costs, but also dissipate natural resources and social wealth in a way that is incompatible with balanced, sustainable development of PE&CA and of developed societies in general. This problem reveals the need to use currency tools that must be independent of interest payments, rents and profits, and of inflationary and dissipative economic growth.

The second problem regards expropriation and abuse of credit and debt creation by speculative finance to the detriment of national communities. It causes an exponential rise in systemic risk, growing of interest rates and debts, swelling the mass of money in circulation and reinforcing collective servitude of individuals to private economic powers (banks, corporations, insurance companies). These problems call for the re-appropriation of currency creation and management by political (local and national) communities in order to enable solid, responsible, participatory planning of socioeconomic development, respectful of individual needs and bonds between economic activity and environmental and regional contexts.

The third problem regards the plunder of environmental heritage by current economic, financial and industrial systems to the detriment of local and regional communities. It is based on increasing separation between territory and economy, between production of wealth and community relations. New networks of protection need to be developed for people and environmental, natural and social heritage, and especially for jobs in the care sector, through alternative credit systems and finance. Ecological protection, open to global cooperation between movements and communities, would be inspired by principles of care and against increasing inequality and the exploitation of all forms of life. It does not imply egoistic or particularistic protectionism, as seen in the past, but going beyond the particularism that dominates the global neoliberal scene (Lipietz, 2012).

Protecting and sustaining all individuals and activities concerned with taking care of environmental heritage and of persons, on a local basis, can be a new form of universal ecological protectionism, because care of the commons at local level structurally improves care of commons on a planetary scale, unlike what is happening with monetary enrichment where the wealth of a few damages the interests of others, leading to deteriorating of living conditions. In short, we need a new community and territorial agreement for a sustainable post-industrial development, a return to taking care of ourselves, of others and the world we live in, after centuries of delegating "care" to specialists, to women, and to a few volunteers.

With the crisis of the welfare state there are fewer and fewer economic resources even for care specialists and volunteers. "Taking care" (also of our community currency systems) must return to being a continuous common commitment not only for economic reasons but to tackle the environmental and existential problems of advanced capitalist and developing countries alike.

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International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 94-105

FRENCH COMPLEMENTARY CURRENCY SYSTEMS: EXPLORING CONTRIBUTIONS TO PROMOTE SOCIAL CURRENCY IN ARGENTINA

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ABSTRACT

Since 2010 there has been an increasing proliferation of complementary currency systems (CCS) in France and other countries of Europe facing the Euro crisis. These CCS are shaped by the interest in a civic reclaim of the currency and the aspiration for a full-citizenship in which two principles stand out: participation and autonomy. The aims resonated with the expectations of the community currencies in Argentina between 1995 and 2005. This research studied the French CCS with the goal of rethinking the dynamics of social currencies in present Argentina. The study presents a brief overview of the present CCS in Argentina and France, on which fieldwork was done between April and May 2013. Despite differences in the macroeconomic structures and context, the present Argentine CCS may find inspiration in the French experiences, namely the inclusion of various state and financial sector organisations and the strong civic dynamics of the 'consom-acteur'.

ACKNOWLEDGEMENTS

I would like to thank my French colleagues, especially Bruno Theret and Jérôme Blanc, for guiding me through the world of French complementary currencies and with whom we share the interest in the development of social currency in Argentina.

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To cite this article: Orzi, R. (2015) 'French complementary currency systems: exploring contributions to promote social currency in Argentina' *International Journal of Community Currency Research* 19 (D) 94-105 <www.ijccr.net> ISSN 1325-9547

1. INTRODUCTION

In the International Symposium on Social and Complementary currencies in the city of Lyon in 2011, I witnessed the excitement around complementary currencies and the increasing proliferation of these systems in France. During this event I discussed with the organisers and the managers of complementary currency systems (CCS) in France and got information of other experiences around Europe. I became interested in their enthusiasm and particularly in their desire for a civic reclaim of the currency in the context of the euro crisis, as well as in their aspiration for a full-citizenship in which two outspoken principles stand out: participation and autonomy. These resonated with the expectations of the community currencies in Argentina, which I have been studying for a number of years. I subsequently developed a research project to study the French CCS and the objective of finding connections, new dynamics and hints to develop and manage these systems.

There have been complementary currency systems in France since 1994 but, as raised by Blanc and Fare (2012), after 2010 there has been a rapid spread of local currency systems, especially with the new model of 'commercial citizen currencies'. The development of those systems triggers our reflection on the Argentine systems before and after the 2001/2 economic crisis, when a number of CCS grew and later declined in the context of economic demise. The Argentine and French CCS are similar in some respects and different in others, and challenge us to reflect on the aspirations present at the creation of social currencies. This paper aims to analyse some representative present experiences of complementary currencies in France in order to rethink the dynamics of social currencies in Argentina. The latter had a famous peak -still under study- between 1995 and 2002, and after that crisis a few experiences have continued operating to the present. These surviving cases are rich in meaning for the communities that gave birth to them but they have not reached a scale that would make them significant for the development of their local economies or for the creation of an active and full citizenship at a larger scale.

Firstly, I will present a brief overview of the currencies in Argentina at present and then describe a number of French experiences on which I did fieldwork between April and May 2013, thanks to a research exchange grant and the kindness of my French colleagues. The French currencies I will discuss are the SEL, the Experimental SOL, the SOL Violette, L'Accorderie, and the most active group nowadays, the 'new commercial complementary currencies'. Finally, I will present some evidence from the French experiences which may inspire the experiences of social currencies in present Argentina.

This article is one of a series of studies on social currency of a research group at the National University of Luján (UNLu) in the province of Buenos Aires, Argentina, in which I am involved since 2005, and of my PhD project in Economic Anthropology at the University of Buenos Aires. These studies reflect on the characteristics of social currencies and their position in a subsystem of Social and Solidarity Economy (SSE) in Latin American societies.

2. THE ARGENTINE COMMUNITY CURRENCY SYSTEMS, THEIR CRISIS AND REMAINING EXPERIENCES

I have studied the Argentinean experiences that survived the Trueque's crisis of 2001/2 within the research group on social currencies of the National University of Luján since 2005. We address two questions, explored in Orzi (2012) and Plasencia and Orzi (2007). First, what made these experiences resist the macroeconomic crisis in Argentina in the years 2000/01? Second, to what extent are these projects prepared to keep functioning and if so, in what ways do they affect their participants' dispositions to produce, distribute and consume? We have explored these questions in the organizations of Capilla del Monte, Venado Tuerto, Capitán Bermúdez, Mar del Plata, Iruya, General Rodriguez and Moreno.

We currently study the feasibility of coexistence of a complementary currency system with the official currency. We analyse limitations for its development, internal and external tensions, and the features a currency should have in order to meet the needs of a society with a logic that is different from the current commercial-capitalist one, aiming at promoting the transition to 'another economy'. Our idea about building 'another economy' is influenced by the SSE, especially by José Luis Coraggio's work on building another economic system to replace the current one, re-shaping competition among private interests with regards to relations of redistribution, solidarity and reciprocity, and the dominance of a legitimately established common good (Coraggio, 2005). In particular, I have reviewed the link between social currency projects and the SSE logic through a comparative study of the currencies in Capilla del Monte and Venado Tuerto, which provides a relevant background to the present study.

Designing a social currency based on mixing logics of reciprocity and redistribution plays a significant role in going beyond the dominant market logic. It requires thinking of currencies as an element for a transitional configuration which may evolve in different ways in the future. We believe that the emergence of new social movements in recent decades, which includes many social currency systems in Argentina and around the world, can be understood as the beginning of this transitional period (Navarro Marshall, 2008).

In response to heterogeneous paradigms, social currency systems allow us to re-appropriate the deep meaning embedded in its creation and management, to regain autonomy and power according to a new and developing citizenship.

2.1 Overview of the development of social currencies in Argentina

Social currency systems developed in Argentina with the 'mercados de trueque' (exchange markets) in the beginning of 1995. The Trueque was a type of solidarity market with a social currency, started in the mid-1990s and escalated until 2001/02. Their peak was reached during 2000/1, when the middle classes, impoverished by a deep socio-economic crisis, massively turned to these markets (Bombal, 2003). Although no quantitative data is available, estimates suggest that between 2.5 million and up to 6 million people participated in this massive experience (Gómez, 2009; Hintze et al, 2003).

After the economic crisis of 2001/2, only a few groups survived the collapse of the Trueque Global Network and the Trueque Solidarity Network, the two main networks in the country (Hintze et al, 2003). As documented by Abramovich and Vazquez (2003), from mid-2002 onwards, it became difficult to find products like groceries in the Trueque. Inflation became rampant, followed by excess issue of currency that led to higher inflation, while the forgery of currency and the growing public mistrust in the system quickly resulted in the closing of a large number of projects.

Many experiences, however, have survived and until today there are projects that support different technologies and paradigms, and have managed to operate even in periods of sharp growth of the regular economy. These cases indicate that the interpretation that social currencies in Argentina were exclusively counter-cyclical economic systems should be re-examined.

Nowadays there are many trueque markets in various locations around Buenos Aires, which remain from projects of the Trueque Global Network and the Trueque West-Zone Network. There are also numerous independent projects operating with different currencies in Venado Tuerto, Rosario and Capitán Bermúdez (in the Province of Santa Fe), in Capilla del Monte and La Falda (in the Province of Córdoba), as well as those studied by Saiag (2008) in Paraná (Entre Rios), Mar del Plata, Neuquén, San Juan and Mendoza.

Present experiences are small but rich in meaning, regarding their conception as well as the regulations they support. It is on this basis that they have survived and continued the construction of a grassroots or "popular" economy. They belong in an experimental field of new economic practices, in which "new" refers to their autonomy from the capitalist market's logic. Grassroots economic initiatives reveal strategies that arise from need and the desire to build stronger ties among actors participating in a new sociability (Coraggio, 1998; Bombal, 2003). The creation and management of currencies other than the official one represent one of these attempts to go beyond projects that attend only emergency situations.

Various economic events led to the euro crisis and a different development model in Argentina since 2004, and these have led to a present situation in which there is no effervescence of new complementary currency systems in Argentina as it appears to be happening in France. I found several projects in France and focus on their study in the search for ways in which CCS can be dynamically integrated within the possible schemes that sustain the reproduction of life at the grassroots level and the development of a more active and participatory citizenship in today's Argentina.

3 COMPLEMENTARY CURRENCIES IN FRANCE: CHARACTERISTICS, GOVERNANCE AND MANAGEMENT

This section is based on interviews I conducted in Paris during April-May 2013 as a visiting researcher at Université Paris-Dauphine, under the guidance of Dr. Bruno Theret, and as a member of the National University of Luján. Documents and secondary data were also used. During the fieldwork I contacted experts and leaders of the different currencies under study, namely SOL, SOL Violette, SEL and L'Accorderie. I also met experts on the new commercial citizen currencies of the Rhône-Alpes region (Journée ARC8 - Université de Lyon 2), thanks to the kind invitation of Jérôme Blanc and Marie Fare. This paper is not intended to be an comprehensive study of social currencies in France and only covers some of the French complementary currency systems, with a focus on Ile de France, where I was living.

Since 1994 there are various local complementary currency systems in France, the oldest being the SEL (Sisteme d'Échange Local), a local time bank. Only in 2004 a more ambitious social currency project emerged with a top-down structure: the experimental SOL. It developed significantly during 2005-2009 and then repositioned itself due to the emergence of a large number of local citizen currencies which claimed to have a 'bottom-up' structure and aim at promoting local economies.

The new phenomenon of 'commercial citizen currencies' started in 2010. These currencies turned to be, nowadays, the most dynamic in their circulation and their links to local economies in an attempt to overcome the limitations of previous social currencies. These are the SOL Violette, Abeilles, Mesure, and they are convertible to the euro, unlike the previous systems, and are more oriented towards promoting local development. In contrast, L'Accorderie, implemented in France in 2011, is a time-based currency similar to the SEL. They aim at mobilizing individual productive capacities and show a reciprocity logic.

In 2013 there were more than fifteen experiences operating or being formed in France. Since I do not aim to obtain an exhaustive typology, but to study possible contributions to the Argentine experience, I will describe some of these complementary currencies and their structural features. Table 1 summarizes the main characteristics of these currencies.

Table 1. Aims and characteristics of some French CCS

Currency	Goals	Creation and management logics	Main Features
SEL **(1994-present)**	- Create networks based on exchange - Promote local development - Enhance individual skills	Oriented to a reciprocity logic	Time banking system Electronic currency Non-convertible Top-down experience Communitarian
SOL experimental **(2005 to 2009)** **some experiences remain in Bretagne, Rhône Alpes y Nord-Pas-de-Calais**	- Give a social and solidarity dimension to the economy through three aspects: cooperation between SSE enterprises commitment to mutual aid targeted social policies for specific groups using currency	Blended logic, in practice integrates state and market	Multipurpose currency Commercial, time banking system, public policy instrument Currency based on chip card technology Non-convertible Top-down experience Nationwide design
L'Accorderie **(2011 -present)**	- Reduce poverty and improve life quality of members - Construct a new form of collective and solidarity income among the poor, considered unproductive by the formal market	Mainly oriented to reciprocity	Time banking system Electronic currency Non-convertible Top-down experience Communitarian/local
SOL Violette **(2011 - present)**	- Contribute to the development of an economy based on ecological and social values, as well as strengthening regional cooperation through shared values, especially those of the SSE. - Participate in an alternative economy, independent of financial circuits - Facilitate exchanges and create solidarity and cooperation mechanisms among different actors, based on the respect for humans and nature.	Blended Logic, market orientation aiming at local development.	Paper currency Convertible Bottom-up experience Local
Other commercial citizen currencies **(Abeille, Mesure, etc.)**	- Promote sustainable local development	Blended logic with market orientation	Fiat currency Convertible Bottom-up experience Local

3.1- The SEL Project

The SEL (Sistéme d'Échange Local) project was created in 1994 as a multilateral exchange system, working with a time bank technology in which goods, services and knowledge are exchanged. It is a cashless exchange system aiming at generating a network through exchange. It promotes local development and the enhancement of individual capabilities which are not rewarded by the formal market.

The most important concept that guides SEL, perhaps, is the idea of network. Dominique Doré, in an interview on April 22, defined network as: 'An alternative project based on exchange to create social bonds' (Dominique Doré, interview 22/04/2013).

The project's definition of 'alternative' was questioned in a context where most of the currencies studied in France define themselves as complementary: 'Our alternative project is 'to live differently' (from what the formal market proposes) and there is inclusion at the individual level of many 'selistas' in organizations that propose an alternative way of life. This 'live differently' proposal starts by interpenetrating people' (Dominique Doré, interview 22/04/2013).

The SEL is depicted as a system composed by individuals who share values, perceptions and practices, and act outside the dominant model. It is based on the generation of friendship bonds, mutual support, and trust, which resonates with the reciprocity logic and what researchers call 'primitive' currencies or 'paleocurrencies' (Servet, 2012),

currencies in which bonding through exchange was common. In his book 'Les monnaies du lien', Servet (2012) defends the idea that a currency is an essential bond of human communities and have vertical and horizontal dimensions, by which currencies that unite members, organize activities and allow intergenerational affiliation, as well alliances (Servet, 2012).

The SEL is defined as a 'reaction to the current economic system' (Dominique Doré, interview 22/04/2013). Nevertheless, as suggested by Laville, it is necessary to distinguish associations like SEL from social movements: 'Associations do not necessarily pursue long-term changes of the cultural model of a society, but trigger responses to immediate realities. From this point of view, the association must be regarded more as a kind of peace activist than as an actor of social and political confrontation' (Jean-Louis Laville, in Dokhan, 2000).

What is perceived by other organizations as lack of ambition is a natural 'way of life ' for the 'selistas', who interweave friendship bonds and exchanges. Its members find the meaning of the organization in being together, throwing parties, and experiencing the exchanges beyond simply getting what is being traded. For the 'selistas', being together gives meaning to the act of exchange.

3.1.1- General features of the currency

The SEL works as a time bank project in which exchanges are recorded in a notebook in units of working hours; records are now computerized but the papers are kept as resource. It is based on the principle of 'one hour of no matter what, equals one hour of no matter what' (Dominique Doré, interview 22/04/2013), which is a representation of equality, in contrast to the concepts of commodity and hierarchy. The principle is grounded on the idea that every human being has value and is likely to produce 'wealth' for others. No tasks are more or less noble than others.

Considering the currency by its uses, as suggested by Theret (2008), the SEL can be understood as a unit of account and means of exchange. It is not a means of accumulation. Among the 'selistas' there is a strong awareness that relationships are formed in the exchanges and a high negative or positive balance in their notebooks violates the essence of the SEL.

3.1.2- Governance and circulation of SEL

The organization of SEL is horizontal. Each group of 'selistas' is free to organize around their own principles, provided that the general letter of SEL, the 'Spirit of SEL', is respected. This letter results from discussions between the representatives of each SEL, is periodically revised, and is available at: http://selidaire.org/spip/IMG/pdf/bms_avril_2013.pdf.

The SEL circulates within each organization through a bulletin, where offers and demands of each 'selista' are published. There are social gatherings and parties where exchange is the way to meet and interact. The yearbook 2012 estimates that almost 500 groups exist, although in the first half of 2013 the SEL was no longer growing.

3.2 The SOL Project

The SOL project arises from the ideas of Patrick Viveret presented in various conferences and working groups since 1998, and which propose to reconsider the concept of wealth.

The first specific meeting on plural currencies took place in 1999. Representatives of the major organizations of Social Economy in France were invited, among them the Chèque Déjeuner, the Credit Cooperatif, the Maif and the Macif, which were then invited to become partners of the experimental SOL project. Regarding the emergence and meaning of Social and Solidarity Economy in France, Laville (1994) notes that this sector includes associations (cooperatives, mutuals, associations) in which the material interests of capital providers are limited (not necessarily in a nonprofit situation). A number of organisations with both economic and political dimensions were recognised as part of a 'new economy' already in 1960, and the term 'solidarity economy' was used to group them under a common framework (Lévesque et al., 1989). They promoted a better 'quality' of life, as opposed to quantitative growth, as well as the elements of participation in the various spheres of social life, environmental conservation, and changes in the relations between gender and age groups.

Patrick Viveret had always worked with social economy organisations and thought currency was a tool for these organisations to return to their original values, said Celina Whitaker (second interview, April 25, 2013). Patrick Viveret sought to establish a new link between society, state and market, starting from a currency system.

The experimental SOL was implemented with funds of the European Economic Community, which requires the construction of partnerships between contributing actors. The private sector contributed 20% of the total investment and the government, in this case represented by the Regional Councils (Conseils Regionals), a 30% of the total investment. The remaining 50% was provided by the EEC international fund EQUAL. Of almost Euro 2 million in total, the organisations contributed €476,000 and the Regional Councils, €495,000 (figures provided by Celina Withaker on April 25, 2013).

3.2.1- General characteristics of the currency

The experimental SOL combined social, economic and environmental objectives and used an innovative monetary support: a chip card. The pilot project was developed between 2005 and 2009. Information on this scheme is available on www.sol-reseau.coop.

This new social currency had over 1000 members and nearly 100 borrowers in 2011 and was tested in three regions: Île de France, Nord-Pas-de-Calais, and Brittany. Other regions were added later, even after the experimen-

tal SOL scheme was finished, as was the case of Toulouse, now successfully working with SOL Violette.

The SOL began in 2003 as a 'boîte outil', a toolbox with two main axes. One axis was centred on the market and used a currency to promote 'another' way of exchange, the SOL Cooperation. Similar to a loyalty card structure, it was organized with companies which respected ecological and social values and which adhered to sustainable development. The system aimed at developing a more active consumer -(a 'consom'acteur') or consumer-actor-, which means that a consumer is able to take responsible choices on what to consume. The second axis of SOL was centred on valuation, a supportive/ecological component which functioned as a time bank system, the SOL Temps/ Engagement. It allowed non-monetary exchanges to value services offered within a territory in working hours, as in a time bank, and aimed at developing individuals' potential for exchange and for rediscovering their capabilities, as well as providing highly social and eco-friendly services. A variation on this axis was the SOL Affecté, which was presented as a social policy in which local communities, work councils, and other social policies' agencies distributed social currencies in accordance with the aims of SOL. It functioned with vulnerable families, which were selected to receive SOLES every month in order to include them in the currency circuit. These components of the SOL were presented on a single card. There was no convertibility among them, although conversion was the target in the medium-run.

The currency entered the circuit through its distribution by borrowers (SOL Cooperation) or public agencies (SOL Affecté). The chip-card innovation was not very successful as a monetary instrument, since it could not be used by all providers, especially the smallest ones. The SOL had a collateral reserve in euros.

3.2.2- SOLES governance

Unlike other complementary currencies, the SOL was a 'top-down' experience, centralized at the national level for both the regional councils and the social economy organisations involved in the project.

At the local level the Sol Experimental pursued participatory management, so it involved local associations that represented participating groups at the national SOL association (associations of founders, stakeholders and local groups involved in the project, as well as individual participants) (Fare, 2012).

At the same time, the SOL was part of a national organization - the ' SOL Mouvement ' – which was created in 2005 to ensure the project's continuity after the termination of the financial support by the EQUAL program. The national organization's function was to promote policy guidelines and to encourage discussions among stakeholders, aiming at forming a collective movement. The SOL Violette, very active nowadays in the region of Toulouse, is part of this organization.

3.2.3- The SOL today

During the pilot program the only system that effectively worked was the SOL Cooperation, the loyalty card, which represented the interests of participating social economy companies. The SOL Engagement had barely worked by the end of the experimental period and only in specific municipalities. It was linked to the SOL Cooperation to allow for an equivalent transformation of working hours into SOLES, so participants could then buy in the associated enterprises.

These difficulties were the result of the resistance of participating social economy companies to implement innovations that could lead to legal problems; the law, for instance, could consider the working hours of SOL Engagement as informal work. However, at a later stage the method was implemented by SOL Violette in Toulouse without any legal problems. In turn, 'the large social economy firms took a long time to understand the need to do something different", explained Celina Whitaker (first interview 12/04/2013).

Upon completion of the pilot project, some components remained active in Brittany, Ile de France, and Port of Calais. In Grenoble and Toulouse the projects survived the experimental period and had more leeway to work with the currency.

In 2010 the organizations of Villeneuve-sur-Lot said they were unable to work with the electronic card because users and borrowers did not have the means to do so. They decided to work with paper currency instead and created the Abeille, starting the disintegration period of the Experimental SOL. The creation of paper currency was also considered unsafe by the traditional social economy organisations, again for fear of being in a grey area in relation to the law; this left the regional partners little room to maneuver.

Meanwhile, other currencies were developed based on the experience of Villeneuve-sur-Lot, which has similar characteristics to the Chiemgauer and even served as its model. The Chiemgauer is a German complementary currency with demurrage created in the region of Bavaria in 2003. It was developed by Cristian Gellerint, teacher of a 'Waldorf school', which followed the ideas proposed by Rudolf Steiner. It is a paper currency convertible to the euro in a one-to-one rate, with the primary objective of promoting sustainable local development and streamlining and strengthening solidarity links between the various local stakeholders through exchange.

In 2011, in a context of strong development of complementary currencies in Europe, the SOL Violette was launched in the city of Toulouse as a paper currency following the Chiemgauer model. This system developed after a year of debates to agree upon its operation, highlighting the role of the consumer through slogans that renewed their political commitment, like 'shopping is a political act' and 'the use of your wallet is your vote'. The integration of the Toulouse regional government into the project, supporting and en-

dorsing the issuance with collateral in euros, was crucial to the development of this new currency.

Today the SOL system is developed with a currency that claims to have been created 'from below' –the SOL Violette- although there are still some remaining experiences working with SOL Experimental in Lile, Boulogne Sur Mer and Grenoble. At the national level, initiatives are grouped into the SOL Movement, which describes itself as a collective movement and seeks to create links between different currencies.

3.3- L'Accorderie

L'Accorderie is a complementary social currency with a time bank system. It has been developed in Quebec since 2000, as a partnership of two SSE organizations - the Solidarity Economy Caisse Desjardins and the Foundation St-Roch de Quebec. It was designed to reduce the lack of cash of low-income sectors and to secure access to basic services. L'Accorderie is a top-down experience, similar to the experimental SOL.

The present paper will not focus on the development of this currency in Quebec (see Fare, 2011), but on its process in France, especially in its project on District No. 19 in Paris, which I visited several times. The organization is defined by one of its managers in District No. 19 as: 'A system to exchanges services in which the currency is time' (Laetitia Jacob, interview April 9, 2013). The leader argues that the organization follows the principles of the Quebecois L' Accorderie, and reaffirms that they do not do charity because 'one hour of service performed equals one hour of service received' (Laetitia Jacob, interview April 9 2013). The principles and values representing them are solidarity, equality and mutual aid.

The organization in France originated from the partnership of Macif Foundation and the organization Ville de Paris. The latter supports L'Accorderie financially by paying wages, which represent around 75% of the total expenditure, and the rent. The objectives of L'Accorderie, according to the interview with Laetitia, are poverty reduction and the improvement in the quality of life. Based on the proposal of an alternative economic system, it also aims at promoting a new form of collective wealth and solidarity among the poorest citizens, who are considered unproductive by the formal market.

To meet these objectives, L'Accorderie includes three main methodologies: an exchange system based on time, a system of solidarity loans, and a solidarity bulk purchase system. Of these three, by the first half of 2013 the first one was functioning and the other two were still in a design phase.

The organization follows a mixed logics model, typical of solidarity economy organizations, in which logics of reciprocity, redistribution and market are mixed. In this case, similar to the SEL, the reciprocity logic takes priority. Perhaps one of its most important differences in comparison to the Sistèmes d'Échange Locales (SELs), usually formed by middle class members, is the pursuit of a social mix and the focus on the unemployed and marginalized.

3.3.1- General characteristics of the currency

L'Accorderie functions as a time bank system for the exchange of personal services. It is guided by a principle of equality similar to the SEL, where one hour of work equals one hour of somebody else's work, no matter the required competencies. The exchange is not valued in euros, but time is maintained as the unit of account, although this form of measuring presents certain difficulties for exchanging goods. When a service requires raw material, this is settled in euros and then the service is accounted for in hours.

3.3.2- Currency circulation

The conditions of issue and circulation of the currency are the same as in a bank: each 'accordeur' has a time account in which debits and credits are calculated. Transactions are recorded through the 'Chèque Temps', which is then kept as background information.

The records of exchanges and the accounts' management are computerized and centralized in L'Accorderie. The issuance of currency is automatic and free, since it functions as a mutual credit currency similar to the SEL. The currency circulates among members in a closed system.

3.3.3 Organization's governance

The Macif Foundation and the Ville de Paris decide where and how L'Accorderie is established. District No. 19, for instance, was selected because of the concentration of low-income households with a high unemployment rate and a broad social and cultural mix. In turn, a local steering committee takes technical and operational decisions. The committee meets once a week and is formed by local partners such as representatives of the working committees of L'Accorderie, its employees, and other stakeholders from the district's administration.

L'Accorderie is in a process of continuous growth. To the projects of District No. 19 and Chambery en Rhone Alpes, new 'accorderies' were launched in Pays Diois and Paris Grand Belleville, and in Districts No. 18 and No. 14, which amounts to six projects.

3.4- The new commercial citizen currencies

The 'new commercial citizen currencies' show an interesting dynamic and their main goal is to promote local development. They differ from other systems as SOL and L'Accorderie for being bottom-up experiences, and they are also a response to the complex organizational and partner-based structures of the experimental SOL project. To analyze these I base my research on documents reviewed by Blanc and Fare (2011 and 2012) and an observation made in the Journée ARC8 in Lyon on April 16, 2013.

They are small experiences, so far, that do not exceed an average of 150 active members, with the exception of SOL

Violette that reached an average of 600 members and 100 borrowers (Blanc and Fare, 2012).

They differ from SOL, SEL and L'Accorderie, for their trade orientation and for being backed by fiat currency which is convertible to the euro. Nevertheless, they resemble the dynamics of SEL in its decentralized development, with a strong participatory practice. At an international level, Blanc and Fare (2012) suggest a similarity of these currencies to the German Chiemgauer.

Since these are citizen currencies created around mixed logics of reciprocity and market, they face continuous tensions between the goal of quickly streamlining local exchanges to achieve greater local development and keeping its ethical project, which are the values decided by the project's members in a participatory manner. The so-called 'chartes et comites de agreement' try to soften this tension. In these committees, the different currency groups establish their principles, their 'ethical projects' (Blanc and Fare, 2012), to which borrowers must adhere. The committees integrate retailers and producers and allow borrowers to gradually steer the principles ruling each currency. 'A tension arises between the temptation or the need to strongly and quickly extend users' network and the value system at the core of the project', note Blanc and Fare (2012, own translation).

The experiences of L'Abeille in Villeneuve-sur-Lot, the Occitan in Pézenas, La Mesure in Romans - Bourg de Péage, the SOL Violette in Toulouse, and several others share the philosophy of these 'new commercial citizen currencies'. Due to space limitations, I will describe only the experience of SOL Violette, which maintains some principles of the experimental Sol but claims a 'bottom-up' configuration along the lines of the 'new commercial citizen currencies', as well as convertibility to the euro.

3.4.1 The SOL Violette

Following the ideas proposed by Frederic Forest and with strong support from the Toulouse Municipality, the SOL Violette emerged as a response to internal tensions that arose between the partners of the Experimental SOL. The SOL Violette was developed through a dynamic participatory process, which took over a year, emerging then as a paper currency with a Gesellian demurrage system.

The currency objectives are to contribute to the development of an economy based on ecological and social principles and to strengthen regional cooperation based on shared values, especially those of the SSE. It also seeks to be part of an alternative economy, independent of financial circuits, and to facilitate exchanges and create mechanisms of solidarity and cooperation between different stakeholders based on respect for man and nature.

As the other commercial citizen currencies, this has parity and convertibility to the euro. It has a much less expensive operating system than the experimental SOL. SOL Violette counted with strong governmental support given to Jean-Paul Plá, the SSE delegate of Toulouse Municipality, which contributed the reserve of the currency in euros. This support allowed the project to start with a relatively high level of associated companies, reaching about one hundred in 2013. Celina Whitaker explains that 'the currency has two strong dynamics: the citizen line, that was built along a year of debates and allowed the appropriation of knowledge by individuals and Solidarity Economy companies, and the economic dynamics based on local development' (Celina Whitaker, interview 12/04/2013).

3.4.1.1- General characteristics of the currency and its market

The SOL Violette is fiat currency that circulates within the local economy. By using the technology of monetary demurrage, the currency loses its value if it has not circulated within three months. This mechanism, which is similar to the Chiemgauer, allows registering the dates of exchange, and if the currency does not circulate, it loses its value. As an innovation, it brings a system of bubbles for recording exchanges in the back of the bill. This is the largest experience of this new generation of currencies. In terms of circulation velocity, there are estimates of turnover rates of about 2.5 times per bill, much higher than the euro.

The SOL Violette is also used as an instrument of public policy by the municipality, which has established a welfare support system based on the currency in four low-income neighbourhoods of Toulouse. The system is simple: 30 unemployed families are granted 30 SOLES a month to increase their purchasing power and to get integrated into the project.

The currency works with two banks responsible for the issuing of SOLES and its exchange to euros: the Crédit Cooperatif and the Crédit Municipal. To date, some fees and expenses can be paid with the complementary currency. The participation of two recognized cooperative banks in the project strengthens the hierarchical trust in the currency, but hinders the empowerment of civil society organisations in the issue and management of the currency.

4- POSSIBLE PATHS FOR SOCIAL CURRENCIES IN TODAY'S ARGENTINA

This section discusses some hints for the recreation of social currencies in present Argentina. They were highly developed during 1995-2002 but lost their significance in the present, as noted above. The assumption is that social currencies can play an important role in local development and support their transition 'from the local' to the meso-economic level. I refer to hints in the sense used by Cris Fernandez Andrada (2007).

The currency is a prerequisite for moving towards 'another economy', because a transitional economy that uses the official currency for its exchanges carries a contradiction reproduced in each exchange. The official currency perpetuates the capitalist logic because it reproduces the principles of accumulation and continuous growth, the prevalence of competition over the logics of cooperation and the

conception of society as the sum of individuals governed by their personal ambition (Lietaer, 2005). Social currencies and the SSE reject these principles outright, because there is a need to work with a currency that does not reproduce the foundations of a capitalist society in each transaction.

4.1- The mixed dynamics of currencies

The most important hints can be found in the experiences of the experimental Sol and the 'new commercial citizen currencies'. Both systems present more complex relational logics than their Argentinean counterparts.

The present experiences of social currency in Argentina after the crisis of the Trueque in 2001/2 have regained the clear reciprocity logics. They show a tendency to work in closed markets, similar to the SEL and L'Accorderie, which makes it difficult to incorporate stakeholders with mixed logics. As suggested by Laville (1994), however, social currency experiences are comparable to other SSE schemes in the use of mixed logics in their design and management. Recovering their richness will allow social currency to take back its place alongside the emerging SSE subsystems.

In this sense, both the 'new commercial citizen currencies' and the experimental SOL, provide some hints to enrich the Argentine schemes. In other words, the Argentine social currencies could resort to partnerships with other actors, incorporate local suppliers tuned with SSE principles like the 'letters and agreement committees', develop public policies that use social currency for reintegrating the excluded back to the system, and conceive tools to boost the local economy through the payment of a percentage of taxes in local currency.

4.2- Trust in the currency

For Aglietta and Orléan (1998, 2002) the concept of trust in the currency is essential in a monetary system that is based on the axis debt-sovereignty-trust. Trust in the currency is what validates its authority. Users know the currency's authority by trusting the currency as an open attitude to the others' word, as an expectation and a promise. 'The currency becomes a common value through each one's trust', according to Aglietta and Orlean (1998, own translation).

Trust in the currency has multiple meanings. According to Aglietta, these can be grouped in three types of trust, which interact with each other: the hierarchical trust, the methodical trust and the ethical trust. In this approach, currencies become a cohesive social bond of society, with a function of intermediation and regulator of debts, and a relation to sovereignty and trust which allows for society's reproduction.

In the current monetary practices in Argentina, trust in the currency is based exclusively on the continued involvement of its charismatic leaders, who sustain these currencies' values, and control issue and pricing. In the experience of SOL Violette, hierarchical and ethical trust is built by the same organizations which created the system. Toulouse municipality guarantees the reserve of SOLES in euros, while the banks (Crédit Mutuel and Crédit Cooperatif) control the currency's circulation and are responsible for the issue.

This strong hierarchical trust configuration, based on institutions recognized by the formal system of values, is arduous and contradictory but also facilitates the development of more dynamic relationships with SSE structures working for local and meso-economic development and for moving forward to a civic appropriation of the currency.

4.3- Methods of issuance and circulation

As explained above, in the experiences of social currency in present Argentina, the issue, circulation and price control are in the hands of charismatic leaders who, in general, are also the system creators. These currencies have some parity with the Argentinian 'peso' but are non-convertible (Orzi, 2012). Two important differences to re-introduce social currencies in SSE structures in Argentina are the link to cooperative and mutual banks for the issue and control of currency circulation, and the convertibility of commercial citizen currencies into euros –like the SOL Violette-

4.4- Governance

The key feature of social currency experiences in Argentina was their nature 'from below'. They were created by local communities seeking to meet their most basic needs, and trying to find alternatives to the official monopoly of currency issue held by commercial banks and the Central Bank, whose logic favours the better-off sectors of the population. Among the complementary currencies in France, there was a similar bottom-up development after the limited results of the experimental SOL. Participating in a currency creation, from designing its ethical principles to its start-up and management, certainly allows a more significant ownership of the new system by the members of a local community, considering the trust dimensions discussed above. Nevertheless, the partnership structure as a way of currency management seen both in the experimental SOL and the SOL Violette can be inspiring in terms of monetary systems' organization.

4.4.1- Partner-based structures as a European Economic Community policy

According to Morata (2007), the principle of partnership is one of the key instruments of governance for the European Economic Community (EEC) in the field of economic and social cohesion since 1988. It is inspired by the goal of building strong cooperation bonds between different stakeholders - public actors, economic sectors and social partners- through the creation of public policy networks. It aims at integrating the different levels of government and the public and private stakeholders in the development of various governmental policies. The partnership policy aims at building cohesion, from which interdependencies are created among the various levels and actors to promote ideas, interests, knowledge, and resources sharing. This is

done in order to diagnose problems and implement solutions in a participatory manner. According to the EEC, EQUAL was established as a laboratory of ideas to create jobs and curve social exclusion. Its mission is to promote a more inclusive social life, fighting all forms of discrimination and exclusion (Morata, 2007).

Overall, a cooperative type of governance is fostered while attempting to strengthen the association through the institutionalization of active participation, based on enhancing the action capacity of all stakeholders -including beneficiaries- associating them on equal terms.

This strategy poses significant organizational and management challenges for the organizations involved, since it requires, at the same time, an internal adaptation of the operational methods (transversality) and a capacity to manage the relationships between the various public and private stakeholders (network). The experimental SOL was based on this type of partnership structure, conformed by EQUAL during 2005/9. In that period, the first months of the project were allotted to the partnership's creation and consolidation. This included the Regional Councils, the nation's leading SSE companies (Chèque Dejeuner, Credit Cooperatif, Maif and Macif), and the citizens of these regions who were benefiting from the program.

In the case of experimental SOL, the aims of the partnerships were very different, with little room for negotiation. From the beginning, a business logic was strongly imposed to the SSE organizations. These, facing the challenges of creating and managing a currency which presented itself as 'alternative', preferred to stick to their interests by only promoting the loyalty card (SOL Coopération), leaving the SOL Engagement and SOL Affecté behind and invoking potential legal problems in their implementation. 'In the case of the experimental SOL, the partnership structure was not successful because of the different objectives of the various stakeholders. There was no a real partnership, but a group of funders', explained Celina Whitaker (04/25/2013).

Beyond questioning the very idea of partnership, the real challenge is to assess the extent to which the cooperative governance approach is able to influence the traditional logic guiding the stakeholders' behaviour at the three levels: state, enterprises and civil society. In this sense, the idea of partnership is attractive because it converges with many of the principles of the SSE: it is based on mixed logics and assumes the interaction between state, market and grassroots economy as part of the establishment of an SSE subsystem that coexists with these stakeholders.

4.5- The 'prosumer' and 'comsom-acteur'

In the process of creating monetary systems, new expressions were born, both in Argentina and in France, to name the 'new citizens' proposing social currency systems. In Argentina, especially during the period of the large Trueque networks (1995/2002), the expression 'prosumidor' was adopted. Its meaning expresses the possibility that consumers may recover their productive capacities, considering that reemployment in the formal market would be difficult, and focus more on the micro level of production and exchange than on getting a formal waged job.

In France, the new way of naming citizens of experimental SOL was 'consom-acteur': a consumer who, by using its purchasing power, could make a difference by guiding its consumption towards sustainable and environmentally healthy products. This vision promotes the integration with SSE French companies, and the development of a participatory democracy which is in a very early stage of development in Argentina.

The experience of SOL Violette in Toulouse, similar to most of the commercial citizen currencies, brings a collective construction between community, enterprises and government, which promotes the development of a stronger local participatory democracy.

4.6- The role of the state

The state has played a prominent role in the development of complementary currencies in France. This can be seen both in the currencies which are supported by various forms of governmental funding or governance, and in the strong regulations remaining in the European welfare state.

These regulatory policies are expressed in two ways. Firstly, in the defence of employees' rights, who enjoy extensive unemployment insurance with no ending date and that can be considered a minimum wage in Euros. Social security subsidies are maintained for a year with a similar salary level as before unemployment and after that, they gradually decline until they reaches the minimum of €450 as long as the unemployed worker searches for a job. The welfare state is also present in the tight control of all forms of unregistered work. Of course, this implies some constraints, especially significant in terms of change and transformation.

The situation in Argentina at the time of the rise of the large Trueque networks (1995-2002) was the opposite: the state was absent in an economy that was left to the practice of pure economic liberalism. This condition led to the crisis but at the same time, its anomie allowed the development of important social currency systems without policy intervention.

I also noticed a few contradictions during fieldwork. In the case of the experimental Sol, for instance, the partnership policy proposed by the European Economic Commission was inconsistent with the justification used by SSE traditional enterprises, which feared breaking national laws. This was the reason for the poor performance of SOL Engagement system, which could have been misinterpreted as a variation of unregistered work. The same happened with the system's support of fiat currency, although this issue was smoothly solved by SOL Violette later on.

The same fear of change and new possible structures in a world that creates both exclusion and economic growth is

the fear that arose in discussions with labour unions, who withdrew from the project. These unions believed that if regional governments were to provide funds for social support in the form of complementary currency (SOL Affecté), this could have cost the loss of some of the rights and benefits earned by employees. This does not advocate for a revision of workers' rights in relation to the excluded from the system, often called 'unemployables', but for considering the situation of the excluded and their relationship to 'new forms of unpaid labour' in the formulation and management of public policies. This would be valid for both countries with a high level of social support as well as for those which do not reach a minimal protection of workers' rights.

Furthermore, the support given to create the currency systems by regional governments, as in the case of Toulouse with SOL Violette, has been conducive to the development of the complementary currency, despite the problems it also created.

5 LIMITS AND TENSIONS OF SOCIAL CURRENCIES IN FRANCE AND ARGENTINA

Regardless the different macroeconomic structures, context, and development, several limitations and tensions affect the currency projects in both countries, being unresolved issues in the implementation of the complementary/ alternative monetary systems studied.

The future viability of social currency experiences depends on the ability to move from the local to the meso-economic level, a level of association between the different micro-economic units. Here I refer to the integration of social currency experiences into networks, to allow circulation beyond the local level. Currently these experiences circulate within local territories and focus on local development. This could be a limitation of these practices, which have not yet positioned themselves in a broader framework of development that could serve as a basis for collective action, aiming at sub regional and regional integration. The development of the 'commercial citizen currencies', however, makes a move towards this direction, since these currencies need strong networks for their future sustainability. This step forward can be perceived in the agendas of meetings and conferences on complementary currencies, which include discussions on the interconnection between systems. As examples we have the relationship with government, the drafting of a charter of principles common to the different currencies, and the possibility of convertibility between currencies.

5.1- The difficulty of not using money as capital

The studied experiences promote the circulation of currency and discourage hoarding. There is no secondary circulation of money, and no credit or microcredit systems in complementary currencies. The decision of not providing credit has advantages and limitations: in the short term, it makes it easier to move away from the market logic of the currency, favouring monetary circulation among low-income sectors, where it is always scarce. Over the medium term, however, it creates difficulties in obtaining cash to purchase tools and equipment because their acquisition requires hoarding or credit; especially if one does not want to operate in continuous interference with the official currency's logic.

5.2- Tensions between collective strategy and individual project

These previously reviewed tensions, although part of the process of all complementary and alternative currencies, challenge nonetheless the future sustainability of these systems. They have a significant analogy with the conflicting relationship between autonomy and solidarity: as we do not exist independently of our environment, autonomy is always relative; it is 'autonomy in the heteronomy' or 'dependent autonomy', as Morin (2002) states. This reintroduction of human limitation matches with Hinkelammert's need of utopia as a horizon to build on these tensions.

6 CONCLUSION: IS THERE A PLACE FOR SOCIAL CURRENCY IN THE CURRENT CAPITALIST SYSTEM?

History gives us evidence of the low sustainability of social complementary currencies within the capitalist market system. As suggested by Schuldt (1997), the complementary currencies that were successful in enabling the local survival of a general economic crisis have been absorbed by the official currency after overcoming the crisis. This happened through the direct intervention of the central banks in these countries, which perceived that the sovereignty over the currency and the monopoly on its issuance was being endangered.

Designing a social currency to promote a 'new economy' requires thinking of it as one element in a transition and within a transitional configuration which may evolve in different ways into a future 'new economy'. With heterogeneous paradigms, social currency systems allow us to reappropriate the deep meaning embedded in their creation and management: the recovery of autonomy and power, according to a new citizenship under construction.

In this sense, the tools identified in the study of complementary currencies in France allow us to explore new ways of promoting social currencies in current Argentina. These currencies persist in building experiences that work with mixed logics and include various stakeholders –citizens, enterprises and state-, the partnership structure of some organizations, the direct participation of different organizations within the state and the financial sector in the creation and management of the currency, and the strong civic dynamics of the 'consom-acteur', among others.

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International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 106-113

THE FINANCING OF COMPLEMENTARY CURRENCIES: PROBLEMS AND PERSPECTIVES

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ABSTRACT

Costs and cost coverage of complementary currencies has been neglected by researchers so far. This article provides an analysis of the different types of costs incurred and asks for appropriate means of financing such projects. External public and private sources are discussed in a critical manner. Self-financing appears to be a viable alternative; however, considering overall transaction costs, the burden to be carried by participants is considered to be a significant constraint with regard to this source. In the final part the question is discussed whether and how it can be possible to finance regional currencies that would have a significant economic impact. A scenario illustrates the potential of this feature with regard to the construction of new types of systems.

ACKNOWLEDGEMENTS

This is a revised version of a paper presented at the 2nd International Conference on Complementary Currency Systems (CCS) in Den Haag, 19-23 June 2013. The author acknowledges contributions made on that occasion. The author also thanks two anonymous reviewers for their valuable comments.

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To cite this article: Schroeder, R. (2015) 'The Financing of Complementary Currencies: Problems and Perspectives' International Journal of Community Currency Research 19 (D) 106-113 <www.ijccr.net> ISSN 1325-9547

1. INTRODUCTION

The financing of complementary currencies has only become a prominent issue in the recent past. Blanc and Fare (2013: 68-70) show that third- and fourth-generation systems can only prosper in close cooperation with local governments and administrations and with financial backing from a variety of different sources. Kennedy, Lietaer and Rogers (2012) describe a number of examples of such currencies. In order to become a partner of institutional actors in the social sector or the business community they ought to have professional management, normally paid staff. With a few exceptions such systems have not mushroomed so far. The bulk of all complementary or community currencies are first-generation systems (Seyfang and Longhurst 2013). Many of these were designed on the basis of the LETS model, but focus on private-to-private exchanges and, in contrast to the original LETS, use time as a measure of value. The author of this paper worked for such an organisation. This experience provided some of the motivation to write this contribution.

This article investigates the nature of this problem and discusses possible solutions. More specifically, the following questions are dealt with: What do cost structures of complementary currencies look like and how is it possible to match these requirements with appropriate financial schemes? These questions will be answered in three steps: The following section provides an overview of the "experiences" in different kinds of alternative currency systems. This forms a basis for the "analysis" of the different types of costs incurred in the third section. The first part of section 4, titled "perspectives", critically appraises conventional solutions, i.e. the different forms of external financing. Is it really possible to create complementary currency systems that will constitute a viable economic alternative? The author presents a possibility in the form of a scenario.

The findings of this paper are not based on a distinctive and original empirical survey. Instead, the author assembled data published about different types of systems and, in addition, made use of "grey" literature, i. e. documents produced by different complementary currency systems. This provides the basis for an understanding of the costs incurred or, to put it more generally, the effort necessary to launch and maintain trading in such systems. The material is structured by applying methods used in accounting and finance. This contribution should be considered as a first approximation to this issue. The empirical basis is still too thin to draw definite conclusions. The wide-angle approach pursued here, i.e. the comparison of the financial requirements of different types of systems means that some aspects are not discussed in detail.

2. ANALYSIS

2.1 Organisational characteristics of first generation systems

The author participated in the organisational work of a German Tauschring (founded in 1995) during the years from 2000 to 2006. Most of this was unpaid work with a small remuneration in "Talents" covered by member fees. It might be questioned whether such a contribution to the organisation of a "social club" (Schroeder 2002: 9) can really be considered as "work". According to the ruling concept of economic rationality activities are either costs or benefits, a concept which is of very limited use in this context. Sometimes the "job" was very remunerating, sometimes it meant hard work. The principal lesson of this experience was that the quantity and quality of work necessary not just to launch such an organisation, but to keep it going is quite substantial. Of course, it should be critically assessed whether this personal account of the author is representative. At least, there is some evidence from activists of similar organisations (see Hood 1998: for instance 117 about a French SEL) that points in the same direction.

This kind of experience has not been adequately reflected in the academic literature. (For a systematic analysis of the empirical literature on the basis of 201 contributions see Schroeder, Miyazaki, Fare 2011: 38.) Usually, empirical studies ignore this aspect completely. North touches on the issue and concludes that "a fairly complex organisation was required to keep the LETS system in operation. Organising Manchester LETS involved some forty people and some 150 hours of work every two months. Members were paid six Bobbins an hour for administrative tasks ..." (North 2006: 67). This observation does not reflect the dynamic character of such organisations. They have to adapt themselves to new challenges. Bad debts, for instance, were not considered to be a problem in the beginning, later this changed and many of these organisations modified their accounting procedures to monitor this issue. New members might join the team and come up with new ideas. Maybe, they propose to implement new technologies, which might be the beginning of an interesting, but laborious process. Conflicts among organisers which have to be resolved are another example, certainly, not a pleasant part of any work. (This aspect has been neglected by researchers so far; see in this context Hood, 1998: 86f, 117.) All this is certainly not only a matter of how to organise structures and procedures in an efficient manner; it is, first of all, a question of adequate resources.

Many of the small community currencies, most of them being founded before the turn of the century, face the dilemma that they already need a relatively complex organisational structure, but lack appropriate resources. The desire of many activists to maintain their autonomy hinders them from asking for public support (for the French SEL see Lenzi 2006: 263, quoted in Blanc, Fare 2013: 73). In recent years many of these systems were in decline (Seyfang and Longhurst 2013), but, the author of this paper has the impression that, at least in Germany, this trend has come to a halt. It would require relatively small amounts of public subsidies to update the techniques to run these very small-scale systems – to develop, for instance, appropriate software and new manuals or to clarify certain legal issues (Schroeder 2007).

2.2. Complementary currencies as economic alternatives – early attempts

A major motivation for Michael Linton in founding LETS (perhaps the most successful blueprint in this field) in 1983 was to provide an alternative for a local business community. Later Linton dissociated himself from the small LETS schemes which had mushroomed in Britain in the early nineties. In 1994, he used an inheritance to provide the start-up capital for LETSGo. Here, he tried to involve large-scale businesses. The venture failed (see North 2006: 68-72). Other experiments to build up an economic alternative on the basis of the LETS model shared the same fate (see for instance i. r. o. New Zealand North 2007: 126-148, i.r.o. Australia Williams 1997, i.r.o. a German Tauschring in Freiburg Betz 2000). However, the reservation must be made, that a number of factors may have contributed to the breakdown of these projects.

Ithaca Hours, founded in upstate New York in 1991 departed from the concept of book money and issued its own paper currency. This facilitated payment processes. In addition, the pictures of "alternative money" might have contributed to the popularity of the scheme. However, it did not prove to be a successful blueprint for other initiatives of that kind (see Collom 2005). A case study written by Kirschner, a former organiser of such a scheme provides interesting evidence: She concludes that although the "lack of success (was supposed) to be some combination of organizational factors in fact all the struggles with staffing, funding, circulation, and membership all stemmed from how the currency was put into circulation" (Kirschner 2011: 53). One of the "lessons learned" is: "Paper currencies are expensive and hard to administer" (Kirschner 2011: 54).

Another example of systems that issued printed notes are the Argentine Trueque organisations. They are the only complementary currencies which were of economic importance at least for a short period of time. After the established capitalist economy had crashed about 2.5 million participants took part in these alternative trading markets. This figure was recorded in the first half of 2002, it had dropped dramatically already by 2003 to a level of 250,000 members (Gómez 2009: 107). The reasons for this failure has been researched in great detail by Gómez (2009: for a summary see 188). One aspect was that overall costs were not adequately covered. Beside expenditures for organisation Gómez mentions in this context the loss of trust due to large scale forgery of créditos, the cash notes issued in particular by the largest network, Red Global de Trueque (RGT). Other networks and the smaller local groups had more efficient administrative structures to cope with this problem. Apart from qualitative issues like adequate forms of governance it is noteworthy that the cash flow structure in particular of the RGT was completely inadequate. Income was generated mainly through seigniorage, i. e. the difference between the costs of producing credit notes and the higher price charged for selling them to members (Gómez 2009: 140f, also 135). This income accrued when new members joined the organisation, in particular during the upsurge of the movement from the end of 2001 until mid 2003. However, a large part of these revenues were not invested to strengthen the organisation, but distributed among participants in goods and services (Gómez 2009: 141). Later, this source ran dry. A demurrage, a fee for holders of cash was introduced, but it proved to be too complicated and did not compensate the losses (Gómez 2009: 137). The basic structural problem of Trueque was already evident back in the nineties. "As new and unknown participants joined, the costs of running the system started to rise" (Gómez 2009: 89). The initial structure did not provide the base to develop an administration that could keep pace with a fast growing organisation.

2.3. Regional currencies – a fresh start in the 21st century

In 2004 Kennedy and Lietaer published an outline for new regional currencies in German. They considered it to be necessary to reach a size in the range of between 10,000 and 1 Million participants (Kennedy and Lietaer 2004: 77). The most successful organisation of this type in Germany is the Chiemgauer. After almost ten years this network had, at the end of the year 2012, 3,454 members. The organisation depends mainly on voluntary work (65%) and donations (5%). Paid services of the Chiemgauer co-operative only yield 30% of the income. Subsidies have never been an important source of income, in recent years they did not play any role at all (see Chiemgauer-Statistik 2003 - 2012 (as at 1.1.2013) by C. Gelleri for the Chiemgauer e. V.– http://www.chiemgauer.info/uploads/media/Chiemgauer-Statistik_01.pdf (retrieved 18.3.2013)). Compared to other experiments the Chiemgauer was quite successful.

This may also be explained by the fact that it departed from the principle of non-convertibility as applied in closed systems like LETS or the Swiss WIR Bank (Gelleri 2009: 66f). Generally, the latter systems face the problem that the relation between supply and demand tends to be unbalanced (see for instance Hubert 2004: 43-145 in her analysis of the German Tauschrings). This implies that a) for participants with a surplus the temptation is to break the rules and convert their credits into ordinary currency (see in respect of the Swiss WIR system Lautner 1964: 53 and Heim 2003), b) participants with a notorious deficit cause a bad debt problem (see Jackson 1997 about the failure of Australian LETS). Bad debts as well as the management of this problem are significant cost factors. For the Chiemgauer this is not an issue. Consumers acquire regional money against Euro currency which flows into a fund that guarantees the credibility of the system. Business people can, against a fee, change the regional money back into Euro currency. Gelleri himself considers the Chiemgauer as a first step to create regional cycles (Gelleri 2009). However, it appears that this type of a complementary currency facilitates the development of trading chains but not of trading cycles.

The Chiemgauer operates in an area which is rather wealthy (Thiel 2011: 253; Gelleri himself, 2009: 66, emphasizes to “choose a town or municipality with optimal preconditions” for projects). Other Regiogeld systems in

Germany tried to implement economic circuits by giving private participants the possibility to earn credits (see for instance Jansky 2009; with regard to the "challenge of re-circulation" see also North 2010: 137). Such systems are not based on the value of the Euro, but on the services provided by their members. They are more complex and it appears, that it is more costly to administer them.

After about ten years of development the Regiogeld movement is far from its objective to provide a substantial economic alternative (as claimed by Kennedy and Lietaer 2004: 77). A brief survey of the websites of Regiogeld systems indicates that they only reached a symbolic significance. (Access via a map and links on the website of Regiogeld e. V., http://regionetzwerk.blogspot.de/ (retrieved 27.4.2013), see also Rösl 2006: 33). The Chiemgauer is an interesting experiment, but its value as a blueprint for other initiatives is rather limited. The model is based on conditions which do not exist elsewhere: Other regions offer a less favourable environment for such an experiment. Christian Gelleri was prepared to work full-time for a very small salary. A team of committed volunteers supported him, some of them highly qualified. It is not a matter of course that a team renders this service over many years without falling apart due to severe conflicts of objectives. The fact that the Chiemgauer spearheaded a movement and received media attention not just in Germany, but also in other parts of the world might have boosted the motivation of these actors and was perhaps helpful to get the support from other institutions.

2.4. Professional management and its problems

In contrast to the Chiemgauer, other regional currencies applied for public funding in order to become a reliable partner for the local business community and other partners in their area. This, however, did not lead to sustainable systems. An example is the Dessau model which comprised a barter-ring, a business-to-private facility and a kind of a "Tauschring" for private-to-private exchanges. The scheme was supported by means of the European "Equal" programme, but went bankrupt later. Rolf Walther, the manager of this project, emphasised the need of own resources and solid financing in order to cover operating costs (Contraste 2010: 6, see also the website of Anhalt Dessau AG, http://www.dessau-ag.de/history.php (retrieved 27.4.2013)).

In this context it is also noteworthy, that time banks have a long history of employing paid "time brokers". There is evidence, both, from the USA and the UK that long-term funding of these projects is a problem (for the US see Collom et al. 2012: 182, for the UK see Seyfang and Smith 2002: 47). Just in times of economic crisis, i.e. when these organisations are most needed, "many in the non-profit world are struggling to survive" (Collom et al. 2012: 184). Organisers tend to get entangled "in a continual round of funding applications" (Seyfang, Smith 2002: 47, see also Gregory 2012: 97) and cannot devote their full attention to the actual tasks. This might also imply that organisers tend to identify themselves with the objectives imposed by the funding organisation, objectives which are not necessarily identical with those of time bank participants. There is no clear empirical evidence which supports this last point. There are, however, indirect hints as to the gap between professionals and participants. Collom et al. (2012: 182) found that many time bank managers complain about the lack of member involvement. Generally speaking, there is some evidence in the literature about divergent interests of staff and participants in social enterprises (see for instance Kreutzer and Jäger 2011 and, also about other problems of social enterprises, Peattie and Morley 2008).

This discrepancy between the need to employ a highly professional management and to set up organisations on a going concern basis is most evident in complex systems like NU Spaarpas (for a description of this model see Sambeek and Kampers 2004, in respect of funding sources and duration see sections 1.4 and 1.5) and the French SOL. Both systems pursued or pursue an array of objectives, many of them within the framework of sustainability. This qualified them to receive substantial subsidies from high-powered funding resources, in particular the European Union. However, they did not meet the criterion of economic sustainability. The NU system was in operation in Rotterdam just between 2003 and 2004. SOL, despite substantial support, did not develop into a dynamic system (Blanc and Fare 2013: 75f; with regard to SOL the authors refer to M. Fare 'Les conditions monétaires d'un developpement local soutenable: des systémes d'échange complémentaires aux monnaies subsidiaires', PhD thesis in Economics, Université Lumiére Lyon 2, France). Instead, Blanc and Fare (2013: 78) favour a model developed in Quebec – the Accorderie strives to maintain independence from governments by securing long-term funding from foundations (Blanc and Fare 2013: 78 and Fare 2009-2010: 10). Generally speaking, foundations are an important source of funding, in particular in North America. But they are also subject to constraints comparable to those of public authorities or the private sector. In recent years this became evident when their potential was reduced due to lower revenues from interest-bearing financial assets. In summary, it remains a challenge to secure not just external funding, but appropriate funding for complementary currency systems.

3. ANALYSIS: THE NATURE OF COST INCURRED

To run complementary currencies requires hardly any investment in assets. The challenge is to cover current costs, i. e. to generate a continuous cash flow in order to defray in particular the organisational costs of these entities. This implies expenditures for tools like computer equipment, renting of office space and assembly rooms or the acquisition of external expertise. Systems that use cash have to take into account the printing of counterfeit-proof money. By far, the most important item, however, are expenditures for administrative staff. It is beyond the scope of this paper to describe the various management tasks in such systems, especially as they differ from one type of a complementary currency to another. Certainly, an individual matching of

supply and demand, for instance by a "time broker", is a significant cost factor.

It would be inappropriate to assume that after an initial investment a system can be administered at a reduced level of costs. Complementary Currencies are dynamic systems – if they do not adapt to changing demands, they will fade away (see Collom et al. 2012: 32-37 for an example of such a process of almost continuous reform, also Schroeder 2002: 4). This applies in particular in cases where systems experience significant growth (for the Argentinian Trueque systems, whose "success" swamped the organisations – see Gómez 2009). In the reverse case, i. e. when a system declines, it will probably become apparent that most of the costs are fixed costs. Obviously, payment of wages and incidental wage costs for an employed manager will – subject to contractual and legal conditions – have to be continued. Apart from that, most managerial functions will require the same amount of time. Even if, say, the preparation of a printed directory becomes a bit easier due to a reduced number of advertisements, this will be compensated by other tasks. Public relations work, for instance, might be intensified to stop the negative trend.

Costs may arise in legal tender and / or in the currency issued by the system. So far, systems run on a professional basis have to be financed in Dollar, Yen, Euro or other official currencies. An exception is the Chiemgauer as described above. This alternative money scheme depends, as almost all other systems, on the third "currency", that is voluntary work. In principle, these economic considerations are also valid with regard to small and independent systems, where organisers get for their working time only a partial compensation in community currency (Schroeder 2002: 4).

Complementary currencies are usually organised as credit systems. Without going into the details of mutual-credit, service-credit or other systems, this aspect is relevant with regard to the present discussion, because a) credit monitoring is a significant part of managerial work and b) bad debts have to be written off. The latter constitutes another cost factor which had been underestimated for some time (see in this context Jackson 1997).

In order to get a comprehensive picture, it is necessary to go one step further and look at the overall transaction costs (for a short discussion of this concept and its theoretical background see Gómez 2009: 81-87). With regard to systems that operate mainly in the social sphere it may be doubted whether this theoretical framework is applicable. Certainly, searching for the right trading partner or getting in touch with him or her means an effort, but, apart from the product to be traded, the intrinsic benefit of community building in a "social club" (Schroeder 2002: 9) makes it worthwhile to carry this burden. This is different in systems which strive to provide a substantial economic alternative, even if they are interpreted as socially embedded economies as understood by Polanyi (1971). In addition to the above mentioned examples uncertainty about services rendered, conflict resolving or participation in meetings can be considered as transaction costs. Thiel describes in detail how laborious it is to become a user of the Chiemgauer (Thiel 2011: 265- 283). North (2010: 138) describes the resistance of bookkeepers to implement a second layer of accounts which would be necessary to record transactions in local money. Some of these costs would probably decrease over time. A new bookkeeping system would become a routine after a while. If the system grew, its density would increase, and it would not be necessary to spend time and money to go, for instance, to a hairdresser in another part of the city, because the one next door is also joining the system. It seems that organisers usually proceed from the assumption that their initial efforts will trigger a self-enhancing process and propel the newly launched systems into the economies of scale (Gelleri 2008: 182). So far, complementary currencies have not reached take-off point. A major explanation of this is the high level of transaction costs, in particular in the early days of a system.

4. PERSPECTIVES

4.1. Financial perspectives

In order to cover current costs, complementary currencies have to secure a continuous flow of income. These financial means also have to be available when the established capitalist economy is in recession. (For the anti-cyclical nature of the business cycle in complementary currencies see the study of the Swiss WIR system by Stodder 2009.) External sources are hard to obtain in times when they are most needed. Crowd funding may be considered as a means to maintain the autonomy of a project (Warner, 2013). However, also this source does not provide a continuous flow of funds.

In recent years established institutional actors became increasingly interested in complementary currencies. The opportunities offered by new technologies like mobile payment may explain this interest. Certainly, new technologies promise to reduce transaction costs significantly, but, as pointed out above, this factor does not suffice to overcome the financial shortcomings. Taking into account that many of these social innovations are grass roots initiatives which developed their own objectives the question arises whether they can maintain these objectives as financially dependent organisations.

The European Union has provided funding for a number of complementary currency projects. The NU-Spaarpas, for instance, received such funding for its "sustainable incentive card scheme" (van Sambeek and Kampers, 2004, title; for the list of funding organisations see section 1.5). By now, we can observe, that the term "incentive" is used quite often to justify the establishment of community currency schemes (for example by Ikeda and Richey, 2012, p. 106f, Naughton-Doe, 2011, p. 75, Seyfang and Smith, pp. 16, 29, 44, 46, 47, 51, Deconinck et al., 2011). This is not necessarily bad, in particular if used in specific, often complex environments like the energy saving devices suggested by De-

coninck et al. (2011). However, with regard to other applications critical questions can be raised: Who is going to decide what constitutes sustainable behaviour? There are other cases that would allow the discussion of the ambivalent character of publicly funded alternative currencies. Of course, any case would require a detailed analysis, something that is beyond the framework of this paper. But to put a question mark here is certainly justified, also because such schemes have already been used as an instrument to implement neo-liberal policies (see Williams, 1997, about Australia, and North, 2007, pp. 126-148, about Green Dollars in New Zealand).

Whoever pays the bill calls the tune – this is also significant in respect of business-to-private networks carried by the commercial partners. Schroeder (2014b, section 6) criticises the careless attitude towards proposals that suggest flexible exchange rates (for instance by Boyle and Simms, 2009, 58). Regional currencies will have to campaign for appropriate legislation, but if successful, other actors might slip through the door and get their alternative exchange arrangements, systems, where it will be difficult to see that they pursue social and ecological objectives.

External funding will continue to be a financial source for complementary currencies. The challenge is to develop criteria that indicate gaps between the ideal and reality. "Sustainability" or, to take another example, "social and solidarity economy" sounds nice, but such concepts have remained rather vague, in particular if applied to complementary currencies. Schroeder (2014b, section 5) suggests interpreting these currencies not only as money systems, but as systems that operate within boundaries. This might provide a basis to evaluate such systems and see whether they meet their own standards. In cases where funding is guaranteed for a limited period, the going concern principle would require the formulation of a plan for the long-term future.

One is tempted to agree with Kennedy and Lietaer (2004: 130) that self-financing is the key to sustainability. But due to the high burden of transaction costs members cannot carry the burden of fees to finance the organisation of these systems. In the following section it will be demonstrated that it is possible to overcome the obstacles that have prevented complementary currencies from becoming economic alternatives.

4.2. A scenario of a "finite currency system"

First of all, a few introductory remarks may be useful to understand the characteristic features of scenarios. Certainly, they should not be confused with forecasts and they are not blueprints ready for implementation. (For details about scenario methodology see van Notten, 2004). The author of this paper is convinced that thinking about the future should not be restricted to trend prolongation. The following scenario is a creative attempt to sound the possibilities beyond the constraints described in previous sections.

The dual economy of the year 2029 was described by Flor in 1989. Regional markets complement the established capitalist economy. Transactions and income generated in these markets are exempted from conventional taxes. Instead, a levy is charged, which covers the expenses of the organisation that administers these new economic entities. Beside a spatial boundary the concept also has a time limit: The fiscal privilege applies only in as far as debits and credits are balanced over a year. A surplus or a deficit would be charged not only with income or value added tax, but, in addition, also with the regional levy. Therefore, these markets are not a lucrative instrument just for selling something. The author describes a number of other features which are not discussed here: a micro-financing scheme and the abolition of cash are just two examples.

In principle, the scenario offers a solution to the financing problem outlined in previous chapters. The fiscal privilege empowers the participants of the regional markets to become the carriers of these systems. However, the design of the dual economy implies two significant problems:

- Direct neighbours may not be able to use the regional markets together, because they are living on different sides of the border. But boundaries are often not strict lines, but zones that allow limited exchange within boundary zones. Thus, it would be possible to have overlapping regions, although this would make the concept somewhat more complex.

- The fiscal differences between the global and the regional economy makes it lucrative to resort to arbitrage. This cannot be completely avoided. However, as such a system grows, overall transaction costs – as described above – decrease and the difference might be reduced. In combination with a control system and sanctions this would keep the misuse of the system to a minimum.

Again, this is far from being a proposal that has been worked out in detail. It serves as a simple demonstration that new complementary currency models can be designed. Why should politicians grant a fiscal privilege to participants of such a system? To answer this question would require further research to appraise benefits and costs of such systems. But apart from the fact that many of the arguments put forward in favour of existing complementary currencies are applicable here (inter alia sustainable consumption on a local or regional level – Seyfang 2009, or resilience during recessions in the capitalist economy, as empirically shown by Stodder, 2009), it might be possible to put other lines of reasoning in the equation. Is there not a long history of granting economic privileges to certain actors or for certain spaces? Assuming that many of the goods traded in such a regional network would be the result of labour-intensive production, an analysis of potential trades within the framework of Baumol's cost disease (Baumol and Bowen, 1966) might reveal that persons who earn their money as, say, bicycles mechanics or hairdressers would be better off in such a system. Needless to say that the political process which is necessary to introduce

the legislative framework for these regional markets would be very complex.

5 SUMMARY

In this article it was shown that the present enthusiasm with regard to professionally managed systems is quite problematic from a financial point of view. Taking into account overall transaction costs complementary currencies which confine themselves to internal resources quickly reach their limits. On the hand, external funding increases administrative costs significantly and implies the risk that these currencies loose sight of their own objectives. If professionally managed systems depended just on "big government" and corporate interests they would loose of their innovative potential. The conclusion is that beside these elaborate schemes the so-called first-generation systems should not be put aside. Professionally managed schemes funded externally should be based on a long-term financial plan. Criteria have to be developed that indicate whether such systems meet their own standards. In addition, it is necessary to think about new types of systems that guarantee a certain level of autonomy from the existing institutional framework. Each and every course of action may be considered as "impossible"; the challenge is to overcome this "impossible".

The present state of complementary currencies may be compared to the development of aircraft around 1900. Some devices used in the late 19th century distantly resemble modern hanggliders. However, in order to create something like passenger aircraft as a means of mass transportation it will be necessary to come up with completely new solutions.

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International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 114-127

ON VELOCITY IN SEVERAL COMPLEMENTARY CURRENCIES

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ABSTRACT

We analyse the velocity of several complementary currencies, notably the WIR, RES, Chiemgauer, Sol, Berkshares dollars, and several other cases. Then we describe the diversity in their velocity of circulation, and seek potential explanations for these differences. For example, WIR velocity is 2.6 while RES velocity is 1.9 despite being similar currencies. The higher speed may be explained by WIR blended loans among other benefits or by the fact that there are nearly 20.000 unregistered members that contribute with their transactions. Using a comparative method between cases, the article explores a number of possible explanations on the increases in velocity, apart from prevailing demurrage approaches

ACKNOWLEDGEMENTS

I want to thank the several reviewers of this paper, especially Andreu Honzawa of the STRO foundation. This research is partly funded by the TIN2013-48040-R (QWAVES) Nuevos métodos de automatización de la búsqueda social basados en waves de preguntas, the IPT20120482430000 (MIDPOINT) Nuevos enfoques de preservación digital con mejor gestión de costes que garantizan su sostenibilidad, and VISUAL AD Uso de la Red Social para Monetizar el Contenido Visual, RTC-2014-2566-7 and GEPID Gamificación en la Preservación Digital desplegada sobre las Redes Sociales, RTC-2014-2576-7, the EU DURAFILE num. 605356, FP7-SME-2013, BSG-SME (Research for SMEs) Innovative Digital Preservation using Social Search in Agent Environments, as well as the AGAUR 2012 FI_B00927 awarded to José Antonio Olvera and the Grup de recerca consolidat CSI-ref. 2014 SGR 1469.

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To cite this article: de la Rosa, J. L. and Stodder, J. (2015) 'On Velocity in Several Complementary Currencies' *International Journal of Community Currency Research* 19 (D) 114-127 <www.ijccr.net> ISSN 1325-9547

INTRODUCTION

This paper approaches the subject of the velocities of currencies from the naïve perspective of a practitioner eager to understand the success factors for the deployment of a new currency from the perspective of the velocity. We narrowed the focus of the study to velocity for the sake of simplicity. We try to divide the study into more simple questions and try to answer them to reach in the end a global understanding of the problem. This comparative study on velocities of several currencies gathers data from several interviews and studies of the practitioners, and then figure out what features might have contributed to the higher velocities.

We are aware that focusing only on velocities does not guarantee the success of a currency, but gives interesting insight on what to expect from it if it scales up in size or scope. In the case of the first author of this paper, being him involved in the deployment of RES in Catalonia, the paper tries to focus and contribute with light on what worries him: what if after all the investment the Catalonian community is not sustainable? The fact is that creating a network is a balance of investment into the community and the benefit/utility that the community perceives. The velocity is an indicator that the currency is useful to a community and an encouraging indicator to go on investing in its growth and success.

The paper in section 1 is an introduction to the concepts behind velocity and data on the velocity in the sites where the complementary currencies are studied; section 2 explains the data gathered from the mentioned complementary currencies; section 3 dissects their features; and section 4 makes the suggestions of the main features for higher velocities.

2. ON VELOCITY OF CIRCULATION

Velocity of money is the rate at which money circulates, changes hands, or turns over in an economy in a given period. Higher velocity means the same quantity of money is used for a greater number of transactions and is related to the demand for money. It is measured as the ratio of GDP (Gross Domestic Product) to the given stock of money. It is also called velocity of circulation. It is an indicator of the demand for money, of how people prefer to spend or retain money.

The velocity of money is simply "nominal" or current GDP divided by money in circulation. This is seen in the 'quantity of money equation', which is an identity, or true by definition: $M*V \equiv P*Y$, where M is the Money Supply, V is Velocity, P is the Price Level, and Y is price-adjusted or 'real' GDP. Thus $V \equiv P*Y/M$, or in other words GDP at current prices divided by the Money Supply M.

Let us illustrate velocity with an example: A farmer and a mechanic, with a combined amount of 500 Euro in cash buy goods and services from each other in three transactions this year. The farmer spends 400 Euro on tractor repairs and 100 Euro of barn hinges from the mechanic and the mechanic buys 500 Euro of nuts and almonds from the farmer. Then 1,000 Euro changed hands in a year, when there were only 500 Euro in cash in this tiny economy. That 1,000 Euro level is possible because each euro was spent on goods and services an average of twice a year, which means that the velocity was 2. Note that if the farmer made the nuts and almonds a gift to the mechanic, it would not go into the numerator of velocity because that transaction would not be part of this toy example of a tiny economy's gross domestic product.

The more GDP per volume of money, the faster money circulates. During booms, people become optimistic and money tends to circulate with greater velocity, while in depressions, everyone guards it and it circulates more slowly. Thus economists say that velocity is 'pro-cyclical' – it tends to go up and down at the same times as GDP, only more so. This finding is well-established in economics (Tobin, 1970; Goldberg and Thurston, 1977; Leão 2005). The pro-cyclical (or even 'hyper-cyclical') nature of velocity can be seen clearly in recent US data. We can show the annual percentage change in GDP as broken down into components of percent change in Money Supply (measured by M2, see below) plus the percent change in Velocity. This decomposition stems from the above quantity equation of money. We have shown that

$$M*V \equiv P*Y \equiv \text{Nominal GDP}$$

where Nominal GDP means, as measured in current prices. From this it follows that

$$\%\Delta M + \%\Delta V = \%\Delta P + \%\Delta Y = \%\Delta \text{Nominal GDP}$$

Note that $\%\Delta P$ (percentage change in Prices) is just the inflation on GDP, while $\%\Delta Y$ is the inflation-adjusted or 'real' change in GDP – both terms familiar to readers of financial news. $\%\Delta M$ is the percentage change in the Money Supply, and $\%\Delta V$ is the percentage change in Velocity.

This decomposition for the US, from 2000 to early 2014, is shown in Figure 1, where M is expressed by the measure M2, and its corresponding V by M2V.

The periods with a darker background show recent official US recessions. Note that Figure 1 shows M2 growing at a faster rate during these recessions – as the Federal Reserve (the US central bank) attempts to counteract recessions by increasing the Money Supply. That is something that central banks can easily do. What they cannot do, however, is to control Velocity. As in the old US 'cowboy' saying – you can lead a horse to water, but you can't make it drink. As one can see from the above graph, Velocity tended to fall during these recessions – even more so than the fall in GDP itself. Thus it can be seen that recessions are closely linked with changes in Velocity, which of course limits central banks' ability to counteract recessions by monetary policy alone.

Since GDP is average cash balances times velocity, the demand for these balances will be inversely related to velocity. This definition of national money supply and velocity

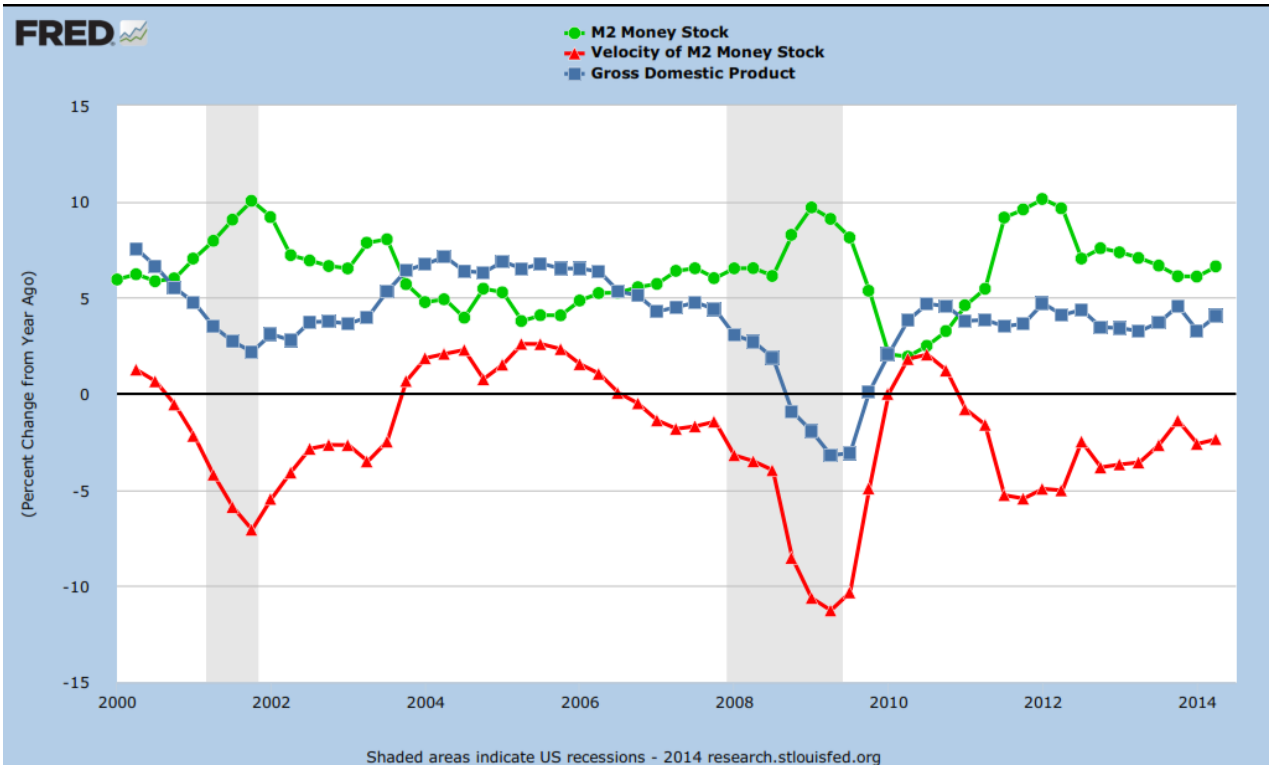

Figure 1. Annual Percent Change in M2, M2 Velocity, and GDP, 2000-2014 (Quarterly Data)
Source: Federal Reserve Economic Data (FRED)

may also be applied to special purpose moneys, such as the Swiss WIR. Thus Stodder and Lietaer (2012) compute WIR velocity as annual Turnover, or value of all transactions carried out in WIR, divided by total WIR balances.

Stodder and Lietaer (2012) show that velocity is higher for Registered WIR-Clients, compared to Non-Registered clients, usually large companies. They argue that the countercyclical WIR Turnover for Registered firms is driven by changes in Velocity.

The Lietaer's Equation Exchange formula for dual-currency systems is

E = (Ms * Vs) + (Mc * Vc)

In periods of crisis Vs↓ but Vc↑ therefore a countercyclical effect. This is shown by Stodder and Lietaer (2012)

Maybe it is also worth explaining that in credit crunches Ms↓ (stock of money supply ↓ as loans are paid off and no new loans are granted), and that credits granted on Complementary Currencies (CCs) can make Mc↑. However, in the beginning of a crisis the most important factors are sending market signals that a) business will have profits so that they're not afraid of investing, b) consumers will have employment so that they need not be afraid and start saving, and c) prices will not fall, so that investors and consumers need not postpone expenditure decisions. Increasing the money supply is not only for increasing M, but also and most importantly a market signal to psychologically convince investors and consumers that there'll be liquidity in circulation and that they need not slow down expenditures. So it is more an issue of velocity of circulation rather than of stock of money supply.

There is no exact way to determine the right size of the money supply. Money supply data are recorded and published principally by the central banks of various countries. The European Central Bank's definition of euro area monetary aggregates is (European Central Bank, 2014):

M1: Currency in circulation + overnight deposits (+ traveller checks and other checkable deposits, in the USA)

M2: M1 + deposits with an agreed maturity up to 2 years + deposits redeemable at a period of notice up to 3 months (in the USA, M2: M1 + most savings accounts, money market accounts, retail money market mutual funds, and small denomination time deposits (certificates of deposit of under $100,000).

M3: M2 + repurchase agreements + money market fund (MMF) shares/units + debt securities up to 2 years

In practice, for most countries the M2 or M3 definition of the money supply is the most representative. M2 is most often used to compare velocities of worldwide currencies. As well, for the sake of simplicity, and because Complementary Currencies (CCs) have no sophisticated mechanisms for regulating the money supply apart from commercial loans and money-in, we will compare the velocity of the CC

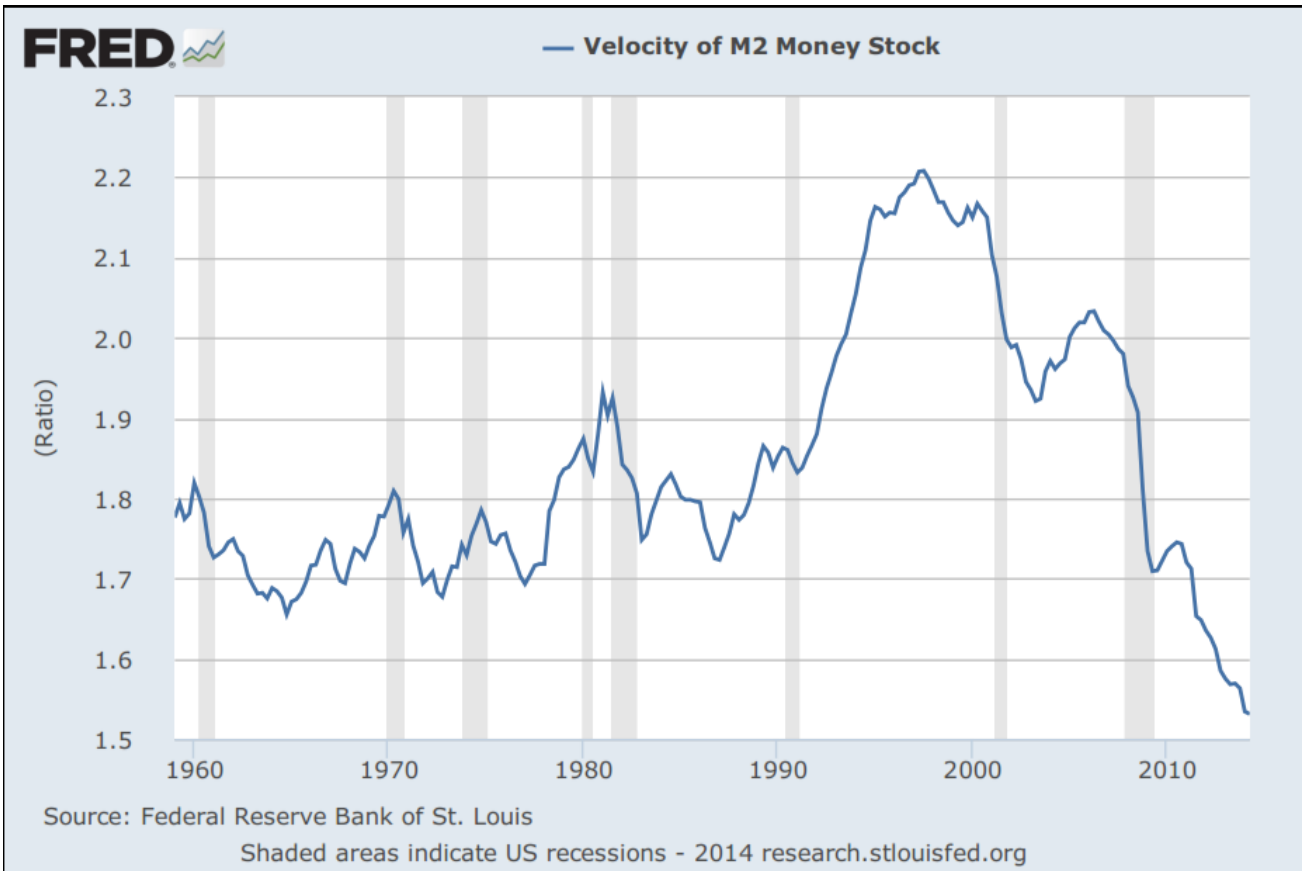

Figure 2. Velocity of US Money Supply (M2), 1958, Q-IV to 2014, Q-I.
Source: Federal Reserve Economic Data

only with the velocity calculated with GDP / M2 of their respective countries.

The velocity of the US dollar in 2012 was 1.537 (Federal Reserve Bank of St. Louis, 2014a). M2 velocity is currently (2nd Quarter of 2014) at 1.531. This is a long-term low, as Figure 2 makes clear.

The very low circulation of the US dollar is probably due to its use as the major reserve currency in the world, both for central banks and for private individuals living outside the US and was part of a recent study by the Federal Reserve (Judson, 2012). This same study also finds (p. 10) that the proportion held abroad is growing as the dollar's role as a reserve currency strengthens, and that this is contrary to the trend of other currencies, where greater use of electronic (cashless) payments can be expected to increase velocity. This slowdown has largely to do with the Federal Reserve's policy of "Quantitative Easing" – massively increasing the US money supply to bring down its long-term interest rates.

This US pattern of declining M2 velocity since the onset of the global financial crisis in 2008 has been followed by most large world economies, and by the world as a whole. Figure 3, with a selection of recent M2 velocities from World Bank sources, illustrates this. Most countries did not have as big a fall-off in velocity as Russia and Turkey, the high-flyers on this list. But it will be seen from the World Series (with the large square dark marker) that there was a significant fall off worldwide in 2009. Note also that most of the economies on this list with very low velocities are those with relatively large financial sectors.

If velocity is indeed highly pro-cyclical, and the world as a whole showed slowing velocity in the financial crisis, is it fair to conclude that velocity is positively linked to changes in GDP? At a fairly trivial level, this must of course be true. If we are looking at nominal GDP -- i.e., GDP in the prices of the day -- then for any fixed level of money supply M, a rise in nominal GDP must imply a rise in M. This is because

$M*V = P*Y \Rightarrow \%\Delta M + \%\Delta V = \%\Delta P + \%\Delta Y = \%\Delta$Nominal GDP.

And so for fixed M; i.e., $\%\Delta M = 0$, we have $\%\Delta V = \%\Delta$Nominal GDP.

Of more interest is the relation between velocity and 'real,' or inflation-adjusted GDP. Both of the previous graphs suggest a positive link here. To check this empirically, we test a very large panel data from 2000 to 2012 for 183 countries, plus the "World" and the Euro-zone – a total of 185. Regressing real GDP against M2 velocity (and vice versa) for each country in a fixed-effects panel data setting. Here we are using the previously mentioned World Bank data series "Money and quasi money (M2) as % of GDP" and "GDP (constant 2005 US$)", both from data.worldbank.org.

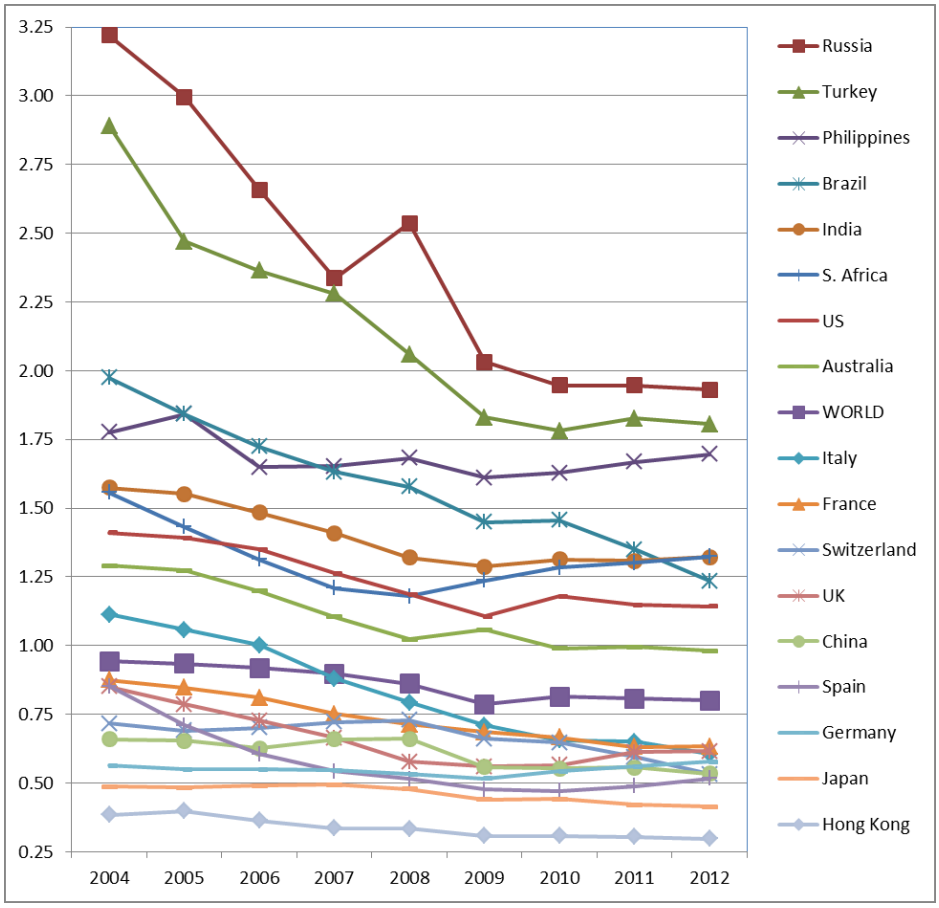

Figure 3 – Velocities of the several currencies of the world wide economy.

Source: "Money and quasi money (M2) as % of GDP" (Inversion gives Velocity), World Development Indicators, available online from data.worldbank.org.

The use of the econometric time series technique known as "Vector Error-Correction Models" in Table 1 allows us to investigate both the short-term and the long-term relationship between GDP and Velocity, and to test its causality in both directions, for those readers oriented to econometric studies.

In Table 1, note that the "Cointegrating Equation" shown at the top has Log Velocity as negatively co-integrated with the Log of Real GDP, and vice-versa – even after a negative time trend variable is taken into account. This can be interpreted as a long-term tendency for velocity to gradually fall as GDP grows over time, yet maintaining a stable relation with each other.

Because these are logged variables, these coefficients can be interpreted as "elasticities," or the proportional sensitivity of one variable to another. E.g., the coefficient of 0.0335 on L_Velocity in the first column indicates that a 100% increase in Velocity will over time be associated with a 3% increase in GDP. The coefficient of 0.1349 on LrGDP in the second column means that a 100% increase in real GDP is associated with a 13.5% increase in Velocity.

Note that this 'long-term' portion of the Vector Error-Correction model, with its negative and stable relationship between Velocity and GDP, is quite similar to the variation across countries that we saw in figure 3. Countries with larger per-capita GDPs often show lower velocities. Figure 2 showing variation across countries, however, is distinct from our regression showing the average correlation of these variables within each country over time. While it is common to conflate the two, they should not be assumed to be the same (Easterly, 1999). Panel econometric methods are valuable because they allow us to separate out a general time trend, as distinct from a cross-sectional snapshot.

Note also that the downward time trend of our previous graph is consistent with this regression results, although real GDP has been unusually stagnant in rich countries over this past decade.

Moving now to the short-term portion of the regression – the part generally taken to be of most policy interest – we see that the two coefficients that are statistically significant on the first and second lag of L_Velocity show first a negative and then a positive sign. The elasticity interpretation of this first-lagged term is that a 1 percent increase in M2 Velocity is associated with a 0.06 percent decrease in real GDP. Thus, this shows Velocity as a counter-cyclical variable – quite the opposite of our previous graph on US GDP and M2 Velocity. The second-lagged term, however, shows a positive sign – as consistent with well-established research on advanced economies, as previously mentioned (Tobin, 1970; Goldberg and Thurston, 1977; Leão 2005).

In the next-to-last row (b), serial correlation (aka autoregression) is problematic. The null of no first-order serial correlation is strongly rejected. Things may not be quite as bad as they seem, however, since these estimates use White

Table 1: Vector Error Correction Model of the 2 year moving average of Log of Real GDP (LrGdpMa2) and Log of M2 Velocity (LVelMa2). T = 9 Years, N = 178 countries, Observations (unbalanced panel), O = 1569. Fixed-effects estimators, White Period Covariances, no degrees of freedom correction.
*t-statistics in [ ]; ***: p-val ≤ 0.01, ** : p-val ≤ 0.05*

Notes: P-values in a) - c) are on null hypotheses of: a) No panel or group cointegration, v and rho statistics; b) No first-order serial correlation (Wooldridge AR test); and c) Independent variable does not Granger Cause dependent variable. For c), the p-value is for the 'stacked' or averaged Granger statistic at 2 lags, as in the equation above. Breitung t-stat tests could not reject the null hypothesis of a unit root on either variable.

Sample (adjusted): 2003-2012; Periods: 9, Cross-sections: 178				
Cointeg. Equ. (DOLS)	**Depend. Variable: LrGDPma2(-1)**		**Depend. Variable: L_Velma2(-1)**	
Cointeg. Equ. (DOLS)	23.5974		-2.2982	
Constant	-0.3663		9.5508	
Trend	[-2.787]		-0.0217	
L_Velocity(-1)	-0.0170			
	[-0.588]	***	-0.3663	
LrGDP(-1)			[-2.787]	***
Indep. Variables:	**D(LrGDP)**		**D(L_Velocity)**	
Cointeg.Equ._RES(-1)	-0.4145 [-6.852]	***	-0.6916 [-7.776]	***
D(LrGdpMa2(-1))	0.7400 [15.042]	***	0.0020 [0.03]	
D(LrGdpMa2(-2))	-0.2442 [-2.822]	***	-0.2466 [-3.052]	***
D(LVelMa2(-1))	-0.061 [-3.821]	***	0.6025 [14.249]	***
D(LVelMa2(-2))	0.036 [2.048]	**	-0.226 [-6.819]	***
Constant	0.0198 [8.113]	***	-0.0092 [-2.707]	***
R-squared	0.666		0.564	
Adj. R-squared	0.622		0.506	
S.E. of regression	0.025		0.054	
Log likelihood	3677.375		2467.474	
F-statistic	15.176		9.728	
Mean dependent var.	0.041		-0.031	
S.D. dependent var.	0.040		0.077	
Akaike info criterion	-4.454		-2.879	
Schwarz criterion	-3.829		-2.246	
a) Pedroni Tests (p):		0.0000		
b) Wooldridge AR1 (p):	0.0000		0.0000	
c) Granger Causality (p):	2.69E-07		0.0667	

(1980) period estimators, robust to within-cross-section serial correlation (Arellano, 1982). This means that our coefficient estimates are unbiased, even though they are not efficient; i.e., their standard errors are not as small as possible. But this very lack of efficiency means that, despite these p-values, we can be fairly confident about the signs on the estimated coefficients, and the levels of significance levels shown for those coefficients can be taken as highly conservative.

The results on Granger causality in row (c) are interesting. These show that while the Granger-causality of Log Real GDP on Log Velocity falls just short of standard statistical significance, Granger-causality in the opposite direction – Velocity on Real GDP – is very highly significant. Note that this result is also consistent with the pattern of significance for the coefficients in the two functional forms, in that both exogenous terms in the first column (L_Velocity) are highly significant, while only the second-lagged exogenous terms in the second column (LrGDP) is so.

On the overall question of whether GDP and Velocity are negatively or positively correlated, these results suggest that a simple answer is not possible. The co-integrating equation suggests that velocity should gradually fall as GDP increases over time. The short-term results, by contrast, show that GDP does not have an immediate effect on velocity (from the insignificance of the first lagged LrGDPma2 term in the 2nd column), but may over a slightly longer horizon (the second lagged term).

Increased velocity, on the other hand, is seen to have a small short term negative effect on GDP (with an elasticity of -0.06, and a longer term positive elasticity of smaller magnitude (elasticity of 0.03), a sort of diminishing ripple effect. Such diminishing effects over time are common, since changes would otherwise be explosively destabilizing.

Overall, therefore, we cannot give a simple answer to the question of whether increased velocity is everywhere and always positive for real GDP. We are forced to examine individual cases. Central banks both in the EU, UK, and the USA have created a lot of money in the current worldwide

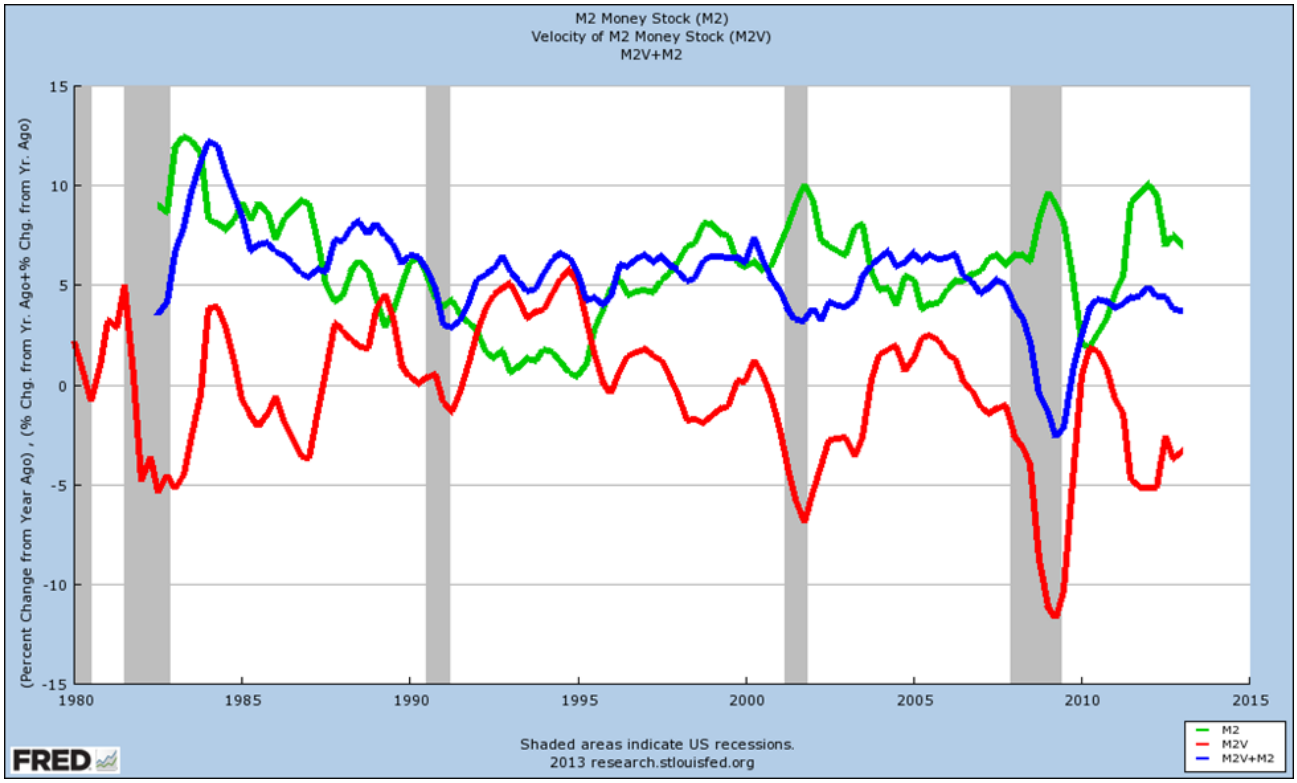

Figure 4 – Rates of M2 and M2 Velocity (M2V) of the US economy

recession. The so-called monetary base, consisting of cash and the central banks' deposits, has more than tripled in the US (Federal Reserve Bank of St. Louis (2014b), and increased by about 50% in the UK since 2007 (Bank of England, 2014).

Paradoxically, however, there has been an actual shrinking of private bank credit brought about by the credit crunch. This has continued longer than expected, and has offset the Money supply growth. This means that most of the money 'created' by quantitative easing is sitting in banks' reserves, rather than finding its way to businesses and consumers. This is shown by the ratio of official Bank Reserves in the US to M1, which is currently about 75%. Before 2008, it was at most 2 or 3%. (Federal Reserve Economic Data).

Note in Figure 4 that even though M2 Money supply (green line) increased during the 2008-2009 US recession (shown as shaded vertical bar), the Velocity (red line) decreased over the same period to the point where total Turnover (blue line) decreased.

However, shrinking private bank credit in the lending freeze brought about by the credit crunch has continued longer than expected has offset this. As a result, growth in total money the world over has been slow. This means that most of the money 'created' by quantitative easing is sitting in banks' reserves, rather than finding its way to businesses and consumers. This is shown by the ratio of official Bank Reserves in the US (Federal Reserve Bank of St. Louis, 2014c) to its M1 (Federal Reserve Bank of St. Louis, 2014d), which is currently about 75%. Before 2008, it was at most 2 or 3%. This is logic since new regulations worldwide have increased capital reserves requirements. Moreover, when quantitative easing reached businesses, it tended to be large companies rather than SMEs, therefore a recent recovery of stock markets rather than in employment rates (SMEs tend to be more labour-intensive, and tend to have less access to capital markets).

More velocity of circulation is more expenditures and purchasing power (your spending is my income, my spending is your income), therefore more production and employment.

In the following sections we will show several CCs in those countries (USA, Europe, Switzerland, and Brazil), and we will see their velocities compared to their national currencies velocities as well. As most of the CCs have near parity with their official national currencies, that is 1 CC ≈ 1 EUR/USD/CHF/REA, we think it is highly significant when a CC shows higher velocity than its official national currency. The question is: what does higher velocity in a CC represent? According to Stodder and Lietaer (2012) the countercyclical turnover of WIR Registered firms is driven by changes in Velocity. Thus, velocity of the CC might be impacted by the velocity of the official national currency: it might be countercyclical (as proved for the case of WIR), and it could be faster or slower, giving signs of its usage and utility. Again Lietaer's Equation Exchange Formula for dual-currency systems would be helpful to explain this.

Falling velocity is a result of an increased demand to hold money as opposed to a desire to expand productive capacity or borrow to make purchases. As well, falling velocity might occur if banks do not want to lend and consumers

and/or businesses do not want to borrow. The Central Bank can print, but it cannot determine where the money goes, or indeed if it goes anywhere at all. This is called "pushing on a string"

To counter the effects of falling velocity, one the motivations of CCS is to provide money (liquidity) in an alternative to the national currency to encourage new transactions. Velocity is then a measure (although not the only one) of its utility and fulfilment. Velocity of money can be understood as the efficiency of money in generating economic activity (GDP). That is, with a given money supply, more velocity of circulation reflects more efficiency of each unit of money in generating GDP. But the current monetary system is procyclical, as velocity slows down in periods of recession. However, it is in periods of recession when increasing velocity (efficiency of) money is needed the most. So increasing velocity is a way to counteract a recession. We focus on the velocities to compare the currencies and then try to grasp why they are different. This is the narrow scope of this paper.

3. THE CURRENCIES COMPARED IN THIS STUDY

The complementary currencies (CC) that are object of this study are: the WIR in Switzerland, the RES in Belgium, the Chiemgauer in Germany, the Talente in Austria, the Sol-Violette in France, the Bristol Pound in UK, the RES in Catalonia, the Berkshares in the USA, and the Palmas in Brazil. The velocities are calculated according to papers on the state of the art or by interviews we made by visiting the staffers of the currencies. A set of the profile of the currencies can be found in Rogers et al. (2012).

WIR, Switzerland. The robust annual turnover of the top complementary currency in the world, the Swiss WIR – Wirtschaftsring - Genossenschaft or Swiss Economic Circle) owes much to the business model of the dual WIR Bank that offers blended loans, based on the WIR and Swiss francs. For if, as a rule, the WIR and the Swiss Franc economies do not bloom at the same time, the growth of one can compensate for the stagnation in the other, as shown in Stodder (2009). As shown in its yearly report results (WIR, 2012), WIR is well established CHF/CHW 4.01 billion (with a 3.3% in all increase from 2011) but WIR participants generated turnover of 1.46 billion CHW in 2012, equivalent to a decrease of 6.0% compared to the previous year. This decrease resulted primarily from a domestic economy that was healthy and well stocked, as well as loan availability in Swiss francs at very low interest rates. The difference with the traditional WIR credit, granted on favourable terms - the real engine of the WIR system - can be understood from this perspective. Its velocity is 2.6 according to Stodder and Lietaer (2012).

Talente, Austria. This is an exchange ring plus circulating currency, i.e., a physical scrip, not just electronic credits and debits, a la the WIR. It is also named Z(w)EITgeld that means the "second money", situated in Vorarlberg in Austria, bounded on three sides by other countries (Liechtestein, Switzerland, and Germany), born in 1996 with 758 members that traded 293,000 Talentes in 2011. The velocity of the Talente is 4 according to Godshalk (2011)

RES, Belgium. This is a business exchange network, similar to WIR but without blended loans or a dual RES Bank. Born in 1995, over 5000 members and 100,000 consumers trade over 31 million RES a year, being 1 RES = 1 EUR. RES added business to consumer loyalty system and consumer to consumer transactions in 2003 but the core business remains business to business (RES, 2014). Its velocity is 1.9.

Berkshares, USA. Born in 2006, it is a loyalty scheme based on circulating money for the support of the local economy. 400 businesses accept the Berkshares, with a turnover of 512,472 Berkshares in 2011. 1 Berkshare = 0.95 USD. (Berkshares, 2014). Its velocity is 4.1

Chiemgauer, Germany. This is a circulating currency founded in 2003 in the Chiemsee, Bavary, Germany for the support of the local economy. The currency, 1 Chiemgauer = 1 EUR is Local fiat backed by Euros, with a demurrage fee of 2% per quarter (Silvio Gesell, the German-Argentine economist whose ideas inspired the founding of the WIR-Bank and Chiemgauer, had decades of international trade experience in Buenos Aires. Gesell's use of the term demurrage was borrowed directly from international shipping, where it denotes a reduction in payment to compensate for an unscheduled delay in the delivery of goods. Gesell applied a demurrage charge to the holding of money, with the aim of increasing its velocity. WIR-Bank originally applied such a charge, but eliminated it in 1948 (Stodder, 2009), electronic money compliant and microcredit loans. Its nearly 600 members traded 6,198,411 Chiemgauers in 2011 (Chiemgauer, 2014). Its velocity is of 11.3 according to Yasuyuki (2012)

Sol-Violette, France. This is a circulating currency as well, founded in 2011, serving the region of Toulouse in France. With 40.000 Sol ecos issued since 2011, it serves 80 businesses and 700 consumers (Sol Violette, 2013). It uses as well a sliding demurrage fee of 2% per quarter as well as Chiemgauer. Its velocity is of 4.49, according to its 2012 yearly report (Sol Violette, 2013),

Palmas, Brazil. This is a circulating currency, launched in 2003 (after the Bank of Palmas creation in 1998), that support the local economy, and microcredit loans in both national and local currency. Its velocity (estimation based on Rogers et al., 2012) is of 13.5

And there are included in the study two new currencies that started the late 2012 that are also included in the study because of their immediate impact of Bristol Pound, or being of interest as a replication of existing currency like RES.

Bristol Pound, UK. This is a new currency in Bristol, UK, that started on September 2012 devoted to local business development as a loyalty scheme based on circulating currency and virtual currency, and mobile payments. It serving 500 business that accept the Bristol Pound notes (259 of

Table 2- The 9 complementary currencies under study, ordered by monetary mass from high to low

	Velocity	National velocity as of 2012	Country	Ratio	Quality	Monetary Mass	Turnover per member/year	Turnover/year	Num. of biz	Charge % /transaction
WIR	2,60	0,60	Switzerlan	4,33	High	596.153.846	19.375	1.550.000.000	80.000	3,5%
RES	1,89	0,62	Belgium	3,06	Nice	16.763.188	7.562	31.758.340	4.200	7,0%
Talente	4,00	0,60	Austria	6,67	High	729.575	3.850	2.918.300	758	0,0%
Chiemgauer	11,30	0,60	Germany	18,83	Very High	550.442	10.453	6.198.411	598	5,0%
Bristol Pound*	0,79	0,65	UK	1,22	Low	163.600	501	129.836	259	0,0%
Berkshares	4,05	1,15	USA	3,53	Nice	126.399	1.281	512.472	400	5,0%
Palmas	13,50	1,25	Brazil	10,80	Very High	46.000	3.765	1.016.600	270	2-15%
RES Catalonia*	1,56	0,50	Spain	3,13	Nice	43.441	272	67.890	250	7,0%
Sol Violette	4,49	0,65	France	6,91	High	33.403	1.579	150.000	95	NA

Table 3 – Date of the measures and further features

	Velocity	Turnover/year	Date of Measure	Key Features
WIR	2.60	1,550,000,000	2011	Blended loans. Impact of 1.02% of Swiss GDP accounting blended loans
RES	1.89	31,758,340	2011	WIR-like
Talente	4.00	2,918,300	2011	Local taxes accepted in Talentes. It is supported by yearly member fees
Chiemgauer*	11.30	6,198,411	2011	Demurrage and 3% of consumer money-in is devoted to solidarity projects and blended loans
Bristol Pound	0.79	129,836	2013***	Local currency. Wide awareness. Local taxes accepted. Major payroll is in Bristol Pounds
Berkshares	4.05	512,472	2012	Loyalty scheme for Berkshire County, Massachussets
Palmas**	13.50	1,016,600	2011	Blended microloans and 5-20% salaries of public bodies are paid in palmas
RES Catalonia	1.56	67,890	2013***	RES-like with consumer focus.
Sol Violette	4.49	150,000	2012	Loans and grants in sols and demurrage

them accept the virtual currency) and over 160,000 Bristol Pounds are supplied. Its velocity is of 0.8 (April 2013).

RES, Catalonia. This is the RES currency started in a new country on October 2012, in Catalonia, in the kingdom of Spain. Being a unique system within RES, its approach is getting closer to Bristol Pound and Berkshares from the WIR-like origin, so that it is worthy of study as a new case of a community currency. It serves 250 members and has supplied 43,441 RES into circulation. Its velocity is of 1.56 (Note: in December 2014, its velocity had hit 3.1)

Table 2 includes the velocities of the nine complementary currencies compared to the velocities of the official money in their countries and Table 3 includes some other features, ordered from the biggest monetary mass to the smallest with data harmonized to 2011 with the exception of the two new currencies that are using data from April 2013. There are some currencies that run at higher velocities compared to their national counterpart.

From these tables we can see a variety of behaviours. In the following section 3 we will further dissect the properties of the currencies and we will compare groups of currencies to each other, by taking into account the relative velocities and the ratio of their velocity compared to their national currencies in their specific regions or nations (in the case of Euro) to have a clearer idea of some of their features and potential to give a boost to the real economy.

We consider a velocity is "fair" if it is equal to the velocity of the national currency in the main region or state of that CC, plus or minus a 20% threshold. A low velocity is the one that falls under that threshold, and a high velocity is that one higher than the threshold. In the case of going higher by a factor of 3 or more, we consider it a very high velocity.

Thus, Palmas run at very high velocity, Chiemgauer runs at high velocity, the Bristol Pound at a low velocity, while the remaining currencies run at fair velocity.

The method to make conclusions is twofold: compare the currencies first (Section 3) from the point of view of every feature (blended loans, demurrage, etc.), and then in Section 4 we compare the peer currencies and groups of currencies (Section 4).

4. DISSECTING THE SEVERAL COMPLEMENTARY CURRENCIES

The features we are going to compare the CC are the following:

- Commissions on transactions, sign up, renewal fees, and so on.
- Offer of blended loans
- Virtual currency or scrip or combined

- Convertibility of CC to a national currency (Dollar, Euro, Swiss Franc, Réais)
- Application of demurrage
- Collateral of CC in national currency and the possibility that consumers can buy it
- Others

It seems that having blended loans (loans in national and complementary currencies) like the cases of WIR, Chiemgauer, and Palmas has a positive influence on velocity. Microloans are offered by Palmas and presumably by Chiemgauer, and this might contribute to the highest velocity (see Table 4).

Being inclusive with several types of non-members participation, like the non-registered members of WIR or the consumers (prosumers) of Chiemgauer, Palmas or Sol–Violette can boost velocity as well.

Being virtual money does not seem to increase the velocity. WIR and RES are purely virtual and are much slower than the partly virtual Chiemgauer, while the partly virtual Bristol Pounds do not show signs of high velocity yet. On the other hand, the partly virtual Palmas, Sol-Violette, or the scrip portions of Chiemgauer and Bristol Pounds show vigorous velocity. On the other hand, scrip money might increase velocity as Berkshares, Chiemgauer, Talente, Bershares, Sol-Violette and Palmas all have notes and as a group have higher velocity than the purely virtual WIR and RES currencies.

Higher commissions might reduce the velocity like the case of RES with the 7% that leads to lower turnover member/year compared to WIR and Chiemgauer. Yet the 3.5% commission of WIR does not lead to the highest velocity compared to Chiemgauer with its 5% commission per transaction and a velocity that is 4 times higher than the WIR.

It might also be that those CC convertible to national currency, even at a loss of 5% to 15% like Berkshares, Talente or Chiemgauer have thereby kept their very high velocities.

The very high velocity of Chiemgauer is also distinguished by the 3% of Chiemgauer purchases earned in EUR being devoted to social affairs, to a community group of their choice.

It is also distinctive in the case of high velocity Palmas and Chiemgauer, that the staffers are paid a percentage of their wages in the CC.

Let us talk about the case of the demurrage that was designed specifically to accelerate transactions. It is implemented in the cashless Chiemgauer accounts with a fee of 0.02% per day (with a negative-interest-free period of 90 days) as well as the scrip and 2% demurrage every 3 months of the Sol-Violette. We might note here that boosting velocity was always the explicit purpose of demurrage, since it imposes an explicit cost on holding money (Stodder 2009, footnote 4 in page 4). The only schemes applying demurrage are Chiemgauer and Sol-Violette and this might have a positive influence in the velocity, compared to their respective peer currencies like Talente for Chiemgauer and the new currencies of Bristol or RES Catalonia for Sol Violette. Note that a modest rate of inflation, such as the 2% annual rate which is given as an explicit target by most of the world's leading central banks, accomplishes much the same thing as a formal demurrage system.

The reasons behind demurrage are safeguarding and stimulation of the money circulation in order to generate more local business: "Money that never slows down circulation"; "The advantage is that everybody keeps money going"; "The velocity of money or the speed of money is faster." Demurrage or other ways to safeguard the circulation is promoted by the German Regiogeld-Association. Every initiative, supported by members of the association, is committed to quality. One of the initiatives is to support a sustainable financial system by determining and controlling the amount and velocity of the money issued.

From the point of view of the Chiemgauer, the following considerations come up: Chiemgauer is not only backed by euros but also by powerful ideas and strong personal commitment, deeply inspired by the ideas of Christian Gelleri and with a view on the need for concrete and grassroots projects growing organically through the creativity of individuals and groups. They have to be useful for the participants and they have to be both idealistic and pragmatic. The economy is like a dynamic bloodstream that means that if money does not flow then the economy is in pain. The first aim was to bind the money and let it flow within the community. Binding purchasing power, as marketing experts would say. Other objectives were to foster cooperation, strengthen the local economy, increase sponsorship for non-profits, reduce food transport, reduce money speculation and increase regional investments.

The velocity of the Chiemgauer is estimated at 11.3 (See Chiemgauer-Statistik 2003-2009 of Chiemgauer e.V. made by Christian Gelleri). The velocity of the cashless Chiemgauer could be measured exactly whereas the velocity of the paper money is). It is a very fast velocity, compared to the other CC of this study, and is 2.55 faster than the Euro (Yasuyuki 2012), even with a relatively small turnover of 10,453 Chiemgauers per member and year compared to WIR. Demurrage seems to be key to this high velocity. Its velocity is showing to be much higher than the velocity of conventional money, which is approximately 2.77 in the German area of the Euro.

The Chiemgauer is the second best documented currency (after WIR, perhaps), and we see its velocity skyrocketed to 20 in 2006 while it is now stable around 11 (see Figure 5). It seems that the introduction of the virtual currency in 2004 increased the velocity but its effect got diluted along the years coming back to nearly the same velocity of pure

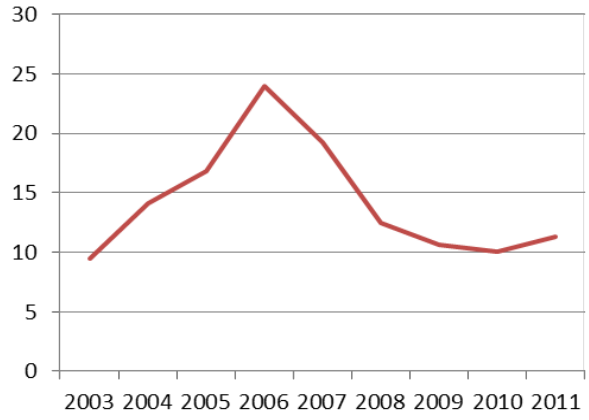

Figure 5 – The velocity of Chiemgauer (2003-2011)

scrip based transactions in 2003. As size matters, it also seems that the continuous growth of the number of members and transactions of the Chiemgauer has reduced the velocity, yet to a level that is unbeatable by the peer currencies.

With demurrage, money expires, and it seems that this has the advantage that everybody keeps money moving. But the very same idea for RES (and presumably WIR) members might seem highly unacceptable. Today, strong positions against and in favour of the demurrage are being maintained.

These features and others are compared in the following table 4. The columns are grouped in the following groups: Approach and mission, the supports for running the CC, the business model behind, the inherent features of the CC, and a final group of others that tell us other framework factors like awareness, whether people forget about the currency once they start trading each other or the relative volume of transactions.

As a curiosity, Godschalk (2011) reported the velocity of three scrip currencies in the USA with incredibly high velocities that go up to 60. In Table 5, the evaluation of velocity is possible for the stamp scrip issued during the Great Depression in Santa Cruz (California), Okmulgee (Oklahoma), Mason City (Iowa) and Carmel (California) in the USA.

Quoting Godshalk (2011), the scrip issued in Mason City was hybrid (time- and transaction-based). Analysing its velocity the results are comparable to the transaction-based only scrip issuances. Although the transaction tax was 50% higher (3 ct. compared to 2 ct.) the velocity of the Okmulgee scrip accelerated to almost 100 almost twice as high as Santa Cruz or Mason City. During the Great Depression the velocity of the dollar (in Godshalk's paper this is calculated with M1) decreased dramatically from 3.42 (1929) to 2.19 (1933). A velocity of transaction-based scrip of 50 or more indicates that this kind of local scrip worked very well in these areas compared to the striking conventional money during this crisis. There are no hard facts available about other local scrip.

This fact makes us wonder about the decisive contribution of consumers to speed up the velocity of the currency between businesses or simply it is because scrips run smooth in deep crisis. Let us analyse the cases of Bristol Pound and RES.cat, a branch of RES in Catalonia, where the departing model was B2C. In the first 5 months of its existence from November 2012 to March 2013 there were 67,890 RES in turnover, with a velocity of 1.56 out of a money supply from consumers of 35,479 RES that represent the 81.7% of the total monetary mass. This means that consumers contribute with velocity at least of 1, but then merchant and businesses need to activate their mutual purchases to reach the full higher velocity of the currency. This information is depicted in Table 6.

Let us see the Bristol Pound with a similar scheme. It is a new UK CC backed entirely by Sterling Pounds with local yet remarkable world-wide awareness, combining scrip and virtual currency. The online currency belongs to businesses and is convertible back to Euros, and a bonus of 5%

Table 4 – Comparing the features of the several CC

Features	Approach - mission					Supports				Business Model	Features of the CC									Others			
Velocity Currencies	Mutual Credit for Purchase	Blended loans	Fiat currency-backed of (part of) the CC	Loyalty Scheme (B2C prevails over B2B)	Income partly goes to social actions	Staff paid in CC	Professional Management	(local) bank or union participation	With the support of public grants of public bodies or donnors	Commissions	Membership (annual) fees	Sign up for new members	(Local) taxes accepted in CC	Grants or prizes in CC for public help	Demurrage	Scrip (paper, notes)	Virtual	Mobile / Smartphone payments	Convertible back to fiat currency	People forget the CC after knowing each other and they shift to trade in fiat currency	Wide Awareness	Size (number of members and volume of transactions)	Currency
1.6 **RES Catalonia**	yes	no	yes	yes	no	yes (10%)	yes	no	no	7.0%	yes	no	no	no	no	no	yes	no	no	NA	no	very small	RES Catalonia
1.6 **Bristol Pound***	no	no	yes	yes	no	not paid	!no	yes,credit union	yes,donnors	0.0%	no	no	yes	no	no	no	yes	yes	partly (virtual is)	NA	yes	very small	Bristol Pound*
1.9 **RES**	yes	no	no *	no	no	yes (10%)	yes	no	no	7.0%	yes	yes	no	no	no	no	yes	no	no	perhaps	no	very big	RES
2.6 **WIR**	yes	yes	no	no	no	NA	yes	it is a bank	no	3.0%	yes	NA	no	no	no	no	yes	no	no	NA	yes	huge	WIR
4.1 **Berkshares**	no	no	yes	yes	no	not paid	no	yes,local bank	yes,donnors	5.0%	no	yes	no	no	no	yes	no	no	yes (5-10% loss)	yes	no	small	Berkshares
4.5 **Sol Violette**	no	no	yes	no	yes	NA	partly	yes	yes,city	NA	yes	NA	yes	yes	yes	yes	NA	no	yes (5% loss)	yes	no	very small	Sol Violette
5.3 **Talente**	yes	no	yes	yes	no	yes (50%)	no	no	no	0.0%	yes	yes	yes	yes	no	yes	yes	no	yes (15% loss)	yes	no	big	Talente
11.3 **Chiemgauer**	no	no	yes	balanced	yes	yes (50%-100%)	yes	yes	no	5.0%	yes	yes	NA	yes	yes	yes	yes	no	yes	no	no	big	Chiemgauer
13.5 **Palmas**	no	yes	no	no	no	yes (20%)	yes	it is a bank	no	2-15%	no	no	yes	no	no	yes	NA	no	no	NA	no	small	Palmas
	Approach - mission					Supports				Business model	Features of the CC									Others			

NA - Data about it Not Available

* pilot group with few hundreds of consumers from 2011

** = needs verification

Location	Santa Cruz	Okmulgee	Mason City	Carmel
State	California	Oklahoma	Iowa	California
Type of stamp scrip	tx-based	tx-based	hybrid	tx-based
Total issuance (No. Of 1-Dollar-notes)	1,050	3,000	10,000	1,200
No. Of samples	76	66	44	21
Samples in $ of total	7.20%	2.20%	0.40%	1.80%
First day of issuance	April 11, 1933	Feb 1, 1933	May 6, 1933	Feb 2, 1933
Last day of issuance	June 10, 1933	Apr 1933	July 1, 1933	July 28, 1933
Total stamps needed	50	35	52	36
Transaction fee (USD Cents)	2	3	2	3
Av. No. Of Transactions	48.7	32.5	52	32.6
Av. No. Of days of circulation	365.9	204.6	320.1	229.8
Av. Sales turnover per year (USD) = Velocity	51.8	97.1	60.6	56.6

Table 5 – Velocities of stamps scrip of several CC in the 30s Godshalk (2011)

for the first 100.000 Bristol Pounds supply was given after the first 5 months of existence. Businesses voluntarily offer discounts paid with Bristol pounds. Money supply as of March 2013 was 163,600 Bristol pounds as follows: 66,800 BP in notes + 96,800 virtual BP (in online accounts). The payment online (txt2pay) happened with 42,284 BP (10,720.08 Bristol pounds in March only) as well as 15,497.17 BP paid to the council (only virtual payments in total in the six months). There are pending estimates of the payments done online (with online banking) and the estimates of payments with the notes. There are 259 business? accounts (with accounts and over 500 businesses in total accepting notes) and 687 individuals from October to March. In turn, 5 part-time staffers contribute with 2-3 days a week (partly) paid by grants (philanthropy). The BP case, similarly to the RES Catalonia case, faces a strong barrier from shop-keepers to change their behaviours towards buying local, claiming that they lack proper local providers. In the two cases, it seems that having consumers buying local puts pressure on the businesses unless they share the vision of the greater good, working together to cooperate to survive or do better.

In the end, it is not clear at all that having consumers in addition to businesses speeds radically the velocity, yet it might contribute with 1. In any case, it increases the awareness and pressure to adopt the CC, which indirectly will contribute to higher velocity.

5. FINAL COMMENTS AND ASSESSMENTS

Peer currencies were divided in three groups: A) Talente Sol-Violette and Chiemgauer, B) Berkshares, Bristol Pound, and RES Catalonia, C) RES, WIR, and Banco Palmas. The categories are A, B, C that roughly reflect different approaches and missions, being A regional, B local, and C businesses oriented.

So the qualitative analysis with ensuing suggestions is as follows:

- It does not seem that commissions restrain the velocity of the CC, because the cases of the Chiemgauer and Palmas have commissions of over 5% compared with the 3 - 7% of the WIR and RES
- It doesn't seem either that yearly maintenance costs restrain the velocity.
- Size might matter: the highest velocity is achieved by less than 1,000 members in groups A and B. Small is beautiful?
- Professional management might (must) help: Chiemgauer outnumbers its peer Talente. On the other hand, there is no evidence that it makes a difference in the WIR, RES or Palmas. It is possible that it may have an effect on the scale of the currency: being run by professional staff, WIR, RES, and Chiemgauer have the highest amount of members

Table 6 – The case of RES Catalonia, and its analysis of the money supply, sales, and velocity

	2012	2013					
	November	Desember	January	February	March	TOTAL	
Num. of transactions	1,362	1,400	1,455	1,649	1,106	6,972	
Sales	10,894	16,789	13,462	12,261	14,485	67,890	
Acc. Sales	10,894	27,683	41,145	53,406	67,890		
B2C money-in EUR	3,410	6,850	1,511	5,440	2,260	19,471	
B2C money-in RES	6,342	12,256	2,132	11,212	3,538	35,479	81.7%
B2B money-in RES	1,510	1,414	1,767	3,270	0	7,962	18.3%
Total money supply RES	7,852	21,522	25,421	39,903	43,441	43,441	100.0%
Velocity	1.39	1.29	1.62	1.34	1.56	1.56	

and volume of transactions. The causality might run the other way, however, from size to staffing, because only the bigger currencies can afford to hire professionals.

- Staff being partly paid in CC might help to enhance trust in the currency, and disseminate first class knowledge of its use. The same case occurs with Chiemgauer and Talente.

- Does B2C boost the velocity? Good question, yet it might be true for the case of Chiemgauer and Sol-Violette, compared to Talente. Velocity is reasonable in the case of Berkshares, but it is unclear in the new born Bristol Pounds and RES Catalonia experiences. Stodder (2012, Table 3) shows that in all industrial and commercial sectors, the velocity of WIR is higher for smaller Registered than for larger Non-Registered clients. He models this as small businesses being more constrained by the scarcity of cash and credit in their national currency, and thus eager to substitute WIR for that currency. This same constraint and resulting velocity is likely to hold for most consumers.

- Blended loans help: This seems to be a velocity accelerator, as one sees an increase of 0.7 in the velocity of WIR when compared to RES, and the velocity of Palmas is 1.8 greater than Chiemgauer.

- Sense and pride of belonging might help: Chiemgauer devotes 3% of B2C money to social actions.

- It is unclear whether the support of the local government helps or not. There are a couple of currencies with strong local or regional governments' involvement as the case of Toulouse with Sol-Violette and Bristol with Bristol Pounds. However, it surely helps to sustain the early sustainability of the currency. We might note here that the special status of government-issued currencies (fiat or otherwise) as the sole legitimate means of payment for taxes or fines was crucial to their universal acceptance as money. This was the case, for example, with the "tally sticks" that became money in Medieval England, through their payment to the Exchequer, as shown by Glyn Davies in the History of Money (2005: 147-153). It is similar to the experience of the Talente and Bristol Pounds: local taxes can be paid with the CC.

- In the same way, it is unclear whether the support of a Bank has an impact. Palmas is top for velocity, but WIR is a bank as well and, anyway, its speed is low.

- In relation to demurrage, Chiemgauer and Sol-Violette are the only ones with this monetary property. Chiemgauer is the most reliable case, and it is worthy of consideration that it runs with a higher velocity than its peers, the Talente or Berkshares.

- Does scrip run faster than virtual money? It is not clear. It is true that the cases of the purely virtual currencies like WIR and RES show low velocity even compared to the rest of currencies that work with notes totally or partially, perhaps with the exception of Chiemgauer.

We have thus detected possible drivers for higher velocity in complementary currencies, being not only demurrage the factor boosting the velocity but a proper combination of utility and sense of belonging achieved by useful blended loans, a strong base of B2B members with some consumer involvement, and perhaps the intelligent combination of scrip and virtual money. In turn, size might matter in the sense that it seems apparently beneficial to strike a balance: not too small that is may not have sufficient critical mass but not too big either, where the sense of belonging might get diluted. On the other hand, there is no clue that public bodies or bank branches support encourage higher velocities. Having prosumers or non-registered members (in the case of WIR) seems to boost velocity in a well leveraged and healthy network of member companies.

As said, velocity is not all in a complementary currency, but just a sign of its lively utility and health, and the ground for its sustainability.

Our final comment on December 2014: Bitcoin and cryptocurrencies appeared as early as 2008 and since then they have attracted a lot of interest. One interesting fact is that in 2014 Bitcoin hit the velocity of 36! Certainly, there is long way to understand how a currency runs at high velocity, which well deserves an extension of this paper in a future study to be published.

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International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 128-136

PRICES IN PARALLEL CURRENCY: THE CASE OF THE EXCHANGE NETWORK OF CHANIA, CRETE

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ABSTRACT

This paper investigates the prices set within the Exchange Network of Chania and tries to examine what prices are attributed to which products and services, how those prices are set and what they reveal about the values of the goods offered. Moreover, the further aim of the paper is to explore the implications of those prices concerning the function of the scheme itself, within the context of the local economy of the Chania area.

The data have been gathered during regular visits to the open markets of the scheme since January 2012. Therefore, the paper attempts to contribute original research findings concerning prices in parallel currency schemes and study several important issues which arise in multiple currency practice

ACKNOWLEDGEMENTS

I would like to thank the members of the Exchange Network of Chania for their generous cooperation and assistance so that I could gather the data needed for this paper. Moreover, I would like to thank Mr Pantelis Koukousoulas (who is also an IT expert of the Exchange Network of Chania) for his insightful comments and editing advice.

Moreover, I would like to thank the Organising Committee of the 2nd International Conference on Complementary Currency Systems, for the accommodation grant they offered me in order to attend the Conference.

Finally, I am grateful to two anonymous referees, to the Editor of the 2014 Special IJCCR issue, Dr Georgina Gomez and to the Editor of IJCCR Dr Gill Seyfang for their detailed comments and advice on improving this paper in all theoretical, analytical and presentation terms. I would also like to thank the participants of the 2nd International Conference on Complementary Currency Systems (CCS) "Multiple moneys and development: making payments in diverse economies" (The Hague, 19-23.6.2013) for their comments and questions on a previous version of this paper.

Of course, all errors and deficiencies of this paper are the author's responsibility only.

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To cite this article: Sotiropoulou, I. (2015) 'Prices in parallel currency: The case of the exchange network of Chania, Crete' *International Journal of Community Currency Research* 19 (D) 128-136 <www.ijccr.net> ISSN 1325-9547

1. INTRODUCTION

This paper attempts to contribute to the knowledge we have about the prices set in parallel currency. Despite the statements of general nature concerning the prices in parallel currency schemes, we do not have much detailed information about the actual prices and what those prices might mean for the scheme and for the economy the scheme represents. The question of prices, therefore, needs to be researched in depth so that we understand how a parallel currency works in real terms.

Such a research would require many team projects to be undertaken and this paper does not do justice to the importance and implications of prices and price-setting in parallel currency. It is rather a pilot study to see whether we can work more with quantitative data outside mainstream economy and explore theoretical, methodological and analytical issues which arise from an economic phenomenon that is still under-researched.

My case study in this paper is offered by the Exchange Network of Chania (www.diktyoantallagonxanion.net/) , which is a parallel currency scheme established in autumn 2011 in the city of Chania, at the island of Crete, Greece. The name of the parallel currency is Unit/Monada and it has been established at a nominal parity of 1:1 with the euro currency, which is the official currency of Greece. The Exchange Network of Chania holds an open market every other Sunday where people can transact using the parallel currency, provided they are registered members of the scheme. The scheme's rule about price-setting is that people are completely free to set the prices they think are appropriate for each case.

The findings presented in this paper is part only of the original data gathered from the open markets, called bazaars, of the Exchange Network of Chania, throughout a time span of 17 months. The findings show that there are certain trends already concerning not only the prices but also the entire function of the open markets. On the other hand, more questions are raised to be researched further. The next section will present the question of prices set in parallel currency literature and section three (3) will explain the methods I used and the issues the data gathering and study involved. Research findings are presented in section four (4) and discussion on findings is in section five (5) if the present paper.

2. THE QUESTION OF PRICES

This paper is not an attempt to use quantitative data for the sake of quantitative methods but to explore certain aspects of parallel currencies with data that happen to be quantitative and also happen to be rarely used in parallel currency analysis. Although parallel currency literature shows a clear agreement among the authors that the main aim is to make goods and services affordable to everyone and make the economy really working, the issue of prices remains somehow vague, in the sense that prices are expected to fluctuate freely within a scheme without specific proposals or descriptions how those prices would work or how they actually work in existing schemes.

On the other hand, several research projects have shown that in certain cases inequalities of the mainstream economy are replicated or even reinforced within a parallel currency scheme, due to the similarity of price rates concerning certain goods and services. However, with the exception of research mentioned below, there is not detailed information about those problems, much less about the exact prices and how those might have been set in previous cases of parallel currency.

Interesting research findings concerning prices in barter or coupons/vouchers and their relation to the mainstream currency exist concerning post-Soviet Russia (Seabright 2000). Prendergast and Stole (2000:35-70) explore theoretically the effects on values and prices when barter exists in an economy under (il)liquidity shock where it seems that it is expected that poor people who cannot wait for a good deal are also in lower negotiating position when they transact without official currency, something that is also confirmed by Caroline Humphrey (2000a: 75-76). Commander and Mummsen (2000:114-146), but also Guriev and Ickes (2000: 147-175) have found that non-monetary transactions in Russia are used to maintain values and prices while there is little official currency to perform trade, which conclusion might be useful in perceiving parallel currencies as tools of price-securing struggle of various social groups or, otherwise stated, of price discrimination and renegotiation (Ledeneva 2000: 298-317). Barter pricing in favour of industrial producers and their produce at the expense of farmers has been evidenced clearly in Russia, which means that discriminatory practices reflect the power relations among producer groups, for example between peasant and industrial producers or between firm directors and firm workers (Humphrey 2000b: 259-297). Particularly about Katanovka local coupons, the prices paid in coupons were higher than the prices in roubles, which brought wide dissatisfaction because companies were at an advantage when selling in coupons for institutional reasons (Anderson 2000: 318-344).

Very important findings have been delivered by Gomez (2012) concerning Redes de Trueque (barter nodes) in Argentina, where remuneration for labour seems to be lower in the barter nodes than in the mainstream economy. Those who owned official currency had better negotiating power and actually determined the prices in the nodes. This situation led to exploitation cases and there is evidence that gender bias in determination of labour prices existed as well, although there were node members who would undertake explicit stance against those practices or modified their market behaviour and pricing according to just price-setting principles.

The gender bias is also a very important axis of such underpricing as Powell (2002) asserts, which means that already established inequalities in mainstream economy reproduce themselves in alternative spaces. Pierret (1999) and Bowring (1998: 103, 106-107) are even more specific:

redistribution is not guaranteed by any mechanism within a Local Exchange Trading System, while the parallel currency might oblige the most disadvantaged to avoid asking for a wage raise as poverty will still force down their claims. Lee (1996: 1380, 1384-1386) has similar worries about parallel currencies possibly becoming class or occupation biased structures, where capital controllers will keep reaping profits and workers ("low-skilled" labour, care workers, women) will be trapped in a more disadvantaged position.

Research findings show that the inequalities tend to be reinforced in low-income sectors although there is no exact information on the pricing process (Aldridge et al. 2001: 567-569, 573-576). However, we know from previous research that the local currency earnings for low-income and unemployed members were lower than the earnings received by the employed and affluent scheme members, because the prices and rates received within the scheme were analogous to rates and payments in formal economy (Williams 1996a: 1403-1411). Favouring the most affluent originated in the fact that wealthy scheme members can buy goods and services produced at lower rates than in the formal economy (Williams 1996b: 90-95).

That we can have asymmetric pricing equilibria when we have trading partners and spaces where more than one currency is used, it is shown by Devereux and Engel (2001). Although their study refers to international trade, one could ask the question whether exchange rates and choices of which currency is the pricing currency each time not only affect but may perpetuate a certain price structure. That is, in case there is an equilibrium in a parallel currency where f.ex. peasants or women are paid less for their products and services, this cannot change without the adoption of certain policies by the scheme or by collectively organised producer groups.

The present paper does not have as its scope to explore in general why people price their stuff the way they price it, although as one may see in the following sections, I have gathered some data on this too. What is important, is to take into account that prices are the surface or small indications of a deeply intertwined set of production means and circumstances, of power relations, of institutions and social arrangements, of state's role in managing the official currency (which at the end affects parallel currencies and barter too) and of the social position of agents on both individual and collective levels (Beckert 2011). Let's say that the lack of literature on parallel currency prices constitutes a condition of performing trust in currency schemes ((Beckert 2005) that people will set prices with good will and without intention of exploiting others, which in principle is always important to establish the scheme but it is not enough when a scheme functions and aspires to function long term.

From my own research with the Exchange Network of Chania but also with many other parallel currency schemes in Greece, it seems all schemes really stick with the common view in literature that free prices are enough a mechanism to ensure a proper function for the parallel currency, i.e. to ensure that all members have a chance to transact, sell products and cover needs through the schemes [There is only scheme in Greece having set upper and lower price limits. I have not any data on actual prices and how the price limits have affected the price setting process]. Moreover, nominal parity with the euro currency is also adopted by the schemes. However, this parity choice has its own conveniences and inconveniences. In October 2012, at an open Conference organised by the Department of Sociology of the University of Crete, the schemes of Crete discussed for the first time openly the issues which are created by the parity with the euro currency, mostly the transfer of mainstream pricing to the parallel currency schemes. The discussion has just begun and the schemes have not reached any resolution yet about this issue.

Concerning my own research questions, those are related exactly to an effort to trace mainstream pricing patterns hidden in parallel currencies which create inequalities or redistribution in favour of the advantaged members. After having explored the same question through qualitative data (Sotiropoulou 2012a), I believe that quantitative data can be enlightening too. Moreover, if anyone would see an alternative potential in parallel currencies for a fairer, more democratic and more egalitarian economy, this could not be possible without fair prices (Sotiropoulou 2012b). Of course, the present paper is more modest in its scope. It just attempts to show actual price patterns and raise questions on how those patterns might affect the scheme economy.

3. METHODS USED

Given that the Exchange Network of Chania does not keep record of prices which appear within the scheme, I gathered the data myself. I opted for attending the bazaars of the network i.e., the open markets held every other Sunday and I collected information on the goods offered there. Of course, many goods and services are transacted within the scheme in other times and spaces, as many members prefer not to attend the open markets and to perform instead their trading by the use of the online system only. Moreover, services cannot really be provided in the bazaar. Information about prices exists also on the Forum of the Exchange Network of Chania, but I did not use the price information found there, because many of the products are also offered at the bazaar. Moreover many items are advertised at the Forum without any price announced for them.

As a consequence, it seemed that for the first stage of price-setting exploration the open markets would offer a satisfactory insight. Therefore, I visited twenty two (22) bazaars from January 2012 to May 2013 and I collected price information directly from the people who were at the bazaar stalls.

In many cases people were not sure what the prices of the items were, even if they were about to sell those items. It was obvious that they were also experimenting with prices, which means that probably after a couple of years, they might have a completely different attitude or choice of

prices, as well. In other cases, they were telling me the general prices, but they were also pointing out that in case of bulk buys, they were willing to offer better deals to the buyers. That means, prices can be even lower than what I was writing down at my notebook.

The issue of quantity and measures was an important one, concerning food or cosmetics. For own-produced stuff, most people did not have usually measured the exact quantity of the product. Therefore, most quantities written down and used for this paper are calculated at an approximation. An important note should be made here: people were not measuring because it was difficult in practical terms, not because they had any intention of cheating. In all cases I randomly asked them to measure quantity of a good offered, it was equal or more than the quantity they had stated it is. Keeping saying less than the probable quantity sold was quite common in the bazaars. Therefore, it is probable that the need for calculating prices with some exactitude might be unfair to all those people who knowingly or not, opt for a very special type of "generous measure" (Gemmill & Mayhew 1995: 81-109) in order to trade in the Exchange Network of Chania open market.

One more important point concerning prices is that the online software the Exchange Network of Chania used till late May 2013 did not accept but only prices in whole units or at least prices ending in half unit (0,5). Scheme members, though, have been inventive whenever they wanted their products to be priced in a different way. For example, anyone who wanted to price his fruit as 0.33 units per kilo, priced them as 1 unit per three kilos. That means, many prices used in this paper have been set in this way and then I calculated the price per kilo in order to make prices comparable.

The data gathered was raw and covered all types of goods offered at the bazaar. Some services are also advertised in the bazaar and I kept writing down their prices, but it is impossible to have any picture about prices on services without a questionnaire. For the purposes of this paper, I selected ten kinds of goods which are offered within the network and I tried to combine the price data with the dates of the bazaars I attended to see how the prices are evolving through time. I have not attended every bazaar but the twenty two bazaars I attended cover the entire time span of seventeen months from January 2012 to May 2013. I kept all prices concerning each good intact i.e., there may be several different prices for the same good at a certain bazaar. To show the various prices in each bazaar in the graphs, I use different colour for each price bar whenever there is variety in prices.

The people who sold the stuff explained the prices in terms of quality of the product, or in terms of the work it needs to be produced, or in terms of prices in the mainstream economy i.e., the euro currency prices. Price plurality seemed important, not only because it is not possible for me to verify quality or skill and work time needed to produce something, but also because I think this is the essence of the parallel currency: if I stick with an average price at this stage of research, maybe I would miss important information that still has not been crystallised concerning the price setting behaviours.

At this point, I should state that I take all statements about quality of the products as true – just like the general rule of trust and solidarity of the scheme requires. I could also say that any product or service I received personally as a member of the scheme was of high quality and complaints about quality have not been known so far (apart from one case which was mentioned anonymously at a scheme assembly).

In the following section four (4), there follow the graphs concerning the prices of ten kinds of goods, most of them produced by the scheme members themselves. I opted to present only two goods which are sold as second-hand stuff (women's clothes and adults' shoes) although there are many used goods which are sold in the Exchange Network of Chania. The reason is that I thought that for the purposes of this paper two only are enough to show the trend in used goods. On the other hand, I preferred to stick with foodstuff which is produced and traded in the scheme.

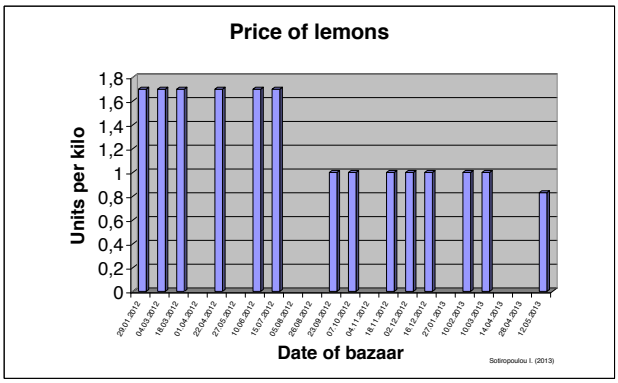
4. PRICES IN PARALLEL CURRENCY FOR TEN KINDS OF GOODS

For each good, there is one graph concerning price data gathered. In each graph, the exact date of each bazaar is written, so that it is clear when the data has been produced. In cases where there is no price data for a bazaar, it means that this item was not found in that specific bazaar. It has not been possible to have any data gathered on bazaars I could not attend.

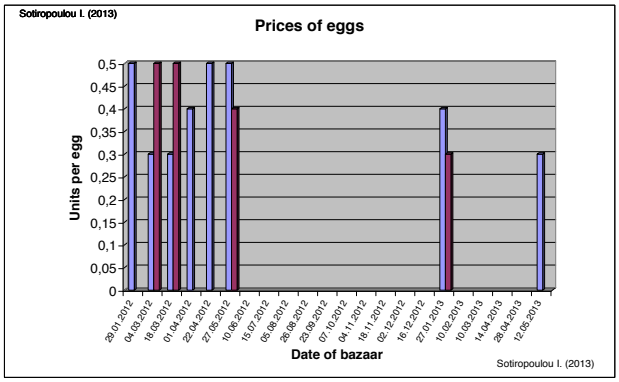
4.1. Lemons

All lemons offered in the bazaars are produced by the scheme members and they are cultivated without the use of agro-chemicals. Lemons are very popular in local cuisine, because they are used in most foods and salads, let alone juices, sweets and jams. Then, it is a product with regular demand.

From the graph, one can see that the price of lemons has been falling during the 17 months of the data collection. In some bazaars there were no lemons, but whenever lemons exist their price was the same all over the bazaar. However, one could attribute this to seasonalities of production. Therefore, safe conclusions could be drawn after some years of bazaar performance.



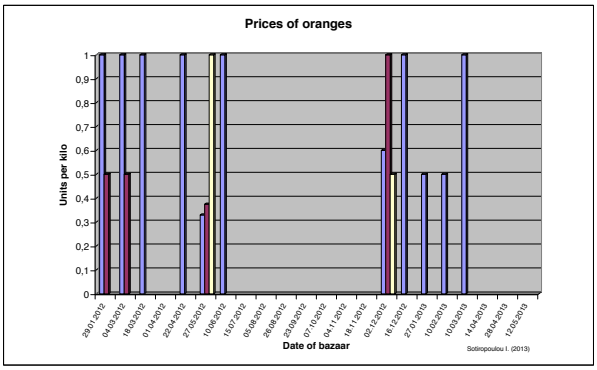
Graph 1: The price of lemons



Graph 3: The price of eggs

4.2. Oranges

The availability of oranges in the bazaars resembles more or less the availability of lemons, thus seasonality might explain when oranges are sold in the bazaar. The prices of oranges seem to be steadily varying i.e., there are oranges priced at 1 unit per kilo and oranges priced at 0,5 unit per kilo, or even less in some cases. Variety of prices for oranges exists in the very same bazaars. Some producers explained this to me by the type of oranges sold in each case. Oranges are also self-produced organically by the members who sell them.



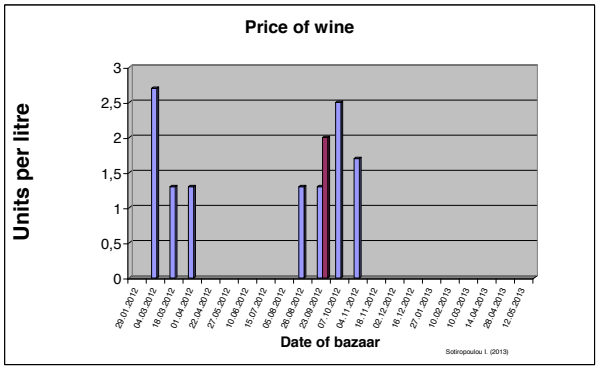
Graph 2: The price of oranges

4.3. Eggs

Concerning eggs, many transactions were made outside the bazaars, as one could see from the scheme's online forum. Then, the graph is only indicative concerning the bazaars and reveals the price variety concerning this product. To be sure whether the variety in prices in the early bazaars really led to a price reduction after a year, we would need data from other sources, perhaps to gather more data from future bazaars. All eggs are organically produced by the scheme members who sell them.

4.4. Wine

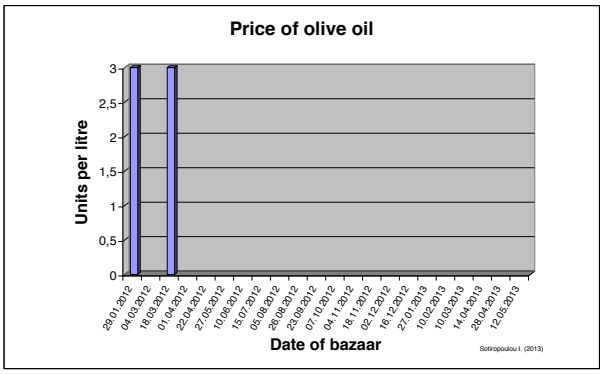
Unfortunately, despite that wine is widely produced in the area of Chania, both in small farms and in households, it was not so common a good offered in the scheme bazaars. One could also attribute this lack of availability probably to low demand: if every household has wine, then probably small producers of wine do not find it satisfactorily remunerating to attend the bazaar, once anybody can buy wine at any other time. Prices are low anyway, which means that for a producer to spend his Sunday in the bazaar, he/she would need to sell many litres of wine to have an incentive to come.



Graph 4: The price of wine

4.5. Olive oil

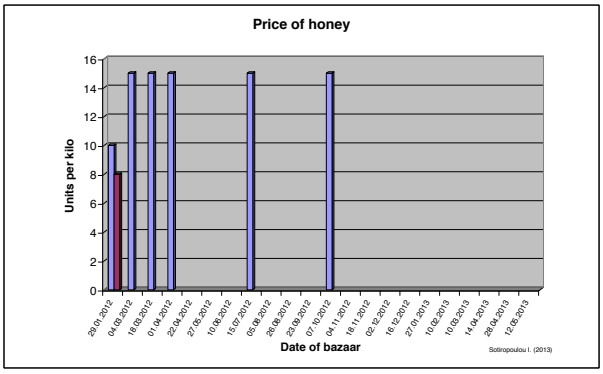
The case of olive oil is also indicative of the producers' case. Olive oil as a product appears a couple of times in the early bazaars and then it did not appear at all. Many people were commenting in the bazaars that "we all have olive oil", then they would not buy more. Of course, I have seen demand and offer of olive oil in the online scheme's forum, which means that people were trading olive oil without waiting for the bazaar. Particularly for households who would want to buy five litres or more, the difficulty of transport of olive oil containers would make their visit to the bazaar inconvenient.



Graph 5: The price of olive oil

4.6. Honey

Honey is also a very interesting case. In the early bazaars, it was a good regularly offered. However, afterwards, there was only one producer offering certified organic honey, which was more expensive than the non-certified. Even that producer did not offer honey after some time. I do not know whether his stock was over or he did not find it rewarding to sell his honey at the bazaar anymore. Honey has its own seasonality, although it does not deteriorate if stored properly, which means that small producers do not have to follow that seasonality that much.



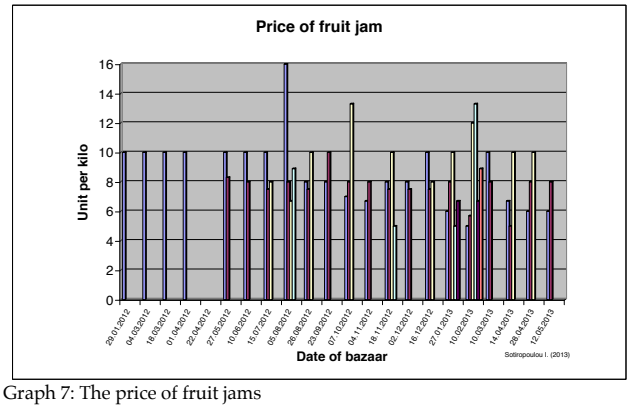
Graph 6: The price of honey

4.7. Fruit jams

Fruit jams are very common and popular at the bazaars of the Exchange Network of Chania. Given that jams are a good way to store fruit which otherwise would not be consumed and at some point it would not be consumable anymore, they form a type of product which every household can produce and any seller can stock in case buyers do not buy immediately. Therefore, there is an extended variety of jams in the bazaar: orange, lemons, grape fruit, citrus, quince, figs, kumquat, rose flowers, apricots, sweet pumpkin, huckleberry, apricot, mulberry etc. Consequently, prices also vary because some fruits need more time to be collected, and some other need special preparation to make the jam. Additionally, seasonality of the fruits affects the availability of the types of jams and consequently their prices.

It is very interesting that jams might have some seasonality, but they are not as seasonal as the fruits themselves. On the other hand, the popularity of this product, and its ability to be stored for long might have given incentives to produce more and even lower the prices, as the following graph shows.

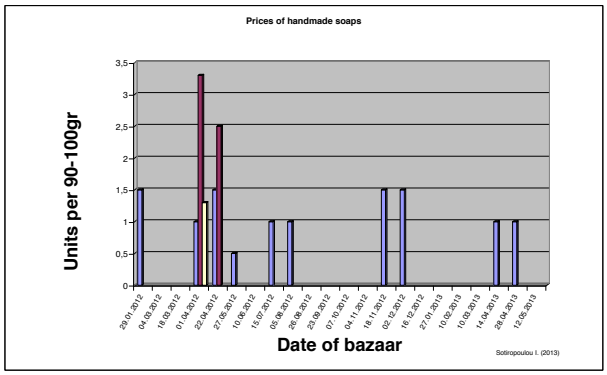
One more thing that is very obvious from the graph is that price variety, linked to product variety, increased as time went by. That means, more people entered the jam market for parallel currency and they also had the chance (or were pressed) to lower the prices. I can tell that people who make jam, i.e. have tools and know-how to make it, usually do not make only one type of jam. Which means that the colourful bars indicating variety in prices (and products) having a downward propensity might be an indication to search for small economies of scale and efficiency improvement.



Graph 7: The price of fruit jams

4.8. Handmade soaps

Handmade soaps are available through the Exchange Network of Chania, but they seem not to appear regularly at the bazaars. All soaps are made with natural ingredients. We cannot reach any definite conclusion through the data we have so far, apart from the indication that in the early bazaars prices varied.



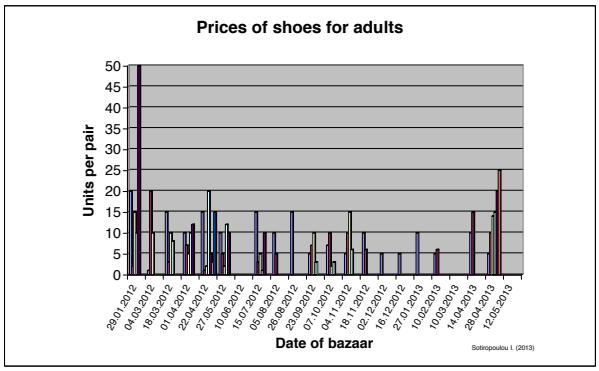
Graph 8: The price of handmade soaps

4.9. Used shoes for adults

For this graph, I did not distinguish between shoes for men and women, however each price collected has been annotated for which the shoes might be. Children's shoes are not included in this graph, as I left all children's items (like clothes, shoes, accessories, books and toys) for another paper.

It has been observed that for used stuff, prices might vary enormously from prices which are "symbolic", like 1 or 2 Units, to prices which remind of the mainstream shoe-store prices. Quality is not the only argument for the price of a pair of used shoes; neither is always the condition of the item sold i.e., many "new" things might have a very low price. Many sellers just want to get rid of the shoes they do not use anymore, then they sell them at very low prices, while other want a certain remuneration for the shoes they sell, even if the shoes are apparently used.

In brief, used shoes are very regular items offered at the bazaars and their prices vary very much. The colourful bars show exactly this trend but also the variety of the items offered in the parallel currency open market.

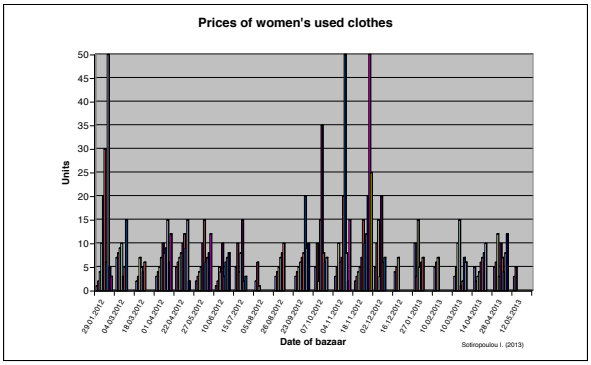


Graph 9: The price of shoes for adults

4.10. Used women's clothes

Just like adult's shoes, women's clothes can be found in every bazaar, and the prices are usually low. Prices which are very high usually refer to designer clothes or leather coats i.e., to clothes which have been purchased at a very high price in the mainstream market. Probably, there is some seasonality with clothes and shoes too, depending on the season change. In other words, maybe the availability of clothes and their prices might rise in times of change of season, when everyone decides which clothes needs and does not need for the next winter or summer. At the end, of course, it seems that the variety of prices remains stable at some levels.

Concerning the variety itself, it seems similar to the price variety of shoes, as the many bars (in different colours) for each bazaar date show. There are sellers who just want to empty their closets and keep prices low to sell quickly and others who want to make some more units out by selling their clothes and prefer to set up higher prices. What is important, is that most sellers give a similar price to all similar items they sell (same price for tops, same price for skirts, same price for trousers) irrespective of let's say, fabric quality or design, in order to avoid detailed pricing for each item. Other sellers prefer to price each item separately, however they still keep items with same price at the same areas, so that they can inform the potential buyer quickly and clearly about the cost of each group of items.



Graph 10: The price of women's used shoes

5. DISCUSSION

Perhaps, it is too early to reach any safe conclusion. However, from the data I have till now, I would assume that there are already some price trends in the bazaars of the Exchange Network of Chania and it remains for future researchers to examine what the trend will be from now on:

a) Used things are regularly offered in the bazaars and at a great variety of prices. They mostly originate in goods that scheme members have bought in the mainstream economy and for any reason, they do not want them anymore. People

are interested in buying used things, particularly clothes, but used clothes are always too numerous compared to the demand, as everyone seems to have bought more clothes than what he/she would need in a medium term timespan. Seasonalities in used clothes and accessories might exist in quantity available in the scheme, but this does not affect much the availability and the prices of the items. In other words, it seemed that used clothes always exist in the bazaar and their prices always vary from stall to stall. I have no data on quality seasonality of used stuff, but I know that people were happy to find clothes without needing to use official currency.

b) Some locally produced food items are also more or less regularly available at the bazaars, based on the seasonality of their production i.e., the natural circle of producing fruits and vegetables. It seems that their prices are stable or slightly falling through time. There is needed another research project to explore the reasons of this stability or slight price fall through time as the data I have so far cannot give any possible explanatory ideas on this question.

c) Some locally produced food items are available through the network but they are not regularly available at the bazaars. They might be traded through other channels of communication, like the online scheme forum or the e-mails and cell phones of the scheme members, which are free to trade at any time and place they think of as appropriate. The overall trend for most of them is that their prices are low or tend to be stable and/or falling, but if those products are not available at the bazaars one could ask whether the producers are not happy with the prices they can negotiate at the bazaars or whether there are any other problems. Neither is known how scheme members make decisions on where to sell, at the bazaar, at their place or at other spaces. Convenience or marketability are only hypotheses who need to be checked further, as the price data do not help on this question.

d) In other words, the cost of transporting products (some of them, if cut from the field, would need to be disposed within certain time span) and spending almost an entire day, particularly a Sunday, at a bazaar might be too high for producers to dispose their produce at the scheme bazaar. If this is combined with low demand and/or low prices, then it might be understandable that producers might prefer to sell at other time and place and not in the bazaars. That does not mean that they might see the bazaar as a burden only, but I try not to evade the hard work of a producer and seller entailed in a parallel currency scheme with other aspects of economic activity, like socialising or meeting friends or visiting the city centre after the bazaar etc.

e) As a researcher, I find the analogy between the availability and prices of foodstuff and used stuff somehow worrying. If one observes the graphs, one would see that at the end, what is always available at the bazaars is the used stuff. Foodstuff has other rhythms of appearing and disappearing from the bazaars. Prices are also a big question, in the sense that food producers sell work they have originally done for the scheme, while clothes sellers sell work which has been integrated into the clothes that have been produced outside the area of Chania, probably outside the country or continent – and this work originating in the clothes has been acquired by the scheme members originally for purposes other than contributing to the scheme and its aims.

f) From what has been observed till now, the tension between industrial goods, not produced by scheme members, and non-industrial goods, produced by scheme members, is present and transcends the entire function of the scheme. In other words, industrial goods are still everywhere and attracting high prices in parallel currency, although the scope of this currency is to enhance local production, direct disposal of produce and small producers themselves. I write this having in mind all the data I have for all goods and prices in the bazaar of the scheme. Price levels though are evident still in the data published in this paper, although I tried to give more data on locally produced stuff.

g) Copying the mainstream prices with a parallel currency is more or less a normal effect, if a scheme adopts any nominal parity with the official currency. The question is what possibilities exist to reverse mainstream valuations of goods and services, or to redistribute value which is transferred to the advantaged people through the mainstream economic and monetary system. How can a parallel currency achieve such an aim or, at least, have prices in parallel currency anything to do with such a question?

Hopefully, analysing the rest of data, and possibly gathering more data in the future will clarify better both the trends of prices and the effects on local economy.

6. CONCLUSIONS

My intention in this paper was twofold: first to show what we can learn or question to learn from price levels in parallel currency. Second, I have several questions concerning methodology; parallel currency prices and parallel currency price-setting. We would need another research project to verify exact, i.e. price-detailed similarities, but also disparities with price-setting procedures in the mainstream economy. General trends are not enough to define price-setting mechanisms, let alone that qualitative methods would also be needed to discuss with participants in detail each pricing, either from the seller or from the buyer point of view. How should a researcher deal with this vagueness and variety of prices? What methods should a researcher use to acquire accurate data and knowledge over the price-setting in parallel currency under the main condition of emerging transaction tools that even the scheme members themselves experiment with?

This paper showed that there is vast data and this can also be quantitative concerning parallel currencies that researchers need to explore, gather and study. Moreover, it showed that even if it is impossible to quantify economic activity in parallel currency as economists do in the mainstream economy, quantity, and specifically prices are one aspect among many that we need not to ignore in order to

have a more global view of a scheme activity. Perhaps, we need to examine, improve or re-invent quantitative methods to be appropriate for parallel currencies. Hopefully, other researchers would also be willing to work on this aspect of parallel currencies to make possible comparison, discussion and improvements in both theory and practice.

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International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 137-151

COOPERATION AND INTERTRADE BETWEEN COMMUNITY CURRENCIES: FROM FUNDAMENTALS TO RULE-MAKING AND CLEARING SYSTEMS, INCLUDING A CASE STUDY OF THE ZURICH AREA, SWITZERLAND

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ABSTRACT

Cooperation, interchange or intertrade of complementary currencies is not yet very common, perhaps of because the funding impulse of most complementary currencies does not cover the question of interchange and cooperation yet, or because theoretical aspects are not often studied. The article describes money or currency as an instrument of cooperation, based on a sociological and institutional economics background. It then postulates currency as an operating system and focuses on the technical terms of trade if one would try to establish cooperation between such systems. Basic principles of interchange and intertrade, which are necessary for success, are presented, such as the ideas of trade balance, compensation funds, exchange rates and clearing, set-points and limits, references, anchoring money and tolls and taxes. Further some aspects of governance and negotiation are discussed and a nested framework of rules is adapted to currencies. As an Appendix a case study of the Zurich region is presented where a process of negotiation and building of an interchange network between several CC-groups is on-going.

ACKNOWLEDGEMENTS

I would like to thank the participants of my first presentation and the different people who discussed with me the topic of cooperation at the CCS-Conference in The Hague. A special thank goes to my colleague Lucas Huber and the two reviewers for adding important thoughts and improving the article substantially and to Mr. Beat Morf who worked hard to do the editing and correction in English.

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To cite this article: Martignoni, J., (2015) 'Cooperation and Intertrade between Community Currencies : From fundamentals to rule-making and clearing systems, including a case study of the Zurich Area, Switzerland' *International Journal of Community Currency Research* 19 (D) 137-151 <www.ijccr.net> ISSN 1325-9547

MONEY AS AN INSTRUMENT OF COOPERATION

Economic theories refer to money as a means of exchange or as a store of value etc. Money is still shown as a kind of technical invention to overcome some barter-trade-difficulties in todays textbooks (e.g. Samuelson/Nordhaus 2010, p. 684 ff.). The financial system is then used as a term to describe the collective effects of all money. This system is watched and deeply researched to demonstrate its effects and find out some "natural laws" among it. In theories of monetarism e.g., money is seen as kind of energy that has to be mastered by the central banks. The main goal here is to avoid inflation and the second is to keep up economic growth. This behaviour must be fatalistic if money really was invented by man, but is then taken as a kind of unchangeable natural force. Unfortunately these bleary theories meet a public opinion, where money became an individualistic tool or even a magical instrument for living a good life personally. The further inconsistencies of all these believes have shown up very strong lately and many great thinkers and scientists have already presented much better models, but still this simple bunch of unreflected thoughts remains the leading paradigm of our time. This strong discrepancy might even be one reason why the community or complementary currency (CC) movement arose: To dispel such false beliefs.

Because here on a small scale it becomes obvious what is hidden in the big central-bank-money-system behind an obscure wall of power-games, meaningless complexity and out-of-date habits: money is a major means for working together, for sharing resources and for sharing wealth. There are other aspects of money, but in this article we will look specifically at these. Unless specified, we author all the figures in the article.

Emile Durkheim wrote his pioneering work *The division of labour in society* already in 1893. He discussed the moral and social side of this on-going phenomenon and pointed out clearly at the end:

> "But if the division of labour produces solidarity, this is not only because it makes each individual an 'exchangist', as the economists say; it is because it creates between men a whole system of rights and duties which bind them together in an enduring way. Just as social similarities give rise to a law and a morality which protect them, so the division of labour gives rise to rules which guarantee peaceful and regular cooperation between the divided functions." (Durkheim 2012, p. 477)

As we know today, Money is an undispensable tool for the division of labour, but Durkheim did not name the money in his description, he just name its function: *the division of labour gives rise to rules which guarantee peaceful and regular cooperation between the divided functions.* This is exactly a description of the function of money or better of the role of currency. It is as a "vehicle of rules" an instrument of cooperation and facilitates it strongly. Further on Durkheim continues: „But it is not enough that rules exist. They must also be just, and for that to be so, the external conditions for competition must be equal." (Durkheim 2012, p. 478). So the division of labour requires that money itself be built with just rules and functions that support equality.

In this article we will look at institutional and organizational aspects of cooperation between currency communities. This is already a next level. If cooperation is a basic feature of a currency, the exchange between different currencies must include this aspect too. In other words: we will take a meta-look at cooperation and cooperation-instruments.

CURRENCY AS AN OPERATING SYSTEM

Currency is an interesting term because it demonstrates that a big difference exists between money on an individual level and money on a collective level.

One generally accepted definition of currency has two aspects (from the internet, The Free Dictionary):

1. Money in any form when in actual use as a medium of exchange, especially circulating paper money.

2. Transmission from person to person as a medium of exchange; circulation: *coins now in currency*.

In English current (from Middle English *curraunt*, meaning *in circulation*) highlights the flowing aspect of money. In German the term „Währung" (from the historic Middle High German *werunge* for "Gewährleistung" or warranty) emphasizes the aspect of a reliable order or a guaranteed value. Another more figurative description of money and currency taken from weaving could be: "currency is the warp ("steady"), money the weft (in action)".

All these descriptions are perhaps good and useful. I suggest the following definition for the term currency used by the Community-*Currency*-movement:

> A currency is a representational reflection of a collective and dynamic agreement (or institution or framework of rules) to manage wealth in a community. It is an instrument for the exchange of goods and services and the determination of participation of the participants. A currencies two main components are *quantity (represented by number)* and *unit (represented by name).*

Currency functions as a kind of operating system for the economy but it is much more difficult to upgrade than a computer's because a part of the code is in peoples' minds and habits: It has become an *institution*. Institutions are systems of established and embedded social rules, that structure social interactions, as defined by Hodgson (2006, p. 18). By reinventing money on a small scale, CC's become organizations which are defined by Hodgson as:

Organizations are special institutions that involve (a) criteria to establish their boundaries and to distinguish their members from non-members, (b) principles of sovereignty concerning who is in charge, and (c) chains of command delineating responsibilities within the organization. (Hodgson 2006, p.18)

These organizations create and hold the frame of a currency and maintain some basic functions, while others are set within the daily flow of the money by its users (agents). Each organization covers a small or even very small area of economic activities (compared with the overall system). As small areas they might remain isolated islands and not be able to facilitate the urgently needed change. Only if the existing organizations (or groups) start to work together and build up a network of cooperation, an advanced and more intelligent operating system for the whole economy might be developed. This new operating system then would challenge the existing institution and in case of success will be transformed into an institution itself.

FORMS OF COOPERATION

It is not easy to categorize the different forms of cooperation which might occur between groups or organizations that emit a currency because such forms rarely exist today. I propose the following terminology to talk about the different aspects of cooperation between currency communities in this article:

Suggested terminology

Cooperation: stands for any kind of structured settings and cooperative measures between such groups. Cooperation starts with communication between responsible members of different groups and might continue to negotiation of terms of trade up to strong contracts between the groups. The cooperative area covers a wide field from very simple details of respecting and acknowledging the other group, joint action or e.g. sharing and developing the same accounting-software. Cooperation is essentially needed for:

- establishing additional instances like councils or joint funds,
- lobbying against legal discrimination of CC's,
- coordinating activities,
- investigating innovation,
- setting up standards,
- educating about CC's in general.

Interchange: stands for general exchange operations between the groups. Interchange is used to describe a closer cooperation of a more or less reciprocal exchange. It includes intertrade but also subjects like membership exchange, or exchange of business data and information.

Intertrade: stands for the exchange of goods, services and currency between the groups. Intertrade is therefore used as a term to describe trade as the central economical part of such a cooperation. It is essential to see that intertrade is not necessarily the dedicated form of cooperation which has to be used by CC's. In some cases trade between CC's might be restricted or even prevented by cooperation, e.g. to avoid unbalances or protect certain forms of social relationships.

Advantages and disadvantages of cooperative actions between CC-organizations

The CC-movement tries to build a better world by inventing and using new kinds of money. Many of its small but mostly independent organizations are already functioning well, influencing people and helping to cover urgent needs. They are precisely adapted to their environment and most of them are nonprofits. Would cooperation and especially the possibility of intertrade not destroy the whole idea of a sustainable small-scale economy? Let's see some pros and cons.

Pro cooperation of organizations:

- It strengthens the individual organization and supports the whole movement.
- It can get bigger markets for own products and services.
- It can help to overcome the "critical mass" of participants for a currency.
- A big network can support trustworthiness and safety of a currency.
- It gets more resources by sharing them.
- It can help to develop new forms. Etc.

Against cooperation:

- We need strong dams and borders against the "money-flood" and today's wrong money. With interchange they will be weakened.
- There are much greater risks of unbalance and abuse.
- The easy-to-use interchange mediums already exist: use dollars or euros to get anything.
- The stronger will survive and the smaller will be merged, as always, and we won't get away from troubling the world with inadequate money.
- The risk of causing legal problems and judicial examinations will increase - at least when the volume of interchange reaches a certain level.
- Interchange between different kinds of currencies makes it harder to define the purpose and the characteristics of a specific currency. Etc.

COOPERATION TO SUPPORT DIVERSITY

One very important subject for the future of the world economy and of mankind's life on earth is the mental jump or shift of paradigm from a particularized viewpoint of "we against the others" into a inclusive viewpoint of "we respect the others". The old paradigm was maybe based on *Stability* through a *Unity* of money as one "neutral" medium, the new one will be founded on *Resilience* through *Diversity* (see Hubert, 2011 or Lietaer et al. 2012). A new

money system or a new network of currencies should be built on that. But what does this mean?

Diversity

Diversity is a topic that does challenge us. Theory and our mind would agree with more diversity, but through many different types (of whatever) the area of unknown is raising and this might rise our fear of it too. This causes troubles, irrational behaviour and limits trust, which is essential for any cooperation. In long terms we must learn "living diversity" as it seems to be a natural law. So it is important to find methods to adapt it and one of these methods could be a split up of "the one money" into diverse currencies. A future diverse currency environment might have some of the following properties:

- Diversity will have as a result many different currencies and exchange systems close to each other. Different topics and tasks might be served by different types of money - different philosophies and different areas/regions too.
- Currency communities will have to build formal structures of governance, of insurance and rebalancing abilities, of political or juridical lobbying, and of internal standards and quality matters.
- Worldwide trade will be strongly reduced by intercurrency borders, and local trade strongly reinforced by the advantages of local currency.
- There will be gateways to exchange the different currencies, which will be regulated by the needs and possibilities of the participating communities and the aim to assure fairness. This would be a first "guardian of resilience".
- Prices might be adjusted at each gateway with many kinds of toll-like fees and additional taxes and through exchange rates to reduce imbalances between the communities. This would be a second "guardian of resilience".
- There will be special treaties and funds for compensation and fair balance as a third "guardian of resilience".
- People will perhaps have a large selection of currency in their "wallet" for specific uses and will find it strange how only one money for everything was possible in the past.

Governance

Governance appears to be a top priority or a superior topic when considering cooperation. Existing networks of CC's are usually based on their type. In many countries at least informal networks do exist. There are already some established national federations such as:

- IRTA, The International Reciprocal Trade Association (Barter systems)
- Associazione Nationale Banche del Tempo in Italy (time banks)
- Regiogeldverband Deutschland (regional money)
- LETSLINK UK, UK Local Exchange Trading and Complementary Currencies Development Agency (LETS)

Most of them are nationally based. Only the IRTA is an international network or umbrella organization that also requires its members to follow certain standards of practice. The general influence of these structures on governance of CC's is still quite small. A crucial question discussed is if conventional structures as associations are still useful in a time of transition and with the goal of establishing a sustainable economy. So new models might come into focus like sociocracy (see website Sociocracy) or holacracy (see website Holacracy).

INTERCHANGE

Currency communities are very much focused on the exchange between their members either by using their currency or by the implicitly resulting processes such as giving or sharing. Interchange between such groups is therefore a natural step to take and might include:

- sharing of information, experience or templates for rules or structures;
- setting up joint structures for support, research and discussion.

Future possibilities of interchange might include:

- exchange of data about members or even emphasizing multiple memberships;
- exchange of data on trade and information about currency parameters to allow better governance of local and regional economies or even the world economy;
- install instruments to facilitate fairness and help groups for the disabled.

A further preparation for the understanding of cooperation between currency communities is to look at the field of balance or equilibrium, which is an important subject if we start to talk about intertrade.

PRINCIPLES OF ECONOMIC EQUILIBRIUM

Economic equilibrium is a term widely used in economics but here we do not refer to such problematic concepts as competitive equilibrium or the Nash equilibrium because they are theoretical constructs far away from reality. The term equilibrium as it is used here means a temporary result of a dynamic process of balancing. A good example is a human being standing upright. While he or she is standing

upright in equilibrium, the muscles are always working to balance this state. Even closer to an economy is the "walking-equilibrium" where an additional movement forward of the body has to be balanced. So the equilibrium can be seen as a combination of a set-point that constantly has to be approached and a specific use of alternating muscles to keep the balance. (For a further introduction on set-points see under technical terms and items.)

For currencies as operating systems this metaphor can be useful to define the necessary systemic parameters. There is a need to find or define the set-points which sometimes already result from certain assumptions. A second set of parameters, "muscles", meaning working parts which are able to keep a balance, has to be defined or identified.

One other basic assumption now made regarding currencies is, that with a currency and the translation of values into numbers, set-points and balances can also be represented as numbers. "Constant positive" numbers are called wealth, "constant negative" numbers are called debts. Here time is crucial to determine what the significance of "constant" in a certain case means. We will now distinguish different levels with different set-points and different balancing methods which have to be used.

Individual level

An individual person or entity as a participant or user of a currency should have its input-output balance: by spending money his/her balance gets smaller, by earning money his/her balance gets larger. Ideally both of these activities should have the same strength (see Figure 1). But where is the set-point? Different answers might occur:

- In a LET-System the individual set-point is zero. Negative is possible and even necessary for some to "create" this type of money. Individually there is a negative limit and in some systems there is also a positive limit. So it uses a certain (usually quite small) bandwidth.
- In the dominant central-bank-system the individual set-point is surely above zero for ordinary people. It is not defined where but it is suggested the higher the better and it might be infinite (which indicates one more source of systemic instability in this system). Debts or a minus balance are possible but will be veiled and this is still frowned upon. This is somehow strange because this system works in one point much the same as LETS: large amounts of money only exist as long as somebody is in debt.
- With the old-fashioned gold-coin-currency (or other metals too) the set-point of the whole system was the total amount of metal. A positive account was a certain number of coins; a negative number was somehow not possible. Instead one had to use a parchment or make a personal promise to pay it back to create "negative coins".

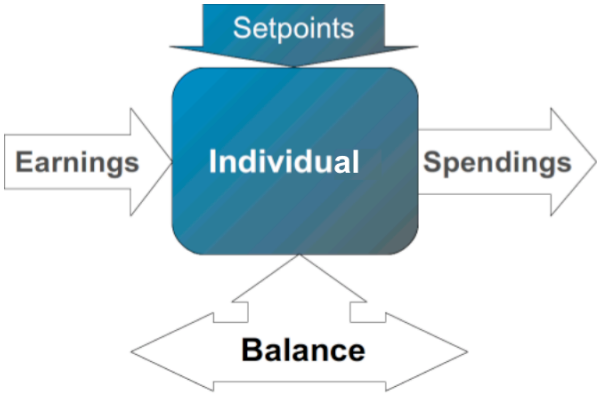


Figure 1: Individual balancing scheme

A general assumption of every currency on the individual level is, that each person or entity should be responsible for his/her balance and fulfil the requirements for the set-point(s). But as reality shows, long term debts or really large fortunes are things that are very common because the rules of today's money evoke such accumulation. A "rich man" can easily have hundreds of millions of debts and his banks are very happy about that, while a "poor man" with a debt of only €1000 will probably be put under heavy pressure to pay it back.

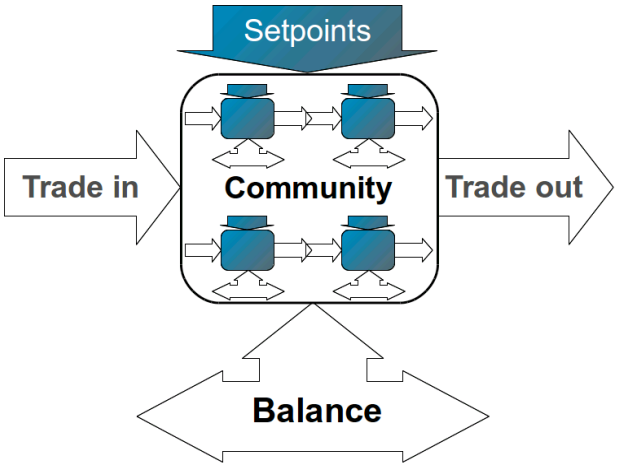


Figure 3: Currency balancing scheme in the case of inter-trade between currency communities

Group/community level

What is different if we look at the group level, meaning the group or community of people forming a currency? In this case we have additional features for equilibrium and balance to be considered as parameters. How about complementary currencies? As long as a currency works as an isolated system for itself, this question of additional parameters can be neglected. As soon as we think of starting an interchange between different systems, we have to deal

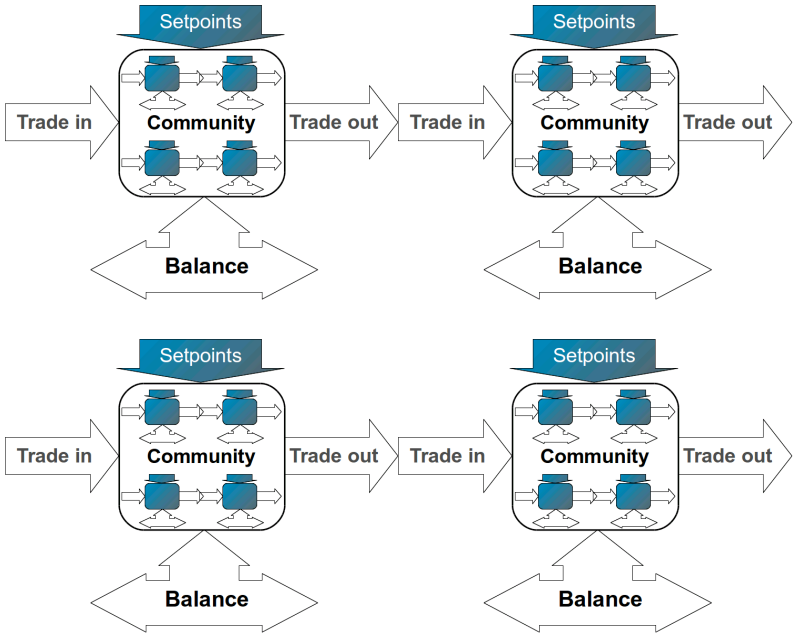


Figure 3: Currency balancing scheme in the case of intertrade between currency communities

with the parameters on the community level too. These parameters might be called "trade in" or "import" and "trade out" or "export" and the resulting balance could be understood as a "trade balance" as is usually used for countries (see Figure 2). The additional set-points on this higher level have to be defined in agreements with the trade partners, e.g. other communities. It is a part of negotiation and should be defined in a contract of cooperation.

Local or regional level

On the next level (Figure 3) the different communities or groups which started to trade with each other, must consider their behaviour and those of their partners to keep the balance here also. Therefore they might invent different instruments and measures which are explained later under technical terms.

World level

What about the world level or the level of the community of communities? If we move up one more (or several more) level(s), again we must define new parameters and build a set of level-specific rules. It is the same procedure as between groups but we should consider more generalized aspects. The world level as the highest possible level has the function of balancing the whole world economy as a regulatory framework. There is already a long discussion about doing that with a world reference currency like Bancor (Keynes, 1989) or TRC (formerly called Terra, Lietaer et.al., 2012, p. 158-166). Such a reference currency must include a real common viewpoint of the earth's inhabitants and cannot be ruled by national egoisms or false assumptions as is the case in today's institutions such as the World Bank or the Bank for International Settlements. One would have to work out in the future which parameters would be useful and how such regulations could be established.

INTERTRADE

Intertrade is perhaps the most tangible part of the cooperation of CC's. It seems to be only a matter of a technical terms and tools as they are used in mainstream economics today. But it has its underlying conditions that are often forgotten.

Conditions for intertrade

In intertrade we have to consider a new form of thinking about trade which sometimes contradicts the way of thinking of an individual trading person. Whilst he or she might say: "it must be very easy and convenient to trade and I don't want hindrances, borders or complicated rules", the group as a whole must have a collective approach and cannot have the same objectives. It's a bit like the old struggle between neoliberalism, which is the maximizing of individual rights, against socialism, which wishes to maximize the common good. But both paradigms failed completely, which makes it necessary to look for more practical solutions. The following aspects are not yet a complete list of conditions but they might help to think about it:

- There must be an agreement among the group members to start such a process.
- There must be an established group or a method to determine who is allowed or invited to speak about the rules and frames of intertrade.
- An agreement on a process of rule making must be found.
- One must talk about measures in case of imbalances, unfairness, or violation of rules.

- People must be named who are responsible for the different measures.
- A regular communication and reporting system must be installed.
- There must be constant learning and education in the matter.
- There must be a defined way out of intertrading for each group.

Limitations to intertrade

Intertrading is not always the best type of interchange, as already mentioned. For example a time bank dedicated to saving for one's old age might not be connected via intertrade to a regional currency which is convertible to legal tender because this might cause the people to think about bypassing the hours and getting the legal tender instead. It would perhaps be much better if the two organizations worked together by offering every member a "double account": a regional money account for daily local spending and a time bank account for the savings. So there would be no intertrade but still a possibility for members to emphasize or change their wishes. In general: Cooperation is always desirable, interchange as a more structured level either but intertrade demands a deeper analysis before going into it. This includes the tradeoff-option as mentioned above, as well as serious studies about the partners strengths and weaknesses and possibilities to balance them.

FRAMEWORK OF RULES FOR INTERTRADE

Cooperation between currency-systems is, as are currencies themselves, based on rules. Every LETS, Tauschkreis, mutual credit system or SEL has its individual rules valid for its internal exchange and the use of its currency. If a cooperation with other CC's is planned a set of additional rules has to be negotiated between them to define interchange and clearing procedures, limits, taxes, etc. This can be done on a higher level too and so a nested system of rules would be the result. Such a bottom-up framework might be a good approach for the CC movement. But other possibilities are thinkable, such as a standardized protocol or non-hierarchical frameworks.

Neighbouring groups first

It is good to start with a framework of the same type of currencies like a LETS-network, a barter alliance or a time-bank-clearing-system. In any case it is important to respect the "neighbouring aspect" for a first approach to cooperation. Let us not forget that currency communities are an approach to re-localize resources and avoid energy-wasting world trade. As a second step it might be good to connect local systems of different type, like a LETS which allows exchange with a time bank which allows savings of time. Because rules and aims of different types of currencies are rather far away from each other, the settings of a framework need advanced knowledge. It is not enough to convert one currency into the other but additional measures have to be taken to bridge the different aims. E.g. someone would like to transfer his LETS-income into a time bank to save for his age. When he does this, the two groups will get into an imbalance that needs attention.

The LETS-system gets a short term "profit" by moving a part of its obligations to the time-bank, while the time bank gets a long term obligation to uphold its productivity in the time after the retirement of this member.

It becomes obvious what in today's economy is veiled completely: we must think of "all the sides, the whole time and all the people" when using money. It is not a mindless instrument as it is treated today.

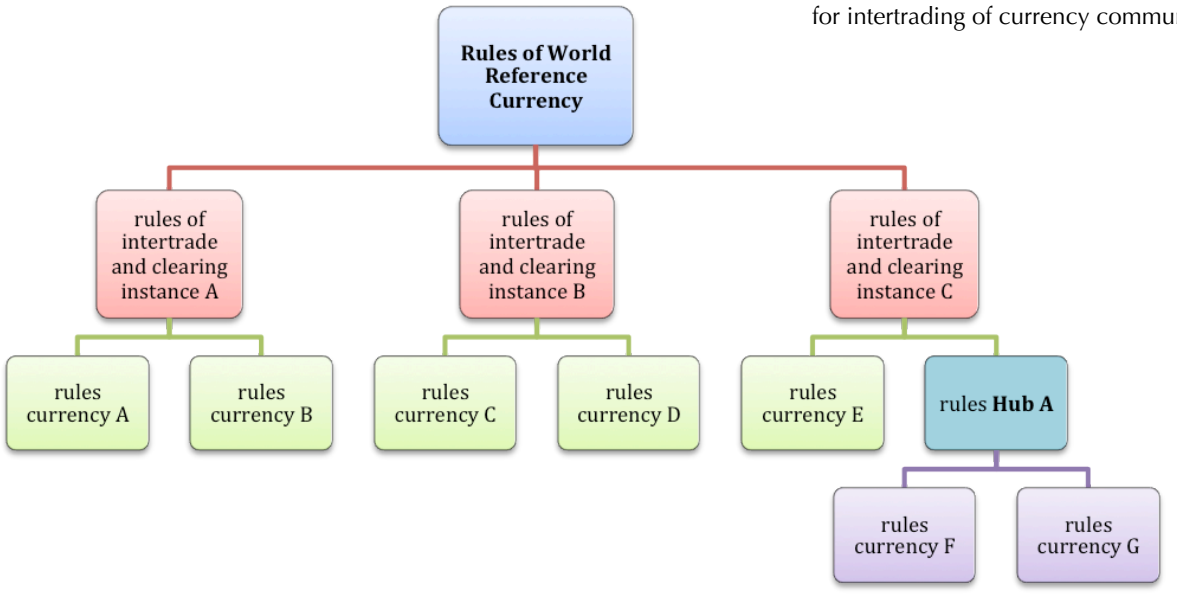


Figure 4: Bottom-up framework of rules for intertrading of currency communities

Bottom-up framework for intertrading

It looks like a hierarchy but should in fact be a federal system of coordination and cooperation. The independent currencies (communities) decide which interchange and clearing instance they wish to join. The mutual agreements from bottom up will dominate, the technical questions how to implement the necessary mechanisms should be subsidiary. In contradiction to a peer-to-peer (p2p) network, a certain part of the regulation is left to the (hopefully democratically selected) responsible of the above instances.

Today's situation in CC-cooperation looks as if this model might be in use. The different instances (A, B, C in Figure 4) might be different types of CC's such as a clearing instance A for time banks a clearing instance B for LETS and so forth. Another approach would be to define a clearing organization like the following systemic intertrading model (SIM) by cc-hub (2013).

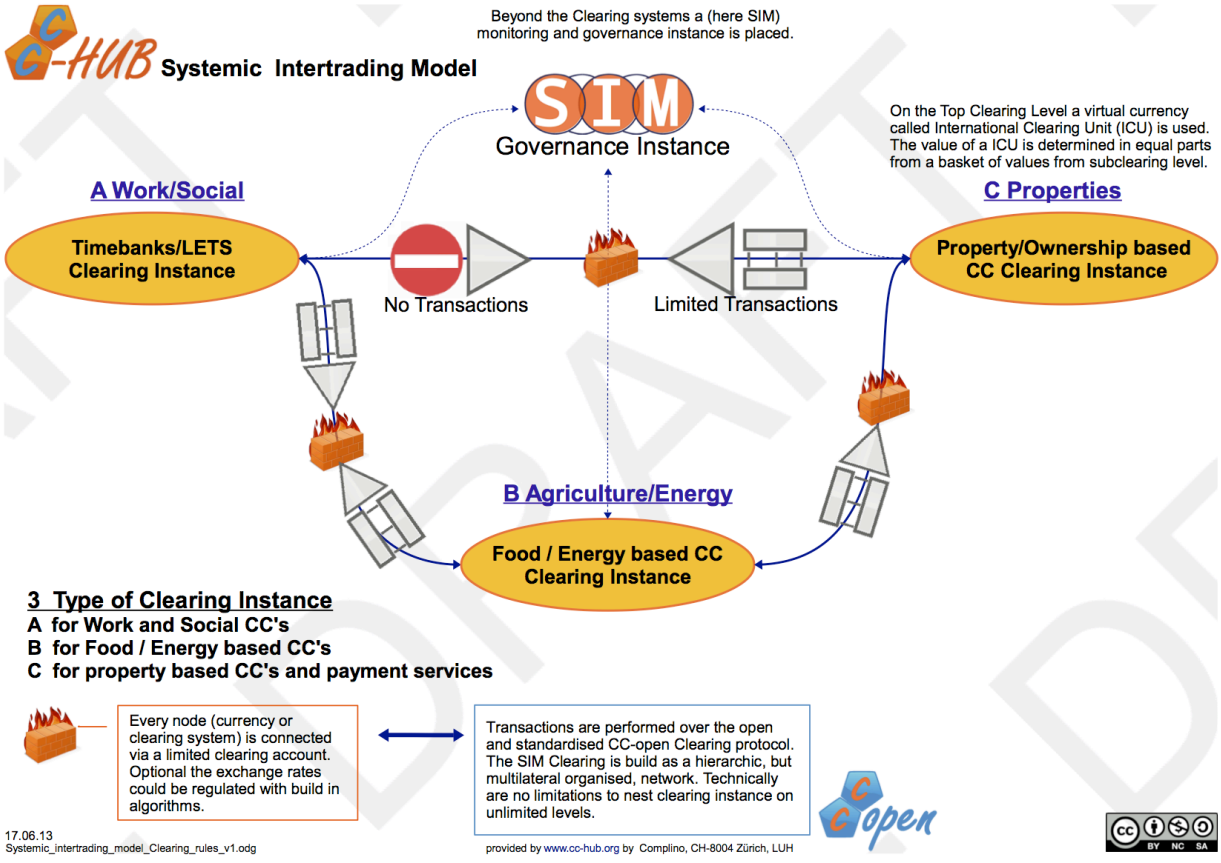
By standards

Another possibility for building up a framework is to establish first the technical standards and standardized rules of interchange and clearing. It would be like first defining a new language and then everyone (who speaks it) can talk to each other. This method might have some important advantages and greater efficiency. The difficulty is the definition of the standard itself. Many assumptions must be made in the beginning because finding an open standard which allows freedom of development is crucial. Nevertheless it is worth a try. At cc-hub.org, where I am also involved, a cc-open standard for future cooperation and clearing of CC's is suggested. During the CCS-Conference there were also several discussions about building standards for intertrade. But the topic did not yet have a clear outline, which makes sense because it is not enough to find technical solutions and protocols for clearing mechanisms. It needs an advanced discussion including the economical and social implications for the involved CC's and the whole movement.

Non-hierarchical frameworks?

The above might be a good approach for a first worldwide framework but it looks a bit static. What about the opposite, a p2p-currency-network? Is it possible to create and implement rules which are absolutely non-hierarchical? How to balance give-and-take in a multiple exchange organism without a solid frame? In existing p2p-networks it might function for a certain time with personal responsibility or control. One example for that approach is the Ripple-Network. But when the network is growing, trust has to be given to more and more further-away-beings and the possibilities of fraud are increasing. Bitcoin's solution for that was to create an even more rigid frame with its finite number and the complicated aggravated mining process, where

Figure 5: Suggested model for a systemic-intertrading model (bottom-up framework: Huber, 2013)



a kind of mathematical gard should prevail trust. Thereby they avoided the potentially difficult innovation of how to balance consciously and "face to face" the gives and gets in a social environment.

Nested clearing

The solution for an future overall intertrading system for CC's might be a complex multilevel structure that we call nested clearing. This would guarantee diversity and provide the possibility of enhanced balancing by a high number of control-points or gates between the communities. As a result a new approach to a global economic balance would come into reach. But this really might be a topic for the future of currency development.

MEASURES AND INSTRUMENTS TO REGULATE INTERTRADE

If the conditions for intertrade are given and the minimal governance measures and structures have been settled, the discussion can expand towards the technical means of how to do it. Today these issues will be mainly be implemented in software tools serving as means of execution of the agreements. The following chapters offer a variety of technical aspects that should be considered before the tools are finally built.

Set-points and limits

Why does a currency need set-points and limits? A simple answer: we live in a limited world and its limits and set-points have to be mapped somehow in currencies in order to stay in touch with reality. A limit in a currency always occurs as pair: upper limit and lower limit. Of course in some cases only one side is emphasized or stressed but in general both should be implemented. Limits might be more static like a usual credit limit in a LETS or might be dynamized by some procedures such as by considering performance measurement (Greco, 2013, p. 21). To use a set-point for a currency is to take over a concept from control technology. It means that we invent a kind of healthy state for individuals as well as for communities. Examples:

- A mother with a child needs 2'000.- (any currency) regularly every month to live normally. So she should also get an income of 2'000.- . Now 2'000.- is her set-point. When the child gets older, the set-point will shift, maybe 3 years later the mother has to target 2'500.- and that will be her set-point then.
- A time bank system caring for the elderly has 100 old people to be cared for. Every month these old people need 1'000 hours so the set-point for the work and savings of the young people can be set at 1'000 hours a month.

In reality of course some more circumstances have to be considered but the basic principle remains the same. While the limits may be static, a set-point always includes dynamics and is bound to time. It is also possible to calculate a performance out of it as Greco (2013) suggests in different forms, but the set-points themselves already have an importance for currency management.

Trade Balance

As mentioned above, the trade balance is used to describe the difference between ingoing and outgoing trade (import and export) of a CC in interchange with other CC's. An example of a year interchange (intertrade) between three CC's will help. We assume the same type of currency (e.g. hours) and a trade-period of one year:

Buys from	Sells to			Total sold
	A	B	C	
Currency A	n. a.	1000	1000	2000
Currency B	3000	n.a.	2000	5000
Currency C	3000	3000	n.a.	6000
Total bought	6000	4000	3000	

Resulting trade balance:

A 2000 sold, 6000 bought = -4000

B 5000 sold, 4000 bought = +1000

C 6000 sold, 3000 bought = +3000

The people using currency A have bought much more than they sold and currency C's people the opposite. Currency B is not far from a balance. Now two questions must be answered after that year:

- Is the imbalance mainly of A and C a problem and why? Maybe it is not a problem because it has a temporary cause.
- If it is a problem (maybe because it is predictable that A will continue in the same way in the following year): how can the balance be restored?

The answer to the second question may need tools, economic intelligence or negotiation processes and is a very important part of sustainability. The ongoing destructive process with the euro, where trade imbalance is a crucial point, shows how much a community can suffer if the question of balance is not taken seriously. For example: A should prevent its members from buying outside and instead animate them to sell outside. The opposite is the case with C, they should buy more and sell less. This could be done by setting limits, by adding fees and taxes, by stimulating and organizing the market, by devaluation of currency A against C, etc.

Exchange rates

Today, in official currencies the exchange rate is taken as a price like other goods too. This "price" is a result of a mixture of highly speculative betting by "investors" against political or strategic interventions of the central banks. Therefore the resulting exchange rate has only a marginal relation to the real economic operations. This is a no-go for all CC's. The currencies themselves are to be prevented from becoming objects of trade, they are instead the meters for measuring the amount of trade. The exchange rate is therefore not a normal price but a systemic value and has to be taken out of the influence of individuals.

By the adaption of an exchange rate a trade imbalance can be corrected or even prevented to a certain extent. It is a very powerful instrument and has to be used with intelligence and care. Therefore real trade has to be measured and out of that an exchange rate can be calculated. When the rate is adapted, the system will shift and many parameters change inside. So it cannot be foreseen exactly how much the rate has to be. Instead, after some time a new calculation has to be made and the rate can be adapted again. It is in fact a dynamic balancing process and has to be maintained in a whole systemic view together with all the other measures. In general there are three methods of exchange-rate calculation:

1. past-oriented-method, which derives the exchange rate from the real trade volumes of the past period.

2. future-oriented-method, which derives the exchange rate from assumptions of the trade volumes of the following period

3. mixed methods, which combine the above in a certain manner or use more sophisticated mathematical models to keep the involved currencies in balance

Today many small CC's which trade in between use a fixed exchange rate by a simple one time agreement. As said above, this "method" does seldom fit the basic requirements of the existing dynamics and so might be bound to fail. If trade is very small or when some corrections occur naturally it might function for some time.

References or anchoring money

Through exchange the question of reference also arises. If there are only two or three currencies there is no need for reference because they can easily be compared to each other. The more different systems there are, the more convenient a reference is. This meets with another need or wish: to anchor the value of money somewhere in the "real" world. Last but not least the "security-aspects", that wealth could be preserved perfectly and a final reference might be a way to prevent instability are additional reasons for using a reference. Collins/Schuster/Greenham (2012, p. 27) describe restoring trust, preventing "virtual wealth", preventing instability and ecological degradation and promoting the (energy) transition as important reasons for anchoring money. They indicate and describe two main anchoring possibilities (p. 28-32): a basket of resources, and a single commodity.

Indeed these have been the main classical approaches to that question. But there are more possibilities, which have not been reflected on very much, but follow out of a new understanding of value and trust, which the CC-movement is inherently built upon. Two possibilities are:

- Time as a new base of value: Especially the "one-hour-is-one-hour" approach meaning that every persons working-time has equal value, be it a cleaning job or a lawyers coaching. It is theoretically not well based but widely used in mutual exchange and especially in time banks. Time therefore could be used as a global reference.

Bundling personal responsibility by pledge or surety might be another trust-based anchor. It is used e.g. in the Minuto Voucher System (www.minutocash.org, 2013) and becomes an insurance-like system if it is wider spread and is based on the transparancy of relations and capabilities. It is already one strong anchor of todays money system unless todays financial industries have perverted it with lots of weird instruments without any transparency. Conceptual approaches for referencing currencies are, as already mentioned, e.g.:

- The Terra or the Trade Reference Currency TRC as an initiative for multinational businesses (Lietaer et al., 2012). It is based on a basket of resources.

- The Bancor concept of J.M. Keynes (Keynes, 1989) which was basically based on a gold standard but included thoughts about a basket of commodities.

A good overview and more examples about that topic can be found in the already mentioned NEF publication 'Energizing Money' (Collins et al, 2012).

Compensation funds

There might be reasons why a trade balance cannot be reached by certain CC's for structural reasons. For example, unbalanced resources as in a slum where all people have a low education, or situations as in a city where a big factory was closed, in a country area where a bad summer reduced the harvest, etc. In such cases a compensation fund can help to regain the balance. Funds should be installed on all levels. The funds might be filled by tolls and taxes or by contributions of the "rich" currencies and pay compensation in the case of weak systems or "disabled" currencies. Compensation funds could also serve as a systemic insurance in case of bankruptcy of a member-CC. Another more radical method of compensation would be a regular quittance in a jubilee year, as described e.g. in the bible or in other historic contexts.

Tolls and taxes

Is there anything good about tolls and taxes? Today these words, denigrated by neoliberal "free market" sermons,

have gotten a bad negative touch. But the only fault in the past about them was to go too far and use them as a weapons for fighting each other or enrich a few at the expense of many. Tolls are instruments of protection and small economies will need some protection to function as beneficial as possible because so called "free trade" will not pay for its true costs but externalize them as widely proven today. So some barriers need to be installed and a toll might be a solution sometimes. Also taxes can serve as good instruments to keep a balance between different CC's if they are used rightly. What does this mean?

- They should be used very sparingly.
- The earnings out of it should be used to fill a common compensation fund and not the pocket of the organization which taxes.
- They are also indicators of imbalances and should motivate to fight the causes (such as wrong pricing, aggressive behaviour of participants, exploitation, black markets, etc.).
- They need a "positive anchoring in culture", e.g. regular re-discussion of the meaning and importance between the affected and the system-managers. People should be able to see the rightness and fairness of taxation or tolls and unlike today not making a sport avoiding to pay it.

Clearing systems

If an approach of interchange of CC's is put on the agenda, maybe the the first task will be that of clearing. Clearing used as a term in financial circumstances means: stating reciprocal receivables, payables and delivery commitments and can include the offset processing too. Clearing is used in many areas of the modern financial industry. For use in today's CC movement the closest is the clearing between banks and how it is used to reset inter-bank commitments (usually per day). Through payments from one bank to another the sum will be transferred via a special clearing account, and accordingly the interbank clearing is made today by specialized companies and institutions like Euroclear, Clearnet or SIX.

Important for CC's is to know, that it has to be a special process with its own rules if the currency should cross the border to another currency. These rules have to form a "standard" to allow communication and the booking on the other side.

Clearing can be done manually or automatically when the banking system/software of two organizations have the possibility to "work together". Actually there are some very interesting approaches to developing solutions for the clearing between CC's. Existing clearing systems, e.g.:

- ZART (manual clearing, German-speaking countries, Austria)
- CES (worldwide, South Africa)
- cc-hub (small scale clearing, Zurich)
- Ressourcen-Tauschring (semi-automatic, Germany)

Future clearing systems which are in discussion or already working:

- Clearing Central
  cForge (Community Forge, Geneva)
- cc-open (a further development of cc-hub, Zurich)

A very important matter in the future clearing of CC's is to respect levels and structures and not to get around them. Effectiveness is therefore more important than efficiency. A nested clearing system might be a good approach. For more about clearing issues see Slater (2011) or Huber/ Martignoni (2013).

NEGOTIATION AND GOVERNANCE

Serious cooperation between CC's is not something that will happen and function by accident. It has to be governed, and of course as democratically and cautiously as possible. Unfortunately such cooperation needs much technical and economic understanding discipline and clearly appropriate leadership to be successful. So one important step in CC-movements will be to develop and teach further simple and effective methods of understanding and managing CC's and networks of CC's.

A very important item is a solid but transparent framework of rules and rule-making processes which include the people (stakeholders). Additionally there have to be negotiations and consultations between existing CC's to understand each other and build up joint cooperative structures. Negotiation is also the key to maintaining the cooperation. There will be many things awaiting us: in case of success, strong growth and the danger of falling back into old habits, in case of an economic breakdown, perhaps an existential threat as in the Argentinian case (Gomez, 2012).

FURTHER DISCUSSION

The above shall be just the beginning of a discussion. The CC-movement is not only working out solutions for an improvement of local or regional economies and social networks but might have the mission to bring back some "reality" into economics. It is possible to reframe today's economic thinking as a healthier and more understandable "science" that no longer tries to find "natural laws" in its

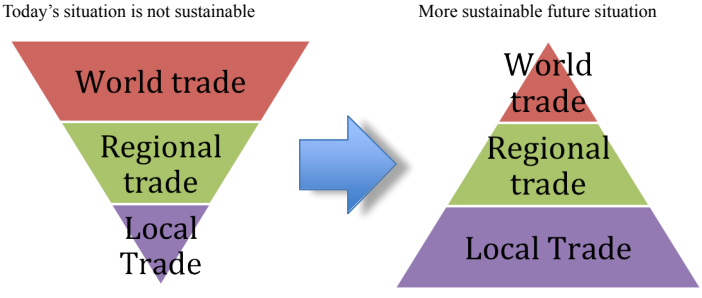


Figure 6: Trade amounts today and in a sustainable world

self-made and simplified models. Instead the economic operations should be modelled towards our real needs and the necessities of the earth (see Figure 6).

CC's are a very good field to find out that we can be the designers of the economy. It allows with its small scale, with the possibility to see clearly essential operations of daily economic activity and with the view of money itself a close look at the task of living together well on only one planet. By studying the cooperation of currency-communities we might find and try better forms of working together locally as well as globally. The described terms and principles therefore have to be developed further, then be used as design principles for cooperation and finally they have to be adapted to and verified by the reality of people who like to exchange and share a better life together.

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APPENDIX: COOPERATION IN THE ZURICH AREA

The above theoretical part is not finished. It is a preliminary result of practical work, research and discussions about cooperation and clearing which started in the Zurich area in 2011 with research work of Roman Dellsperger. He did an investigation with the boards of the five existing exchange-networks (Tauschkreise, all of them associations under Swiss law) in Zurich. His question was, if a federation or a merger of the associations would be an acceptable idea for the board members or peer persons, or if they would prefer other forms of cooperation or even reject it (Dellsperger, 2011). Out of this initial initiative and on his suggestion a working group or council with the participation of the five organizations was formed (see Huber/ Martignoni, 2013, p.2). This council was named "Zürich tauscht" or something like "Zurich exchange or Zurich swap". The names of the funding organizations were:

- Complino
- Give & Get
- LETS Zürich
- Talent Schweiz (which has regional groups in other parts of the country as well)
- Tauschen am Fluss

Additional support was given by the research & development institute FleXibles, which is an agency like NEF or QUOIN after the terminus of John Rogers (Kennedy/ Lietaer/Rogers, 2012, p.195-211).

Zurich tauscht

As is described in Huber/Martignoni (2013) the council initiated a joint website (www.zuerichtauscht.ch) and a common market event in summer. Additionally a project for a common software-platform was started by Huber and Martignoni, who were part of the council. The process continued since the mentioned article (Huber/Martignoni, 2013) was written. The common software-platform is not yet implemented, but all the organizations became members of the ZART clearing association. An interchange is now possible between all of them. The discussion about limits and practical handling of this additional trade possibility is continuing. A few weeks ago a second joint market was held. Again members of all organizations could buy and sell across borders.

- During the first market in June 2012 a total of 213 exchanges worth 130 hours (about € 3'000) were made between 2:30 and 8:00 p.m.
- During the second market in June 2013 a total of 323 exchanges worth 206 hours (about € 5'000) were made between 2:00 and 8:00 p.m.

Compared to the size and the regular turnaround of the groups, this is quite a success. But already a rather high trade imbalance has arisen. The main organizer, Tauschen am Fluss, has gotten a positive account of 75 hours against the other four organizations. Now ways have to be found how this amount can be reduced in future. This question has not yet been answered but the council is continuing its work and an intensified cooperation might be a result of further negotiations.

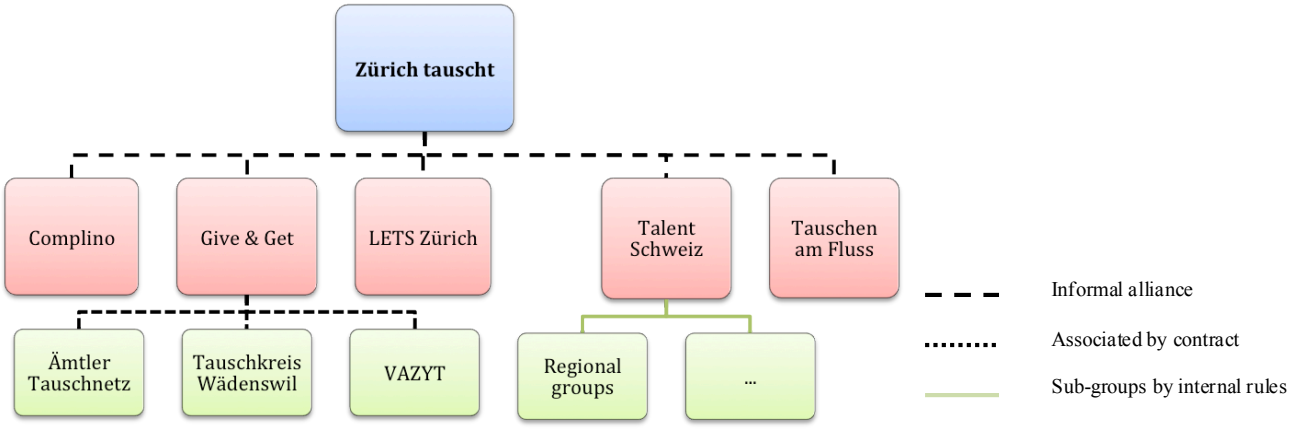
Give & Get

One member of Zurich tauscht, the association "Give & Get" might be even more interesting when we look at a process of aggregation of smaller entities: it is the latest birth of such a system in the Zurich area (01.11.2011) and has grown rapidly through the acquisition of the following smaller and older organizations in the canton of Zurich:

- VAZYT Winterthur (since 1996, association)
- Ämtler Tauschnetz (since 2004, association)
- Tauschkreis Wädenswil (since 2008, association)

This was done with joint venture contracts between Give & Get and these three older organizations and includes openness for a merger in the future. The main advantage was the integration of their market and accounting systems into a centralized cyclos installation. The entities continue their work and, freed of the IT-administration, can concentrate more on the networking, relations and support functions. It

Figure 7: Network of currency communities in Zurich area



will be interesting to see if these leftover functions will keep the associations as independent organizations or if the merger option will be taken instead. The organizational situation in Zurich is as shown in Figure 7.

At least three different principles of cooperation or group building are used. This is also a part of diversity which strengthens resilience but needs a more sophisticated understanding of governance.

Next steps

The development of the network is continuing. Further discussions might include intertrade limits and possible compensation procedures, clearing issues, and marketing and monitoring aspects.

International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 152-164

VALIDATING AND IMPROVING THE IMPACT OF COMPLEMENTARY CURRENCY SYSTEMS THROUGH IMPACT ASSESSMENT FRAMEWORKS

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ABSTRACT

Credibility and legitimacy are required to improve the design and implementation of complementary currency systems (CCS) and to engage with public institutions, while depending on sustained support from funders. It is hence necessary to evidence the impact of CCS as effective and efficient tools to reach sustainable development goals. Only around a fourth of the existing studies even touch upon impact evaluation processes. A standardisation of impact evaluation would lead to improve the quantity, quality and comparability of the data collected, as well as to support longitudinal studies and juxtapositions of different types of currencies in their environmental and socio-economic context. After reviewing the literature, this article proposes two complementary approaches to assess the impact of CCS: a prototype of an integral Impact Assessment Matrix based on the goals, objectives and performance indicators, and a tool based on the "Theory of Change" methodology as a common, comprehensive and incremental approach for impact evaluation. Both propositions are currently being applied and further developed by the authors.

ACKNOWLEDGEMENTS

Both authors gratefully acknowledge the great work and generous contributions of all the people in the field of CCS. We are standing on the shoulders of giants. Both authors acknowledge the work and collaboration leading up to this paper of Gill Seyfang, Marie Fare, Alan Patterson, Juliana Braz, Helene Joachim, Erick Brenes, Camille Meyer, Marc Münster, William O. Ruddick, Etienne Hayem, Vincent Demontalivet, Nicolas Briet, and Matthieu Langeard. Christophe Place acknowledges the Geneva School of Business Administration and especially Andrea Baranzini, Christophe-Alexandre Dunand, Emmanuel Fragnière, Jean-Pierre Meynard, Iliya Markov, Stefano Carattini, Maria Nginamau, and Cédric Chervaz for their inputs in his research. Leander Bindewald gratefully acknowledges Susan Steed and Natalie Nichols at the New Economics Foundation and the partners and funders of the Community Currencies In Action EU-Interreg Project.

KEYWORDS:

impact, assessment, evaluation, monitoring, standards, measurement, indexing, indicators, performance.

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To cite this article: Place, C. and Bindewald, L. (2015) 'Validating and improving the Impact of Complementary Currency Systems through impact assessment frameworks' *International Journal of Community Currency Research* 19 (D) 152-164 <www.ijccr.net> ISSN 1325-9547

INTRODUCTION

For over 3 decades, from 1983 until now, up to 4,500 complementary currency, community credit and alternative finance systems have aimed, without commonly accepted proof, for economic integration through reciprocity, redistribution, sharing, solidarity and the protection of regional or local economies (Servet, 2013; Blanc, 2013). These Complementary Currency Systems (CCS) cover a wide range in the diversity of currency types and applied designs, and, more fundamentally, cover a wide range of specific objectives or "raisons d'être" Some focus more on social integration, environmental sustainability or cultural diversity, others more on economic resiliency, crisis mitigation or political autonomy. These economic and monetary innovations to date lack consistent scrutiny in evaluating their viability and genuine evidence of their economic, social, environmental and political impact.

Today, practitioners in the so-called CCS movement, policy makers and academics all exhibit a growing interest in impact evaluations of CCS, particularly concerning community empowerment, social capital, participatory governance, the sociology of their users and local development goals. This is contrasted with a relative lack of historical studies, theoretical frameworks, standards for comparison, data collections and systematic articulations of these monetary innovations in the literature to date. Indeed, most of impact evaluations presented so far had been based on individual descriptive case studies (Blanc, 2013).

The purpose of this paper is to launch a deliberate process of improvement to this situation in order to live up to the growing demand for proof and validation of CCS, as well from users as from funders and policy makers. Here, we propose, in a bipedal approach, two methodologies that aim to accelerate this process: 1) an Impact Assessment Matrix (IAM) prototype which integrates monitoring and evaluation methodologies and 2) a "Theory of Change" framework as an intermediary step towards standardisation in evaluation, impact assessment, reporting and analysis. Our propositions are based on a literature review of impact assessment as presented at the University of Split in July 2012 (Place et al., 2012), further work on the typologies and objectives of CCS were prepared for the UNRISD conference in Geneva in May 2013 (Bindewald et al., 2013), the ISS conference in The Hague in June 2013 (Place et al., 2013), and the action-research done for the Community Currencies in Action project (CCIA).

The contribution of this paper is to present the need and context of impact assessment for CCS (Section 1) analyse the existing impact literature (Section 2) and reviews the objectives of CCS (Section 3), from which a non-exhaustive impact assessment matrix is derived (Section 3). As a second currently piloted approach we describe a "Theory of Change" framework as an immediate and incremental step towards a universally applicable and comparable process for the evaluation of CCSs (Section 4). Both Theory of Change (ToC) and Impact Assessment Matrix (IAM) frameworks will here be presented at a prototyping and proof of concept stage, to prepare wider collaborations, deliberations and applications of impact assessment and processes of standardisations for this adolescent field of innovation.

PURPOSE AND CONTEXT OF EVALUATION STANDARDS FOR CCS

Because of the high diversity of CCS already in use and the constant adaption and innovation in this field, any monitoring and evaluation systems need to be balanced, coherent and comparable across different currency models on one hand, and sufficiently flexible to mirror the specificities of the initiative on the other hand. Consequently, due to the diversity of stakeholders and objectives of CCS, standardisations of indicators need to be designed in a bottom-up approach, taking into account a wide number of specific currency systems before conceptualizing common sets of indicators. To do so we will first analyse the purpose of impact assessment frameworks and then elaborate on appropriate approaches for CCS.

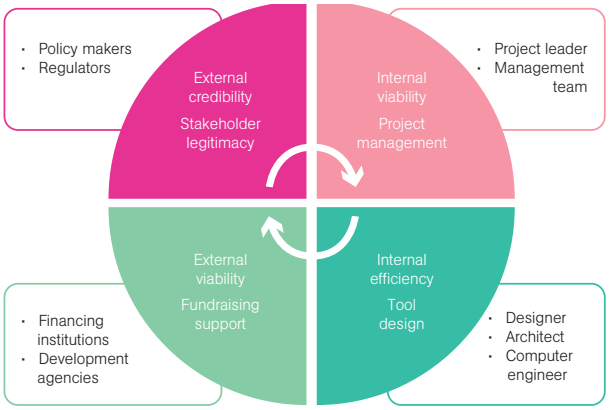
We see four important and interdependent reasons for the deployment of evaluation standards in CCS impact assessment, as represented in Figure 1:

- Internal viability: improving project implementations in regard to operational, structural and organizational aspects
- Internal efficiency: improving uptake by users and reduce overheads and transaction costs
- External viability: attracting funders and support and widen the recognition
- External credibility: proving impact and efficiency to international organizations and the public sector.

Impact assessment and impact reports are necessary to receive financing, especially through impact philanthropy and through donation fundraising (Place, 2010). Those donations often imply a "counter-donation" of qualitative and quantitative information about the impact of the project. Indeed, a study in 2008, based on data from 165 systems in 28 countries, found 74% of CCS being dependent on external financing: only 9% achieve it thanks to internal service taxes and 65% rely on voluntary institutional or individual financing (Demeulenaere, 2008).

Moreover, in a period of crisis, we need, more than never, efficient complementary currencies to bring resiliency to the economic and societal systems, and thus impact assessment becomes essential to improve their performance. Again, for the inception, maintenance and evaluation of these systems, financing is important. A good impact analysis is essential for financing institution to trust the socio-environmental impact returned on their investment.

Figure 1. The need for and purpose of impact assessment and evaluation frameworks (Source NEF, 2014.)

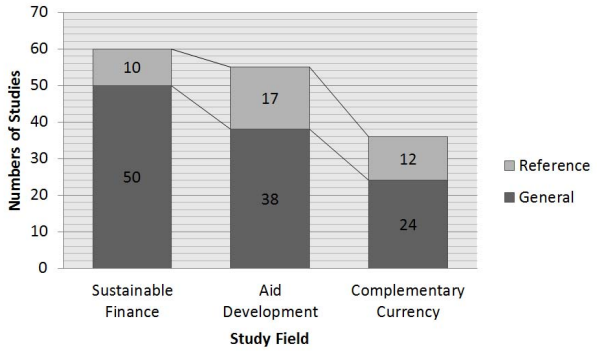


REVIEW OF EXISTING IMPACT ASSESSMENT WORK

In CCS specifically, we should pay particular attention to territorial development on the one side and financing vehicles on the other side. The fields with established evaluation frameworks are international development aid and sustainable finance. In both domains, among various and numerous resources dealing with tools and methodologies, we can already and easily identify some state-of-the-art guidelines, principles, standards and even handbooks which present impact assessment, measurement indicators, monitoring and evaluation systems (Bindewald et al., 2013). Complementary and community currency research is currently in the process of developing into a solid discipline, but even if some research in this field has already existed for a long time, it still remains scarce compared to the work done on development projects and even impact finance. Graph 1 depicts the ratio between reference studies and general material. Reference papers and authors are those that are directly, pertinently and genuinely dealing with impact assessment and can thus be considered as a point of reference about this topic in its field. Only 5 of the 12 reference studies in CCS present quantitative measurement indicators and could be seen as references in the narrower sense, as they deal with indicators, evaluation, impact and social or environmental capital benefits such as process and results (Place, 2012).

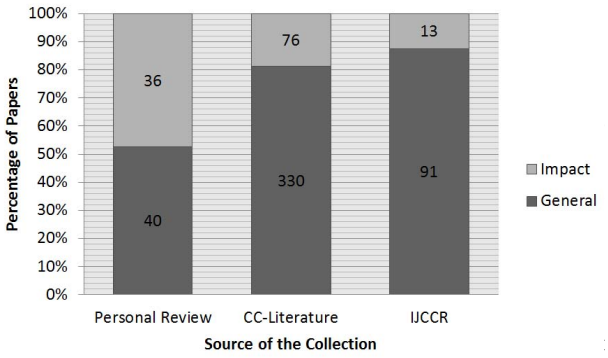
In the field of complementary, local and community currencies, a personal literature review of 36 out of the 76 aforementioned documents, which means 47.37%, are dealing with the topic of impact assessment. Most of the evaluation process and results are based on conceptual models of economic, social and well-being issues with either a qualitative or quantitative approach (Place, 2012).

Graph 1. Number of impact assessment reference versus general material in different fields Source: Place, 2012.



According to the bibliography of community currency research, called CC-Literature, only 76 or 18.7% of all 406 English sources listed there, appear in the keyword search "impact assessment" and related terms. 406 English resources represent 37% of the 1251 total sources in the database. By searching for the key-words: impact, evaluation, measure, rating, audit, indicator, scorecard, assessment, monitoring, performance we can respectively extract 30, 21, 14, 5, 3, 2, 1, 0, 0, 0 sources, a total of 76 sources. Furthermore, most of those reports are descriptive case studies, which do not refer or adhere to any impact evaluation framework (Schroeder et al., 2011; Place, 2012).

Graph 2: number of papers dealing with impact assessment in different CCS databases



CCS models is under debate but the presented studies relay on data and methodologies that are mostly incomparable across the studies and don't allow us to score or rank the different CCS initiatives. Most of these studies are based on qualitative research methods with punctual field surveys or are embedded in certain events like period of crisis, there

[1] Among the 105 papers, published from 1997 to May 2013 in the 17 volumes and 2 special issues, 13 papers are dealing with pertinent impact analysis: Collin C. WILLIAMS in volume 1 of 1997 ; Julie INGLEBY in volume 2 of 1998 ; Samaôn LAACHER in volume 3 of 1999 ; Edgar S. CAHN in volume 5 of 2001 ; Gill SEYFANG in volume 6 of 2002 ; Jeffrey JACOB, Merlin BRINKERHOFF, Emily JOVIC and Gerald WHEATLY in volume 8 of 2004 ; Rolf F.H. SCHROEDER in volume 10 of 2006 ; Christian GELLERI in volume 13 of 2009 ; Stefan MOLNAR in volume 15 of 2011 ; Irene SOTIROPOULOU in volume 15 special issue of 2011 ; Christian THIEL in volume 15 special issue of 2011 ; Ruth NAUGHTON-DOE in volume 15 special issue of 2011 ; Molly SCOTT CATO and Marta SUÁREZ in volume 16 special issue of 2012 (WILLIAMS, 1997 ; INGLEBY, 1998 ; LAACHER, 1999 ; CAHN, 2001 ; SEYFANG, 2002 ; JACOB *et al.*, 2004 ; SCHROEDER, 2006 ; GELLERI, 2009 ; MOLNAR, 2011 ; SOTIROPOULOU, 2011 ; THIEL, 2011 ; NAUGHTON-DOE, 2011 ; SCOTT CATO *et al.*, 2012) .

is little quantitative research and even fewer established performance indicators. Furthermore, the majority of the individual research has been conducted during a short period of 1 or 2 years, and often dates back till before 1993 when the Agenda 21 for sustainable development only emerged from the United Nations to become a major driver for territorial and community development projects. The recent emergence of new complex CCS types, called 4th generation (Blanc, 2013), is also not covered by evaluation research yet. In most cases the research only focuses on one aspect of sustainable development: economic, social or environmental and rarely takes the interactions of these three into account. These differences are depicted in Graph 2.

Among those various empiric analyses, we congratulate the proposition of a matrix of performance indicators made by Instituto Palmas and NESOL-USP in 2013. Nevertheless, this matrix has not been fully implemented and only covers information of a 2 years study without a meta-analysis focusing on impact and its native scope is centred on one specific CCS type and geographical region and thus it will be difficult to transpose its findings to other CCS types and localities.

Two meta-analyses have been recently made one by Gill Seyfang and Noel Longhurst; the other by Kristofer Dittmer both published in 2013, both presenting neutral or negative conclusions about the impact of CCS. The data for these analyses cover research since 1996 and 2011 respectively and integrate the consequence of sustainable development as a major issue for territorial and community development projects like CCS. We appreciate those initiatives and we hope that extensive, in-depth and thorough impact analysis will be done in the future.

OBJECTIVES OF CCS

To establish an appropriate approach and scope for evaluation and impact assessment, it is necessary to firstly focus on objectives and purpose before any other typological differentiation, in order to appropriately evaluate CCS against their own and diverse targets and not against implicit notions of success or ambition which might speak through third party typologies.

As shown in table 1, the various existing attempts at CCS typologies all exhibit some form of differentiation by objectives and thus allude to the impact aspect of CCS. Beyond their complex operational systems and technical designs as alternative financing mechanism, most CCS exhibit genuine strategic objectives linked to a sustainable and ethical vision. That is why recently CCS impact research has started to focus on the intentional objectives of different currencies.

Table 1: objective approach of complementary currency systems according to their typology (Place et al., 2013.)

Margrit Kennedy / Bernard Lietaer (2004)	Social	-	Commercial
Jérôme Blanc (2011)	Community	Territory	Economy
Jens Martignoni (2012)	Others-oriented (serving everyone)	-	Self-oriented (serving individuals)
Gill Seyfang / Noel Longhurst (2012)	Local solidarity	Re-use	Liquidity

Recent reflections about CCS intentional objectives, especially during the 1st International Conference on Community and Complementary Currencies which took place in Lyon in February 2011, revealed that those initiatives aim to frame exchanges differently, try to rethink the role of money in the context of the common good, and creating tools to activate unrealized values. Thus, what exchange do we want to promote, between whom, for what, how, are the main questions of the self-labelled CCS movement. Common motivations and core objectives of such initiatives revolve around strengthening solidarity and sharing in communities, develop local employment and galvanizing the economy.

The first notable reflection about intentional objectives, portrait CCS as tools for scale changes in sustainable local development through a collaborative and cooperative vector, innovative wealth valuation and the preservation of social protective systems[2]. (Cahier d'espérance richesses et monnaies, 2011).

A recent reflection made by Kristofer Dittmer divides CCS by their meso and macro objectives and looking at performance criteria. According to Dittmer's analysis "Local Exchange Systems" allow for alternative flexible libertarian measures of value, "Time Banks" focus on community-building through improving local social networks and reaching the socially excluded, "HOURS" (as in Ithaca Hours) offer alternative livelihoods by supporting primary occupation in the alternative service sector, and "Convertible Local Currencies" incentiving eco-localization by attracting local businesses (Dittmer, 2013). On the same notion of performance criteria, intentional objectives are the focus of another notable reflection made by Monnaie en Débat in 2011, which focuses more on CCS' meso and macro objectives and divide them among different main objectives such as services exchange and mutual aid, economic development, social and solidarity economy (or local economy, social economy, solidarity economy), eco-friendly behaviour development, and hybrid forms (Monnaie en Débat, 2011).

[2] A reflection made by Etienne HAYEM in 2013 also focuses on meta and meso objectives with ecological restoration, social resiliency and economic development in a territorial virtuous economy vision (HAYEM, 2013). In relation to meta objectives, Nicolas BRIET in 2013 focuses on the importance of participative governance and collaborative tools for CCS initiatives in their decision making and governance (BRIET, 2013).

Table 2: goals and objectives for complementary currency systems (Source: Place et al., 2013).

Dimension	Level	Vision/Goal	Mission/Objective
Culture	Meta	Societal acceptance	Recognition, credibility, legitimacy from (inter)- governmental institution
		Community	Tranverse cross-disciplinary integral holistic collective intelligence
	Macro	Inner/ outer sense harmony	Other oriented cooperation & self-oriented competition equilibrium
	Meso	Pluralism, inclusiveness, diversity, creativity	Alternative flexible libertarian measure of value
			Soft skills and hard skills design thinking
	Micro	Innovation, confidence, humility	Open questioning capacity
Governance	Meta	Participatory democracy	Collaborative election decision process: consent sociocracy
	Macro	Citizenship engagement recognition	Effective stakeholder involvement stimulation
	Meso	Independent control	Independent quality control process
	Micro	Monetary creation as common good	Open free code and legality
Economic	Meta	Crisis resilience	Sufficient currency tool constellation: diversity inter-connexion
			Appropriate socio-environmental accountancy scheme
			Efficient externalities internalisation
	Macro	Make exchange possible	Unsatisfied needs meet unused resources
	Meso	Inclusive community-building	Income, employment and activities generation
			Financial inclusion & credit clearing & social inclusion
			Local economic actor liquidity
	Micro	Financial autonomy development	Turnover, sales
			Client loyalty
			Purchasing power
			Value-added
Social	Meta	Link share reciprocity solidarity	Local, time and knowledge exchange
	Macro	Equity and justice	Public debt reduction
			Egalitarian or ethical value hierarchy
			Public services increase
			Social protection preservation
			Non-Speculative economy circulation
	Meso	Needs satisfaction	Informal primary livelihoods activities support
			Voluntary work valuation
			Keep wealth locally
	Micro	Cohesion cooperation sharing vector	Value co-creation process
			SSE network activation
			Consumer-producer link reinforcement
Environment	Meta	Transition and autonomy	Encourage territorial community: conurbation regional development
	Macro	Eco-localization relocation	Incentive to attract local producer and consumer
	Meso	Ecological footprint reduction	Eco-citizen behaviour incentive: consumption reduction, repair, reuse, energy saving, waste recycling, biodiversity rehabilitation, organic agroforestry, water conservation, ethical banking, sustainable investment
	Micro	Responsible consumption motivation	Label network integration: Fair Trade, Organic products, Eco-friendly

Another reflection made by Philippe Derudder and Michel Lepesant in 2011 deals with CCS micro objectives reflected by economics actors such as producers, consumers, stakeholders and institutions (Derudder et al., 2011). Dealing even more with the integration of the stakeholder point of view, some recent reflections made by Maria Nginamau in 2013 and Cédric Chervaz in 2014 look at CCS' micro and meso objectives based on how service design concepts relate to communicative blueprint methodologies (Chervaz, 2014; Nginamau, 2013).

Nevertheless, all different objective approaches currently being conceptualized within the CCS movement aim to reveal its high potential to fulfil sustainable development. Beyond looking at their purpose, this paper argues, that it is important to prove that CCS are a strategic efficient tool to reach these goals, creating a real impact for sustainable development in either sense (Table 2)

AN "IMPACT ASSESSMENT MATRIX" PROPOSITION FOR CCS

An Impact Assessment Matrix deals with reporting against indicators for set goals and objectives measuring the quantitative outputs of an activity and verifying the qualitative outcomes of a project (UPEACE, 2011). It's a systematic method for collecting, analysing, and using information to answer questions about projects, policies and programs, particularly about their effectiveness and efficiency, usually using an indicators dashboard. They can involve both quantitative and qualitative methods of environmental and social research with different background such as economics, politics, cultural, sociology, anthropology, philosophy and psychology domains.

For the work on any Impact Assessment Matrix, we propose to respect the norms for evaluation proposed in the handbook on planning, monitoring and evaluating for development results by the United Nations Development Programme (UNDP, 2009: page 130). Furthermore, to reach such wide objectives as sustainable development, a greener, social and solidarity economy or prosperity without growth, any economic and monetary innovation must integrate a diversity of cross-disciplinary domains in its impact assessment approach. As these are complex cross-disciplinary dimensions, a transverse research approach is a key in the CCS field (Furtado, 2005). And as such we can take our inspiration from the well-structured work made in the development domain and the impact finance sector but shall even overpass them by designing a transverse and integral approach which takes into account more than strictly rational data collection and assessment.

Taking all the above into account, the following prototype Impact Assessment Matrix, shown in table 3, serves as an illustration of what a final dashboard or scorecard for the impact assessment of CCS might encompass, with an explanation of the category headings:

- Dimension: linked with scientific research domains in different background such as ecology (environment), sociology (social), economics (economy), politics (governance), anthropology, philosophy and psychology (culture) to insure a cross disciplinary approach.
- Level: meta, macro, meso or micro.
- Vision goal: as described above.
- Guideline principle: main topic, issue, subject which might be integrated, followed and respected.
- Evaluation objective: as discussed above.
- Typology: bilateral barter (B), multilateral barter (M), mutual credit (U), issued currency (C), hybrid exchange system (I) or relating to any of these types (A).
- Logic model hierarchy: measuring activities (A), outputs (P) or outcomes (C).
- Progress measurement against eco-socio-environmental indicators of different kinds.
- Monitoring and evaluation methodology: data collection and analysis with quantitative or qualitative research methods.
- Cost: estimation of the time, money and human resources needed for data collection: low (1), medium (2), high (3).
- Frequency of the data collection and analysis: daily (D), weekly (W), monthly (M), yearly (Y).

DEPLOYING THE "THEORY OF CHANGE" METHODOLOGY FOR BOTTOM-UP ADVANCEMENT OF EVALUATION IN CCS

For an on-going international EU-Interreg co-funded, cross-sectorial collaboration project (COMMUNITY CURRENCIES IN ACTION, 2012) around the consolidation of complementary currency tools, a framework for the evaluation of complementary and community currencies has been developed and deployed with the project's different CCS pilots (NEF, 2014). The methodology is here proposed as the second, incremental approach towards standardisation and consolidation of impact assessment of CCS.

The chosen framework approach is the well-established "Theory of Change" (ToC) methodology (Anderson, 2005). In general and when applied to CCS, one can distinguish two use cases in which a ToC approach is commonly applied. On the one hand, it serves as a forward-looking project or intervention-planning tool; on the other hand it is an analytical, backwards-looking project description and communication tool. Both scenarios can serve as a building block for evaluation, depending on when in the lifetime a project monitoring and evaluation commences. Often, the tangible outcome of a Theory of Change process is a flow-chart diagram that illustrates what short, medium and

Table 3: prototype of Impact Assessment Matrix – IAM (Source: Place, 2013)

Dimension	Level	Vision Goal	Guideline Principle	Evaluation Objective	Typol Categ	Logic Model	Progress Measurement Indicators	Monitoring & Evaluation Methodology, Data Collection & Analysis	Cost	Frequ
Culture	**Meta**	**Societal Acceptance**	**Societal**	Recognition Credibility Legitimacy from (Inter-) Governmental Institution	A	Outcome	N° institutional support	Management database	3	M
				Tranverse Cross-Disciplinary Integral Holistic Collective Intteligence	A	Outcome	N° scholar expert specialist involved	Management database	2	M
	Macro	**Inner Outer Sense Harmony**	**Altruism**	Other-Oriented Cooperation & Self-Oriented Competition Equilibrium	A	Outcome	% other-oriented vs self-oriented	System database	2	M
	Meso	**Pluralism Inclusivity Diversity**	**Creativity**	Alternative Flexible Libertarian Measure of Value	A	Outcome	Yes / No	Best practice	1	D
				Soft Skills and Hard Skills Design Thinking	A	Outcome	% soft skills vs hard skills	Management database	3	Y
	Micro	**Innovation, Confidence Humility**	**Innovation**	Open Questioning Capacity	A	Outcome	N° yearly improvement	Management database	2	Y
Governance	**Meta**	**Participatory Democracy**	**Democracy**	Collaborative Election Decision Process: Consent Sociocracy Holacracy	A	Output	N° stakeholder involved	Interview	2	Y
					A	Activity	N° administrative person	Management database	1	Y
	Macro	**Citizenship Engagement Recognition**		Effective Stakeholder Involvement Stimulation	A	Output	% participation among users	Management database	1	Y
	Meso	**Independent Control**	**Legal**	Independent Quality Control Process	A	Output	Certification	External auditing	2	Y
	Micro	**Monetary Creation as a Common Good**		National Legislation	A	Output	N° legal text	System database	2	W
			Transparency	Taxation	A	Outcome	%rate (fixed & variable)	External auditing	**1**	W
				Open source system	A	Outcome	Certification	External auditing	**1**	M
				Open banking	A	Outcome	Certification	External auditing	**2**	M
				Free Code and Legality	A	Outcome	% free code	External auditing	**3**	W
Economic	**Meta**	**Crisis Resiliency**	**Resilience**	Market diversity	A	Outcome	N° goods & services category	Classification standards	3	M
					A	Output	N° & % users & producers	System database	3	D
	Macro	**Make Exchange Possible**		Tipping Point Network Scale	U C I	Outcome	N° users & N° business	Minimum Best practices: 500 / 100	2	Y
				Training	A	Output	% trained	Interview	3	M
					A	Output	N° training hours per year	Management database	2	M
	Meso	**Inclusive Community-Building**		Interoperability	C I	Activity	N° systems users	System database	3	M
			Viability	Participation	A	Outcome	N° active members per year	Management database	1	Y
				Friendly user	U C I	Outcome	% agree & strongly agree	Interview	2	Y
				Intelligibility	A	Output	% agree & strongly agree	Interview	1	D
				Team Capacity	A	Activity	N° management team	Management database	3	Y
			Risk	Disaster mitigation	U C I	Output	Backup system Frequency	System database	1	Y
	Micro	**Financial Autonomy Development**		Currency Security features	A	Output	N° security features	Best practices: 3	3	W
				Transaction and Data Safety	A	Activity	N° failure accident	System database	2	W
				Record keeping and statistics	A	Activity	Backup system Frequency	System database	1	W
			Finance	Investment standards	U C I	Output	Certification	External auditing	2	D

				Loan Standards	U C I	Output	Certification	External auditing	3	D
			Accountancy	Accountancy standards	U C I	Output	Certification	External auditing	1	D
				Appropriate Socio-Environmental Accountancy Scheme	U C I	Output	Certification	External auditing	2	M
			Management	Monitoring and Evaluation	A	Output	N° standards & tools used	Best practice	3	M
			Exchange	Demurrage / Interest	A	Outcome	%rate	Best practice	3	W
				Debt levels	A	Outcome	Minimum and maximum	Best practice	2	D
				Discount rate	A	Output	%discount	Best practice	2	W
				Salary bonus	U C I	Output	%bonus	Best practice	1	D
				Exchange rates	A	Activity	%rate	Best practice	2	M
				Backed system	A	Activity	%backing	Best practice	2	D
Social	**Meta**	**Link Share Reciprocity Solidarity**	**Cooperation**	Exchangeability	A	Outcome	N° compensation systems	System database	2	M
				Co-creation	A	Output	N° involved in design	Management database	3	M
				New skills	A	Activity	% agree & strongly agree	Interview	3	Y
	Macro	**Equity and Justice**	**Engagement**	Involvement	A	Outcome	% agree & strongly agree	Interview	1	D
				Inclusion	B M I	Outcome	N° solidarity inclusion	Management database	1	W
				Social service dependence	B M I	Outcome	N° social service dependant	Management database	2	Y
				Cohesion	B M I	Outcome	N° new relationship	Interview	2	D
	Meso	**Needs Satisfaction**	**Well-being**	Increase self-confidence	B M I	Outcome	% agree & strongly agree	Interview	1	Y
				Friendship and Trust	B M I	Outcome	% agree & strongly agree	Interview	2	Y
				Improve quality of life	B M I	Outcome	% agree & strongly agree	Interview	1	D
				Mindfulness and Spirituality	A	Output	% agree & strongly agree	Interview	2	D
			Diversity	Education level repartition	A	Activity	%High & Graduate school	Interview	3	W
	Micro	**Cohesion Cooperation Sharing Vector**	**Mission**	Ethic Charter	A	Activity	Yes / No	Best practice	1	D
				Conducts Code	A	Activity	Yes / No	Best practice	2	W
			Education	Enrolment	A	Outcome	N° children enrolled in school	Interview	3	D
			Poverty	Income increase	B M I	Outcome	%income increase	Interview	2	W
					A	Outcome	N° risen out of acute poverty	Interview	1	W
				Employment	B M I	Outcome	%employment increase	Interview	2	D
					A	Outcome	N° new job created	Interview	3	D
Environment	**Meta**	**Transition and Autonomy**	**Relocation**	Local growth	U C I	Outcome	%GDP local increase per year	Regional database	2	M
					U C I	Outcome	N° profitable enterprise support	Interview	1	Y
					U C I	Outcome	N° new profit & wage generated	Interview	2	Y
	Macro	**Eco-Localization Relocation**		GHG emission	C I	Outcome	%CO2 & CH4 decrease	Regional database	3	M
				Local consumption	U C I	Outcome	%products locally produced	System database	2	M
				Currency exchange	A	Output	%salary exchanged in CCS	Interview	1	M
					A	Output	N° of CCS spent & earned	System database	2	Y
	Meso	**Ecological Footprint Reduction**	**Biodiversity**	Reforestation	C I	Outcome	N° tree plantation	Regional database	3	Y
			Eco-Friendly	Behaviour change	C I	Outcome	% agree & strongly agree	Interview	3	W
				Waste management	C I	Outcome	%recycling increase	Regional database	3	D
				Water management	C I	Outcome	%water consumption decrease	Regional database	2	W
	Micro	**Responsible Consumption Motivation**		Green economy	C I	Outcome	%organic & fair product increase	Regional database	2	D

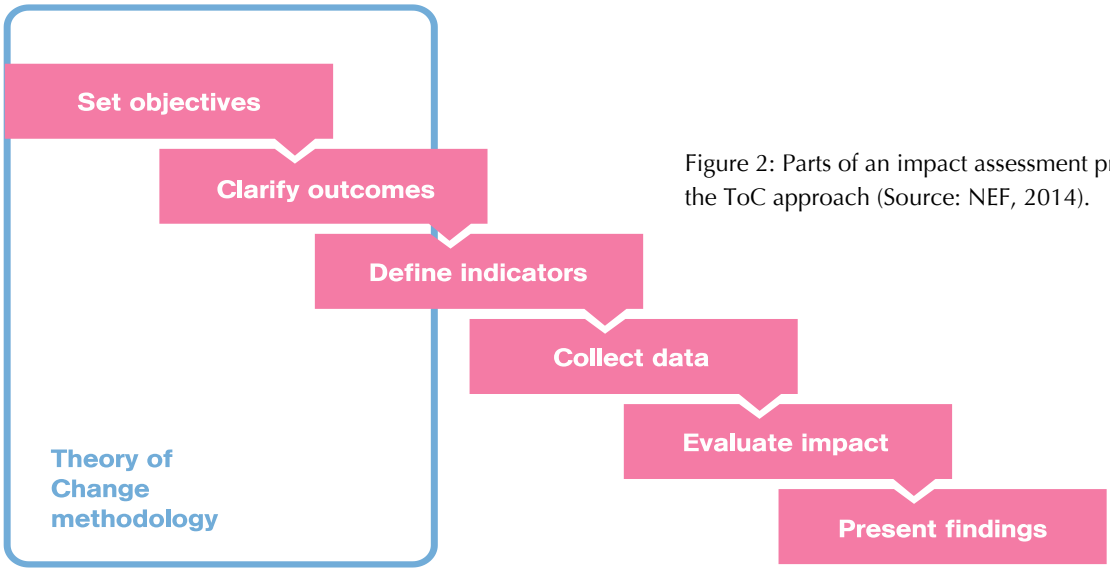


Figure 2: Parts of an impact assessment process covered by the ToC approach (Source: NEF, 2014).

long-term outcomes have been achieved by the intervention or are expected to be achieved respectively. The interactions between these outcomes are mapped in a temporal manner, portraying earlier changes as the preconditions for later and possibly more high-level outcomes/changes.

As part of a full evaluation or impact assessment (Figure 3), the ToC covers the first two parts, allowing for the third part, the determination of appropriate indicators to follow. Through breaking up outcomes into very concrete and manageable components, it becomes easier to find qualitative and quantitative indicators for individual outcomes that are the basis for data collection and finally evaluation (including the discounting of deadweight).

In a ToC, the elements and effects of a project, initiative or intervention are clearly distinguished from each other, which helps the (meta-)communication within a project team and the outwards communication to stakeholders, users and funders. The most important distinction is the one between "activities" and "outcomes". Particularly during the stakeholder workshops, the facilitator's question

Figure 3: Example of a Theory of Change flow chart for CCIA TimeCredit currencies in Wales (Source: NEF, 2014).

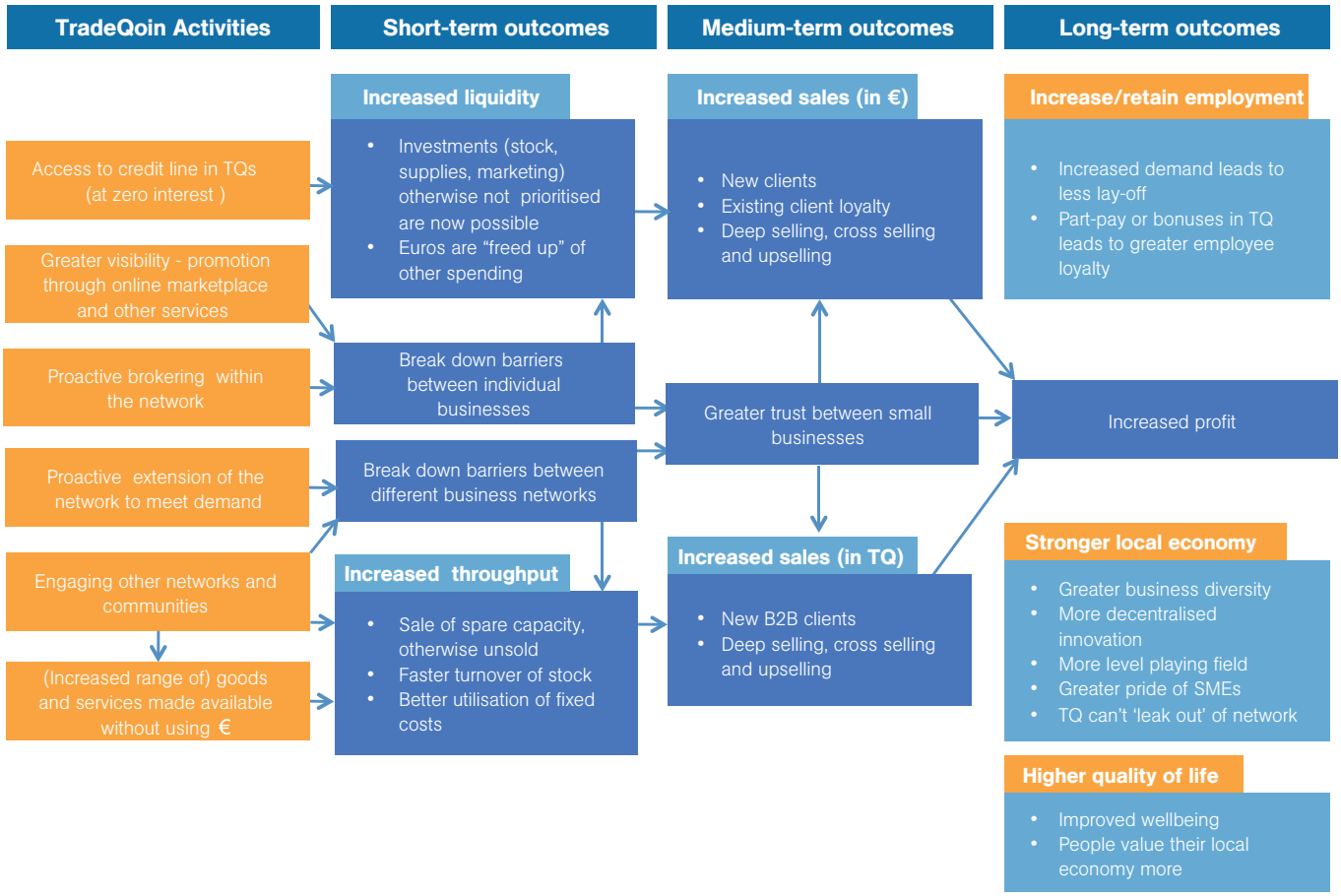
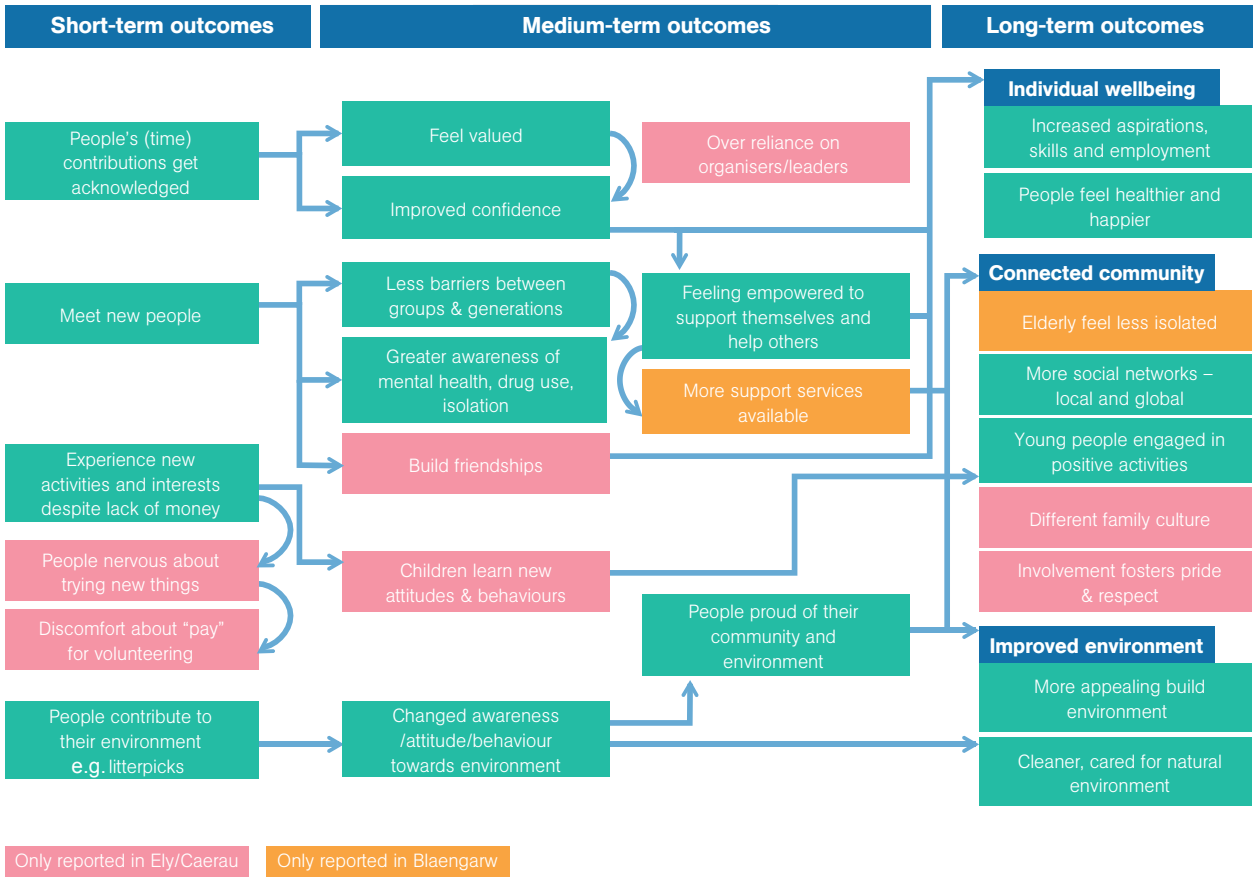


Figure 4: Example of a Theory of Change flow chart for CCIA TradeQoin pilot in the Netherlands (Source: NEF, 2014).



"What is the project (supposed to be) doing?" can be answered with either category. But as a tool for impact assessment the ToC is only concerned with outcomes, or, in other words, the effects of activities on people or the situation they are in. These are the "changes" happen and which this methodology seeks to articulate clearly. To make sure an outcome rather than an activity is articulated, the question "Why does this (the activity) matter?" can be asked iteratively (NEF, 2014).

To validate and adapt it for CCS, ToC workshops were conducted with the CCIA implementation partners and their stakeholders. The results of two of these workshops with different CCS are presented here (Figures 4 & 5).

Each outcome, on the short-, mid. and long-term, depicted in one of the building blocks of the graphic ToCs, can then be targeted in the search for appropriate indicators, which could show that this one outcome has been achieved or not. In addition to determining indicators for a specific evaluation, one of the strong extra advantages of a Theory of Change approach and process is that many unarticulated and even unconscious assumptions can surfaced and get tested for their relevance to the project or intervention (Vogel, 2012). This is of course increasingly important the more different stakeholder groups are involved in a project. And since many CCS initiatives aim to be more inclusive and collaborative than conventional projects, divergent assumptions and individual motivations of different stakeholder(-groups) are a hazard to the success and sustainability of the initiative. In this sense the ToC approach serves the recommendations of Seyfang and Longhurst, who cite "expectation management" to be one of the key success factors for the sustainability of social niche technologies like CCS (Seyfang et al., 2012).

In conclusion, a ToC framework has several benefits beyond the development of the CCS field and the incremental and peer driven development of general indicators and quality standards of impact evaluation:

- It is applicable at all stages of development of a given system or initiative.
- It is supportive of the design, marketing and validation processes of currency initiatives through a focus on the clear articulation of objectives and assumptions.
- It is compatible with different stakeholder situations (grass-root, non-profit, commercial, public).
- It can be an integrated part of an evaluation process or can be a stand-alone result for better communication (towards funders and new stakeholders) and assisting the project development process.
- It is adaptable to self-driven, facilitated or commissioned evaluation efforts.

- It is a pre-requisite for a peer driven development of general evaluation and quality standards (including the above proposed matrix and scorecard approach) of CCS.

We proposed the Theory of Change framework as a first stage for wide spread and consolidated impact assessments of CCS in order to increase the legitimacy, external visibility, and internal viability of such initiatives as an efficient impact tool for sustainable development.

CONCLUSION

In the first section we identified the context and need for more rigorous and coherent impact assessment of CCS. In the second section we show how current literature on CCS does not fully accommodate this need.

Thus, after reviewing the diverse objectives of different CCS in section 3, we provided two prototype approaches for the improvement and spread of impact assessment: 1) an Impact Assessment Matrix, and 2) a practical and incremental approach in that direction through the application of the Theory of Change methodology as piloted in the CCIA project.

Thanks to these impact evaluation and monitoring approaches, we hope to accelerate and enhance the validation of complementary currency systems as strategic and efficient impact tools for sustainable and ethical prosperity. Even in the short term, this is important to make the case to funders and policy makers. Our proposed approaches reflect how they contribute to these broad aims in the distinct spheres of culture, governance, economy, social integration and environment. Solid impact assessment and monitoring would also allow CCS to improve their internal design and implementation in order to reach their impact objectives and consequently advance their performance, legitimacy, scaling-up and replication processes.

A practical yet principle driven approach to standardisations of evaluation and impact assessment could ultimately also enable the establishment of a certification system for "impact currencies", which will allow this field to prove not only its innovativeness and viability but also its genuine transverse and integral impact for territorial and community development.

It is expected that in overlay of the indicators from different currencies a set of general and another set of specific indicators can be derived, with specific sets for different currency models. This will inform the design of future evaluation standards and dashboard systems. From this conceptual and action research driven approach we expect to ultimately derive the impact evaluation standards necessary to validate CCS as appropriate and effective tools for the sustainable development expansion and appraisal.

Both complementary and connected approaches that we presented here aim at this goal, but which of them will be taken up and used by practitioners and researchers remains to be seen. However, the Impact Assessment Matrix and the Theory of Change methodology remain under development by the authors and will hopefully facilitate new collaborations and strategic developments in and for the field of complementary currency systems.

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International Journal of Community Currency Research

VOLUME 19 (2015) SECTION D 165-172

IT'S THE MOTIVATION, STUPID! THE INFLUENCE OF MOTIVATION OF SECONDARY CURRENCY INITIATORS ON THE CURRENCIES' SUCCESS

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ABSTRACT

This paper attempts to explain the success of secondary currencies. Success is defined as the degree to which the initiators of these currencies manage to reach their original goals. In order to do so, we draw on two explanatory factors: the motivation of a currency's founder and the degree of organization. We employed a combination of qualitative interviews, secondary literature review and standardized questionnaires with seven secondary currency projects in Croatia (CROM), Germany (KannWas, Engelgeld), Greece (Ovolos, TEM) and the United Kingdom (Bristol Pound, Brixton Pound). The main findings are that projects which pursue several different motivations are more successful than those with fewer goals. As for the degree of organization, projects which score high on all dimensions of organization are correlated with higher project success. Building on this we propose a typology of two groups: Type 1 cases have low diversity of motivation and organization (CROM and Engelgeld) and Type 2 cases have high diversity of motivation and organization (Bristol Pound, Brixton Pound, and TEM). The two remaining cases, the Ovolos and the KannWas cannot be clearly assigned to any of the types. The *motivation-organization typology* can guide future research on the motivation of founding and using secondary currencies.

ACKNOWLEDGEMENTS

The research for this paper was generously funded by Study Center Berlin ("Studienkolleg zu Berlin"), a common scholarship program of the German National Academic Foundation and the Hertie Foundation. The Study Center Berlin aims to support excellent students and prepare them for future leadership positions in politics, industry, research and culture. The research and the opinions in this paper are only those of the authors and do not represent the opinion of the German National Academic Foundation and/or the Hertie Foundation.

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To cite this article: Fesenfeld, L., Stuckatz, J., Summerson, I., Kiesgen, T., Ruß, D. and Klimaschewski, M. (2015) 'It's the motivation, stupid! The influence of motivation of secondary currency initiators on the currencies' success' *International Journal of Community Currency Research* 19 (D) 165-172 <www.ijccr.net> ISSN 1325-9547

INTRODUCTION

Over the last few years, there has been a plethora of economic, political and sociological research (for a good overview refer to Degens (2013) and Kennedy (2012)) on diverse topics related to secondary currencies, spurred by the wake of newly established currencies. We use the term *secondary currency*, rather than *community currency* because it is an overarching term for all currencies except the primary currency of a state or currency area (e.g., Euro area) and includes both alternative (which aim to substitute the official primary currency) and parallel (which seek to exist alongside the official currency) currencies, as well as regional and local currencies (which exist in clear geographic boundaries). While there has been extensive research on the institutional frameworks of these currencies and whether they actually achieve their goals, less emphasis has been placed on the personal and entrepreneurial dimension of the topic. Although some work exists on the motives of people participating in secondary currency projects (Caldwell 2000; Collom 2007; 2011), knowledge on the motives of these projects' initiators still remains scarce (Collom 2011: 149). The founders of a currency often play a pivotal role in introducing and developing the concept of the new currency and putting it into practice. Their motivations shape the constituency of the users, the size of the user group, their interconnectedness with similar projects within and across regional and international boundaries and the goals that are pursued with the introduction of secondary currencies. Thus, we propose a framework of analysis for explaining a currencies' success by linking the study of differing motivations of currency initiators and the organization of those currencies.

On the one hand, we propose a fivefold *motivation typology* of possible goals that are pursued when setting up and designing secondary currency projects. The five motivations which we have identified inductively through our research are supporting ecological sustainability, strengthening the social community, supporting the local economy, building up resilience of the local economy against future crises and critique of interest rates and the prevailing economic system. On the other hand, a purely motivational framework does not suffice to explain the development of a secondary currency project. Therefore, we propose that both motivation and the degree of organization play a crucial role in the development of these currency projects. The *degree of organization* refers to several factors, for instance the interconnectedness of projects with other projects, local or regional administration, formal roles and decision-making rules, restrictions of the use of the currency and participation of users, i.e. social capital (Bourdieu 1986; Putnam 1993).

These theoretical considerations lead to the following research question: How do the interconnected factors of motivation and organization contribute to the success of a secondary currency project?

The remaining part of this paper is structured as follows. In the first part, the theoretical foundation for our two independent variables, motivation and organizational degree, as well as our dependent variable, currency success, are spelled out in more detail. The second part deals with the empirical findings of our research project and provides a brief discussion of methodological issues. The last part summarizes our main findings and gives a tentative outlook for further research on the link between organizational degree, motivation of their founders and the currencies' success.

THEORY – MAPPING MOTIVATION, ORGANIZATION AND SUCCESS

One of the most difficult tasks in secondary currency research is to estimate how successful a regional currency project actually is. There is no definite consensus on how to measure a secondary currency's success. A few problematic issues surrounding a sound definition of a currencies' success include the following: First, a lack of systematic and comparable data on secondary currencies limits the ability of researchers to both find common success criteria *and* to evaluate this success across different currencies. Second, most secondary currency projects are small and might actually intend to not grow too large and thus, self-select (Morgan and Winship 2007: 18-20) into what would appear to be only modest success. This self-selection can lead to a lower number of participants, less covered products and services, and limited geographical outreach. Finally, scope and purpose of most secondary currencies differ substantially from established national currencies and thus usual criteria for success, like the usage, exchange rate stability/fixedness and the revenues from coinage prerogative (or, to use the more conventional term, 'seigniorage') (Broz and Frieden 2001) do not apply to secondary currencies.

In this paper, we define our dependent variable *success of a secondary currency* as follows: 1. We account for the degree to which the initiators of the currencies manage to reach their original goals. 2. We aim to determine in how far the established governance mechanisms are effectively used and serve the goals of the currency. 3. How many possible users (measured as: number of users of a currency in a region/the total number of citizens within a defined region) de facto make use of the currency.

This definition of success obviously includes some problematic elements. First, sometimes the original goals cannot be clearly defined anymore, as founders have altered their goals or even left the projects. Hence it is difficult to account for the degree to which the original goals were achieved by the currency. Further, achieving such goals cannot be defined in categorical terms but has to be seen on a "continuum of success". For instance, it might be hard to clearly argue that a currency contributing to regional environmental projects has achieved its larger goal of ecological sustainability, as this e.g. could mean that all regional citizens decrease their CO2 footprint by at least 50%. Secondly, some governance mechanisms are effectively implemented and used but might be based on a very

simple governance structure. Hence, it might not be sufficient to look at the de facto effective usage of the governance mechanisms but also on the degree of complexity behind the governance structure. Thirdly, measuring the ratio of all currency users to all possible users in a region is problematic for several reasons. Some secondary currencies do not have a clear geographical boundary and hence such a calculation would have to be in respect to the entire world population (as potential users), which is obviously unrealistic. Moreover, some currencies explicitly aim to reach only a specific group of people and not the entire population of a region. Comparative analysis seems hard under such conditions. In sum, our proposed definition of success excludes per se any exact measuring of success but served as a first useful heuristic throughout our study.

The *motivation of the initiators of secondary currencies* is our first explanatory or independent variable and draws on former research on motivations of currency participants (Collom 2007; 2011) and the empirical findings of this first case study. First, founders of these currencies may be driven by the wish for ecologic sustainability and the preservation of resources. Second, they may want to support the social community, i.e. to enhance the ties between participants by social exchange. Third, initiators may wish to strengthen the local economy, e.g. local businesses and shops. Fourth, and interconnected with the former, they could try to enhance the resilience of the local economy against future crises. Finally, they could also be driven by a critique of the prevailing economic system, neoliberal capitalism and its obsession with economic growth. In the context of secondary currencies this attitude most often materializes in the form of a comprehensive critique of the banking system and market-led positive interest rates, a stance which we summarize with the term "interest critique" (D'Alisa, Demaria and Cattaneo 2013).

One should note that some of the motivations stated above might appear to contradict one another. The aim of strengthening local business or increasing economic resilience might conflict with the aim of improving ecological sustainability and with interest critique. Consequently, one could expect more concentrated or focused motivation to lead to more success, since conflict between different motivations is expected to be smaller and resources more focused on fewer aims. This expectation is perfectly in line with collective action theory in social science. According to Olson (1965) large groups are more difficult to mobilize than small groups. This is because in small groups every single group member can contribute to and benefit from a collective action (such as lobbying for a certain policy or organization of a secondary currency project). However, in large groups, a lot of members can still reap the benefits of collective action without having contributed to it and thus "free ride" on the effort of the other group members. Because contributing to a collective action is costly and the benefits can often not be fully excluded from all members of the group, no single member has an incentive to contribute. The larger a social group and hence, the more diffuse interests become, the more difficult it is to mobilize.

Olson's (1965) findings are important for scholars of secondary currencies because the organization of such currency projects is essentially a collective action problem. In reality, the theoretical distinction between concentrated and diffuse interests does not need to be that clear, though. On the one hand, diverse interests on behalf of the currencies' founders can render this collective effort more difficult and limit the mobilization success. On the other hand, more concentrated interests can also limit mobilization if they are too radical to find broad support within the group.

Our second explanatory variable is the *degree of social organization* of a secondary currency. Our definition is rooted in the concept of social capital, as elaborated most prominently by Pierre Bourdieu (1986) and Robert Putnam (1993). To refer to more recent social science literature, social capital is defined as "[…] network based resource inhering in the structure of social relations between persons and groups […]" and "In the context of the community, social capital is a resource embedded in the social network ties connecting communities and groups" (Whithman 2012: 142-143).

Thus, we attribute features of a secondary currency which influence the structure of the social relations between participants to the concept of organization. We employed five dimensions of *social organization*. First, we distinguish currencies by their degree of cooperation with other projects, with the local or national administration or other third parties. Second, a decisive criterion for organizational degree is the extent to which formalized decision-making rules exist: do organizers vote to decide a currency's future, by majority or consensus, or are important decisions taken on an ad-hoc basis? The third dimension is the extent to which formal roles exist, i.e. if there are permanent positions and a solid division of labor. The fourth dimension is the degree to which members of the secondary currency are able to participate in the organization of the currency. Are decisions taken in a top-down manner by the initiators of the currency or can participants directly or indirectly shape important decisions by participating in regularly held meetings or by voting on important decisions taken with respect to the currency? Last but not least, the restrictions and rules imposed on the currency need to be examined. All organizers of secondary currencies regulate their use in some way, in order to offer an actual alternative to the primary currency of a country. Regulations of this type may include rules on the type of shops in which the currencies may be used, or a slow decrease in the currency's value to encourage spending. Hence, one can expect a secondary currency to be more successful the more socially connected and organized it is.

In a nutshell, we can draw two empirical implications from the brief theoretical discussion provided above. On the one hand, we expect secondary currencies to be more successful, the more concentrated or less diffuse motivations are. The narrower the motivation, the easier the mobilization of participants. On the other hand, we expect a higher degree of organization to be empirically associated with more success (hypothesis 1). Technically more sophisticated pro-

jects should tend to be more successful in achieving their initial goals (hypothesis 2).

METHODOLOGY

This research paper is based on a combination of qualitative interviews, a secondary literature review and standardized questionnaires. It is qualitative in nature and consists of seventeen semi-structured elite interviews with founders and co-founders of secondary currency projects, representatives of public institutions (local civil service), academic experts and journalists. The semi-structured elite interviews were guided by interview methods of political science as laid down in the literature (Leech et al. 2002; Flick 2014). We used semi-structured interviews with open-ended questions in order to focus the interview on our specific research topic of interest – the founder motivation. The advantage of the semi-structured interview is certainly that the interviewee is allowed a great deal of latitude in his or her response. That way, motivations could be detected in a more original manner than through a fully structured interview or survey, which would have to presume certain dimensions of motivation beforehand. As exact wording is not as important in the use of semi-structured interviews, the respondent can reply more freely. The idea is that through this research method the questions lead to more complete answers (Goldstein 2002).

This part of data gathering was supplemented by a secondary literature analysis of scientific journals, books, case studies and websites. Some official documents such as European and German primary and secondary law were reviewed in order to add the respective legal basis. The selection of the research cases, i.e. the respective secondary currency projects, was mainly based on three criteria. First, our aim was to choose cases that *vary in our independent variable,* i.e. we should be able to observe differences in their motivations and their organizational traits. Since our research topic is explorative in nature, we also aimed at covering a broad range of European countries so as to investigate different contexts. Second, our dependent variable, the success of a secondary currency, was explicitly excluded in the case selection. Finally, *practical considerations* played a role. Due to budget limitations it was not possible to investigate cases in developing countries, for example. Also, the time frame for the research grant was set to a period of five months between January 2013 and May 2013. Given the constraints we faced in determining the variation of outcomes, this approach of selecting based on the 'diversity' of the cases on the independent variable is not exactly equivalent to the well-known 'most-different' case selection design (George and Bennett 2004), but resembles Seawright and Gerring's (2008: 300-301; see also Gerring 2007: 97-99) *diverse case method*. Practically, it was very difficult to determine a priori the degree of success of a secondary currency, mainly because there was no prior research on them. Applying these criteria, we selected seven projects in four European countries, namely the "CROM" in Pula, Croatia; the "Ovolos" in Patra, Greece; the "TEM" in Volos, Greece; the "Brixton Pound" in London, United Kingdom; the "Bristol Pound" in Bristol, United Kingdom; the "KannWas" in Kiel, Germany; and the "Engelgeld" in Wittenberg, Germany. For each of these secondary currencies, we arranged interviews with the founders and actively involved members of the currency.

In order to better evaluate the results of the interviews we asked the interviewees beforehand to record the interviews. On the basis of the audio files and handwritten notes during the interviews we compiled transcripts. Based on this original data five key dimensions of motivation and organizational design could be established. Additionally, to our analysis of the documented data we further buttressed the validity of the categories by discussing them with experts in the field. In a second step we established an anonymous voting system along the different dimensions, meaning that each researcher received an independent vote on a Likert Scale of 1-5 in order to rate the currencies on the respective importance of each of the motivational and organizational dimensions. Finally, the average results were used in mapping the currencies in the net diagrams on motivation and organization. Moreover, we had the possibility to distribute standardized questionnaires among the secondary currency users to identify their motivation in Brixton and Bristol. These two cases represent a first test of accordance or conflict between users' and founders' motivations. The number of respondents in Bristol was 55 users and the number of respondents in Brixton was 20 users. We are fully aware that the results are not representative and exclude the application of sophisticated statistical techniques. However, they provide a first explorative step towards a simultaneous measurement of the motivation of participants and initiators of secondary currencies.

ANALYSIS AND RESEARCH RESULTS

The explanatory variables *motivation* and *social organization* can be compared in light of five classifications, respectively, as described above. With regard to the *motivation* variable, the analysis of the data collected has indicated that founders' motivation can be described by the classifications *community, region, ecology, resilience and critique of interest.* The results of the seven analyzed projects show that in most of the cases founders' motivations combine several of the stated categories. Projects combining several different motivations tend to be more successful (see definition of project success as stated above). This result is pivotal in so far as the intuitive argument that projects concentrating merely on one goal or motivation are more successful, due to a more focused and efficient use of available resources, does not hold empirically. *However, projects that emphasized one motivation also tended to be more radical and thus limited their pool of potential participants.*

The second *explanatory* variable social organization is characterized by the five dimensions *cooperation (degree of cooperation with third projects), decision-making (formalized decision-making rules), formal roles (formal roles), par-*

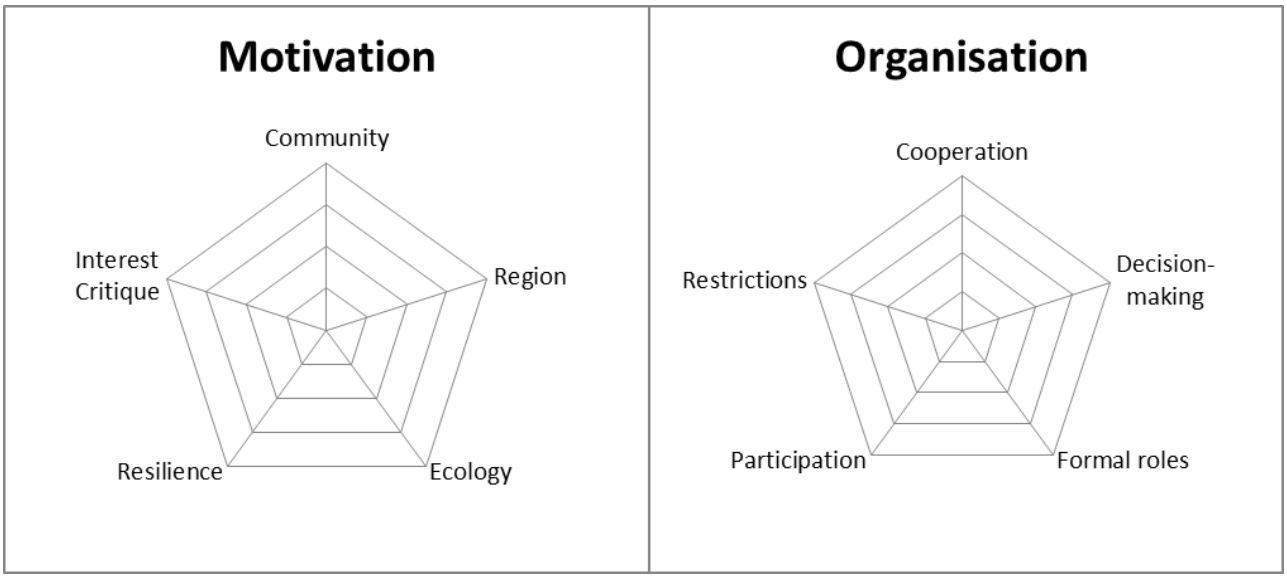


Figure 1: Dimensions of Motivation and Organization

ticipation (participation in the decision-making process) and restrictions (material or ideological restrictions). In line with the motivation variable it becomes clear that projects which rate high on all dimensions of organization correlate with higher project success. Figure 1 summarizes both overarching categories and their five subcategories.

The cases with few motivations and low organization – CROM and Engelgeld – are classified as Type 1 cases. Those cases rating high at the dimensions of motivation and organization – Bristol Pound, Brixton Pound, and TEM – are summarized as Type 2 cases. The two remaining cases cannot be clearly assigned to any of the types because they mostly score medium values on the motivation-organization nexus. The *motivation-organization typology* can guide future research on the motivation of founding and using secondary currencies.

In Bristol and Brixton the users' motivation was analyzed by means of standardized questionnaires and interviews. In sum, these results indicate that there is an overlap between users' and founders' motivation vis-à-vis the dimensions *region* and *community*.

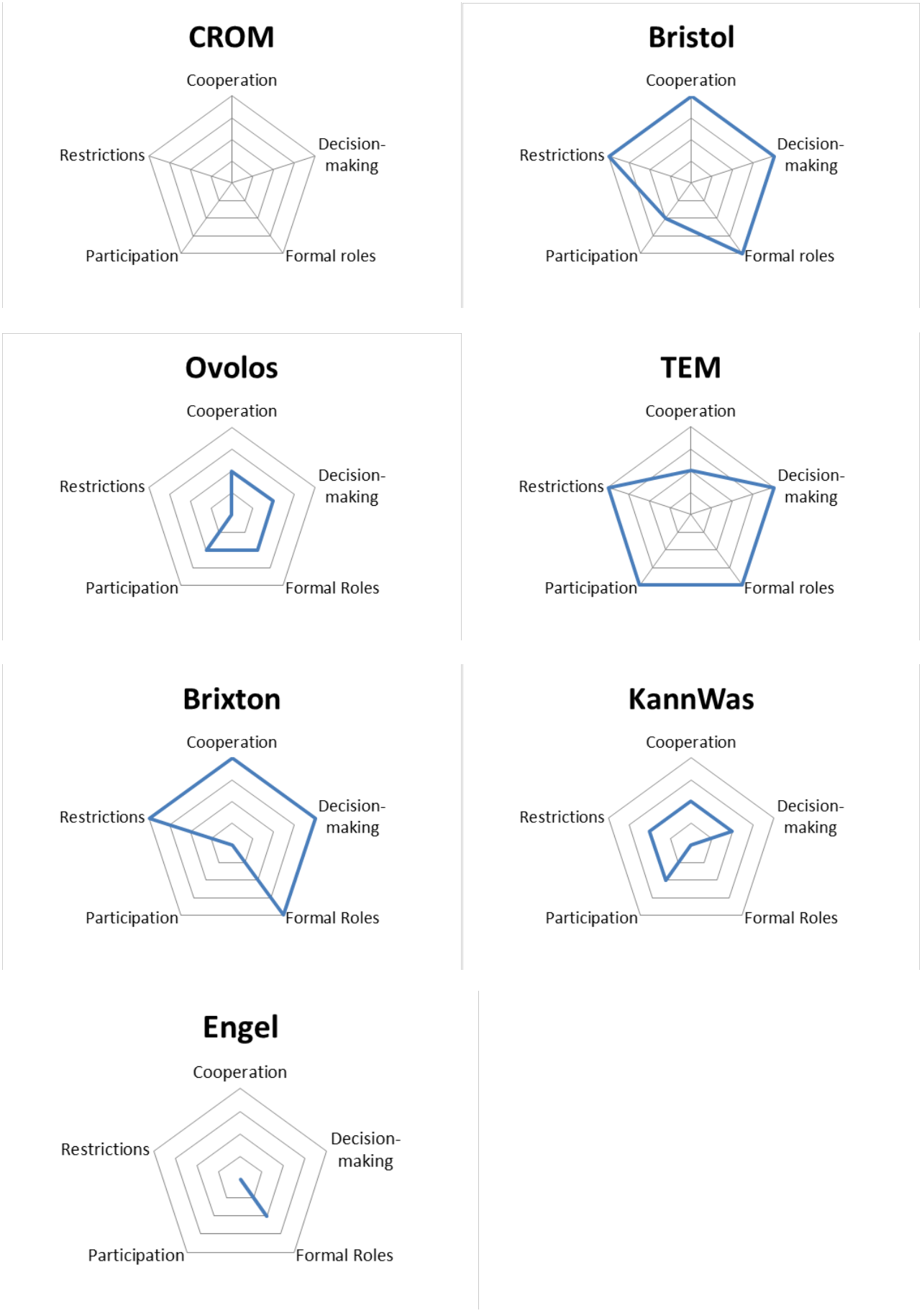
Further results of these case studies can be summarized as following. First, the motivation of ecological sustainability played a less important role than expected in most projects. Second, the currencies tended to address users who already agreed with the proposed goals of the project. Hence, the extent to which the currencies actually affected or changed attitudes and motivations in their communities is put into question. Third, the currencies made a clear difference on the micro-level, especially in those countries hit by the financial crisis of 2007/08. In Volos for instance, users of the TEM were able to trade goods and services even though income in Euro was lacking as a result of the crisis. Fourth, the projects are examples of civil society or bottom-up initiatives. Fostering future research on the civil society implications of secondary currencies, and thereby analyzing the interconnections between existing social movements such as transition towns and the success of secondary currencies, can be of interest.

Furthermore, it has to be scrutinized in how far the success of currency projects can be attributed to clear geographical boundaries and communities in which the currency is used. Fifth, it is important to stress that the *side effects* of the projects such as the social interaction between project volunteers and users frequently have deeper implications for the respective community than the direct monetary functions of the project. It could also be of particular interest to further study the possible interaction effects between primary and secondary currencies. In the view of European integration theories (Wiener and Dietz 2009) it becomes relevant to analyze in how far secondary currencies can support regional integration without contradicting the idea of European cooperation and integration in monetary matters. Further research could hence focus on the motivations of currency founders to cooperate with other currencies, and the founders' positions regarding European integration.

CONCLUSION

These case studies on the motivation of secondary currency founders have shown that diverse motivations and a high degree of social organization can increase the likelihood of project success. They open a new field for future research focusing both on the founders' and users' motivation for participating in secondary currency projects. It is clear that secondary currencies may affect community spirit and attitudes (described as "side effects") more than they affect the finances and economic development of a local or regional economic system. However, in order to better understand the role secondary currencies can and do play in today's world, both financially and otherwise, we would like to invite further research on this topic and encourage cross-fertilization across different scientific disciplines.

Figure 2: Secondary currencies' scores in the Organization dimension.



We cannot exclude the possibility of endogeneity, i.e. that the causal direction between motivation/social organization and a currencies' success is not exactly working as proposed in this paper. It could be the case that success causes certain motivations to appear or that more success makes a more sophisticated organizational structure necessary. In fact, it is very likely that differing degrees of success, especially at the beginning of a secondary currency project, will cause the initiators of these projects to change certain aspects of the currency or certain organizational features of their social enterprise. To exclude the endogeneity problem, where possible, we only took into account the starting motivations of the initiators and the organizational features as they were when the currencies were started.

There are two caveats with respect to our results. First, this paper cannot fully exclude certain methodological problems such as non-quantifiable data, endogeneity or non-representativeness. Second, the finding that founders and participants of secondary currencies share the same motivations might seem counter-intuitive to researchers who are more familiar with currency projects in developing countries, where poverty alleviation are often more important than other benefits, like strengthening of social capital or community development (Seyfang 2000). However, it is less surprising in a developed-country context like in Bristol or Brixton, where it is very probable that a large share of participants has a higher educational background and can economically afford to share the more abstract ideas of currencies' founders.

Nevertheless, we are confident that our findings will contribute to the growing research on secondary currencies and civil society movements. Especially comparisons between founders' motivations and/or ideology and those of the participants might provide a fruitful venue for future research, which could also be conducted quantitatively using a large-N survey-based approach. One possible research program could shed further light on the discrepancies between motivations of currencies' founders and the members. Are, for example, founders more or less willing to sacrifice some democratic organizational mechanisms if their own beliefs are at odds with those of their members? Is it necessary for the currencies administrators' beliefs to be in line with those of their members in order to be successful in the long term? Those and similar questions could guide further research and would tackle both empirical and normative dimensions of secondary currency research.

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APPENDIX 1

SECONDARY CURRENCIES' SCORES IN THE ORGANIZATION DIMENSION

Criteria		CROM	TEM	Bristol	Brixton	Ovolos	Kann-Was	Engel
Organization	Cooperation	0	1	2	2	1	1	0
	Decision-making	0	2	2	2	1	1	0
	Formal roles	0	2	2	2	1	1	1
	Participation	0	2	1	1	1	1	0
	Restrictions	0	2	2	2	0	1	0
Restrictions	spatial	No	Yes	Yes	Yes	No	Yes	No
	subject	No	Yes	Yes	Yes	No	No	No
	social	No	No	No	No	No	No	No