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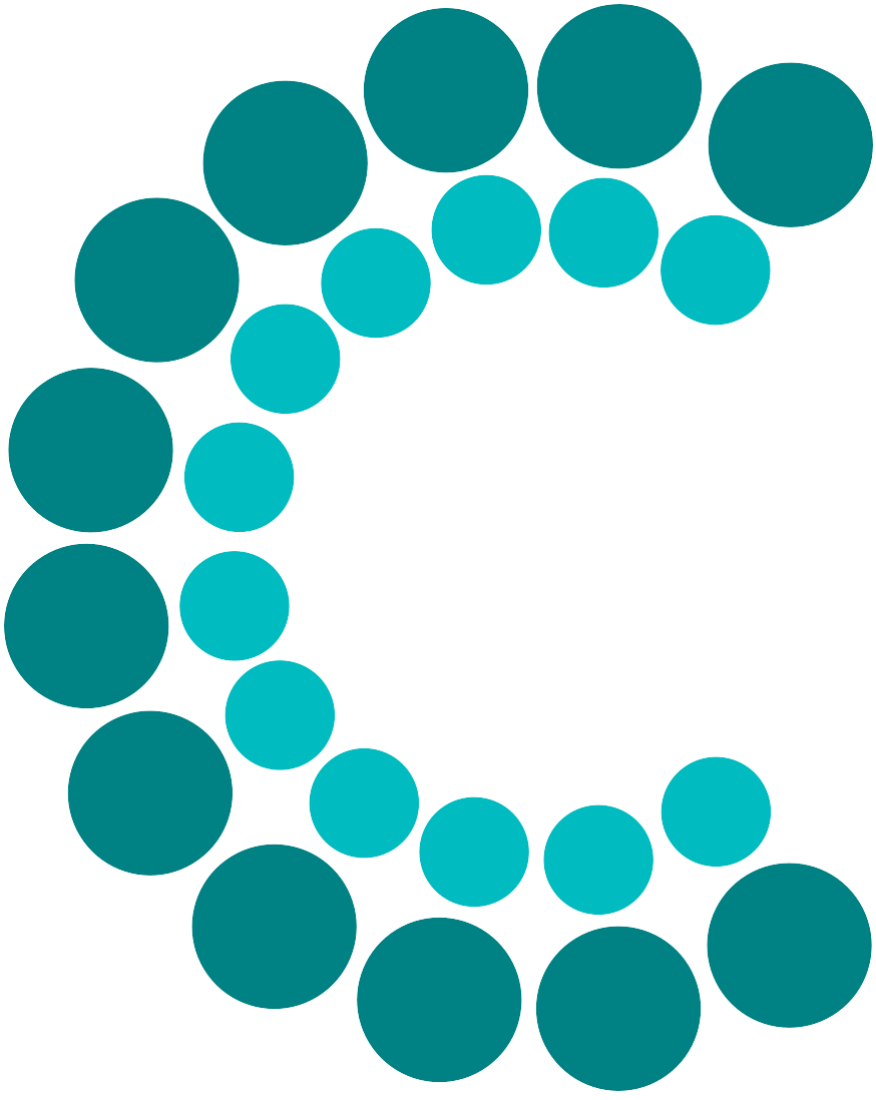

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INTRODUCTION: SOCIAL CURRENCIES, INNOVATION, AND DEVELOPMENT

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Important scholars of alternative systems for use of social and complementary currencies have sought to understand the practical field of these systems. Their general aim is to understand the diversity of projects and experiences of complementary currencies and social uses worldwide. The studies are many and diverse. Some describe differentiation and characterization of experiences; others deep understanding of them, thus enabling a more effective utilization of these development tools in other communities and similar regions. This Special Issue contains a small but important sample of these studies from researchers involved in the subject.

In general, studies have shown alternative systems for use of social and complementary currencies as an interesting tool to start or improve regional and local development. They can be reapplied as an effective economic technology to reach other disfavored groups. Many researchers and practitioners have acknowledged social and complementary currencies as social technologies. It means that social currencies could be seen as techniques, methods, or procedures developed in interaction with the beneficiaries of the technology, subject to reinvestment, and capable of generating social change. Results of actions by non-profit and governmental organizations have highlighted the potential of these experiences as a technology, capable of bringing social transformation.

The papers presented in this Special Issue of the INTERNATIONAL JOURNAL OF COMMUNITY CURRENCY RESEARCH (IJCCR) were presented and discussed during the 3rd International Conference on Social and Complementary Currencies in 2015, in Brazil. The Conference theme assumed a strong relationship between social currencies and practices of a solidarity-based economy. The theme was "Social Currency in Social and Solidarity Economies: innovation and development.".

However, the papers presented in this special issue are not only the result of the 3rd International conference, but they are results extensive research and involvement by many actors in this field. The first results were presented during the 1th and 2nd Conferences, in Lyon and The Hague, respectively. In Lyon and The Hague, many groups, communities, and small towns around the world presented and discussed their social currency initiatives. In addition, scholars presented discussions and research about the processes of the creation and use of social currencies.

At both conferences, Brazil was represented by the initiative of the Institute Banco Palmas (Palmas is the social currency used in the neighborhood Conjunto Palmeiras, in Fortaleza) and by researchers at Universidade Federal da Bahia. At the Conference in The Hague, researchers were invited to organize the third conference in Brazil due to its representativeness and the need to increase the participation of practitioners and researchers from Latin America. At that conference, 16 countries were represented including Hungary, Bulgaria, Japan, Spain, France, Portugal, Switzerland, Netherlands, UK, Italy, Australia, Colombia, Mexico, Argentina, Ecuador, and of course, Brazil. Researchers and practitioners came to present their experiences, research results, insights, and concerns about the use of social and complementary currencies around the world. Moreover, the Research Association on Monetary Innovation and Community and Complementary Currency Systems (RAMICS) was formally created at that conference.

The diversity of the social and complementary currencies field can be seen through the diversity of papers included part of this special issue. A brief look at their key-words can give us a good insight: Finance and Investment,

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Resilience, Historic Complementary Currencies, Solidarity Economy, Local Currencies, Improvement, Sustainability, Ripple effects, Globalization, Deindustrialization, Diversity, Taxonomy, Tree Diagram, Sustainable Development, Impact Assessment, Continuous Improvement, Integral Approach, Development Financing, Money, Work Time Reduction, Participative Democracy, Time Currency, Public Finance, Mutual Credit, Transaction Performance Ratio, Farm(s)/farmer(s), Karl Polanyi, Countermovement, Monetary Theory, Exchange, Barter System.

During the Brazilian Conference, the presented papers considered four main themes: 1) Social and complementary currencies for development purposes; 2) Impact and results of social and complementary currencies; 3) Contextual differences and lessons from experiences; and 4) Typologies, models, and innovation. After the conference, researchers were invited to submit their articles and make improvements based on a blind review system. In addition to the authors, other researchers are invited to be reviewers and send their critiques and suggestions to the authors. I would like to specifically thank Gilson Schwartz, Cládia Biságio, Henrique Pavan, and Luis Arthur Silva. This long process has resulted in very important set of articles.

About social and complementary currencies for development purposes

Rolf Schroeder in the paper "Complementary currencies and the financing of investments in long-term assets" focuses on the "money" concept in the analysis of community or complementary currencies. The author shows that the economies which facilitate exchange with alternative currencies are also based on "capital." Therefore, there are "grey zones" between different spheres and experiences about the notion of social currencies that could be better interpreted if the notion of "money" was avoided.

Nishibe Makoto looks at "Understanding the diversity of CCs worldwide in globalization and deindustrialization as an evolutionary tree diagram" by explaining why vast diversity of community currencies (CCs) arise both within "developed countries" and "developing countries". The author shows an evolutionary tree diagram seen in the past in developed countries and the present in developing countries that evolved into three branches of CCs ("industrializing-local/territorial", "deindustrializing-cultural/community" and "deindustrializing-economic/complementary"). At the end, the author takes up Banco Palmas in Brazil to examine if it can be regarded as the typical case of an industrializing-economic/complementary CC in developing countries in the tree diagram of CCs and suggest implications for CCs in the future.

Tristan Dissaux wrote the paper "Financing for development: a monetary issue in which money has no say". His article deals the problem of financing for development (FfD), by focusing on what is thought to be its major blind spot: money. The author emphasizes the current prevailing FfD paradigm showing its particular theoretical corpus and its restrictive understanding about money. Afterwards, the author discusses a non-monetary approach to financing development showing social and complementary currencies as interesting tools to be explore in this development issue.

Bruno Théret discusses "How scaled up time currencies could be used to reduce work time, enlarge participatory democracy and redistribute wealth". The article proposes a scaled-up time bank and currency at the national level. The idea is to link a legal reduction of work time in the market sphere to the development of an active – participatory – citizenship. In his opinion, this "scaled up time currencies" could reduce economic inequalities through a redistribution of wealth. The interesting proposal in this paper is based on the idea that taxes paid for by additional work in a capitalist economy can be at least partially replaced by transferring work hours from market to civic activities.

About impact and results of social and complementary currencies

Jérôme Blanc and Marie Fare in "Pathways to improvement. Successes and difficulties of local currency schemes in France since 2010" contemplate the difficulties of French local currencies and the pathways to improvement and sustainability at the local level. The territory notion is relevant in their paper and, for example, the role of local governments as a partner is discussed in an interesting way.

Christophe Place presents "Impact assessment of monetary innovation: sustainability with existing frameworks and integral approach". The author provides a good contribution for two questions: What context and objective favor the implementation of monetary innovation? and how to enhance and evaluate the impacts of such innovations? He elaborates a synthesis of currency evaluation studies and assessment framework standards; improves the Léman

currency studies and results using qualitative analysis, and defends integral approach for an impact assessment framework.

Andrew Bonanno in "Assessing Local Mutual Credit as a Socioeconomic Tool for Farmers in New York State's Hudson valley" problematizes local mutual credit networks and other complementary currency systems. He analyses the Hudson Valley Current (HVC) case considering community currency metrics. While the HVC has not been used as a significant means of exchange for farmers, metrics indicate that the HVC is a generally viable source of mutual credit and social linkage creation for some participants.

About Contextual differences and lessons from experiences

Rositsa Toncheva provides in her paper "Implementation of modern barter exchange system in Bulgaria: from an objective necessity to an objective performance" the results from an expert survey on the possibility of a modern barter exchange system (MBES) to be implemented in Bulgaria. MBES is shown as an abstract theoretical construction which helps uncover the reasons why such schemes are successful in a number of countries with different social and cultural characteristics. Unfortunately, she found that in Bulgaria there is no readiness for participation in MBES. She argues that MBES models are usually successful in other countries probably due to their social maturity.

About typologies, models and innovation

Yoshihisa Miyazaki and Ken-Ichi Kurita present the paper "The Diversity and Evolutionary Process of Modern Community Currencies in Japan". Facing difficulties to classify a diversify field of the social currencies in Japan, the authors provide a classification of them by type. In this study, the authors confirm the definition and classification of CCs by surveying previous studies on Japanese CCs. Furthermore, this paper reveals the reality of CC systems that continue to evolve through a process of development and decline, by looking back at their history. In using the Karl Polanyi approach, the authors describe three stages in the evolution of CCs.

Masayuki Yoshida and Shigeto Kobayashi examine "Using Simulation and Gaming to Design a Community Currency System". The authors use gaming and simulation as one method for designing a community currency (CC). They made the Community Currency Game (CCG) in order to learn the CC system and to promote common understanding among different stakeholders. The CCG was implemented to residents who were planning to introduce a CC into their town. The results show that through the virtual use of a CC in gaming, it is possible to share knowledge of participants' perception of the CC and their resulting behaviors and utilize this knowledge to discuss a fundamental aspect of the CC and its design. The main contribution of this paper is to show how a method that utilizes both gaming and simulation can be effective in designing a CC in the introductory stage.

I wish good reading and thank all the authors for publishing in this special issue.

My best regards from Brazil

Ariádne Scalfoni Rigo

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COMPLEMENTARY CURRENCIES AND THE FINANCING OF INVESTMENTS IN LONG-TERM ASSETS

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ABSTRACT

The question raised in this article is whether the focus on "money", as the key concept in the analysis of community or complementary currencies, is justified. The investigation shows that the economies which facilitate exchange with alternative currencies are also based on "capital." In some cases, capital is created within a community or complementary currencies; in others, synergies exist between the alternative currencies and other ways of financing long-term assets like microfinancing schemes. In order to better understand the grey zones between these different spheres an all-encompassing use of the notion of "money" should be avoided.

KEYWORDS

Finance and Investment; Resilience; Historic Complementary Currencies; Solidarity Economy

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1. INTRODUCTION

The author of this paper has developed his knowledge about complementary or community currencies (subsequently the acronym CCs will be used) in two different worlds. First, he participated in the organisational work of a LETS-type of exchange ring (LETS stands for Local Exchange Trading Systems). Secondly, he took part in the academic discourse about different types of CCs. A comparison between these two worlds leaves the impression that an important aspect of the socio-economic life in this relatively small CC system is not reflected adequately in the academic literature. Almost all kinds of economic activity are based on some form of capital. Being an organiser, the author had to find adequate premises where the different kinds of gatherings could take place. For moving houses – a popular service in this exchange ring – someone hired a lorry. Many of those who offered services – bicycle repair, to mention just one example – had well equipped workshops at their disposal. The relevance of the issue "capital" became obvious when a homeless person joined this CC. The organisers tried to integrate this person, letting him take part in the house moving activity, but, unfortunately, it did not work. Without any material basis, participation proved, at least in this case, to be impossible. The case indicates that ignoring the issue of capital implies that social cleavages might be ignored. At this point, the author could have embarked on a practice-oriented investigation. If private premises were not appropriate, public community centres might be available at reasonable prices. With regard to the lack of household capital, a reference to a model project might be useful – a LETS in Munich cooperates with a facility which offers tools for do-it-yourself activities (Koller and Seidel 2014: 108, interview with Dorina Schlupper; see also the website of Haus der Eigenarbeit / HEI no year). With regard to people who live on the fringes of a society, a CC expert might argue that a professionally managed timebank would provide a better service than a LETS-type system run by volunteer organisers. This kind of reasoning may serve as just a first illustration of the issue. In this article the author discusses the question is whether this observation reveals a fundamental deficit in the way CCs are generally described. In order to answer it this analysis will focus on CCs which involve businesses. This will make it possible to refer to definitions of capital not, as in the above case, for household production but to the formal economy. Nevertheless, this investigation should also shed some light on the importance of the (informal) capital endowment in private households.

The following references should be helpful to substantiate the research question. Lietaer distinguishes two sectors of the economy – one with established currencies that is based on financial and physical capital and another that uses complementary currencies to facilitate community transactions and is based on social and natural capital (Lietaer 2001: 274). This definition is not really satisfying. Is "physical capital," as Lietaer calls it, not also relevant for alternative production in the world of complementary currencies? Lietaer addressed a general audience with his book. Like Greco (2013) he offers a far-reaching vision in his book "The future of money: A new way to create wealth, work, and a wiser world" (Lietaer 2001: title). Academic writers are generally far more reserved with regard to the perspectives for CCs. They "should set themselves more modest goals," writes Blanc (2010: 311) and adds "though they may be surprised by their own success." What most authors, whether they address a general audience like Lietaer or Greco (2010) or concentrate on careful scientific work like Blanc have in common, is that they consider money as the pivotal element in the analysis of CCs (for a survey of the literature in this field see Schroeder, Miyazaki and Fare 2011). No doubt, monetary aspects are highly relevant to understanding the specific forms of transactions taking place in CCs, but the question is whether and how the notion of capital is reflected adequately in this field of research. Alternatively, is there perhaps good reason to say that this issue should remain outside the field of CC research? This study is based on a comprehensive analysis of the literature in this field as well in related fields of research.

The following section outlines the framework of this analysis. After the clarification of methodological issues, the second part of section 2 discusses in some detail the roles of money and capital in the discourses about CCs. By

reference to a book, which had some influence on these discourses, it will be demonstrated how the concept of money was dragged into the spotlight. Section 2.3. demonstrates that the notion of capital is a relevant aspect in discussions about CCs. The focus of this article is on small entities, businesses, possibly cooperatives, where people work who are economically marginalised. Therefore, the empirical evidence provided in section 3 takes into consideration alternative means of providing capital. This section offers a bird's eye view on a variety of different types of CCs and their link to the issue of capital. Apart from the capital endowment of participating businesses, cases where the creation of capital is linked with the issue of the currency will be discussed.

2. CONCEPTUAL FRAMEWORK

2.1 Between Vision and Social Technology – Methodological Issues

Thomas Greco envisages an economy with savings and investments being part of an alternative economic structure (Greco 2009: 214-227, 148f). It is beyond the scope of this paper to criticise all aspects of Greco's proposal. He places emphasis on mutual credit systems. In another publication, Greco (2013) himself describes the problems of such systems quite well. His proposals to manage problems like the "stagnation of circulation" are useful in respect of small-scale CCs. But he ignores the enormous costs of managing balances in a complex network structure. What remains is the belief that everything will balance out in a laissez-faire manner. Dodd (2014: 360) quite correctly considers this line of thinking (Dodd refers to the spiritus rector of this movement, Riegel, not to Greco himself) closer to the neo-liberal ideas of Hayek than to the tradition of CCs such as LETS. In order to become recognised in academic circles researchers approach the issue "CCs" in a way which is quite different from books like "The End of Money and the Future of Civilization" by Greco (2009) or "The Future of Money" by Lietaer (2001). They "should set themselves more modest goals" – this recommendation by Blanc (2010: 311) quoted already above might also be considered as a guideline for academic research. The present author has the impression that many scholars in this field only consider propositions as valuable if they are based on profound empirical studies. This again would allow practitioners to improve their systems and get legal recognition for their endeavours. Progress would thus take place in a step-by-step manner. Certainly, profound empirical studies are important, but it has to be emphasised that their quality depends not only on the data collected and the methods employed, but also on the relevance of the research questions. In fact, progress is not always a step-by-step process. New technologies or crises in the capitalist system might change the picture completely. Blanc and Fare (2013:76) argue in favour of a legal recognition of CCs. However, a political discussion would also open the possibility to think about newly designed systems (see for instance a "scenario" presented by Schroeder 2015: 111f). One of the few authors who pursues this course of thinking is Gregory, who envisages a social policy which allows the creation of timebanks which are completely different from the ones which exist presently in the UK – for the "utopian method" see Gregory 2015: 8f, 50f, 18-155. Such an approach involves risks. Cooper (2013) criticises the failed "utopian" attempt by social scientists in Britain to create an economically significant alternative for employment on the basis of the LETS model.

Dittmer (2013) concludes that CCs as they exist today are too small to be an instrument for a degrowth policy. The present author shares this judgement, but – being committed to an understanding of scientific research which includes a sense of vision – raises the question of whether the present frameworks used in CC research are appropriate to conceptualise future systems which are economically far more important than the present ones? If the answer is negative, research would be an impediment to the development of these socio-economic innovations. The term "paradigm change" coined by Kuhn (2012) is not appropriate here, but to ask whether the present paradigm is sufficient to solve important problems in this field of research is the objective of this analysis.

2.2 The Vanishing of Capital from the Discourse

A search for discussions of "capital" in the academic literature produces almost no results. An exception is a contribution by Karatani (2003: 298-301) who describes Local Exchange Trading Systems (LETS) as a form of money that does not become capital. Kavčič (2016: 42), having run simulations with mutual credit systems states that CCs are not well adapted to facilitating the exchange of old durable and capital goods. The latter study is quite unusual because his logical reasoning is detached from actual experience. It should be noted that both authors refer to a specific type of a CC.

Since monetary aspects play such a prominent role in discussions about CCs, there is a possibility that the concept of capital has been integrated into the concept of money. In fact, there is at least one case where this happened. For Hart (2001: 83) "the essence of capital is that it is wealth (usually money in some form) capable of *increasing* its value" (in *italics* as in the source cited). As this definition already indicates, the entire book is just and only about money. In a chapter about "the changing character of money", Hart also discusses CCs – LETS and Ithaca Hours (Hart 2001: 279-283 and 287). In the same chapter, he describes the JAK Members Bank, a Swedish savings and loan association. JAK is an abbreviation of the Swedish terms for land, labour and capital – for Hart it is all about money (Hart 2001: 283).

The reason for the dissolution of the term "capital" is not very clear. Hart himself draws on ethnographic studies he carried out years before. It is noteworthy that in this context he developed the concept of an "informal economy" (Hart 2001: 98). One of the cases he describes in his book is about an entrepreneur from Ghana who transfers the property of an investment to his "employee" who becomes, in fact, a subcontractor. The reason for this complex arrangement is to avoid certain risks and secure a constant cash flow (for details see Hart 2001: 108). Interestingly, this is a small and early example of a trend which could also be observed in the Global North, not only in labour relations, but on the capital side too. New forms of evaluating risks – like the instruments provided by portfolio theory – became relevant for investment decision. This led to the development of cash flow oriented so-called "financial innovations", such as, to name just one example, the process of securitisation. In his analysis of the reasons for the financial crash of the year 2008, the former Prime Minister of the UK, Gordon Brown, speaks of "Capitalism without Capital" (Brown 2010: 27).

This is perhaps one but by no means the only explanation for the dominance of the topic "money" in discourses about CCs. An accountant would shake his or her head about this and point in a different direction.

2.3 The Relevance of Accounting

Notwithstanding what has been written in the last section, the concept of capital has not completely disappeared. It is still possible to refer to Deleuze and Guattari (2004: 248) who distinguish between payment and finance money; the latter structures the process of (capitalist) production. In contrast to the approach of Hart, a definition of capital based on economic theory will be applied (see Hart 2001: 84; in note 18 he refers to G Bannock, R Baxter and E. Davies (1984) *The Penguin Dictionary of Economics*, 3rd ed. Penguin: Harmondsworth, 63). However, since the subject matter of this paper is not the economy in general but small businesses, a reference will be made to accounting principles which have their roots in mainstream economic theory. For many social scientists, this may appear to be a somewhat trivial approach. However, it should be borne in mind that accounting is relevant to any attempt to involve businesses in CCs. North (2004: 138, also 158 and 167) shows that business people are reluctant to participate in regional currency systems because they consider it to be problematic to work with two currencies in their accounts. Assuming that the convertibility of alternative currencies is limited in one way or another, a relatively high income in alternative currencies would constitute a problem because the income in traditional currencies does not suffice to finance depreciation or the acquisition of a new machine which is urgently needed for the production process. This is not really a problem today, but it becomes one in economically significant complementary currencies. Taking up the thread laid with the methodological groundwork of section 2.1. it should be emphasised again how important it is to work with such scenarios in order to demonstrate the limitations of existing conceptual frameworks.

For the purpose of this article, it is not necessary to go into the details of accounting rules (see for instance Bull, 1980, for such details). Low-value means of production are entered as expenses, i.e. they do not become assets. Long-term financial assets are capital, but, with an eye to small businesses, they can be neglected here. Generally, speaking, it is important to distinguish between long-term assets and working capital – goods used to produce other goods and services on one hand, and commodities, cash etc. on the other. The basic rationale behind this procedure is that accounts are prepared for a certain period, for a year, but the lifespan of investment goods stretches over a longer period. The financing of investments and the calculation of an appropriate rate of depreciation takes into consideration this particular character of capital.

In addition to this analytic reasoning, the following section will provide empiric evidence for the relevance of the concept of capital in discussions about CCs. The two sides of the balance sheet, investment and financing, will be considered, both in respect to participating businesses and entire CC systems.

3. EMPIRICAL EVIDENCE

3.1 Regional Currencies

In contrast to service credit and mutual credit systems like LETS, regional currency schemes are not completely sealed off from the capitalist economy. However, even here the acquisition of capital goods is of marginal importance. In his study of the Chiemgauer, Thiel (2011: 324) concludes that this alternative money is mainly used to buy goods for everyday consumption. The supplier directory of this organization (Chiemgauer Regiogeld 2015) confirms this observation, although this database also comprises businesses from the craft and the construction sectors, architects and software developers as well as other specialists in information technologies, and even a few industrial supply stores. The umbrella organisation of the Chiemgauer has launched a micro-finance scheme. Funds (in Euro currency) are provided by the federal government (Regios 2015). Borrowers have the option to receive these funds either in Euro or in regional currency. Generally speaking, it appears that businesses that participate in regional currency schemes prefer a constant cash flow instead of occasional large orders. In the Chiemgauer, the latter case might imply additional costs due to a) the demurrage, because a larger amount of Chiemgauer cannot be spent over a short period, or b) the fees charged for changing back Chiemgauer into traditional currency. If the price had been closely calculated, these costs constitute an extra burden for a business.

As a side note it is worth mentioning that a German savings bank had planned to launch a regional currency (Gründler 2004). This would have offered the possibility to link the new form of money with the various services of this bank. Unfortunately, the savings bank lost its independence and the plan was dropped.

3.2 Historic Systems: Woergl and the Ausgleichskassen/Arbeitsgemeinschaften

Some cases from the first half of the twentieth century provide additional evidence for the relevance of the issue “capital” in discussions about CCs. The job creation scheme in the Austrian town of Woergl has become a famous part of the canon of alternative money (see for instance Lietaer 2001: 155, also Shimomura 2013). It was implemented by the mayor of the eponymous town during the recession of the early 1930s. The purpose of the programme was to set up a community kitchen and to improve the road and path network as well as the tourist infrastructure (Broer 2007: 93f and 159-163). A substantial part of the scheme was financed in traditional Austrian currency (Broer 2007: 67f), the remainder with a currency issued by the local administration. The workers and to some extent also municipal employees received their payment in this local currency. This means of payment was accepted in local shops and by some farmers. It was also possible to convert it into Austrian Shillings, but only with a deduction of 2%. The scheme existed only from the summer of 1932 until November 1933 when it was ruled to be illegal. There are some doubts whether this would have been a sustainable economic cycle on the local level. At an early stage, business people and farmers used the income in Woergl money to pay arrears of local taxes. Later, however, the major of the town exceeded his powers by accepting advance payments of taxes (Broer 2007: 104, 213, 31). Furthermore, he arranged contacts between local retailers and wholesale suppliers in Vienna who accepted the money from Woergl (Broer 2007: 31). The Austrian Chancellor at that time, Dollfuß, had indicated that a currency within clearly defined boundaries could be tolerated, but the activists from Austria had bigger plans (Broer 2007: 195, 213, note 810, quoted from the minutes of the 'Ministerratssitzung' dated 21. Juli 1933, in: Gertrude Enderle-Burcel (ed.), Protokolle des Ministerrates der Ersten Republik, Band 4 /26. Oktober 1932-1933, Wien 1982). The actual investment plan was well justified, but hopes were disappointed; tourism did not flourish during the 1930s due to political reasons (Broer 2007: 162-167).

In contrast to the experiment of Woergl, the Ausgleichkassen or, as they are also called, Arbeitsgemeinschaften remained almost unknown. They also existed for a short period in the early 1930s until they too were ruled to be illegal. Their purpose was to stimulate economic activity via credit-financed investments in public infrastructure and the construction of private dwellings. The basic idea of this concept was not to use scrip as in Woergl, but money on account. Masons and other workers employed in these schemes would receive (at least part of) their wages as credits in individual accounts. Retailers and others were also expected to open accounts in order to make commercial transactions possible. Payments were to be made by cheque or payment orders (remittances). In 1931 16 institutions of this type had been founded, 15 others followed in 1932 (J. 1933: 67; Wackerzapp 1932: 425, also mentions a scheme in the Austrian city of Graz). The alternative currency was either pegged to the Reichsmark or it was based on time as a measure of value (Godschalk 1986: 29). The Ausgleichkassen / Arbeitsgemeinschaften were harshly criticised by a number of authors. Rittershausen (1933), a proponent of the Banking school, was in favour of currency diversity, but argued in favour of flexible exchange rates. This debate resembles, to some extent, the one that characterises present-day discussions. These alternative currency schemes have not been researched yet, but it seems that some of the criticism was justified. The securities might not have been sufficient to guarantee the value of the currency. In principle, it is problematic to

finance long-term investments by issuing fungible money. However, the following case demonstrates that this is possible provided that maturity transformation – traditionally the domain of banks – is possible, provided that this process is covered by adequate securities as prescribed in a regulatory framework.

3.3 Common-pool Resources and CCs

Common pool-resources might have a potential to substitute capital, both, for private users as well as for businesses. So far, there is hardly any information about the combination of these two elements. An exception is the Banjar, a traditional socio-economic arrangement which can be interpreted as a common-pool resource (Vipriyanti 2008). Lietaer and DeMeulenaere discuss this traditional socio-economic arrangement as a specific form of complementary currency. The community of a Banjar decides about certain projects which require the participation of the members of these geographically bounded "civil units" as Lietaer and DeMeulenaere (2003: 972) calls them. Members are required to render services. One type of service is accounted for in time units (3 hours = 1 unit). It is to some extent possible to substitute this service by paying an amount in ordinary currency (Lietaer and DeMeulenaere 2003: 973). It should be added that one has to be very careful to use concepts such as common-pool resource or CC to describe these very traditional socio-economic arrangements. (Anthropologists criticise the interpretation of Tabu currency in New Guinea by DeMeulenaere and others as a Western style economic CC; they insist that the use of this currency is mainly determined by traditional customs – see Solyga 2007: 230f, 242f).

Generally speaking, the maintenance of common-pool resources is an important issue (for an example see Nelson, Schlüter and Vance 2017). This not only applies to natural resources, but also to software; quite often, software requires technically complex programming to customise it and to keep it updated. A reason why the symbiosis between these related approaches has hardly been discussed so far might be that parts of the political common-pool movement consider money as a no-go-area (for instance Habermann 2009: 92-98; for an overview of this radical line of thinking from Germany see Euler 2016). The author of this article considers it to be important to overcome the ideologies of alternatives to capital(ism) on one hand and money as the panacea to all economic problems on the other.

In this context, it is noteworthy that some authors interpret CCs as common-pool resources. It is doubtful whether Greco's proposal to reclaim the credit commons really belongs to this category. This interpretation is not really consistent with his understanding of how the issue of money is supposed to be organised: "Anyone who offers goods and services for sale in the market is qualified to issue currency" (Greco 2009: 146). This kind of a laizzez-faire approach contrasts with another proposal – Hudon and Meyer (2016) apply the criteria of Ostrom and describe precisely how specific organisations which issue a CCs fulfil these criteria.

3.4 The Swiss WIR

The most successful CC – in terms of turnover – is the Swiss WIR. WIR is an abbreviation for "Wirtschaftsring" (economic ring), this German word means also "we". It was also established during the recession of the 1930s. Later, the WIR Bank (a co-operative) was founded which incorporates the WIR system (Wirtschaftsring), but does most of its business in Swiss Francs. The bank considers the secondary currency WIR as a marketing tool offered to their business customers. Turnover amounted to 1.35 billion WIR in 2015. (This corresponds to 1.35 billion Swiss Francs – WIR Bank 2016: 3.) The founders of this system had studied the Woergl project and some other cases. The Swiss regulators took a positive view on this experiment and helped to knock it into shape. The WIR was allowed to issue its own currency. The peculiar character of the WIR system is not always described correctly. Vallet, approaching this case from a monetary perspective (among others he refers to the works of Aglietta and Orléan) emphasises in the abstract of his article the "melting money" principle (Vallet 2016: 479, also 482), also called demurrage. Although the founders of the WIR had been influenced by the model of Woergl, where this principle played a prominent role, it remained of marginal importance even in the early history of the WIR (see Lautner 1964: 31ff). He stresses "the ability of the WIR Bank to create money *ex nihilio* according to participants' needs" (italics as used by the author) and maintains that "the WIR exists only in the circulation sphere" (Vallet 2016: 487 and 484). According to this author, the exposure to the property sector is very limited (Vallet 2016: 492f). The truth is that the WIR system is quite distinct from a mutual credit system. It issues its money in the form of long-term loans mainly secured by mortgages (in 2014, i.e. the year of reference used by Vallet, 77.5% of the assets in WIR currency were mortgages – WIR Bank 2015: 16, also 20). These funds are used to finance investments mainly in the building sector. The contractors put the WIR currency into circulation by making payments to their suppliers or their employees. (For a very good description of this system in English language see Studer 2006: in particular 30-36, 40.) The WIR operates like a central bank, but within the limits of its banking license. The amount of WIR money issued is subject to its equity base. This is an example of how, by setting limits, regulation creates new economic spaces.

In comparison to all other cases presented in this section, the WIR is of outstanding importance. Would it be correct to consider it as a blueprint, the ideal model to combine capital creation with the establishment of an alternative sphere of monetary exchange? First of all, capital creation is almost entirely limited to the construction sector. The system does not facilitate investment in other capital goods. The creation of the currency via one sector of the economy implies also a kind of a bottleneck. The

system must be understood in its specific national context; it is unlikely that it would work in a regional context. In recent years, the WIR has experienced a significant drop in turnover. Interest rates for WIR loans were lower than for loans in Swiss Francs. Due to the low-interest-rate policy of the central banks, this differential does not exist anymore. Mortgages were a very safe form of a security over many decades. However, nowadays it is important to note that mortgages are not always safe. Quite correctly, Vallet (2016: 492) mentions a bubble in the Swiss real estate sector, although it is unclear whether this will cause problems in the future. The WIR is not just a business-to business ring; employees can also participate. In many countries, workers in the construction sector are in low-paid jobs. For many workers this is lucrative, because they come from another country where the hard currency they earn has a high purchasing power. A currency like the WIR would make little sense in this context.

Despite these critical aspects, the WIR provides ample material for anyone who is interested in constructing economically important CCs.

3.5 Equity-based Currencies

The systems described so far have to be distinguished from concepts and experiments where complementary currencies have been designed in conjunction with investment plans based on financing in traditional currency. Warner refers to a story that occurred back in 1990. The owner of a delicatessen financed the expansion of his premises by selling scrip that could be redeemed in meals after the completion of the building project. These certificates, issued in small denominations, circulated, before eventually being redeemed, as a currency surrogate in the community (Warner 2013: 132, refers to G. Hallsmith and B. Lietaer, *Creating Wealth: Growing Local Economies with Local Currencies*, New Society Publishers Gabriola Island, BC, 2011: 84-87). The amount of capital raised here was very small indeed, but Warner believes that the idea has potential if considered in conjunction with crowd funding, which now has increased significance due to new communication technologies.

The value of the above-mentioned certificates was underpinned by the fact that people could see that building the delicatessen was work in progress. The credibility of the WIR money was supported by securities – mortgages and other collateral. Some advocates of CC emphasise that it is essential that these should be covered by commodities like energy (Douthwaite 2011, Turnbull 2009; for an overview of the origin and development of energy currency concepts see Günel 2014). It is possible to think of currencies that are based on the production of a local power station owned by a co-operative. In practice, however, attempts to combine alternative energy production and the issue of currencies did not become success stories. ('Sonnenschein', a German initiative briefly described by Thiel 2011: 130, provides an example; see in this context also Wallimann 2014: 10). The same applies to a proposal to cover the issue of a currency with an investment in tree plantations (Hudon and Lietaer 2006). To sum up, this route does not appear to be very promising.

3.6 Microfinance Schemes

Microfinance – initially greeted with high expectations – became discredited in recent years. Some commentators consider the concept even as irreformable (Klas and Mader 2014: 30). Some authors in the field of CCs discuss microfinance in conjunction with alternative currencies. Servet and Moerenhout (2015) consider "rotating credit and savings associations" (ROSCAs) in India and some parts of Africa as an instrument that fulfils the criteria of a solidarity economy. Ranalli, writing about the use of CCs in refugee camps, emphasises the "lack of access to capital" (Ranalli 2013: 423). A small example from the Global North is the Canadian CC L'Accorderie which offers, beside exchange facilities, also small microcredits in traditional currency for the acquisition of household goods (Lizotte and Duhaime 2011: 49). Saiag discusses this issue in the context of his ethnographic study about inhabitants with a working class background in the Argentinean city of Rosario. He stresses, that the concept of microfinance should not be restricted to micro-credits for productive purposes and includes other elements like savings schemes. Similarly, a group of German authors underline with reference to historic experiences in the 19th century the relevance of "savings as a fundamental condition for change and growth" (Schmidt et al. 2017: 56). From the financial point this is certainly true – savings are not only a source for lending, they are also necessary in respect of the creation of equity which is the basis for business activities.

The most prominent case with regard to the issue discussed in this section are the Community Development Banks of this country like Banco Palmas from Fortaleza, the first institution of its kind. In their account of the development of these organisations Franca Filho et al. (2013) show that previous microfinance arrangements in this country had failed to address the needs of "the poorest of the poor" (Franca Filho et al. 2013: 121). The response to this failure was the development of what Jayo (2009: 116) called an integrated approach. This concept includes, beside financial services like different types of credits also the issue of a scrip currency and other elements like a vocational training centre (for details of the institutional arrangements and their development see Melo Neto Segundo 2010). All elements are embedded into the framework of the solidarity economy.

In order to reach the very poor people and, at the same time, maintain the solvency of credit schemes in the long-run, these banks operate on the local level. The "proximity of relationships" (Franca Filho et al. 2013: 122) are essential to make sure that credits are paid back. Due to the absence of physical securities sureties are important (see Franca Filho et al. 2013: 120 about rings of borrowers where every participant guarantees the obligations of the other members of such a ring). Furthermore, it is

the community which provides information about the reliability of applicants for credits. The community is both, lender and borrower at the same time (Melo Neto Segundo 2010: 66, 72). This illustrates the character of these systems as common-pool resources as investigated by Hudon and Meyer (2016).

For the purpose of this article, it is important to stress the synergies resulting from the combined use of CCs and microfinance. Firstly, there is an overlapping of task to manage such systems. (With regard to the problem of securing an adequate and sustainable financial base for the operation of CCs see Schroeder 2015). This aspect is even more important if mutual credit systems were used and not scrip based on traditional currency. The second argument in favour of the symbiosis between CC and microfinancing schemes is based on two empirical investigations. Firstly, Fofack (2005) found that macroeconomic shocks lead to a situation where loans become nonperforming. Secondly, Stodder (2009) has shown that economic activity in the Swiss WIR increases in times when the traditional economy suffers from a downturn. This countercyclical effect of CCs means, the reasoning goes, that participants in the WIR can compensate the decline of revenues in Swiss Francs to some extent with an increased income in WIR money. This is relevant even if amortisation instalments are due in traditional currency. Since the supply in the alternative economy tends to increase during a recession business owners, employees or members of cooperatives can satisfy at least a large part of their personal needs here. If in a mixed income structure the share of earnings in traditional currencies remains high enough the borrower will be able to fulfil his or her contractual obligations. This smoothing of revenues is highly important for lenders, including the providers of micro- and other small loans. It means that the risk of default is largely reduced. This is all the more significant, because for a lender a recession means an accumulation of risks. A well-designed CC may contribute to an extension of the availability of micro-credits. It should be remembered that the WIR is a closed system; there is no evidence to show how far hybrid systems like regional currencies will have this effect.

4. CONCLUSION

Critics might argue that the empirical evidence provided in the previous section is still somewhat thin. In contrast to empirical studies about what constitutes the core of CCs – i.e. the realm of transaction – the purpose of this contribution was to shed light into the dark corners of these relatively new socio-economic spaces. The evidence found in very different socio-economic contexts justify it to distinguish between money and capital, between the transaction of non-investment goods and capital formation. Certainly, it would be interesting to study the accounts of participants in economically important CCs who generate a large part of their turnover in alternative currency, but, due to the small economic weight of almost all CCs, this is hardly possible yet. It is important to remember that almost every economic activity belongs to both, the world of capital and the world of transactions of non-capital goods.

In order to take account of this distinction the far-reaching interpretation of money as it is widely used in the literature about CCs was restricted in this study to its true domain – the world of simple transactions. In this context, it was useful to have at least one author in the field of CC research (Karatani 2003: 298-301) who made this distinction. The differentiation between money and capital may be considered as one of the boundaries relevant for CCs. Schroeder (2015) argues that the analysis of these schemes should not only look at the things (like money) which make alternative connections possible, but take into consideration what is not connected or, to put it differently, to interpret them as systems that operate within boundaries. Among the sources that establish the theoretical framework of Schroeder's approach is an article by Abbott (1995), who demonstrates the problems of newly emerging organisations in defining their boundaries. This contribution is not only useful for the interpretation of CCs, but also, on the reflective level, for CC research.

In order to address the topic appropriately the author used with "money" and "capital" economic terms. It is a somewhat surprising result of this investigation that promising economic designs have their limits too. Equity-based Currencies did not really take off the ground and recent developments show that the success story of the WIR ring is based on certain assumptions too. In this context, it is important to take into consideration the strength of experiences where mutual trust and personal creditworthiness plays a prominent role. The lessons learned from the experiences of small mutual credit systems or Banco Palmas are also relevant for the construction of new types of viable economic alternatives. In a way, this contribution might be considered as a functional complement to the concept of a solidarity economy. Future research has to investigate whether hybrid CCs which are constructed as mutual credit systems at the base line and with high credit limits secured by mortgages and other forms of collateral at the top end.

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UNDERSTANDING THE DIVERSITY OF CCS WORLD-WIDE IN GLOBALIZATION AND DEINDUSTRIALIZATION AS AN EVOLUTIONARY TREE DIAGRAM

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ABSTRACT

The main purpose of the paper is to explain why vast diversity of community currencies (CCs) arise both within "developed countries" and between "developed" and "developing" countries, and to provide an evolutionary tree diagram, rather than taxonomy, of CCs that continue to vary in globalization and deindustrialization as two long-term socioeconomic tendencies since the 1970s. To accomplish the end, we explain that globalization and deindustrialization in modern capitalist economy caused various economic, social and cultural problems and CCs were introduced to solve the problems caused by the tendencies, and that such diversity of the problems brought about the diversity of CCs as solutions for them, and we presume that, according to 'reality oriented categorization,' such diversity of CCs is described in a tree diagram with such two underling dimensions corresponding to the two socioeconomic tendencies as: x) economic and/or social-cultural media as two basic components of CCs in globalization and y) primary and secondary and/or tertiary industry regarding deindustrialization. Thus the initial archetype of the tree diagram is identified as "industrializing- economic/complementary" CCs seen in the past developed countries and the present developing countries that evolved into three branches of CCs ("industrializing-local/territorial", "deindustrializing-cultural/community" and "deindustrializing-economic/complementary"). Finally, we take up Banco Palmas in Brazil to examine if it can be regarded as the typical case of an industrializing-economic/complementary CC in developing countries in the tree diagram of CCs and suggest implications for CCs in the future

KEYWORDS

Community Currencies, Globalization, Deindustrialization, Diversity, Taxonomy, Tree Diagram

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1. INTRODUCTION

Modern community currencies (CCs) emerged in the 1980s in some "developed countries" and were widespread over many "developed countries" and "developing countries" in the 1990s. A wide variety of CCs in terms of the objectives and the forms are currently observed, both within developed countries, and between developed and developing countries. Why is there such a huge diversity of CCs worldwide?

Since CCs evolved as counteracting movements to a variety of problems resulting from interactions between such socioeconomic institutions as money, market, community and government, and such socioeconomic environments as GDP, living standard, technology and knowledge, how CCs exist largely depends on the states of such institutions and environments.

If we lived in a globally coherent and static state of environment, the observed varieties of institutions would be only temporal or transitional in the initial phase of developments, and they would disappear over a considerable time. Then various institutions would be expected to eventually converge to the global standard, the fittest model to a globally coherent and static environment. If it is so in the case of money, the global single currency would emerge, diversity of moneys would disappear, and such a minor species as CC would lead to extinction.

However, such a view on institution and environment is too simply uniform and static to understand this complex and evolutionary world where many species of institutions continuously coexist in locally incoherent and temporally changeable environments. Until when the pluralistic and dynamic nature of reality is taken into account, we cannot understand vast diversity of CCs reflect locally incoherent and dynamic institutions and environments. As long as socioeconomic institutions and environments continue to vary worldwide, such diversity of CCs rather become persistent depending on the nature of coevolution where socioeconomic institutions and environments mutually affect.

Before tackling the key issue on such diversity of CCs, we will examine what kinds of tendencies arise in socioeconomic institutions and environments when CCs remerged in the modern world and consider how they affect the kinds of CCs in the developed and developing countries during the past several decades.

2. GLOBALIZATION AND DEINDUSTRIALIZATION: TWO MAIN LONG-TERM TRENDS UNDERLYING COMPLICATED PHENOMENA

After the so-called 'golden age' of capitalism in the 1950s and 60s, developed countries have enjoyed long life expectancy and high standard of living due to completion of economic development through industrialization. People in those countries are now facing with the drastic change of quality of life in environmental conscious super-aging society, i.e., transformation of substance/material-centric happiness into relation/information-centric one. Nevertheless, developed countries had severely suffered from unemployment and economic disparity formed during repetitive financial crises and prolonged economic depressions. They also have been experiencing the demise of communities such as families and neighborhoods and the decay of local economy. It is what market penetration brought about in globalization of capitalist economy. There are thus two main reasons why the people seek CCs in developed countries: to revitalize various types of communities and/or to encourage local economies. This division creates diversity of CCs in those countries.

On the other hand, developing countries have not yet reached the stage of situations and problems found in developed countries. They are at present struggling to realize economic development and poverty eradication through industrialization, while the senses of community in families and neighborhoods are still strong enough to antagonize market penetration in globalization. Accordingly, they need to have the CCs (sometimes combined with microcredit scheme as in Palmas Bank) mainly to accomplish such goals as described above. National economic and social environments in developing countries are thus different from those in developed countries even in the same global economic age today. This eventually leads to a big difference of CCs between developing countries and developed ones. It is thus clear that CCs as institutions cannot be evaluated independently of socioeconomic environments as their backgrounds in which people are located. We need to conduct CC activities and experiments seriously considering such evolutionary perspective. For example, the successful ideas and schemes of

CCs in one nation/ region cannot be easily transferred to somewhere else in different socioeconomic environments.

After the 1990s, asset bubble collapse and financial crisis, especially banking crisis, had been repeated worldwide. In the early 1990s in Japan, the stock and land price plunged and Heisei bubble burst and three major banks with enormous bad loans bankrupted. It made serious impacts on the real economy of Japan. Because consumption and investment had been reduced due to the negative wealth effect and the corporate earnings deterioration, aggregate demand shrinkage and general price decline mutually intensified, which resulted in deflationary spiral. The number of non-regular employees has increased through rationalization by corporations and income and asset disparities among regions and individuals have widened in the 20-year prolonged recession called the 'lost two decades'. But, the fiscal and monetary policy for economic recovery was hardly successful, or the effect of such symptomatic treatment was at best temporary. In order to consider the cause of occurrence of these problems since the 1990s, we need to trace back to the 1970s.

Since the mid-1970s in the US and Europe, slightly late in the 1980s in Japan, such a series of neoliberal economic policies as liberalization, deregulation and structural reform have been actively adopted. They caused the real and financial economy to be unstable through collapse of asset bubble and successive financial crises. It resulted in the increasing unemployment rate and economic gap between the rich and the poor. Fiscal and monetary policy had been repeatedly conducted in order to deal with these problems during the 'two lost decades' in Japan. It was an attempt to correct defects of liberalization and deregulation, assuming those policies to be basically correct. This is true of many developing countries including Brazil and Argentina in South America as well as developed countries. The theory of "neoliberal cycles" (Alcorta 2009, Sano, 2012, 2013) explains 10-year medium-term business cycles as being formed by neoliberal interests, ideas and policy. The argument emphasizes that policies and ideas determine the economy, contrary to historical materialism insisting that the economic substructure determines the political and ideological superstructure.

It is undeniable that such medium-term business cycles exist and political interests and economic thoughts affect the cycles through economic policies and institutions, but we attach greater importance to the effects of long-term trend of globalization and deindustrialization as the economic background just because we are interested in diversification of CCs as long-term tendencies in evolution. The remarkable economic development of BRICS since the late 1990s after the breakdown of socialist economic regime clearly showed that, even if subordinate and dependent relations between developed and developing countries used to exist as 'the dependency theory' once described (Frank 1967, 1969), they are not fixed structures that last perpetually. Seen from the long-term trend of economic growth, the developed countries have already passed industrialization in the 1970s to 80s and subsequently transformed their industrial structure and demand trend for service and knowledge-based economy long before the developing countries. This is why there exists the great disparity in the current economic situation between the developed and developing countries that both have been placed under similar neoliberal cycles. Such different positions on the long-term trend of economic development, not any inherent cultural and national identities, are more likely to produce the difference of the characteristics and acceptance of CCs between developed and developing countries.

The present paper provides the summary of how to describe economic globalization as a particular phase of evolution of capitalist economy as follows (Nishibe 2011, 2015). There are three basic and coexisting institutions for economic coordination in any socioeconomy: 1) Market (a private principle for free exchange), 2) State (a public principle for equal redistribution) and 3) Community (a common principle for fraternal reciprocity) (Polanyi 1944, 1957). Socioeconomy has been maintained and reproduced by forming a mixture of those three principles. Market economy is the socioeconomic system where agents buy and sell major goods and services as commodities by means of money. Its main principle is Market although State and Community are partially and constantly at work. From the perspective of socioeconomic evolution, markets emerge between communities and/or empires (states), gradually expand and finally penetrate to the interior of those (Marx 1970, 1976). Such a tendency might be called "internalization of Market," which keep functioning in capitalist economy despite being normally invisible and temporarily hindered or often constrained by the other principles, State and Community.

Capitalist market economy is a particular type of market economy historically established in the 19th century UK, and integrated all substantive aspects of socioeconomy and spread through the whole world. Capitalist market economy is described as the economy where industrial capitals as commercial enterprises make profits through producing almost all goods and services by employing labour-power and utilizing means of production, and selling them as commodities. Therefore, Market is the most fundamental principle for organizing socioeconomy in it, but the other principles such as State and Community complimentarily functioned as "safety nets" to cover the weak points of the market because the market is solely unable to deal with such "fictitious commodities" as money, land and labour that are not originally produced and traded as commodities (Polanyi 1944). Capitalist market economy is theoretically defined as the combination of 'general commodification' (profit-purpose production in market) of general goods and 'external commodification' (fictitious commodification outside communities and states) of labour-power through "internalization of Market" (Nishibe 2015).

Thus we depict globalization after the 1970s as the self-manifesting tendency of "internalization of Market" in capitalist market economy where Market gradually replaced State and Community as Market expanded and State and Community reduced (Fig.1). Under a global capitalist economy, not only 'extensive expansion' but also 'intensive deepening' of Market proceeds. In the former, the market becomes wider geographically or spatially, but in the latter, Market penetrates deeper into us because all sorts of intangibles including knowledge, information, claim and risk besides material things increasingly become commodified.

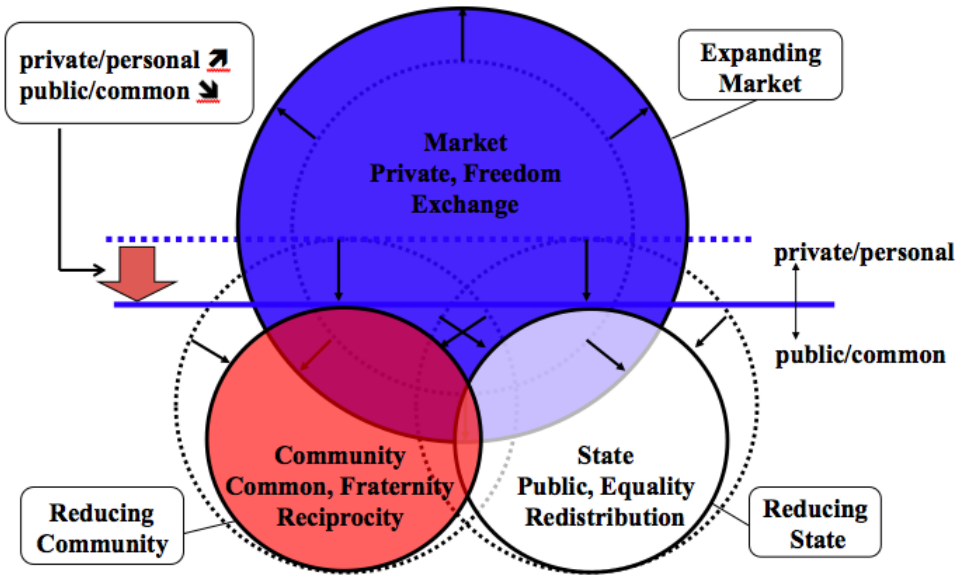

Fig.1 Globalization

Capitalist market economy, on the one hand, is apt to replace State and Community with Market and, on the other, utilizes laws and conventions as safety nets to prevent fictitious commodities such as labour, land and money from breaking down. It has the universal nature not only to turn any materials, information, services as well as labour-power into 'fictitious commodities' for sale but to deal with a bundle of such claims as bonds, stocks, real estates, derivatives, naming rights and even 'human capital' that is another name of human ability of gaining income based on utilizing embodied knowledge and skills as 'fictitious capital' (Marx 1981) for profit opportunities. If the long-term tendency of globalization as manifestation of 'internalization of Market' were to be extended to the future, an ideal type of capitalist market economy that consists of only Market excluding State and Community would be found.

The ultimate model of globalization is thus "free investment capitalism" where all human behaviors and choices are regarded as investment and 'fictitious capital' is ubiquitous. The diffusion of such ethos forces people to pursue efficiency, convenience and pleasure beside money income and expels cooperation and altruism (including selfishness in the broad sense) involved in reciprocity and mutual aids in a community like a family and a neighborhood. The tendency of 'internalization of Market' fundamentally causes a variety of socioeconomic phenomena such as decline of norms and ethics, demise of traditions and customs, and loss of safety and security. Thus long-term self-organization of capitalism is the underlying socioeconomic principles deep under mid-term economic cycles and neoliberal policies and ideology are merely its facial reflection.

Deindustrialization is a tendency universally observed in developed countries since the 1970s to shift the center of the industrial structure from secondary (manufacturing) industry to tertiary (other) industry at both sides of added value and employment (Fig.2). Deindustrialization is explained as a composite outcome of the two distinct technological trends: informatization and servitization (Nishibe 2014). It is conventionally accepted that the cause of deindustrialization lies in the demand decrease (caused by demand saturation) and improved productivity of the industrial products (Rowthorn 1987). But "qualitative transformation" of human desire and needs like Maslow's hierarchy of basic needs (Maslow 1943, 1954) on the course of economic growth is taken as another crucial factor. As developed countries succeeded in accomplishment of industrialization and improvement of living standards, people had begun to seek qualitative improvement of their necessities and various luxury goods rather than quantitative affluence of necessities.

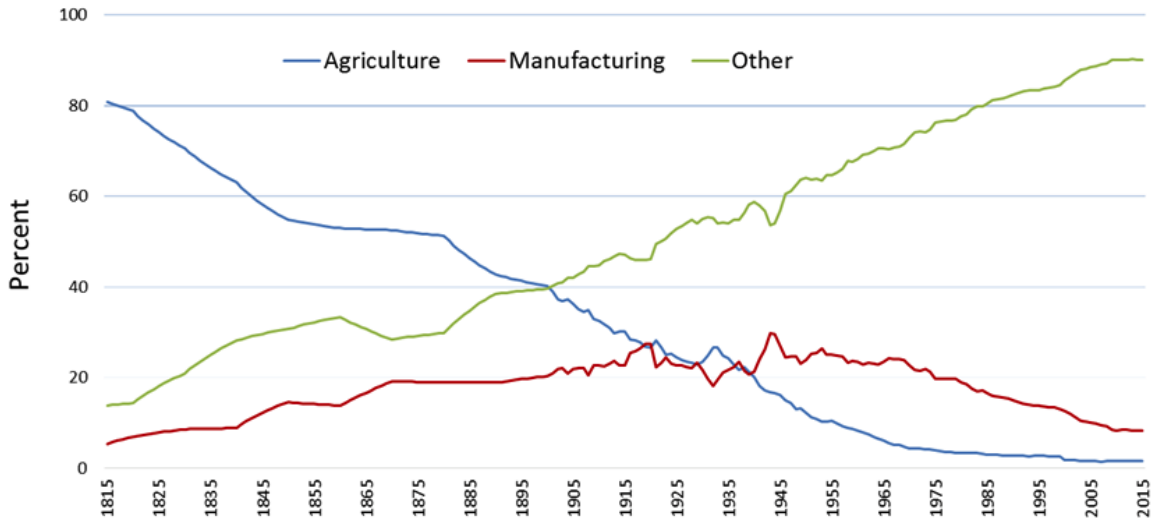

Fig.2 US employment shares by sector (1815-2015)

And the way of our desire and subjective happiness becomes highly advanced and diversified, and the center of affluence shifts from industrial products (materials) such as the cars, electrical appliances and house to such knowledge-based and service-oriented things (situations/ relations) as health, trust, social bonds, mental tranquility, natural environments. Consequently, we have come to make much of information (science, technology, skills, techniques, software, data) and service (law, finance, education, medical service and human care). In short, deindustrialization can be interpreted as such a phenomena that the concept of richness for people reaches a higher dimension and becomes diversified once the material richness was realized to some extent through industrialization, and information and service thus relatively gained more significance and value than before.

We have recently seen the several signs that indicate the aforementioned points. In developed countries, much attention has been attracted to such new well-being indicators as Human Development Index (HDI) (UNDP 1990, Haq 1995, Sen 1992, 1999), Gross National Happiness (GNH) (Bakshi 2005, Kusago et al 2011, Ura et al 2012) and many others (Stiglitz, Sen, Fitoussi 2010) for alternatives to GDP per capita in order to multi-dimensionally measure people's living conditions and societal progress. Easterlin had already pointed out that people's subjective happiness was declining despite of increasing GDP per capita (Easterlin 1974). Such a happiness-income paradox

has been widely observed in the developed countries, e.g. both in US and Japan (Fig.3). Furthermore, as globalization proceeds, the information and service that had not been produced for profit have become commodities for sale, and the increase of added value in GDP through globalization would have amplified deindustrialization, while the world center of industrial production shifted from developed countries to NICs in the 1970-80s and BRICS in the 2000-10s.

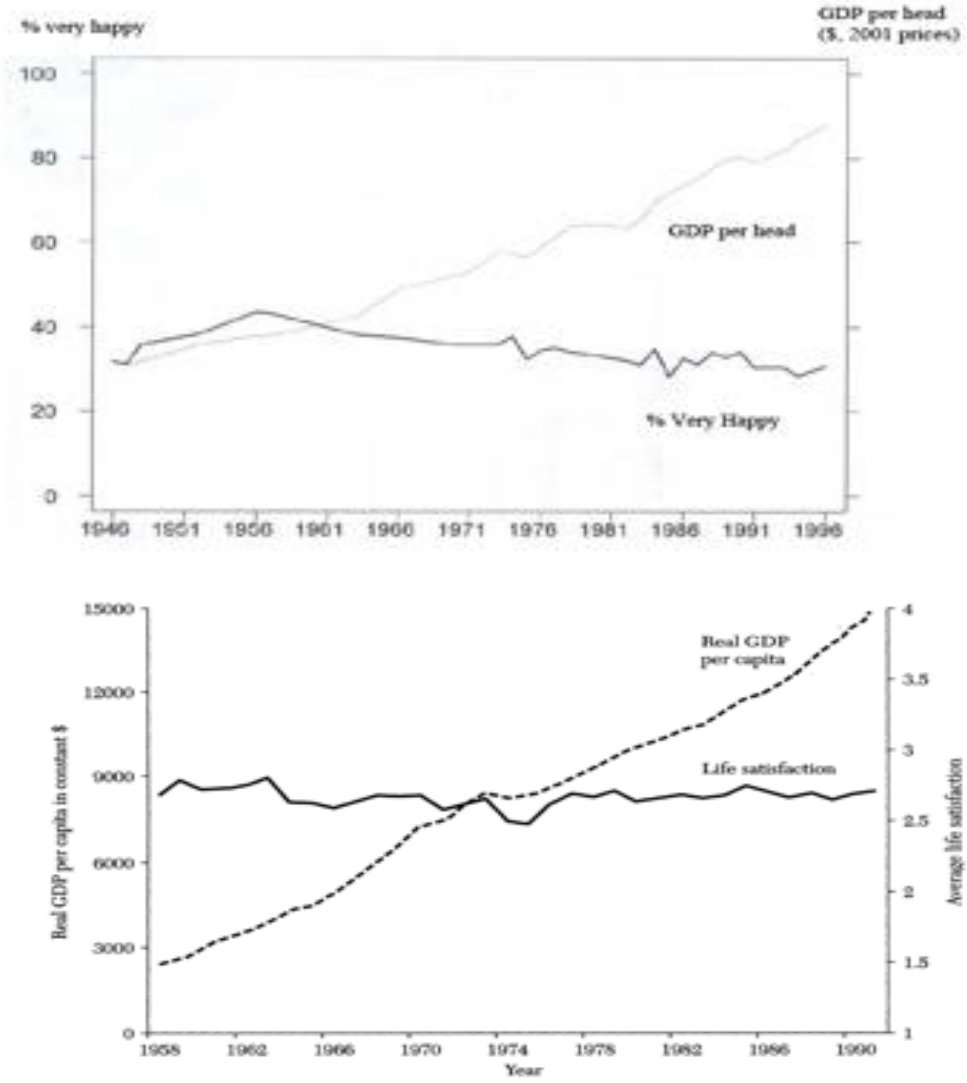

Fig.3 GDP per capita and life satisfaction in US (above) and Japan (below)

3. COMMUNITY CURRENCIES AS INTEGRATIVE COMMUNICATION MEDIA OF MONEY AND LANGUAGE

As we have just seen, globalization involving expansion and deepening of Market as well as reduction and shallowing of State and Community has led to severe problems with regard to society, culture and environments. The present institutions of money in capitalist market economy are national/regional currencies or central banknotes as US Dollar, Euro and Japanese Yen, out of which US dollar is a global key currency. Hayek criticized such problems as excess issue and artificial inflation caused by national monopoly of money, and proposed denationalization of money involving concurrent currencies as desirable institutional design for 'good money' (Hayek 1976). Nevertheless, Euro as banknotes and coins started in 2002 as a regional unification of European national currencies completely opposite to Hayek's insistence and its basic idea has been widely accepted although enormous public financial deficit of PIIGS, especially Greek, have recently caused Euro a serious trouble. Bitcoin was initiated in 2009 and propagated during the Cyprus crisis and more than a thousand of such crypto currencies have ap-

peared as "Altcoins" (Nishibe 2016). In the 1980s, people of developed countries had begun to take initiatives, by inventing and introducing many kinds of variants of social and private money, to vitalize local communities and economies against neo-liberalism and globalization. CCs eventually produced a new possibility of changing the nature and concept of money. We conceived them as 'integrative communication media,' equipped with both sides of economic media as money and social/cultural media as language, designed to activate local economy and community by restricting its usage within certain local areas in order to encourage local circulation of energy and material for a sustainable and recycling local economy of 'local production for local consumption' (Table 1)[1] (Hart 1986, Nishibe 2012) .

Sides	**Money** **(Economic media)**	**Language** **(Social and cultural media)**
Purposes	**Vitalization of local economy (Autonomy, circulation, recycling)**	**Rehabilitation of community** **(Dialogue, interchange, commitment)**
Functions	**Independent design, issuing and administration** **Bounded sphere of circulation** **Zero or minus interest**	**Ferment of trust and reciprocity** **Cooperative 'prosumers'** **Linguistic expression and transmission**
Forms	**Complementary currencies and Emergency currencies** **(Stamp scrip, LETS)**	**Mutual-help coupons** **(Time Dollars, TimeBanks, Eco-money)**
Domains	**Market/ Exchange**	**Community/ Reciprocity**

Table 1 CCs as Integrative Communication Media

Although CCs have a great variety as to purposes, functions and forms, they can be simply identified by taking note of the mixture rate of the money side to the language side in CCs. This is because the mixture rate expresses the present states of such institutions as markets and communities and, at the same time, the aims and functions of CCs. In cases of stamp scrip in North America and urgent currency and WIR in Europe in the 1930s and CC coupons (CCs in the form of redeemable coupons) in Japan in the 2000s, they mainly target for promoting commerce and trade in local shopping street and local economy. Then the money side is stronger than the language side in such CCs, so they should be called 'business activating type'. On the other hand, in case of Time Dollar in North America, Time Banking in UK and 'Fureai Kippu' (the time deposit type of CC) and Eco-money in Japan, they aim at encouraging volunteer work and mutual help and strengthening human connections within communities. The language side is much stronger than the money side in such CCs, so they should be called 'volunteer activating type'. The former is used both for commercial trade of goods and services in the market and non-commercial trades of those in the non-market (community), but the latter is exclusively used for non-commercial services (volunteer work and mutual help) in the non-market (community). Many CCs like LETS are located in between them. However different the mixing rate of both sides is according to the current situations, all CCs are the same as the institutions designed for combining businesses motivated by selfish profit in Market and volunteers motivated by altruism or reciprocity in Community. This is why we call CCs integrative communication media. The

[1] Hart (1986) pioneered to pay attention to the two sides of the coin. He suggested that *any money* is both an economic media and a symbol of a political community.

purposes and functions of CCs are as follows: a) to aim at mutual aid and reciprocal exchange with the money that can be used only locally, b) to solve the deflation and unemployment problem by building up an autonomous growth of the healthy local economy through circulation within the limited local region, c) to prevent excess credit creation and speculation from resulting in financial instability and activate local trades of goods and services with zero or negative interest rate, d) to evaluate non-market services for personal welfare and care from a variety of viewpoints, e) to present philosophical grounds to associate various activities related to labour, consumption, welfare and environments of NGOs and NPOs, and f) to build "trust" among people and turn monistic cash nexus into more diverse and rich communications. Here, it is easy to see that a) to c) are economic and d) to f) are social and cultural purposes and functions.

In contrast to such top-down solutions as monetary and fiscal policies of central banks/governments in order to overcome economic depressions, CCs try to give the bottom-up solutions to such various problems as decline of local economy, collapse of community, declining birthrate and aging, and destruction of natural environments. They take the forms of grass-root movements or community businesses and are designed and operated by citizens and organizations (neighborhood associations, shopping district, Chamber of Commerce, municipalities, cooperatives, NPO, etc.). CCs do not mediate public welfare and social insurance services because they are not official institutions like national currencies but informal institutions and policies to promote the mutual aid and reciprocity by the community. They are created and spread through the non-profit activities of people.

According to the survey on 464 CCs in Japan conducted in 2008, the actual purposes (number, %) of CCs are found as follows (Kimura 2008). 1) Vitalization of local community (296, 63.8%), 2) activation of local economy (89, 20.7%), 3) solution for environmental issues such as garbage and recycling (48, 11.2%), 4) local production for local consumption especially agriculture (18, 4.2%), 5) preservation of woodlands and forestry (14, 3.3%), and 6) the others including (65, 15.1%). Because multiple answers are permitted for this question and the summation of the number (530) is bigger than the total number (464), although there are many small CCs included, some portion of them have two purposes and more as we assume CCs as integrative communication media. We understand that the side of social and cultural media in CCs in Japan is far more significant than that of economic media from the observation that the percentage of 'vitalization of community' is more than three times of that of 'activation of local economy.' This would be more or less true of other developed countries. The prehistory of the community currency dates back to the labor money of Robert Owen and Owenite or Ricardian socialists in the 1820-30s, the People's Bank of Proudhon in the 1840s and the stamp currency of Gesell and Fisher in the 1920-30s (Nishibe 2006). The labor money of Owen and others aimed at people's obtainment of right to the whole produce of labor based on the labor theory of value claiming that value of a commodity is determined by the amount of embodied labour to produce it. The People's Bank of Proudhon provides free credit for the purpose of correcting inequity of exchange. Silvio Gesell's stamp currency promotes consumption and investment by imposing demurrage, i.e. minus interest for hoarding money so that money will depreciate as time just like general goods and creating the incentive to pay it as early as possible (Gesell 1958).

Until the first half of the 1970s, both socialist planned economies and effective demand management policies have strengthened the state's intervention in the market. As we have already seen, ever since till now, economic globalization and deindustrialization have characterized the socioeconomy. Not only market economy spread globally but also what has not been traded with the money as services (child care and nursing care in the family, etc.), information (software, personal information etc.) and right (naming rights, carbon-emission rights, futures and option) has been commercialized.

As globalization as the tendency of Market to rapidly expand and deepen and of State and Community to reduce and shallow proceeds, we encounter not only economic problems such as financial instability and chronic recession with unemployment have occurred, but also social issues such as declining birthrates and aging, dissolution of communities in locality, neighborhood and family, and global environmental issues such as global warming by greenhouse gases (carbon dioxide and water vapor) and air pollution by PM 2.5. Modern CCs emerged all over the world as attempts or movements to give solutions to these issues and to regain sustainability of our socioeconomy.

Globalization has clearly divided interconnected socioeconomy into the money tradable economic domain and the non-money tradable socio-cultural domain and thereafter expanded the former as Market and reduced the latter

as State and Community. Various problems above described occurred as a result of such bipolar separation and prosperity/adversity of two domains in globalization. As the market principle on exchange has become dominant and, on the other, the state principle on redistribution and the community principles on reciprocity have diminished, selfish business of profit seeking has become bloated in the economy domain, and altruistic volunteer of free service has been highly praised in socio-cultural domain. In short, globalization has created the double Trinity as <market = economic = business> and <community/state = socio-cultural= volunteer>. However, unlike community-based reciprocity and mutual help, unilateral gratuitous volunteer activities in socio-cultural domain promoted by globalization do not last long but, furthermore, may do harm to self-esteem of recipients when they feel themselves incompetent as they cannot return anything. If we understand CCs as integrative communication media to counter globalization, they should encourage people to do mutual help as members of communities rather than to do graceful gratuitous act as independent individuals. CCs would therefore become practical movements that intended to integrate double Trinity of the economic and socio-cultural domains and to realize a sustainable reciprocal exchange system.

4. DIFFERENCE BETWEEN DEVELOPED AND DEVELOPING COUNTRIES, DIVERSIFICATION OF CCS DUE TO GLOBALIZATION AND DEINDUSTRIALIZATION

CCs spread worldwide rapidly in the 1990s. The number of CCs in the world was estimated to reach 4,000 (Lietaer, Dunne 2013) and that of Japan was counted 259 in December 2008 (Izumi 2013) and 662 in January 2011 (Tokutome 2011). In Japan, several volunteer citizen groups initiated CCs in the late1990s, then local governments, Chambers of Commerce, Societies of Commerce and Industry and private corporations had gradually joined as partners or promoters of CCs, and many NPOs were established mainly for management and administration of CCs.

Since 2003, the national government had launched a succession of policies to promote and support CCs such as provision of computer network systems, approval and establishment of special zones for CCs and subsequent nationwide deployment of such deregulation zones. In those zones, local gift certificate (CC coupon hereafter) was permitted by the central government to circulate multiple times like currency. And such an invention as to achieve the same effect as CCs by using local gift certificate was widespread across the country. It actually meant removal of the conventional condition of CCs such that they are non-redeemable with legal tenders. Although the volume of circulation of CCs has increased rapidly in the course of the trial and error because they underwent the support measures of central government, many of them are only short-term experiments, not long-lasting.

CCs can be regarded as species of money institution in evolution with many types of variations different from the conventional ones that struggle to exist in trial and error in ever changing environmental conditions. So a population of CCs that could manage to fit to such changed environments would only survive and prosper. Existence of CCs as institutions depends on the change of environmental conditions as other institutions that consist both of the external rules of capitalist market economy as the currently dominant socioeconomic system and of the internal rules of behavior, values and motivation of human beings who keep living in the external institutions. Truly, as far as the short terms are concerned, CCs are subject to the local environmental conditions such as the situations of local communities where CCs are implemented and to the value and norms of the people living in them. But it should be recognized that such local conditions are also largely determined in the longer terms by global conditions if the local systems are open to outside of it. On the other hand, local environmental conditions can gradually vary depending on the impacts of activities of human agents through CCs.

In other words, agents and local institutions reproduce themselves and affect each other to change through mutual interactions between them under the long-term change of external environments including global institutions. In such an evolutionary process, CCs not only be selected out by severe conditions of environments, but they might have a chance to change the existing environments and produce the new one. Even the same scheme of CC may or may not survive according to the difference of the conditions of environments and agents. Therefore, we cannot define fitness or adaptability of each CC independently of such conditions and it would be wrong to seek the cause of failure of CCs in themselves and misleading to try to indicate the best scheme of CC with reference to the best performance practice.

In the environmental conditions where national currencies and the market principle show propagating powers in globalization of capitalist economies, CCs based on the reciprocity principle cannot easily spread. The biggest challenge of CCs is how to make them viable in the long run in such severe conditions. The important key for it is how to induce the states of a local community as well as the norms and values of local residents to make initial moves large enough to exceed the thresholds for triggering dynamically accumulative process in order to change the whole evolutionary system[2].

But this is not an easy task for both researchers and practitioners of CCs appropriately to trigger positive feedback process to operate. In that sense, there is much to learn on how to make an initial turn of local environments in currency innovation from many cases in completely different environments. We will see the case of Banco Palmas from such a viewpoint later on.

CCs have been widely practiced in developed countries and developing countries like Latin America. While the prime purpose of CCs observed in developed countries is to vitalize local community as in Time Dollars or Time-banks in North America, Time Banking in Europe and Eco-money in Japan, that of CCs observed in developing countries is to activate local economy as in Red Global de Trueque in Argentina, Banco Palmas in Brazil and UDIS in Ecuador and El Salvador (Primavera 2013, Kinoshita, Hayashi 2014). Why do we have such a big difference as to CCs between the developed and the developing countries?

Fig. 2 describes how diversification of CCs develops in the two-dimensional plane whose horizontal axis represents the relative frequency of "money (market)" and "language (community)" as two aspect of CCs, and whose vertical axis represents that of "primary and secondary industry" and "tertiary industry" in the socioeconomy in which CCs are located. If CCs lie at the origin, it indicates that both aspects are well balanced in the CCs. If CCs lie in the positive area, it means that the money aspect is stronger than the language aspect in the CCs. As CCs move to the positive direction from the origin along the horizontal axis, the aspect of money is relatively higher than that of language, but as long as they do not reach infinity, the aspect of language won't disappear. Conversely, as CCs move to the negative direction from the origin, the aspect of language is relatively higher than that of money, but the money aspect does not become zero unless the CCs stay within a finite area. The same applies to the vertical line.

CCs emerged in the first quadrant on the upper right where CCs are complementary currencies for revitalizing the local economy to escape from the financial crisis and the great depression in an industrialization age. The historical transition from WIR (in the initial form of mutual credit system), Urgent Currency and Stamp Scrip in the developed countries in the 1930s to RGT, UDIS and Banco Palmas of the current developing countries is drawn as a big arrow in the same first quadrant. So the distance between CCs in the previous developed countries and those in the developing countries at present is comparatively short.

However, there is a big gap as to the socioeconomic conditions between the current developed countries and the current developing countries. The current developed countries have already completed industrialization and economic development, and reached globalization under deindustrialization after achieving high standard of living. Since globalization has brought about decline of local economy and resolution of local community, neighborhood, school and even family, both CCs for activating the local economy and those for revitalizing the local community can coexist.

[2] In the previous article, we have shown how to make it easier to happen in the community. It is called 'community dock' that is the comprehensive method of self-estimation for the community composed of various local agents, through which the community experiences self-awareness and self-alternation of its own environmental conditions (Kusago, Nishibe 2013).

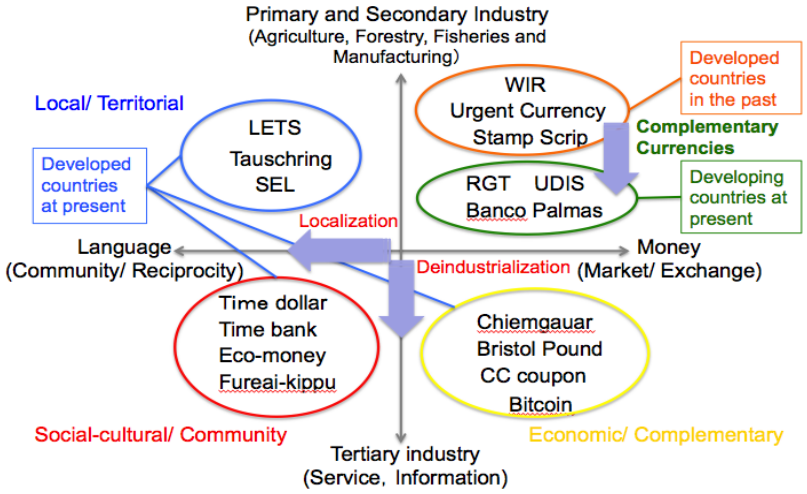

Fig. 4 - Diversification of CCs

The reason why such community revitalization types of CCs as Eco-money have grown in a cluster in a super-aging society as Japan was because there had been quite a strong demand for volunteer work (proxy shopping, snow shoveling etc.) and mental care (someone to talk with) for elderly people that cannot be covered by public welfare services because of budget deficit problems. Deindustrialization of the economy has made service and information industry more significant than agriculture, forestry and fisheries as well as manufacturing industry. Secondly, once basic needs for necessities are satisfied, human desires have highly advanced and subjective happiness has diversified. People have become more strongly aware of global environments, health and social trust and bonds. In this way, the CCs of developed countries split into three groups that are located in the second, third and fourth quadrant divided by the horizontal axis of globalization/ localization or Market/ Community and the vertical axis of industrialization/ deindustrialization or Primary and Secondary industry/ Tertiary industry. These are industrializing local in the second quadrant, deindustrializing social-cultural in the third quadrant and deindustrializing economic in the fourth quadrant. A blue, red and yellow circle respectively surrounds each of them.

Quite interestingly, the taxonomy thus obtained exactly corresponds to the taxonomy of Local/ Territorial, Social/ Community and Economic/ Complementary that Blanc (2011) presented. Martignoni (2012) proposed a four-dimensional (purpose, trust, creation, circulation) taxonomy that gives us 'practice oriented categorization' with more subtlety. But it doesn't refer to real tendencies or changes in external socioeconomic environments. In that sense, Blanc's taxonomy is much simpler but substantively superior because it grasped 'reality oriented categorization' of CCs. Yet since such taxonomy of CC is still statically formed like a snapshot, it does not explain how CCs evolved and diversified as are currently observed.

By way of Fig.4, we finally reach a tree diagram of CCs that represents an evolutionary and dynamic course of diversification of CCs with modern trifurcation (Fig.5). Now it can be understood that the two long-term tendencies in socioeconomic environments exist as the real causes that generate such diversification of CCs and therefore explain why and how diversification of CCs arises in response to actual issues and people's needs/wants in a certain time and space of locally incoherent and temporally changeable environments. Accordingly, it is possible for us to explain what is going on in developing countries.

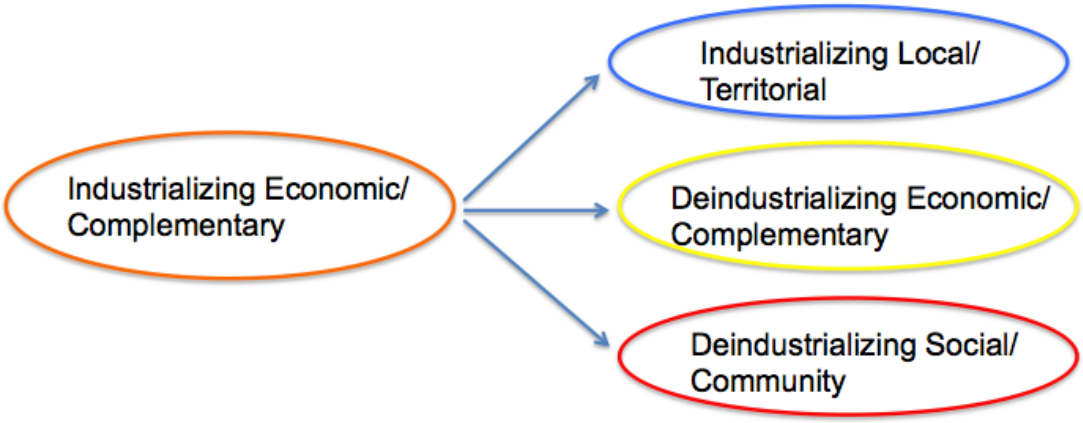

Fig. 5 Tree Diagram of CCs

In contract with developed countries, developing countries are still on the way to economic development through industrialization, but the process is faster in developing countries at present than in developed countries in the past because the former can imitate and catch up with the latter. As the current standard of living is not high enough, economic development and poverty eradication are the top priority issues. Although developing countries also suffered equally with developed countries from financial crisis and environmental disruption that globalization brought about, they are not so important as economic growth and elimination of poverty.

In developing countries, the problem of aging society has not yet come and local community as family and neighbourhood are still deep-rooted. So economic development and poverty eradication are perceived as urgent problems, and microcredit and CC movements for realizing them have become superior. The present issues of CCs in the developing countries are rather similar to those of CCs of the developed countries in the 1930s when their main purposes are the economic activation to get away from depression and overcome severe unemployment problems after the Great Depression.

In this way, the present developing countries' CCs surrounded by a green circle are located in the first quadrant just below the developed countries' CCs in the 1930s surrounded by an orange circle. These are classified as Industrializing Economic/ Complementary CCs. The present developing countries have not reached the diversification of CCs found in the present developed counties whose socioeconomic environments are different, but in the future they would move toward diversification as economic growth are accomplished and average standard of living improves. Such an evolutionary viewpoint is effective and instructive for the theory and practice of CCs.

In the next section, we take up Banco Palmas in Brazil to examine if it can be regarded as the typical case of Industrializing Economic/Complementary CCs in developing countries in the tree diagram of CCs. This case study will exemplify that the tree diagram of CCs in Fig. 5 is persuasive enough to explain why Banco Palmas is successful from an evolutionary viewpoint and give useful suggestions for CCs in developing and developed countries and solidarity economy in the future.

5. BANCO PALMAS COMBINING CC WITH MICROCREDIT BASED ON SOLIDARITY ECONOMY PRINCIPLE

More microcredit schemes rather than CCs have been established in the developing countries that faced with a challenge to tackle poverty and economic development problems since 1980s. Microcredit originated with Muhammad Yunus who founded Bangladeshi Grameen Bank in 1983. It is an attempt to provide mutual aid groups of collectively responsible members with small business funds, for the low-income people's economic independence and improvement of the quality of life.

Banco Palmas, which was established with the leadership of Joan Joaquim Melo Neto for activating local economy in 1998 in the suburb of Fortaleza, is not the same as conventional microcredit scheme because it introduced a local currency as well as microcredit. The uniqueness of Banco Palmas lies in the fact that it issues its own local currency named "Palma" and provide Palma-based microcredit for the purpose of financial support for small businesses and activation of local economy. It is an innovative project to make use of the strengths of both community currency and microcredit by integrating them in the function of Banco Palmas as the local central bank, and to attempt to build solidarity economy in which a bank and a community cooperate to advance together.

As mentioned in the previous section, the environment-independently fitness of CCs cannot be defined. The same applies to the case of Banco Palmas. However, it prospered in a specific socioeconomic environment in Brazil, it cannot be proved that it would necessarily adapt itself well to different environments of other developing countries and developed countries. Keeping it in mind, we will examine what backgrounds and characteristics Banco Palmas had, how local businesses and people have come to accept Banco Palmas, why Banco Palmas and its approach could contribute to the development of local and regional economies by way of its widespread diffusion in Brazil and, finally, whether or not it can be replicated and transplanted in other developing and developed countries. It should be noted that the following descriptions are based on study report (Nishibe, Hashimoto, Kobayashi, Kurita, Miyazaki, Hirota 2012) and a joint workings paper (Kobayashi, Hashimoto, Nishibe 2012) on the field study on Banco Palmas conducted in February 2011 and that they are published in Japanese and unpublished in English.

Banco Palmas is a community bank in Palmeiras district, in the outskirts of Fortaleza, Ceará state of Northeastern Brazil. When resort redevelopment projects along the coast of Fortaleza was officially authorized and promoted in the 1970s, local fishermen and others were driven to the inland. More than 30,000 such people formed Palmeiras district in 1973. In 1981 Palmeiras neighborhood association association of residents (ASMOCONP: Associação de Moradores do Conjunto Palmeiras) (abbreviated hereafter as "the neighborhood association") was established for the purpose of improvement of living conditions in the district that used to be a slum street without basic infrastructure. The neighborhood association won such infrastructure as schools, health and medical cares, traffic, electricity, water and sewage, by the negotiations with the state government, but the cost of living in the district soared. The inhabitants in the district never led comfortable life and local producers could not get loans from commercial banks. In such a severe situation, Banco Palmas was established in January 1998. In 2000, it started to issue its local currency named "Palma" that circulate only in the district in order to create jobs and revitalize regional economy (Fig. 6). The local currency "Palma" can be exchanged for legal tender "Real" at a fixed rate of "1 Palma = 1 Real". Banco Palmas provides microcredit in both Real and Palma for local inhabitants. The local producers and shoppers are permitted to apply for loans to a maximum of 15,000 Reals with the interest rate ranging from 0.5% to 3.5%. The credit for each consumer is also available to a maximum of 600 Reals either by Palmas notes or by PalmaCard, a local credit card only available at the stores in the area (Fig. 7). 240 stores, approximately 90% of all stores in the district, receive Palma, and an average of 5% is discounted if purchases are made in Palma. Banco Palmas provides such loans for house reforms and microinsurance as low-income people cannot usually enjoy. Furthermore, Banco Palmas directly supports such businesses as production and/or sale of cloths (Palma Fashion), detergents (Palma Limpe), and accommodations (Palma Tur), and also carries out vocational training. If young generations receive the training and then get jobs, it could not only create jobs but also contribute to crime prevention, leading to regional development.

Fig. 6 - Five Palmas note

Fig 7 – Palma card (a local credit card)

Notably, Banco Palmas introduced the local currency Palma because it can naturally balance local consumption and production. To realize local production for local consumption, they introduced a new concept 'prosumer'[3] who is not only a producer but also a consumer, and even a social activist. Banco Palmas also wants to avoid hard competition among local shoppers that would bring all to ruin and destroy local independence of economy. Then Banco Palmas biennially makes a complete map of local production for local consumption by investigating all the shops and their merchandise in the district so that it can select particular producers and give them priority of financial assistance so as not to produce excessive competition, taking into account the restricted volume of aggregate demand in the district. Banco Palmas thus requests selected borrowers to become prosumers.

Palmas Bank has succeeded in entrepreneurial promotion within the area by providing loans at a lower interest rate than a commercial one for low-income residents of the area. More than 1,200 employments as a total is created in Palmeiras district in which 32,000 people of 5,000 households live in as of December 2011(Currency Solutions for a Wister World, 2010). While the purchase rate of daily necessities within the district was only 20% initially in 1997, it increased up to 95% in 2008 as a result of promoting local production for local consumption by introduction of Palma. We may say that Bank Palmas had succeeded in inducing autonomous development of the

[3] It is the concept that Alvin Toffler proposed in *The Third Wave* (Toffler 1980) to symbolically express that the way in which socioeconomic works will approach to self-help and mutual help in the information age.

local economy in just 10 years. Producer credits amount 4,470 cases for total 3,660,991 Reals, and consumer credits amount 230 cases for total 33,000 Palmas in 2012 (the then total balance of consumer credits is 44,000 Palmas).

Clearly, most of residents in Palmeiras district agree that Banco Palmas has lead to improvement of their standard of living. Because, according to the 2008 survey conducted by University of Ceará State and Ministry of Labour and Employment for 4,000 residents living in the district on Banco Palmas, 98 % of respondents answered 'Banco Palmas contributed to development of Palmeiras district.' Out of them, 25.25% responded 'Their income increased' and 20.2% answered 'They found their jobs' (Silva Jr. 2008). In the interview with us, the founder of Banco Palmas, Melo Neto, said that the role of the community currency in the future should be reviewed because lower income earners decreased and the initial goal that most residents shop inside the district was already fulfilled and that even if the local currency would function more symbolically, local production for local consumption cannot be maintained without it.

6. WHAT IS THE LESSON FROM BANCO PALMAS?

What we found out during our stay in Palmeiras district was that not only the bank office, ATM of Brazil Bank, the neighborhood association and public plaza but also workshops for Palma Fashion and Palma Limpe, Palmas Institute, training facilities and shop all lie in the land of Banco Palmas, and that accommodation, music studio and training center are gathered along the main street of the district just in front of Banco Palmas. All of these form local networks for practicing solidarity economy. The neighborhood association ASMOCOMP based on a local community rather than Banco Palmas is located at the core of such network.

Local socioeconomic forum (O Fórum Socioeconômico Local: FECOL) held every Wednesday in Banco Palmas is not only for local meeting but also for public gathering involving young people. Such performance as dancing and singing songs make the younger generation feel much easier to join in the forum. Many members of Palmas Company, the music group organized by the youth in the district Bate, also participate in it. Besides, monthly bazaars are open only for pedestrians in the main street in front of Banco Palmas. The association thus endeavors to induce young people to stay in the community by continuous and comprehensive local activities and ferment their sense of participation.

How on earth was the neighborhood association formed? Many residents from the outset had indispensable needs for the necessities in life such as construction of infrastructure, eradication of poverty, improvement of standard for living, local production for local consumption and prevention of crimes. Local community was spontaneously self-organized by sharing the clear goals as fulfillment of such needs. Then local community set up the neighborhood association for political unity to create collective power and the neighborhood association organized residents and negotiate with the administration to accomplish the shared goals. Banco Palmas was established as a means to solve economic problems that could not be realized by the neighborhood association. Local residents seem to have strong self-esteem and self-awareness to their history in which they by necessity had built and raised Palmeiras district by themselves. Such firm self-consciousness lies at the center of a sense of solidarity in local community. That is straightforwardly expressed in ASMOCOMP' charter stating that 'God created the world but we created Palmeiras district.' Once ASMOCOMP rooted in local community succeeded in creating residents' positive evaluation on local solidarity as the historical primitive memory, the thereafter-continuing activities of ASMOCOMP keep reproducing constant value consciousness as habits of thought or 'inner institutions' of the residents. The reason why local currency 'Palma' smoothly circulated in Palmeiras district is because the local community and the neighborhood association that had complimentarily strengthened prior to Banco Palmas give strong support to establishment of Banco Palmas. Since Banco Palmas was based on and sustained by cohesive local community and ASIMOCOMP, it could grow rapidly.

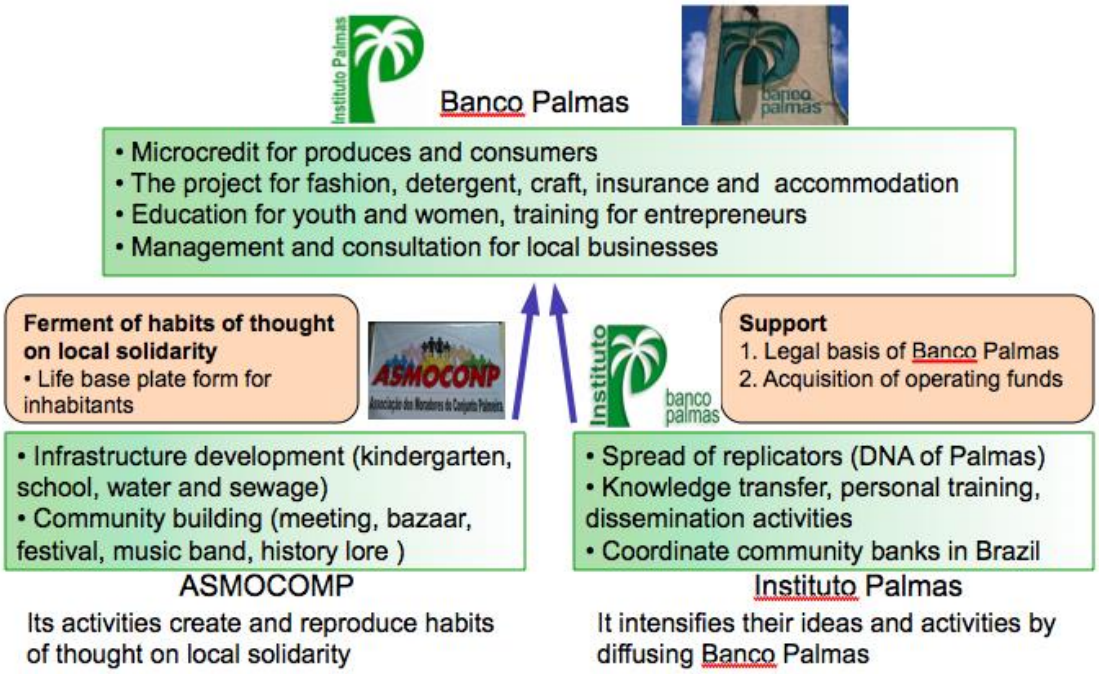

Fig. 8 The relation between Banco Palmas, ASMOCOMP and Palmas Institute

The neighborhood association joined in the creation of Brazilian Network of Solidarity Economy in 2002, and their activities proved to be solidarity economy. When National Secretariat for Solidarity economy (SENAES: Secretaria Nacional de Economia Solidária) was established under the Lura administration in 2003 and the support of the federal government for solidarity economy made clear, Banco Palmas partnered with SENAES and Instituto Palmas was established to function as follows: 1) network domestic community banks (assistance for adopting community banks into other regions), 2) collect information and perform public relations, 3) carry out logistical support (acquire operating funds, establish of the legal basis and etc.). As a result that Instituto Palmas had widely spread the system and experiences of Banco Palmas, more than 30 Banco Palmas type of community banks were founded in Brazil in 2012 and the total number of community banks in Brazil reached 103 (out of them, 37 are located in Ceará) (Instituto Palmas 2012). The similar banks are also present in Venezuela, are planned in Uruguay and Argentina. In this way, Banco Palmas grew based on the neighborhood association rooted in the local community. It also transmitted its experience and know-how to other regions via Instituto Palmas, and supported to build the community banks in other regions (Fig. 8).

Based on the above, let's think about what kind of suggestions Banco Palmas give to solidarity economy and CCs in developing and developed countries. Developed countries have not witnessed so far such a practice as Banco Palmas did to integrate microcredit and CCs. The first question should be why it is so? As we explained above, developed countries are now troubled by the decline of local economies and the collapse of local community including neighborhood and families due to economic globalization and deindustrialization as well as aging society with low birth rates. Accordingly, they have more needs for the CCs for both activating local economy and revitalizing community (or for the latter only), but they have fewer needs for the microcredit schemes designed mainly for poverty eradication and economic independence for the poor although they have been suffering from more serious income and wealth inequality (Piketty 2014). Both developed countries and developing countries have been situated in the same medium-term socioeconomic environments as in “neoliberal cycles”, however, they have different dimensions of long-term socioeconomic environments. Such a divergence in developed and developing countries must be the most important factor that eventually leads to the different directions of solidarity economy with CCs and microcredit.

Therefore, it is necessary for developed countries including Japan to reconsider the idea of the solidarity economy, particularly the meaning of freedom, competition and cooperation from the viewpoint of the long-term trends, not middle-term cycles. If solidarity economy is narrowly understood as mere criticism to neoliberal thoughts as libertarianism and policies as deregulation, there would be a danger of falling into a simple rejection of the dichotomy of freedom and competition in the market vs. the bureaucratic planning of the state and discretionary intervention policy of the elite. Rather solidarity economy should be more widely viewed so as to criticize the monetary and financial institutions and insatiable greed for profit of pursuit peculiar to capitalist market economy as well as investors' mentality of individuals or groups as unlimited extension of profit-oriented motives to all socio-economic domains indicated in globalization. Thus solidarity economy need to appreciate such good sides of freedom and competition as to create novelty by innovation in the market at first, and then aim at realizing a better non-capitalist market economy as an alternative to capitalist market economy. If there are a variety of non-capitalist meanings of freedom and competition, we should take account of their positive implications. For example, industiralization based on Talorism and Fordism made small kinds of mass production dominant. In contrast, a flexible manufacturing system in modern deindustrialization after 1980s could realize various kinds of small quantity production according to different tastes of individuals because more value is attached to diversity of needs and process or product innovation. With respect to dominant information and service industry in developed countries, much more appreciated are the freedom and competition in terms of innovation to create new information on technique, design and functions, new contents as character information, program, movie and music and new services including food, education and medicine, rather than the freedom and competition regarding economy to scale, rationalization, exploitation of price and wage disparity between developed countries and developing countries, and price competition based on cost reduction. The former kinds of freedom and competition produced free /open-source software, Copyleft/ creative commons as criticism to excessive claims of intellectual property rights.

As it can be seen from the above, freedom and competition on innovation in capitalism is not seen as its disadvantage but rather its advantage. Therefore, CCs should neither simply negate freedom and competition in Market, nor affirm reciprocity and redistribution in Community and State. CCs could be appropriately understood as an attempt to remove all the disadvantages of not only competition in Market but also reciprocity in Community and redistribution in State and harmonize the advantages of them. In other words, they seek non-capitalist associational market economy that harmonize business and volunteer on the basis of the "cooperative competition (coopetiton)" to combine cooperation and competition (Nishibe 2013, p.14). Capitalist market economy cannot be ethical so long as it is the economic system where money is freely used for means for profit-making or value augmentation of capital in quantity, not as means for exchange of something of different quality. Therefore, if a number of agents (individuals and companies) use money to make ethical investment and reciprocal exchange for production and consumption that do not take into account profit only, they would become a different kind of market economy from a capitalist one.

In the case of Banco Palmas, the key of the successful establishment of local community in Palmeiras district was that residents shared such purposes as infrastructure development, poverty eradication, and local economic growth. Precisely because there had already existed such strong cohesion in the local community, it was possible to guide the success in a short time by forming such a centralized system as "bank" that can monopolistically issue local currencies and carry out loans (credit creation). The similar case of strong cohesion can be found in rapid economic growth in Japan until the mid-1970s after WWII. The clear shared purposes like restoration from defeat and national income doubling helped family, company and neighborhood to sustain their cohesiveness of the communities. In developing countries whose situations are more or less closed to it, it would be relatively easy to form cohesive communities and the scheme of Banco Palmas would be effective.

However, as material desire gets considerably saturated in the post-industrial age of developed countries, people tend to put more value on information and services than physical goods. Because evaluation on information and services, relationship and situation vary from person to person depending on characters and personality, culture and ethics as frame of reference, such a standardized index for richness as GDP per capita no longer hold good. In this case, the setting of the common objective of the local community is not easy. Such an idea as respect of freedom and diversity cannot provide communities with strong cohesion. When common purposes of survival and security arise at the time of economic crisis, natural disaster and war, mutual help and cooperation emerge spon-

taneously, but such communities eventually disappear as everyday life is restored (Solnit, 2010). This is why the CCs in developed countries are strongly expected to function as not only monetary media to stimulate local economies but also linguistic media to form and activate local communities including not only real communities of geography but also virtual communities of interest.

As we have seen before, Joaquim Melo, the founder of Banco Palmas expected that local production for local consumption could not last if they abolished its local currency, Palma. But, as long as there exists such reproducing structure as Banco Palmas and the neighborhood association as to keep maintaining the codes of conduct and value consciousness for local solidarity among residents in Palmeiras district, the disappearance of the local currency would not give much economic impact. However, if the income level of residents becomes much higher and they have come to need the global trade products such as automobiles and computers that are not provided by the local production, diversification of the sense of value and collapse of local community will possibly occur as in the developed countries and local solidarity may fade.

Eventually, developing countries in the future will face the same sort of issues as developed countries do at present. In other words, if developed countries try to imitate the system of Banco Palmas as it is, it won't go well since developed countries must have already lost the key factor for success for the scheme. Accordingly, they must take into account the long-term economic and social trends in which they are situated and carefully conduct original practices corresponding to their own present issues. This enumeration of significant factors is not conclusive; they rather represent economic characteristics. Seyfang (2006) for example identifies the policy context as a crucial environment for the success of Time banks.

7. SIGNIFICANCE OF DIVERSITY OF MONETARY INSTITUTIONS FOUND IN CCS

In the developed countries where local communities have collapsed by globalization and deindustrialization, it is not easy to raise such a movement of solidarity economy as in Banco Palmas assuming the preexistence of strong communities. If CCs as social and cultural media can form virtual communities to share the value and norms related to specific themes such as low birthrate and aging, safety and security, natural environment, non-nuclear power and natural energy, and local production for local consumption, the movement for solidarity economy would gain more durability.

As long as communities of interest to share such value and norms are concerned, the main question is how we can mutually connect and coordinate diverse desires and wants for information and services, relationships and environments, not just for material needs for tangible goods, and lead to their coexistence and co-prosperity. The key to solve the question lies in a diversity of socioeconomic institutions, especially monetary and financial ones, because it fundamentally determines the viability of such symbiosis of a variety of interests.

Here, if we define the system where a variety of institutions can coexist as an "institutional ecosystem" (Hashimoto and Nishibe 2017), it is proved that an institutional ecosystem has a self-realization property such that if the factors of equality and diversity are incorporated in a meta-rule to evaluate each institution (game) and determine its frequency, a diversity of institutions (games) are eventually realized, and if the factors of convenience (efficiency) and profit-orientation are adopted in such a meta-rule that is found in globalization, it will result in dominance of a single institution like Market. In other words, as the relative frequency of the people to evaluate the conformity of economy and culture brought about by globalization, e.g., a global single currency or language, as desirable in view of convenience and profit-orientation, the probability of realization of such conformity will increase. Therefore, in order to maintain a diversity of institutions, it is necessary to widely share the value and norm in ethics of ecology to admit that diversity itself is the unique value[4]. How do we incorporate the point in

[4] In modern biology, it has become to be widely understood that biological diversity is not only the result of biological evolution over 4 billion years on the Earth but also the necessary condition for future evolution of life because human beings cannot survive undoubtedly if they myopically seek their own purposes and make all other species extinct.

symbiosis and solidarity? This is the most important task of movements and policies based on CCs and solidarity economy.

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FINANCING FOR DEVELOPMENT: A MONETARY ISSUE IN WHICH MONEY HAS NO SAY

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ABSTRACT

For developing countries, financing needs remain important, especially to meet the Sustainable Development Goals. This paper deals with the problematic of financing for development (FfD), by focusing on what we think to be its major blind spot: money. If development is far from being only about money, its financing does have monetary aspects, which are most often omitted. We first emphasise the current prevailing FfD paradigm and show that it stands on a particular theoretical corpus. In particular, it adopts a restrictive understanding of money, carrying important political, economic and social implications. Against what can be described as a non-monetary approach to financing for development, we consider the nature and origins of money. In this light, the current FfD paradigm appears as inconsistent, while tools such as social and complementary currencies can be relevant. We here explore their participation to financing and their potentials regarding this issue.

KEYWORDS

development financing, money, social and complementary currencies

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1. INTRODUCTION

In July 2015, the international community gathered in Addis-Ababa for the United Nations International Conference on Financing for Development. Despite this rendezvous being the third one, after Doha in 2009 and Monterey in 2003, financing for development (FfD) remains a critical issue, especially for the so-called "least developed countries" (LDCs). Despite diverse public and private commitments, how to fund the three to five trillion dollars a year of investments needed to meet the recently adopted Sustainable Development Goals (SDGs) is still uncertain. In the meantime, 2.2 billion people are still living with less than two dollars a day, according to the World Bank.

Development is a challenging concept to delimit and define, a concept which can encompass a wide range of different dimensions: from monetary wealth to democracy, from social cohesion to environmental embeddedness. Throughout the various agendas it has been assigned to, different qualifiers have been attached to this concept: "human", "inclusive", "local", or "sustainable" … In order to avoid the long and lasting debate around the concept of development (Rist, 2008), and to limit the present discussion to the economic field (but keeping in mind that it largely excesses it), we here define development as the process through which demand-oriented productive capacities are created or expanded, income is generated, and living standards are raised. So the process through which people, individually or collectively, increase their purchasing power, allowing them to fulfil more broadly their needs and aspirations.

Financing for development can consequently be defined as the act of making available the resources requisite for the development process to take place. In the framework of monetary economies, these are monetary resources. So financing for development can be analysed as the allocation of money which allows to initiate or sustain the development process. Therefore, development financing inherently has monetary features, which need to be dealt with in order to fully address this problematic. The purpose of this paper is to point out that it has not been so: we will show that the monetary nature of the problematic of financing for development has been overlooked, which has important economic as well as political implications. We will argue that by considering the financing for development problematic as the monetary problematic it actually is, and by reintegrating a proper understanding of the nature of money, the scope of means and tools workable to address the financing for development problematic could be widen.

In the first part of this paper, we review the current prevailing financing for development paradigm and exhibit its implications for developing countries. We will see that this paradigm fits only in a particular theoretical framework, especially regarding the nature of money. We then emphasise that money is endogenous to economies, as well as being a social institution. By reintroducing these dimensions, the financing for development paradigm appears as being largely inconsistent, and social innovations such as social and complementary currencies (SCCs) appear as relevant tools. We finally discuss their potentials in regard of the problematic of financing for development.

2. THE CURRENT FINANCING FOR DEVELOPMENT PARADIGM AND ITS IMPLICATIONS

Discussions and negotiations around the global issue of financing for development are held under the auspices of the United-Nations. But international organisations such as the World Bank and the International Monetary Fund are the main producers of expertise, and are the ones steering practices in this domain. In particular, based on country-level analyses, they produce recommendations of policies to be implemented by developing economies. As a first step for our discussion, we review the doctrine developed and applied by these organisations, in order to see in which way money is understood, and to confront this understanding to monetary theories.

Following the diagnoses made about developing countries, national economies can be in different situations, depending on their economic characteristics, these situations affecting their abilities to finance their development. On the one hand, if national economies have a sufficient domestic saving level or if they generate a trade surplus, then they are able to finance their development. In that case, resources generated by the economy are available for spending and investment. On the other hand, if national economies do not generate enough resources through these channels, then they are said as not having any autonomous financing capacities: here they have to rely on external financing. In other words, "the dominant logic is based on a simple financial arithmetic: what the earnings from exported goods, services or migrant labour do not bring in to balances of payments has to be found by national economies mainly in foreign investments and international assistance." (Schümperli Younossian et al., 2007).

An economy in the second situation, in need of external finances, has therefore to attract resources, especially via competitiveness policies, in order to expand its financing capacities: if the resources cannot be generated via the balance of payments, they have to be gained via a capital account surplus. For this kind of flows to take place, policies have to focus on creating an enabling environment for foreign capital, the attractiveness of the territory making foreign capital to flow in. So if we leave aside domestic savings, which cannot be autonomously sustained in the long run, financial resources are always exogenous to considered territories, while their allocation resorts to market forces. In this framework, official development assistance (ODA), beside addressing some sectoral issues, is mostly focused on helping governments with the structural reforms needed for the economies to become attractive and self-financing.

Partly due to ever insufficient financing flows, the concept of "innovative financing mechanisms" is now being promoted (see for example Douste-Blazy and Filipp, 2015). But they have little of really innovative: they rely on financial mechanisms and establish transfers following fiscal rules. For example, they set up "solidarity taxes" on air tickets, design "impact bonds" to finance sectoral projects via particular debt products, or institute preferential fiscal conditions for companies settling in developing countries. If they can be useful for sectoral issues such as vaccination for example, it is doubtful that they can address financing needs in a systemic way.

Overall, the current financing for development consensus developed alongside the trend towards global financialisation. In this context, it is assumed that financial development (the development of financial markets and of the banking infrastructure) automatically leads to economic growth and poverty reduction, the former being a precondition of the latter. Thereby the development bottlenecks are said to be laying in the "financial development and financial inclusion gaps" (Allen et al., 2014), these gaps needing to be filled. Following these assumptions, the proposed measures to be implemented by developing countries, considered as "the new frontier of international investors" (Cabrillac and Zinsou, 2014), include:

- The development of bond markets, sovereign rating, stock markets, pension funds…;
- The liberalization and deepening of local financial markets, by fostering competition and reducing the costs of financial services;
- The spurring of financial inclusion through mobile banking and microfinance services including microinsurance.

Before confronting the prevailing financing for development paradigm to economic theory, we can note that it is in the first place inconsistent with the current political agenda, which – deservedly – calls for a development that would be local or endogenous, i.e. a development standing on the territories' own resources. But as soon as this objective is given a financing interpretation, domestic resources are no longer relevant, and economies have to turn to foreign capital. In this consensus, several other contradictions appear:

- The necessary grasp and involvement of the local populations with development agendas is undermined by the dependency on foreign capital;
- Development planning is confronted to financial piloting, the latter often imposing its own imperatives potentially conflicting with the achievement of socio-economic objectives;
- The imperative of financial mutualisation through pooling mechanisms goes against the decentralization process positively giving more power to local authorities;
- And finally, despite the spotlight being on the concept of financing, developing countries are still too often relying on foreign aid.

Policy documents on the issue of financing for development usually do not explicitly refer to any particular theoretic framework. Yet, focusing on the practices implemented, we see that they only fit with specific economic and monetary theories. Other approaches, potentially calling for different policies, are left aside. It is thereby important to explicit these foundations, and to ascertain the relevance of the current approach compared with alternative ones.

Following the description we gave of it, the prevailing financing for development paradigm is chiefly based on the concept of financial intermediation. That is, mobilising available savings and transforming them into realized investments. In this process, financial institutions have an important role to play but are reduced to mere intermediaries, channelling funds from savers to borrowers, following best allocation principles. From a theoretical point of view, this paradigm fits into the prior savings approach, according to which savings are considered as a prerequisite to investment (Thirlwall and Pacheco-Lopez, 2017). Any investment is therefore regarded as conditioned by the existence of savings, and can only be realized if these available savings have been mobilized, whether domestically or globally. As developing economies are considered as not having sufficient savings, this approach justifies external debt and legitimates development assistance, both financing investment in poorer countries with the savings of richer ones. This prior savings approach is thus a non-monetary model of financing, in which the nature of money and the dynamics of its creation are disregarded. The money supply, considered as a limited and rival resource, has consequently to be most efficiently allocated. The allocation process is delegated to financial markets and banking institutions (reduced to their intermediation functions), leading money to be optimally invested where it is expected to have the greatest social utility, measured as anticipated return. The oldest theses of the classical school of economics underlie this prior savings approach, sustaining policies guided by what can be seen as a "radicalisation of the classical dogmas about money" (Harribey, 2012).

Classical economics had troubles integrating money into their models. So did development economics. As a result, a significant share of the financing for development literature ignores monetary considerations, or promptly put them aside without really discussing them. For example Gannagé (1969), in the introduction of his book, tells us that the reflection on financing for development has to be conducted "leaving aside the ultimate and desperate temptation to find money from the central bank" (emphasis added). To think about any active monetary policy from national authorities is here considered as a heresy. And for Gannagé to add: "Any financing problem is both a financial resources mobilization problem and an incentives problem." As we have seen, this point has been consistent until today. According to the current Managing Director of the International Monetary Fund, "Mobilizing revenues is a priority [for developing countries]", and it's only "Once revenues are raised, [that] they must be used efficiently and effectively in pursuit of development" (Lagarde, 2015).

On the contrary of the current prevailing approach, a monetary perspective on financing for development would account for the dynamics of money creation, the forces involved in its circulation and distribution, and the mechanisms of its destruction. Financing issues have to do with the availability, the accessibility and the mobilization of money: to fully address them implies to question these three aspects. For financing to be effective, the monetary resource must exist, the agents in need of financing must have the effective capacity of accessing these resources, and this capacity must be realized in the effective mobilization of the monetary resource. We must therefore pay attention to the barriers potentially arising for all of these three conditions, and to individuals' ability to meet these conditions. Disregarding these monetary aspects, as does the current approach, is not without consequences for developing economies. Its pitfalls can be identified at the macroeconomic level, but also at meso, and micro levels.

At the macroeconomic level first, financing constraints impose particular development models. As stressed by Berr (2007), "behind the issue of the financing mode, it is the choice of a development model that is hiding." For developing countries to have to rely on external financing only allows for an extrovert development model, based on integrating global value chains and mainly export-led. This model has proved to be of little resilience (due to market volatility and capital flight), while generating few spillovers beyond globally integrated industries. Alternative development paths, potentially more beneficial to inclusive development (Chang and Grabel, 2014), are deemed as non-practicable. They effectively are, but only within the acknowledged paradigm. If voluntary policies in general are proscribed, this particularly applies to monetary policy in particular. This raises important political economy challenges, as national policies are actually subordinated to global financial constraints.

Beyond the macroeconomic point of view, monetary dynamics also translate into differentiated impacts at the subnational level. Thenceforth, the mesoeconomic level is relevant to account for the dynamics affecting regions, understood as living areas and defined by their socio-economic fabric. With the focus on external financing, we already stressed the imperative for territories to be attractive. With part of territories necessarily being less attractive relatively to the others, arises the question of what happens to the less attractive ones. These will be left with no fi-

nancing, translating in a low local money supply. There is no reason for the gap between developed and underdeveloped regions to be naturally filled thanks to free flowing capital. On the contrary, capital will be attracted towards regions already benefiting from it, so the geographies of financing will reflect the geographies of current development. Beside the marginalisation of some regions, there may be a polarization of financial flows towards few favoured areas, to the detriment of others, in a sort of local manifestation of the Lucas paradox (Lucas, 1990).

Lastly, the microeconomic level involves the individuals directly concerned by potential financing issues. The financing failures occurring at the macro or mesoeconomic levels will affect the individuals living in non-attractive countries or regions, with negative consequences in terms of living standards and basic needs meeting. As already stressed, the available quantity of money depends directly on the flow of financing. So relatively less financed areas will tend to hold a smaller quantity of means of exchange (with downward pressures affecting this quantity, because of the flows taking place from impoverished to favoured areas). This potential sub-monetisation will arise no matter local available resources or feasible exchanges. In a market economy, these monetary obstacles to exchanges can be seen as entitlement failures, adopting Sen (1990) terminology. One may be entitled to a certain amount of goods and services, based on his own endowments, but his exchange entitlement may be inferior to his absolute (or real) entitlement. The difference between the two is due to the monetary constraints affecting him.

These three dimensions, micro, meso and macroeconomic, are not independent from each other but are actually linked by retroactive phenomena. Indeed, if an individual is living in a non-attractive sub-monetised area, his ability to exchange and meet his basic needs will be compromised: this will in turn affect his human capital. In the aggregate, this will translate in an ever less attractive area, and in a situation of poverty trap: "a self-perpetuating condition whereby an economy, caught in a vicious circle, suffers from persistent underdevelopment." (Matsuyama, 2008). This alters the economy at the macroeconomic level, while impairing individuals at the microeconomic one. This vicious circle can only be broken on the condition of implementing financing policies that run counter wise to conventional free flowing capital-led financing, with investments conducted in the poorest areas.

If money is mainly supposed to be neutral by standard economic theory (regarding money as not having any effect on the levels of consumption and production), we have seen that financing mechanisms, and thus money issuance mechanisms, make it all but neutral. Every monetary unit in circulation finds its origin in a financing operation, so financing disparities or insufficiencies translate into territorial monetary imbalances. The current approach of financing for development, far from resulting in actual financing policies, lead to mere funding processes. While financing necessarily relates to monetary dynamics, funding is only based on transfers of available capital. As we now intend to show, this restrictive approach to financing can be explained by a restrictive approach to money. A better understanding of the nature of money and of its origins would widen the opportunities to address the financing for development problematic.

3. MONEY: ENDOGENOUS TO ECONOMIES AS WELL AS A SOCIAL INSTITUTION

As described in the previous section, in the current paradigm of financing for development, money is perceived as a limited resource which has to be most efficiently allocated. As we wish to demonstrate in this section, this conception of money is inconsistent with the origins of money in our present monetary economies, as well as with the very nature of money.

To speak about financing implies to consider the mechanisms of money creation. If money is the critical element of our problematic, where does it come from? Bank of England economists recently reminded us that "the majority of money in the modern economy is created by commercial banks making loans." (McLeay et al., 2014) Banks do not act simply as intermediaries, contrariwise to the claims of many authors. When this particular role of banks in their money creation function is recognized, the prior-saving approach loses its justification: "Saving does not by itself increase the deposits or 'funds available' for banks to lend" (Ibid.). This is because savings are made at the expense of consumption, while consumption would generate deposits anyway. Banks do not multiply up reserves either: the central bank mostly accommodates the quantity of reserves needed by the banking system. Therefore, the classical model of savings making deposits making investable funds is mistaken. The crucial role of financial institutions has to be acknowledged, their role being not to act as mere intermediaries, but as the driving forces of the financing mechanism, by creating and injecting in the economy the money needed for its development.

Jakab & Kumhof (2015) distinguish between two models of banking: the intermediation of loanable funds (ILF) model and the financing through money creation (FMC) model: "In the ILF model, bank loans represent the intermediation of real savings, or loanable funds, between non-bank savers and non-bank borrowers. But in the real world, the key function of banks is the provision of financing, or the creation of new monetary purchasing power through loans, for a single agent that is both borrower and depositor." Clearly, the current financing for development paradigm is based, as we have argued, on the ILF model, which is here debunked. Contrariwise to the prevailing financing for development approach, money creation is at the heart of the financing mechanism in modern economies. Lending takes place through money creation, the loaned funds in turn making deposits. "Saving is therefore a consequence, not a cause, of such lending. Saving does not finance investment, financing does." (Ibid.) For these authors, the term "financing" embodies the idea that new monetary units are created.

So money creation, through credit allocation, is essential in initiating and sustaining any development process. Even defined in its stricter economic sense, development leads to an increase in productive capacities and to an increase in the volume of exchanges, which calls for more liquidity, more purchasing power, and therefore more money. This is the basis of any monetary economy, as it was early studied (Keynes, 1936; Marx, 1867; Schumpeter, 1934). Money is endogenous, meaning that "the creation of money is tied to the normal operations of a monetary economy." (Wray, 1990: 1) Not only the provision of credit accompanies the development process, but it allows it. "The social purpose of credit is to provide purchasing power to the capitalist so that he may buy the goods and services needed today to produce the goods and services which will be sold tomorrow." (Ibid., p. 55) Dynamically, financing takes place in anticipation of wealth creation: "money transfers purchasing power through time, from the future to the present." (Ibid., p. 11). Future increase in output allows – and justifies – for present increase in the money supply: money creation, through the allocation of credit, is a prerequisite to any development-fuelling investment. This money creation is not "ex-nihilo", but is based on the monetisation of one's capital (Cartelier, 1996), on the production capacity of each.

The post-Keynesian approach we just outlined emphasises the crucial role of money, and the fundamental monetary character of our economies. Yet, this corpus focuses on the economic functions of money, and does not allow to grasp its extra-economic aspects. So it can usefully be complemented by the institutionalist approach to money. Both post-Keynesian and institutionalist bodies agree on the fact that money cannot be treated as a commodity. But the latter stresses that money is first and foremost a social relation. Money cannot be reduced to its functions and must be understood as a collective institution: "money is not a commodity nor an instrument facilitating exchanges, but it is the institutional link connecting producers with each other and, by this particular fact, making exchanges possible. From this perspective, money constitutes the prime relationship, at the foundation of the market order." (Orléan, 2007) Money is not the outcome of a natural and spontaneous market system, but money precedes and brings markets into being. Individuals, through the relations they maintain and the rules they enact, make society, as well as they make money. Their interrelations can be seen as a web of debts, in which money "is the mean giving a measurable and quantifiable form to this set of social relations" (Théret, 2008). Far from having any pre-existing intrinsic value, money gets its liquidity because it is "the socially recognized and legitimized form of wealth" (Aglietta and Orléan, 2002). Following this approach, the reality of money is grasped by the understanding of its ability to concentrate the assent of the group, to focalize the trust of the society. It is this common trust which can actually turn anything into money, as long as there is a consensus among the members of the payment community, agreeing on a set of issuance rules and on particular monetary signs. This analysis of money as a social construct leads to refute the existence of any naturalized monetary rules, and to temper any necessary prescriptions regarding this domain. Money is always political and its management resorts to its users.

Exemplifying the point that money is not the invariant object that the standard economic theory confers to it, particular monetary tools have been developed in order to be adapted to development purposes. Civic movements led to the emergence of so-called social and complementary currency systems, which can be defined as "local exchange systems of goods, services and knowledge, organized around a specific currency allowing both the pricing and the settling of exchanges." (Blanc and Fare, 2012) These currencies are implemented by local groups to better meet their economic, social, or environmental aspirations, especially those unmet by the market or the state. In particular, "local, social, and complementary currencies are part of these emerging initiatives that seek to provide solutions to the challenges of sustainable local development." (Fare, 2011) Here, monetary innovation appears as a "social innovation [that] can thus be analysed as a reaction to the [prevailing] development model and appears as a witness

or a revealing of these tensions." (Blanc and Fare, 2012). The potentials of social and complementary currencies include the territorialisation of economic activities, the stimulation of local exchanges, and the transformation of practices, lifestyles and social representations (Fare, 2011). Money can finally appear as "a malleable tool that can be adapted for purposes that also belong to the civil society to define" (Blanc and Fare, 2012). It is no longer an a priori given to which we must adapt, but money becomes a tool for action when groups agree on new exchanges rules through innovative monetary schemes.

Beside the general potentials of social and complementary currencies, their use may appear particularly relevant in developing economies, regarding one of their distinctive feature: their high level of banking exclusion. Large parts of the population are indeed considered as non-bankable because of the high cost implied in reaching them, their low profitability, or because they face entry barriers. This is particularly true for sub-Saharan Africa, where only 34.2 % of the adult population have an account with a formal financial institution (World Bank, 2015) and only 6 % are borrowers (Demirguc-Kunt et al., 2015). Considering the mechanisms of money creation we exposed earlier, these figures imply that endogenous money creation is largely ineffective in such contexts. Thus, a mostly unbanked developing economy has little chance of being adequately supplied with money for its agents to satisfy their needs. This banking / monetary exclusion is independent from individuals' resources, as these resources are often impossible to mobilize as collateral with the formal banking system. Field works show that agents, and particularly businesses from the informal economy, face liquidity constraints arising from a low ratio of locally circulating money over locally available resources. Given available resources, exchanges could be conducted but monetary constraints impede them. This situation is due to financing insufficiencies, of which the monetary aspects are unaddressed.

As we saw in the previous section, the current financing for development paradigm stands on a particular approach to money, which has implications in terms of workable tools and policies. By exploring the nature and the origins of money, we have seen that money should not be considered as a scarce resource, but rather as a socially legitimate unit of account. Given their innovative feature and their potentials, social and complementary currencies may widen the scope of the tools available for financing for development. We here wish to explore this proposition.

4. SOCIAL AND COMPLEMENTARY CURRENCIES AND FINANCING FOR DEVELOPMENT

Social and complementary currencies are mostly created through grassroots experimental niches (Seyfang and Longhurst, 2012): groups of the civil society build particular monetary schemes adapted to the characteristics of the territory where it is implemented, and to the objectives they intend to realize. So several types and generations of social and complementary currencies coexist, mobilizing the monetary tool in different ways. In this section, we analyse the way in which social and complementary currencies participate in financing, and the way they address the limits of the current financing for development paradigm. To do so, we discuss the main existing models of social and complementary currencies, from the point of view of their respective monetary characteristics, and following the four generations classification established by Blanc (2011). Since each generation has its own monetary features, to follow this analytical framework allows to cover the wide range of existing social and complementary currencies, while limiting the discussion to the main monetary architectures. When applicable, we introduce examples from the developing world and briefly discuss them.

The first generation of social and complementary currencies is made of LETS (Local Exchange Trading Systems). They are mutual credit systems which allow to "keep scores" of the exchanges realized within a group of users, in order to foster reciprocity among them. LETS are purely scriptural systems in which both provider and receiver accounts are altered when an exchange takes place: the provider account is credited and the receiver account is debited, both by the same amount, so the global balance of all the accounts is at all time equal to zero. In this type of system, "money is therefore not pre-existing the exchange, but is consubstantial to it." (Blanc, 2006). In this respect, LETS feet very well in the theory of endogenous money: exchanges are not constrained by a stock of pre-exiting value of any kind, and the creation of money, here in its role of medium of exchange, is very directly tied to the needs of the traders. LETS also give a free access to credit, as it is possible for a member to have a debit position. Actually, to have debtor users in the system is necessary, as in total the amount of credit is equal to the amount of debit. So for a new member, it is possible to receive goods and services from the group before to have to provide goods and services back to the group (a limit to the debtor position can be enforced, depending on the systems, to

avoid free-riders to run large deficits and freeze the exchanges by not providing anything back). So LETS can participate in assuming the "social purpose of credit" as put in by Wray (1990): they allow any member to access extra purchasing power without any prerequisite.

Focusing on developing countries, we can here notice that South-Africa is home of one of the main type of LETS: the Community Exchange System (CES), which is a web-based exchange system created in Cape-Town in 2003. Since its creation, 55 groups have been created in South-Africa, as well as in 13 other countries of the region (Botswana, Cameroon, Ethiopia, Kenya, Lesotho, Liberia, Madagascar, Mauritius, Namibia, Swaziland, Uganda, Zambia and Zimbabwe) . But beyond the large number of registered groups, many of them do not have anything on offer, calling into question their real activity. For South-Africa, the sole two groups of Cape Town and Johannesburg (the first two to be created) concentrate 70 % of total offers. The type of goods and services on offer is also interesting to look at. For example, in the Cape Town Talent Exchange, most offered items are for "Body & mind" (for 19 % of the offers), followed by "Advice & tuition" (10 %), "Business services" (9 %) and "Entertainment & recreation" (7 %). So the CES does not appear as a system in which people assist each other for basic needs, but rather as a middleclass exchange system. Indeed, South-Africa is an emerging country with a significant share of its population having high standards of living, alongside a high level of inequality. Despite the original project of the CES being to be "a serious attempt to draw in those who had been marginalised by the conventional economy" (Jenkin, 2004), it seems that the CES has not yet managed to reach the most marginalised fringe of the South-African population, especially the black townships.

Apart from the LETS, another type of social and complementary currency is part of this first generation, forming a "G1 bis": it is the "barter markets" (as called by Seyfang and Longhurst, 2012) and especially the Argentinian Trueque. It started in 1995 as a mutual credit clearing system (using cards and computer files), but its growth led to its transformation to a manual currency (using paper notes) in 1996 (Saiag, 2013). First notes were only photocopied and scissors cut, as they were at this time the only available mean of exchange (Gómez, 2013). As with LETS, in both versions, users get a free access to credit, as they are allocated with a certain amount of creditos when they enter the scheme. From a project conceived by and for entrepreneurs towards economic objectives (Ould-Ahmed, 2010), the Trueque witnessed a massification of its use with the outbreak of the Argentinian crisis, poor people embracing the system by virtue of necessity. According to Gomez (2013), in 2001-2002, the Trueque had 2.5 million users, representing 20 % of the active population. Focusing on the poor, 33 % managed to cover ¼ of their needs thanks to the Trueque, 42 % covered half of their needs, 18 % covered ¾, and 7 % covered 100 % (Ibid.). After its wide adoption, the Trueque went through a massive crisis in 2002: part of the explanation lies into management conflicts, over-issuance and resulting inflation, but also because of the evolution of the composition of the group with the massification process. With many people joining by necessity, the dynamic equilibrium of a group of "prosumers" (each member being producer and consumer at the same time), became unstable when a lot of people joined looking to fulfil their basic needs (especially for food) without being able to provide goods or services desired by the rest of the group. Though the Trueque is a particular case, as it was part of a coping strategy to a harsh crisis situation, it did sustain the basic needs of a large share of the Argentinian population, and (at least partly) sustained the local economic fabric.

Another example is the model developed and implemented in Kenya, where five different community currencies are currently circulating (they were launched between May 2013 and August 2015). In this model, micro-entrepreneurs from the informal economy get together to form a business network and agree on the use of a community currency, issued to each member when he joins the network (see Ruddick et al., 2015). Following this first feature, this model is close to the Argentinian Trueque (issuance at joining time, no backing in national currency, no convertibility). But the innovation of this model is that at the same time the currency is issued when a member joins the network, an amount of currency is also issued to go to a community fund. This community fund is in turn used to conduct environmental actions (trash collections for example) or social activities. Here a common financing capacity has been generated by the community, by their agreement on using the community currency, which is only backed by the goods and services of the business network, and the promise of its members to use the community currency.

Second generation schemes are mostly timebanks which are, like G1 schemes, mutual credit clearing systems, at the difference that the unit of account is not the national currency or an internal unit of account, but is the unit of

time: the hour. Goods and services are priced depending on the amount of time needed to produce goods, or on the amount of time spent to provide services. This way, the main guiding principle of this kind of scheme is equality, as everybody's time is equally valued. Time banks are mostly used to exchange services, for example between generations, with the youth taking care of the elderly. To exchange goods in a timebank is only the exception. In this regard, as it appears difficult to fuel a development process with services, timebanks may not contribute that much to financing for development. But it can complement it by fostering the social dimensions of development. To our knowledge, there is no timebanks implemented in the Global South.

Local currencies make the third generation of social and complementary currencies. They are for the most of them paper currencies circulating on a particular territory. They are implemented by local groups in order to strengthen economic activities on this territory, via the activation of proximity links among its consumers and producers. Local currencies are tied to national currencies (they have the same value) and are also fully backed by national currency (as much national currency is kept in reserves as the amount of local currency in circulation). For most of these schemes, the main issuing point is when willing consumers voluntarily exchange the national currency for the local currency (sometimes at a bonus rate in order to incentivize the uptake of the currency). If partnerships exist with local authorities or local banks, they can provide funds to disburse social transfers or to extend microcredit in local currency, or to directly pay for goods and services using the local currency (the managing team of the currency for example can be paid partly in local currency).

Local currencies aim at increasing the multiplier for the territory where they circulate. The multiplier is the relation between an initial increase in revenue, and the total increase in revenue generated in the economy by this initial increase: in the aggregate, spending is other one's revenue, so any revenue spreads in the economy, in turn generating more revenues. From the point of view of a particular territory, the multiplier will depend on the propensity for local consumption: the multiplier will be higher, and consequently local revenues will be greater, if the propensity for local consumption increases. So local currencies aim at "sticking" part of the money supply to a particular territory in order to "plug the leaks" (Ward and Lewis, 2002). Local currencies can have a positive effect on the development of peripheral territories, this kind of territories depending for their supply on centres otherwise attracting revenues. Still, this type of schemes, being fully backed with legal tender, depend on the amount of national currency they manage to mobilize to issue the local currency. This setting can whether be a legal condition of the existence of such schemes, or a caution measure when no clear legal status is defined, depending on countries and their respective legislations.

The main example of local currency developed and implemented in the Global South is surely the Palmas model, developed in Fortaleza, Brazil. This experience, implemented by the first Community Development Bank (CDB) to be created in Brazil, led to a whole solidarity finance methodology with the creation of the Palmas Institute and the Brazilian Network of Community Development Banks. In this methodology, the social currency is part of an integrated approach made of "interweaved solidarity financial services, of an associative and communitarian nature, directed towards job creation and income generation within the perspective of reorganizing local economies, having as their foundation the principles of the solidarity economy" (Brazilian Network of Community Development Banks, cited by Braz et al., 2014). In particular, the community bank provides microcredits for production in Reals at low interest, for the entrepreneurs to import means of production from outside the community, and microcredits for consumption in local currency at zero interest, for the consumption to benefit the local economy and for the money to circulate only inside the community without leaving the area. As other G3 schemes, the Palmas currency is constrained by the amount of Reals the community bank is able to collect or to mobilize. Still, it has been able to create a virtuous dynamic for the territory. The local currency played an economic role, but it also became a symbol of the community identity, as well as an educational tool: "not only its literal use can promote increase of consumption in the neighbourhood, but the symbolism embedded in it, that the educational campaigns articulate, can change the habits of the community and increase the potential of consumption that takes place locally. From this perspective, with changes in consumer habits of the community over time, the population can minimize the use of social currency without resulting in a decrease in local consumption." (Braz et al., 2014)

Lastly, the fourth generation schemes are multiplex projects, combining several objectives and mixing different tools. Also, they have a particular focus on environmental issues, which turn them away from strict development

purposes. To achieve their objective, they mostly aim at orienting consumption, and therefore do not aim at financing. Moreover, they are complex and expensive projects which do not make them really suitable for development projects.

So the different types of social and complementary currencies can participate in financing for development in different ways, depending on their monetary organisation. We summarize these characteristics and their results in terms of financing in table 1.

Generation	*Types*[1]	*Monetary characteristics*	*Financing aspects*
G1	Mutual exchange systems and barter markets	Mutual credit clearing, inconvertibility.	Free access to credit.
G2	Service credits	Mutual time credit clearing, inconvertibility.	Free access to credit for services only.
G3	Local currencies	Convertibility, tied to and backed by national currency.	Increase of the local multiplier
G4	Complex schemes	Mixing different tools.	Orienting consumption, no financing

Table 1: Summary of social and community currencies generations, monetary characteristics and their participation to development financing

In section 1, we stressed that financing relates with three elements, all needing to be addressed: the availability, the accessibility and the mobilization of money. To varying degrees, social and complementary currencies reduce the obstacles potentially arising at these three levels. In terms of availability, SCCs can help to mobilize resources in favour of an impoverished area, and to confine these resources to the local economy. They can even lift the availability condition by allowing trading without any prerequisite. They also help in curbing capital movements spontaneously making money to flow from poorer to richer areas, safeguarding the availability of the monetary resource in poorest ones. In terms of accessibility, when developed in areas not served by formal financial institutions, SCCs can complement them. At the user's level, SCCs schemes will also value other types of resources – including human capital, which could not be used as collateral with the formal financial system. Finally, in terms of mobilization, investments can be undertaken on a collective basis, thereby reducing the risk for entrepreneurs. Individual investment will also have greater chances of success when being part of a coherent local development project, which a SCC can participate in constructing.

If the contribution of social and complementary currencies to financing for development may still be weak, and acknowledging that they cannot address the all financing for development problematic, to look at these particular object highlights, in mirror, the deficiencies of the current approach. With SCCs, monetary innovation directly participates in development financing, without relying on the mobilisation of exogenous financial resources. In many cases, financing is realised through the recognition of inter-personal credit relations and the activation of the community's own resources.

5. CONCLUSION

Reviewing the current financing for development paradigm, we saw that it leads national economies to rely primarily on external funding. This has implications in terms of type of development as well as policies to be implemented. By reintegrating money in the financing for development problematic, it has been argued that the latitude for workable tools and policies is actually broader than what the current approach imposes. By acknowledging the essential role of money in the process of financing for development, we have suggested that social and complementary currencies may be of interest for our problematic. Finally, discussing the different types and models of social and complementary currencies, we showed that they participate in different ways to financing for development, depending on their monetary characteristics.

[1] Seyfang & Longhurst (2012) identify 4 types of "community currencies", which fit into the first three generations of Blanc (2011).

Following our theoretical approach to money, credit has a social purpose in allowing investment. In this process, money creation takes place in anticipation of wealth creation. In the course of development, money is endogenously created to meet the needs of a growing economy. Social and complementary currencies are close to this approach: some of them give a free access to credit, while others territorialize the money issuance process. If their contribution to productive investment is still weak (Schroeder, 2015), they remind us of the monetary aspects of development, and beside its economic features, support its social or environmental dimensions.

These different dimensions of development may not be reducible to a single currency. In particular, different types of monetary tools could be mobilised in order to conciliate the different territorial scales of the development process, following a principle of monetary subsidiarity (Fare, 2018). In any case, even from the strictest economic point of view, money does matter.

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COULD SCALING UP TIME CURRENCIES REDUCE WORKING TIME, ENLARGE PARTICIPATORY DEMOCRACY AND REDISTRIBUTE WEALTH?

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ABSTRACT

In this article we present a proposal of a scaled-up time bank and currency at the national level. The aim of such a time currency managed by the State (or any regional public power) would be to link a legal reduction of work time in the market sphere to the development of an active – participatory – citizenship, and a reduction of economic inequalities through a redistribution of wealth. Paradoxically, we spend much of our lives working in order to finance through taxes political and administrative activities that we could for the most part exercise ourselves, yet from which we are excluded because of the rationing of disposable political time and the liberal-bureaucratic constitution of the state. The proposal starts from the idea that taxes paid for by additional work in a capitalist economy can be at least partially replaced by transferring work hours from market to civic activities. It entails that the reduction of work time should be seen not only as a way to reduce unemployment in the market sphere, but also as a political device allowing the development of participatory democracy through the payment of taxes "in kind", i.e. in hours of political and administrative activities. Moreover, the value of these activities could be recognized by a national time bank or treasury issuing a time currency which would be required in order to pay a democratically determined share of the tax burden. This device would be all the more interesting in that it would not necessarily imply lower salaries or re-investable profit. All that would be required is that reduced work hours be matched by tax cuts accompanied by corresponding cuts in public spending. The latter, in turn, would be offset by increased civic involvement in political activity and public services. The impact of this transfer of time on economic inequalities could be overwhelming but would depend of the tariff of national time currency in the legal tender market currency.

KEYWORDS

work time reduction, participative democracy, time currency, public finance.

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1. INTRODUCTION

The current way in which time is employed and distributed among the economic, domestic and political spheres is a major obstacle to the democratization of contemporary societies. Most of the people are constrained to spend all their disposable time in the market sphere, in order not only to be able to reproduce their labor power through private consumption, but also to pay for the maintenance of the state apparatus. Thus we spend much of our lives working for funding by taxes political and administrative activities that we could, for a large part, exercise ourselves, yet from which we are excluded because of the rationing of disposable political time and the liberal-bureaucratic constitution of the state. Therefore, active citizenship - participation to government and co-production of public services - is limited by the amount of remaining time citizens have at their disposal. So the development of a more participatory democracy and active citizenship supposes an important reduction of work time in the market sphere[1].

2. FROM WORK TIME REDUCTION TO ACTIVE CITIZENSHIP

In France, the main progressive measure ever taken by governments of the Socialist Party since the nineteen eighties has been to pass a law in 1997 reducing the weekly standard work time to 35 hours. Unfortunately, the purpose of that law was purely or mainly economic: it was to lower the unemployment rate by means of sharing employment between employed and unemployed. In this article, we consider that reduction of work time could and should also have a political goal: the development of participatory democracy[2] . In our view, even if there is full employment, reduction of work time is necessary to bypass the present crisis and structural limits of liberal representative democracy in contemporary societies[3] . The transfer of work hours from the market to civic activities is a necessary condition for the development of participatory democracy[4] .

Participatory democracy refers to actual active citizenship. It consists of citizens regularly spending hours of time in political and administrative activities, and consequently, from a public finance point of view, it can be assimilated to tax payments in time by the citizenry, instead of tax payments in legal tender money. Thus, a politically oriented work time reduction would be equivalent to a market income tax reduction compensated by taxes paid 'in kind', i.e. in hours of political activities.

But wouldn't this amount to restoring the mandatory work – called corvée in France[5] — that peasants in Old Regime owed the State—whereas monetary levies represented an emancipation from such obligations? In our view there is no real threat of this type in the present proposal whose aim, to the contrary, is to reduce any domination of this sort. Our issue is not to "restore" but to reduce such a corvée, that has not disappeared but only changed its form; doesn't it currently take the form of the surplus salaried or marketable labor required to pay one's taxes? Moreover, considering that political deliberation and decision-making, as well as coproduction of public services must be substituted for tax payments, profoundly changes the meaning of the obligation that individuals owe a democratic State: what is at stake is the duty to participate to government and country's administration, not to perform the most simple-minded and least gratifying tasks under the government of dominant elites. Eventually, the partial replacement of tax payments by civic engagement in public affairs could be introduced gradually, beginning with volunteers and at the local level[6] .

The combined process of reduction of marketable work time and taxes in legal tender money is all the more interesting in that it would not necessarily imply lower salaries or re-investable profit, and therefore could be support-

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[1] For more on this, see Gorz (1988), Meda (1995), Théret (1997, 2011a and 2011b), Schor (2010).

[2] Even Gorz (1988), Schor (2010), and Larroutourou & Meda (2016) tend to consider this political dimension as secundary

[3] On these limits, see McPherson (1977). See also Bourg and Whiteside (2010), for a renewed critique of representative democracy based on its incapacity to address the current ecological issues

[4] Civic activity or engagement is here defined as political and administrative activity within the political order of State and local public powers where the sovereignty of the people is supposed to prevail under the form of the law. It differs from civil activity or engagement that takes place within the non profit and non governmental organisations of civil society.

[5] Concerning the French *Corvée*, see Conchon (2011 and 2014).

[6] As proposed for instance in the D-CENT project. See https://dcentproject.eu/

ed by otherwise conflicting interests[7] . All that is required is that reduced work hours be matched by tax cuts accompanied by corresponding cuts in public spending. The latter, in turn, would be offset by increased civic involvement in political activity and public services. Thus, with such a bonding of marketable work time to tax and public spending for the benefit of a more democratic and prosperous political order[8] , work time may be reduced far beyond the limits of usual economic policy aiming at full employment by labor sharing.

3. VALUING CIVIC ENGAGEMENT WITH A SCALED-UP TIME CURRENCY

In our view, the main political challenge that such a transformation and its stabilization would entail is relative to the determination of equivalencies between the value of political and economic public services required from citizens in a participatory democratic regime, and a fraction of the taxes citizens have to pay in a representative and bureaucratic democratic regime. Civic engagement in political affairs in a participatory democracy has to be valued according to the democratic principle which holds that an hour of activity has the same value regardless of a citizen's socioeconomic status, and this mode of valuation sits uneasily with the prevailing conception of labor value in the capitalist economic realm. How both systems of valuation of human activity can coexist?

In fact, connecting and combining two or more systems of valuation of things and human beings is a problem that, albeit blurred, is permanently addressed in modern societies that are differentiated into a plurality of autonomous but interdependent "spheres of action" (economic, domestic, political, symbolical) or "life orders in which are expressed specific and autonomous logics of meaning" (Weber, 1909, 342)[9] . This plurality is refered to different principles of integration - market, householding, redistribution and reciprocity - by Karl Polanyi (1944)- or to different types of transactions - bargaining, managing and rationing - by John R. Commons (1934). But whatever the conceptual tools used to seize this process of differentiation, it appears that money, as well as law and discursivity (Simmel, 1907; Théret, 1992, 1998 and 1999), is a crucial social symbolical medium for operating connections and combinations between the different value systems structuring behaviors in different spheres of action. Money is primarily a unit of account that can be shared by the plurality of issuers of means of payment who are acting in these different spheres, and thus belong to a same community of account (Théret, 2008). In that way, currencies like market currencies - bank credit money-, redistributive currencies - tax-anticipation scrips-, and reciprocal currencies - mutual credits – can be part of a same set and translated one into the other. Thus, money is a possible operator of social integration, to say of totalisation of societies differentiated into autonomous orders of life.

One good example of such a monetary totalisation was given to us during the "Roaring Thirties" of western keynesian-fordist representative democracies. In that period, the central bank articulated within a same community of account market credit money issued by commercial banks, and state fiscal money issued by the public treasury[10] . And, since social protection was monopolized by the redistributive State, there were no room left for significative issuances of reciprocal currencies; people were limited to earmarking bank and state monies for special uses in the non-profit private sphere (Zelizer, 1994). Now, under neoliberal rules, this totalisation has become a "totalitarization", since commercial banks have obtained a monopoly of emission for their credit money, while States were forbiden to issue fiscal currencies. Fortunately, as a form of resistance to this totalitarization of western societies under commercial banks' rule, reciprocal currencies have re-emerged under the various types of "community currency systems" (CCS)[11] . But CCS are weak, all the more at the macro level, and the question of their scaling up for their survival is raised (Gomez, 2017).

In our view this question of scaling up CCS must be considered and can be resolved only by connecting it to the development of participatory democracy and work time reduction. Conversely, participatory democracy and work

[7] Which is not the case for purely economically oriented working time reduction. On the hegemonic block of social interests that could possibly support such a proposal, see Théret (1997 and 2011).
[8] On the topic of political prosperity, see Cassiers (2011).
[9] For a sociological approach of this problem in terms of « assemblages », see Lemoine & Théret (2017).
[10] For more on this point, see Théret (1998), Dutraive and Théret (2017), and Lemoine & Théret (2017).
[11] See Blanc (ed.) (2006), Longhurst and Seyfang (2011), Fare (2011 and 2016).

time reduction can find their way only through the development of reciprocal and redistributive "time based currencies" that are an important part in the CCS development[12] .

The currently experimented "time based currencies" are rooted in local territories and issued by civil society's organisations such as LETS, French SEL, and Time banks.

« *The idea of a time-based currency appeared in the United States in the early 1980s, when Edgar Cahn decided that the dwindling social budgets overseen by the Reagan government made an alternative currency essential. The concept of the time-based currency (the time dollar) and the time bank was born. At about the same time, the first Local Exchange Trading System (LETS) was created by Michael Linton in British Columbia, Canada. A LETS is a system organised by a group of people belonging to a small community who agree to exchange goods and services without the use of money. The value of these exchanges, measured in an official currency, circulates from one person to another via accounts that are debited and credited. The currency used to value the exchanges is thus a fundamental distinction between a time bank and a LETS: time for the former, official currency for the latter. Since their emergence, time banks and LETS have developed in parallel in many countries. In France, "systèmes d'échange locaux" or local exchange systems (SELs) are related to LETS, exchanging goods and services. The first French SEL was created in Ariège in 1994. But unlike LETS, SELs avoid any reference to the official currency (the euro): exchanges must be clearly differentiated from commercial transactions for regulatory and fiscal reasons. SELs use their own currency, equivalent to a time-based currency, for exchanges of both services and goods. In contrast, the model underlying Accorderies, which were conceived in Quebec and are now also developing in France, is that of a time bank*. » (Bourdariat & Théret, 2014, 2)

The present proposal is based on these monetary experiments and conceived as a scaling up of their last generation, that of time banks or currencies[13] . As a matter of fact, time banks render possible to envisage a way of valuing civic engagement through the creation of a time currency that would, on the one hand, measure and, thus, give social recognition to civic activity, and on the other hand, allow this national time currency to coexist with market currencies in a monetary system organized around a single unit of account[14] . In other words, the bottom-up creation of multiple time banks and currencies drives us to conceive a way of determining the value of a "time-tax" through a time currency that would recognize and display the wealth-value of civic engagement in the same unit of account that is used for market exchanges but would not cease to function on the basis of its proper system of equalitarian valuation of human activity. Let's see that more precisely.

Time banks issue reciprocal currencies which consist of mutual time credits[15]. They administer exchanges of services between individuals on the basis of a value system that is fundamentally different from the one prevailing in market exchange: the unit of account is an hour (or minute) of (domestic or civil) activity, and exchanges are based on the principle that "one-hour equals one hour," regardless of the activity or the status of the individual concerned[16] . Time banks demonstrate, by their resilience, that one of a currency's purposes can be to ensure that social relations which are democratic and respectful of common goods can last over time. And, to the extent that

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[12] The present proposal has been greatly stimulated by the works of Jérôme Blanc and the doctoral dissertation of Marie Fare (2011). We have drawn from Fare the idea of remonetizing hours spent by citizens in the political-administrative sphere, and thus transforming partially the State treasury into a scaled up national time bank, transformation which, in our view, is critical for stabilizing participatory democracy.

[13] On the specific features and the development of time banking and time currencies, see for example Cahn (2001), Seyfang (2002), Boyle (2005), Serra (2006), Ozanne (2010), Fare (2011), Bourdariat & Théret (2014 and 2015), Clement *et alii* (2017).

[14] From there the distinction between the unit of account and units of payment that refer to the name of currencies used as means of payment. On this point, see Théret (2008).

[15] « A time bank works like a community-level volunteering agency, but (…) unlike traditional volunteering, a time bank sets up reciprocal relationships - all participants should be willing to ask for help as well as give it to others. Participants are registered on a local database, along with details of the types of services they wish to offer, and the help they would like in return. » (Seyfang, 2002, 4).

[16] «Time banks aim to build social capital and engage people - the socially excluded in particular - in networks of mutual support and community-building by rewarding them for the time they spend giving service in the community, with time credits they can use to buy services for themselves. (…) Time banks use a currency based upon time, whereby one hour of service is always worth one time credit, whatever the service (…). » (Seyfang, 2002, 2)

they promote a system of values consistent with democratic principles, time currencies are a reasonable way to assign and recognize a social value to civic as well as to civil and social engagement.

As a matter of fact, time banks share several characteristics with our scheme of civic active citizenship associated to a democratically oriented work time reduction. They value human activity on an equalitarian democratic basis (one human being equals one human being, therefore one hour of human activity equals one hour of human activity); they promote a civil active citizenship through coproduction of services[17]; the services they provide are mainly public and social services[18]; they are based on the use of free time and a valorisation of human activity outside of the market.

But by other aspects, grassroots' time banks differ significantly from what should be a time-tax currency system managed by a public treasury. They differ from it not only by their small scale, but also, in Polanyian terms, by the principle of social integration they primarily mobilise - reciprocity instead of redistribution -, and by the type of enforcement or normative principles they are backed on - ethics instead of law[19].

In contrast, a democratic time tax and its correlative, a state time currency, would necessarily appeal to solidarity through redistribution and primarily to law as means of stabilization. Relations of mutual debit/credit constitutive of a time tax system are bonding individuals and state representing a sovereign people, and not individuals to one another. Certainly, a democratic public power can appeal also to volunteering and reciprocity, as well as in associative time banking, there are some verticality and a centre which can also appeal to redistribution, for instance when some members are in a structural excess of credit or debit. Even so, structural differences between both devices remain.

A last difference between actual grassroots time banks and a would be democratic State's time bank (time tax treasury) resides in the fact that the former can function with currencies that stay incommensurable or only imperfectly convertible with official currencies, while for the later, the time tax currency associated with work time reduction has to be commensurable and convertible into the legal tender money: the "time tax treasury" we contemplate here is based on the principle that taxes paid with market-based currencies can be converted into taxes paid with time-based currencies . Thus, scaling up grassroots' time currencies[20] into a time tax currency cannot be their simple replication at the national scale. Nevertheless, as both types of time currencies share the same unit of payment for non-market transactions (one hour), they may be easily articulated.

A time-currency system backed up by a time tax could thus work as follows. To recognize and give value to time spent on civic engagement, the state would issue a time currency in the national unit of account that should be used by citizens to be absolved of some of their tax liabilities, distributing it to active citizens on the basis of an hour of civic engagement equals one unit of time currency in exchange for the hours devoted by them to civic activities. These citizens could use this time currency to pay the part of their tax liabilities that has been reduced. Time taxes, despite they are paid in time currency rather than national currency, would continue to be registered in the national accounts (but now as counterpart of a non-market production of households and not anymore of a value-added by companies). In other words, public time-currency would be made available to each citizen to pay a predetermined share of their tax obligation. On this basis, citizens would have incentive to engage in civic affairs.

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[17] « Timebanking promotes "active citizenship" which reflects the normative principles of respect and giving voice to the silent and those who perceive themselves as powerless » (Clement et alii, making reference to Seyfang, 2017, 44).

[18] « Time banks (…) could be integrated with public services for the genuine empowerment of users, for the improvement of service delivery and effectiveness, and society in general. » (Seyfang, 2002, 9). "(…) most Time Banks are based in organisations (such as hospitals, schools, churches, or social service agencies) and target the socially marginalised (…) with coproduction as an objective. However (…), the use of Time Banks need not solely be to develop coproduction; other goals such as achieving an active citizenship or reciprocal volunteering (…) may be equally possible." (Ozanne, 2010, 3).

[19] « Timebanking is a community focussed alternative currency system designed to facilitate (…) exchange (…) energized by voluntary reciprocity and mutual respect among members. Central to timebanking are the five normative principles of coproduction developed by Cahn, namely: an asset perspective, honoring real work, reciprocity, community, and respect. These were developed partly from observation and reflection on time-banking practice and represent aspirational principles characteristic of enduring timebanks » (Clement et alii, 2017, 37).

[20] The time tax curency would therefore be an hybrid money, comprising otherwise some features of commercial complementary curencies.

Finally, the transfer and conversion of taxes in market money into hours of civic engagement would depend of the fixed uniform "price" of the hour of civic activity in terms of the national unit of account. This tariff should be equal to the volume of taxes that the people, through their government, decide to change into time taxes in order to reduce work time in the market sector, divided by the number of individual x hours of civic activity correlatively desired to improve participatory democracy—a ratio that might correspond to the average hourly salary in the commercial sector as in the case of Ithaca Hours (Glover, 2017), or to the median as in the case of Nabta Bank (Bourdariat & Théret, 2014, 7). A minimum volume of work time converted into civic activity would be mandatory, but another part could be made on a voluntary basis within some limits, dictated notably by necessity to organise gradually the coproduction of public services and to reorganize the bureaucratic State apparatus. Nevertheless, a right of every citizen to pay her taxes through civic activity should be instituted.

Let's look now what could be the impact of the actualisation of this proposal, focusing on both the improvement of the quality of democracy, and its consequences on the economy.

4. SOME DEMOCRATIC AND ECONOMIC CONSEQUENCES OF THE PROPOSAL

In the absence of experimentations[21], it is impossible to assert what would be the whole set of social, political and economic impacts of the institutional device proposed above. So, we must limit ourselves to specifying, in a deductive way, some logical effects triggered by the main characteristics of a time tax currency system designed to make it a powerful democratizing force as well as a useful economic policy tool[22] . Thus, we shall examine only the possible impacts of 1/the level and mode of fixation of the tariff in legal tender money of the hour of civic activity, and 2/some institutional specifications of the time tax currency system, both in the perspective of giving elements of response to the three following questions:

- Is time-tax currency a good tool to reduce inequalities of income?

- Is time-tax currency a good tool to improve the quality of democracy?

- Is time tax currency a useful economic tool for a sustainable development?

4.1 Impacts of the tariff of hour of civil activity in legal tender money.

As a result of the uniformity of this tariff, time-tax currency would have redistributive effects that would be all the greater the more market incomes are unequal. As a matter of fact, if the tariff is set at the average market price, an hour of civic activity would represent a higher tax for the "richest" – those with market incomes above average - as they will have to replace a higher remunerated hour by a lower one; to the contrary, the "poorest"— that is people with incomes below this average and the unemployed - would receive a better compensation for their civic activity than for their marketable work. Thus the equal distribution of time tax liabilities would be redistributive.

The "poorest" so would have at their disposal a surplus of time tax currency in comparison of their previous tax liabilities, surplus that the "richest" would be willing to buy in legal tender money for paying their time tax with this time currency, in order not to "waste their time" on civic engagement. This demand for time tax currency would improve the income in legal tender of the "poorest" and allow the actualisation of the redistribution of income in the market sphere since they would be able to buy more commercial goods and services. Nevertheless the

[21] The social experiment that is the closest to our proposal was the Nabta Time Bank that emerged in 2013 in the context of the Jasmine Revolution in Tunisia under the Moncef Marzouki presidency (with Lotfi Kaabi as his social councillor), and lasted till Marzouki lost the presidential election in 2014. Unfortunately there is no research on this outstanding experiment associating a national time bank with participative democracy and reduction of unemployement and poverty. For some more informations, see Bourdariat & Théret (2014) and Fare (2016).

[22] We shall not consider here the observed specific impacts on the market economy of reducing work time irrespectively of the State's time tax device, such as the improvement of industrial productivity, the decrease in unemployment, and the improvement of the quality of consumption and life in the domestic sphere. On this points, see Théret (1997 et 2011a).

size of the redistributive effect would depend on limits that could be placed on the conversion of time tax currency into legal tender, and on the degree of obligation to pay one's taxes through actual civic activity .

Moreover, if some individuals, in addition to a mandatory minimum level of civic engagement for all citizens, would extend their civic participation on a voluntary basis, given the new right of all citizens to pay their taxes through such activities, there would be a second possible redistributive effect. For, as soon as they would be allowed to spend the time tax currency not only for paying taxes, but also for buying public and private goods and services, the most economically disadvantaged citizens, unlike the "richest", would have incentives to make use of this right in order to improve their economic condition. Thus, such incentives would counteract the usual colonization of politics by the economic power of the richest.

Furthermore, the level of the tariff of time tax currency could be handled for political, economic and social purposes. The higher it would be, the lower the disposable hours of political participation for a given work time reduction and a given population. If it would be set higher than average market salary, its redistributive effects would be more concentrated on the top less numerous "richest". The lower the tariff would be, the higher the disposable hours of civic activity for the same volume of work time reduction, but the lower the redistributive effects and the incentives of the "poorest" to participate on a volontary basis. The tariff, as well as the magnitude of work time reduction, would thus be major macroeconomic and political variables that should be fixed democratically and through informed deliberations about their various economic and political effects. The liberation of work hours would provide the endogenous means for initiating this kind of collective reflection and decision-making.

4.2 Impacts of some institutional specifications of the time tax currency device

We have just seen that the depth of the possible redistributive effects of the tariff of civic activity hour would be dependent on specifications of possible uses of the time tax currency. But the impact of these specifications also concerns its possible uses as a tool for sustainable economic growth and public finance.

For instance, some positive impact could be tied to a possible earmarking of the time tax currency, that is to the fact that its circulation could be legally restricted to market networks that are recognized as "sustainable" and which are, moreover, territorialized. If there is a demand of time tax currency by people with the highest incomes willing to pay their time tax with it, such earmarking could encourage some entrepreneurs to produce in conformity with the norms of sustainability so as to get this currency. A new sector of the market economy would thus develop on the basis of a politically oriented use of the time tax currency. Moreover, as this currency is by definition directly commensurable with grassroots' time bank currencies, everyone with a surplus of time tax currency could be willing to use it within the framework of these time banks which, in turn, would have an interest in accepting it so as to expand and strengthen their resilience. Thus the public-private sector of local and specialized time banks could develop.

Furthermore, lowering of the market price of goods and services due to tax reduction associated to work time reduction should improve the national price competitiveness, and therefore economic growth and employment. Then international competition could create a dynamics of generalization of the time tax device and, thus, an international enlargement of the quality of democracy.

Finally, another possible positive impact of time tax currency on sustainable economic development and democratization of political life is that it could reduce States' dependence on public borrowing and financial markets. The institution of time Treasuries would give to States means to recover a capacity of monetary emission and, thereby, of stimulating market and non-market productions; this, in turn, would enable States to reduce significantly their financial debt. Gradually, the process of substitution of marketable work time by civic activity would entail a modification of the structure of the monetary supply in favor of time tax currency. Less bank credit money would be replaced by more time tax money. The issuance of time tax money by the State could not be criticized and repressed on the pretext that it would be inflationary, since the unit of payment – one hour of activity - is an invariant, independent of the rise and fall of market prices. Moreover this currency is pledged on a tax which is difficult to evade and defraud. One may even be led to think that such a public currency could serve as a nominal anchor for commodity currencies that the Central Bank could validate. The only question which could arise in terms of

monetary stability is relative to changes in the tariff of civic activity hour in the legal tender market money. It is clear, as we have stressed above, that for public policy purposes, the government could handle this tariff which is purely conventional. But as we have seen also, as a major political and macroeconomic variable it should be fixed democratically and through informed deliberations on its various economic and political effects. And any increase in its level, all else being equal, would impact negatively the capacity of the government to appeal to civic activity, which is a disincentive for a democratic State to do so.

5. CONCLUSION

In this article we have presented a proposal of a scaled up time bank managed by the State, and whose purposes would be to develop an active – participatory – citizenship and reduce economic inequalities through legal reductions of work time in the market sphere. This proposal derives from the idea that taxes paid for by additional work in a capitalist economy can be, at least partially, replaced by transferring work hours from market to civic activities. The transfer would be managed by a national time bank issuing a time currency valorizing hours of civic activity, and the amount of reduced work hours would be matched by tax cuts accompanied by corresponding cuts in public spending. These cuts would be compensated by an increased civic involvement in political activity and public services allowed by the liberation of work time.

We have then examined the potential of this time tax currency as a tool of social change. We have found that this democratic institution can help us strongly to move towards the actualisation of several political, social, economic and environmental purposes such as:

- the reduction of economic and social inequalities, and thus of the ecological footprint of the “richest”;

- a reduction in the conversion of economic capital into political power, that is of short-term capitalist lobbying within the Government, and a stronger involvement of the “poorest” people in politics;

- a higher ecological quality of "growth" through the possible green earmarking of the time tax currency and the relocalisation of the economy (short circuits) via an extended circulation of the time currency as a medium of exchange.

- the enlargement of social and solidarity economy through the organisation of a time banking sector connecting grassroots time banks and the national time tax treasury through hybridization of reciprocity and redistribution in the co-production of public and social services;

- the reduction of sovereign debt and commercial banks’ power with a renewal of the capacity of public sovereign powers to issue redistributive currencies;

- and finally, the restauration of the sovereignty of the people through the reduction of its life dependency vis-à-vis the market sphere and the State bureaucracy.

Surely, the proposal, as displayed above, suffers many limitations and should be developed in more details, notably concerning the process of its concrete implementation, the distribution of civic activity between political and administrative activities, the organization of co-production within public bureaucracies, the social forces likely to support the device, etc. But we believe that, even in this primary formulation, it is an insight that can be useful to theoreticians and/or practitioners of monetary innovations, as a stimulator of imagination on such issues as scaling up actual CCS, limiting the capitalist market economy to a reasonable size and relegating it to a secondary place, and promoting an active citizenship and a true democracy.

As a last word, let’s underline that if it is here question of imagination, nonetheless we do not design a utopian world. The proposal merely puts together and hybridizes different institutions - legal reduction of marketable work time, time banks and currencies, tax anticipation scrips, participative and deliberative democratic instances as “participatory budgets” - that already have proved their validity and efficiency.

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PATHWAYS TO IMPROVEMENT. SUCCESSES AND DIFFICULTIES OF LOCAL CURRENCY SCHEMES IN FRANCE SINCE 2010

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ABSTRACT

This text contemplates the difficulties of French local currencies and the pathways to improvement, in the event of greater sustainability at the local level. After a panorama of the French local currencies, and the observation of a disappointment from a quantity viewpoint, the paper discusses requirements and improvements for a local currency (LC) to contribute to a greater sustainability at the local level. It presents the notion of the relevant territory for a local currency. It then discusses a few crucial points of improvement and the difficulties they face: the role of local governments as major partners; the need for employees in order to constitute a permanent basis for the scheme's activity and development; the need for an digital counterpart of the currency; the need for financing activities. The conditions for a ripple effect are eventually discussed.

KEYWORDS

local currencies; improvement; sustainability; ripple effects; France

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1. INTRODUCTION

Associative local currencies (LCs) for market activities have emerged since 1991 in the West, with the first experience of the Ithaca Hour in the United States. They have since spread to reach France in 2010, after an important evolution in their features and experiments in a few countries. They are local and associative since they are implemented locally from largely autonomous orientations and decisions by people who have been brought together for a locally social purpose. They mostly target market activities, because they are intended to be accepted by market providers. They are backed by reserves in Euros and anchored to it by a fixed rate, allowing businesses to convert them back under conditions – that is a major change compared to the model of the Ithaca Hour.

In the mid 2010s, the LCs in France generally referred to one or both of the two existing networks: the "SOL Movement", which is rooted in a co-op and is the result of the original SOL project in the second half of the 2000s, whose experiments eventually failed while giving birth to a huge dynamics of new local currencies initiatives; and the "complementary and civic local currencies network" (MLCC, for Monnaies locales complémentaires et citoyennes)[1], which arose from a challenge with the original SOL project (Fare, 2011). This second network produced a Manifesto[2] which sets out four objectives: "strengthen the social link through our exchanges; encourage local consumption primarily by proximity and quality short circuits; encourage initiative, autonomy and entrepreneurial responsibility; refuse speculation". These objectives fall within "a transformative vision to ensure transitions to a fair and sustainable way of life." This manifesto was signed by 14 projects of which 9 correspond to LCs in circulation in France, over 27 ongoing experiences at the beginning of 2015.

Kim, Lough and Wu (2016) compared five schemes in North America and in the United Kingdom and delineated what conditions and strategies favoured their success. Our approach is different, though complementary, since we try to assess why the French experiences are quite deceptive so far and discuss pathways to improvement.

The text is rooted in monitoring the French experience since the implementation of the original SOL project in 2007 and from the first "complementary local currencies" in 2010. In particular, it is based on participating in workshops, conferences, debates and symposiums since 2011 and on interviews completed from 2012 to 2017 with a dozen managers of associative projects[3]. The methodologies for selecting providers and their actual nature were reviewed in particular in previous works (Blanc and Fare, 2016a), and the resources mobilized by these projects (Blanc and Fare, 2016b), after characterizing the associative monetary projects in general as social innovations (Blanc and Fare, 2012) and reviewed their difficult relationships with local authorities (Blanc and Fare, 2013). Lastly, this work is based on the own compilation of statistics on the currencies studied and their aggregation on a national level. After having laid out research hypotheses, they were confronted with the actors' analyses through individual interviews.

Section 2 presents the LCs studied from an inventory of ongoing and completed experiences and their main characteristics. The accumulated experience to date seems disappointing: it seems that the circulation of local currencies has never reached a level such that significant changes would be identifiable regionally. The rest of the paper tries to discuss requirements and improvements for a LC to contribute to a greater sustainability at the local level. Section 3 discusses the notion of the relevant territory for a local currency. The currency should circulate largely within this territory so that it connects a significant number of actors from a variety of activities and mobilizes actors from the territory. Section 4 discusses a few crucial points of improvement and the difficulties they gener-

[1] This was firstly a network of "complementary local currencies" (MLC, for *Monnaies locales complémentaires*). The mention of a civic dimension was added later (in 2016), in order to emphasize the bottom-up approach that should distinguish them from other sorts of local currencies.

[2] The sole purpose of the Manifesto "is to establish clearly the links between the different complementary local currencies by declaring the common values to which they adhere, without undermining the individuality of each of them." This was discussed during the bi-annual national meetings and adopted in May 2013 in Villeneuve-sur-Lot.

[3] Interviews carried out with representatives of the SOL alpin, the SOL Nord-Pas de Calais and the SOL violette, the Bou'SOL, of the Occitan, the Abeille, the Roue, the Luciole, the Mesure, the Cigalonde, the Déodat, the Elef, the Heol, the Doume, and the Mouvement SOL.

ate: the role of local governments as major partners; the need for employees in order to constitute a permanent basis for the scheme's activity and development; the need for a digital version of the currency; the need for financing activities. Section 5 discusses the conditions for a ripple effect. Section 6 concludes.

2. A PANORAMA OF THE FRENCH LOCAL CURRENCIES

The LCs studied are third generation associative currencies (Blanc, 2011). This generation started with the Ithaca Hour in 1991 from observing the failure of the implementation of a LETS, and limitations induced by the principle of mutual credit for developing transactions including business providers. After an adaptation of its principles (allowing for conversions and cutting the link with time), it experienced a boost in the early 2000s with the German Regiogeld cases (Geleri, 2009; Thiel, 2012; Volkmann, 2012) and the Brazilian community banks cases, on the Banco Palmas model (Fare, de Freitas and Meyer, 2015). In the second half of the 2000s, it appeared in Great Britain with the local currencies of a few "Transition towns" (North, 2010; Ryan-Collins, 2011), then in France, very early in 2010 with the first cases of the so-called "complementary local currencies". The broad dynamics of complementary currency projects in France from the beginning of the 2010s mostly falls within these local currencies. The first experiences emerge in conurbations of a few tens of thousands people (Abeille in Villeneuve-sur-Lot, Occitan in Pézenas, Mesure in Romans) or in a sparsely populated rural setting (Bogue and Luciole in the southern part of Ardèche) before approaching larger conurbations (Heol in Brest, MUSE in the urban community of Angers, SOL Violette in Toulouse), embracing a whole region with rural areas and conurbations as well (Roue in the department of Vaucluse, including Avignon; Eusko in the Basque country,), and reaching in 2015 the big city of Lyon and its urban and rural surroundings (Gonette). This type of currency has proved to be highly dynamic with 44 ongoing experiences at the end of 2016, and tens in the project stage (Figure 1, Table 1).

The unit of account is defined at par with the Euro. The currency is issued by euro conversions, the users (individuals who consume) being sometimes encouraged by an enhanced rate (e.g. 21 units of the local currency for 20 euros, as in the cases of the Elef, the SOL violette and the Bou'SOL). Outflows are possible but restricted to providers (traders, producers, non-profits and other organisations). These models target people's daily consumption habits and are therefore based on the acceptance of the local currency by providers. They also intend to promote inter-providers transactions in order to extend their action to the business practices and avoid outflows. However, as very few schemes implemented a digital version of their currency (contrary to British cases), B2B transactions are notably hindered by the use of notes.

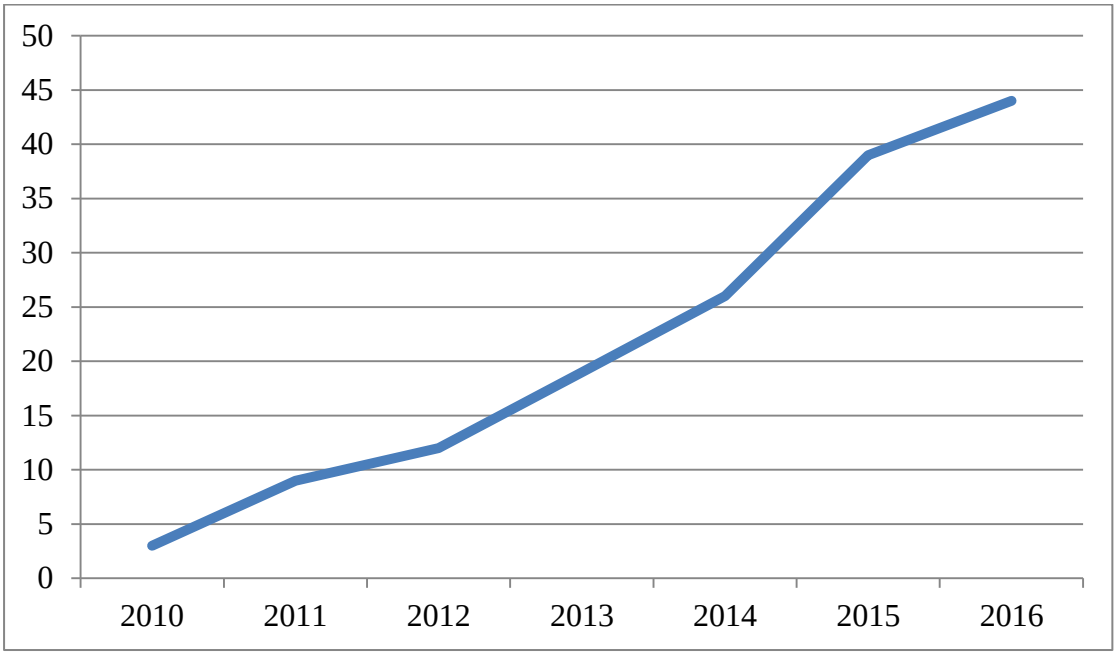

Figure 1 – Number of associative local currencies in France, 2010-16

Table 1 – The most dynamic local currencies in France, as of 2016

	Creation	Number or users	Number of providers	Money supply (estimated in euros)
Eusko (Basque country)	Jan. 2013	3000	650	550 000
Elef (Chambéry)	Nov. 2014	1500	130	90 000
Gonette (Lyon)	Nov. 2015	2674	205	81 000
Léman (Genève – Annemasse)	Sept. 2015	1100	250	80 000
SoNantes (Nantes)	Ap. 2015	1077	171	59 000
SOL Violette (Toulouse)	May 2011	1850	206	42 225
Stück (Strasbourg)	Oct. 2015	1127	140	45 000
Galleco (Ille-et-Vilaine Department)	Sept. 2013	1205	203	44 670
Overall estimation for the 44 local currencies		21 000 to 25 000	4 500 to 5 500	1.5 Mn to 2 Mn
Estimated average		477 to 568	102 to 125	34 000 to 45 000
Estimated median		Nearly 200	Nearly 60	Nearly 13 000

Source: authors from documents issued by the carrier associations, interviews conducted and the investigation carried out in 2014 by the interministerial Mission on complementary local currencies and local exchange trading systems. The statistics provided relate to the end of 2016, with the exception of Eusko (March 2017), SOL Violette and Galleco (end 2015). Currencies classified by money supply.

From a quantitative point of view, the French dynamic is undeniable, and it is impressive in comparison with other countries. It seems close to the 2003-2008 German dynamic, which since have been tapped. However, it dates back only to 2010 and a few corpses were already on the path (Occitan, Déodat, Mesure, Sardine). There is also stagnation of some currencies, which after a first phase of development fail to maintain a real momentum (Luciole, Cigalonde, etc.), while other LCs still seem to exist but are circulated confidentially (Commune, Radis). Conversely, a few currencies were gradually expanding throughout the local area or by increasing their volume and/or number of users: this was the case of the Abeille, the Bou'SOL and the Roue. Only the Eusko seems to have grown rapidly and can thus be relied on, two years after its creation, for a resounding success in terms of most of the French experiments. For a region of more than 200,000 residents, the number of users and providers and the overall money supply remains nevertheless little. The overall money supply of the 44 French ongoing experiences at the end of 2016 can be estimated between 1.5 and 2 million euros (including approximately one third of Euskos), for approximately 21 to 23 000 users and 4 500 to 5 500 providers. As a whole, with the exception of a very small set of local currencies, one can be disappointed by their small extent so far, it the objective were to improve sustainability at the local level. This paper tries to analyse the reasons for this situation and will discuss a few pathways to improvement.

3. THE ISSUE OF THE RELEVANT TERRITORY AND THE SIZE OF THE NETWORK

If the objective of a local currency project is to improve the sustainability of a local region, the first issue to be discussed is the relevant territory for such a currency. The currency should circulate largely within this territory so that it connects a significant number of actors from a variety of activities and mobilizes actors from the territory.

3.1 The relevant territory of a local currency

The definition of the relevant monetary space for local currencies is a tough question. Should we consider the scale of a municipality? Of a conurbation? The scale of a county (U.S.), a region (France) or a Land (Germany)? It depends of course on the objectives of the local currencies. These objectives may differ from each other, though, as seen above, they are partially homogenized by two networks and a manifesto. The objective to revitalize or protect the commercial city centre in La Londe-Les Maures with the help of the Cigalonde is quite singular. Others rather fit in with the conception of money as a tool for the transition of local territories to a more sustainable path.

Under this assumption, and at first glance, the relevant territory should be the one that combines the capacity to produce a high proportion of the goods and services needed within the territory, a low volume of energy required for the transport of goods and persons and a strong ability to generate its own revenues. It is mostly a capacity, not an observable state, since the local currency should precisely enhance these capacities. As a consequence, any definition of such a relevant territory requires a prospective analysis of a high complexity on singular territories.

Two models may provide input for reflection on that issue. First, the concept of regional resilience, which captures "the differential and uneven ability of places to react, respond and cope with uncertain, volatile and rapid change" (Pike, Dawley and Tomaney, 2010). Bristow (2010) analyses the complex relationships of resilience with the mainstream competitiveness imperative. She emphasizes four key features of regional resilience: (1) the diversity of activities, including locally-owned businesses; (2) modularity, or the "capacity to re-organise in the event of a shock such that they can supply their core needs without substantial reliance on transport"; (3) "an emphasis on small-scale, localised activities that are embedded in the capacities of the local environment, and cognisant of and adapted to its limits"; (4) a "supporting economy of family, neighbourhood, community and civil society, strong in reciprocity, co-operation, sharing and collaboration in the delivery of essential services, care provision and caring of families" (Bristow, 2010). This puts resilience far from the economic base theories, which consider the development of a territory on the basis of its capacity to attract revenues from the outside (Talandier, 2013).

Second, the concept of regional resilience leads to consider the "in-place economy", that is, "activities locally implemented for the production of goods and services aiming at the satisfaction of the needs of the persons who are present within the territory, be they residents or tourists" (Gass, Reynard et Vialette, 2015; see also Talandier, 2013). Consequently, the circulation territory of a local currency could be considered relevant if it enabled the development of local circuits of commerce, through the redeployment of the activities of local actors to serve the local demand. This requires a re-orientation of their purchase practices and the endogenization of productions previously imported. To summarize, a territory meets the requirements of a sustainability-oriented local currency scheme whenever the local currency contributes to regional resilience by the generation of in-place revenues and the strengthening of local providers of goods and services that meet local needs.

Such a relevant territory should emerge from its own dynamics. In other words, it does not pre-exist but is a potentiality, since it must be built by its autonomous production capacities, particularly food provision. This ties up with a conception of the territory as a "creative construction", that is, a process of resource building (Fare, 2016), which a local currency may precisely contribute to.

This territory is defined by a form of proximity of the actors such that they are able to respond in several ways to their local problems. It is also culturally and symbolically based, which is a condition for the emergence of forms of territorial sovereignty as it is subordinated to national sovereignty. The local currencies can contribute to the definition of this relevant territory by combining geographical proximity (especially related to distances travelled and the representations that people have of the distance) and organized proximity (due to similarities or affiliation, and in this case of an organizational work of the relationship between local players) (Fare, 2011) (on these terms, see Boschma, 2005).

In France, the need of the activists to formulate what could be the territories led notably to follow the category of "catchment area" ("bassin de vie"), as defined by the DATAR (the Interministerial Delegation of Land Planning and Regional Attractiveness) and the INSEE (the French national institute of statistics) (Julien and Pougnard, 2004; Brutel and Levy, 2012). The concept displays a meaning more related to the common space of daily life of the people than economic or even market activities, as required by in-place economy analysis. The INSEE defines the catchment area as "the smallest region where residents have access to the most up to date facilities and services" and obtains a zoning of France into 1666 catchment areas of which 1287 are rural (Brutel and Levy, 2012).

However, the way in which the territories of circulation of local currencies were defined is very idiosyncratic: it is based on each territory's specificities, on the extent and connection of activist networks, on the opportunities the founding groups could benefit from (including possible subsidies from local governments), and, of course, on the nature of the project as well. These territories are thus empirical constructs that are far from being dependent on objective designs. They range from a small town (in the case of the Cigalonde, in La-Londe-les-Maures) to several spaces of a department (in the case of the Galleco, in Ille-et-Vilaine) or a cultural and linguistic region (in the case of the Eusko, in the Basque country), passing through a large conurbation with a part of its rural hinterland (in the case of the Gonette in Lyon).

3.2 The size of the network

A success or failure factor is common to all associative currencies. As money can be assimilated, in terms of its usefulness as a means of payment, to a network good (that is to say, a good whose usefulness increases with the number of its users), the success or failure of an associative currency depends in particular on the extension of its network of users and providers. There is, however, no right number to attain: the relevant number of users and providers depends on the extent of the territory, the size of its population, the intensity of transactions, the adherence of users and providers to the values that give their meaning to the currency (which reduces the need for a proof of the direct utility of the LC as a requirement to use it), etc.

In France, the LCs are primarily built by activists associated in a non-profit organization. They are sometimes implemented by existing local promotional NPOs (merchants associations and associations for the promotion of the social and solidarity economy) (Heol, Cigalonde). Moreover, a few of them come from projects driven by a local authority (SOL violette, Galleco, Bou'SOL).

Failures may result from the confinement of the project to the original group who seized the initiative to create a currency as a tool for turning its values or beliefs concrete, that is, from its inability to spread the use of the currency to other social spheres. In the French legal framework, the formal membership of users is one of the conditions for LCs to be legal. This obviously acts as a drag on their growth, but does not necessarily lead to their failure.

Their possible inability to spread out may come from a radical form of activism (activism being too visible for ordinary potential users, or activist requirements preventing any ordinary users to apply for membership) and the lack of openness to meaningful socio-economic partnerships (DéoDat). It may come also from the isolation of the project within its own birth community (Occitan). It may eventually come from a deficit in the animation of the scheme.

For the managing group, the issue could be formulated as a tension between two attempts (Blanc and Fare, 2016a):

- On the one hand, translate a set of precisely formulated values into strict rules to be respected (notably on selection criteria for providers membership and on demurrage). The risk is to exclude too many providers as well as individuals frightened by this rigidity.
- On the other hand, not fix anything: no charter, or an ineffective charter; and, for example, no selection criteria for providers' membership. The advantage is of course to be much more open and less exclusive. But the downside is that, in the absence of a political or ideological marker, the user or the provider will then seek their own interest: in this case, they are likely to believe that the Euro is much less constraining in daily payments for them.

A third term is to establish a charter, formulate values and define selection criteria but with a flexible interpretation: talking about progress-based approach, introducing challenges systems in a relatively flexible constraint. The Eusko was one of the first LCs to introduce challenges for providers so as to stimulate them to improve their practices while being inclusive.

The tension can be expressed as follows. If it comes to customer loyalty within a network of merchants, it only plays on the well-known resort of interest (providing benefits to loyal customers) optionally adding that of membership (deploy a community identity linked to the territory in which we live); the network can be rapidly expanded. If it is to promote the transformation of practices and representations of the public by pushing, for example, users to buy organic products made by local producers organized in cooperatives or in a community supported agriculture organisation, other behavioural springs must be enabled that refer to values and the meaning of the action; once conquered the already sensitive public activist, the hardest remains to be done. In 2015, almost all of the current French currencies were moving in this direction and, quite symptomatically, the biggest difficulty several of them faced was extending the network of individual users (more than that of the providers). In many cases, it seems that, after a first big push in the membership that lasts two or three years, it becomes difficult not only to go on extending the number of users, but also to maintain their number year after year, due to the constraint of formal membership that leads many users not to renew it when they observe their own limited use of the currency.

Success requires linking all these actors and thus going beyond the original group of activist individuals (the basis of the project, or the user base appropriating the project) by combining activist merchants and producers (so that there is a solidarity base of providers and limit conversions by creating a diversified circuit of providers) but also non-activist users and providers (without which circulation will remain confidential). To reach this goal, active communication and efforts to raise awareness from employees and volunteers are required.

The number of users and providers does not say everything anyway. One may observe the uneven distribution of users and providers within the territory of a given LC: some places may experience a process of community building associated to the currency project and characterized by a close-knit network of transactions, while others lack users (for the Doume, see Celati 2017; for the Eusko, see Poveda, 2015). Beyond a global number of users and providers, their spatial distribution matters. Moreover, a network is not characterized by its size only. Among its characteristics, one should especially emphasize the importance of the variety of connections and the intensity of their relations. We will then stress the importance of animating the scheme.

4. PATHWAYS TO IMPROVEMENT AND THEIR DIFFICULTIES

With regards to the experience of the French local currencies so far, this section discusses a few crucial points of improvement and the difficulties they generate. Local governments should be recognized as major partners for local currency schemes; employees should constitute a permanent basis for the scheme's activity and development; the paper currency should be completed by a digital version; money should be completed by finance. All these points of improvement are difficult to implement, for various reasons.

4.1 The underused potential of committed local governments

When it comes to the issue of extending the network of users and providers, and to the issue of stimulating the circulation of the currency, the commitment of local governments is crucial.

They can play the role of a provider by accepting payments in the local currency for access to local public services. Local currencies were integrated in the French legal framework by the law on Social and solidarity economy voted in July 2014. The Article 16 creates the category of so-called titles of local complementary currency ("titre de monnaie locale complémentaire") under certain conditions and includes them in the Monetary and financial code. Such an article allows, but does not require, the deputy head of Public Finance to accept payments with these titles. Since then, a few local governments started to experience this method of intervention (notably the Abeille, Eusko and Bou'SOL), though the paymasters often resist. As providers, local governments and public bodies can also pay for a part of their supplier purchases and of their payroll in the local currency (the part that may be paid

in meal vouchers). With regards to local taxes (like the housing tax, the property tax and the local business tax), the law of 2014 does not suffice, since a change on the tax code would also be required.

Local governments could also distribute a portion of their aid in the local currency to increase the consumption of certain goods and services, enhance the eco-citizen gestures, subsidize access to certain goods or services such as access to fresh vegetables baskets for the most disadvantaged populations, and lastly support the financing of investment and equipment in renewable energy sources. But, with the exception of a negligible programme with the SOL Violette in Toulouse, local governments have not implemented any programme of that kind.

The overall potential of local governments commitments into LC schemes remains obviously underused, even under the umbrella of the law of 2014.

4.2 The need for employees

For a local currency to circulate and spread out, it is necessary to facilitate the scheme. Monetary crises may push up the use of alternative currencies, as shown by the Argentinian case of 1999-2002 or during the Great Depression in the U.S., but in ordinary times there are no proper qualities of local currencies that would suffice to prompt their use and spread them out. It takes a lot of will and human work, from volunteers and employees, to increase the use of the currency. But volunteers are heavily mobilised in the phases preceding the launch, which last an average two years. One can hardly expect that volunteers would be sufficient to develop the circulation of these currencies across the relevant territory over the years. Even volunteers with the highest goodwill may turn tired or discouraged; and beyond their core team the associations may face a high turnover of volunteers. Access to paid employment is thus necessary. The work of employees can maintain over time the project's momentum by mobilizing the actors of the territory.

It is financially demanding, since it requires getting sustainable funding. Yet, the incomes from their own activity generally remain low. The reconversion costs are not sufficient to finance all this (and may be used either to discourage outflows, or to fund projects), while the incomes from demurrage provide the association with very low amounts, when it is effectively implemented (Blanc and Fare, 2016b).

Resources from private and/or public partners are necessary to enable the association to scale out and then increase own resources. It should therefore combine different resources in a balanced way to recruit employees while avoiding the deleterious effects of addiction to a model dominated by subsidies (Blanc and Fare, 2016b).

This path questions the activist project at the heart of a LC. The implementation of the project assumes costs that must be covered with resources whose nature must be compatible with the project. As such, a double risk of misalignment can be identified. The first risk concerns the painful adjustment between the project and its implementation, as resources constrain the extent of what is achievable: a lack of resources leads to a currency well below the initial project, and therefore to dissatisfactions related to the inability to stabilize the activist project in volunteer or civic commitments. Avoiding this first risk leads to a second risk that concerns the fit between the project and resources. Indeed, the desired completion of the project may lead to the search for resources that were not envisioned from the start or that were refused according to a will to stay autonomous so as to secure the values behind the project. The second risk is therefore that of a shift in meaning and a bifurcation of the project due to the nature of the resources, and therefore dissatisfaction related this time to “hijacking”.

So there seems to be a tension in the quest for resources: the experimental nature of LCs so far and the will to raise the awareness of the public on topics like local economies, money, sustainability etc., before impacting the economy, may not withstand the search for more and lasting funding. A well-funded scheme faces the requirement of efficiency and impacts.

4.3 The need for a digital version of the currency

In coherence with sustainability purposes at the local level, the currency should not be confined to users/providers transactions but should also circulate among providers. Such a circulation requires a diversity of providers. When the network already comprises such diversity, providers may find new suppliers within the network and spend the local currency accumulated throughout their sales to individual users; in this case, the LC

generates new relations within the network. When the network is not diverse enough to let providers find partners to spend the local currency they accumulated, the facilitators often work with the providers to extend it wisely; in this case, the LC increases the size of the network. In both cases, the paper form of local currencies becomes a handicap, since cash is hardly adapted to the requirements of business transactions.

As shown by the Chiemgauer and the U.K. local currencies like the Bristol and the Brixton Pounds, a digital version of the local currency, allowing SMS payments, may also boost users/providers transactions. However, as in these three cases, opening a digital counterpart of the currency does not require the end of the paper. Paper currencies mark the minds, carry symbols, and the definition of their iconography gives an opportunity to mobilise people for a contest and to communicate. They are part of the education process that justifies most of the LCs. Moreover, they are quite simple and inexpensive (which also refers to the question of financial resources).

The French local currencies have barely implemented a digital counterpart of the local currency, as of 2017 (Léman, Eusko) (two of them were already and only digital: the SoNantes and Belmo). The law of October 2016 for a digital Republic changed the Monetary and financial code and allowed digital schemes of payments for closed networks and for a restricted set of goods and services, without the need for a formal declaration to the Bank of France, under the ceiling of one million euros year-on-year. This opportunity has been quickly seized by the Eusko.

4.4 The need for funding activities

A local currency promoting a sustainable development at the local scale should be used to fund activities that contribute to such a development. As part of complementarity logic, these types of financing should be oriented toward projects that find it difficult to be financed by the banking system because of the uncertainty or weakness of direct financial profitability of the projects. In other words, local currencies find their natural place in social finance[4]. Two main solutions are possible: funding with local currencies (donation by the association itself, credit or capital contribution by partnering with a structure of social finance, subsidy by local authorities) or with the national currency, on the basis of the reserves that back the local currency (credit or capital contribution).

This is where the problem of interest comes into play. Money issuance by credit is the normal method of creating new money. This method is very powerful, but has major flaws. Creating money by interest-bearing debt is indeed a powerful factor of growth. The business that goes into debt for investment purposes should set out in its investment plan that the return on investment will be sufficient to cover the interest and provide a surplus beyond interest: profit for reinvestment purposes, building reserves and remunerating capital providers. Creating money by interest-bearing debt is therefore fundamentally linked to capitalism as a principle of unlimited accumulation of capital. Interest-bearing debt subjects all agents to the constraint of accumulation - and facilitates accumulation by creditors, producing over a long period the polarization of wealth that is only counteracted by inflationary phenomena, forms of redistribution imposed by governments (taxation) or catastrophic forms of upsetting positions (wars and disasters). That is why currencies that promote a sustainable development at the local level of territories while articulating those at the domestic level are faced with the problem of reproducing the flaws of the dominant monetary system and the difficulties of being cut off from them. It is within this context that social finance allows for transactions, which, for some, are not encumbered by interest: capital contributions, donations, sharing the yield of ethical investments.

Also, developing a funding activity constitutes a powerful lever of building territorialized sectors. Indeed, the financing of activities increases the offer for individuals but also for businesses and therefore provides opportunities to use the local currency. Social finance can thus be a source for financing local activities to respond to local needs not yet satisfied by local businesses, reducing currency leakage outside the community. This combination, a lever of local sustainable development, could be mobilized to establish the creation of a network of businesses whose streams of expenses would build circuits, which would create a less dependent region on external flows, and therefore a more resilient region.

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[4] On social finance, see Nicholls, Paton and Emerson (ed. 2015).

So far, several associations of local currencies have implemented the principle of a fund, notably composed by the collected fees on outflows, that is used to subsidize partnered associative projects (on the principle of the Chiemgauer). Moreover, the converted currency is placed in a reserve or guarantee fund, which is an account with a financial institution that uses it on its own initiative. The reinjection by the bank of deposited Euros can therefore be added to the circulation of local currency. But, so far, there are few guarantees that this injection of national currency in tandem with the local currency is done locally and for projects compatible with the principles of a sustainable development at the local scale.

The recourse to a social finance institution such as the NEF in France orients the use of funds in such a direction[5]. In the years 2010s, the NEF has been developing a programme called "Prêt de chez moi" ("loan from my home", from a word game between "prêt" – loan – and "près de chez moi" – close to my home) in order to create a financial short circuit. Such a programme is highly compatible with the principles of local currencies and an agreement with the network of local currencies led to propose a specific version of this programme with local currencies. It allows a local currency association to target projects to be supported by the use of its reserve fund by the NEF.

In the Basque region, a partnership with a Basque venture capital fund (Herrikoa) facilitates the financing of local activities. It doubles the amounts of euros converted into Euskos by matching contributions to the Eusko-Herrikoa Investment Fund, which is a kind of mirror fund. This Fund is used to finance structuring projects for the Basque Country presented by the association Euskal Moneta to Herrikoa to and consistent with the objectives of the Eusko: relocation of the economy, promoting the Euskara, the Basque language, and/or environmental protection. These projects may contribute to structuring clusters in the Basque Country in agriculture, processing, manufacture, distribution, etc. These projects can be individual or collective, and their purpose can be to create or preserve clusters and structuring activities. The investment fund is created from the equity fund of Herrikoa but corresponds to the sum of Euskos in circulation.

These financial organizations have a major role in moving the project from daily consumption (which is the case of all existing local currencies) to the support of the local productive and ethical economy and of investment (very rare cases to date).

The mechanisms by which this kind of funds injection into the region might be systematized do not yet exist everywhere: the deployment of local currencies requires advanced social finance, regionalized (by financial short circuits) and subjected to sustainable development criteria.

5. RIPPLE EFFECTS

Eventually, success would require the generation of a ripple effect by the local currency scheme on the dynamics of the territory. But the definition of what should be measured to identify such a ripple effect is controversial.

The promoters of local currencies emphasize that a quantitative assessment can only be biased because the objectives of these currencies cannot be reduced to the battery of conventional activity statistics. It is true that the quest for a new society in which GDP growth must stop being the alpha and omega of any policy calls for critical reflection on the concept of wealth, which the philosopher Patrick Viveret agreed to, following on the heels of the sociologist Dominique Méda, at the beginning of the 2000s - and which also leads to working the issue of its indicators (Méda, 1999, Viveret, 2003, Gadrey and Jany-Catrice, 2006). Sustainable development at the local level should therefore be well distinguished from growth logic at the local level. This is an assessment of their social utility to which associative local currencies must be subjected, an assessment where Gadrey (2004) showed the complexity, and which ideally calls for the definition of indicators by the very same actors who are committed to the project.

More accurate investigations on the practices of individuals and providers show that these local currencies produce changes in merchant relationships and in the transaction networks (so far, however, these investigations

[5] The NEF (Nouvelle économie fraternelle) is a French cooperative financial institution, which has nothing to do with the English NEF (New Economics Foundation).

were conducted by the currencies themselves: there are no independent works published on this subject on the French LCs). It was noted that, for the Eusko and the Sol-Violette for example, providers had changed suppliers in order to use the local currency obtained from their sales to individuals. One of the essential challenges, in fact, for the managers of these currencies, is having them circulated: a few providers (as the local organic supermarkets Biocoop) concentrate sales in the local currency and have major difficulties to use such a big amount, leading either the currency to be at a standstill, or these important providers to convert it into the national currency and thus generate major outflows. Technically, the demurrage (see Godschalk, 2012) bore by those who immobilize the local currency and the reconversion costs bore by those who generate outflows may play a regulating role. However, they make the acceptance of the currency by providers more difficult and the demurrage is particularly cumbersome to implement in a banknote system. As a consequence, some associations chose to postpone the demurrage (Mesure) and/or to alleviate the reconversion costs (Elef, Gonette). Eventually, when providers switch their purchases to internal suppliers in order to use the local currency they accumulated, the transaction networks of local providers are heading in a more sustainable direction.

The promoters of LCs also emphasize the role of civic education that these currencies have. The projects themselves require often long maturation times, averaging nearly two years for those that succeed: the circle of those who first interested should be gradually expanded so as to build a group of committed people providing upstream significant volunteer work. This work involves deploying a set of civic considerations on currency, money, finance and the economy and actually works as a strong civic education and learning time of citizens extended to the economic field: it is about appropriating expert knowledge and claiming to implement it by rubbing up against economic realities.

The definition of the framework and the concrete functioning of the currency serves then as a forum where actors come together to consider a shared project for the territory. The work on the characterization of currency (a currency for what, for whom, how) is the catalyst for consultation on the territorial project. This approach involving all the regional players (elected representatives, associations, citizens, companies, banks, etc.) can mesh the existing networks active on aspects of territorial development by expanding them in a comprehensive territorial approach.

In this sense, they are probably mobilization or even systemization tools of territorial actors by activating different forms of proximity (networking of actors, creation of production and consumption clusters). They would "systemize" local initiatives, i.e. "connect them so that they form a whole" (Morin, 2002, p. 38) in the face of a challenge and a common project, sustainable territorial development. They are thus part of a process to empower people and collectives in order to act in a societal transformation objective.

In France, the implementation of a local currency project is based on the activation of values initially formulated in a charter, contrary to most of other cases in Europe and elsewhere. Local charters experience variations but revolve around the search for a more humane and environmentally friendly economy. Once these principles have been laid down, the challenge is to ensure that they are followed. In France, the choice was often to create accreditation committees to provide advice and a decision on the application of providers, that it must therefore be assessed in the light of the values laid down in the charter and set out in more precise criteria (Blanc and Fare, 2016a).

The economy promoted by these currencies is therefore a moral economy and cannot be reduced to the single quantitative dimension of the activity, even if it remains important. The issue is, in reality, that qualitative changes at the local level gradually causes overall quantitative transformations.

6. CONCLUSION

Studying the case of the French local currencies, this paper gave a panorama of these schemes since their inception in 2010 and observed their globally disappointing state of development, if the objective were to improve the sustainability of a local region. It discussed the notion of relevant territory for such a currency and observed that the actual territories are not based on such rationalization but are very dependent on the context and opportunities. It emphasized a few crucial points of improvement and the difficulties they generate: the need for committed local governments, the need for employees, the need for a digital counterpart of the paper currency, and the need

for connecting money to funding. Eventually, the ripple effects through civic education and awareness especially and the mobilization of territorial actors would import more than the purely economic and quantitative aspects. It should be expected qualitative transformations first, as a possible driver for quantitative changes within the territory.

Overall, local currencies question territorial policies and advocate for the insertion of the monetary tool into a territorial development strategy, i.e. thinking of money as a medium, but for the purpose of change, in articulation with other dynamics or instruments working toward the same objective. LCs can support a true territorial development strategy in the sense that their leverage increases when combined with other instruments and mechanisms of the intervention policy of the local authority and its local partners.

The issues at this stage often find an answer in a close connection with the logic and tools from the social and solidarity economy for economic and social development reflected in a desire to act differently for social and cultural integration and territorial cohesion (microcredit, time currencies, tontine, group purchasing, social groceries, cooperatives, social finance and responsible investment funds, cooperative banks, public banks) or with environmentally friendly transitional and regionally resilient policies and instruments (unconditional income, incentive for environmentally responsible behaviour). LCs have then a potential in terms of facilitating the networking of converging initiatives in the same region – though the conditions to turn this potential into reality are not met so far.

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IMPACT ASSESSMENT OF MONETARY INNOVATION: SUSTAINABILITY WITH EXISTING FRAMEWORKS AND INTEGRAL APPROACH

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ABSTRACT

Implementation of monetary innovation for social innovation network development may be appropriate as a reliable exchange and an incentive system for community value co-creation between stakeholders and sustainable regional development. Nevertheless, some questions remain: (1) What context and objective favour the implementation of monetary innovation? (2) How to enhance and evaluate the impacts of such innovations? To contribute to these research questions, a synthesis of 4 reference currency evaluation studies and 3 assessment frameworks standards, such as Sustainable Development Goals, Impact Reporting and Investment Standards and Global Reporting Initiative, will allow us to not only improve a previous impact assessment method of 71 indicators, by integrating an integral approach categorization, but also to qualitatively assess a recently launched currency, the Léman case study, as a first impetus with 34 indicators. Beyond policy intervention, networks of individuals and organisations may integrate an impact assessment method with an integral approach and continuous improvement process, to reach economic, social, environmental, governance and cultural impacts to evaluate the interest of supporting such initiatives. Further research is needed to develop this impact assessment framework, especially a bottom-up methodology.

KEYWORDS

Sustainable development, impact assessment, continuous improvement, integral approach.

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1. INTRODUCTION

This research paper deals with an important topic on the social and complementary currency (SCC) literature: how to assess monetary innovation and what are their impact in terms of sustainable development? Our proposition is to synthetize existing assessment frameworks to set up a new methodology of impact evaluation. To adapt the existing impact assessment method, presented in the previous publication Place et al., 2015, to the social currencies holistic movement, we will integrate an integral approach and development, finance and management impact assessment standards in addition with currency evaluation reference studies.

The purpose is to assess the Léman case study, as a first impetus, in terms of economic, social, environmental, governance and cultural impacts in order to evaluate if this initiative matches with sustainable development purposes such as local production, responsible consumption, social cohesion, open governance, plurality of socioeconomic actors, and common goods management. Further research with other initiatives is needed to build a bottom-up methodology to improve this impact assessment methodology proposition.

(1) What context and objective favour the implementation of monetary innovation? To answer this first question, we will redesign an impact assessment method based on a synthesis of existing assessment frameworks and an integral approach. (2) How to enhance and evaluate the impacts of such innovations? To answer this second question, we will evaluate a recently launched currency thanks to this new impact assessment method.

2. PURPOSE OF IMPACT EVALUATION

For the development of social and solidarity economy (SSE), a monitoring and evaluation framework (M&E) helps stakeholders to develop a shared understanding of what they are trying to accomplish though a Theory of Change, or Logic Model, such as inputs, activities, outputs, outcomes, impact. Indeed, a Theory of Change methodology results in a flow-chart diagram that illustrates what outcomes have been expected or achieved by an intervention whereas a Logic Model analyzes which outputs of a project's program will lead to some outcomes of an organization's mission (Place et al., 2015). Programs can thus respond to the stakeholders needs and measure the performance, or planet and society advantage. A good impact analysis is essential for financing institution to trust the socioenvironmental impact returned on their investment. Indeed, impact assessment and impact reports are necessary to receive financing, especially through impact philanthropy and through donation fundraising (Anderson, 2005; UNPD, 2009; The World Bank, 2009; Bindewald et al., 2015). 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 social and complementary currency being dependent on external financing: only 9% achieve it thanks to internal service taxes and 65% rely on voluntary institutional or individual financing (Demeulenaer, 2008).

Evaluation standards in impact assessment are not only necessary for stakeholder legitimacy and fundraising support at an external level but also for project management and tool design at an internal level (NEF et al., 2014). Impact assessment is not only the core business of innovation in sustainable finance but also the fundamental research of social and monetary innovation (Lietaer et al., 2012). For example, beyond alternative energy and carbon emission efficiency, eco-friendly behavior is a behavior which reduce the ecological footprint or environmental impact. Microcredit and digital cryptocurrency are nowadays a worldwide issue, such as mobile payment, universal dividend, endogenous finance, social and solidarity finance, prosperity without growth, and steady state economy. Nevertheless, these successful social technologies have a lack of sustainable impacts fulfillment. To go beyond this limit, the implementation of monetary innovation in a social innovation network aims to improve economic, social, environmental, governance and cultural impacts between producers and consumers. Monitoring and evaluation of these successful innovations is essential. Consequently, the improvement of currency design and impact assessment is needed for theses sustainable incentive systems. Finally, the perceived value proposition in the eye of their users are linked with this impact improvement (New Economics Foundation et al., 2015).

Monetary innovation occurs in developed region with economic stability and financial health like the Léman, Sol-Violette and WIR Bank projects in Europe; in developing region to keep locally the wealth circulation, by increasing the local Gross Domestic Product (GDP) provided by microcredit, a financial inclusion system, like Banco Palmas, C3U and UDIS in Latin America; or to incite eco-friendly behaviour and resource consumption reduction like the Nu-Spaarpas, EcoElce and Eco-Pesa. This innovation in sustainable finance is based on currency design and impact assessment of incentive systems to increase sustainable production and consumption, strengthen community empowerment, and activate value co-creation between stakeholders in a network of organizations such as transport, tourism, property international sectors.

3. SYNTHESIS OF REFERENCE ASSESSMENT FRAMEWORKS

Concerning the field of social and complementary currencies, among a global review of 406 papers, listed in the bibliography of community currency research called CC-Literature, and 105 papers, published from 1997 to May 2013 in the 17 volumes and 2 special issues of the International Journal of Community Currency, respectively 76 and 13 papers were dealing with pertinent impact analysis, which relatively means 18.7% and 12.4% (Bindewald et al., 2013). Among these various empiric analyses, which evaluate the positive, neutral or negative impact of social and complementary currencies for sustainable development with a balanced repartition and conclusion, 3 reference studies on evaluation research, all based on international literature review, should be analysed in detail (Dittmer, 2013; Seyfang et al., 2013; Michel et al., 2015). All of these studies encourage the standardisation of impact assessment methods to strengthen the legitimacy of social and complementary currency in achieving sustainability for stakeholders (Place et al., 2013a):

Impact link	Study reference	Data (period, region, type)	Used model (data sources)
Positive (impacts): High social sustainability, limited economic benefits, few environmental outcomes	A - Michel et al., 2015	1993-2013 World: Service Credits Mutual Exchange Local Currencies Barter Markets	From 1'175 to 48 studies Systematic literature review: CC-Literature CC-Library Reference searching
Neutral (objectives): Mainly economic and social goals, few pro-environmental objectives	B - Seyfang et al., 2013	1996-2011 World: Service Credits Mutual Exchange Local Currencies Barter Markets	From 3'418 projects Systematic literature review: Empirical studies Literature review Practitioner interviews Advisory panel
Negative (monetary reform): Limited by tax integration, business model and changing policy agenda	C - Dittmer, 2013	1996-2013 World: LETS-Local Exchange Trading System Time Banks HOURS Convertible Local Currencies	From 126 studies Academic literature review excluding: Barter Markets 4th Generation Scheme

Table 1: analysis of social and complementary currency evaluation research

Nevertheless, even if some frameworks exist in this field concerning its typology and categorization, there is no general framework yet concerning its impact assessment, although a currency assessment framework proposition of a matrix of performance indicators, has been made by D - Instituto Palmas and Núcleo de Economia Solidária da Universidade de São Paulo in 2013, which analyse, through a field survey, the scope of a specific social and complementary currency type called Palmas in the geographical region of Fortaleza in Brazil from June 2011 to July 2012 (Instituto Palmas et al., 2013). On the contrary to the fields of sustainable development, finance and management, with some compendium of 150 assessment methods of social impact, 35 measurement approaches in sustainable finance, 25 indexes of sustainable development of nations, and 78 social responsibility management tools (IRIS, 2015; Place, 2012; SVTG, 2008; Foundation Center, 2012; Louette, 2008; Louette, 2009). According to this non-exhaustive research on main existing and reference assessment frameworks, or impact measurement and reporting

initiatives, the ones used for this synthesis are chosen according to their field (sustainable development, finance, management), logic model (activity, output, outcome), degree of consensus and standardization (number of supporting countries or institutions), recentness (date of release), and integration of recommendations and standards (from other reference studies) (SDG, 2015a; SDG, 2015b; IRIS, 2015; IRIS, 2011; EUROSIF, 2014; GRI, 2013; AAAA, 2015; UNIATF, 2015; Royal Government of Bhutan, 2012; BGDP, 2007; SIGMA, 2010, Jackson, 2009; ISO, 2014a, ISO, 2014b):

Sustainable field	Type of assessment framework	Consensus	Recentness	Integration
Development (sustainable development and wellbeing)	1 - Sustainable Development Goals (SDG) – Outcome	193 countries	August 2015	United Nations High Level Meeting on Happiness and Well-Being (HWB), Beyond GDP: measuring progress, true wealth, and the well-being of nations (BGDP), Addis Ababa Action agenda of the Third International Conference on Finance for Development (AAAA).
Finance (sustainable finance and impact investing)	2 - Impact Reporting and Investment Standards (IRIS) – Output	2'394 organizations	March 2014	Global Reporting Initiative (GRI), International Financial Reporting Standards (IFRS), Social Return on Investment (SROI).
Management (sustainable management and corporate social responsibility)	3 - Global Reporting Initiative (GRI) – Activity	7'500 organizations	May 2013	ISO 26000 guidance on social responsibility, Organisation for Economic Co-operation and Development guidelines for multinational corporations (OECD), International Labour Organization Tripartite Declaration (ILO).

Table 2: election of sustainable assessment frameworks standards

By choosing and synthetizing some recognized international standards from sustainable fields linked with social and complementary currency, such as sustainable development (outcome, objectives), sustainable finance (output, sectors) and sustainable management (activity, stakeholders), and by comparing them with reference studies on social and complementary currency evaluation, we can provide a common, comprehensive and incremental approach that would lead to a standardization of impact evaluation of social and complementary currency for value co-creation between stakeholders. Indeed, social and complementary currencies aim to develop a territory, to improve the financing of organizations and to incite a better management for a sustainable vision, that's why integrating these impact assessment frameworks dealing with development, finance and management is pertinent. Furthermore, combining an integral approach categorization with both sustainable assessment frameworks standards and on social and complementary currency evaluation research reference studies, give us the opportunity to design an impact assessment method based on the synthesis of the various dimensions and indicators of the assessment frameworks presented above (Place, 2015). This Impact Assessment Matrix is a prototype and further research, especially by cooperating with practitioners in an action research bottom-up approach, will help to integrate the various assessment frameworks and evaluation research to design more appropriate and relevant indicators that would lead to a standardization of impact evaluation of social and complementary currency, thanks to a continuous improvement process. In comparison with the previous previous publication Place et al., 2015, we added not only the link with sustainability assessment frameworks standards and the social and complementary currency evaluation research references studies presented above but also the integral approach categorization with its four quadrants of an integral vision, or all quadrants all levels, presented below (Place, 2015; Wilber, 2014; Arnsperger, 2010):

Non-dual	Interior Views	Exterior Mechanism
Individual Individuations	I Subjective Intentional and conscious (aesthetic, expressive) Existential reflection (stages of consciousness, cognitive and self-identity)	IT Objective Behavioral and organism (empirical, positivism) Neuro-behavioral science (stages of the psychobody, organic and energetic)
Collective Institutions	WE Inter-subjective Cultural and world vision (ethics, norms) Critical reflection (stages of worldview)	ITS Inter-objective Social and environment (cybernetics, systems) Complexity economics (stages of system logic, sociopolitical and economic)

Table 3: all quadrants all levels interconnections of full-spectrum economics

Here are the various criteria of this following Impact Assessment Matrix prototype (Place, 2015):

- Integral approach: subjective or existential reflection (leadership and well-being), objective or neuro behavioural science (hardware, software or material), inter-subjective or critical reflection (ethics and education), inter-objective or complexity economics (system design).
- 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 presented in table 2: goals and objectives for complementary currency systems in the previous publication Place et al., 2015.
- Guideline principle: main topic, issue, subject which might be integrated, followed and respected.
- Evaluation objective: as presented in table 2: goals and objectives for complementary currency systems in the previous publication Place et al., 2015.
- Typology and category (T/C): 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 (LM): measuring activities (A), outputs (P) or outcomes (C).
- Progress measurement indicators of different kinds (71): eco-socio-environmental.
- Monitoring and evaluation methodology (M&E): data collection and analysis with quantitative or qualitative research methods.
- Cost (C): 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 (F): daily (D), weekly (W), monthly (M), yearly (Y).
- Link with standards and references (L): linked with sustainability assessment frameworks standards (1 - Sustainable Development Goals; 2 - Impact Reporting and Investment Standards; 3 - Global Reporting Initiative) and social and complementary currency evaluation research reference studies (A - Michel et al., 2014; B - Seyfang et al., 2013; C - Dittmer, 2013; D - Instituto Palmas et al., 2013).

4. IMPACT ASSESSMENT METHOD ON LÉMAN CURRENCY

After a first impetus in 2010, APRÈS-GE, a social innovation network of 270 organisations called the Chamber of social and solidarity economy in Geneva, decided, by a unanimous General Assembly vote, the 29th of May 2013, to cooperate with the group Greater Geneva Currency, or Monnaie Grand Genève in French. This project began the 27th of September 2013 in the cross-border region of the Greater Geneva through collective, voluntary, open and participatory co-creation. In 2013 and 2014, as a CCIA-Community Currency in Action observer, a European Regional Development Fund project, and expert on some master thesis, results of some studies on the Greater Geneva Currency, draft project of the Léman currency, have been released. And the 18th of September 2015, during the Alternatiba Léman, a cross-border festival of local initiatives for climate and well-being, the Léman: Lemanic local currency, or Le Léman: monnaie local lémanique in French, has been launched in the Franco-Swiss conurbation of the Greater Geneva. Later, the Léman currency has integrated another local currency from the Annemasse urban conglomeration, called Eco-Annemasse and launched the 13th of September 2012 (Monnaie Léman, 2015).

Study	Sample	Results	Details
Nginamau, 2013	14 stakeholders	Favorable opinion for its implementation	Perceived benefits outweigh perceived costs
			Accelerator of wealth & innovation with high added value
Chervaz, 2014	15 potential users	Value proposition not fully in line with expressed needs and concept perception	Correlation with local exchange and consumption incentive
			Divergence with participatory governance and social and solidarity economy objective
MGG, 2014 Calderon, 2015	13 organizations	High potential of creating new transaction flows in APRES-GE	1/3 of their economic relation are made with partners sharing the social and solidarity values
			1/3 of the current transactions could be made with partners sharing the social and solidarity economy values

Table 5: Léman currency studies and results, Source: Place, 2015

These studies show that this currency has a high potential for both producers and stakeholders, as it can create new transaction flows in the existing network of social innovation organizations and it has high added value and perceived benefits for the concerned participants. Nevertheless, the governance and economics objectives of the currency do not match with the expressed needs of the potential users who mainly focus on local exchange and consumption incentive advantages of such system. Based on the impact assessment method presented above, a qualitative assessment of the impact of the Léman currency has been made, based on the observation of the case study from 2013 to 2014 as an expert and then director of two master thesis on Léman currency, after being a practitioner and action researcher from 2010 to 2012 (Place, 2015). Indeed, based on 34 of the 71 indicators, or 47.9%, of the Impact Assessment Matrix prototype presented above, we will assess the impact of the Léman with 3 more criteria, through a qualitative analysis without using the progress indicators measurement and the monitoring and evaluation methodology of the Impact Assessment Matrix:

- Scoring (S): with even number from 1 (very low), 2 (low) to 3 (high), 4 (very high) in order to represent a multifaceted matrix in a radar graphic, see below.
- Justification: comments, remarks, critics to justify the scoring (N/A for not applicable or not available).
- Recommendation: solution proposition to implement in a continuous improvement process.

In term of sustainable dimensions, the governance and social dimensions are higher than the culture and economic ones, which are higher than the environment one. As the Léman mainly promote participatory governance and social and solidarity economy objective during its pre-launch, and as it's difficult to assess the local exchange and consumption incentive results because this currency just released, this impact assessment method has also been coherent.

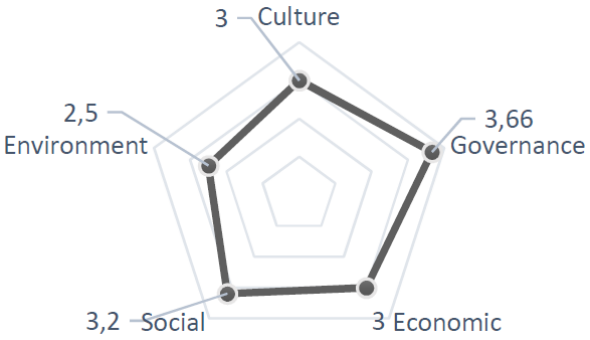

Fig. 1: Impact assessment of Léman launch on September 2015, Source: Place, 2015

5. CONCLUSION

According to most of the social and complementary currency research studies, and especially 2 recent systematic literature reviews, we need to develop a monitoring and evaluation framework to assess their impact in terms of sustainable development. (1) What context and objective favour the implementation of monetary innovation? Even if further research is needed to clearly identify these favorable context and objective to implement monetary innovation, in comparison with our previous publication Place et al., 2015, we selected and synthetized 3 reference assessment frameworks to design an impact assessment method: Sustainable Development Goals, Impact Reporting and Investment Standards, and Global Reporting Initiative dealing respectively with outcomes, outputs and activity of a Logic Model, as monetary innovation is at the junction of territorial development, organization financing and sustainable management. We also linked this impact assessment matrix with 4 reference studies on impact evaluation of monetary innovation. And we added an integral approach categorization for the economic, social, environmental, governance and cultural impacts dimensions (2) How to enhance and evaluate the impacts of such innovations? In order to build a bottom-up methodology within a continuous improvement process and in order to evaluate the interest of supporting such initiatives, we decided to start with a first qualitative assessment, through this impact assessment method, a recently launched currency, the Léman, based on 3 recent qualitative studies. This case study shows the relative pertinence of this impact assessment method.

Only one case study has been assessed with its intrinsic limitation due to its recent released. Consequently, more assessments need to be done in order to improve this impact assessment method. Indeed, further research through a global expedition to analyse innovative and traditional initiatives in both developing and developed countries would allow to not only improve this impact assessment method towards a standardization process of monetary innovation assessment framework through a bottom-up methodology with practitioners' cooperation, but also publish an atlas compendium of reference case studies and an implementation guide with key success factors.

Does this research give us a first impetus of an integral assessment method for integral monetary systems? Indeed, the purpose of a monetary innovation system, or resource and behavior management system, is to manage the production, distribution and consumption of goods and services on one side; and incite an integral practice and development of individuals on the other side.

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APPENDIX

Integral approach	Dimension	Level	Vison Goal	Guideline Principle	Evaluation Objective	T/C	L M	Progress Measurement Indicators	M&E Methodology	C	F	L
Subjective Existential reflection	**Culture**	**Macro**	**Inner Outer Sense Harmony**	**Altruism**	Other-Oriented Cooperation & Self-Oriented Competition Equilibrium	A	C	% other-oriented vs self-oriented	System database	2	M	A
	Social	**Meso**	**Needs Satisfaction**	**Well-being**	Increase self-confidence	B M I	C	% agree & strongly agree	Interview	1	Y	B
					Friendship and Trust	B M I	C	% agree & strongly agree	Interview	2	Y	B
					Improve quality of life	B M I	C	% agree & strongly agree	Interview	1	D	2
					Mindfulness and Spirituality	A	P	% agree & strongly agree	Interview	2	D	1
Objective Neuro-behavioral science	**Economic**	**Micro**	**Financial Autonomy Development**	**Risk**	Disaster mitigation	U C I	P	Backup system Frequency	System database	1	Y	D
					Currency Security features	A	P	N° security features	Best practices: 3	3	W	D
					Transaction and Data Safety	A	A	N° failure accident	System database	2	W	D
					Record keeping and statistics	A	A	Backup system Frequency	System database	1	W	D
	Environment	**Meta**	**Transition and Autonomy**	**Relocation**	GHG emission	C I	C	%CO2 & CH4 decrease	Regional database	3	M	12B
		Meso	**Ecological Footprint Reduction**	**Biodiversity**	Reforestation	C I	C	N° tree plantation	Regional database	3	Y	12B
				Eco-Friendly	Behaviour change	C I	C	% agree & strongly agree	Interview	3	W	13AB
					Waste management	C I	C	%recycling increase	Regional database	3	D	12B
					Water management	C I	C	%water consumption decrease	Regional database	2	W	12B
		Micro	**Responsible Consumption Motivation**		Green economy	C I	C	%organic & fair product increase	Regional database	2	D	12B
Inter-subjective Critical reflection	**Culture**	**Meta**	**Societal Acceptance**	**Societal**	Recognition Credibility Legitimacy from (Inter-) Governmental Institution	A	C	N° institutional support	Management database	3	M	C
					Tranverse Cross-Disciplinary Integral Holistic Collective Intteligence	A	C	N° scholar expert specialist involved	Management database	2	M	C
		Meso	**Pluralism Inclusivity Diversity**	**Creativity**	Alternative Flexible Libertarian Measure of Value	A	C	Yes / No	Best practice	1	D	C
					Soft Skills and Hard Skills Design Thinking	A	C	% soft skills vs hard skills	Management database	3	Y	D
	Economic	**Macro**	**Make Exchange Possible**	**Resilience**	Training	A	P	% trained	Interview	3	M	1D
						A	P	N° training hours per year	Management database	2	M	1D
		Meso	**Inclusive Community-Building**	**Viability**	Participation	A	C	N° active members per year	Management database	1	Y	3D
					Friendly user	U C I	C	% agree & strongly agree	Interview	2	Y	3D
					Intelligibility	A	P	% agree & strongly agree	Interview	1	D	3D
					Team Capacity	A	A	N° management team	Management database	3	Y	3D
	Social	**Meta**	**Link Share Reciprocity Solidarity**	**Cooperation**	Exchangeability	A	C	N° compensation systems	System database	2	M	3
					Co-creation	A	P	N° involved in design	Management database	3	M	3
					New skills	A	A	% agree & strongly agree	Interview	3	Y	3
		Macro	**Equity and Justice**	**Engagement**	Involvement	A	C	% agree & strongly agree	Interview	1	D	13
					Inclusion	B M I	C	N° solidarity inclusion	Management database	1	W	13
					Social service dependence	B M I	C	N° social service dependant	Management database	2	Y	13
					Cohesion	B M I	C	N° new relationship	Interview	2	D	13
		Meso	**Needs Satisfaction**	**Diversity**	Education level repartition	A	A	%High & Graduate school	Interview	3	W	3
		Micro	**Cohesion Cooperation Sharing Vector**	**Mission**	Ethic Charter	A	A	Yes / No	Best practice	1	D	3
					Conducts Code	A	A	Yes / No	Best practice	2	W	3
				Education	Enrolment	A	C	N° children enrolled in school	Interview	3	D	23
Inter-objective Complexity economics	**Culture**	**Micro**	**Innovation Confidence Humility**	**Innovation**	Open Questioning Capacity	A	C	N° yearly improvement	Management database	2	Y	23D
	Governance	**Meta**	**Participatory Democracy**	**Democracy**	Collaborative Election Decision Process: Consent Sociocracy Holacracy	A	P	N° stakeholder involved	Interview	2	Y	123D
						A	A	N° administrative person	Management database	1	Y	123D
		Macro	**Citizenship Engagement Recognition**		Effective Stakeholder Involvement Stimulation	A	P	% participation among users	Management database	1	Y	123D
		Meso	**Independent Control**	**Legal**	Independent Quality Control Process	A	P	Certification	External auditing	2	Y	12D
		Micro	**Monetary Creation as a Common Good**		National Legislation	A	P	N° legal text	System database	2	W	12D
				Transparency	Taxation	A	C	%rate (fixed & variable)	External auditing	**1**	W	13D
					Open source system	A	C	Certification	External auditing	**1**	M	13D

					Open banking	A	C	Certification	External auditing	**2**	M	13D
					Free Code and Legality	A	C	% free code	External auditing	**3**	W	13D
	Economic	**Meta**	**Crisis Resiliency**	**Resilience**	Market diversity	A	C	N° goods & services category	Classification standards	3	M	1
						A	P	N° & % users & producers	System database	3	D	1C
		Macro	**Make Exchange Possible**		Tipping Point Network Scale	U C I	C	N° users & N° business	Minimum Best practices: 500 & 100	2	Y	1C
					Interoperability	C I	A	N° systems users	System database	3	M	1C
		Micro	**Financial Autonomy Development**	**Finance**	Investment standards	U C I	P	Certification	External auditing	2	D	2D
					Loan Standards	U C I	P	Certification	External auditing	3	D	2D
				Accountancy	Accountancy standards	U C I	P	Certification	External auditing	1	D	12D
					Appropriate Socio-Environmental Accountancy Scheme	U C I	P	Certification	External auditing	2	M	12D
				Management	Monitoring and Evaluation	A	P	N° standards & tools used	Best practice	3	M	2D
				Exchange	Demurrage / Interest	A	C	%rate	Best practice	3	W	23D
					Debt levels	A	C	Minimum and maximum	Best practice	2	D	23D
					Discount rate	A	P	%discount	Best practice	2	W	23D
					Salary bonus	U C I	P	%bonus	Best practice	1	D	23D
					Exchange rates	A	A	%rate	Best practice	2	M	23D
					Backed system	A	A	%backing	Best practice	2	D	23D
	Social	**Micro**	**Cohesion Cooperation Sharing Vector**	**Poverty**	Income increase	B M I	C	%income increase	Interview	2	W	123C
						A	C	N° risen out of acute poverty	Interview	1	W	123BC
					Employment	B M I	C	%employment increase	Interview	2	D	123BC
						A	C	N° new job created	Interview	3	D	123BC
	Environment	**Meta**	**Transition and Autonomy**	**Relocation**	Local growth	U C I	C	%GDP local increase per year	Regional database	2	M	13AB
						U C I	C	N° profitable enterprise support	Interview	1	Y	13AB
						U C I	C	N° new profit & wage generated	Interview	2	Y	13AB
		Macro	**Eco-Localization Relocation**		Local consumption	U C I	C	%products locally produced	System database	2	M	13AB
					Currency exchange	A	P	%salary exchanged in SCC	Interview	1	M	13CB
						A	P	N° of SCC spent & earned	System database	2	Y	13CB

Integral approach	**Dimension**	**Vison Goal**	**Guideline Principle**	**Evaluation Objective**	**Progress Measurement Indicators**	**S**	**Justification**	**Recommendation**
Subjective Existential reflection	**Culture**	**Inner Outer Sense Harmony**	**Altruism**	Other-Oriented Cooperation & Self-Oriented Competition Equilibrium	% other-oriented vs self-oriented	3	Mutual credit system	Maximum and minimum balance account
	Social	**Needs Satisfaction**	**Well-being**	Increase self-confidence	% agree & strongly agree	3	Money appropriation	Monthly barter event
				Friendship and Trust	% agree & strongly agree	4	Feeling of community	Monthly barter event
				Improve quality of life	% agree & strongly agree	2	Sustainable services	Increase service diversity
				Mindfulness and Spirituality	% agree & strongly agree	1	No incentive	Include specific services
Objective Neuro-behavioral science	**Economic**	**Financial Autonomy Development**	**Risk**	Disaster mitigation	Backup system Frequency	-	N/A	
				Currency Security features	N° security features	3	Usual security feature	Communicate on them
				Transaction and Data Safety	N° failure accident	-	N/A	
				Record keeping and statistics	Backup system Frequency	-	N/A	
	Environment	**Transition and Autonomy**	**Relocation**	GHG emission	%CO2 & CH4 decrease	3	Local consumption	Life cycle assessment
		Ecological Footprint Reduction	**Biodiversity**	Reforestation	N° tree plantation	-	N/A	
			Eco-Friendly	Behaviour change	% agree & strongly agree	2	No incentive	Positive valuation
				Waste management	%recycling increase	-	N/A	
				Water management	%water consumption decrease	-	N/A	

		Responsible Consumption Motivation		Green economy	%organic & fair product increase	2	Sustainable consumption	Positive valuation
Inter-subjective Critical reflection	**Culture**	**Societal Acceptance**	**Societal**	Recognition Credibility Legitimacy from (Inter-) Governmental Institution	N° institutional support	4	6 institutional supports	Increase institutional and strategic partnership
				Tranverse Cross-Disciplinary Integral Holistic Collective Intteligence	N° scholar expert specialist involved	-	N/A	
		Pluralism Inclusivity Diversity	**Creativity**	Alternative Flexible Libertarian Measure of Value	Yes / No	1	Parity with euro	Create an hybrid system
				Soft Skills and Hard Skills Design Thinking	% soft skills vs hard skills	-	N/A	
	Economic	**Make Exchange Possible**	**Resilience**	Training	% trained	3	67 individuals	Increase users diversity
					N° training hours per year	-	N/A	
		Inclusive Community-Building	**Viability**	Participation	N° active members per year	3	67 individuals	Increase users diversity
				Friendly user	% agree & strongly agree	4	1, 5, 10, 20 notes	Quinquennial versions
				Intelligibility	% agree & strongly agree	4	Léman guide	English version
				Team Capacity	N° management team	4	2 committee	Election frequency
	Social	**Link Share Reciprocity Solidarity**	**Cooperation**	Exchangeability	N° compensation systems	4	Euro and Swiss Franc	Fixed rate
				Co-creation	N° involved in design	4	4 local designers	Quinquennial versions
				New skills	% agree & strongly agree	-	N/A	
		Equity and Justice	**Engagement**	Involvement	% agree & strongly agree	-	N/A	
				Inclusion	N° solidarity inclusion	3	10 SSE members	Increase service diversity
				Social service dependence	N° social service dependant	3	10 SSE members	Increase service diversity
				Cohesion	N° new relationship	-	N/A	
		Needs Satisfaction	**Diversity**	Education level repartition	%High & Graduate school	-	N/A	
		Cohesion Cooperation Sharing Vector	**Mission**	Ethic Charter	Yes / No	4	Charter of Léman	Specific index
				Conducts Code	Yes / No	4	Guide of Léman	Specific index
			Education	Enrolment	N° children enrolled in school	-	N/A	
Inter-objective Complexity economics	**Culture**	**Innovation Confidence Humility**	**Innovation**	Open Questioning Capacity	N° yearly improvement	4	Participatory governance	Election frequency
	Governance	**Participatory Democracy**	**Democracy**	Collaborative Election Decision Process: Consent Sociocracy Holacracy	N° stakeholder involved	3	67 individuals	Increase users diversity
					N° administrative person	4	2 committee	Election frequency
		Citizenship Engagement Recognition		Effective Stakeholder Involvement Stimulation	% participation among users	-	N/A	
		Independent Control	**Legal**	Independent Quality Control Process	Certification	-	N/A	
		Monetary Creation as a Common Good		National Legislation	N° legal text	4	2 legal text	Specific index
			Transparency	Taxation	%rate (fixed & variable)	-	N/A	
				Open source system	Certification	-	N/A	

				Open banking	Certification	-	N/A	
				Free Code and Legality	% free code	-	N/A	
	Economic	**Crisis Resiliency**	**Resilience**	Market diversity	N° goods & services category	3	10 different services	Increase services diversity
					N° & % users & producers	2	17 shops	Increase services diversity
		Make Exchange Possible		Tipping Point Network Scale	N° users & N° business	1	67 + 10 members	Increase services diversity
				Interoperability	N° systems users	3	Exchange counter	Specific index
		Financial Autonomy Development	**Finance**	Investment standards	Certification	-	N/A	
				Loan Standards	Certification	-	N/A	
			Accountancy	Accountancy standards	Certification	-	N/A	
				Appropriate Socio-Environmental Accountancy Scheme	Certification	-	N/A	
			Management	Monitoring and Evaluation	N° standards & tools used	2	Not specific	Continuous improvement
			Exchange	Demurrage / Interest	%rate	-	N/A	
				Debt levels	Minimum and maximum	-	N/A	
				Discount rate	%discount	-	N/A	
				Salary bonus	%bonus	-	N/A	
				Exchange rates	%rate	3	5% conversion	Specific index
				Backed system	%backing	4	Guarantee fund	Specific index
	Social	**Cohesion Cooperation Sharing Vector**	**Poverty**	Income increase	%income increase	-	N/A	
					N° risen out of acute poverty	-	N/A	
				Employment	%employment increase	-	N/A	
					N° new job created	-	N/A	
	Environment	**Transition and Autonomy**	**Relocation**	Local growth	%GDP local increase per year	-	N/A	
					N° profitable enterprise support	-	N/A	
					N° new profit & wage generated	-	N/A	
		Eco-Localization Relocation		Local consumption	%products locally produced	3	Local network	Discount on local product
				Currency exchange	%salary exchanged in SCC	-	N/A	
					N° of SCC spent & earned	-	N/A	

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ASSESSING LOCAL MUTUAL CREDIT AS A SOCIOECONOMIC TOOL FOR FARMERS IN NEW YORK STATE'S HUDSON VALLEY

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ABSTRACT

Thousands of local mutual credit networks and other complementary currency systems have been developed worldwide in the last several decades. Many of these systems strive to support local economic activities such as small-scale agriculture. Although mutual credit systems and similar schemes have had significant social and economic impacts under certain conditions, they often fail to meet participants' goals. Nevertheless, new mutual credit systems continue to emerge. This paper analyzes the complete transactional history of one such system—the Hudson Valley Current (HVC)—from March 1, 2014, to February 28, 2015. Building on existing community currency metrics, a transaction performance ratio is introduced to understand credit flow within the HVC. Network linkage densities are also calculated to gauge potential for social capital creation. While the HVC has not been used as a significant means of exchange for farmers, metrics indicate that the HVC is a generally viable source of mutual credit and social linkage creation for some participants, at least in the short-run. Continued application of these metrics by mutual credit administrators, combined with purposeful partnerships with local farmers, might allow any potential benefits of system participation to be maintained and extended to include local farmers in a significant way.

KEYWORDS

mutual credit, transaction performance ratio, farm(s)/farmer(s), Hudson Valley

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1. INTRODUCTION

The 21st century has seen a proliferation of community-based complementary currencies, often promoted as tools for strengthening local economies and supporting environmentally-oriented initiatives such as sustainable energy programs or community-oriented agriculture (Seyfang, 2006; Hess, 2012; Seyfang & Longhurst, 2013a; Joachain & Klopfert, 2014). This paper examines the viability of one complementary currency system in an agricultural area of New York State and develops a set of socioeconomic metrics for analyzing mutual credit systems in similar—and potentially a broad variety—of settings. Over 3,400 community-based complementary currency systems have been identified in 23 countries spanning six continents (Seyfang & Longhurst, 2013a). Yet, despite their widespread emergence, the success of complementary currencies has been mixed (Aldridge & Patterson, 2002; North, 2005; Stodder, 2009; Dittmer, 2013; Naqvi & Southgate, 2013; Seyfang & Longhurst, 2013a; Seyfang & Longhurst, 2013b). Nevertheless, new adaptations of community-based complementary currency systems continue to be developed throughout the United States and around the world (Seyfang & Longhurst, 2013a; Gilbert, 2014).

Given the continued proliferation and persistence of community currency networks with broad environmental and socioeconomic sustainability goals, researchers and advocates have called for more robust analysis of such systems (Seyfang & Longhurst, 2013a; Place & Bindewald, 2013). The existence of a mutual credit network—the Hudson Valley Current— in an agricultural area of upstate New York provides an opportunity to analyze a community currency system using both social and economic metrics that gauge the functioning of a mutual credit network.

In Section 2, I provide a brief background on the issues facing Hudson Valley agriculture and introduce mutual credit networks and similar systems as potential tools to overcome the types of the challenges faced by Hudson Valley farmers. In Section 3, I build upon existing community currency assessment methods and apply metrics such as transaction performance ratios and network linkage density to gauge the health of the HVC mutual credit system and explore its actual and potential engagement with local farms. The results of these applied metrics are discussed. Based on the preceding discussion as well as participant observation, I draw conclusions in Section 4 regarding the viability of the Hudson Valley Current as a local exchange platform for area farmers.[i] Finally, I close by making recommendations regarding future research and civil society engagement in mutual credit networks and similar systems.

2. BACKGROUND: AGRICULTURE IN NEW YORK STATE'S HUDSON VALLEY AND THE POTENTIAL OF MUTUAL CREDIT SYSTEMS

2.1 Problems Facing Hudson Valley Farmers and a Potential Solution

Agriculture is a long-established component of the economic, cultural, and land use fabric of New York State's Hudson Valley region.[ii] Nevertheless, although the Hudson Valley's approximately 4,100 farms together generate over $430 million in annual revenue, only around one third reported profits in the most recent agricultural census (USDA, 2014). A lack of access to local processing, distribution, and marketing services has been cited as an underlying impediment to financial viability for Hudson Valley farms (Glynwood, 2010).

This situation is particularly difficult for smaller farms. Hudson Valley farmers operate within a national phenomenon of highly concentrated agricultural processing and retail markets characterized by high-volume production that can be sold at low cost to consumers and discourages cropping diversity (Reganold et al., 2011; Sexton, 2013; Bowman & Zilberman, 2013). Federal subsidies and insurance programs aimed at a few agricultural commodities exacerbate this trend (Reganold et al., 2011; Bowman & Zilberman, 2013). Scaling up production requires considerable initial capital and access to credit—in addition to potentially negative environmental impacts associated with increased synthetic inputs (Sexton, 2013; Bowman & Zilberman, 2013). Given these factors, many smaller farms seek alternative markets as a strategy for socioeconomic sustainability (Schmit & Gomez, 2011). For example, community supported agriculture operations (CSAs) and other direct marketing strategies connect growers with consumers who may be willing to pay more for qualities such as freshness, local production, or use of organic practices (Low & Vogel, 2011; Schmit & Gomez, 2011; Bowman & Zilberman, 2013; Galt, 2013). CSAs also allow community members to purchase farm shares prior to the growing season in return for agricultural products throughout the year. It also allows farmers to partially overcome capital and biophysical constraints without debt-

based financing (Flora & Bregendahl, 2013). Many CSA farmers seek to benefit from the community bonds and social capital that can potentially be developed through direct interaction with consumers (Galt, 2013; Flora & Bregendahl, 2013).

Indeed, given the significant economic challenges facing smaller scale Hudson Valley farms, the number of CSAs and other direct market activities in the region increased during the first decade of the 21st century (Glynwood, 2010). And yet, although Hudson Valley farms appear generally well positioned to take advantage of various localized marketing strategies, economic sustainability remains unrealized for many farms (Glynwood, 2010; USDA, 2014).

Mutual credit networks present one potential solution to the problems described above. Complementary currency systems such as mutual credit networks have been promoted as tools that can facilitate access to local food markets while removing short-term cash constraints for system participants (Seyfang, 2006; Hess, 2012). If tools such as mutual credit systems can in fact be used to facilitate a range of exchanges while removing short-term cash constraints, this could prove beneficial for small to mid-sized farmers in regions such as the Hudson Valley.

In February 2014, a new mutual credit network called the Hudson Valley Current (HVC) began operation in the mid-Hudson Valley. The HVC describes itself as "a nonprofit in the Mid-Hudson Valley Area that helps match unmet needs with underutilized resources— a way for people in our community to exchange goods and services without US dollars (Hudson Valley Current, 2017). The HVC's stated values and interests include "a sustainable society… economic and social justice, the environment, community participation… and community self reliance" (Hudson Valley Current, 2017). During the first years of operation, HVC participants were almost exclusively small businesses or self-employed individuals. Although the HVC is directed toward local businesses in general, administrators have expressed particular interest in supporting local farmers through avenues such as organizing and participating in community forums on local food security. It is therefore salient to ask whether a local mutual credit system can indeed be a viable marketing and credit tool for farmers. The existence of a mutual credit system in an area with significant agricultural production provides an opportunity to explore this question.

2.2 Complementary Currency and Local Mutual Credit in Context

Complementary currencies are forms of money that users voluntarily agree to accept alongside a national or supranational currency such as the dollar or euro (Kennedy et al., 2012). Complementary currency systems have been initiated as tools for local economic development, as vehicles for community building and social capital creation, and as strategies to advance ideological goals such as localism and degrowth (Kennedy et al, 2012; North, 2005; Collom, 2011, Hess, 2012; Dittmer, 2013).[iii] The creation and use of these systems tends to increase during economic downturns—when the exchange of goods and services in an official currency contracts, complementary currencies provide an additional means of exchange (Stodder, 2009; Kennedy, Lietaer, & Rogers, 2012; Seyfang & Longhurst, 2013a; Naqvi & Southgate, 2013). One type of complementary currency is the mutual credit network. The HVC is an example. Mutual credit networks are associations in which members receive accounts that fluctuate based on the receipt or provision of goods and services. Transaction are typically conducted and monitored through an online software system (Seyfang & Longhurst, 2013a). Each time a transaction occurs in a mutual credit network, the purchaser's account is debited and the seller's account receives an equal and corresponding credit. Member accounts begin at "0.00" and members are typically allowed to spend even when their accounts are below "0.00." This allows exchange to occur even when faced with an immediate shortage of money. Debits do not bear interest and are reciprocated by selling goods and services to any other member for network credit. In this way, credits are backed by trust in participants' willingness and ability to reciprocate "debt" by providing goods or services. Debit limits reduce the risk of so-called free riders accruing large amount of debit without reciprocation (Schraven, 2001; Dittmer, 2013). As previously mentioned, mutual credit networks and similar systems have been promoted as tools to overcome short-term fiscal restraints in local food markets while also building social capital between producers and consumers (Seyfang, 2006; Hess, 2012). In this sense, local mutual credit systems could perform a role similar to CSAs, insomuch as both provide a community-based way to access money prior to the direct provision of a good (Schraven, 2000; Flora & Bregandahl, 2013). Additionally, interpersonal trust is important to the successful continuation of both systems (Schraven, 2000; Flora & Bregandahl, 2013). The role that trust plays in mutual credit systems underscores social motivations such as community inclusion and

social capital creation that are at work in a large number of mutual credit systems (Seyfang & Longhurst, 2013a). Many farmers, particularly those engaged in smaller scale production and direct marketing, share these social motivations (Flora & Bregandahl, 2013; Galt, 2013).

Complementary currencies that specifically seek to advance social goals such as community inclusion and social capital creation are commonly referred to as "community currencies" (Seyfang & Longhurst, 2013a). In their survey of mutual credit networks and related community currency systems, Seyfang and Longhurst (2013a) identified roughly 1,400 mutual credit networks in 14 countries and five continents (Seyfang & Longhurst, 2013a).[iv] Given the proliferation of mutual credit networks and other community currency systems in the United States and throughout the world, community currency advocates and researchers have called for the development of robust community currency assessments (Place & Bindewald, 2013; Seyfang & Longhurst, 2013a). Several informative community currency case studies do already exist (see, for e.g., Aldridge & Patterson, 2002; Jacob et al., 2004; North, 2005; Gomez & Helmsing, 2008). There have also been a few of quantitative community currency analyses (see Collom, 2005; Krohn & Snyder, 2008; Stodder, 2009; Stodder, 2011; Collom, 2011). Some of these studies have found that mutual credit networks and similar complementary currecy systems can provide significant and widespread economic benefits under certain conditions (North, 2005; Gomez & Helmsing, 2008; Stodder, 2009).[v]

These cases notwithstanding, the general consensus in the literature—based primarily on studies in the global North—is that the economic benefit provided by community currencies is limited (e.g. Aldridge & Patterson, 2002; Jacob et al., 2004; North, 2005; Krohn & Snyder, 2008; Naqvi et al., 2013). Complementary currencies have had more success, however, as community-building tools (Dittmer, 2013). While social benefits are often restricted to a discrete community of complementary currency users, community currencies frequently demonstrate the ability to develop interpersonal networks of reciprocity that foster social capital creation (Aldridge & Patterson, 2002; Jacob et al., 2004; North, 2005; Collom, 2008; Collom, 2011; Dittmer, 2013).

However, while several systems succeed at connecting networks of likeminded individuals, these systems and networks have not been able to expand to broader segments of society (North, 2005; Dittmer, 2013). They have also not succeeded at leveraging participants' ideologies toward broader societal or policy reforms (North, 2005; Dittmer, 2013; Seyfang & Longhurst, 2013b). Others maintain that community currency initiatives could thrive with proper institutional support and point to cases such as the Palmas in Brazil, where community currencies have received support from the national government and international organizations in the form of financial aid and institutional training (Kennedy et al., 2012).[vi]

Community currency systems also continue to emerge throughout the United States as civil society initiatives (Gilbert, 2014). These systems often focus on building social connections within communities. At the same time, they also market their services to local business owners who could benefit from a network of like-minded enterprises and individuals that provide an additional opportunity for exchange (Kirschner, 2011; Gilbert, 2014). The HVC is one example of this kind of system. As such systems continue to spread, developing assessment tools becomes increasingly salient (Place & Bindewald, 2013; Seyfang & Longhurst, 2013a).

3. APPLYING SOCIOECONOMIC METRICS TO A MUTUAL CREDIT SYSTEM

3.1 Identifying Appropriate Metrics to Assess Complementary Currencies

Recently, a few different quantitative methods have been advanced as tools for assessing the socioeconomic functioning of community currency systems (Collom, 2012; Greco, 2013). Greco (2013) suggests using a sales performance ratio (SPR) to assess the health of individual accounts as well as the health of a mutual credit system as a whole. SPR is calculated by taking the outstanding debit in an account at the end of a certain period of time and dividing by the average daily sales of that account at the end of the given period of time. This will provide an estimate of the number of days it takes users to clear their debts, that is, to reciprocate debits. A lower number typically indicates a healthy rate of sales; a higher number indicates account stagnation (Greco 2013). The equation for SPR, based on Greco (2013), is shown below.

$$SPR = \frac{D}{c}$$

where D is outstanding debit at the end of a given period and c is average daily credits during that same period.

A variety of metrics have also been suggested to measure the social impact of complementary currency credit systems (Collom, 2012). For example, the number of reciprocated exchanges in which a member engages can indicate the creation of social capital for that member, that is, the ability to call upon the assistance of others within one's social circle (Collom, 2012). A broader measure of social capital that can be applied to mutual credit networks is ego network density (Collom 2012). Ego network density measures the extent to which one's trading partners also trade with each other (Collom, 2012). Networks with a higher percentage of density usually indicate a higher propensity for social capital creation (Collom, 2012).

These metrics provide the opportunity for quantitative assessments regarding the extent to which mutual credit networks can be considered viable sources of community credit and social capital creation (Greco, 2013; Collom, 2012). Such analysis can provide a way to evaluate the general goals that community currency practitioners seek (Greco, 2013; Collom, 2012). If an understanding of credit flow and network linkage development can be attained, it may also help guide community currency users and administrators as they seek to leverage their institutional capacity to impact food systems or other socioeconomic structures. With this in mind, the methods and analysis presented in the following sections utilize metrics based on those described above to evaluate a local mutual credit network and its relationship to small farmers.

3.2 Applying Socioeconomic Metrics to the Hudson Valley Current: Discussion of Methodologies

In order to gauge the viability of the HVC as a socioeconomic tool for farmers, I analyze the system's complete transactional records from March 1, 2014, to February 28, 2015, and measure transaction performance ratios and ego-network densities for every member. These metrics are discussed below. Some contextualization is provided based on participant observation.

3.2.1 Transaction Performance Ratios

Transaction performance ratios in a mutual credit network reveal the amount of time, on average, that one can expect balances to be fully reciprocated, that is, brought back to zero. This includes the amount of time taken to fully reciprocate positive balances as well as negative balances. Outstanding negative balances have long been a concern for mutual credit administrators (Schraven 2001; Dittmer, 2013). However, negative balances are not inherently undesirable. In fact, since credits are created by a user's willingness to take on a debit, negative balances are part of a well-functioning mutual credit system, so long as debits tend to be reciprocated within a certain length of time (Greco, 2013). One way to measure the rate of negative balance reciprocation is Greco's (2013) sales performance ratio, discussed above. A sales performance ratio (SPR) can be a useful metric to gauge debit reciprocation in a mutual credit system, that is, the rate at which participants with negative accounts reciprocate their expenditures by selling goods or services. However, SPR does not measure the rate at which positive accounts are reciprocated, that is, brought back down to zero by purchasing goods or services. This is an important point because the purpose of a mutual credit network is to provide a unit of account that facilitates exchange, not to serve as a store of value over an extended period of time (Greco, 2013). In other words, mutual credit networks are not intended to act as long-term savings mechanisms.

When users have outstanding positive accounts that have not been reciprocated by purchasing goods or services through the system, this effectively takes credits out of circulation, insomuch as the these credits cannot be received by others who may be looking to earn them. Of course, high positive balances indicate that value has been provided to other network participants in the form of goods or services. However, because mutual credit networks are transactional systems (i.e. designed to facilitate exchange rather than act as savings mechanisms), it is important that users are able to reciprocate what they earn, as well as what they spend.

If a large proportion of credits in a mutual credit system is unreciprocated, or is reciprocated slowly, this can indicate the need for more diverse goods or services, or more highly demanded goods and services, within the system.

System administrators can address this problem by brokering trades and recruiting new members (Greco, 2013). However, even when highly demanded goods are available within a community currency system, stagnating pools of positive credits can build and cause the system as a whole to be less viable as a transactional network (see, for e.g., Krohn & Snyder, 2008).

It is therefore useful to measure the transaction reciprocation ratios of all accounts for a given period of time, regardless of whether they have a positive or negative balance. I develop a simple equation (shown below) based on the SPR, except that accounts with an outstanding positive balance are divided by average daily purchases rather than sales. The resulting figure can be referred to as a transaction performance ratio, or TPR. Tracking TPRs can alert administrators to stagnating pools or credit, regardless of whether stagnation is caused by debits or credits. To the best of my knowledge, a measurement such as TPR has yet to been used in the community currency literature. TPRs were calculated for each active HVC participant using the following equation:

$$TPR = \begin{cases} \frac{B}{d}\ if\ B\ > 0, \\ \frac{B}{c} if\ B\ < 0, \\ 0\ otherwise \end{cases}$$

where B is each participant's balance at end of a given period, d is average daily debits during the period, and c is average daily credits during the period.

Metrics such as SPR or TPR have yet to be widely used in community currency assessment. There is therefore no standard target reciprocation rate for mutual credit systems. However, based on previous research and experience with such systems, Greco (2013) suggests a target SPR of 100 days. This is provided with the caveats that ideal SPRs will likely vary from system to system, and that it may be wise for newer systems to strive for a lower member SPRs as they seek to establish healthy patterns of exchange (Greco, 2013). I therefore use 90 days as the target TPR for the HVC system participants. I used the 365-day period from March 1, 2014 to February 28, 2015 to calculate each member's TPR since this was the first full fiscal year of the HVC as a New York State nonprofit corporation.[vii]

3.2.2 Ego-Network Densities

In addition to TPRs, sociological metrics such as reciprocated relationships and ego-network densities can be used to understand the functioning of a mutual credit network. Sociological metrics are useful for two primary reasons. First, the development of social networks and social capital is one goal of many complementary currency systems, including the HVC (Seyfang & Longhurst, 2013a). Second, interpersonal linkages and social capital within a mutual credit network can facilitate exchange and encourage reciprocity (Schraven, 2001; Collom, 2012).

One sociological metric that has been applied to complementary currency systems is reciprocated relationships (Collom, 2008; Collom, 2012). A reciprocated relationship exists when a user has provided at least one good or service to another user and has also received at least one good or service from that same user. Although reciprocated relationships can be a useful indication of bilateral social capital, community credit networks are not designed to be solely bilateral exchange networks; a member can reciprocate debits by selling a good or service to any other member in the network, not only the member with whom the initial transaction took place (Collom, 2012). A broader measure of social capital in mutual credit systems, ego-network density, was therefore also calculated for the HVC system (Collom, 2012).

Ego-network density measures the extent to which one's trading partners also trade with each other (Collom, 2012). In social network theory, an ego is an individual that is the subject of inquiry (Collom, 2012). Applied to community currencies, an ego is the particular participant whose activities are being analyzed. Other users with whom a particular mutual credit participant, or ego, has traded constitute that participant's network (Collom, 2012). If every member of a participant's ego-network has traded with every other member of the ego-network, ego network density is 1.0; if half of all possible trades within an ego-network have occurred, ego network density is 0.5 (Collom, 2012). The network density of every active HVC participant was calculated by taking the total

number of users in each member's network who had also traded with each other (regardless of direction) and dividing by the total possible combinations of bilateral trading relationships within that network. This can be expressed by the following:

$$END = \frac{a_i}{\binom{n_i}{2}} = \frac{2!\,(n_i - 2)!\ \times\ a_i}{n_i!} = 2a_i\ \frac{2!\,(n_i - 2)!}{n_i!} = \frac{2a_i}{n_i \times\ (n_i - 1)}$$

where ai is the number of bilateral relationships for member i, and ni is the total number of other users in each member's network.

Networks with a higher density usually indicate a higher propensity for social capital creation (Collom, 2008). Denser networks also tend to transfer system information, such as the existence of potential trades, more quickly than less dense networks (Collom, 2012). Larger networks tend to have smaller densities since it is more difficult for larger numbers of people to all be connected (Collom, 2012). The network density of every active HVC participant was calculated by taking the total number of users in each member's network who had also traded with each other (regardless of direction) and dividing by the total possible combinations of bilateral trading relationships within that network. Ego-network density may be of particular interest when one considers the participation of farmers in the HVC network. Case studies of farmers who use CSAs as strategies for direct marketing and community-sourced credit have found that such farmers tend to highly value social linkages and reciprocal relationships (Flora & Bregendahl, 2012; Galt, 2013). In some cases, the existence of social linkages and reciprocal relationships incentivizes continued participation in CSAs (at least in the short-run) even when economic advantages are minimal (Flora & Bregendahl, 2012; Galt, 2013).[viii]

To calculate these metrics, complete transactional data was collected from the HVC database. A spreadsheet matrix containing every user and their complete balance history, as well as every transaction from March 1, 2014 to February 28, 2015, was then created and used for analysis. Based on this information, I tabulated the number of system participants and also calculated transaction reciprocation ratios as well as ego-network densities.

3.3 Results

The transaction reciprocation ratios and ego-network densities of HVC participants reveal that although the system has been a significant source of mutual credit and social linkage creation for a small number of users, farmers have not similarly benefited from system participation. An overview of HVC transactions is presented below, followed by more detailed discussions of the transaction reciprocation ratios and ego-network densities of HVC users and what these metrics reveal about the functioning of the mutual credit network.

3.3.1 Overview of Current Use

A total of 38,800 credits were exchanged through the HVC system from March 1, 2014 to February 28, 2015. System credits are called "Currents" and one Current is equal to one US dollar. During the period of analysis, the system had 88 participants, that is, registered users who had made at least one transaction. Six of these participants were farmers or farm associations. While a substantial minority of system participants (27 out of 88) made only one trade during the period of analysis, a number of members did make considerable use of the Current. Five users each spent and earned over 4,000 Currents. None of these users are farmers. Six farms and farm associations, four of which are small or mid-sized produce farms, earned and spent a combined total of 1,540 Currents. Farms earned 1,230 Currents and spent 310 Currents. Of these, a little more than half of Currents earned were for produce or some other product available at an on-farm market; the remainder was earned as fees or donations to a farm association. Items purchased by local farms using Currents include lumber and advertising space in a local publication.

3.3.2 Transaction Performance Ratios

The flow of Currents among farmers and the system as a whole can be further analyzed by examining TPRs.[ix] As shown in Figures 1 and 2, a larger proportion of farmers have stagnating balances than the proportion of all users

with stagnating balances. A stagnating balance indicates that a user either spent or earned Currents but never made a reciprocal transaction. Users with a TPR greater than 365 days have made at least one reciprocal transaction but based on their transaction histories are not expected to fully reciprocate their balances within one year.

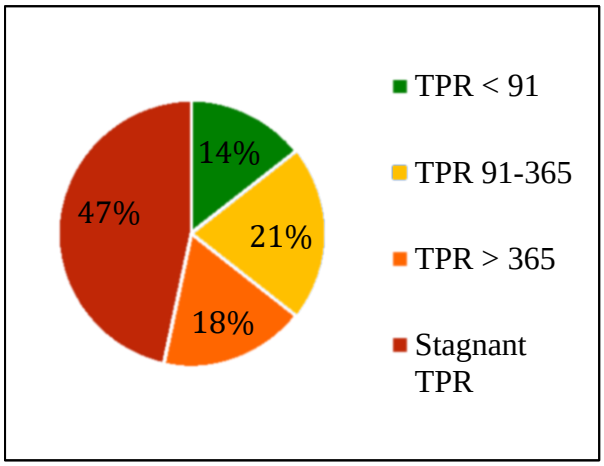

Figure 1: TPRs by proportion of all participants. N = 88

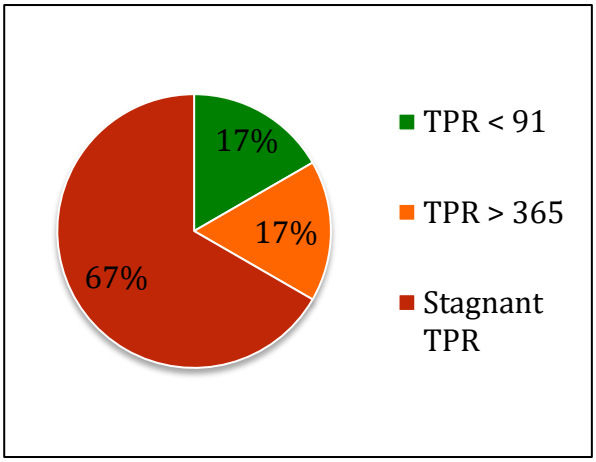

Figure 2: TPRs by proportion of all participant farmers. n = 6. Note: No farmer had a TPR between 91 and 365

Users with a TPR between 91 and 365 can be expected to fully reciprocate their balances between three months to a year. Both farmers and the HVC system as a whole have a low number of members with healthy TPRs, that is, a low number of members who can be expected to reciprocate outstanding balances in less than 91 days (based on the 90 days or less target mentioned in section 3.2.1). Although a low number of members have healthy TPRs, these users are responsible for a large proportion overall Currents exchanged. A substantially different picture is therefore seen when looking at member TPRs as a proportion of overall debits and credits in the system (Fig. 3).

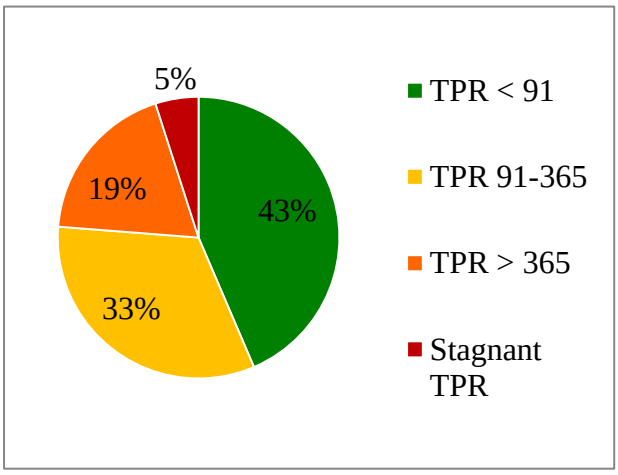

Figure 3: TPRs by proportion of total system credits and debits

Considering member TPRs based on the proportion of total credits and debits for which they are responsible provides an overall picture of credit and debit reciprocation and can help assess the health a mutual credit network. While only 14% of users with at least one transaction have healthy TPRs, these users account for 43% of the total sales and purchases made through the Current system. At the same time, while 47% of users with at least one transaction have never made a reciprocal transaction through the system, their combined outstanding balances are only 5% of the system's total sales and purchases. Additionally, about one third of all purchases and sales are associated with a TPR greater than the 90-day maximum threshold for a healthy rate, but their reciprocation can be expected within the next year. A fifth of total purchases and sales are not completely stagnant but will nevertheless take more than one year to reciprocate based on previous exchange performance.

It is not uncommon in mutual credit networks for some proportion of exchanges to remain unreciprocated (Greco, 2013). Greco (2013) argues that a small proportion of unreciprocated credits should not cause too much concern, as long as most credits are being reciprocated at a healthy rate. Ideal proportions are likely to vary from system to system and be determined by experience (Greco, 2013). As such measurements have yet to be widely applied in mutual credit assessments, it is difficult say for certain how the HVC as a whole is performing. Given that some unreciprocated transactions are to be expected, the 5% of transactions (in terms of value) that are unreciprocated

does not appear to be cause for alarm.[x] At the same time, only slightly more than two-fifths of credits can be expected to be reciprocated in 90 days or less. System administrators will likely want to improve this figure, especially while the system is still in early stages of development.

Farmer TPRs as a proportion of that group's total credit and debit are less healthy than the HVC as a whole (Fig. 4). A large majority, 64%, of all farmer or farm association exchanges (in terms of value) are associated with stagnant accounts. However, these are entirely positive outstanding balances. This could indicate that the HVC does work to some extent as a marketing platform for farmers (i.e. facilitating revenue generation), but is less suited as a micro-credit or purchasing platform as there are not enough goods or services available through the system that farmers are willing to purchase using the Current's debit mechanism, or farmers are simply unaware of their existence. At the same time, 30% of all farmer or farm association credits and debits are associated with an account that has an outstanding negative balance and a TPR greater than 365. It is possible that this farm does not use growing methods that are desirable to system users, or there is simply not enough demand within the system to support healthy transaction rates for more than two or three farms.

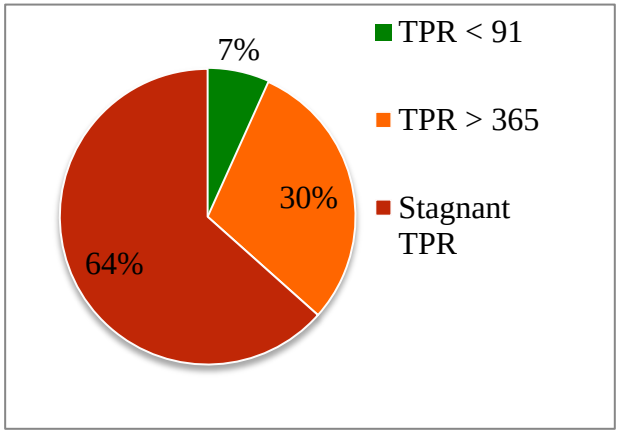

Figure 4: TPRs by Proportion of Farmers' Total Credits and Debits.

3.3.3 Ego-Network Densities

One factor that can enhance transactional activity is social capital; social capital potential in multi-lateral transaction platforms like the HVC can be measured by ego-network densities (Collom, 2012). The average ego-network density in the HVC during the year analyzed was 0.32. Farmers and farm associations had an average density of 0.6.

Although this measure has not been widely used in other community credit systems, Collom (2012) reports the average ego-network density of a service credit system in Oregon to be 0.14 over a four-and-a-half year period. It is not uncommon, however, for network densities to be higher in early stages of network development, as users tend to connect first to those with whom they have already have some connection or are similar to in some way (Collom, 2008). If a credit network succeeds as a platform for social capital creation, this trend can be reversed. For example, the average ego-network density in one service credit system studied by Collom (2008) actually increased as the number of active users increased. In general, however, as the number of active users in a system increases, it becomes increasingly less likely that all members will have interacted with each other (Collom, 2008; 2012).

This phenomenon can already be observed in some parts of the Current network. While farmers as a group have relatively dense networks, their average network size is only 3.33. Therefore, while this may indicate a propensity for social capital creation within farmer networks, the extent of any generated social capital can be expected to be limited.

Ego-network density is quite different for the top five Current users in terms of overall number of credits and debits exchanged. This group has 20 exchange partners on average and an average ego-network density of 0.22. The high number of exchange partners that these users have indicates that they are not cliquish; cliquishness can be a barrier to expanding trade in a mutual credit network (Aldridge & Patterson, 2002). Also, while this group's lower average network density is not surprising given group members' greater number of connections to other members, their density still appears to be relatively high given the number of connections that exist, at least compared to the few limited examples that exist elsewhere in the community credit assessment literature (Collom, 2008; 2012).

One important aspect to consider regarding these social metrics is how they may change moving forward. Community credit networks, and social networks in general, tend to become less dense as they grow (Collom, 2008; Collom, 2012). However, as previously mentioned, one service credit system studied by Collom (2008) demonstrated a positive correlation between network size and ego-network density, indicating a strong capacity for

social capital creation between users. If this is a factor that administrators and potential funders or social investors of mutual credit systems like the HVC care about, then the metrics presented here can be used as a baseline to gauge and direct future endeavors as an organization. The application of the socioeconomic metrics presented above will be briefly discussed in the following section.

4. DISCUSSION, RECOMMENDATIONS, AND CONCLUSION

4.1 Discussion

The socioeconomic metrics discussed and analyzed above indicate that the HVC have not been used as a significant means of exchange for local farmers. At the same time, these metrics also suggest that the HVC, as a whole, can be a viable source of mutual credit and social linkage creation for some users, at least in the short-run. This is relevant to local farmers if existing benefits of participation can be maintained and extended to include local farmers in a significant way.

The owners of one farm that had signed up to use the HVC indicated interest in using Currents as a source of micro-credit to access goods and services such as seeds, electrical or plumbing work, and farmers' market space. They also expressed a desire to use the Current as a marketing platform by accepting Currents as payment for supplying local restaurants and stores.

There are indeed some goods and services available through the Current network that may be useful to farmers. These include lumber, advertisements, farmers' market space, plumbing, and electric services. There are also potential business customers such as a local café. During the period of study, however, the farm mentioned above had made only a few small transactions using Currents. Farmers cited an information gap as one factor limiting their Current transactions. This included a lack of clarity about how the Current works, as well as uncertainty about how to identify other Current members with whom to make exchanges. An information gap may also partially explain the poor transaction performance ratios of farmers during the period of study. Although farmers tended to have relatively high network densities, which can facilitate the exchange of information, the average size of farmer networks included only three other members. This is compared to the five most active Current members, who each spent and earned over 4,000 Currents and had about 20 trading partners on average.

Below is one basic recommendation for administrators of a mutual credit system such as the HVC that, if implemented, might help to focus and leverage any marketing or credit benefits to local farmers, with the goal of expanding those benefits in the long-run. This is followed by a recommendation for future community currency research and application of socioeconomic metrics.

4.2 Recommendations for Research and Application

Based on the analysis of transaction performance ratios in the HVC system, it is clear that farmers have generally not used the HVC as a means of exchange. However, as previously mentioned, certain goods and services that may be useful to farmers are available for purchase with Currents, and potential buyers also exist within the network. Administrators can work to identify barriers to higher trade volumes, but it seems unlikely, based on the results discussed above, that the HVC could presently facilitate vibrant exchanges for more than two or three farmers.

It may therefore be beneficial to identify two or three farmers, or farm associations, that are particularly interested in the Current and willing to act as "innovation partners" with the organization. A growing number of farms in this region are already engaged in alternative marketing activities such as CSAs (Glynwood, 2010). The Current could further facilitate community cash flow by encouraging small business owners and freelancers to purchase seasonal farm shares with Currents. Farms, in turn, could spend their Current credits on services such as professional marketing and bookkeeping, or perhaps to pay farmers' market fees. As more transactional relationships are made using community credit, this could also facilitate expanded social capital networks for farmers. However, a greater variety of physical goods, including seeds and farm tools, will be necessary if famers are to more fully benefit from participating in the HVC.

Such efforts can be guided and informed by continued research and application of basic socioeconomic metrics such as those used in this paper. This can allow researchers, administrators, and potential funders to establish baselines, gauge success, and set measurably achievable goals for mutual credit networks and similar systems.

One potential direction for future research is to employ more advanced network analysis (Frankova et al. 2014). Such analyses can provide useful additional insights regarding the flow of credits and social capital creation. More basic metrics, however, might be more wieldy from an administrative perspective, particularly for systems managed by community-based non-profit organizations.

Of course, any set of metrics should not be used as absolute standards, and qualitative assessment will be necessary to contextualize and effectively operationalize quantitative data. Future studies should include extensive qualitative assessment in combination with socioeconomic metrics. Nevertheless, the metrics used above can help system administrators develop quantifiable assessments that are congruent with the values and goals of reciprocity and social capital creation, and that can be efficiently communicated to policy makers and potential funders in the private and public sectors.[xi]

Similarly, utilizing socioeconomic metrics such as transaction reciprocation ratios and ego-network densities may help mutual credit system administrators communicate the goals and activities of mutual credit networks to active and potential participants. This would be useful since potential participants may be unsure how to engage the network given that mutual credit networks have generally had limited circulation and are therefore not widely familiar transactional tools.

5. CONCLUSION

While the Hudson Valley Current has not been used as a significant means of exchange for farmers and others, the transactional analysis and metrics used in this paper provide some evidence that the Hudson Valley Current, as a whole, can be a generally viable source of mutual credit and social linkage creation, at least in the short-run.

The transactional analysis used in this paper provides a set of basic social and economic metrics to help analyze mutual credit networks and other community currency systems. This is significant given the fact that complementary currency systems are often promoted as both social and economic tools for local and regional communities. The continued application of these metrics by mutual credit administrators, combined with purposeful partnerships with local farmers, might allow any benefits of system participation to be maintained and extended to include farmers—and others—in a significant way.

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ENDNOTES

[i] *I worked as a research associate for the HVC approximately 18 months from 2014-2016.*

[ii] *The Hudson Valley stretches approximately 150 miles north to south along the Hudson River between the state capital of Albany to New York City, with the Catskill Mountains to the west and Taconic Hills to the east.*

[iii] *See Hess (2012) for a localist perspective on complementary currencies. See Dittmer (2013) for a degrowthist perspective on complementary currencies.*

[iv] *In addition to community currencies that operate as mutual credit systems, Seyfang and Longhurst (2013a) identified three related systems being used as community currencies: service credits, locally printed currencies, and barter market credits.*

[v] *For example, during Argentina's financial crisis in the late 20th century, barter credits were adopted in thousands of barter market locations, peaking at about 4,500 markets with an estimated 2.5 million participants in 2002 (North, 2005; Gomez & Helmsing, 2008). A 2004 survey of over 360 Argentinian barter market participants found*

that about two-thirds of surveyed participants covered at least half of their household expenses with barter credits (Gomez & Helmsing, 2008). Additionally, Stodder (2009) compared Swiss GDP to the velocity of the Swiss Wirtschaftstring (Wir) mutual credit system from the mid-1900s to early 2000s and found a strong countercyclical effect; Wir velocity was higher in years of recession and lower in years of stronger GDP growth. This suggests that Wir users rely more heavily on the interest-free mutual credit of the Wir system when it is more difficult to access Swiss francs (Stodder, 2009).

[vi] *It should be noted that community banks and local currencies such as Palmas function differently than mutual credit networks like the HVC. A discussion on the structural differences and outcomes achieved by various community currency types is beyond the scope of this paper, but see Dittmer (2013) and Michel and Hudon (2015).*

[vii] *TPRs of members who joined the system after March 1, 2015, were calculated based on number of days in the system.*

[viii] *Although this paper does not address the motivations of farmers or any other HVC participants, when such knowledge is available to system administrators, metrics such as reciprocations and network densities can be used to understand how well a system tends to meet the social goals of users.*

[ix] *Because only one fiscal year had occurred at the time of data collection, the TPRs presented here are baseline. If various systems' baselines are analyzed, comparisons can be made to determine if and how initial TPR rates predict future performance.*

[x] *Local currency stagnation became an issue in Ithaca, NY, when one business earned over $30,000 worth of local currency that it was unable to spend; this represented about 30% of the total local currency in circulation (Krohn & Snyder, 2008). There is, however, little data in the complementary currency literature regarding cases such as this.*

[xi] *For research on community currency users' motivations and values, see Collom (2011) and Smith and Lewis (2016).*

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IMPLEMENTATION OF MODERN BARTER EXCHANGE SYSTEM IN BULGARIA: FROM AN OBJECTIVE NECESSITY TO AN OBJECTIVE PERFORMANCE

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ABSTRACT

This paper presents the results from an expert survey on the possibility of a modern barter exchange system (MBES) to be implemented in Bulgaria. MBES is shown as an abstract theoretical construction which helps uncover the reasons why such schemes are successful in a number of countries with different social and cultural characteristics, while in Bulgaria this phenomenon is not popular. Sadly, the results show that there is no readiness for participation in MBES. It is seen mainly as a social structure but the expectations are that it would work as a business entity. The research has found that the idea behind MBES is inapplicable under certain conditions, such as those in Bulgaria with its typical characteristics of today. Even though the MBES models are usually successful in other countries, this is probably due to the fact that those are mostly socially mature (homogenous) societies in countries with a well-developed economic infrastructure. The survey is framed by the logic of the questionaries' boundaries and the interviewed actors.

KEYWORDS

Bulgaria, Monetary Theory, Exchange, Barter System, Barter Money

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1. A THEORETICAL DISCOURSE ON A MODERN BARTER EXCHANGE SYSTEM IN BULGARIA

The current exposition is a logical continuation of research concluding that the nature of modern-day barter has a monetary basis (Toncheva 2014). In this research every exchange is interpreted as containing a monetary relation due to the fact that it involves a transfer of value. Even if the exchange is not necessarily reciprocal or simultaneous, the transfer (exchange) of value in itself creates a relationship that has a monetary (value-equivalent) feature. These arguments lead to the conclusion that our understanding of barter should not be limited to constituting only an exchange of one product for another in kind but should be viewed as a process identical with exchange. It is quite possible that the separation of barter as a distinct form of exchange has emerged only after the use of a more universal product was established, called money [not the other way around, as believed by the advocates of the historical approach (Harsev 1991)]. Since exchange contains the monetary feature in its true essence, it is not logical for the barter and the money to be distinguished so strictly. Both phenomena are based on the exchange of values. In the case of the barter, the exchange does not involve the use of sovereign statutory medium called money[i], while in the other case the value on the one side of the transaction is taken by a participant whose value is protected by legal provisions that guarantee that value for a prolonged period of time[ii].

The dominant conclusion is that, on the one hand, money is that phenomenon which integrates both things: 1) the equivalent established by the consent of the social group where it is used[iii] and 2) the concrete form of this equivalent which allows for the exchange to take place. Often, the form is called a medium of exchange or a cash instrument. The two emerge simultaneously and form a complex which it is logical to call monetary. Therefore, money can be defined as short for the monetary complex servicing a given social group in the process of exchange of the products of labour. Once having emerged in its social environment, this complex incessantly falls apart and forms anew. The next phase of its development is the emergence of new varieties in case no limitations are imposed, most often external ones. This means that the value equivalent is preserved for a relatively longer period of time, and the form becomes more varied. This is why historically there have been periods of multi-currency exchange – many currency forms, mainly represented by coins. The periods of the gold and the gold dollar standards are a good illustration of this phenomenon. In their value component the currencies are backed by a selected object without the need for the object itself to circulate in service of the exchange. What circulates is the representations of the object that put in effect the value. All currently known cash instruments fit this definition. In periods of crisis when the economic activity reaches a critical disparity with its monetary value representation, the monetary complex is redefined accordingly out of necessity by establishing new units of account. Then the monetary complex goes again into its formation phase[iv].

There is a modern tendency to form private groups of exchange that "emit" their own means of payment and from a certain point of view it can be said that this is a "forgery" of the legal tender because it has not been emitted by the central bank or government. But since it does not claim to be "general" neither takes the form of a legal means of payment it is not prosecuted by law. Nevertheless, at the level it circulates it services the exchange well enough and through the exchange it also provides for the related social, cultural, and economic interests that are otherwise blocked by the lack of free access to cash. Such groups that are united by their interest (mostly in exchange), freely negotiate the rules among themselves, and use a means of accounting for the values they exchange are called barter exchange systems. The designation "barter" comes from the main purpose of these groups: the exchange. Also, "barter" is a synonym of that exchange which takes place without the necessary participation of a specifically indicated monetary instrument, or the so called legal tender. We can conclude that, in essence, barter and exchange both are one and the same thing. Only when on the one side of the transaction we have an object (record) which is accepted as a general equivalent[v] do we have a monetary exchange and because of that it is marked off as a separate kind of exchange – a non-cash transaction. This claim raises another issue on which normally there is a general agreement: the evolutionary essence of money. There is no irrevocable proof of whether money has evolved from the barter or it has ousted the barter institutionally. Without denying all the known advantages of the monetary economy, it is still good to question the idea that it has developed chaotically. In this sense, the historical approach is useful but also limiting at the same time, while the holistic approach allows for a relatively more open understanding, which is in turn a premise for evolution (development).

It is the above arguments that provoked the synthesis and use of the terms "barter system" and "barter money". It is not because they are different in essence from the exchange and the money in general but because set against the

background of the modern-day centralization oriented organization of economy[vi] there are small cooperating economic units that spring up and led by their natural needs and interests restore basic fundamental social and economic relations by creating new monetary complexes. These complexes vary in kind and appear in different forms depending on the social and cultural environment. They take up different names but in essence they can be presented as monetary complexes. Therefore, it is logical to state that "barter money" is also a type of monetary complex but at this stage to disseminate this would be too radical and would probably not receive broad support. This is why we restrict ourselves to using the terms "barter system" and "barter money", which currently exist only in their abstraction. Even though we have chosen a theoretical approach to the definition of the phenomena, this does not limit their practical implementation and usage.

2. IMPLEMENTATION OF A MODERN BARTER EXCHANGE SYSTEM IN BULGARIA

The modern barter exchange systems (MBES) usually start at a local level and have a limited implementation as a substitute for the official currency. They combine the possibilities of exchange within a small group of participants at first but under certain conditions of their design and particular social conditions they have the potential to evolve into a means of payment accepted by a wider circle of economic agents.

In the practice around the world we can find many examples of voluntarily organized, freely negotiated, community-based, non-cash exchange systems herein covered by the common term "modern barter exchange system".

Some comments on this topic can also be observed in Bulgaria. A similar system was organized in 2010, and later (in 2014) it was transformed into a closed barter club. Due to reasons of confidentiality, the information about it is not available. There is also information about the establishment of another two systems but they were not successful. The first one did not start operating, the second one stopped working because it didn't receive enough support.

The overall lack of information on barter exchange systems in Bulgaria (and at the same time, their accelerated development in other countries) has inspired the scientific research project we are implementing, including the related expert survey.

Goals

1. To establish the conditions under which the modern barter exchange system would function successfully in Bulgaria;

2. To assess the possibilities of implementing this system in Bulgaria.

Expected results

1. Identifying the attitude of Bulgarian researchers, practitioners, banking experts, state officials and students regarding the implementation of modern barter exchange systems in Bulgaria.

2. Making an overview of the opinions of the respondents regarding the implementation of MBES in Bulgaria.

3. Disseminating the idea of the creation of MBES among leading banking experts, state officials, entrepreneurs and researchers.

Specific questions to be addressed

1. To what extent is MBES accepted in Bulgaria?

2. What are the attitudes towards participation in MBES?

3. What is the idea of the preferred MBES design for the respective professional groups?

4. What value system corresponds to the preferred MBS model in Bulgaria?

Structure of the questionnaire

Part A. Profile of the experts

Part B. Opinion overview of the implementation of MBES in Bulgaria

B1. Level of acceptance of MBES

B2. Attitude toward participation in MBES, including:

1. Reasons for supporting and participating in MBES

2. Reasons for rejecting the possibility for the respondents to support and participate in a private modern system of exchange without an official means of payment issued by the central bank.

B3. Vision of the MBES design.

The idea is ascertained through a survey of the conditions that would satisfy the participants. Those are the desired characteristics of a probable model that would be negotiated.

B4. Prerequisite values for the creation of MBES.

The focus is on the experience of the respondents as a basis for an assessment of the leading values in the modern Bulgarian society that influence the creation and evolution of MBES. There are two aspects of this assessment: current and desired condition. This group of questions aims at providing guidelines for modeling a possible future MSEB.

3. SURVEY METHODOLOGY

This is an expert survey, not a sociological one. The choice was made based mainly on the fact that the phenomenon at hand is not popular among the Bulgarian economic agents. Therefore, the formulation of the questions is an important part of the survey (Nikova 2011). Our ambition was to provide a description of the advantages, disadvantages and the characteristics of systems that are working successfully in other counties. All questions are weighed equally, which makes the survey relatively objective.

The expert survey differs from typical sociological survey mainly because it gives relatively reliable results by interviewing considerably small number of respondents. The results are accepted as valid if at least 10 affirmed experts are interviewed. On contrary, the typical "sociological" survey needs much more respondents and is more risky. Sociological surveys cost a lot, which was beyond the project`s scale.

We have invited leading experts in the respective fields who have proven that they are capable of making and implementing policies; of disseminating and organizing changes. Each of them has experience in managing some structure within the state administration and most have managed their own businesses. Even though each expert has been invited personally, the survey is anonymous.

The questionnaire consists of two parts.

The first part (Part A) is methodologically necessary. It contains a total of 10 questions with 18 components. It assesses the level of expertise of the respondents; their professional qualities: education, experience, level of responsibility, and engagement with the issues related to a possible future monetary system. The distinction in terms of sex is a usual practice. It allows for making conclusions about the distribution of opinions from a behavioral point of view (Ariely 2012, Hofstede 2001, Minkov 2007, Franova 2015) .

Question No. 9 aims at providing information on whether the respondents are situated in circumstances which are most commonly defined as reasons for the creation of an alternative currency (barter money) and for participation in a private exchange system (barter exchange system). These are mainly lack of cash and high level of mutual indebtedness. The answers to this question will be examined together with those related to the support of MBES to see if there is a significant relation between them.

The second part (Part B) is the substantial part of the research. It is made up of four groups of questions intended to survey the following:

1. To what extent is the idea of the MBES phenomenon accepted in Bulgaria? (B1: question No. 11 with 16 components).

2. What is the assessment of a predefined set of advantages and disadvantages of MBES? (B2: question No. 12 with 12 components offering ideas of the expected advantages of MBES, and question No. 14 with 30 components offering ideas of the expected disadvantages). Questions No. 13 and 15 are open-ended and are aimed at obtaining additional information about advantages and disadvantages that were not taken into account when making the questionnaire.

3. What would be the key components of a successful system in Bulgaria? This is assessed in Part B3 through questions No. 16 with 37 components and No. 17 – an open-ended question. The components are suggestions of existing characteristics of various models implemented in other countries. They have been classified and proposed in the questionnaire in order to assess to what extent the social and cultural traditions in Bulgaria support or reject each of them.

4. What value environment is prerequisite for the success of MBES? (B4 containing two questions No. 18 & 19, each having 30 components). The two questions in this section have the same components but differ in that the first surveys the opinion of the respondent regarding their assessment of the social and cultural environment in its currents state, and the second – in a desired state. The respondents have been asked to assign grades from 1 to 10 to the suggestions, 1 being the lowest level of importance, and 10 – the highest. The choice of this scale allows for an estimation of averages for each indicator and thus for making a classification of the indicators. For example, there is no highest value. A whole group of indicators are considered to be highly desirable, one of them being "To establish and develop variety as a whole" - 8.5. "To acquire scientific knowledge" and "To communicate" have been rated the same. On the other hand, "To manipulate" has the lowest rating – 4,4 (See details in Tables 4 and 5)

The questions in this part are going to be used for designing a possible new barter exchange system. The results from these questions show, on the one hand, which values are the most important ones, and, on the other hand, where the biggest potential for change is as per the difference between the current and the desired state of the environment.

The structure of the questionnaire allows for a repetition of the survey in particular professional groups by adding questions related to their specific issues. There is a will for that and the questionnaire will be made available to branch organizations such as the Association of Municipalities in Bulgaria, the Bulgarian Industrial Association, the Bulgarian Association of Business Clusters, trade unions, student councils, etc.

The data have been processed with the specialized program product SPSS which allows for a quick and easy verification and interpretation of the given hypotheses. The data are mostly non-parametrical and even where they are in figures, due to the small number of responses we have used non-parametrical methods.

3.1 Expert survey procedure

1. Formulating hypotheses to answer the following: what could be the reasons for the lack of MBES in Bulgaria, and what are the conditions under which a MBES would be successful?

2. Formulating survey questions based on the hypotheses.

3. Making a questionnaire.

4. Choosing respondents. Choice criteria:

a) To guarantee a formally defined level of expertise and financial competence we have set the requirement for at least a Bachelor's Degree.

b) We have sought out respondents at expert or at least middle management position, that is, people who are capable of taking managerial decisions related to certain policies. Our assumption is that it is people with exactly

such social and professional qualities who can introduce and impose changes and new models of behavior in a relatively natural way, without using special PR campaigns but solely from the position of their personal authority.[vii] The responding experts enjoy public confidence and we assume that if they support such an idea, a significant part of the society will follow them.

c) The better parts of the respondents have at least once taken up a high-level administrative post in a state or another public organization. In this way they have chosen in what position to give their answers.

d) The choice of prominent specialists also guarantees a middle or higher social and material status.

e) Our goal was to obtain a relatively even distribution in terms of sex, but we hardly achieved 34%.

5. Holding the interview.

a) Making contacts.

b) Presenting the project.

c) Discussing the benefits.

d) Sending and filling out the questionnaire.

6. Processing of the data for SPSS.

7. Developing statistical hypotheses for verification.

8. Verifying of the hypotheses.

9. Analyzing the results.

10. Conclusions and formulating topics of discussion.

3.2 Hypotheses

MBES practice has been evolving and covering an ever bigger part of the geographical map of Europe, which provides an objective reason for the need for making an experiment also in Bulgaria. The current survey seeks to establish the objective possibility for making this experiment and has been provoked by the main question, namely: **What are the reasons that make modern barter exchange systems be successful in a number of countries with different social and cultural characteristics while in Bulgaria this phenomenon is still not popular?** To answer this question many assumptions there have been. One part of those is based on connections and dependencies derived from the world scientific fund and academic theorems, another part is based on experience verified empirically by various researchers, and a third part, though small, is based on intuitive assumptions resulting from reflections on the topic.

The following hypotheses have been checked:

1. The respondents with better education, both men and women, express different level of support for setting-up and operating of MBES in Bulgaria. This hypothesis is confirmed by the results but without statistical significance.

2. Those who are ready to participate should rather be the respondents with better education and those who have stated that they are better informed about the MBES phenomenon and barter money. This hypothesis has not been confirmed.

3. Those who are better informed about the topic of the research and have better education should rate the advantages of MBES higher. This hypothesis has been confirmed but again without the necessary level of significance. Its validity remains true only of the group of respondents.

3.3 Overview of the results of the expert survey

1. To establish the level of acceptance of MBES in Bulgaria we have analyzed the answers to question No. 11 with 16 components. The separate sub-questions follow the logical framework of the survey and consistently check if and how well the respondents know the phenomena of: barter, money, exchange, private cash, barter money and barter systems (see Table 1).

1.1. The highest average of recognition of a phenomenon is that of money (9.02) and the lowest recognition averages are those of barter money (6.83) and barter systems (6.7). We can sum up the recognition rates of this and other related phenomena by taking the average of the results for all 6 phenomena. It is 7.64, which shows that the respondents estimate their competence at about 76.4 %. This result is satisfactory. A total of 5 out of the 23 respondents have stated that they fully know all the phenomena. Their qualifications vary and we cannot conclude that this depends on their education.

1.2. The respondents show that they are well informed about MBES (8.39), they are quite curious to learn more about MBES (8.52), they agree about the usefulness of MBES for those who participate in them (8.65), and evaluate the need for MBES at 7.83, the level of support being at 7.41. The need for trust among the partners is confirmed (8.13). The low rating (4.55) of the statement that there is no place for MBES in Bulgaria also can be interpreted as a high rating of the need to have this experience.

1.3. The eagerness to participate in MBES is relatively low – 6.52 out of 10. This gives the future builders of MBES the task to create motivation for participation.

1.4. The question of whether MBES is a financial innovation is rated at 7.26, which is a border result and proves that the phenomenon can be analyzed with the tools of finance theory.

Table 1. Level of acceptance of MBES in Bulgaria - Positive Attitudes to MBES

Descriptive Statistics

level of acceptance of MBES in Bulgaria	N	(Mean)		(Std. Deviation)
	Statistic	Value (Statistic)	(Std. Error)	Statistic
I know the phenomenon of Barter	23	7,30	,501	2,401
I know the phenomenon of Money	23	9,09	,208	,996
I know the phenomenon of Exchange	23	8,39	,325	1,559
I know the phenomenon of Private Money	22	7,55	,504	2,365
I know the phenomenon of Barter Money	23	6,83	,558	2,674
I know the phenomenon of Barter Systems	23	6,70	,516	2,476
I'm informed about the existence of MBES	23	8,39	,461	2,210
I'm curious to learn more about MBES	23	8,52	,448	2,150
I agree about the usefulness of MBES for those who participate in them	23	8,65	,292	1,402
I agree that MBES are needed	23	7,83	,572	2,741
I firmly support MBES	22	7,41	,595	2,789
I want to participate in MBES	23	6,52	,612	2,937
I prefer to participate in MBES together with my current partners	23	8,13	,480	2,302
There is no place for MBES in Bulgaria	22	4,55	,711	3,334
I'm sure that MBESs exist in Bulgaria	23	6,43	,719	3,449
The phenomenon MBES is a financial innovation	23	7,26	,704	3,374
Valid N (listwise)	21			

We have come to the conclusion that the economic agents are not informed enough about the essence and the role of MBES but there is still room for an experiment whose success will depend to a very large extent on its design.

The average rating of all statements showing familiarity with MBES is 7.47. This rating has the meaning of a recognition index and can be interpreted as roughly 74.7 % recognition of the phenomena that make up the phenomenon of MBES. These results do not yet reject the hypothesis of lack of familiarity as a cause for the lack of practice. In the future it would be good to study deeper precisely the question of what is recognized as a potential MBES.

2. In order to establish the attitudes towards participation in MBES we have analyzed the answers to questions No. 12 with 12 components and No. 14 with 30 components. Since the possible answers are given, ranging from fully disagree (1) to fully agree (5), we have transformed the overall rating into an index corresponding to the level of agreement in percentages (from 0 to 100). (See Table 2)

2.1. The first question is a control question on the understanding of the advantages of MBES. It averages at 8.55, which is very close to the rating of the advantages in the first part of the question (8.65) and is the highest rated of all the support conditions.

2.2. The statements that MBES helps recover natural prices, that business risk is reduced, and that income and costs are linked and the difference (profit) is guaranteed in advance are rated surprisingly low. Each one has scored 6.7. These results made us check the respondents' levels of education and preparation to participate in the survey. It's not found statistical significance.

2.3. Question No.14 checks a certain number of assumptions about the reasons for the lack of MBES in Bulgaria. They are based on an analysis of existing systems and on the ideas of the author about the social and cultural characteristics of the predominant model of making business in Bulgaria. We have suggested the following reasons to be probable:

2.3.1. Lack of homogeneity in society, which is confirmed by the results of the first question about the lack of partners who would understand the advantage of MBES (6.96).

2.3.2. Significant differentiation in terms of width and depth of the division of labour, which is confirmed by the rejection of the statement that "we are producing everything that we need for our end product ourselves" (4.61).

2.3.3. National and cultural values regarding the integrity between financial and commercial activities. With this subquestion our goal was to survey if and how far the respondents support the idea that money and exchange are organically related or rather the modern understanding that money does not depend on the economic activity and can easily exist apart from the economy by functioning mainly in the financial sector. Three questions confirm this assumption. These are: 1) there is no relationship between money and exchange – 3.81; 2) money exists mainly outside the exchange – 4.50; and 3) the existence of money does not depend on the economic activity – 5.62.

2.3.4. The assumption that access to the internet and the free use of a technical device and/or connection are a reason to refuse to participate in MBES has been confirmed. This has been verified with the help of two questions rated at 6.67 and 5.50.

2.3.5. The hypothesis that there is a traditional attitude of non-acceptance because of lack of a legal framework (6.1) or because such schemes are fraudulent (4.87) or illegal (4.48) has been partially rejected.

2.3.6. It has been confirmed that avoiding insecurity has a relatively high importance (7.33) as well as risk avoidance (7.05).

2.3.7. The lack of free time for new projects (6.30) and free cash (6.20) as reasons for non-participation have been confirmed. Another reason is the probability of the need for new administrative activities (7.24). Whether the interest for new projects (its lack can be seen from the rate of 4.48) can be compensated is a question of a subsequent survey.

2.3.8. Lack of popularity is also confirmed as a reason (6.19).

2.3.9. The reason that the phenomenon is not discussed by state bodies and institutions has been rejected (4.48).

2.3.10. It is confirmed that the currency used is mainly Bulgarian leva (9.33), which is stable and is applied as local currency within the Eurozone.

2.3.11. Foreign currency is not used often in commercial relations (6.29).

2.3.12. The disapproval of change in price rations is confirmed once again. The disapproval of the fact that the emergence of new price ratios is possible has received a surprisingly high rating (6.19). This points us to a confirmation of the rule that after the comfort zone is established, even if it is not the most desirable condition, changes are avoided.

Table 2 Level of acceptance of MBES in Bulgaria - Negative Attitudes to MBES

Descriptive Statistics

We have no interest to participate in modern private system of exchange without the legal tender because:	N	Mean		Std. Deviation	
	Statistic	Statistic	Std. Error	Statistic	Index
we have no partners who understand the benefits from using it	23	3,48	,320	1,534	6,957
we produse everything we need/use	23	2,30	,323	1,550	4,609
there is no relationship between money and exchange	21	1,90	,257	1,179	3,810
money exists mainly outside the exchange	20	2,25	,339	1,517	4,500
the existence of money does not depend on the economic activity	21	2,81	,363	1,662	5,619
we haven't got a proper technical device	21	3,33	,354	1,623	6,667
we haven't got reliable access to the internet	20	2,75	,369	1,650	5,500
we don't want to take part in new projects	21	2,62	,320	1,465	5,238
there is no a legal framework	21	3,05	,362	1,658	6,095
such schemes are fraudulent or illegal	23	2,43	,280	1,343	4,870
we prefer to avoid insecurity	21	3,67	,270	1,238	7,333
we prefer to avoid risk in such a systems	21	3,52	,306	1,401	7,048
we don't interesting from new projects	21	2,24	,300	1,375	4,476
we have no free time for new projects	20	3,15	,335	1,496	6,300
we have no free cash for new projects	20	3,10	,332	1,483	6,200
there is no popularity of such a systems	21	3,10	,316	1,446	6,190
the phenomenon is not discussed by state bodies and institutions	21	2,24	,316	1,446	4,476
we don't have any luck of cash	21	2,62	,288	1,322	5,238
usualy the currency we usefor trading is mainly Bulgarian leva	21	4,67	,199	,913	9,333
usualy the currency we usefor trading is mainly foreign currency	21	3,14	,318	1,459	6,286
we don't have products which we can exchange without cash	21	2,81	,273	1,250	5,619
such schemes are appropriate for small businesses only	20	2,40	,285	1,273	4,800
such schemes are appropriate for farmers only	21	2,24	,284	1,300	4,476
such schemes are appropriate for freelancers only	21	2,14	,278	1,276	4,286
even though we have excess capacity we will not exchange it on barter	21	2,14	,270	1,236	4,286
the liquidity will be reduced	21	2,05	,263	1,203	4,095
our trade relations will be complicated	21	3,19	,264	1,209	6,381
there is a need for new administrative activities	21	3,62	,253	1,161	7,238
new price ratios will be appeared and they are not desirable	21	3,10	,275	1,261	6,190
our market opportunities wil bel limitted because the contracts reduces flexibility	21	2,48	,281	1,289	4,952
Valid N (listwise)	18				

Our conclusion is that the respondents rate relatively high the suggested advantages of MBES, they are inclined to support the operation of MBES but would rather not participate, mainly due to the need for changes related to additional activities, insecurity and forthcoming changes.

3. The third important task of the survey is to see what is the vision of the MBES design preferred by the respective professional groups. The question has been formulated as follows: "We would participate in a modern

private barter exchange system only if...", and we have given 37 answers (see Table 3). The respondents have been asked to rate the degree to which they agree with each statement on a scale of 5 possibilities: fully disagree, partly disagree, I cannot say, partly agree, and fully agree. As a result of the responses, the preferences for the possible design can be described as follows:

3.1. Main goal – profit (6.26); in contrast to the main goal being social (7.18), and the standard error cannot compensate for the difference. This means that MBES is seen mainly as a social structure.

3.2. Cooperation and unlimited liability are preferred, rated at 6.00 each, rather than a limited liability structure – 5.33.

3.3. A hierarchically managed structure is preferred (8.36) rather than a decentralized one (4.95).

3.4. Participation of both individuals and legal entities are very well accepted – 7.04. This points us to some mixed form of MBES (people and businesses).

3.5. There is a clear preference for a backed means of payment (8.10) rather than fiat money (4.42).

3.6. There is a clear preference for turning the means of payment into cash (8.73)

3.7. There is a desire to have access to credit (7.14)

3.8. There is a desire to receive assistance, including for commercial activities (8.10), accounting/legal advice (7.64), and financial assistance (7.82).

3.9. The idea of the system functioning as a closed club with a limited access has not received much support (6.0).

3.10. There is no opinion on whether MBES should be limited only to a local activity (5.27), while there is a preference for developing it on a larger scale: national (7.14) or international (7.62).

3.11. There is a clear preference for exchanging various products within the system (8.29).

3.12. To cover the expenses, an insignificant priority is given to commissions on the purchases (6.45), and on sales (6.40), which proves that the respondents understand that in this model the purchases and sales are equivalent and equal. The difference as a whole falls within the statistical error. The options whereby there is an entrance fee (6.00) and a subscription fee (5.80) have also received some support.

3.13. The possibility to apply interest is clearly rejected (4.10) but demurrage[viii] is supported (6.00).

3.14. Network marketing is an acceptable way of organizing growth and income distribution (6.29), and support for taking part in the profit of the system is even higher (6.67).

3.15. The preferences for the commission to be paid fully by barter money (6.27) or by legal tender (6.19) are close.

3.16. One of the most important characteristics is the possibility to leave the system at any moment (9.18). This feature, together with the growth of the system (9.43) can be qualified as the most desirable. Adding the support for inheriting and transferring property (8.38), the desired design reminds a contemporary capital structure. This is further backed by the desire to turn the MBES into a public company (9.43).

Table 3 Vision of the MBES Design

Descriptive Statistics					
We agree to participate in MBES only if:	N	Mean		Std. Deviation	
	Statistic	Statistic	Std. Error	Statistic	Index
The main goal is profit	23	3,13	,297	1,424	6,26
The main goal is social or ecological	22	3,59	,243	1,141	7,18
The system is settled as limited liability structure	21	2,67	,279	1,278	5,33
The system is settled as UNlimited liability structure	21	3,00	,316	1,449	6,00
The system is settled as cooperation	22	3,00	,279	1,309	6,00
The system is hierarchically managed	22	4,18	,204	,958	8,36
The system is decentralized managed	21	2,48	,335	1,537	4,95
Participation of Individuals is allowed	21	3,52	,273	1,250	7,05
Participation of Individuals is NOT allowed	19	2,21	,271	1,182	4,42
The currency is backed	20	4,05	,246	1,099	8,10
The currency is Not backed /fiat money/	19	2,21	,321	1,398	4,42
The means of payment can be converted into cash	22	4,36	,214	1,002	8,73
Credit is allowed	21	3,57	,289	1,326	7,14
We have assistanse for our commercial activity	21	4,05	,201	,921	8,10
We have assistanse for our accounting activity and legal advices	22	3,82	,284	1,332	7,64
We have assistanse for financial affairs	22	3,91	,207	,971	7,82
The system is closed club with a limited access	21	3,00	,301	1,378	6,00
The system is local	22	2,64	,276	1,293	5,27
The system is national	21	3,57	,272	1,248	7,14
The system is international	21	3,81	,255	1,167	7,62
In the system are being exchanged products from the same industry	21	2,24	,266	1,221	4,48
In the system are being exchanged products from the different industries and intersectoral connections are being created	21	4,14	,221	1,014	8,29
Cost recovery - by entrance fees	21	3,00	,316	1,449	6,00
Cost recovery - by fees for a certain period	20	2,90	,307	1,373	5,80
Cost recovery - by income fees	22	3,23	,294	1,378	6,45
Cost recovery - by brokerage	20	3,20	,304	1,361	6,40
Interest rate is allowed	21	2,05	,288	1,322	4,10
Demurrage (rate) is allowed	22	3,00	,316	1,480	6,00
The system is developing by network (multilevel) marketing	21	3,14	,318	1,459	6,29
Participants take part in profit distribution	21	3,33	,287	1,317	6,67
Brokerage is fully paid by barter money	22	3,14	,304	1,424	6,27
Brokerage is partially paid by barter money	21	3,10	,266	1,221	6,19
The system can be leaved at any time	22	4,59	,157	,734	9,18
Accumulated assets can be sold, inherited and transferred	21	4,19	,245	1,123	8,38
The system is a member of international network	21	3,62	,305	1,396	7,24
The system can grow	21	4,71	,122	,561	9,43
The system can be turned into public company	21	4,05	,244	1,117	8,10
Valid N (listwise)	17				

3.17. The need for the system to be a member of an international organization is also important (7.24).

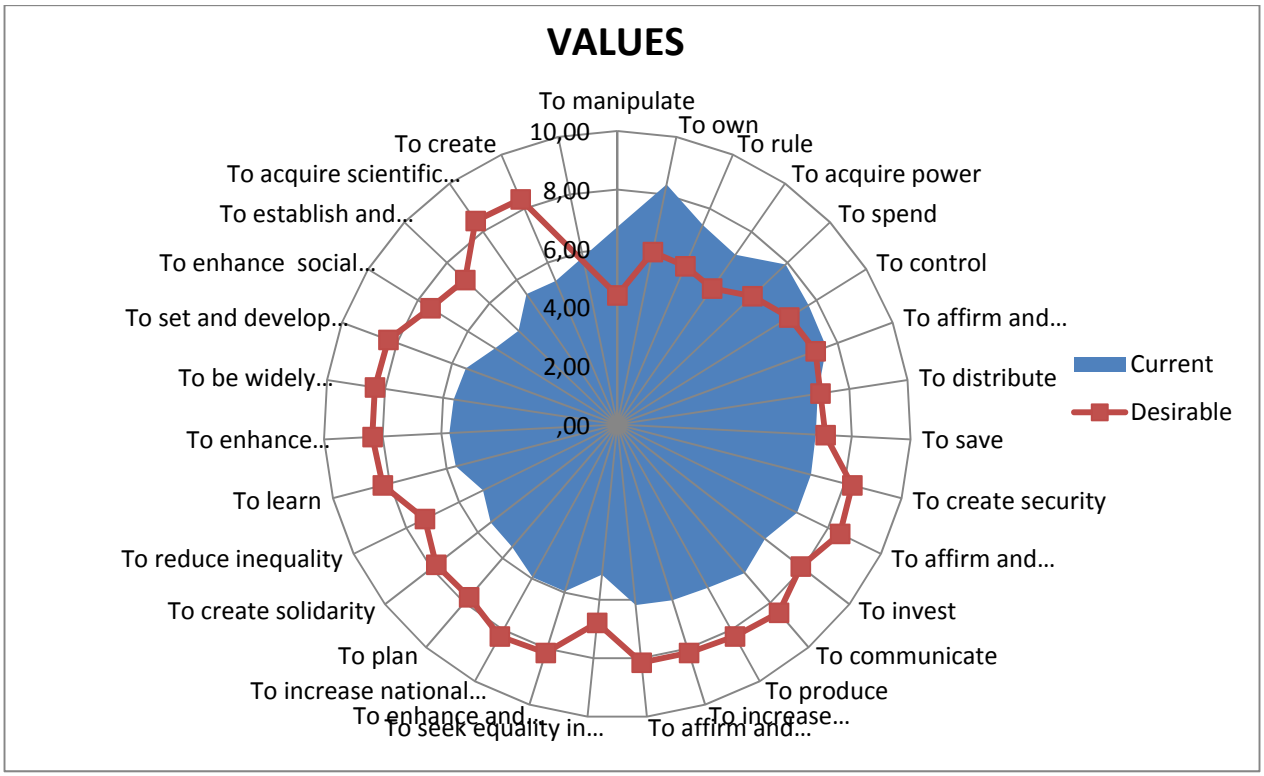
The enumerated basic characteristics can become the basis for developing an institutional and structural design of an MBES which the participants should agree on. It would be a challenge to make an experiment of an MBES on the territory of a selected community. Thus, the conclusions we have come to as theoretical assumptions will be tested in practice.

4. There is a lot of research on the influence of the cultural model on socio-economic phenomena based on social group values (Smith 1812, Ariely 2012, Hofstede 2001). A good illustration of that is the scheme of Hofstede regarding the manifestation of culture on a deeper psychological level, where the values are in the core of all rituals,

heroes and symbols combined in different practices. (Hofstede 2001). This is why we have assumed that the definition of key values to assess the current state and to establish the desired state will help the experiment of introducing MBES in Bulgaria.

The survey should show what value system corresponds to the desired design of MBES in Bulgaria. This task is addressed by question No.18 in comparison to No. 19. Both questions propose the same values. The difference is that the first one checks the assessment of the current state, and the second – that of the desired state (see Table 4).

Figure 1. Prerequisites Values for the Success of MBES



We consider the resulting difference in the assessment of the current and the desired states to be a generator of and potential for change. The biggest differences in the averages of the same values signal the biggest potential for change.

There is a widespread idea that cultural characteristics can be viewed also as a basis for institutional preconditions for the emergence and development of social phenomena (Hayek 1997), and, as S. Moscovici rightly claims, sociology should be based on psychology (Moscovici 2008).

The distribution of the results of the survey on the chart clearly demonstrates how the averages of the desired state are almost always outside the line of the current state averages. The following values are an exception: to manipulate, to own, to rule, to acquire power, to spend, to control, and to affirm and develop individuality. In the last indicator there is no considerable difference, and in the rest we do not have a statistical significance of the results. The differences in to manipulate and to own are considered to be very important for the environment and these results are statistically significant.

Table 4 Prerequisites Values for the Success of MBES

VALUES	Current	Desirable	Change in %
To manipulate	6,73	4,40	-35%
To own	8,35	6,00	-28%
To rule	7,39	5,87	-21%
To acquire power	7,05	5,65	-20%
To spend	7,91	6,35	-20%
To control	7,68	6,90	-10%
To affirm and develop individuality	7,59	7,20	-5%
To distribute	6,91	7,00	1%
To save	6,77	7,10	5%
To create security	6,82	8,26	21%
To affirm and develop the diversity	6,82	8,45	24%
To invest	6,36	7,90	24%
To communicate	6,67	8,45	27%
To produce	6,36	8,25	30%
To increase disposable Incomes	6,27	8,15	30%
To affirm and develop the learning	6,18	8,15	32%
To seek equality in rights	5,14	6,79	32%
To enhance and develop the family	5,95	8,15	37%
To increase national income	5,95	8,25	39%
To plan	5,50	7,75	41%
To create solidarity	5,45	7,80	43%
To reduce inequality	5,09	7,30	43%
To learn	5,68	8,25	45%
To enhance knowledge	5,73	8,35	46%
To b**e widely applied scientific achievements**	5,64	8,35	48%
To set and develop moral and ethical standards	5,50	8,32	51%
To enhance social cohesion	4,90	7,50	53%
To establish and develop government institutions	4,64	7,15	54%
To acquire scientific knowledge	5,41	8,45	56%
To create	5,32	8,35	57%

A coincidence is found also in to distribute and partially in to save.

The biggest difference is observed in to create, to enhance social cohesion, to establish and develop state institutions, to set and develop moral and ethical standards, and to acquire scientific knowledge. For all of them there is a positive difference of 50% and 60%, which is statistically significant.

Figure 1 shows also the exact values that would motivate participation in MBES.

The statistical significance of the results has been estimated using the Wilcoxon method. It confirms that the better part of the differences have statistical significance.

A well-known example is the success of Argentina in the field of the so called social currencies (Powell 2002). Researchers found out that the main groups of activists are women. This made us formulate two additional hypotheses:

1. Women should rate higher than men the values that encourage social interaction, such as to reduce inequality, to create solidarity, to create security, to enhance and develop the family, which has been confirmed also by the check-up with the Mann-Whitney statistical method.

2. Men should give more importance only to values providing for competitiveness, such as to manipulate, and to acquire power, but the difference has not been confirmed by the statistical check-up.

3. The goal that men would support should be profit, while women should support socially oriented activities. This assumption has proved correct to some extent because the difference in the averages confirms it but it is not statistically significant.

4. For the rest of the answers we have found out that there is no statistical significance of the difference in terms of sex. The application of Hofstede's methodology also shows that society in Bulgaria has predominantly masculine behavior (Franova 2015, Minkov 2007).

Table 5 Prerequisites Values for the Success of MBES

Wilcoxon Signed Ranks Test	Z	Asymp. Sig. (2-tailed)
To own	-2,767[a]	,006
To spend	-1,483[a]	,138
To invest	-2,306[b]	,021
To control	-1,440[a]	,150
To distribute	-,385[b]	,700
To produce	-1,824[b]	,068
To save	-,829[b]	,407
To learn	-3,142[b]	,002
To create	-2,989[b]	,003
To rule	-1,776[a]	,076
To manipulate	-2,206[a]	,027
To plan	-2,455[b]	,014
To communicate	-2,083[b]	,037
To reduce inequality	-2,091[b]	,037
To increase national income	-2,418[b]	,016
To increase disposable Incomes	-2,170[b]	,030
To enhance knowledge	-2,849[b]	,004
To enhance social cohesion	-2,418[b]	,016
To seek equality in rights	-1,879[b]	,060
To create solidarity	-2,306[b]	,021
To create security	-1,969[b]	,049
To acquire power	-1,818[a]	,069
To affirm and develop individuality	-,070[b]	,944
To affirm and develop the diversity	-2,385[b]	,017
To enhance and develop the family	-2,375[b]	,018
To enhance knowledge	-2,400[b]	,016
To establish and develop government institutions	-2,953[b]	,003
To set and develop moral and ethical standards	-2,736[b]	,006
To acquire scientific knowledge	-3,017[b]	,003
To be widely applied scientific achievements	-3,048[b]	,002

4. DISCUSSION OF THE CONCLUSIONS

The survey has led us to the following more significant conclusions:

1. In Bulgaria the phenomenon of MBES is familiar and supported but the readiness to participate in such a system is low.

2. MBES is seen mainly as a social structure but the expectations are that it would work as a business unit.

3. The answers given vary depending on the qualities of the experts but it cannot be claimed that these differences are valid for the whole society in Bulgaria. We have found that among the qualities of the respondents the most important one is the practical experience. A broader and more detailed survey is needed, aimed mostly at economically active persons in practice.

4. The common opinion about the recognized advantages and disadvantages of MBES has been confirmed.

5. We have found some significant areas in which respondents express a wish for a greater importance of certain values. This part of the questionnaire generates the largest potential for development of the project and for a possible experiment on the territory of Bulgaria.

The success of the research consists mostly in that it is the first of its kind and it gives guidelines for a more large-scale survey with a more detailed assessment of the conditions for introducing MBES in Bulgaria. At the moment, while still processing the results, the survey keeps giving us answers that will be processed later and the statistical test will be run again.

There are some limits of the survey validation which could be solved by complementary research:

1. A kind of weakness of the survey comes from the profile of the interviewees selected. Only several of the results are confirmed with statistical significance, which shows that the results are not valid to the whole of Bulgarian society.

2. The questionnaire could have been more efficient if the survey could be repeated and not only actors who seemed to be able to start a system to be interviewed, but anyone. This initial cut ended up distorting the results a bit.

3. The managers who have been interviewed have got a certain style and hierarchy of organization, which in some cases is in conflict with some models of governance of MBES, more based on collective decisions and forms of self-management. This could be solved by complementary research with the participation of managers using non-hieratical style of working.

Three new assumptions have emerged from the results of the current survey. They could be brought up for consideration in a future examination. They are sown here not as a general conclusion but primarily, as an attempt to break up some of constrains of current research.

1) The MBES design is not universal and it is not quite applicable under certain conditions in Bulgaria with its typical characteristics of today.

2) To implement an idea such as the MBES it is necessary to have certain social, cultural and economic features of the society, which come mostly from the tradition of possession and from a set of production relations, including a sustainably large share of small and medium-sized businesses, active entrepreneurship, and a cooperative model of thinking. In this regard, the so called social money may develop mostly as a result of already established social and economic relations in the environment it emerges from.

3) MBES models are successful mostly in socially mature (homogenous) societies and in countries with a well-developed economic infrastructure.

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[i]Maybe this is not quite correct.

[ii]Until the sovereign decides to change it.

[iii]Whether this value has emerged from some inner ratios or has been enforced by law is not of key importance in this case.

[iv]In view of the above, it can be verified whether this was possible only if, instead of using it for purposeful redistribution of wealth and income (monetary policy), money would be allowed to take up its main function: a medium of exchange. In this case, the redistribution would be done as a result of the formed natural price ratios. These are the kind of interpretations in traditional economics. Today the observations show the exact opposite: the main purpose of money is to service politically established values, and exchange is controlled mainly by the behavior of the private banks that provide the cash. However, the internet is changing the world and modern communications and software solutions allow for exchange to be made even without the immediate participation of the legal tender. This should be the main reason for organizing private complementary local means of payment.

[v]*formally or informally*

[vi]A process which does not develop based on a particular social or industrial policy or ideology but by implementing a specific monetary policy.

[vii] The experts` abilities are presumed from their experience taken from autobiographies. For example to proof the ability to take managerial decision comes from a long practice to be a manager of a profitable company. As a proof of the ability to introduce and impose changes relies on the fact that the experts had been participated in groups for writing laws, as well as in the Government, State Commissions, Working groups etc. Some of the legislative changes are still valid.

[viii] The idea is borrowed from Silvio Gesell (Gesell, 1958).

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THE DIVERSITY AND EVOLUTIONARY PROCESS OF MODERN COMMUNITY CURRENCIES IN JAPAN

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ABSTRACT

This paper focuses on the diverse development of modern community currencies (CCs) in Japan, and provides a classification of them by type. Modern CCs appeared in the early 1970s and since then various types have circulated globally. With the increase in CC practices, academic research into CCs has emerged as a growing area of interest. However, since CC systems are diverse, it is difficult to obtain a commonly recognized definition of CCs, or criteria for their classification according to their characteristics. Since this problem is shared even by international researchers, it has become an important issue in the field. In this study, we confirm the definition and classification of CCs by surveying previous studies on Japanese CCs. Furthermore, this paper reveals the reality of CC systems that continue to evolve through a process of development and decline, by looking back at their history. In order to explain the evolutionary process, we employ the concept of "countermovement," as advocated by economic anthropologist Karl Polanyi. Based on our outcomes, we describe three stages in the evolution of CCs, which are the reciprocal realm, integration between the reciprocal and market realms, and new realms.

KEYWORDS

Community Currencies, Japan, Karl Polanyi, Countermovement

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1. INTRODUCTION

Modern community currencies (CCs) have rapidly increased in popularity since the early 2000s in Japan, and therefore, as a mass medium, various case studies can be introduced. CCs have been used as a tool to support community organizations, including non-profit organizations (NPOs) and citizens' associations. This study classifies the many types of Japanese CC and examines their evolutionary process using a historical approach to consider the new movement that has occurred since the boom in the early 2000s. We clarify how various types of CC were born, flourished, boomed, and then branched off, and discuss the differences and relationships between various CC systems. In so doing, this paper updates Lietaer's (2004) contribution by clarifying the current conditions of Japanese CCs. Furthermore, in this research, we explore the theoretical position of CCs in Japan based on the analytical framework of Karl Polanyi. Japanese CCs have basically resisted and denied the market mentality, but have sometimes introduced one strong point of market principles, such as motivation for profit. It may be impossible for CCs in Japan to develop in different ways if they tried to construct a special community set apart from a market society using these tools. In fact, in Japan, due to incorporating a strong market point, CCs have evolved differently. For example, they have created a unique scheme that simultaneously fosters very different motives of volunteer workers and local shop owners who live in the same communities. Thus, to depict the evolutionary history of CCs in Japan, it would be helpful to use the perspective of "market and countermovement." Karl Polanyi has given us this perspective in his popular book "The Great Transformation" to know and understand our society's emergence and development. His perspective "market and countermovement" will be a very useful framework to clearly describe Japanese CCs' unique history.

2. PREVIOUS RESEARCH

First, we confirm the definition of CC, called Chiiki Tsuka in Japanese (Chiiki means community or local, while Tsuka means currency or money). A CC may also be referred to as "community currency" or "local currency" in English. It has also been called "territorial currency," "parallel currency," "social currency," "complementary currency," or "alternative money" by various researchers. In Japan, many civil activities use CCs as a tool to solve regional problems. Therefore, in this research, we will consider CCs from the viewpoint of the sustainability of community based projects and the complementarity of currencies.

There have, to date, been a wide variety of CCs in Japan, which are said to number in the several hundreds. As noted by Lietaer (2004, p.4), "Japan will be the first country in the world where more than 600 complementary currency systems are operational as of end 2003." Since then, the CC boom has passed its peak, and, one after another, community organizations, which are difficult to manage continuously, have stopped issuing CCs. This is because the long-term administrative burden has increased with the stagnation of currencies, lack of participants, and shortage of operating funds. According to Izumi's survey of operation research (2013, pp.238-239), "Many organizations have stopped issuing CCs, while quite a lot of organizations have been newly established." As is evident from Table 1, approximately 40% of CCs cease activities within two years of beginning, but during the same period, the number of new CCs that are newly launched outstrips the number that cease operation. As of December 2008, there are 122 CCs that have been in existence for over five years, so it can be judged that practices have emerged that are rooted in the community, rather than being merely transient initiatives. In this way, since the boom, there has been a movement to seek out new systems after carefully reviewing previous practices, and it seems that the systems have diversified in the process.

	April 2002	April 2003	January 2005	December 2005	December 2006	December 2007	December 2008
April 2002 New	72	67 (93.1%)	44 (61.1%)	43 (59.7%)	36 (50.0%)	29 (40.3%)	28 (38.9%)
April 2003 New		74	53 (71.6%)	43 (58.1%)	41 (55.4%)	32 (43.2%)	24 (32.4%)
January 2005 New			130	108 (83.1%)	89 (68.5%)	78 (60.0%)	70 (53.8%)
December 2005 New				68	51 (75.0%)	41 (60.3%)	32 (47.1%)
December 2006 New					45	36 (80.0%)	29 (64.4%)
December 2007 New						37	27 (73.0%)

Table 1 The continuity of CCs in Japan (2002-2008), Source: Izumi (2013) p.238

Apart from Lietaer (2004) and Hirota (2011), few researchers have introduced the history of CCs in Japan or, indeed, provided an overview of CCs abroad. Lietaer's study was conducted mainly through interviews with key actors in the CC scene in Japan, and classified Japanese CCs into four schools, according to their history, originality, and relevance: "Volunteer Labour Bank," "Fureai Kippu," "eco-money," and "other grassroots systems." However, no precise explanation has been given regarding the diversity and evolutionary process of CCs in Japan and, as noted by Lietaer, one of the reasons for this is as follows:

> *"[R]emarkably little is available in any other language than Japanese on this topic [the largest diversity of complementary currencies experiments in Japan]. Even more surprisingly, within Japan itself the full range of currency experiments is rarely perceived because different Japanese "complementary currency schools" have tended to ignore each other".* (Lietaer 2004, p.4).

This study attempts to classify modern CC cases in Japan in order to consider their diversity and evolutionary process, based on previous research about CC typology. Globally, there are two important ways to classify CCs: one classification method is from the perspective of experiments that differentiate the many currency ties in terms of systems, unit of account, and purpose of issue. For example, Blanc and Fare (2013) divide the emergence and development of CCs into four generations, showing the important role of potential support from national and municipal governments in supporting CC schemes. Moreover, in their study, Seyfang and Longhurst (2013a; 2013b) mapped their experimental cases into four types—service credits, mutual exchange schemes, local currencies, and barter markets—and explained them from the three perspectives of economic, social, and environmental. They treated CCs as a tool of grassroots innovation and niche development, and showed the role of CCs for sustainable development.

The other method used in previous studies to classify CCs is from the perspective of economic sociological theory, or the history of economic thought. For example, Nishibe (2012; 2013) proposes a new theoretical approach called "integrative communication media," which employs sociologist Niklas Luhman's idea of "communication media" to fully understand the history and significance of CCs. Integrative communication media is a concept of incorporating

economic and sociological perspectives on money, which consists of two dimensions: one, money and market, known as economic media; and two, linguistics, known as social and cultural media. This notion can help us understand the purpose, function, and ways of issuing CCs. Meanwhile, Blanc (2011) shows the typologies of CCs from a different perspective. He classifies CCs into three types of project—territorial, community, and economic—using Karl Polanyi's idea of "exchange," "distribution," and "reciprocity" as three coordination principles that institutionalize human economy and society. Each project has a different space, purpose, and guiding principle.

However, despite the many studies that have classified CC typologies in various ways, we have not been able to find research on the historical evolution of CCs. It is very important to observe the various types of Japanese CC from an evolutionary perspective because they have evolved historically through patterns of development and decline, accompanying dynamic changes in their respective purposes and systems. Thus, this paper proposes a modern typology of Japanese CCs based on the Polanyian perspective of market society; it is hoped that doing so will help us to analyze the historical dynamics of CCs. In the next section, we propose an analytical framework for this study.

3. ANALYTICAL FRAMEWORK

This study analyzes the diversification and development of CCs in Japan using a Polanyian analytical framework to gain an in-depth understanding of their unique history. There are two main types of CC development, one of which is the process of improving the circulation scheme, or the ontogenetic stage. The other is the divergence in CC types for own goals, or the phylogenetic stage. We will discuss the evolutionary history of CCs in Japan from both aspects, but focus largely on the latter, which shows the different currencies that have been experimented with so far.

It is very helpful in discussing the history of CCs in Japan to focus on the state's creation of a market society and the countermovement to these nation-driven policies as shown by Polanyi (1957). Polanyi depicts the evolutionary process of the market society in the 19th century as comprising a severe conflict between three domains (labor, land, and money) and his explanation of the emergence and evolution of the market is based on the analytical framework of the institutionalized process. This explanation differs greatly from that of neo-classical economics, which theorizes that the market is based on a profit motive and propensity for exchange. Neo-classical economist considers the emergence of a market society as a natural occurrence within communities. However, based on Polanyi's idea, the market emerged outside of communities, and was a specific exchange system created purposefully by the state, who changed the existing institutions and created a market for industrialization. According to Polanyi, this process involved the fictitious commodification of labor, land, and money, banishing the peasant from communities, and devastating community life. The state thus disembedded the economy from society as a whole by breaking laws and old relationships that had existed within communities to ensure a sustainable society. For Polanyi, this process resembles a cancer because it generated an opposing countermovement of land and society, disrupting society as a whole and ultimately led to Fascism. This countermovement includes social welfare for workers, the protection law for rural cultivators and land, protective duty, the creation of a central bank, local communities based on Robert Owen's idea, and so on. These countermovement measures are generated by the different actors and organizations to address the problem of regulation within and without of the relevant states that is caused by the creation of a market society and gold standard. Thus, these measures have regenerated and strengthened the realm of reciprocity, redistribution, and home economy that was destroyed by the market society (See Figure 1). However, countermovements, such as socialism or communism, that aim to thoroughly destroy market elements have never survived and have all eventually been eliminated. Nevertheless, countermovements and markets have, in fact, mutually influenced each other and co-evolved in the real world and Polanyi has shown this 19th century history in terms of double movements.

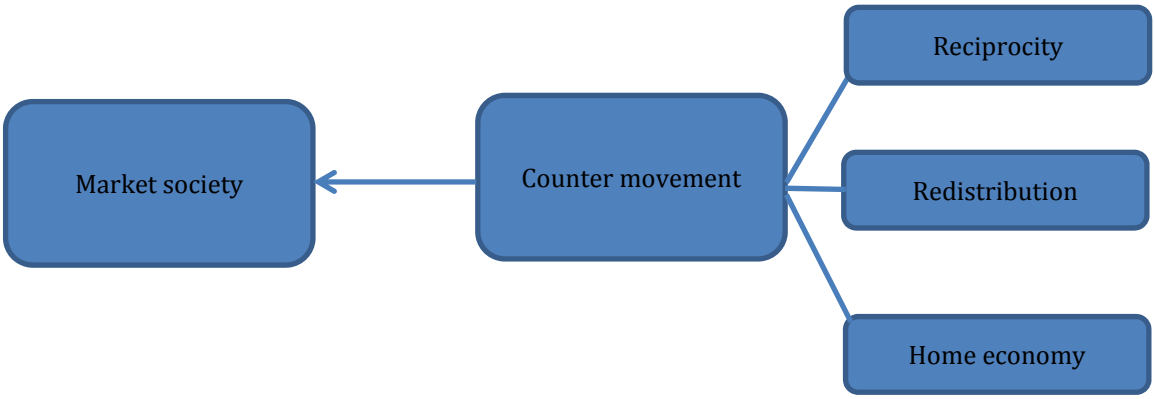

Figure 1 - Countermovement to market society

Following Polanyi, we regard the current CCs that have emerged globally as a countermovement to the market society. Many of the experiments were born in the 1980s as a bid to tackle the many negative effects on our daily lives caused by the fusion of financial globalization in the world economy. Financial globalization raises the problem of exchange rate instability, causes drastic changes in stock prices, and weakens our real economy, thereby deepening community unemployment and devastating the natural environment. According to Helleiner, these CCs comprise new types of countermovement to handle these problems. In this respect, he says the following:

According to their proponents, these forms of money not only help reduce the vulnerability of local communities to the global financial "casino" but also act as a kind of local form of "capital control" since money is encouraged to remain within the local community. By facilitating economic transaction in poor communities that are starved of cash, local currencies are also seen to provide a primitive "stimulus" to such communities (Helleiner 2000, p.23).

Polanyi's way of thinking can be applied to this study, which aims to show the evolutionary history of Japanese CCs that have undergone the same history as these double movements. That is to say, they have not tried to destroy market elements and incorporate its strong points; rather, they have been introduced in communities, but have developed in a unique way by adopting certain market elements such as corporation point service programs, rather than promoting an anti-market society as the highest priority. Thus, there are an array of different types of CC, including currencies to bolster reciprocity and the home economy, currencies that introduce coupons, and so on. In light of this diversity, we examine Japan's unique dynamic history from the perspective of a market society and CCs as a countermovement regenerating reciprocity, redistribution, and the home economy. We organize this unique history into three stages. In the early stage, Japanese CCs appeared in the reciprocal and home economy realm as a countermovement to the market expansion that had devastated the old way of mutual assistance in communities. In the second stage, CC coupons appeared for use in non-commercial and commercial transactions. This type took advantage of reciprocal and market features. Today, the third stage of CCs has emerged, that is, a new type of currency to develop local residents' skills and protect forests. This latest type has been used to foster reciprocal exchange with nature and education within the home economy.

4. EVOLUTIONARY PROCESS OF CCS IN JAPAN

4.1 First stage: Development of the reciprocal and home economy realm (1970s – early 2000s)

Modern Japanese CCs can be traced back to the 1970s. In 1973, Teruko Mizushima, a social benefactor, formally established the Volunteer Labor Bank as the first CC in Japan. The purpose of this bank was to support career women and full-time homemakers alike, aid childcare, and support those dealing with sudden illness. In these initiatives, people earned 1 point (equivalent to approximately 400 yen) per 1 hour of labor. After nearly a decade, this initiative received increased social recognition and was replicated in other associations, of which the most influential is the Sawayaka Welfare Institute, established in the 1990s. This institute issues "Fureai Kippu," or caring relationship tickets. In this system, scores are given according to service provision time and people receive services in exchange

for points in times of trouble. Fureai Kippu was established for the purpose of mutual aid with a focus on care services, such as nursing and housework assistance. Service providers could use the points saved when they needed care. Such CCs as the Volunteer Labor Bank and Fureai Kippu are one type of genealogy for the purpose of mutual aid.

Toshiharu Kato, a former director of the Service Industries Division of the Ministry of Trade and Industry, proposed CCs known as "eco-money" as a new tool for mutual aid, and in 1999, created the Eco Money Network as a core organization to promote eco-money (Kato, 2001). This type of CC circulates within certain districts and reevaluates various environmental, social welfare, educational, and cultural values. The eco-money project began by considering an appropriate name for CCs in each region, and then obtained a certain amount of eco-money from the CC issuer. In parallel, participants built lists of services they could offer and services they would like, and exchanged CCs for these services. Through these activities, eco-money could expand the circle of mutual aid, create ties between individuals in communities, and solve regional issues. The representative initiative of eco-money is "Kurin," which was launched in the town of Kuriyama in Hokkaido in 2000. Kuriyama professed to be a welfare town that required community-based services to assist with aging. Thus, the introduction of Kurin fostered social ties and a mindset of mutual aid between local residents. Based on the influence of Kurin, eco-money initiatives spread to various other parts of Japan. However, these initiatives were hindered by the non-participation of local residents and perceived botheration in asking for services, thus disrupting the flow of eco-money. Furthermore, in order to ensure the continuous performance of these initiatives, the coordinator who mediated the transaction of services carried a great burden.

Thus, we can observe that CCs were first introduced in the reciprocal and home economy realm in Japan to meet the needs of local residents and offer care services that are difficult to deal with in trade for cash. Currently, the Fureai Kippu system has spread throughout Japan on the basis of active support from the Sawayaka Welfare Institute and people have realized the importance of care in anticipation of an aging society. On the other hand, eco-money initiatives have predominantly stagnated due to management difficulties and reduced motivation of participants, even though this system has the advantage of having constructed lists of service provision throughout Japan.

4.2 Second stage: Integration between the reciprocal and market realms (early 2000s –)

CC coupons, which comprise CCs that are tradable in both the reciprocal realm and market realm, appeared from 2000. They are unique in that they are multiple-circulation local coupons valid for both commercial and non-commercial transactions (Kurita et al. 2012). The integration of these two realms can be explained mainly with respect to two processes: from the reciprocal to market realms, and from the market to reciprocal realms. The representative case of the former is the "Genki," issued from 2004 in the city of Neyagawa, Osaka by the NPO Chiiki Tsuka Neyagawa. According to the Director of the NPO, "Genki was devised by the group for the purpose of contributing to the local community by retired workers (Miwa 2013, pp.217-218)." The CC was introduced as a way to acknowledge these volunteer activities. In the early days, the organizers sensed resistance to paying cash to volunteers because people believed their activities should not be rewarded. Therefore, the organizers decided to acknowledge the volunteer activities on a non-cash basis. At first, participants purchased CCs at a rate of 1 hour = 800 yen for volunteer activities. Volunteers could receive CCs in gratitude for their volunteer activities but a problem emerged in that active volunteers retained the CC and the flow of CCs was disrupted due to lack of circulation. The volunteers required a place in which to use the CCs and to ameliorate this, organizers introduced a system whereby the CCs could be used in local shopping streets.

This system has also been introduced in the cases of "Gau" in Nerima, Tokyo, which commenced in 2001, and "Muchu" in the city of Musashino, Tokyo, which commenced in 2008. Leading shopkeepers in shopping streets launched the Gau system in response to a sense of crisis after the establishment of a large shopping mall in the neighborhood, in the belief that the initiative would encourage a new type of local contribution based on community welfare. In this case, the organizer introduced a CC as the reward for voluntary participation in local contributions and which could be used to make purchases in the shopping street. Gau thus functions as a tool to simultaneously promote volunteer activity and revitalize the shopping street.

The CCs of this era were issued for the purpose of revitalizing reciprocal and market realms simultaneously. Up until this time, the norm functioning in both realms had been different. One realm was regarded as non-reward, and the other involved transactions of priced goods and services. By functioning separately, the reciprocal and market realms managed to revitalize their respective realms successfully. However, Japanese society has begun to face such difficulties as the trend toward nuclear families, an aging population, and a declining birth rate, among other compounding factors. There are many problems with CCs, including the limitations of relying on unrewarded volunteers for mutual aid, the depreciating function of community in local shops, and inherent limits to evaluating local revitalization from the viewpoint of sales competition among shops. CCs were introduced as a way to find new ideas to contribute to local shops and as a new means to compensate volunteer activities in order to prevent the introduction of market forces into the reciprocal realm from generating psychological resistance to volunteering. Volunteers had previously presented their services as non-rewarded, and so, there was some resistance to rewarded CCs. In addition, there were cases of shopkeepers resisting the idea of introducing a market economy to society with reciprocal elements. In other cases, shopkeepers felt that social benefits made little contribution to revenue, and that the integration of reciprocal and market realms would be futile. Similar initiatives to this include, for example, Orion (launched in 2004 in Kitakyushu City), Sarari (launched in 2008 in Sarabetsu village, Hokkaido), and so on.

4.3 Third stage: Recent developments (mid-2000s – present)

After the mid-2000s, CCs entered the next stage of development. A new type of CC targeting a wide range of ecology initiatives appeared as a means to preserve the natural environment and promote production of local products. In addition, with the expansion of the reciprocal realm, other types of CC appeared, which involve not only mutual aid in neighborhoods but also encourage children's participation in society, and advance and utilize potential community resources and skills. These CCs have illuminated new realms that have fostered a reciprocal exchange with nature and an economic education within the home economy.

4.3.1 Ecological CCs

The new type of CC issued in recent years throughout Japan aims to preserve the natural environment and encourage the exchange of local products. One of the more famous among these is "Mori-ken," which was created to promote participation in forest volunteer activities. Mori-ken was issued by the NPO Tosa-no-Mori Kyūentai (hereafter, Kyūentai) as a means of stimulating forests and the declining forestry industry. This industry faces difficult issues, such as a lack of foresters, and untended forest growth. Following the introduction of Mori-ken, which was distributed in exchange for small gifts as a tool to motivate continuous participation in forest volunteer activities, forest volunteers emerged as new foresters. As a result, Mori-ken has simultaneously motivated participation in forest volunteer activities and contributed to the increased exchange of local products and revenue for local shops. Using CCs instead of cash or gifts, forest volunteers have connected with local residents, private corporations, and local shops that have agreed to collaborate with Kyūentai. This example shows that CCs can create an intra-regional circulation scheme involving the entire community.

Mori-ken has been recognized as an effective tool for revitalizing forestry preservation and local shops, and this type of CC system has spread throughout Japan in the form of Ki-no-Eki (tree station) projects. In addition, Kyūentai has contributed actively to reconstructing areas affected by the Great East Japan Earthquake, cleaning up debris, maintaining forests, and supplying energy. Mori-ken is just one way in which CCs are appearing across Japan as a means of supporting the ecological environment.

In addition, new forms of CC have appeared based on local products. This type of CC resembles the commodity basket currency not related to inflation advocated by Ralph Borsodi, or "the constant," which is well known for having implemented a commodity reserve system. One of the most representative projects is "Omusubi Tuka" (F-money in the city of Toyota, Aichi, which started in 2010) and uses rice as its standard. This project aims to support the local community and small and medium enterprises (SMEs), as well as to build a framework for the proper support of work and lifestyles in the area, offering benefits to both large firms and SMEs with close ties to the community. Omusubi Tuka can be used to shop at local businesses and procure supplies for business operators rather than solely for mutual aid. This type of CC can be exchanged for rice once the CC has expired. Unlike cash or convertible CCs, it is ultimately exchanged for locally produced rice. The fact that funds return to the local area offers

peace of mind and encourages exchange between SMEs, while the circulation of this CC creates an exchange of value that goes beyond an equivalent value exchange of money for goods and services. As a result, the area has been enriched, consumers' lives have improved, and SMEs have become more prosperous.

In this way, the CCs described in this subsection incorporate the preservation of the natural environment and promote the exchange of local products, representing a new type of CC that is not covered by ordinary mutual aid and welfare services. The system integrates the reciprocal and market realms while simultaneously incorporating ecological benefits, and so enhances the productivity of the reciprocal, market, and ecological realms.

4.3.2 CCs for potential development

CCs have focused largely on mutual aid and volunteer activities for adults, or on the revitalization of local business. However, new types of CC have appeared recently that target children. These systems are designed to foster educational opportunities for children to learn about finance and for career experience. In this experimental new approach, children take part in the actual planning and organization of festivals or events and receive CCs in exchange. This allows them to learn about commerce and economic mechanisms. While children experience the act of purchasing in their daily lives, they seldom have the opportunity to experience what it is like to sell goods or services. By participating in this program, they learn about the joys and difficulties of commerce, as well as the valuable lesson that something must be "sold" in order for something to be "obtained."

One of the representative CC schemes of this type is "Oar" in the town of Toda, Saitama, which began in 2008. In this system, children learn how the purchase and sale of goods in shops work, and obtain CCs in exchange for their work. They can use the CCs to purchase local items, as well as at festival booths to purchase gifts for friends and family. This educational program allows children to experience the fun of commerce, develop cooperation and socialization skills, and understand the importance of proper greetings and etiquette. Similar "career experience" initiatives for children using CCs are on the increase, such as "Ma-bu" in the town of Mino, Osaka, which began in 2014, and Omusubi Tuka, referred to in Subsection 3-3-1.

The following case shows increasing local resilience in using a CC. Originally, the Transition Town movement spread rapidly throughout Japan after being imported from Totnes in England. This movement is designed to reform lifestyles and consumption patterns based on petroleum dependence and to utilize natural resources effectively to enrich lives. One such project that has garnered attention in Japan today is "Yorozu Ya," which began in 2009 in the transition town of Fujino in the town of Sagamigahara, Kanagawa. The Yorozu Ya CC encourages local ties and improves local resilience in the area. It operates as an LETS (Local Exchange Trading System) type of passbook. Transactions are managed on the ML (Mailing List) and used for car pick-ups and drop-offs, farm work, and child support. One of the features of Yorozu Ya is that users have a shared consciousness about the CC. Participants in Yorozu Ya do not perceive negative deductions to their passbook as something undesirable. On the contrary, they perceive these deductions as opportunities to help others bring out their potential skills. In this way, it is regarded as positive to have more negative deductions against a passbook. Since the system is made up of people who have this mindset, the CC transactions through the LETS passbook are used for everyday expenses and uses. The passbooks are actively used to make full effect of underutilized resources and skills.

Thus, CC users advance each other's potential skills using this process not only to revitalize their area but also to lead lives that do not strain the environment. The concept of resilience is important to the Transition Town movement. Local resilience is the concept of responding flexibly to critical situations caused by other factors. Because this is the underlying thought of the process, it has become easy for the CC to prevail in this community. Although Oar and Yorozu Ya have different objectives, both CCs focus on developing potential skills among their users. Oar is used to enhance children's understanding of the economy and their socialization, while Yorozu Ya is used to share and advance potential skills among its users. In this way, the respective CCs advance and refine the potential skills and talents of each community.

5. DISCUSSION

This study has depicted in detail the diversity of CCs, whose history shows the three stages in the countermovement to the market society. Many previous studies have extracted the types and characteristics of CCs for each era, but

have failed to show dynamic changes therein. We have sought an entirely new way to tie together diverse types of CC, rather than merely describing them. We have focused on Polanyi's concept of "countermovement" and his discussion of the formation and collapse of the market society from the 19th to 20th centuries and, in so doing, have come to consider that this concept applies to the big movements of the 21st century and that we can understand CCs as one form of countermovement to the market society. We have been able to apply Polanyi's perspective to our goal of showing the evolutionary process of Japanese CCs. In this section, we will advance discussion of what kind of significance about countermovement CCs are in Japan.

In the first stage from the 1970s, CCs appeared in largely reciprocal realms where they could be used for volunteer activities and mutual aid. Since the end of the rapid economic growth in the early 1970s, the Japanese economy has become increasingly dependent on the market, falling into the collapse of the bubble and a long-term economic recession. Two serious problems, labor and population issues, have had a strong influence on the appearance of CCs in Japan. First, the deregulation of the labor market has drastically changed the employment situation, leading to an increase of non-full-time workers. When the Japanese economy enjoyed an era of high-speed economic growth in the 1970s, companies faced the problem of constant labor shortage, and tried to hire as many full-time workers as possible by giving them good terms. However, due to the collapse of Japan's economic bubble at the start of the 1990s and the deregulation of employment after the 2000s to increase productivity under global economic competition, Japan has experienced a rapid change in its way of work and lifestyle. This is the background within which CCs have attracted attention. Second, there are problems with the deterioration of local communities due to the falling birthrate, aging population, and decreasing population. As Tsuruyama, a project leader of the Sawayaka Welfare Institute, explains (Tsuruyama, 2013), people have gradually been understanding the problems of the aging society and the trend toward nuclear families, appealing for the necessity of a state welfare service. However, a welfare state would not be able to satisfy all these needs. Voluntarily fixing these problems from the bottom of civil society has thus been important.

To summarize the discussion so far, the government was financially pressed, and the condition of public aid, including social security, became critical. Around the same time, self-help or mutual assistance mechanisms gained attention, and the movement to introduce CCs appeared from the aspect of welfare. This occurred since state redistribution did not work well as a countermovement against the market society; thus, CCs were practiced as a way to revise the home economy and increase reciprocity.

In the second stage from the early 2000s, CC coupons appeared for use in non-commercial and commercial transactions. The CCs of this stage appeared to tackle the depressed local shopping streets. These CCs have tried to revitalize local economies in addition to providing a welfare service. It seemed as if the power of the countermovement had strengthened, but practical problems with CCs became apparent. Due to the various obstacles to formulating a complete non-market economy, a new type of CC has emerged that integrates market society and the countermovement. Many cases first make efforts to obtain one dimension, and only incorporate the other secondarily. However, despite the difficulty, it is important to balance both dimensions to achieve community goals when introducing CCs. In the third stage from the mid-2000s, new types of CC appeared, that aimed to preserve the natural environment and to encourage the exchange of local products. As a means to survive the market society, CCs have become a new focus to support community activities in daily life, defying conventional thinking about the frame of market or non-market. As described above, the content of CCs as a countermovement against the market society has undergone a major transformation. We can organize the above explanation in that the history of CCs in Japan has appeared to counter the stress due to the spreading market society. In the 1970s, CCs did not become a social phenomenon, but worked during the crisis of a bloated market society and limitations in the welfare state. Since the acceleration of liberalization in the 2000s, there have been many unsolved problems due to structural reforms in the labor market, such as disposing or downsizing by laying off non-full-time workers, a decline in the local economy, decreasing population, low birth rate, aging society, and so on. The state has so far handled the economy by implementing a fiscal and financial policy, but these policies have been of doubtful usefulness. CCs simply rapidly increased as a countermovement when a bloated market society and the limitation of state policies had a major impact on the Japanese economy around the early 2000s (See Figure 2). The impact of the media, which introduced CCs, was also large, but CCs in Japan have evolved as a countermovement from the grass-roots toward social disorder or economic recession. We have been unable to fully confirm the correlation and causation between unemployment rate and the

birth rate of CCs, but a drastic change of lifestyle caused by deregulation in the labor market has led to a diversification in people's way of thinking in relation to work or income. These conditions were also one of the reasons why CCs have gained attention as a new tool to solve social problems.

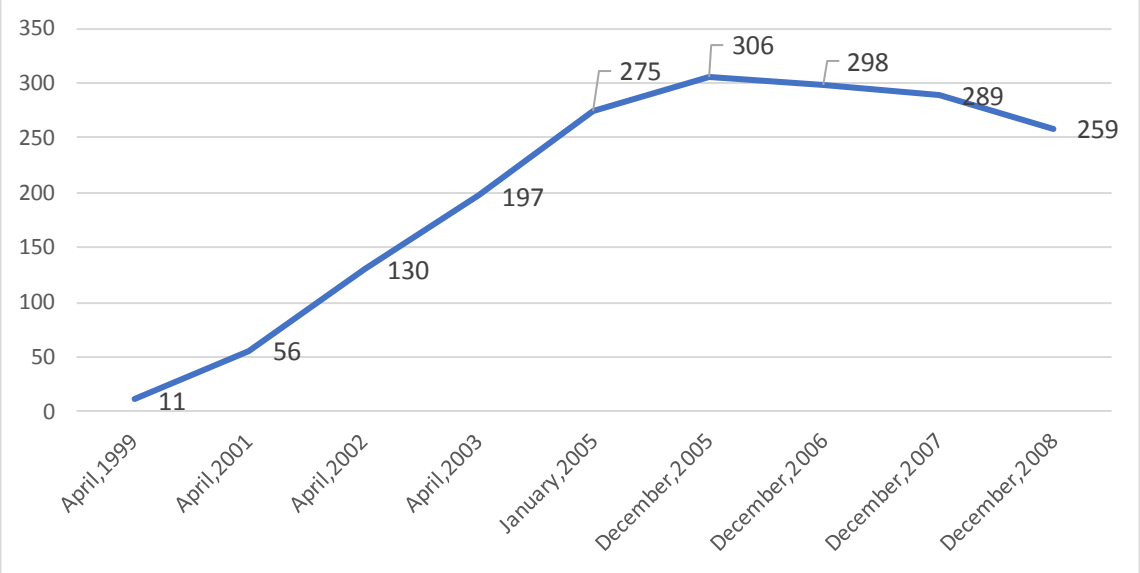

Figure 2 Trends in number of operating CCs in Japan, Source: Izumi (2013) pp. 237

Finally, two important factors for the success of CCs can be pointed out through historical observation: the psychological aspects of users and interrelationships among CCs. For users to distinguish the difference between money and CCs is one of the most important factors in ensuring the success of a CC. For example, in the case of Yorozu Ya, if users increase the debits to their CC accounts, they recognize that doing so advances other local residents' potential skills. In a global market economy, the behavior of increasing debits is disliked because it refers to rising debt. However, in the case of CCs, increasing debts could bolster other peoples' potential skills. In the case of CCs for children, users recognize CCs as special-purpose money, different from cash, that is used for job experience and volunteer activities. In Japan, the use of cash by children is seen as potentially disagreeable and troublesome. There is a common sense that only CCs can be used as a tool to enable children to participate in social activities. In this way, users' ability to recognize the difference between CCs and cash has a major impact on the sustainability of CC circulation schemes.

Another important factor in the development of CCs is the weakness of interaction among them. Each CC has evolved separately without sharing its experimental difficulties and successes. On the other hand, some CCs imitate other systems without tailoring them to fit their own communities. One reason is that practitioners have little time to use CCs and share ideas with each other.

6. CONCLUSION

This study has focused on the diversity and evolutionary process of CCs in Japan and classified them by type. Modern CCs began to appear worldwide from the early 1970s and various types of CC have circulated in each country. In this study, we confirm the definition and classification of CCs by surveying previous studies on CCs in Japan. Three stages in their development have been identified. At first, many CCs were used to bolster mutual help services, such as the Volunteer Labor Bank and Fureai Kippu. Thereafter, CCs integrated the reciprocal and market realms. Since then, new types of CC have emerged, such as the CC coupon, and CCs to advance local residents' potential skills, allow children to participate socially, and protect forestry resources. Thus, it can be seen that in Japan, CCs have created diversity as they have evolved.

On the basis of these outcomes, we point out a number of problems. First, user recognition of the differences between CCs and cash is an important factor for their sustainability because common sense could help users to in-

crease their use of CCs within their communities. Second, there is a problem of weak interaction among practitioners. Building an environment in which each practitioner shares ideas and problems for currency circulation could produce a specific currency suitable for each community. By researching the history of CCs in Japan, we can understand their evolutionary process and diversity, which helps to analyze the effects and problems of CCs and to identify the type of institutional design that is best-suited for their smooth circulation. In addition, this research could help researchers outside Japan to understand the country's unique CC history. In the future, we aim to compare Japanese cases with those of other countries, and to identify the features of the evolutionary process of CCs in Japan.

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USING SIMULATION AND GAMING TO DESIGN A COMMUNITY CURRENCY SYSTEM

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ABSTRACT

We position gaming and simulation as one method for designing a community currency (CC) that matches the local customs and institutions at the introductory stage and discuss the effects of this method by analysing the results of the attempts made so far. In order to learn the CC system and to promote common understanding among different stakeholders, we made The Community Currency Game (CCG). We implemented the gaming to the residents who were planning to introduce a CC into their town. In the gaming, participants' attitudes towards the diversity of money were positively affected and they began to recognize that the social network created by CC is important to the region. We found that through the virtual use of a CC in gaming, it is possible to share knowledge of participants' perception of the CC and their resulting behaviours and utilize this knowledge to discuss a fundamental aspect of the CC and its design. We constructed a computer simulation model based on CCG to identify the factors that promote the circulation of CC. We found that the purchase rates of the area within town increased within three parameters: the premium rate of CC, the proportion of the CC in salaries, and the probability of volunteers with CC. As residents began to offer discounts according to the premium rate of the CC, shop evaluations inside the area increased. Therefore, this policy stimulates the local economy. However, the cost of the CC issue increased owing to the premium. On the other hand, policies in which the resident agents' salaries were paid with CC and volunteers were paid by residents with CC are sustainable. These policies do not directly stimulate purchases inside the town. However, the purchase rate of the area within town gradually increases with the ratio of the CC in salaries. Moreover, the probability of volunteers increases according to habitual use of CC, community-oriented values, and the balance of CC. In this study, we found that simulation is an excellent method of presenting specific scenarios for a CC design based on the discussion in the gaming. Within the cooperative relationship between community residents and researchers, a method utilizing both gaming and simulation can be effective in designing a CC in the introductory stage, which until now, has been carried out on an ad hoc basis.

This paper focuses on the diverse development of modern community currencies (CCs) in Japan and provides a classification of them by type. Modern CCs appeared in the early 1970s and since then various types have circulated globally. With the increase in CC practices, academic research into CCs has emerged as a growing area of interest. However, since CC systems are diverse, it is difficult to obtain a commonly recognized definition of CCs, or criteria for their classification

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according to their characteristics. Since this problem is shared even by international researchers, it has become an important issue in the field. In this study, we confirm the definition and classification of CCs by surveying previous studies on Japanese CCs. Furthermore, this paper reveals the reality of CC systems that continue to evolve through a process of development and decline, by looking back at their history. In order to explain the evolutionary process, we employ the concept of "countermovement," as advocated by economic anthropologist Karl Polanyi. Based on our outcomes, we describe three stages in the evolution of CCs, which are the reciprocal realm, integration between the reciprocal and market realms, and new realms.

KEYWORDS

gaming simulation, multi-agent simulation, institutional design

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1. PROBLEMS IN INTRODUCING COMMUNITY CURRENCIES

Since the 2000s, many types of community currencies (CCs) have been issued and utilized in Japan (Nishibe 2013), some of which have encountered sustainability problems. Yamazaki (2013) reported that about 60% of CCs in Japan were terminated or suspended because of a circulation failure within certain areas. Some articles pointed out that CCs encounter several types of problems. Sakata (2009) mentioned that it is necessary to build a fund and human resources for a CC to support sustainable regional development. However, Nishibe (2006) said that many organizations that issue CCs are dependent on subsidies and volunteer work; therefore, these organizations will not function efficiently if subsidies were cut and the number of volunteers decreases.

However, CCs do not circulate even if the problem of funds and human resources is resolved. Nakazato and Hiramoto (2011) pointed out that CC transactions are conducted as part of an organization's practice. Therefore, the organization's practice decides the manner of CC transactions. Konaka (2005), from a research survey on the EGG—a CC implemented in the Ekimae Ginza Genki Street in Shizuoka Prefecture—explained the negative perception of this CC, and consequently, the use of EGG did not spread. Therefore, when introducing a CC, it is necessary to consider not only issues of funding and human resources of the organization that will manage the CC and its circulation, but also consider the social and cultural background of the target area. However, in many areas of CC introduction, it was difficult to design a circulation scheme that considered social and economic systems, including the customs and institutions, in the introduction stage. However, it is also fact that researchers and practitioners are yet to devise methods to design such a circulation scheme for CCs. We position gaming and simulation as a method of designing a CC that matches the local customs and institutions in the introduction stage and discuss the effects of this method through an analysis of the results of attempts made so far.

2. PREVIOUS STUDIES IN CC DESIGN

To resolve these problems, it is necessary to establish a platform on which different types of individuals can use CCs that reflect their trading situations. Lietaer and Hallsmith (2006) focus on the purposes of introducing CCs. They define CCs as allowing "localities and regions to create real wealth in their local economy by matching the unmet needs with the underutilized resources" (Lieter and Hallsmith 2006, 2). They state the following steps in establishing a CC: 1) set currency objectives, 2) choose the appropriate currency, 3) recruit the leadership team, 4) choose the right mechanisms, and 5) establish a circulation system. Using a worksheet, an organization considering a CC can satisfy these points and design a CC system. However, sharing the experience of using a CC with various types of stakeholders is difficult and it is necessary to provide such sharing opportunities.

Powell and Salverda (1999) created the Community Currency Role Play to share the experience of using a CC with participants. They define the objectives of the game as follows: 1) create awareness of how resources (especially money) flow out of a community, 2) show how CCS (community currency system) helps plug some of those leaks, 3) show how purchasing power increases through the use of CCS, 4) demonstrate the power of CCS to create interest-free credit, 5) explain the operation of a basic CCS, 6) create awareness of how a community can re-assess value (prices) within the community, and 7) a starting point for discussions on whether a CCS would be feasible/desirable under local circumstances (Powell and Salverda 1999, 3). This method provides an opportunity of using a CC and sharing this experience with participants through discussions. It is necessary to establish the CC system in advance; however, several types of participants in the game make it difficult to set purposes for introducing a CCS. Examining these methods, we find that one focuses on setting purposes for introducing CCs and the other on understanding the mechanism of a CC. The problem seems to be that these methods lack a process to systematically incorporate both purpose setting and the learning process and feedback on each other's achievements. Furthermore, it is necessary to include not only leaders but also various stakeholders involved in the CC system. We consider the gaming simulation suitable for learning how to use a CC[1]. Gaming simulation is "a hybrid form, involving the performance of game activities in simulated contexts" (Greenblat 1988, 15). Gaming simulation enables "an operating model of central features of elements of a real or proposed system, process, or environment" (ibid, 14). Furthermore, gaming simulation is suitable for designing CCs and introducing them into

[1] See Yoshida (2012)

communities[2]. Participants can discuss conditions to examine for a CC to circulate based on the results of the game[3]. However, as the rules of CCs and transactions are determined for gaming, it is difficult to transform them into reference materials when setting the detailed parameters for CC design, which must be set in advance. It is also difficult to discuss and investigate the sustainability of CC circulation from gaming with a limited number of transactions.

Therefore, to solve these gaming problems, we use computer simulations to present possible scenarios of CC circulation and investigate specific CC designs. Methods for analyzing and evaluating multiple assumed measures through computer simulation have previously been used in the field of social simulation. Deguchi (2013) stated that simulations are the most effective method of investigating the influence of parameters and the evaluations of various options. In addition, Terano (2013) discussed simulations as a method to demonstrate the initial and boundary conditions necessary for the analysis and design of social systems. In this study, we consider the effectiveness of simulation and gaming as tools for a common understanding of the goals of a CC system and explore possible scenarios that might result from the introduction of CCs.

3. GAMING SIMULATION TO FORM COMMON RECOGNITION

3.1 The Community Currency Game (CCG)

The Community Currency Game (CCG) is a multi-player, face-to-face, analog game.[4] The purpose of the game is to learn the CC system (how to use a CC?) and promote common understanding among different stakeholders (what is the goal of introducing a CC?).

The main rules of the game are as follows[5]:

- Determine five to eight types of residents in a town (businessperson, student, etc.); each participant is assigned one of these roles and has trading record sheets (see Figure 1).
- The participants throw a dice to determine their trade in goods and services. When participants buy goods and services, they must choose a shop within or outside the town. The price of goods and services inside the town is higher than that outside.
- Participants face some problems (snow removal, etc.), which are determined by the dice. Other participants can volunteer to help. If they perform volunteer service, their income from outside the town reduces ten percent on their next turn, as the cost of volunteer work. In these situations, they must choose to pursue either self-interest or public interest.
- The game consists of two phases. The first phase consists of two turns and participants trade only with legal tender (yen) in this phase. The second phase consists of three turns, in which they trade with legal tender and CC. In this phase, participants must decide the proportion of CC used to pay the selling price of traded goods. Further, participants must decide whether to receive CC for volunteer services rendered.

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[2] See Yoshida (2013), Yoshida and Kobayashi (2014a), (2014b), (2015).

[3] Some researchers have used gaming simulation to investigate the conditions for the circulation of CCs (Hayashi and Yosano 2008). These studies noted that the economic divide within a community affects the circulation of a CC. However, as CC issuers cannot operate this condition, it is difficult to apply these studies in designing a CC system. We develop a gaming simulation to search for the operable conditions that affect the circulation of a CC.

[4] This game is inspired by Powell and Salverda (1999) with a substantial change.

[5] For details, see Kobayashi, et al. (2013), Yoshida and Kobayashi (2014a).

- We explain to the participants that this town has two big problems: the decline of the local economy, and decrease in mutual aid in the community. We make participants think for solutions to these problems. As per the game setting, the more the participants use a CC, the easier it becomes to resolve these problems.

trading record:before introducing a CC

( )turn

employee

	dice(1)	item/sales outlet			volunteer
purchase	1	Home electrical appliances outside the town	Delicatessen supermarket/outside the town	Private teacher student	
	2	Bicycle outside the town	Pancake restaurant/outside the town	Vegetable supermarket/outside the town	
	3	Clothes general store/outside the town	Stay Japanese-style inn	Curry restaurant	Taking pets for a walk student
	4	Delicatessen supermarket/outside the town	Hot spring Japanese-style inn	Chinaware pottery/outside the town	Harvest experience farmer
	5	Spice outside the town	Rice supermarket/outside the town	Delicatessen supermarket/outside the town	Learnig how to cook a curry restaurant
	6	Clothes general store/outside the town	Daily goods general store	China dish pottery	Babysitter student

sale	
item	amount
full-time job(10000 yen)	

volunteer	
menu	amount
house cleaning	

income from outside the town	dice(2)	income	amout of volunteering in previous turn	balance
	1,2	0 yen		
	3,4	6000 yen	Did you get a volunteer in previous turn?	
	5,6	12000 yen	Yes No	yen

trading record:after introducing a CC

( )turn

emploee

	dice(1)	item/sales outlet			volunteer
purchase	1	Home electrical appliances outside the town	Delicatessen supermarket/outside the town	Private teacher student	
	2	Bicycle outside the town	Pancake restaurant/outside the town	Vegetable supermarket/outside the town	
	3	Clothes general store/outside the town	Stay Japanese-style inn	Curry restaurant	Taking pets for a walk student
	4	Delicatessen supermarket/outside the town	Hot spring Japanese-style inn	Chinaware pottery/outside the town	Regional vitalization
	5	Spice outside the town	Rice supermarket/outside the town	Delicatessen supermarket/outside the town	Learnig how to cook a curry restaurant
	6	Clothes general store/outside the town	Daily goods general store	China dish pottery	Regional vitalization

sale		
item	CC receipt rule	amount
full-time job	10000 yen=( ) yen+( )S	

volunteer		
menu	CC receipt rule	amount
house cleaning	0S 500S 1000S	
regional vitalization	0S 500S 1000S	

income from outside the town	dice(2)	income	amout of volunteering in previous turn	balance
	1,2	0円		
	3,4	6000円	Did you get a volunteer in previous turn?	
	5,6	12000円	Yes No	yen

Figure 1 Trading record sheets: employee

Figure 2 Situations in the Community Currency Game

3.2 Research method

We apply the gaming to the residents of three towns in Japan: Iide, Tsubata, and Nomi. We choose them because a CC is planned for these towns in the future. Iide is a town in the mountainous Yamagata Prefecture. There are plans to introduce a CC to promote voluntary work in agriculture. Tsubata is a small town in the Ishikawa Prefecture. The introduction of a CC is planned there to promote volunteer work and revitalize the local economy. Nomi is a town in the Ishikawa Prefecture and there are plans to introduce a CC to promote voluntary work in communities. We conducted the gaming on December 4, 2013 in Iide, on January 25, 2014 in Tsubata, and on February 13, 2015 in Nomi. In Iide, 12 people participated; 16 in Tsubata, and 13 in Nomi.

We studied two types of changes in the game. First, we studied the changes in behavior of participants using the CC. In particular, we focused on changes in purchasing and volunteering when the CC was introduced. These changes helped us examine whether participants can learn using a CC. Second, we studied changes in their understanding of and attitude to a CC due to their experience with the game. We gathered survey data on attitude toward money and community-oriented values through pre- and post-game questionnaires and analyzed the responses. We focused particularly on the participants' cognitive social capital and their attitude toward money (Kobayashi et al. 2013).

We had two types of debriefings in this game. The first was conducted after the gaming and its goal was for participants to share their experiences in the game. Each role announced their final balance of legal tender and CC. Then, the participants discussed their experiences in the game and their understanding of a CC. The second type of debriefing was conducted after analyzing the trade history and pre- and post- questionnaire. In this debriefing, we fed back these results to the participants. After sharing their behavior in the game, the participants discussed a suitable CC scheme and its introduction in their town or community. The goal of the second type of debriefing is share the visions of introducing CCs into towns or communities with several types of stakeholders.

3.3 Design of the workshop using the gaming results

The trade history of the gaming noted that: 1) the proportion of items bought inside the town increased after CC introduction (Figure 3); and 2) the rate of volunteering increased after CC introduction (Figure 4).[6] From the pre- and post-game questionnaires, 3) participants' attitudes towards the diversity of money were positively affected; and 4) participants begin to recognize the meaning of a CC network (Table 1).[7]

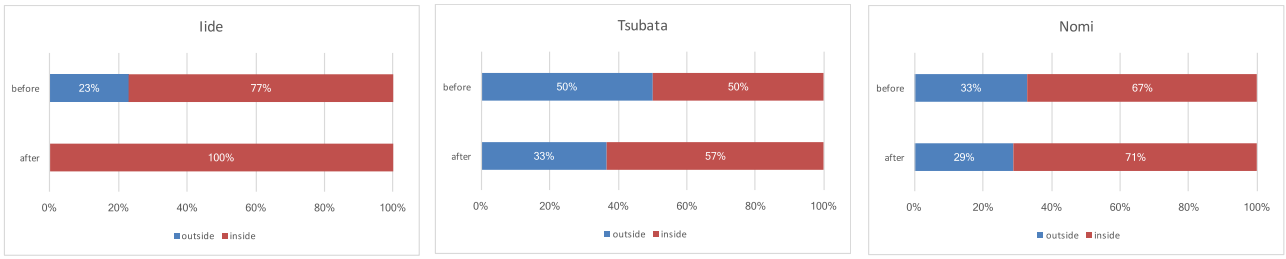

Figure 3 Proportion of buying items inside vs. outside the town

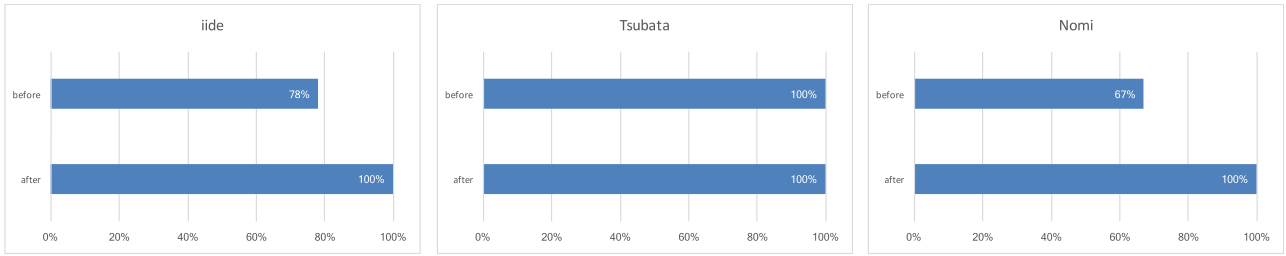

Figure 4 Volunteering rates

6 For details, see Yoshida and Kobayashi (2014a), (2014b).

7 For details, see Kobayashi et. al. (2013).

Table 1 Changes in consciousness through the CCG

Iide (n=11)	Before-experiment Mean	After-experiment Mean	Deviation	*p*- value
Do you think it is good that money can be created or issued freely by people?	2.73	3.18	0.45	
Do you think it is good that money can be issued or created not only by the central bank or commercial banks, but also by people or communities?	2.90	3.50	0.60	$p < .05$
Do you think it is good that money can be something that mutually connects people?	3.60	3.90	0.30	$p < .1$

Tsubata (n=15)	Before-experiment Mean	After-experiment Mean	Deviation	*p*- value
Do you think it is good that money can be issued or created not only by the central bank or commercial banks, but also by the government?	2.67	3.67	1.00	
Do you think it is good for money to be single?	3.40	2.93	▲ 0.47	
Do you think it is good that we can choose favorite ones out of different moneys?	2.73	3.40	0.67	$p < .05$
Do you think it is good that money can be something that mutually connects people?	3.07	3.70	0.63	

Nomi (n=13)	Before-experiment Mean	After-experiment Mean	Deviation	*p*- value
Do you think it is good that money can be issued or created not only by the central bank or commercial banks, but also by the government?	3.75	3.92	0.17	
Do you think it is good for money to be single?	2.42	2.50	0.08	
Do you think it is good that we can choose favorite ones out of different moneys?	3.67	4.00	0.33	$p < .05$
Do you think it is good that money can be something that mutually connects people?	3.83	4.08	0.25	

5: Strongly affirmative, 4: Weakly affirmative, 3: Neutral, 2: Weakly negative, 1: Strongly negative

These results suggest that the gaming does not only teach participants to use a CC but also changes their views on money and community.[8] In debriefing, participants can create a common understanding among many different stakeholders with these results.

From these results, we understand that although within the virtual-space of gaming, there changes to behavior and consciousness occur that to a certain extent reflect customs in reality. Gaming gives the participants the experience of using a CC by presenting the results of the questionnaire and macro data, such as their transaction histories. The circulation volumes of the legal currency and the CC are always established for a debriefing to enable each participant to reflect on why these outcomes occurred. This makes it possible to not only deepen the participants' understanding of the CC, but also for them to discuss CC design assuming a more realistic image of the local community.

[8] In fact, we found a positive feedback relationship between using a CC by volunteering and community-oriented values. See Section 4.

We conducted workshops in a number of locations to design a CC using gaming. For example, in Tsubata,[9] various types of stakeholders involved in the introduction of the CC (including researchers and members of the town hall, chamber of commerce and industry, and the social welfare council) participated, and while referring to the game as a whole and the results of the questionnaire, they discussed the effect of CC introduction and what was necessary to circulate it.

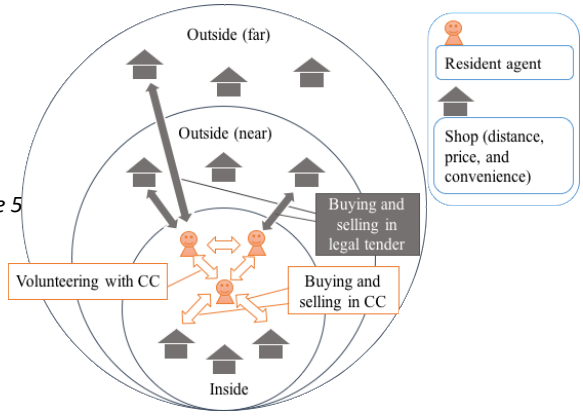

Figure 5

The participants expressed positive opinions on the CC, "using a CC allows us to become more aware of the community," and that "members of the community can interact with each other. It develops compassion. It leads to employment." However, they also expressed some negative opinions, such as "I do not think that tender currency will be converted into a CC and used for purchases in the community until a fee is collected" and "I feel that it is good that the community will be revitalized by the CC, but I also feel that its usability is made worse by the restrictions and rules." The discussion after the game confirmed that the CC is to be positioned as a method to rebuild the local community network of mutual help, cooperation, and aid by using the familiar shopping stamps, and that it will be important to collaborate with third parties such as the chamber of commerce and industry, town hall, and the social welfare council to construct the circulation system. Through the virtual use of a CC in gaming, it was possible to share knowledge on how we, and others around us, perceive CCs and our resulting behaviors, and discuss a fundamental aspect of the CC: how to design it.

However, the same results might not appear for all communities in the real world. The number of transactions in the game was finite and the parameters were set assuming that the CC will circulate to a certain extent. Therefore, it is necessary to discuss and investigate the sustainability of the CC's circulation after comparing the game situation to the actual situation in the community.

4. Computer simulation for setting the CC scheme

4.1 The computer simulation model

We constructed a computer simulation model based on CCG to identify the factors that promote the circulation of CC (Kobayashi et al. 2012). In this model, each resident agent in the town probabilistically selects a purchasing shop from three areas: inside the town, outside the town (near), and outside the town (far) (see Figure 5). Their selections are according to the following five factors (probabilities): habitual use of CC, habitual use of legal tender, community-oriented value, evaluation of shops, and the balance of CC. The probabilities of these factors for each agent can change depending on the agent's purchasing behavior.

Each shop has three elements: distance, price, and convenience. In this model, we set these elements as follows:

- Distance: inside < outside (near) < outside (far)
- Price: inside = outside (near) = outside (far)

[9] We are investigating the use of shopping stamps issued by the chamber of commerce and industry available as rewards for volunteers. The background to this investigation are the town problems , such as the decline of its commercial district and increase in the number of elderly who require shopping assistance. The idea of turning the shopping stamps into a CC was put forward as a solution to these problems.

- Convenience: inside > outside (near) = outside (far)

Under simulation conditions, we controlled three parameters: premium rate of the CC, proportion of the CC in salaries, and the propriety of volunteers with CC. We observed a change in the purchase rate of the area within town. First, we focused on the premium rate of the CC because a high premium rate tends to increase the velocity of CC circulation and enhance economic revitalization. Second, we focused on the proportion of the CC. The proportion of the CC paid as salaries may control stagnation of CC in shops and promote its use. Finally, we focused on the propriety of volunteers with CC because Kichiji and Nishibe (2012) indicated that CC connects people in a distribution network and not only by the commercial use. We analyzed the promotion of CC circulation with the computer simulation model in Nagaoka.

4.2 Causal loop of the increase in purchase rate

In the simulation, the purchase rate of the area within town increased with the three parameters: premium rate of CC, proportion of the CC in salaries, and the probability of volunteers with CC. However, the mechanism for increasing the purchase rate of the area within town is different (see Figure 6).

The purchase rate of the area within town increases with the premium rate. In this case, shop evaluations inside the area increased, as they offer discounts according to the premium rate of the CC. If the resident agent purchases inside the town, the evaluation of shops within town increase. Therefore, this policy stimulates the local economy. However, the cost of CC issue increased due to the premium. Therefore, this policy is not sustainable.

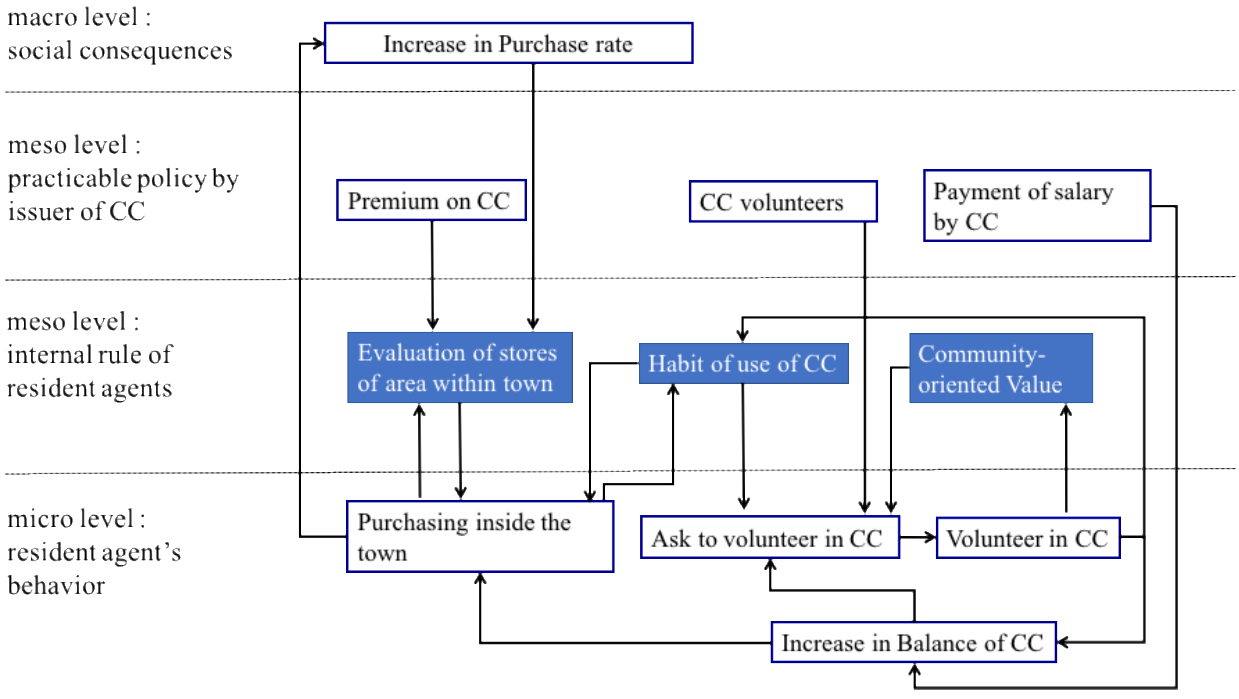

Figure 6 Causal loop of the increase in purchase rate

On the other hand, policies in which the resident agents' salaries were paid with CC and residents paid volunteers with CC are sustainable. However, these policies do not directly stimulate purchases inside the town. The purchase rate of the area within town gradually increases with the ratio of the CC in salaries. Paying salaries with CC increases the balance of CC and shops within town are more likely to be chosen. In addition, the probability of habitual use of CC also increases. Moreover, when residents pay volunteers with the CC, the purchase rate of goods in the area within town increases compared to not paying volunteers with the CC. The choice probability according to the community-oriented value also increases, as the community-oriented values of resident agents

develop by providing volunteers. Moreover, as some individuals receive CC through volunteer work, the balance of CC also increases. Consequently, the resident agents have more opportunities to choose shops within town. Furthermore, the probability of volunteers increases according to habitual use of CC, community-oriented values, and the balance of CC.

Therefore, computer simulations have an advantage in that they make it possible to investigate how resident agent's internal rules will affect the circulation of the CC through the long-term transactions conducted in this currency, and how the internal rules will themselves change. However, while it is possible for researchers to evaluate assumed scenarios using computer simulations, the interpretation of the simulation results by the CC management body, which formulates and implements policies, and by the local residents, will be limited due to difficulties in understanding the model itself. In addition, it is necessary to conduct sufficient analysis and implementation to construct a model that includes the gaming results. Thus, it is possible that designing the CC will require substantial time and money.

We consider that game design and implementation should promote an understanding of the model itself. Goto et al. (2014) developed and confirmed the effectiveness of a gaming system to enable the subjects to understand the validity of the simulation model and its results. The simulation model that we implement follows one part of the structure of a CC game; however, by having commonality to the simulation and gaming structure, it may be possible to redesign not only the macro part of the simulation results, but also the part linking the macro to the micro so that it can be inferred by the participants. Constructing a model (Hishiyama, 2014) that follows a multi-agent gaming framework that can instantaneously simulate the changes to the consciousness and behaviors of local residents from the gaming results, it is possible to shift from gaming to simulation and accelerate the analysis.

5. Simulation and gaming as a tool for introducing CC

At the CC introduction stage, the experience of local stakeholders as participants in gaming can be used to not only obtain findings on CC mechanism, but also—by comparing the circulation conditions in the game with those in the community—to facilitate a discussion on matters that are necessary to design the CC. In addition, the interaction between the participants in the game increases the possibilities of obtaining game results that reflect the customs and institutions of the participants' communities. Researchers who conduct gaming observe and analyze participants' behavior histories and changes in consciousness as quantitative data and present this data to the participants, which might enable stakeholders to learn about CC designs that reflect the social and cultural background of their community.

Simulation is an excellent method of presenting specific scenarios for CC design based on discussion in the gaming. In addition, utilizing the participants' behavior histories and changes in consciousness as data to construct an agent model in the simulation contributes to increasing the validity of the simulation itself. Moreover, apart from simulation modeling, they can be used to design the structure of the CC game using simulation. We have already used the simulation to adjust the balance of the CC game. By using the simulation to adjust the game parameters (price, income, etc.) in advance, it becomes possible to create a game that reflects the circulation and the income structure in the participants' actual community. This not only gives the participants a feeling of reality through the game, but can also make the gaming results more closely resemble the actual situation of CC introduction. This method can be used to not only bring the game closer to the community situation, but also to create awareness among participants.

As shown in the discussion, within the cooperative relationship between community residents and researchers, a method utilizing both gaming and simulation can be effective in designing a CC in the introduction stage, which up until now has been carried out on an ad-hoc basis.

However, there are a number of issues with this method. First is the issue of validating the results of the gaming and simulation. Particularly in gaming, the results will differ depending on the characteristics of the participants and their facilitation. It is necessary to deal carefully with the interactions created by gaming, which have a high degree of freedom, and the scenarios created by the simulation results. One method to address this issue is to conduct a debriefing emphasizing the various interactions that occurred in the gaming process, rather than on the gaming results, and then validate the scenario by dropping the scenario obtained from the simulation even further

into the gaming, and having the local residents play again. The robustness of the scenarios can be improved by conducting a double check through the simulation and gaming.

Second is the issue of whether a cooperative system between the local residents and the researchers on the method of management, that is, the integration of the gaming and simulation, can be built. When gaming and simulation are used to design a CC, it is vital to have a cooperation system in place between the researchers who initiate them and the body that is managing the CC. However, when introducing the CC there is not only the issue of the scheme in terms of the circulation pathways in the gaming and simulation, but in many cases there are various other issues relating to the people involved. It will be necessary to sufficiently investigate how and to what extent researchers are to be involved in building this cooperation system.

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