



Analysis

Community currencies and sustainable development: A systematic review

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ABSTRACT

Community or complementary currency systems have spread all around the world. Most often, they have been promoted as tools to foster sustainable development albeit they differ in terms of specific objectives. While many case studies have tried to assess the actual impact of these systems, there has been no global analysis summarizing their global impact.

This paper aims to fill the gap by exploring whether complementary currencies contribute to the three pillars of sustainable development. We use the systematic review methodology on an original dataset gathering most academic publications on the topic in English, French and Spanish. Our main findings suggest that community currencies mostly contribute to social sustainability, and that their economic benefits are somewhat limited due to their small scale and the lack of awareness on their scope. Moreover, very few studies explicitly identify environmental outcomes. Finally, this review reveals some limits regarding current methods for impact assessment in this field. Therefore it encourages more standardization to provide greater accuracy and strengthen the legitimacy of community currencies in order to foster their continued development.

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1. Introduction

Over the last few decades, a growing number of social movements have turned their attentions to the challenges of globalization in terms of sustainable development. Concerns have been raised about the conventional monetary system notably that such a system is unsustainable because of the constant drain of financial resources going from poor to rich segments of the population, and the obsession for economic growth as main economic philosophy (Seyfang and Longhurst, 2013; Lietaer et al., 2012; North, 2007). All of these result in the amplification of economic disparities and the decline of local economies (Robertson, 1999; Strange and Bayley, 2008) and even frequently the depletion of natural resource (Jackson, 2009). In response, a few 'new economic' approaches argue that we need to revise priorities away from the principal objective of economic growth and more oriented towards the well-being of society and community-level sustainable development (Seyfang and Smith, 2007; Ekins, 1993; Frankova et al., 2014). They argue that all three pillars of sustainability need to be addressed and given some importance.

In parallel with this approach, and frequently inspired by green movements, community currencies have been developing all around the world by non-governmental organizations (NGOs), non-profit organizations (NPOs) and informal groups. The motivations to create such

systems vary. Some of them were established in response to crisis situations to protect local livelihoods. For instance, Conill et al. (2012) argue that community currencies were part of community economic alternatives that have spread throughout Catalonia due to the recent crisis. Many recent community currencies are now emerging more and more deliberately as grassroots innovations with the aim of promoting sustainable development (Colacelli and Blackburn, 2005; Douthwaite, 1996; Meechuen, 2008; Seyfang, 2001a,b). More specifically, these currencies could, for instance, ease the transition to a lower-energy economy (Douthwaite, 2012; Joachain and Klopfer, 2014). Over the last decades, the number of community currency projects has experienced dramatic growth around the world (see Lietaer, 2001) and during one of their studies, Seyfang and Longhurst (2013) recorded more than 3000 clusters of projects across 23 countries and 6 continents.

However, within the large amount of papers studying this movement, the terminology of these new forms of exchange remains confusing and contested (Seyfang and Longhurst, 2013). Among others, they are alternately called local currencies, alternative currencies, parallel currencies, community currencies or complementary currencies (Blanc, 2011). However, for reasons of clarity, only the terms "community currency (CC)" and "community currencies (CCs)" will be used in this paper.

Typically, CCs design the broad family of currency systems that exist alongside conventional currencies, circulate within a defined geographic region or community, and arbitrate exchanges of goods and services without bearing interest (Lietaer, 2001). Some of the

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most famous examples of CCs are Time banks, Ithaca HOURS, Local Exchange Trading Systems (LETS),¹ WIR and the Red de Trueque. They vary impressively in their design, with some using physical paper-based currencies while others are only recorded as debit and credit lines in registers or electronic databases (Evans, 2009). They also differ in scale and objectives and a typology will be presented in a later section of this paper.

The CC field is currently on its way to develop itself as a solid discipline with an increasing amount of studies discussing the matter (Place and Bindewald, 2015). However, while the existing works have deeply searched and highlighted the diversity, the motivations and the potentials of community currencies, few have presently evaluated their concrete impact. Moreover, publications assessing outcomes of these systems consist generally of individual studies of one particular CC project (e.g., Jacob et al., 2004; Pacione, 1997) or national studies evaluating similar exchange systems (e.g., Birch and Liesch, 1997; Seyfang, 2002). To date, it would seem that almost no studies have comprehensively assessed the global impact of community currencies. The only exception we are aware of is Dittmer (2013), who reviews English academic research about local currencies.

Still, impact evaluation and proof of positive outcomes are needed for different reasons. Firstly, as DeMeulenaere (2008) discovered in his study that CCs rely mostly on external financing, convincing governments and financial institutions could help to get more support. Secondly, while CCs are generally small-scale systems, McBurnie (2012) found a positive correlation between the awareness of community and environmental benefits and the willingness of non-members to start using the currency. As a result, more people and businesses would possibly join CC systems if evidence of positive impacts is correctly demonstrated.

For these reasons, this research attempts to draw a global picture of the actual impact of community currencies and assess how successfully they achieve sustainable development. With this aim, a systematic review of the most comprehensive and available literature has been conducted. Following Seyfang and Longhurst (2013), the CCs analyzed were categorized in four main types according to their objectives and the extent to which these objectives correlated with actual outcomes of each type was also evaluated.

The remaining part of the paper proceeds as follows: the next section describes the theoretical context for the review, describing the link between the three pillars of sustainable development and community currencies, and presenting the typology used for the analysis. Following this, the particular methodology of this research is explained. Next we present the findings, including the characteristics of the analyzed studies and the observed impacts. A discussion of these findings is then provided. Finally, we conclude with some implications of this study for the future.

2. Theoretical Framework

2.1. Community Currencies and Sustainable Development

According to Robertson (1999) the current monetary system challenges sustainable development for two main reasons. Firstly, resources are systematically relocated from poor to wealthy segments of the population. Kennedy (2001) referred to it as the “fairness misconception”, stipulating that everyone is in fact not treated equally in our monetary system. In her study comparing the interest paid and received by German households, she found that the mechanism of interest only benefited a small minority of rich people, while the majority (80%) paid almost twice as much as they receive. Secondly, Robertson (1999) denounces constantly higher levels of

production, consumption and investment resulting from the money-must-grow imperative.

The basic vision of sustainable development stipulates that our decisions should bear in mind the interconnection of the economic, social and environmental spheres. With the aim to realize these objectives, new economics organizations and academics attempt to create new institutions or parallel infrastructures that comprise more sustainable systems of production and consumption (Douthwaite, 1996). The development of new monetary systems through the establishment of community currencies systems is one such example.

Without question, the fundamental basis of community currencies is the rejection of the credit-money foundation of the capitalist system, and more specifically how conventional money is created. CC advocates criticize how the creation of money, by engendering debt and the repayment of credits with interest, leads to an ever-expanding monetary system (Rowbotham, 1998). As Kennedy (2001) states: “Interest leads to compound interest. Compound interest leads to exponential growth. And exponential growth in turn – wherever it cannot be transformed – is unsustainable.” (Kennedy, 2001:1).

While the general objective is to create more resilience in the monetary system, CCs are generally promoted to make sure that a bigger part of savings and local income circulate within the local community. Community currencies have commonly been supported by practitioners of green and political economy movements as tools to stimulate sustainable development (Douthwaite, 1996; Greco, 2001; Robertson, 1999). They are considered as grassroots innovations that introduce bottom-up solutions for sustainable development by responding to the local situation and the interests of the communities involved, focusing on the social economy rather than the market economy, and offsetting the loss of local autonomy at the expense of the global market (Seyfang and Smith, 2007).

This paper aims to examine the impact of CCs and also the ways in which they can effectively foster sustainable development. Before entering into the subject in more detail, let's first explore the numerous theoretical ways in which CCs could potentially contribute to sustainable development and classify them according to economic, social and economic sustainability.

Economic sustainability is grounded in the recognition that natural resources are being depleted on an increasingly large scale by the economic system. CC advocates frequently argue that CCs can contribute to sustainability first of all because they can promote localization or foster local economic activity by preventing global outflows of wealth and increase the circulation of money in the community (Douthwaite, 1996; Collom, 2005). When the usage of the currency remains local, it is safe to assume that the money will circulate faster and in larger proportion, thereby stimulating the local economic multiplier and increasing local incomes (DeMeulenaere, 1998). Moreover, CCs can help to recognize informal work and value skills that are not valued by the formal labour market (Aldridge et al., 2001; Hudon and Lietaer, 2006; Scott-Cato, 2006). Through local import substitution, local businesses are provided with a market advantage that helps sustain their activity. Additionally, CCs may incite the establishment of small enterprises and stimulate an entrepreneurial spirit, with lower financial risk.

Social sustainability is the second dimension. It implies the maintenance of social capital, the promotion of cooperation, trust, and cohesion within the community for the benefit of all (Kahn, 1995). By creating small circuits of exchange, CCs have the propensity to foster community building, through increasing trust and stronger relationships between businesses and users (Collom, 2005; Jacob et al., 2004). Through the exchange of goods and services, people are able to expand their social networks and make new connections (Thorne, 1996). Another objective of these systems of exchange is tackle social exclusion (Lietaer, 2004). Plus, they can boost the self-esteem and confidence of such socially or economically excluded

¹ LETS are also sometimes called Local Exchange Trading Schemes.

groups by acknowledging that everyone's time and skills are equally valued (Gomez and Helmsing, 2008). Ultimately, recognizing informal work of women is an opportunity to address gender inequalities (Raddon, 2003).

Finally, the environmental dimension of sustainability translates into sustainable consumption, taking into account the biophysical limitations of the environment. It also stresses that that natural resources used for human needs must be regenerated faster than they may be consumed, and that the environment can properly assimilate waste (Kahn, 1995). With respect to CCs, localization can potentially moderate the environmental effects of global flows with import substitution and the reduction of transportation costs (Douthwaite, 1996). Additionally, CCs represent potential vehicles for raising people's awareness about environmental issues and tools to promote eco-friendly behaviour (Seyfang and Longhurst, 2011).

2.2. Typology of Community Currencies

Since the 1980s, the rapid multiplication of community currencies has also been accompanied by an important process of differentiation, or fragmentation, that has led to significant contrasts in terms of their design, scale and objectives.

Despite this great diversity, several attempts have been made over the past ten years to categorize and establish a typology of these systems (Blanc, 2011; Kennedy and Lietaer, 2008; Martignoni, 2012; Seyfang and Longhurst, 2013). However, the present paper will only consider the classification proposed by Seyfang and Longhurst (2013) as it categorizes CCs according to their objectives but more importantly because it is divided along the economic, social and environmental dimensions that we have just mentioned. However, it should be noted that this typology remains a "simplification of the full range of activities and motivations in existence" (Seyfang and Longhurst, 2013: 69). Moreover, the authors (Seyfang and Longhurst, 2013) excluded some emerging new models of CCs and also the projects of STRO,² which did not easily fit into the main types.

Essentially, four main types of CCs can be identified³: Service Credits; Mutual Exchange; Local Currencies; and Barter Markets.

Firstly, Service Credits such as Time Banks represent the most common type (50.2% of the clusters identified by Seyfang and Longhurst (2013)) and are grounded on the idea that everyone's time has the same value with a time-based currency. Members receive a time credit for each hour they provide a service to someone else and they can use this credit to benefit a service from another member. They target building social capital, cohesion and inclusion.

Secondly, Mutual Exchange currencies such as LETS comprise 41.3% of total projects in the sample of Seyfang and Longhurst (2013). Their value can either be linked to a national currency, be time-based or even a mix of the two. As two members exchange goods and services, one account is credited and the other is debited of the same amount. The sum of all accounts is always zero and the value of the currency is preserved by the trust the participants have in each other to meet their respective obligations. Moreover, they aim to provide access to additional liquidity and interest-free credit, and to encourage import substitution. Yet, they usually tend to balance between social and economic goals.

The third category, accounting for 7.1% of the systems, are Local Currencies. They are paper-based currencies sometimes convertible to national currencies and circulate within a geographically confined

Table 1

Categories of community currencies and their stated objectives.

Type of CC	Objectives
Service Credits	Build social capital, cohesion and inclusion
Mutual Exchange	Provide additional liquidity; ease access to interest-free credit; encourage import-substitution
Local Currencies	Increase local economic activity; support local businesses
Barter Markets	Foster a solidarity economy; encourage environmental behaviours

region. Some of the better-known examples of this type are Ithaca Hours in the USA, Regiogeld in Germany and Community Banks in Brazil. Their purpose is to complement the national currency, increase the local economic activity and support local businesses.

Lastly, Barter Markets that constitute a hybrid between a mutual exchange and a local currency represent only 1.4% of the reported projects. The most popular example of this category is the Argentinian barter clubs. Participants usually join a club and receive then some local currency, basically an interest-free loan. These currencies are not convertible and are utilized to exchange goods and services at regular market events. They mostly aim to foster solidarity economy but they also sometimes incentive the re-use of goods for environmental reasons.

Table 1 resumes the purposes of these four types. Accordingly, this paper will evaluate if the observed impacts reflect the stated objectives.

3. Methodology

To assess the impact of community currencies, we conducted a systematic review by following guidelines of the PRISMA Group⁴ (Moher et al., 2009) and Littell et al. (2008). The challenge consisted in collecting and evaluating the most comprehensive evidence of impact assessment frameworks available in the literature. With this purpose, a variety of sources and strategies were used to capture as many relevant studies as possible. To be clear, this involved gathering and making sense of existing studies, not directly studying any particular CC.

Fig. 1 below summarizes the methodology used for this review and the next sub-sections will explain the framework used in more detail.

3.1. Inclusion and Exclusion Criteria

The following criteria have been used to consider relevant studies for this review:

- any studies assessing any impact of community currencies systems were eligible for the review;
- papers referring indirectly to outcomes without directly evaluating them were judged as irrelevant;
- both individual cases about specific CC projects as well as national studies of a specific type were included;
- studies assessing projects of a limited time-related scope with only short-term objectives were excluded as this paper focuses on impact for long-term sustainability;
- only sources written in English, French and Spanish were included or considered;
- neither time nor geographical restrictions were applied;
- newspaper articles and web articles were excluded;
- peer-reviewed studies, as well as unpublished materials from the grey literature judged reliable, were included in order to extent the scope of the analysis.

² STRO is a Dutch NGO that developed some innovative currency projects in the Netherlands and South America.

³ Seyfang & Longhurst identified those four main categories from a total of 3418 clusters of projects across 23 countries and 6 continents.

⁴ PRISMA stands for Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

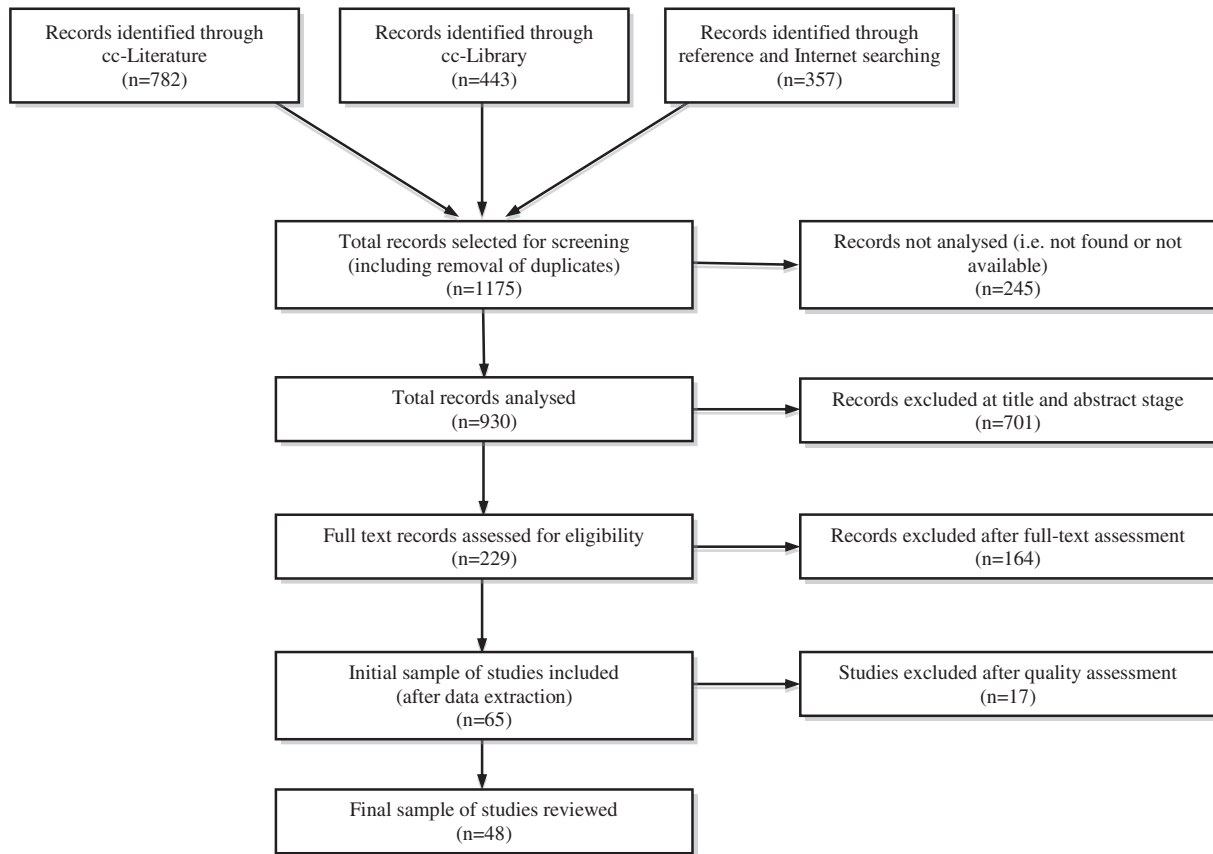


Fig. 1. Methodological approach.

3.2. Search Methods and Strategies

The first step of this review consisted in grouping the widest array of publications dealing with community currencies as possible. With this aim, a total of three search methods were explored.

Firstly, we searched the online database of the field, namely the bibliography of community currency research, also called cc-Literature,⁵ and a total of 782 papers were identified.

Secondly, the online library named cc-library was consulted on the Complementary Currency Resource Center website,⁶ where 443 publications were accessible.

Finally, a total of 357 papers were identified through personal enquiry, including research on search engines and on-line publication databases (CIBLE +, Proquest, and Google), and the consultation of reference lists of papers dealing with CCs. Consequently, a total of 1582 records were identified for screening and after removing the duplicates, 1175 references remained to be examined further.

The second step was to determine whether the papers were eligible for the analysis. Different aspects of the reports were then examined. The titles and abstracts were first checked for relevance, and 701 records could be excluded on that basis. Next, the full texts of the identified papers were collected when available and were assessed to select those that fitted the inclusion criteria. In particular, two papers were excluded as they evaluated small CC pilot projects with short-term goals, whereas CCs are generally implemented for

the long term. As suggested in the systematic review methodology, two authors reviewed the set of papers to validate the selection.

Thus, after assessment, a total of 76 records were judged relevant and were selected for the analysis. However, this list should not be considered exhaustive as 245 papers have not been able to be analyzed.⁷

Relevant data was extracted from the selected studies using a data extraction template that was developed and adapted to Microsoft Excel, so that data from the different studies could be easily compared. This data extraction template, available in Appendix A, included: reference information, characteristics of the CC systems studied, the objective of the study, the data collection methods, period of the study, member characteristics, impacts, and a quality score.

During the data extraction, some papers were evaluating the outcomes of several CCs. When they did it separately in a clear manner, they were considered as several separate studies. Similarly, when different publications were studying the same CC, using the same data and getting to similar conclusions, only one was conserved. However, when the same CC was evaluated by various studies made by different authors, at different periods of time and using different data, each study was identified separately.

Taking these considerations into account, the amount of papers analyzed was reduced to 61 papers for a total of 65 studies.⁸ As studies vary greatly in quality, and in order to select the most reliable sources, I assessed the reliability of the studies by using an identical quality appraisal tool, as McHugh et al. (2014), that was adapted

⁵ <http://www.cc-literature.de>.

⁶ <http://www.complementarycurrency.org/>.

⁷ Papers not analyzed included papers that I couldn't find or that were not available.

⁸ It should be noted that the amount of papers and studies differs because one paper could account for several studies.

from Popay (2006) and Downs and Black (1998). Accordingly, studies were issued with a score out of 14, corresponding to the following seven criteria: aims and objectives clearly stated; description of context; description of the sample; description of the intervention; description of methods used to collect and analyze data; attempts to establish the reliability of analysis; inclusion of sufficient data to mediate between evidence and interpretation. Each criterion was issued with a score of 0, 1 or 2, meaning respectively weak, moderate or strong. To distinguish between papers of different quality, those that scored less than 5 were given a “Low quality” score; those scoring between 5 and 9 were considered of “Reasonable quality” score; and papers with a score above 9 were considered “High quality”.

Consequently, only high quality scores were retained and 17 studies were excluded at this stage, leaving a total of 48 studies to be analyzed.

Finally, the observed impacts of the CCs were collected and classified among the three dimensions of economic, social and environmental sustainability explained before. Additionally, they were divided according to the four types of CC systems. However, one study (Groppa, 2013) assessed outcomes of a CC project developed by STRO, which Seyfang and Longhurst (2013) excluded from their typology. Therefore, it was only used to assess the general results and was not included in any category of CCs.

4. Findings

4.1. Characteristics of the Final Sample (48 Studies)⁹

After going through the most comprehensive literature available on the subject, the final sample of studies evaluating the impact of CCs and respecting the inclusion criteria amounted to 48 studies.¹⁰

To begin with, the publications were issued between 1993 and 2013. However, most studies were conducted before 2004 and involved CCs implemented mostly before that date.

In terms of their geographical scope, the sample shows some contrast. On the one hand, the different sources contain 43 individual studies of specific CC projects. On the other hand, it also includes 5 national investigations assessing particular CC systems at the national level like for instance, Time Banks in the UK or LETS in Australia. The CCs studied differ also in terms of their scale. For instance, the sample shows respectively 35, 135, 220, 642, 800, or about 2500 members; but the majority counts between 100 and 350 members.

With regard now to their localization, the CCs surveyed are dispersed across 17 countries over 6 continents, with an impressive majority of studies of European-based systems, accounting for 37% of the total projects. However, this is largely due to the great amount of studies in the UK about LETS or Time banks (27% of total). The second most reviewed continent is North America with 27% of the sample, including 8 studies in the United States and 4 in Canada. Africa is the less reported region with only 2 studies in South Africa and Kenya. This repartition seems consistent with the findings of Seyfang and Longhurst (2013) that reported only 0.9% of total international projects in Africa, and 68.3% in Europe.

Moreover, the number of studies per type of CC can be summarized as follows: 19 (or 40%) Mutual Exchanges, 14 (30%) Service Credits, 10 (21%) Local Currencies and 4 (9%) Barter Markets.

Heterogeneity in the studies' objectives also characterizes this sample. Indeed, while some aim to report specific outcomes by evaluating the effects of CCs on human health, wellbeing (Wheatley,

2006), unemployment (Seyfang, 2001a,b), social exclusion, gender relations (Walker, 2009), or on the stability of the local economy (Stodder, 2009); others are targeting more generally the social or economic impact of CCs; and others just evaluate if CCs achieve their stated goals (Seyfang, 1997). Furthermore, no single study aims to directly assess environmental effects, and few clearly aim to evaluate both economic and social outcomes.

Despite this heterogeneity in studies' objectives, a total of 42, 39 and 5 studies are reporting economic, social and environmental impacts respectively. Firstly, the 42 studies of economic impact include: all the studies dealing with Barter Markets ($n = 4$) and Local Currencies ($n = 10$), almost all Mutual Exchanges studies ($n = 18$) and half of the Service Credits reports ($n = 9$). Secondly, with respect to the analysis of social impacts, the majority analyze Mutual Exchanges ($n = 17$) and Service Credits ($n = 13$); followed by Local Currencies ($n = 6$); and Barter Markets ($n = 3$). Finally, the sample that addresses environmental impact contains only 3 studies of Service Credits, 1 of Mutual Exchanges, and 1 of Local Currencies. The next section will present these methodologies used to analyze impacts in greater detail.

4.2. Methodologies of Impact Assessment

The methodologies of CCs' impact evaluation included in the final sample vary significantly. First, the 48 studies do not always use the same strategies to collect their data. While a majority of 69% ($n = 33$) use a mix of quantitative and qualitative approaches, 27% ($n = 13$) just use quantitative methods and 4% ($n = 2$) use qualitative methods only (Cfr. Appendix D). The most frequently used qualitative methods are interviews (in $n = 34$ studies), focus groups ($n = 13$) and participants' observation ($n = 12$), while the majority of quantitative papers are restricted to descriptive analysis ($n = 30$) and 13 of them apply more elaborate statistical or econometric methodologies. A social network analysis was conducted by four studies (Collom, 2008; Nakazato and Hiramoto, 2012; Panther, 2012) to quantitatively scrutinize transactional relationships, and measure the density of social networks. In fact, this methodology makes it possible to analyze who transacts with whom and to determine, for instance, whether or not the majority of exchanges transact only within a minority of members. On the other hand, surveys and transaction records represent the principal quantitative approaches, used by 39 and 17 studies respectively. Other evaluation methods included social auditing (Seyfang, 1997), action research (Gregory, 2012; Jelen, 2008; Hui, 2004) or phenomenology (Berthold, 2000). Only three papers (Powell, 2002; Kyriacou and Blech, 2003; Richey, 2007) perform a matching procedure with control groups to evaluate the average causal effect of being member of a CC system. Which, as a consequence, makes it easier to determine if the effects are actually caused by implementing the CC or not.

Second, regarding the study period, the majority of the studies have been conducted over a short period of one or two years. Moreover, only six papers conduct a multi-phase evaluation study or longitudinal study that give insights into how lasting the impacts are and that make it possible to monitor these impacts. For instance, in their study, Gomez and Helmsing (2008) conducted fieldwork twice in 2004 and 2006. On the whole, most papers lack discussions about the limitations or their research design and methodology and how error or bias may have arisen during the research period.

4.3. Presentation of the Results

4.3.1. Economic Sustainability

The different impacts of CCs in terms of economic sustainability are summarized in Table 2 below.

⁹ A list of the studies included in the final sample is provided in Appendix B and a table summarizing the main characteristics of the studies is provided in Appendix C.

¹⁰ The characteristics of the initial sample of 65 studies globally present the same contrasts as the final sample.

Table 2
Summary of economic impact assessment.

Rank	Economic impact	# of studies ^a (N = 42)	Typology ^b			
			BM (N = 4)	LC (N = 10)	ME (N = 18)	SC (N = 9)
1	No significant impact on local economy	21 (50%)	2	5	13	1
2	Recognize and value informal work	15 (36%)	2	3	8	2
–	Improve employability	15 (36%)	/	4	6	5
4	Promote local economic activity	13 (31%)	2	5	2	3
5	Access to goods and services otherwise unaffordable	12 (29%)	1	4	3	4
6	Increase member income	10 (24%)	3	4	1	2
–	Improve quality of life in terms of standard of living	10 (24%)	/	6	2	2
8	Support local businesses	8 (19%)	1	4	1	1
9	Cushion external economic shocks	5 (12%)	2	1	1	/
–	Business incubator for small enterprises	5 (12%)	1	/	3	/

^a Number of studies identifying each impact and, in parenthesis, the corresponding percentage of the total sample (N = 42) assessing economic impacts.

^b Number of studies for each category (excluding the case of Punto Transacciones): Barter Markets (BMs), Local Currencies (LCs), Mutual Exchanges (MEs), Social Credits (SCs).

4.3.1.1. General Results. Surprisingly, the most striking result to emerge from the analysis is that half of the studies (n = 21) report that the economic activity of CCs is too low and not significant in macro-economic terms. For instance, Colacelli and Blackburn (2005) found that the implementation of the Red de Trueque had an added value to Argentina's GDP of just 0.6% while this system is considered as one of the most successful. Pacione (1997) also discovered that LETS activity in Scotland only represented a tiny proportion of GNP, while Williams et al. (2001a,b) referred to just £70 per person per year as average LETS trading levels in the UK. Furthermore, the studies of Birch and Liesch (1997), Seyfang (1997), and Fare (2012) of LETS in Australia, British LETS, and the French SOL revealed that the levels of trading were too low to have a meaningful impact on the local economy. However, 9 of these 21 studies observe that, despite this overall limited impact, it was significant for marginalized segments of the population. The second most visible impact, with almost 40% (n = 15) of the sample, indicates that the implementation of CCs benefits the community by recognizing informal work and valuating skills usually not valued by the formal labour market.

Furthermore, according to a significant number of studies (n = 15), CCs appear to improve employability either directly by creating jobs (n = 3), either indirectly by the development of new skills (n = 8) and the expansion of social networks (n = 5). Still, 5 studies downplay this claim by describing that CC systems do not directly act as bridges into formal employment and that the development of skills through these systems remains limited. For instance, Seyfang's study (2001a,b) of the two LETS finds that only 3 out of 45 people coped with unemployment and 2 acquired skills useful in the mainstream labour market.

Next, a third of the studies (n = 13) highlight that CCs promote local economic activity, of which half (n = 7) precise that CCs stimulated local consumption and increased the economic multiplier. Among these, a survey of 97 members of the French SOL indicated that 60.8% respondents consume more locally (Fare, 2012). Results from the program Punto Transacciones in El Salvador also support this statement: with about 500 businesses and 100 individuals, the operations of the scheme had generated the equivalent of nearly \$ 2.2 million during the year 2012 and engendered an increase in the spending multiplier (Groppa, 2013).

About 29% (n = 12) of the sample reports that CCs are effective ways to give access to goods and services otherwise not affordable, and this finding was confirmed by respectively 41%, 58.5% and 41.8% survey respondents taking part in two studies on the Ithaca HOURS (Jacob et al., 2004; Wheatley, 2006), the Calgary Dollars, and the Accorderie (Fare, 2012). Furthermore, a study on LETS in the UK found that 27.4% of the goods and services would not have been acquired in the absence of LETS (Williams et al., 2001a,b).

At the same time, about 24% of the surveys (n = 10) observe that CCs help people to increase their income. Aligned with the previous result, 10 studies report that CCs increase the quality of life of participants through the accumulation of tangible benefits and improvement in standards of living. Additionally, several studies (Powell, 2002; de Franca Filho et al., 2012) indicate that it is even more the case for marginalized groups.

According to 8 studies, CCs also support local businesses, by increasing consumption and sales and giving them access to free-interest credits. Next, 12% of the studied sample (n = 5) reports that CCs act as cushions against external economic shocks during economic recessions. Among these, Stodder (2009) reported the counter-cyclical relation between the circulation of the WIR with GDP and period of high unemployment in Switzerland; demonstrating that the WIR had stabilizing effects on the national economy by notably securing employments. Finally, another minority of 5 studies indicate that CCs enhance the creation of small enterprises.

4.3.1.2. Results of the Typology. The analysis now turns to the extent of economic impact each one of the categories of CCs have had so far.

Beginning with Barter Markets (BMs), 3 studies of the Red de Trueque clubs observe an increase in members' income; and 2 out of the 4 highlight the stabilizing effect of CCs, the recognition of informal skills, and the promotion of localization. However the study of Gomez and Helmsing (2008) reports that the positive effects disappeared in period of stability.

With regard to Local Currencies (LCs), of the 10 papers studying this type, 6 are stating that LCs improve living conditions and 5 describe LCs as tools to promote localization. However, 4 studies also find no significant impact on the economy. Moreover, 5 studies evaluate that LCs support local businesses, improve employability, increase incomes and give access to unaffordable goods and services.

Regarding Mutual Exchanges (MEs), a majority of 13 studies out of the 18 indicate no significant impact although 4 report significant impacts for excluded groups. However, respectively 8 and 6 studies consider that MEs benefit the economy by valuing informal work, and improve employability mainly through the development of new skills (in 5 studies).

Next, with respect to Service Credits (SCs), the most reported impacts are improved employability, easier access to goods and services and localization of economic activity; each reported by 4 studies out of the 10 dealing with SC. Furthermore, the improvement of living standards and the increase in members' income are each identified by 2 studies.

4.3.2. Social Sustainability

Among the total sample analyzed, 33 studies are identifying social outcomes (described in Table 3).

Table 3
Summary of social impact assessment.

Rank	Social impact	# of studies ^a (N = 39)	Typology ^b			
			BM (N = 3)	LC (N = 6)	ME (N = 17)	SC (N = 13)
1	Foster community building – build social capital	30 (77%)	2	6	13	9
	Expand social networks	21 (54%)	2	5	8	6
	Increase trust	12 (31%)	1	3	2	6
	Improve relationships	10 (26%)	1	4	3	2
2	Tackle social exclusion	12 (31%)	2	/	5	5
–	Boost self-confidence	12 (31%)	/	3	5	4
4	Improve quality of life in terms of well-being	9 (23%)	/	3	1	5
5	Act as social support	6 (15%)	/	2	3	1
6	Enjoy greater social than economic benefits	3 (8%)	/	/	1	2

^a Number of studies identifying each impact and, in parenthesis, the corresponding percentage of the total sample (N = 33) assessing social impacts.

^b Number of studies for each category: Barter Markets (BMs), Local Currencies (LCs), Mutual Exchanges (MEs), Social Credits (SCs).

4.3.2.1. General Results. Notably, a first observation emerging from Table 3 is that a strong majority of the sample (77%; n = 30) reports that CCs build community and social capital in various different ways. About 31% of the studies (n = 12) identify an increase of trust in the community, 26% (n = 10) observe better relationships and greater friendship, and more importantly, 54% (n = 21) indicate that CCs enable people to expand their social networks and meet new people.

Next, a third of the studies (n = 12) assessed CCs as tools to tackle social exclusion by empowering marginalized groups, allowing the participation of all. Moreover, the recognition of informal work and giving access to goods and services otherwise not accessible for financially excluded people as explained in the section of economic impacts, are ways to address social exclusion (Fare, 2012; Jacob et al., 2004; Seyfang, 2004; Wheatley, 2006). The groups that benefit this social inclusion are the unemployed (Seyfang, 2001a,b; Gomez and Helmsing, 2008; Williams et al., 2001a,b), the low-income (Collom, 2007; Fare, 2012; Jackson, 1993; Williams, 1996a,b) and the elderly (Collom, 2008; Kyriacou and Blech, 2003). On the other hand, only one study clearly examines CCs as offering a way to redress gender inequities.

Along with the previous statement, 31% (n = 12) of the studies highlight that CCs also have psychological impacts. Notably, surveys of members of Ithaca HOURS (Jacob et al., 2004), LETS in Australia (Birch and Liesch, 1997), in New-Zealand (Jackson, 1993) or in the UK (Pacione, 1997) found that CCs boost people self-esteem and confidence, by valuing their work and skills otherwise not recognized.

Another result, more general, indicates that about a quarter (n = 9) of the sample considers that CCs contribute to improve the quality of life in terms of general well-being.

Finally, 3 studies of Time Bank, LETS, Calgary dollars and Ithaca HOURS report explicitly that despite low economic outcomes, CCs offer social benefits and that the social benefits outweigh the economic ones (Panther, 2012; Seyfang, 1997; Wheatley, 2006).

4.3.2.2. Results of the Typology. With regard to the different types of CCs, we now analyze their impact in terms of social sustainability.

Firstly, of the 3 studies assessing social impacts of Barter Markets, 2 report that it allowed people to expand their social networks while also 2 studies established that CCs helped those financially excluded.

Secondly, all 6 studies about Local Currencies (LCs) comment that they foster community building through increase trust (stated 3 times), greater friendship (stated 4 times) and more social connections (stated 5 times). Boosting self-esteem and improved well-being were also reported by respectively 3 and 4 studies.

Thirdly, out of the 17 studies identifying social outcomes from Mutual Exchanges (MEs), a majority of 13 highlight that MEs build social capital, and 8 report that they allow meeting new people. According to the results, 5 studies also describe MEs as tools for social inclusion and 5 other note that they boost self-confidence.

Finally, 9 out of 13 studies of Service Credits (SCs) identify that SCs build social capital, of which 5 report an increase in trust among the community. SCs also help tackling social exclusion according to 6 other studies. Moreover, according to 5 studies, CCs improve general well-being and notably provide health benefits to elderly people with specific Time Banks projects.

4.3.3. Environmental Sustainability

4.3.3.1. General Results. Only 5 studies explicitly identified environmental outcomes for CCs. First, the study of the Bow Chinook Barter Community (former version of Calgary Dollars) by Berthold (2000) identifies CCs as tools for recycling, reducing pollution and fostering environmental education. Second, Caldwell (2000) finds that LETS help to sustain the environment by keeping resources local and encouraging environmentally friendly attitudes. Third, a study of the Accorderie surveying members, demonstrates that the majority of respondents consumed more respectfully towards the environment and also consumed less than before (Fare, 2012). Fourth, Fare (2012) also describes in her study of the SOL that the majority membership consumed in a more ethically and respectful way towards the environment. Finally, Ruddick (2011) observed an environmental impact through waste removal and tree planting using the Eco-pesa local currency in Kenya (Table 4).

Table 4
Summary of environmental impact assessment.

Rank	Environmental impact	# of studies ^a (N = 5)	Typology ^b			
			BM (N = 0)	LC (N = 1)	ME (N = 1)	SC (N = 3)
1	Encourage environment-friendly behaviour	5	/	1	1	3
2	Reduce ecological footprint	2	/	/	/	2

^a Number of studies identifying each impact (4 in total).

^b Number of studies for each category: Barter Markets (BMs), Local Currencies (LCs), Mutual Exchanges (MEs), Social Credits (SCs).

4.3.3.2. *Results of the Typology.* Of the 5 studies identifying environmental outcomes, 3 highlight Service Credits (Berthold, 2000; Fare, 2012), 1 mentions Mutual Exchange systems (Caldwell, 2000) and 1 deals with a Local Currency (Ruddick, 2011).

5. Discussion

5.1. Community Currencies' Achievements for Sustainable Development

This review aimed to evaluate the impact of CCs and explore whether they contribute to sustainable development by focusing on the three pillars of economic, social and environmental sustainability. With regard to the economic dimension, it should be noted that although there is some evidence that CCs promote localization and support local businesses, the results of the analysis demonstrate that CCs' impact on the overall economic activity remains marginal. In addition, their impact seems greater in period of instability as was the case in Argentina with the RT, Switzerland with the WIR or El Salvador with Punto Transacciones. In fact, with the exception of the case of the Argentinean barter clubs that helped a large number of people to meet their subsistence needs during period of financial instability, the economic benefits of CCs tend to remain marginal outside of the context of crisis. One reason generally outlined in the literature and confirmed during the data extraction process regards the small scale of CC systems, and the low number of transactions per member. With such small scales, CCs are thus creating relatively small local economic circuits of exchange, and only a small proportion of wealth remains local.

Moreover, the studies included in the review suggested that one reason for the low participation rate is the lack of awareness on CCs. In fact, either people don't know that CCs exist or what they are, either they are not fully conscious of their potential. One study in particular revealed that improved mindfulness leads to increased participation, which in turn provides greater benefits (Wheatley, 2006). Moreover, McBurnie (2012) found a positive correlation between the awareness of benefits and the willingness of non-members to start using the CC. Therefore, more support is needed to promote CC projects as valuable experiments, as was the intention of this review.

Nevertheless, at the micro-level, the findings indicate that CCs' contribution is significant for a small but substantial part of the population, namely the marginalized groups of the population that are also the most in need. Actually, by recognizing informal work and skills commonly not valued, improving employability through the expansion of social networks or the development of skills, and by giving access to goods and services otherwise not affordable in the formal market, CCs help a small but significant proportion of members that are usually excluded from society or trapped in poverty.

Moving on to another dimension, the argument is made that CCs achieve positive impact for social sustainability. There is strong evidence that they build social capital by increasing trust, expanding social networks and improving relationships among the community. Moreover, CCs foster social inclusion by recognizing informal work and stimulating the participation of all without considering their situation in the formal economy. CCs thus contribute to more equitable and ethical relations of exchange away from the primary objective of economic growth.

Concerning the third dimension, the limited number of studies assessing environmental impact makes it difficult to come to any conclusion. This result is in line with Kennedy et al. (2012) who also suggest that there are a small number of projects with specific environmental aims. Our results suggest that there is little explicit evidence that CCs promote environmental sustainability. There is, however, some evidence that CCs stimulate local economic activity, which could reduce the need to import products from other regions

or countries and could impact environmental sustainability by reducing transport costs and pollution.

CCs thus appear to have a greater social dimension of sustainability than on the economic and environmental ones.

5.2. Confronting Goals and Impacts of Community Currencies' Categories

The sample of studies covered all four types of CC as defined by Seyfang and Longhurst (2013) and described in the theoretical section. Our attention now turns to whether the observed outcomes of each category reflect its stated goals.

Based on 3 studies on the Argentinean Red de Trueque clubs, evidence suggests that Barter Markets have a stabilizing effect on the economy, and that it indeed fosters the emergence of a more inclusive economy by helping people otherwise trapped in poverty, to recognize their skills, and expand their social networks.

As regards Local Currencies, there is some evidence that they achieve their objectives to increase local economic activity and support local businesses. Moreover, the results strongly suggest that they foster community building by developing social networks and promoting relations of trust.

Considering Mutual Exchange systems, although they are mainly claimed to support the local economy with interest-free credits and encourage import-substitution, there is more evidence that they benefit the community by recognizing informal work and improving employability through the development of new skills. Moreover, the results suggest positive outcomes in the social sphere, revealing that these schemes build social capital by expanding social networks. Actually, this insight is consistent with the view of Seyfang and Longhurst (2013) that Mutual Exchange systems "lie on a continuum between economic and social objectives" (Seyfang and Longhurst, 2013: 73).

Finally, the observed impacts for Service Credits are reflecting quite well their social oriented objectives. As a matter of fact, the evaluation presented above has revealed that they are successful in building social capital and increase trust among the community. Moreover, they tend to tackle social exclusion by helping excluded groups and offering easier access to goods and services that would otherwise not be accessible.

Accordingly, whereas Service Credits are the only category of CCs focusing on social objectives, Local Currencies and Mutual Exchanges also appear successful at building social capital. Otherwise, apart from Mutual Exchanges that do not appear to achieve their economic objectives, there is some evidence that the different CC's types tend to realize their desired outcomes.

5.3. Impact Assessment in the Community Currency Field

Our results exposed should be considered with caution as more research is needed to draw definite conclusions. In fact, the limited number of studies evaluating CC's impact represents a first constraint.¹¹ Moreover, most of the CC schemes studied have existed for a long period of time and thus the evaluation doesn't consider the development of more recent hybrid types of CC such as the project of Punto Transacciones that seems to offer modern and great solutions for sustainability.

Additionally, this research has demonstrated some limitations regarding the current state of development of impact assessment frameworks in the CC field. We have two main recommendations. First, the present studies are using a wide range of different frameworks, methodologies to collect and analyze data, and performance indicators to assess CCs' outcomes. Thus it is hard to make a comprehensive comparison. Moreover, in the high diversity in their

¹¹ Furthermore, the non-exhaustivity of the sample used for this review should be taken into account.

objectives and in the type of impacts they evaluate, the impact assessments may ignore existing but non-observed outcomes. For instance, by focusing on social benefits, the analysis of economic outcomes may have been neglected, limiting in turn the global impact evaluation of CCs on the economy. Besides, they frequently focus solely on one aspect of sustainable development and rarely consider all three dimensions together.

Therefore, we encourage the development of a standardized assessment tool that has to be “balanced, coherent and comparable across different currency models on one hand, and sufficiently flexible to mirror the specificities of the initiative on the other hand” (Place and Bindewald, 2015:7). In this vein, Place and Bindewald (2015) recently proposed an Impact Assessment Matrix prototype to collect and analyze data on the effectiveness and efficiency of CC systems. This prototype is based on goals and objectives with five dimensions: culture, governance, economic, social and environment. It also integrates monitoring and evaluation methodologies for CCs' impacts by breaking outcomes into concrete components and presenting clear qualitative and/or quantitative indicators for each outcome.

Using such standardized indicators repeatedly to evaluate numerous CC projects could ease comparability across studies and legitimate the impact of CCs and their role in sustainable development.

Second, although using a mix of qualitative and quantitative methods favours triangulation of the results and improves their validity, most studies are not irreproachable from the latter perspective. For instance, only a few studies carry out a matching procedure by enrolling control groups to eliminate confounding variables and biases. One may therefore question whether some outcomes observed through the analysis are actually attributable to the project itself and not to external conditions. The most obvious methodologies to deal with on this issue is the “difference in difference” methodology or randomized control trials, since they include control groups and can also deal with selection biases. Nevertheless, there is no perfect methodology. Recent debates related to the randomized control trials highlight some of the limitations of this methodology and show that qualitative research should at least be conducted alongside randomized approaches to explain the mechanisms at stake (Morvant-Roux et al., 2014).

6. Conclusion

Community currencies have arisen in many communities with the purpose of affecting structural change and mitigating harmful effects caused by globalization and our current economic system. This paper aims to contribute to the field of community currencies by providing an overall examination of their impact. Based on a systematic review of the most comprehensive and available evidence of impact assessment analysis in the literature, this paper explores whether CCs contribute to sustainable development on three dimensions: economic, social and environmental sustainability.

Although the results of the analysis provide some evidence of economic benefits on employability, informal work and localization, one of the more significant findings to emerge from this study is that CCs do not seem to have a significant impact on local economic activity. Moreover, their implementation generally seems to only benefit a minority and, to a greater extent, groups that are excluded from the formal labour market or society. However, there is more evidence to suggest that CCs do have an impact on social sustainability by building communities of trust, support and stronger relationships on the one hand, and by fostering social inclusion of excluded groups on the other hand. Concerning the third dimension, the lack of assessment of environmental outcomes makes it difficult to make any definite conclusions and thus gives little support to the argument that CCs already contribute to environmental sustainability.

This paper also aims to verify whether the different types of CCs achieved their stated goals. With the exception of Mutual Exchanges that do not appear to fulfil their objective of supporting local economies, there is some evidence that the other CC's types do tend to realize their desired outcomes. Furthermore, whereas it is not the primary goal for all of them, Local Currencies, Mutual Exchanges and Service Credits seem to be successful at building social capital.

Taken together, these results suggest that the most positive contribution of CCs is their social benefits, and that the economic benefits are somewhat diminished by the small scale of these systems and the lack of awareness on their scope, making it difficult for them to have a significant impact on the local economy. Therefore, their impact on sustainable development remains relatively small for now. This is in line with Dittmer (2013), according to whom existing research suggests that CCs only weakly support the potential of local currencies as a tool for purposive degrowth. However, more research is needed to assess the impact of more recent types of CC systems that have emerged over the last years, as they seem to have learned from previous experiences. For instance, a few new CCs with environmental aims have been initiated recently.

Additionally, one should take these results with caution before drawing any definite conclusions, as this review has also demonstrated some limits regarding the current impact assessment methodologies applied in the field. Indeed, the examination was limited by the high diversity in methodologies used by the different studies analyzed, which might narrow the observed results. More standardization would help to provide a better overview of the evaluation data, facilitate a comparison of the different systems, draw greater general conclusions, and thus establish a greater degree of accuracy. Therefore, to further evaluate the impacts of existing and emerging CC types, this paper encourages the use by future studies of common frameworks such as the “Impact Assessment Matrix” prototype proposed by Place and Bindewald (2015), which assesses CCs' contribution to all three pillars of sustainable development. Such an extensive evaluation, it is hoped, would strengthen the legitimacy of CCs and foster their development.

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Appendix A. Data Extraction Template

Study info	Reference: Title: Date of publication: Date of the study: Type of study:
CC info	CC studied: CC type: CC location: Date of CC implementation: Number of members:
Methods of data collection	Qualitative methods used: Quantitative methods used: Characteristics of the sample studied:
Objectives	Objectives of the study:
Observed impact	Economic sustainability: Social sustainability: Environmental sustainability:
Quality	Quality score:
Other	Additional notes:

Source: Personal work.

Appendix B. List of the Final Sample of 48 Studies

#	Author(s) and date of publication	Title	CC studied	Location(s)
1	Aldridge et al. (2003)	Trading places: geography and the role of local exchange trading schemes in local sustainable development	Stroud LETS	UK
2	Aldridge et al. (2003)	Trading places: geography and the role of local exchange trading schemes in local sustainable development	Hounslow LETS	UK
3	Berthold (2000)	Participation in the bow chinook barter community: members experience	Bow chinook barter community	Canada
4	Birch and Liesch (1997)	Moneyless exchange: attitudes of participants in Australian community barter systems	LETS in Australia	Australia
5	Colacelli and Blackburn (2006)	Secondary currency: an empirical analysis	Crédito (Red de Trueque)	Argentina
6	Burke (2012)	Para que cambiamos/so we can (ex)change: economic activism and socio-cultural change in the barter systems of Medellín	Medellín's barter systems	Colombia
7	Caldwell (2000)	Why do people join local exchange trading systems?	North Herts LETS	UK
8	Carneiro da Silva (2005)	Rubem Berta's Complementary Currency: An Evaluation of the Initial Stage of the Experience of a Southern Brazilian Local Community on Implementing its Own complementary currency	Rubi	Brazil
9	Coetzee (2010)	Local Exchange Through Community Currency in an Alternative Gift Economy: An Anthropological Analysis of the Cape Town talent Exchange, University of Stellenbosch, Stellenbosch	CTTE: cape town talent exchange (part of the community exchange system, CES)	South Africa
10	Collom (2007)	The motivations, engagement, satisfaction, outcomes and demographics of time bank participants: survey findings from a U.S. system	US Time Bank	USA
11	Collom (2008)	Engagement of the elderly in time banking: the potential for social capital generation in an ageing society	US Time Bank	USA
12	de Franca Filho et al. (2012)	L'enjeu de l'usage des monnaies sociales dans les banques communautaires de développement au Brésil: Etude du cas de la Banque Palmas	Banco Palmas	Brazil
13	Fare (2012)	Les apports de deux dispositifs de monnaies sociales, le SOL et l'Accorderie, au regard des enjeux du développement local soutenable	SOL	France
14	Fare (2012)	Les apports de deux dispositifs de monnaies sociales, le SOL et l'Accorderie, au regard des enjeux du développement local soutenable	Accorderie	Canada
15	Gomez and Helmsing (2008)	Selective spatial closure and local economic development: what do we learn from the argentine local currency systems?	Crédito (Red de Trueque)	Argentina
16	Gregory (2012)	Improving health through participation: time banks as a site for co-production	Welsh Time Bank	UK
17	Groppa (2013)	Complementary currency and its impact on the economy	Punto Transacciones	El Salvador
18	Hui (2004)	In search of a communal economic subject: reflections on the community currency project in Hong Kong	Community Oriented Mutual Economy (COME) project	China
19	Jackson (1993)	Helping ourselves: New Zealand's Green Dollar Exchange	Wellidun Exchange and Barter System (WEBS)	New Zealand
20	Jackson (1993)	Helping ourselves: New Zealand's Green Dollar Exchange	Pounaumu Exchange and Barter System (PEBS)	New Zealand
21	Jacob et al. (2004)	The social and cultural capital of community currency: an Ithaca HOURS case study survey	Ithaca Hours	USA
22	Jelen (2008)	Evaluating the Viability of Community Currency as a Tool for Sustainable Development: A Case Study of the Humboldt Exchange Community Currency Project	Humboldt exchange community currency project	Germany
23	Krohn and Snyder (2008)	An economic analysis of contemporary local currencies in the united states	Local paper currencies in the USA	USA
24	Kyriacou and Blech (2003)	An Evaluation of Elderplan's Time Dollar Model	Elderplan time dollars	USA
25	Lasker et al. (2011)	Time banking and health: the role of a community currency organization in enhancing well-being	Hospital-affiliated time bank	USA
26	Meyer (2012)	Les finances solidaires comme biens communs durables: étude de cas de la Banque communautaire de développement Palmas (Brésil)	Banco Palmas	Brazil
27	Molnar (2011)	Time is of the essence: the challenges and achievements of a Swedish time banking initiative	TidsNätverket i Bergsjön (TNB)	Sweden
28	Nakazato and Hiramoto (2012)	An empirical study of the social effects of community currencies	Ichi-Muraoka	Japan
29	Nakazato and Hiramoto (2012)	An empirical study of the social effects of community currencies	Bytesring Stockholm (BYTS)	Sweden
30	Ozanne (2010)	Learning to exchange time: benefits and obstacles to time banking	Lyttelton Time Bank	New Zealand
31	Pacione (1997)	Local exchange trading systems as a response to the globalisation of capitalism	Skye LETS	UK
32	Panther (2012)	It Ain't What you do (it's the way That you do it): Reciprocity, Co-operation and Spheres of Exchange in two Community Currency Systems in the North of England	Stealwear Time Bank	UK
33	Powell (2002)	Petty capitalism, perfecting capitalism or post-capitalism? Lessons from the Argentinean barter experiments	Crédito (Red de Trueque)	Argentina
34	Richey (2007)	Manufacturing trust: community currencies and the creation of social capital	Tekona community currency program	Japan
35	Ruddick (2011)	Eco-pesa: an evaluation of a complementary currency programme in Kenya's informal settlements	Eco-pesa	Kenya
36	Seyfang (1997)	Examining local currency systems: a social audit approach	Diss LETS	UK
37	Seyfang (2001a,b)	Working for the Fenland Dollar: An Evaluation of Local Exchange Trading Schemes (LETS) as an Informal Employment Strategy to Tackle Social Exclusion	King's Lynn LETS and West Norfolk LETS	UK
38	Seyfang (2001a,b)	Spending time, building communities: Evaluating time banks and	Time Banks in the UK	UK

(continued on next page)

Appendix B (continued)

#	Author(s) and date of publication	Title	CC studied	Location(s)
39	Seyfang (2004)	mutual volunteering as a tool to tackle social exclusion		
40	Seyfang (2005)	Time banks: rewarding community self-help in the inner city?	Gorbals Time Bank	UK
41	Soder (2008)	Community currencies and social inclusion: a critical evaluation	Stonehouse fair shares	UK
		Community currency: an approach to economic sustainability in our local bioregion	Humboldt exchange community currency project	USA
42	Stodder (2009)	Complementary credit networks and macro-economic stability: Switzerland's Wertschaftsring	WIR	Switzerland
43	Wheatley (2006)	Complementary currency and quality of life: social and economic capital effects on subjective well-being	Calgary dollars & Ithaca Hours	Canada & USA
44	Wheatley et al. (2011)	Calgary dollars: economic and social capital benefits	Calgary dollars (former Bow Chinook Barter Community)	Canada
45	Williams (1996a)	The new barter economy: An appraisal of Local Exchange and Trading Systems (LETS)	Totnes LETS	UK
46	Williams (1996b)	Informal sector responses to unemployment: an evaluation of the potential of LETS	LETS in Australia	Australia
47	Williams et al. (2001a,b)	Bridges into work: an evaluation of Local Exchange Trading Schemes (LETS)	LETS in the UK (26 systems)	UK
48	Ying (2004)	When poverty comes with globalization: How does community currency empower individuals?	Community Oriented Mutual Economy (COME) project	China

Source: Personal work.

Appendix C. Summary of the Characteristics of the Initial and Final Samples

		Initial sample	Final sample
Sample size	Total studies	65	48
Type of studies	Individual studies	56	43
	National studies	9	5
Methods used	Qualitative	9 (14%)	2 (4%)
	Quantitative	16 (25%)	13 (27%)
	Qualitative & quantitative	39 (60%)	33 (69%)
Timing	Date of publication	1993–2013	1993–2013
	Date of CC implementation	1934–2008	1934–2008
Location	Countries, continents	21 countries, 6 continents	17 countries, 6 continents
	Europe	28 (42%)	18 (37%)
	North America	22 (33%)	13 (27%)
	South America	9 (13%)	7 (14%)
	Asia	13 (19%)	4 (8%)
	Oceania	10 (15%)	5 (10%)
	Africa	2 (3%)	2 (4%)
Type of CC studied	Mutual Exchange	23 (35%)	19 (40%)
	Service Credit	22 (34%)	14 (30%)
	Local Currency	14 (22%)	10 (21%)
	Barter Market	5 (8%)	4 (9%)
	Other	1 (2%)	1 (2%)
Type of impact observed	Economic	54	42
	Social	51	39
	Environmental	6	5

Source: Personal work.

Appendix D. Methodology Analysis

Methods used to collect data	48	100%
Qualitative	35	73%
Focus groups	13	27%
Interviews	34	71%
Participants observation	12	25%
Document analysis	3	6%
Quantitative	46	96%
Survey	39	81%
Transaction records	17	35%
Mix of qualitative and quantitative	33	69%
Survey + interviews	27	56%

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