

COMMUNITY CURRENCY (CCs) IN SPAIN: An empirical study of their social effects

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ABSTRACT

Despite its sudden proliferation along the economic crisis period, no previous study has investigated the social effects of the community currency (CCs) experiences in Spain. Previous research on CCs experiences from different countries provided evidences about social capital improvement, introducing CCs as sustainability tools. This research uses the theoretical frameworks of social capital and complex adaptive systems to approach concepts like sustainability, networks, trust, norms, participation and cooperation. Statistical analysis of the data collected in June 2013 through online survey explores social capital and resilience indicators among the Spanish exchange community users, concluding that Spanish CCs systems improve community social capital through the proposed dimensions, although they are in an early stage and several weakness need to be corrected. The values, motivations, attitude and positive perception of their members suggest that CCs could be appropriate tools for sustainability due its potential to improve social capital and resilience. Detected weakness may affect the interests and commitment of their members. Therefore experience from senior currency systems may help them to face adversities and fully develop their potential for sustainability.

Key words: Community currencies, monetary system, social capital, resilience, complex systems, sustainability.

1. INTRODUCTION

A relevant number of exchange initiatives alternative to national currencies have soared in Spain. Those initiatives are known as community currencies and are a response to a "global demand for a resilient monetary system that supports sustainable complete communities" (Wheatley et al., 2011).

Community currencies (CCs) are grass-root designed and implemented initiatives. They are democratically run, emphasizing citizen appropriation and money re-defining through a participative process (Blanc, 2011).

CCs can be found throughout the world history in the form of local dual money system. Bernard Lietaer explores several examples such as Ancient Egypt ostraka, Central Middle Age local currencies in Western Europe or Austrian Wörgl after World War II (Lietaer et al., 2012a). Hirota describes similar cases during the Spanish Civil War (Hirota, 2012). The more relevant CCs systems are LETS or *Local Exchange Trading Schemes*. Those experiences emerged in Canada, United States, United Kingdom and Australia over the past 30 years. In Spain appeared a few years ago and very little research has been done on their social effects.

Previous research reveals that CCs participation enhances well-being and builds social capital (Wheatley et al., 2011; Jacob et al., 2004). Exchanges improve the well-being of the participants through transactional and social benefits, although the monetary value of the transactions has little relevance when compared to the social value (Jacob et al., 2004). Consequently, this research focuses on the social value generated.

Several theoretical foundations help describe how CCs contribute to sustainability through social capital enhancement. First, the concept of community as a complex adaptive exchange flow system in which social capital emerges from user participation, proliferating links and networks, thus improving its relational structure. The second foundation comes from trust and norms (Putnam, 1995), explaining how organizational capability improves to pursue a common aim. Community behaviour is oriented by: normative basis (trust, reciprocity, cooperation and participation); trust and the common aims of the members. With common aims and norms, community self-organizing capability improves its daily management and the ability to cope with future disturbances.

Selected social capital indicators are used for contrasting the Spanish case results with other LETS experiences, some of which reported those values and behaviours among most members (Caldwell, 2000; Hiramoto et al., 2012; Wheatley et al., 2011). Resulting experience and knowledge provide cases of success and failure, types of CCs, common adversities and strategies.

For the empirical study the *CES* database was used. *Community Exchange System – CES*, is an exchange network software with a similar operating system to LETS and other credit mutual exchange systems. It uses as exchange unit both mutual Exchange and time units. *CES* is officially running since 2002 (Web *CES Database*, 2013). It was surprising to check that among the total 500 CES communities existing

around the world, 145 were Spanish, evidencing the strong interest aroused in the country. Spanish communities have been registering since 2008, and half of them were registered in 2012 (Web CES *Database*, 2013). One could say that Spanish CCs are at an early stage on its life cycle, as described by Seyfang (Seyfang, 2002), with community and individual needs arising from the social and economic Spanish crisis. CCs life cycle is an interesting contribution from Seyfang, who explains the internal and external barriers preventing them from achieving the objectives initially proposed. For the specific LETS case, the lack of critical mass usually hinders its consolidation and prevents the extension of its use (Seyfang, et al 2013).

This research aims to find evidence on the contribution of the Spanish CCs to the social capital and resilience of their communities and to identify the circumstances that may condition its adaptability, even its potential as social change agent.

For this purpose, the investigation was conducted in two stages: the first step was a CES database and a LETS literature review, and the second was an on-line survey of CES participants in Spain in order to know their patterns of participation, values, motivations, social benefits, current perceptions and perspectives regarding their own community.

The aims of this research are: to check if CCs participation improves networks, norms and trust at the Spanish communities; if their behaviours are led by cooperation, reciprocity, participation and commitment and if their participants perceive benefits related to these concepts. Besides, it aims to identify attitudes and perspectives among the CCs users that may affect its adaptive capacity and the potential extension of their social effects beyond their communities.

2. THEORETICAL FRAMEWORK

2.1. CCS DESIGN AND LETS ADAPTATION

CCs are designed depending on the nature of the project, and therefore, they would have different guiding principles (Blanc, 2011). The most popular scheme corresponds to LETS or Local Exchange Trading Systems, which are grass root initiatives aiming to build a sense of community and to keep wealth where it is produced. Their exchange unit is the mutual credit or time units, which are created at the time of the transaction and negative balances don't charge interest payment. The value of exchanges is backed by mutual trust, and reciprocity is the guiding principle. They are democratically and transparently run by volunteers. Blanc classifies LETS as a first generation Community Currency, and describes how they adapt to new circumstances later on, according to their particular experiences, references and needs: convertible schemes, local business inclusion and partnerships with ONG or government (Blanc, 2011). In some cases, these adaptations have constituted innovative social experiences allowing facing, more or less successfully, significant social needs in health, exclusion or educational matters, as occurred in the cases of Brazilian Curitiba City and el *Saber*, or the Japanese *Fureai Kippu* (Lietaer et al., 2012a). Consequently, for sustainability purposes, it will be highly advantageous if participants have the willing to adapt and evolve. Otherwise they could become closed clubs, which only generate benefits among their members. A good example of adaptation and evolution is the transition currency movement in UK, with most of its members

coming from existing LETS (Collins, 2011).

2.2. MONETARY SYSTEM DESIGN, RESILIENCE, SOCIAL CAPITAL AND SUSTAINABILITY

CCs are relevant at the sustainability field because they are considered as innovative tools to support sustainable communities by reducing their dependence on legal tender money.

Current monetary system mechanisms have critical effects on society and environment, threatening sustainability from different ways. The first source of unsustainability is based on the fact that financial entities are entitled to create money through a debt-based monetary system. They get profits from the multiplier money mechanism and interest charges, leading to an ever-expanding economic system that keeps operating to ensure debt repayment and the payment of the interests. It is a circular feedback process in a closed isolated system which exchanges abstract units. The approach of the ecological economics frames the monetary system inside of biosphere system, and reminds that money exchanges imply matter and energy flows, which will be guided by the laws of physics instead of by market rules. Therefore, unlimited economic growth would be unsustainable as it relies on limited matter and energy resources. The second set of consequences is explained by Lietaer, who describes three negative effects on social behaviour: excessive competitiveness and consumption, and wealth concentration (Lietaer et al., 2012a). As a result, those sources of unsustainability cause:

- ENVIRONMENTAL UNSUSTAINABILITY: derived from compulsive production and consumption which are intensive in consumption of natural resources and waste disposal. Natural resources depletion and excess of the waste assimilation capacity of nature makes current development model environmentally unsustainable.

- SOCIAL UNSUSTAINABILITY: competitive and individualistic behaviours erode social capital and make society more vulnerable. Two resulting inequalities, which constitute relevant sources of social conflict, must be also considered: unequal distribution of wealth and unequal distribution of the negative externalities from economic process. A final negative social effect comes from efficiency oriented market behaviour, since it excludes "worthless" goods and services that are critical to the well-being, like care and home services or natural goods and services.

This research approaches relations between CCs effects and sustainability of the community under an ecological economics alternative vision: complex adaptive flow systems provide a theoretical framework from ecology to explain how diversity and links improve complex system resilience, whether it is an ecosystem, a living organism or an economy. This approach is a way to understand and propose solutions oriented towards sustainable development, assimilating socioeconomic-systems metabolism to complex adaptive systems in which matter, energy and information flow continuously between different systems and sub-systems (Lietaer et al., 2012). According to this, socio-economic systems consist of a wide network which appropriates, processes, distributes, consumes and excretes energy, matter and information worldwide (De Molina, et al. 2014). Originally, this framework allows understanding how ecosystems and other complex systems maintain their sustainability. This knowledge, applied to economic and social systems, transfers pattern networks from other systems with similar structures, no matter what their

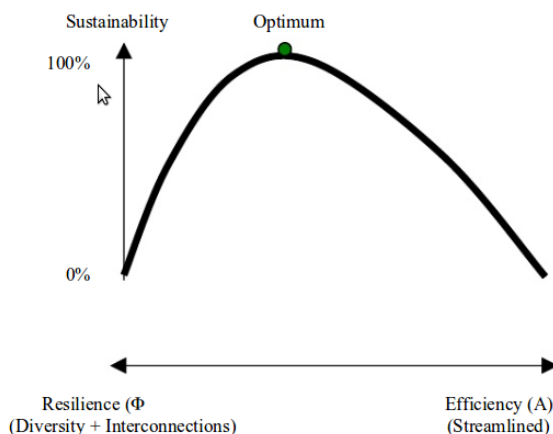
elements be (Lietaer et al., 2012).

Communities are conceptualized as social life organizational forms, based on a functional interdependence with the urban ecosystem, to which they belong. As open complex system, it needs to auto-organize to reach stable states through matter, energy and information exchanges. Urban ecosystems are the most common environment for societies. They are particularly un-complete systems, which feed from the matter and energy of other systems and cannot assimilate their own waste. They need market mechanism for matter and energy appropriation and distribution. As a result, they would depend on exchange unit systems enabling exchanges to balance. Sustainability would depend on its self-organizing competences to face disturbances and stabilize, maintaining its functions through adaptation and transformation. This capability is known as resilience.

Resilience is a concept original from physics used to describe the capacity of a matter or system to recover equilibrium after a displacement (Norris et al., 2008: p128). In ecology context it refers to a "measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state" (Holling, 1973 p17). This definition is directly adapted to social systems with the name of "social resilience". It is defined at the community level rather than being a phenomenon pertaining to individuals. Hence it is related to the social capital of societies and communities (Adger, 2000). At the CCs literature, the definition most commonly used is from Walker: "the capacity of a system to absorb disturbance and reorganize while undergoing change, so as to retain essentially the same function, structure, identity and feedbacks" (Walker et al., 2012).

Resilience - efficiency relationship is described by complex flow systems framework and explains how sustainability of a system depends on resilience and efficiency balance. Applied to current economic conception, exchange flows are driven by conventional money with the aim to optimize the efficiency in process of price and exchange formation. This guiding principle discards the inefficient goods and services from the market, concentrating and standardizing the flows, at the expense of diversity and network affluence. As a result, it will produce an excessive dependence on a specific resource. System would become more fragile and easy to collapse in front of specific disturbances. Optimal balance between resilience and efficiency can be graphically represented in graphic 1.

Graph1. Balance in a complex flow system.



Source: Ulanowicz et al., 2009

In this graphic, sustainability moves depending on efficiency and resilience balance. Curve is displaced to left because ecology considers resilience more important than efficiency for the survival of species. Sustainability is not reached in a single point. It is a progressive dynamic concept and consists of reaching different stable states placed within a viability window (Ulanowicz et al., 2009).

This balance dynamic, applied to CCs case, would enhance exchange diversity and increase user's connectivity, improving both general resilience and specific for shorts in money supply. As a result, exchange flows would increase, inefficient exchanges could be included and exchanges may reach layers of society that used to be excluded.

Lietaer explains CCs radical differences regarding official money design: they cannot be stored, there are no interest charges and value is backed by mutual trust, transparency and the participation of the members. The result would be radically different social behaviours: cooperation, reciprocity, trust and equity (Lietaer et al., 2012a; Lietaer et al., 2012b). Those behaviours become a community resource that can make a difference between CCs social performance and the rest of the groups. Relational resources are activated and, although they are difficult to identify and describe, they produce social benefits. Those assets are called social capital.

Social capital emerges as opposed to human capital, to refer to the generated value from networks and relationships of a group. Its presence can be detected proposing two groups of people with equivalent natural, physic, economic and human capital. If one of them generates more value than the other in the same circumstances, it could be explained based on their different relationships and influences. That intangible capital produced by relationships within a group is a concept that lacks a general definition, but is used to describe social networks, reciprocity norms and trust. Table 1 collects some reference definitions that can provide useful topics to address the concept.

Table 1 – Social capital definitions (Source: Author)

Author/year	Definition
Putnam, 1995	Aspects of social organization like trust, norms and networks, that facilitates coordination and cooperation in order to obtain a common benefit
Bourdieu, 1986	The set of resources, actual or potential, available to members of a more or less institutionalized durable network of relationships of mutual recognition
Coleman, 1990	Social capital is defined by its function. It is not a single entity but a variety of different entities having two characteristics in common: some consist of several aspects of social structure, and they facilitate certain actions of individuals who are in the structure
Fukuyama, 1995	The ability of individuals to work together for common purposes in groups and organizations. Existence of a certain set of informal norms and values shared among members of a group that permits cooperation among them.
Szreter,	Additional productive benefits for society or economy as a whole resulting from

2000	the synergy of a set of social relations of mutual trust.
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Two more characteristics help social capital better understanding: it can be increased, maintained or destroyed (Coleman, 1990), but nevertheless it can't be accumulated by any individual investment standard mechanism, but through social participation (Antoci et al., 2005).

After reviewing social capital literature to assess it, the conclusion is that there is no consensus on what can be measured. Consequently, an indirect assessment has been used considering the components evolution and effects. The common topics identified from Table 1 would constitute social capital basements: trust, reciprocity norms and networks (Putnam, 1995). Dale offers a more precise vision from sustainable communities' framework, specifying as constituent elements for social capital: commitment, trust, cooperation, collective norms, knowledge diffusion and sharing future (Dale et al., 2010). Therefore, to assess the CCs specific contributions to social capital, the three basic components would be complemented by those provided by Dale. Contributions can be differentiated according to the following dimensions of a system:

- **CONTRIBUTIONS TO SYSTEM STRUCTURE:** provided by the relational networks improvement in the form of interconnection increase, node diversity and cohesion.
- **CONTRIBUTIONS TO SYSTEM ORGANIZATION:** which allow a better coordination and self-organization of the group through improvement of trust and norms.

Evidence regarding CCs contributions to social capital was found on Jacob and Wheatley investigations about *Ithaca Hours* and *Calgary Dollars*. Social justice and ecology values were predominant, as well as quantitative and qualitative improvement on relationships and friendships, trust and esteem among most of their respondents (Jacob et al., 2004; Wheatley et al., 2011; Hiramoto et al., 2012). North Herts LETS from UK investigation registers the same results, but also a significant community sense and non-competitive behaviour (Caldwell, 2000).

2.3. CCS SPECIFIC CONTRIBUTIONS TO SOCIAL CAPITAL

To deepen and define the specific contributions, previous CCs investigations were taken as reference. Most of them were LETS, which have been widely investigated during the last 30 years. Their specific concepts and variables will be suitable to analyze and contrast the Spanish case.

Table 2. Previous investigations used as reference (Source: Author)

Community Name	Users	Methodology/Variables	Summary	Author, year
Ithaca hours	800	Personal questionnaire to 42 users. Variables: ideology, motivations, participation patterns, perceived benefits (relationships and instrumental usefulness), trust, esteem, activism	Checks if CCs participation constitutes a social capita source for users.	Jacob et al., 2004

Calgary dollars	448	Online survey to 222 users. Variables: trust relationships, esteem, participation in community affairs, employability, business promotion, contact variety, crisis services	Measures the results of the social and economic capital indicators monitoring system which evidence social capital improvement	Wheatley et al., (2011)
Northern Lets	50	Personal questionnaire to 51 users. Variables: motivations, participation patterns, satisfaction, environmental sustainability values, wellbeing	Checks the motivations, ecological values, and asses its potential as allies to promote environmental objectives	Caldwell, (2000)
Ichi Muraoka	91	Postal survey to 45 users Variables: individual social support indicators	Empirical study about community currencies social effects	Nakazato et al., (2012)
Bytesring Stockholm	113	Postal survey to 70 users Variables: individual social support indicators	Empirical study about community currencies social effects	Nakazato et al., (2012)
LETS in UK	26 LETS of 303 existent in UK, 2.515 users Response rate 34%	Postal surveys and personal interviews about motivations, ideology, benefits, profile	Empirical studies which reveals how LETS are effective building network support, although specific aspects need to be reinforced in order to generate benefits to a wider range of people	Williams, et al. (2001)

Their results allow them to conclude that CCs participation improves social capital through a variety of dimensions that would be distributed through the next six specific contributions:

2.3.1. NETWORKS: PARTICIPATION PATTERNS

Social capital accumulation is conditioned by participation (Antoci et al., 2005). Knowing the characteristics of the nodes and networks allows assess network size, diversity and strength. Table 2 investigations use participation patterns to identify characteristics like commitments intensity, willingness to participate or exchange diversity (Caldwell, 2000; Jacob et al., 2004; Wheatley et al., 2011; Williams et al., 2001).

2.3.2. TRUST: TRUST RELATIONSHIPS, MOTIVATIONS AND VALUES

Trust is one of the essential components of social capital (Putnam, 1995). It is critical for building relationships, whether intellectual, social, economic or relational. Trust relationships are really important for social cohesion and economic success. It is fundamental to get members commitment (Dale et al., 2010).

2.3.3. COMMON OBJECTIVES: MOTIVATIONS AND VALUES

The motivations to fund and participate on CCs reflex civil society initiative to face a specific common need in a participative way. That common need would define the community objective. Blanc

classifies CCs according to the most common purposes: territorial, social and economic (Blanc, 2011). If common objectives, values and behaviours are detected (see 2.3.4 paragraph) it can be estimated if there is a basis to improve organizing capacity, like cooperation, participation and reciprocity culture. Finally, objectives and values allow identifying the socioeconomic aim that would have the support of the community, like responsible consumption, social justice and ecology.

2.3.4. NORMS: BEHAVIORS, MOTIVATIONS AND VALUES

As explained on previous paragraph, collective norms depend on shared values. To avoid domination of individual interests over behaviours, a high grade of reciprocity must exist. Reciprocity is one of the main characteristics of the CCs. Regarding cooperative behaviour, the presence of certain informal rules and values among members of a group, facilitates cooperation among them (Fukuyama, 1995). Cooperation is essential as it is the glue that keeps connections together, and the lubricant for articulations, which implies union and shared work to pursue common goals. It is, therefore, a first condition for network building. Without cooperation and reciprocity, people disconnect from their communities, their relationships and take the way to social isolation (Dale et al., 2010). Participation is the third behaviour, which is explained at the participation patterns and perceived benefits points.

2.3.5. PERCEIVED BENEFITS: SOCIAL AND INSTRUMENTAL

Social capital indirect evaluation is done through comparing topics, which identify perceived social and instrumental benefits derived from CCs participation. Investigations about *Ithaca Hours*, *Calgary Dollars* and LETS UK used as reference indicate that economic instrumental benefits, although they are easily quantifiable, they are poorly relevant. Therefore, special attention is paid on trust, esteem, cohesion and participation improvements that are reflected on the social benefits perceived by the users.

Regarding instrumental/utility benefits to pursue individual goals, they will be also investigated as its presence is relevant for the community consolidation (Jacob et al., 2004).

2.3.6. SHARING FUTURE, EXPECTATIONS, OPENESS, ADAPTABILITY

Like any other social movement, CCs are "intentional collective actions which result in the transformation of the society values and institutions, whether they achieve or not their own goals" (Castells, 1997, p3, through Caldwell, 2000).

This statement suggests that the ways to think and behave of the CCs users may help to emerge social transformative initiatives. Consequently, CCs are potential social change agents.

Alliances for CCs evolution are possible just if they do not have limiting characteristics for their adaptation. Lietaer states that CCs are innovative just when they have a really beneficial impact on society and are capable of scaling-up as necessary (Lietaer et al., 2012b). Bendell and Greco propose a list of characteristics that would allow community exchange systems to become viral: involve business, extend credit to members depending on its exchange capacity, manage exchanges in a transparent, open and responsible way, provide own data availability in accessible format, offer interoperations with other exchange communities, create ways to remunerate value added services in the won currency, exchange knowledge and experiences to cooperate between communities (Bendell et al., 2013).

In UK hundreds of initiatives from local authorities were consolidated, supporting LETS through

programs against poverty, social services and Agenda 21. The fact that government supported LETS in this way can be an indicator that CCs are valuable allies to promote social transformative initiatives (Web LETSLINK UK, 1998 through Caldwell, 2000).

An interesting case of CCs is the Calgary Dollars case that counts with government support and has a monitoring system regarding economic and social capital results. It allows checking if their users have better access to social and economic capital through Calgary Dollars participation. Initial research measured five social capital variables (friendship, relationships of trust, esteem and ability to help others) finding evidence that social capital substantially improves through increased CCs participation. The last 2010 research findings showed that social capital benefits were most significant than the economics, helping to face crisis problems and providing more relationships of trust (Wheatley et al., 2011). On his research, Wheatley also refers to the evidence found by other researchers regarding how CCs participation builds social capital among excluded or vulnerable populations (Collom, 2008; Seyfang, 2002 through Wheatley et al., 2011), advocating for its role as social change agent.

LETS beneficial effects as social change agents are defended by Caldwell as well, who listed several of their transformative effects from other authors contributions: facilitates and strengthens investment in local ecological projects; relieve pressure on national and international infrastructure, reducing pollution and excessive transport costs; encourage resource conservation advocating sharing, repair and reuse of products and creating ecological awareness; alleviate social injustice encouraging the participation of the unemployed in a casual job that allows them to improve their standard of living and increase their options to find work in the formal economy (Caldwell, 2000).

3. METODOLOGY

The three aims of this study are: to check if CCs participation improves networks, norms and trust of the Spanish communities; if the behaviours of their participants are inspired by cooperation, reciprocity, participation and commitment and if participants perceive benefits related to those concepts. In addition, we also aim at detecting users' attitudes that may affect CCs adaptive and growing capacity.

For this study an exploratory approach to the state of the art in Spain has been used. It has been conducted through a quantitative survey and the results have been compared to other reference case studies. These reference cases have qualitative and quantitative methodologies but their results provide comparable variables and indicators.

In order to analyze collected data, univariate and bivariate analysis was performed using SPSS software. Specifically, mean differences and chi-square test were applied depending on the variable type, reporting just statistically significant results ($p < 0,05$).

3.1. SAMPLE

Users population is relatively accessible as most of them are using the mutual exchange online software CES to manage exchanges and account balance. This circumstance facilitates the distribution of an on-line questionnaire through the community administrators.

Most of the 145 CCs using CES in July 2013 had little exchange volumes and users, so that, just 37 communities with more than 30 active users were initially included, accounting for 7.291 total users (web *CES Database accessed on July 2013*). The final sample consisted of the users of 10 communities (Table 3), giving us access to 2.413 users and obtaining 350 totally or partially completed questionnaires.

Table 3

Investigated Exchange Community (Data source: web *CES Database June 2013*)

<u>Community</u>	<u>Users</u> <u>(may</u> <u>2013)</u>	<u>Exchange</u> <u>unit</u>	<u>Foundation</u> <u>date</u>	<u>Exchanges</u> <u>/month</u>	<u>Value</u> <u>Exchange</u> <u>/month</u>
Puma - Community currency Network North-Seville Historical Downtown	585	Virtual Money: PUMA	21 feb. 2012	160	1365 Pumas
ECO - ECO Network Tarragona	415	Virtual Money: ECO	31 oct. 2009	49	1850 Ecos
Exchange community Sierra Norte - Madrid	400	Virtual Money: Mora	14 mar. 2012	157	1411 Moras
15M Camp de Túria	274	Virtual Money: ECO	18 jul. 2011	120	1636 Ecos
Asturian Barter Community Network	266	Virtual Money: Copin	18 oct. 2012	121	2289 Co
Osel Murcia	256	Virtual Money: OSEL	12 aug. 2012	32	462 Osel
Aragonese Integral Cooperative	72	Virtual Money: Ebro	24 nov. 2012	9	95 Ebro
Time Bank Collado Villalba	72	Virtual Money: Tempo	18 jun. 2013	N/A	N/A
Eco Network Milaguas Teruel	33	Virtual Money: Gota	29 sep. 2012	13	184 Go
Eco Alt Congost	40	Virtual Money: Eco	2012	N/A	N/A

3.2. ANALIZING VARIABLES

3.2.1. Participative patterns

The following indicators are used to specify variables related to relational structure: transactions and users volume, exchange types, seniority.

3.2.2. Trust

Trust enhancement indicator will be trust relations increase and assessment of interpersonal relationships. This question is used in all the investigations referred in table 2.

Trust improvements would be essential to achieve the commitment of the members that conform

and hold together the network (Dale et al., 2010).

3.2.3. Motivations for foundation - participation and common values

Motivations for establishing or founding an Exchange Community are extracted from Complementary Currency Resource Center database, which registers data from exchange communities from around the world. Although only 7 Spanish communities contribute to this database, we can find the most popular motivations among the 220 world communities registered (Complementary Currency Resource Center, 2013) and contrast with the data collected in our research: social and economic sustainability, sense of community development, local economy development, national currency dependence reduction, members' wellbeing reinforcement.

Caron Caldwell research on UK LETS is used to approach the motivations to participate: good and services exchange, consuming goods and services that couldn't be afforded otherwise, change way of life, meet new people, boost local economy, contribution to environmental sustainability, promote a more equitable society (Caldwell, 2000). Since Caldwell investigation is qualitative, to compare the results, questionnaire answers are graded in a 5 Likert scale to register motivations intensity.

Predominant community values are those detected in Caldwell and Jacob's interviews: Environmental sustainability value, social justice value, interpersonal relationships values_(Caldwell, 2000; Jacob et al., 2004).

The proposed mechanisms for social capital generation are empowerment and participation (Antoci et al., 2005; Dale et al., 2010).

3.2.4. Norms and behaviours

These variables are assessed through several questions regarding: interpersonal relationships and participation values; reciprocity and cooperative behaviours; motivations to build a sense of community and if have been perceived benefits such as notice an increase in trust relationships/esteem and feel participant in community affairs. As long as indicators for reciprocity are clearly stated among motivations, values and benefits, cooperative behaviour cannot be specifically identified so, it will be associated to the presence of norms and values, allowing this behaviour.

3.2.5. Perceived benefits

In the case of variables of social contributions, those previously applied in the comparative research between *Muraoka-town* in Japan and *Bytesring Stockholm* (BYTS) in Sweden (Hiramoto et al., 2012) have been used. These include emotional support, instrumental support, informative support, appraisal support, companionship support and economic support.

3.2.6. Adaptive, growing and satisfaction capacity

Variables referred to the user perspective on the community, its future evolution and its own participation are taken from Calgary Dollars (Weathley et al., 2012) and UK LETS (Caldwell, 2000) investigations, as well as the suggested by Lietaer to produce significant beneficial social effects (Lietaer et al., 2012b). These variables are community size and openness, possibilities regarding new objectives (social, economic) and alliances with local business and public administrations, satisfaction level and commitment

perspective, common values and motivations that may support a socioeconomical aim (asked in the values and motivations section) and perceived usefulness to face current socioeconomic situation (asked at perceived benefits and satisfaction section).

4. RESULTS AND DISCUSSION

4.1. User profile

The results of the research show the main characteristics of the Spanish CCs user: a man or woman, between 30 and 45 years of age, working and with high educational levels. It seems obvious that participation is not due to economic motivations, as *Northern LETS*, *Ithaca Hours* and *Calgary Dollars* investigations indicated too (Caldwell, 2000; Jacob et al., 2004; Weathley et al., 2012). However, the Spanish profile differs from them, where most of the participants were women with dependent children.

4.2. User patterns

58% of the respondents have been participating in the community since less than a year ago, and 78% make less than 5 transactions per month, focused on common use goods, professional services and, to a lesser extent, leisure. This lower number of transactions is a common score to *Northern LETS* and *Calgary Dollars* investigations (Caldwell, 2000; Weathley et al., 2012). Nevertheless, it seems relevant that communities with local business participation, transaction number and value exchanged are higher and their users use to highlight that the social value generated is more significant than the economic one.

4.3. Transaction number and node quantity (active users)

Data from CES database reveals that most of the communities have been increasing their exchange volume, although at different rates. As shown in table 2, except for two of them, the founding dates of the communities are very recent, and transaction number and volume are not significant. Compared with the data shown in Table 3, senior LETS have a higher number of nodes on their networks (between 800 and 50 users) than the sampled Spanish communities (among 585 and 33 users). It may be mentioned that CES network allows connecting different communities between them. So that, as exchanges spread between communities, the available number of nodes may increase, thus meeting one of the proposed characteristics that would allow community exchange systems to become viral (Bendell et al., 2013).

Despite this improvement of the relational network among users, their low diversity contrasts with other LETS research cases where users are diverse in age, education and income. In the specific cases of *Calgary Dollars* and *Ithaca Hours*, indicators related to race, nationalities and income diversity confirm an improvement of the community social capital by increasing nodes and transactions' quantity and diversity (Wheatley et al., 2011; Jacob et al., 2004). Those results suggest the convenience of increasing participation of local business and under-represented collectives such as students and pensioners.

4.4. Motivations

In order to assess agreement intensity on proposed motivations and values, answers have been graded from 5 (strong agreement) to 1 (strong disagreement). After that, average values have been calculated for each motivation. Similar to the most popular motivations mentioned at the *Worldwide CCs*

Database, users surveyed in this research agree with the proposed motivations, "contribute a sustainable society" and "local business promotion".

Statistical analysis found positive significant correlation between the following motivations: "contribute to sustainable society" and "local business promotion" motivations; between "Exchange goods and services", "Offer/receive support to/from the rest of the community" and "sustainable" motivations and, finally, between "interact with people who have similar values to mine" and "promote sense of community".

Unanimity in the motivations suggests that participants have the initiative to promote prosperity, acting locally and under the vision of an economic sustainable paradigm where exchanges emerge with the guiding principles of reciprocity and sustainability.

4.5. Values

All respondents agree with the proposed values: solidarity, social justice, ecology, personal relationships value and participation. These results are similar to those obtained from other investigations like Calgary Dollars, UK LETS and Ithaca Hours, which propose that projects which have CCs as allies should include environmental and social aims. It must be taken in to account that those values could be either a consequence of participation or a prerequisite of the participants.

4.6. Norms and behaviours

There is strong evidence about predominant motivations and values related to participation, reciprocity, community sense promotion, interpersonal relationships and affinity values. This result implies that their behaviour would have the same orientation. Either participative attitude or reciprocity behaviour suggests that cooperative behaviour is another of the guiding principles for members' actions.

All those predominant motivations and values constitute the common guiding objectives of the community. Combined with cooperative norms, social capital can be enhanced through an improved capacity for self-organization.

4.7. Perceived benefits

When asking for perceived benefits to detect participation results, respondents overall response agreed with proposed topics related to participation, trust and esteem, all improving components for social capital as a consequence of reciprocity and participative behaviours. 50% of the respondents perceived wellbeing improvement. Similar evidence is found at the *Calgary Dollars* and *Ithaca Hours*. On the other hand, relegated to the last positions are those related to utility (instrumental or individual benefits like loneliness and business promotion), which registered a lot of indifferent responses (about 25%). Weak utility sense would affect negatively users' commitment, so that it is strongly recommended to improve perceived utility in order to obtain a stronger commitment that could contribute to community consolidation.

There were not significant differences between the different collectives, but in the case of the unemployed, esteem became the most important benefit. Taken together this exception and the significant correlation between participation / companionship and trust relationships increase / esteem, it can be said that participation in CCs contributes to generate effects allowing to help facing social exclusion and crisis consequences, as proposed by Wheatley and Caldwell (Caldwell, 2000; Weathley et al., 2012).

For the specific cases of member whose main motivation is business promotion, they confirm that their participation is useful despite the low volume of transactions. This result is similar to *Calgary Dollars* and *Ithaca Hours* users, which highly valued both the obtained positioning and the loyalty generated by their customers (Wheatley et al., 2011; Jacob et al., 2004). It is generally recommended a higher participation of business to improve utility and diversity in order to contribute to community consolidation. Also it could help to avoid *pooling*, or excessive positive credit accumulation, which is one of the main risks for CCs survival. In the *pooling* cases, user don't find enough choice among the good and services offered (Greco, 2013). An increase on the goods and services offered helps to dispose the accumulated balances.

It can be concluded that CCs participation mainly responds to ideological motivations, becoming some kind of activism. Indicators regarding values, motivations and perceived social benefits are similar to those shown by previous CCs research and indicating that transcendence is a strong point for commitment

4.8. Satisfaction

Data collected reveals that 79% of the users are satisfied or very satisfied. Coinciding with the referenced investigations results (Caldwell, 2000; Jacob et al., 2004; Wheatley et al., 2011), satisfaction increases among users who mainly exchange everyday products and have larger exchange volumes. Also increases with positive perception of participation and trust relationships, and among users who believe that economic activity must be oriented to ecological and sustainability values.

Despite neither seniorship nor transaction volume are yet significant to reveal enough commitment to enforce internal cohesion, the high satisfaction levels could ensure a short term commitment. If CCs are able to match with the detected values and expectations, this commitment could be maintained for a longer term, contributing to its future consolidation.

4.9. Expectations and future prospection

70% of respondents believe that new users' entry would improve the functioning of the community. There is also consensus to support community projects which pursue common aims like appropriation of space for collective use and collaboration with projects related to social justice and local business. There is an evident potential contribution to social capital provided by the members open attitude towards extending community social effects and establishing alliances with institutions like NGOs and business alliances. However, half of the respondents see alliances with public administration with considerable suspicion. Public administration involvement is a key allied for successful delivery of social effects, as *Calgary Dollars* and *LETS in UK* cases show. So that there is an urgent need to recover citizen confidence on them in order to face that weakness, although this depends on public administrations future attitude.

Therefore, despite this good predisposition and high satisfaction levels, previously referred weak points may threaten the accomplishment of users' expectations and community positive effects extension. It is important for CCs administrators to be able to monitor and identify their own communities' common aims in order to guide their management towards users' needs and expectations. With the collected data they could promote participation, encourage commitment, lead changing processes, inform and train users and

design suitable alliances, like those recommended by Caldwell's conclusions, who proposes CCs as potential collective to boost social and ecological transformative processes (Caldwell, 2000).

5. CONCLUSIONS

This research investigates if Spanish CCs makes its communities more resilient and sustainable. Focused on its social effects, it aimed to check if CCs participation in Spain is improving networks, norms and trust; if their users' behaviours are led by cooperation, reciprocity, participation and commitment principles; if social benefits are being perceived and if attitudes and perspectives among users may affect its adaptive capacity as a complex system.

Spanish CCs are in an early stage and more research is needed to exploit their potential social benefits. The results of this investigation have provided evidence on how CCs participation in Spain improves community social capital through the proposed dimensions and on the potential conditions that they meet to become sustainability tools. Monitoring those conditions and correcting their weaknesses could guide Spanish CCs to improve their access to social relationships and alternative exchanges to *mainstream* market. That would make them more resilient and allow transcending the current monetary system (Bendell et al., 2013).

The predominant values of social justice, ecology and local economy promotion place these initiatives facing the possibility of driving a transition dynamic towards feasible and sustainable communities. Their youth prevents from ensuring a successful transition as they need stronger inner cohesion to consolidate. The extension of social positive effects beyond its members is an opportunity that local business collectives, public administrations and NGOs should consider in order to exploit synergies and pursue together common objectives.

This investigation could be continued with complementary research regarding management and governance practices, allowing early problem detection and monitoring, as well as action planning with the identification of suitable objectives for user's expectations. It would be recommended to include new topics regarding organization and participation in parallel events (meetings, markets, seminars), since those events constitute effective cohesion factors. With data collected from the informational system, could be assessed the social capital contributions proposed by Dale referring to knowledge diffusion among users and pooling ideas through deliberative processes (Dale et al., 2010). In addition, it is also recommended quantitative network analysis that could provide accurate information regarding the distribution of the transactions (Frankova et al., 2014), as well as the links and exchanges with other CCs. For a better understanding about users' diversity, further socioeconomic variables like nationality, race, language and income should be included.

6. ACKNOWLEDGEMENTS

This research is part of a master's thesis research for the Interuniversity Master Degree in Corporate Sustainability and Social Responsibility at the National Distance Education University and Universitat Jaume I (UNED – UJI Spain). It was supervised by Dr. Carmen Valor Martínez, whom the author wants to thank for

her continued support and knowledge. I also want to thank the CCs' administrators and members for their collaboration and the anonymous reviewers for their valuable comments and suggestions.

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