Community Currencies as Laboratories of Institutional Learning: Emergence of Governance through the Mediation of Social Value

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Abstract

This paper is motivated by a long-standing curiosity about the role of *scale* in explanatory theories of socio-economic action. Introducing scale as an analytical variable implies the coexistence of individuals alongside institutions. We make the case that economic activity becomes more sustainable when it is 'colonized' by 'social value' whereby market activity is complemented with community and democratic values, by which we mean the opposite of the commodification of e.g. social networks analytics. We take the Sardex mutual credit system as an empirical context from which to begin exploring the extent to which such community-based economic practices offer a democratic and social alternative to, a questionable substitute for, or a functional supplement to the capitalist market, the welfare state, and public enterprises administered by state bureaucracies. We broach critically the emergence of institutional collective structures from the perspective of social constructivism, post-anarchist theory, economic anthropology, and post-capitalist studies of economic action. In particular, we focus on how Graeber's ideas on the history of debt apply to these points. We propose a recursive constructive framework for socio-economic action whereby money as a social construction is *itself* a medium of economic construction and, as such, becomes an important lever subject to "design" inputs by socio-economic stakeholders engaged in the development of an inclusive and participatory governance process of institution construction.

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1. INTRODUCTION

This paper is concerned with the interdependence between the social and the economic, and with the role this interaction plays in the emergence of stable institutional structures and their collective governance. In particular, the paper is concerned with questions of *value* and *power* as they relate to the phenomenon of parallel, complementary, or 'community' currencies (CCs). A particular instance of CC, the Sardex mutual credit system established in Sardinia in 2010, is an interesting example of institution formation that has so far addressed some of these questions successfully, with corresponding relief from the current economic crisis for the participants. We analyse these questions theoretically from the point of view of socio-economic agency seen as a dialectic between individuals and institutions.

More specifically, our discussion is anchored in Berger and Luckmann's (1966) social construction of reality as the most convincing account of how subjective meanings and human activity can lead to social facts. In their account, the social construction of knowledge in the sense of an epistemology is contained within a broader framework that concerns itself with the social construction of reality in the sense of an ontology. Reality is inclusive of physical facts and objects in addition to social facts, and their conception of reality is able to account for how the former are represented, handled and configured in different societies, cultures, communities of practice, or academic disciplines. The 'social construction of reality' refers fundamentally to processes of institutionalization through face-to-face interaction which create the different social relations, practices, beliefs, norms and objects in each social context.

Section 2 provides a historical discussion of two CC systems upon which Sardex is based, LETS and WIR. In addition to providing some context, the aim of this section is to establish a few important concepts, such as the "colonization" of the market by social value, the 'social construction of economic identity', and the ability of CCs to integrate social value with market dynamics in a manner that does not objectify the former – unlike, for example, the commodification of social network analytics.

Having presented CCs from the point of view of the role of *value* in their operational aspects and in how it is perceived by their users, the next section (Section 3) provides a more in-depth discussion of social constructivism and institutionalization in order to begin addressing the *power* aspects. These are relevant to the internal governance of CC systems, as well as to begin addressing the political economy implications of such potentially radically transformative bottom-up socio-economic phenomena in the context of the global neoliberal economy. The theoretical and literature discussion is punctuated by the analysis of empirical data from interviews performed in July 2014 with one of the Sardex founders and with nine corporate members of the Sardex circuit (Dini and Sartori 2014).

Section 4 draws on Graeber's (2011) anthropological history of debt to shed some light on why capitalist neoliberal economies are besieged by such profound problems of inequality and, by the same token, why the Sardex experiment is so profoundly interesting.

The intersecting narratives of social value, market structure, social constructivist epistemology and ontology, governance, and power that appear to be required to understand bottom-up and self-empowering phenomena like Sardex call for a more inclusive and expressive theory of institutions and institutionalization. A first step in this direction that builds on Dini et al. (2011) and on the rest of the paper is attempted in Section 5. It outlines the kernel of a media-centric model of institution formation whereby Berger and Luckmann's dialectic (i.e. interactive) balance between subjective meanings and social facts engenders an open, recursive, evolving and self-reinforcing bootstrapping process that links individual expression to context-dependent structures through a system of feedbacks between different social constructions. One of the conclusions is that the mediation of social value by a Sardex-like community currency and a lightweight participatory governance framework for its corresponding institutional form are one and the same thing.

2. Community Currencies and the Quantification of Social Value

The view explored in this section attempts to balance utilitarian/functionalist thinking around the concept of value with some critical analysis of the possibilities. Community currencies implicitly or explicitly put in question some of the assumptions we normally take for granted; for example,

- Is money as we know it the best instrument for supporting economic growth? Can we define money in social as well as in economic terms?
- What is the relationship between social value and economic (market) value? How do we define them?

While this paper cannot pretend to be able to answer these questions, this section, drawn mainly from Dini (2012), discusses two examples of CCs that highlight a few relevant concepts.

Modern Historical Roots

CCs can be seen as part of a 'hands-on' and empirical methodology to study the kinds of questions posed above. Although local currencies have existed since time-immemorial in all human cultures, the concept of and motivation for the modern CC phenomenon can be traced to Robert Owen in England in the 1820s (Schroeder et al. 2011). It is indicative that Owenism can be seen as the 'fount of modern socialism' (Polanyi 2001[1944]: 178).

Another important reference for many CC initiatives and commentators is Silvio Gesell's concept of perishable money, or 'demurrage', by which money should deteriorate in a manner similar to the commodities it is used to buy (Gesell, 1934[1906]). Such an effect, according to Gesell, would induce anyone who had money to spend it as quickly as possible, before it lost value. Of course, inflation has a similar effect, which in fact makes zero interest on deposits sufficient to stimulate spending.

Another reason CCs are theoretically interesting is that a similar concept was proposed by none other than Friedrich Hayek (1976), one of the inspirational figures for Thatcherism, Reaganism, and neoliberalism in general, in an attempt to address the then vexing problem of inflation:

> [i]f we are to contemplate abolishing the exclusive use within each national territory of a single national currency issued by the government, and to admit on equal footing the currencies issued by other governments, the question at once arises whether it would not be equally desirable to do away altogether with the monopoly of government supplying money and to allow private enterprise to supply the public with other media of exchange it may prefer. (Hayek, 1976: 26)

Quite apart from the wisdom, or otherwise, to rely on competition alone in the case of multiple 'private-sector' currencies, from these references it seems that there is an intriguing 'structural' appeal in the concept of multiple currencies that transcends party politics. In any case, a very interesting property of CCs in this regard is that without a suitable accountability and governance framework they simply do not work. Hence, from the point of view of social science they could be seen as useful 'laboratories for institutional learning' that enable some level of experimentation of new ideas in a relatively protected environment.

In the next section we provide a short summary of the LETS and WIR systems as an introduction to the Sardex, which takes elements from both.

Community Currencies Basics

The number of references on CCs is very large and growing. Their potentially important role in the recent economic/debt/credit crisis is acknowledged by a range of recent publications (for example, *The Economist* 2011). As discussed in Breitstein and Dini (2011), CCs are local currencies that

complement a national currency, usually with the intent to stimulate a local economy, particularly in tough economic times. Accordingly, in response to the recent recession, more CCs have arisen in the United States (Kadet 2010). This highlights the ability of socially constructed concepts and practices to provide solutions to economic problems, a phenomenon that is more visible at local level. Although an exchange rate (fixed or floating) between a CC and the national currency has been set up in many cases, the dependence of the CC on a local and socially embedded dimension implies that it is not suitable for long-range, impersonal transactions. More to the point, outside the community within which it was defined a CC has no meaning and no value. Because remuneration in a CC is taxable, its adoption requires a system of accounting that, in turn, requires high levels of transparency, accountability, and trust in the community. Most, although not all, CCs do not accrue any interest (the Swiss WIR being a notable exception[1]). Therefore, their role as a medium of economic exchange with no intrinsic value is visible to everyone: the individual derives a greater utility from spending his/her savings in the local CC than from holding on to it.

It is fairly well recognized in the literature that, in CC implementations 'the membership … does not correspond even closely to the average population and transactions are often not economically but ideologically motivated' (Schraven, 2000). In other words, the apparent lack of market speculation and profit-seeking in the great majority of CC implementations could be a reflection more of self-selected behaviour by the members on ideological grounds than of the structural properties of the medium itself. As discussed below, this observation does not apply to the WIR or the Sardex CCs.

In terms of turnover, the economic impact of CCs is extremely small when compared with any country's GDP. We can get a rough idea of what it might be by extrapolating from the data contained in the Complementary Currencies Resource Center (CCRC) website,[2] a database that publishes only data that has been voluntarily provided by CC initiatives around the world that have registered with it. As of 2012 there were only 224 CC members registered (called 'Local Exchange Systems' on this website), spanning about 15 or 20 types of CC. As stated by the curator of the database, an approximate estimate for the total number of implementations is 'at least 1,500 systems, with an estimated maximum of 3,500 at present' (DeMeulenaere, 2011).

The number of CC registrations to the database over the past 20 years reached 224 in 2010. As the total volume of trade for the 224 registered systems in 2010 was approximately US$107m,[3] a linear extrapolation for 1500 systems would be about US$700m. This is only a tiny fraction, for example, of the UK GDP: £440m/£2.5tr = 0.018%. The contribution of the UK CC implementations would be even smaller of course. Thus, it would appear that in their current form CC systems (except for WIR and possibly Sardex) are not likely to be an important part of any country's overall economy.

The LETS System

LETS stands for Local Exchange Trading System and was invented by Michael Linton during an economic slump in Canada in the early 1980s.[4] He was living on Vancouver Island at the time, and noticed that the economic depression was accompanied by an absence of cash on the island. He posited that if someone arrived with a suitcase full of banknotes and started spending, within a few weeks all that cash would disappear, usually carted off to banks in the state (or, for Canada, provincial) capital after having been collected through the local supermarkets, banks, etc (Linton 2005).

[1] See http://www.wir.ch (only in German, French and Italian). See http://projects.exeter.ac.uk/RDavies/arian/wir.html for a short summary of the WIR and the evolution that led to the adoption of interest in 1952.

[2] http://www.complementarycurrency.org/ccDatabase/les_public.html

[3] DeMeulenaere (2011) warns that this number is only approximate because not every CC system contributing to the database updates its figures regularly.

[4] Solomon gives the acronym as 'Local Employment and Trading System'. As explained by Croall (1997), this was the original meaning of the acronym, which was subsequently changed to Local Exchange Trading System. See http://www.openmoney.org/ or http://www.letslinkuk.net/index.htm for more on LETS.

Money is normally defined as having three functions: (1) medium of exchange, (2) store of value, and (3) unit of account. Thus, the problem on Vancouver Island and other similar depressed economic areas with a negative trade balance is first and foremost the loss of a medium of exchange. CCs address this problem directly by making it impossible to spend them anywhere else but in the given community, a phenomenon called 'import substitution'.

In a LETS system the total net amount of CC in a given community is exactly zero at all times (see Figure 1). Someone who sells a product or service is credited with a positive (credit) balance of so-many units of CC, whereas whoever buys that product or service acquires a negative (debt) balance of the same amount. Both changes in position are (usually) effected electronically, so that in most LETS implementations no physical currency actually exchanges hands. In most LETS implementations, likewise, interest does not apply and the exchange with the national currency is not allowed, so the only way to change one's positive or negative balance is to buy or sell, respectively, some other product or service, locally. Crucially, one does not need to hold a positive CC balance in order to make a purchase: his or her balance simply goes negative by the price of the item or service, the provider's balance simultaneously going positive by the same amount. In reality, in LETS systems usually the participating shops tend to accumulate large positive balances that then they may have difficulty in spending (unless, for example, their employees agree for part of their salary to be paid in the CC).

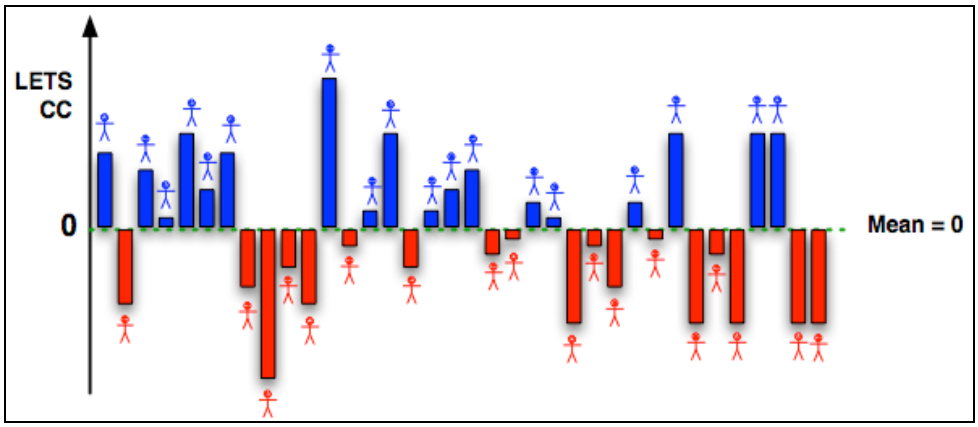

Figure 1: Idealized distribution of CC balances at one point in time within a given community using the LETS system

There are some well-known problems with the LETS system, such as the fact that it does not scale very well since it benefits from and even depends on personal acquaintance, social ties, and trust between the members. For example, the community extends a high level of trust to the individual purchaser in the hope that he or she will provide some other service or product back to the community in order to eliminate his or her negative balance. This property of the LETS system is also one of its greatest weaknesses since it leaves the community open to opportunistic free-riding behaviour, for example by someone who accumulates a very large negative balance and then disappears. This problem is exacerbated as the membership grows in size. As discussed by Jackson (1997), another related common problem is the tendency for a large majority of members to accrue a positive balance. This can be caused by weak accounting practices, but it is in any case an unstable rather than self-correcting process because, as the number of people with positive balances increases, the number of people willing to sell services decreases since everyone wants to buy in order to lower their balances.

The Swiss WIR

WIR is short for Wirtschaftsring, German for 'economic circle', but also means 'we' in German, emphasizing the community and solidarity aspects of the currency. WIR refers to the club or network as well as to the currency itself, which is nominally held at the same value as the Swiss Franc (CHF)

to simplify accounting (the unit of account is equal to the CHF). WIR was founded in 1934, as a result of the money scarcity caused by the Great Depression in Switzerland (Studer, 1998). It can be seen as a multilateral corporate barter exchange system. A comparison with the almost universal reliance on the trade credit mechanism is also helpful.

It is possible that LETS was partly inspired by WIR, since the two systems share several features. They are both members-only networks. WIR utilizes a negative balance system that is similar to LETS but different in important respects, and for small negative balances relating to the use of the currency itself no interest is charged by WIR to its members. The four main differences are:

- WIR is mainy a B2B currency that was created specifically for SMEs, to make it easier for them to obtain credit especially in economic recessions.
- Whereas in LETS a member's negative balance is a debt towards the community, in WIR it is a debt towards the central credit clearing house, which since 2004 is called WIR Bank.
- In addition to allowing members to acquire a negative balance when making a purchase, thereby 'creating' currency in a manner very similar to LETS, with the seller in the trade acquiring a corresponding positive balance, WIR also allows members to take out large and long-term loans, as large as house mortgages, for which interest (in CHF) is charged and collateral requested.
- WIR charges a 1% fee for each transaction whereas LETS transactions are usually free, implying the potential for long-term sustainability problems for the latter.

Stodder (2009) found that WIR exhibits a 'deeply acyclical' behaviour with respect to national money supply. In other words, in periods of recession when there is less national currency around WIR turnover increases. This insulating effect is believed to be one of the reasons for the stability of the Swiss economy (Stodder, 2009).

Because the WIR system operates in a manner that is in some respects similar to a bank, it also follows careful credit checks on companies petitioning to join. These checks were instituted in 1940, as part of a reorganization that brought WIR under Swiss banking law, after the early version of the network came close to collapsing due to absence of collateral associated with large negative balances. In the early years WIR also applied demurrage, which was abandoned in 1948. Interest on large loans started being charged in 1952. Finally, in 1973 WIR credit discounting was prohibited, meaning that WIR credits could no longer be exchanged for Swiss Francs, because it seemed to lead to speculation and consequent devaluation of the WIR as a currency. This is another feature that is similar to LETS credits. As claimed by Studer (1998), the structural characteristics of the WIR system combined with the flexibility of the members and supporters to adjust the properties and the rules over time enabled WIR to last so long.

Estimates of the size of WIR vary somewhat. Between 1993 and 2003 the circle hovered around 80,000 member or roughly 20% of Swiss businesses.[5] Using 1993 numbers, Studer estimates an average acceptance rate of WIR credits of 40% on purchases. Thus, the 1993 WIR turnover of CHW 2.5b corresponds to a turnover in Swiss Francs of CHF 5.25b (2.5/0.4 = 5.25). The size of the WIR system is small in GDP terms, but is in a different class from all other CCs. The WIR is not one of the systems registered with the CCRC database, so it is not included in the numbers above. The ratio of CHW[6] turnover to Swiss GDP (about 0.5tr in 2007) has oscillated between 0.5% and 1% for the past 50 years.[7,8,9,10,11] The numbers are small, relative to the national economy of an average European country, but larger than all the other CC systems combined.

[5] http://www.qoin.com/achtergronden/barter-exchange-trade-mutual-credit-wir-irta-nate.html
[6] In 2004 the WIR was assigned its own symbol 'CHW' by the British Standards Institution and with the approval of the World Bank. CHF and CHW cannot be exchanged for each other but for accounting purposes 1 CHW = 1 CHF.
[7] http://data.worldbank.org/data-catalog/world-development-indicators?cid=GPD_WDI
[8] 1964, 1980, 1991, 2005: http://www.wir.ch/index.cfm?CBD9201D3DBB11D6B9950001020761E5
[9] 1993, 1997: http://www.qoin.com/achtergronden/barter-exchange-trade-mutual-credit-wir-irta-nate.html
[10] (Studer, 1998: 36)
[11] 2007: http://www.help.ch/newsflashartikel.cfm?art=News&key=232588&parm=detail

The other main type of CC, which we do not discuss in this paper, is a physical currency whose definition follows more familiar criteria, such as being pegged to, and therefore being redeemable and exchangeable with, the national currency or a basket of commodities. An example of such a CC is the Brixton Pound.[12] Unlike the LETS system, with a physical CC there is no membership, the CC is usable by anyone who is willing to accept it, although usually this means that person lives or works within the geographical boundaries of the community. As will become evident from the discussion below, one problem with physical and exchangeable CCs is that they are not sufficiently insulated from the negative effects of money capital.

The Quantification of Social Value

The above discussion has provided some evidence that there is much to be gained from striking a balance between the social and the economic dimensions of society, and has offered two institutional examples of why this might be the case and of how this might be achieved in practical terms. The perceived separation between economic value and social value, however, persists – and calls for more theory.

An extension of systemic economic relationships beyond the market has been developed within the field of economic anthropology, for example as discussed by Gudeman (2001). Economic anthropologists study the forms of value creation and exchange that characterize different human cultures, including the Western. All economies strike a balance of market or commodity-based production and exchange and non-market and commons-based production, sharing, and exchange. But Gudeman proposes a more granular classification of value domains which, importantly, is also dependent on scale: (1) base or commons, (2) social relationships, (3) accumulation or capital, and (4) trade or market. The first two are prevalent at smaller scales and are closely associated with community, whereas the latter two tend to involve longer-distance interactions and are more impersonal. However, the domain of accumulation is equally important for community and for the market. Unlike commercial capital which is usually measured with a common metric, i.e. money, the values in the base are measured in many different ways that depend on the type of base and the type of community. However, the function of base and capital to 'store' savings that, for example, can be accessed in hard times is analogous.

Although Gudeman's book is far from addressing every aspect of modern economies, it suggests a way to see our social and cultural dimensions through an economic lens. The relevance to the present discussion of such a unifying view lies in providing an example of crossing boundaries between disciplinary perspectives that have mostly been considered to be incommensurate. By legitimizing additional domains outside the market as integral parts of the economy, the latter is enlarged; and by showing how different domains of value can work together local economies are more likely to discover new sources of sustainability.

For example, although it is the WIR Bank that extends credit, and therefore trust, to a petitioning member, the potential harm a rogue member could do to the economic circle as a whole implies that each member feels some level of accountability to the WIR economic community and, similarly, extends their own trust to that community. Taking on a measure of risk is a form of personal investment that the members are willing to make for the success of the WIR. With this personal investment and responsibility comes a feeling of 'ownership'. Since the combination of trust, responsibility, accountability, and solidarity is formalized in their financial system as 'credit' and implemented as 'WIR', it follows that the sense of ownership that comes with these principles is projected onto the currency. Since this process is repeated countless times both in the context of WIR Bank governance as well as routine market transactions, it becomes an experience shared by all the members, which is communicated through language, balance sheets, and other 'cultural' signs. This is more or less the definition of 'social construction', as more fully explained below. The case of the

[12] See http://brixtonpound.org/

WIR or, in fact, of any CC, is one of enablement and empowerement of a given community, which feels better able to take charge of its own *economic* destiny through the creation, ownership, and control of its own currency. This is what we mean by the 'social construction of economic identity'.

This discussion brings us to an interesting realization. In the case of cooperative banks, building societies, and credit unions the intangible social values are 'exchanged' mainly at the institutional level, within the domains of social relationships and the base. Thus, although they support the market and capital domains, they are not in turn supported by them beyond standard financial enablements. By contrast, in communities with a currency such as the WIR the CC is able to mediate the exchange of these values in addition to capital and commodities in trade. It is in this sense that a CC such as the WIR is able, to some extent, to connect Gudeman's otherwise incommensurate value domains and what enables us to claim that CCs can, to some extent, effect a quantification of social value. Rather than the commodification and objectification of social relationships which Facebook and similar use as the basis of traditional business models, however, the result of a CC such as the WIR is the opposite effect: the 'colonization' of the market with social value(s).

Figure 2 shows how an 'eCC' modelled on the WIR can be seen as a 'fountain-like' feedback or return from the market and capital domains back to the base and social relationships precisely through this community/economic identity construction process. The importance for the domain of capital comes from the large loans and mortgages that this kind of CC system can also enable and mediate.

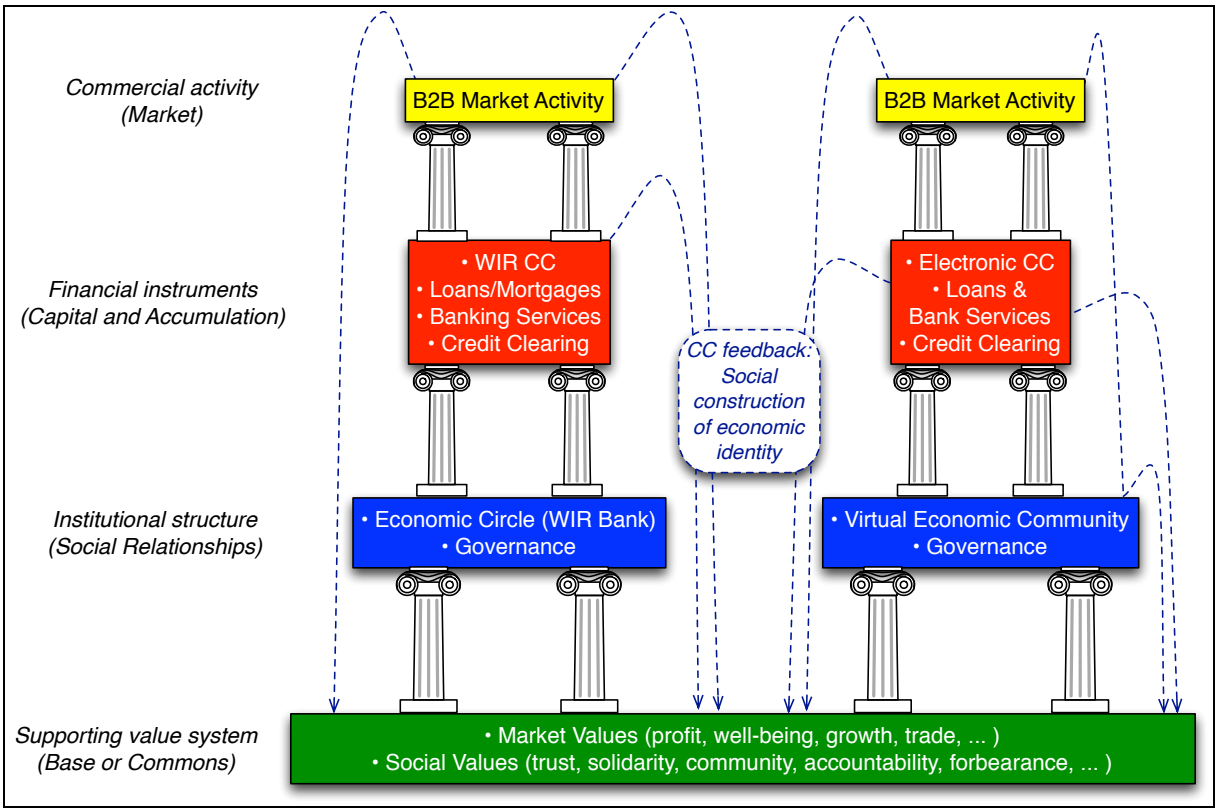

Figure 2: Feedback from the market and capital to the base due to the WIR and a WIR-like eCC

Having achieved these insights, it is clear that a stronger theoretical *and* empirical basis is needed to bolster some of the claims we have made. The next section takes Berger and Luckmann's (1966) social constructivism as a starting point for developing such a theory in the context of some empirical research we have recently performed with the users of the Sardex, a CC similar to the WIR and LETS.

3. SARDEX AND THE SOCIAL CONSTRUCTIVISM OF BERGER AND LUCKMANN

Community currencies are initiated and operated by local communities, involving a high degree of face-to-face communication and co-operation at various stages of their creation and everyday management. P. Berger and T. Luckmann's seminal theory of *The Social Construction of Reality* (1966) provides thus a highly apposite conceptual framework for analysing the processes through which community currency initiatives fabricate new institutions and foster knowledge of institution-building and institutional renewal. Their theory is geared to the micro level of face-to-face interaction and explores the ways in which new institutions come into being through such intercourse.

Berger and Luckmann grasp institutionalization as a mode of habitualization through which a frequently repeated action is cast into a recurrent pattern which can be reproduced with an economy of effort (70-71). Institutionalization takes place whenever there is 'a reciprocal typification of habitualized actions by types of actors' (72). What is crucial for institution-building is that both actions and actors are typified: 'The institution posits that actions of type *X* will be performed by actors of type *X*' (72). The reciprocity of such typifications is the other key feature of institutions: actions and actors of type *X* are related to and coordinated with each other or with actions and actors of other types, and they are recognizable by all members of a particular group. Many individual forms of conduct tend to be repeated and evolve into routines. But the key to institutionalization is that routines are developed through interaction and coordination and make up a common process, a scheme of co-operation in which labour is divided among individuals to advance their shared or individual goals through collaboration (72-75). Moreover, what is particularly important for our case study is that the institutionalizing process or 'reciprocal typification', which entails the building of roles and rules in a common endeavour, can involve a small number of individuals, even only two, and may be initiated anew in every social situation (73-74) in which individuals A and B interact and 'begin to play roles vis-à-vis each other' (74).

The constitution of a (field of) social reality emerging through this face-to-face intercourse and individual initiative to interact implies essentially the formation of a body of social knowledge which is fundamentally a 'recipe knowledge....that supplies the institutionally appropriate rules of conduct' (83) but encompasses also the definition, interpretation and justification of social situations: what is the meaning of particular social practices, what we do, why we do it and what we are as members of a community and participants in its practices (82-85, 110-122). In sum, the construction of a social world which can be inaugurated even by two agents entails crucially the construction of social knowledge which consists of *rules* and *interpretations* that explain *how*, *what* and *why*: how we do things, what is the meaning of this activity, role and situation, and why we engage in it.

Institutions originate in such processes of reciprocal typification but they are effectively established and consolidated only when a third party appears and confronts the habitualizations and typifications that have emerged in the common life of A and B as 'possessing a reality of their own....an external and coercive fact' (76). The common world is readily accessible to the understanding and deliberate intervention of those who crafted it. But this is not true of third parties who encounter a pre-constituted social situation that they themselves have not made. As a result, typifications assume the quality of objectivity and become objective institutions, independent of their authors. At this stage, two other intrinsic components of institutions rise to prominence: legitimation and control. To third parties who were not implicated in the construction of institutions and to whom the meaning of institutions is thus not immediately transparent from the outset, established social routines and practices must be explained and justified. The rules that constitute them must be taught and underwritten with legitimating formulas. Moreover, the objectivation of institutions calls for the formation of control and governance mechanisms. Deviance from the institutionally defined conduct is likely when their forms, demands and meanings 'become realities divorced from their original relevance in the concrete social processes from which they arose' (80).

Berger and Luckmann's take on the 'social construction of reality' sheds light on the nitty-gritty of institution-building and institutional learning through a bottom-up procedure which emerges from the

micro-level of everyday, direct exchange among individuals and groups – which is precisely the case with most complementary local currencies. But such currencies are also crucial for demystifying social constructs such as money, whose origin, meaning and function remain opaque to most lay people, preventing them thus from assuming greater control over such institutions. Money is perhaps one of the most 'reified' contemporary institutions in Berger and Luckmann's terms. '[R]eification is the apprehension of products of human activity *as if* they were something other than human products – such as facts of nature, results of cosmic laws, or manifestations of divine will. Reification implies that ... the dialectic between man, the produced, and his products is lost to consciousness' (106). Hence, this conceptual prism shows how the micro-fabrication of institutions through face-to-face collaboration can help to empower individuals and groups to see through mystified social constructs and to reform them or to configure different ones deploying their own powers for institution-making in order to reform or invent different social norms and objects. Berger and Luckmann's sociology does not help us only to grasp the roots of social practices and currencies in direct social interactions and initiatives of lay people but they illuminate also the modes and the methods of institution-making.

Sardinia and Sardex

Sardex is an electronic system of mutual credit intended to support mainly B2B interactions between firms on the island of Sardinia. Sardinia has an area of 24,000 square km, or about 8% of the area of Italy, and a population of 1.6m, or about 2.7% of the population of Italy (60m). Sardinia's GDP of 33b Euro is about 1.8% of Italy's 1800b Euro. GDP per capita in Sardina is therefore about 2/3 of the Italian figure (20k vs. 30k Euro). Although we have not looked at economic data beyond the Wikipedia figures cited here, it is plausible to say that the recent economic crisis has hit Sardinia harder than the rest of Italy. For instance, unemployment increased from 8.6% in 2008 to 14.6% in 2012.[13]

It was partly in response to this situation that Sardex[14] was instituted. Sardex is the name given to the Sardex credits as a unit of account, where 1 Sardex = 1 Euro, as well as to the company that provides the credit-clearing service. Sardex is modelled on the WIR, but uses only an electronic LETS-like system of credit and debt accounting for any size transaction. Rather than charging a fee per transaction it charges a yearly membership fee that varies from 200 Euro for small non-profit 'social enterprises' to 3000 Euro for large companies such as the electric utility company (whose Sardinian branch is also a member). For the moment Sardex does not issue large loans such as mortgages. Therefore no interest is applied to any negative or positive balance at all. It is not clear whether this might change in future developments. Unlike the LETS or even WIR systems, in Sardex individual consumers cannot go negative, they need to have a positive credit balance in order to make a purchase. Four years from its founding, the current number of Sardex members is about 2000 companies, out of 146,500 registered VAT numbers in Sardinia, or 1.4% (Crenos Territorio 2014).

As the history of the formation of Sardex is discussed in the companion paper Littera et al. (2014) here we can simply point out that the motivation to create it arose from the realization by the founders, who at the time were living and working in Germany, of the dire situation of the world economy in or around 2007 and of the repercussions the crisis was going to have on the Sardinian economy. The founders took the WIR as a model that could be replicated in Sardinia. They were attracted by the larger geographical reach and turnover of the WIR relative to other CC examples they had examined, and specifically by the focus on corporate rather than individual membership.

A for-profit company was chosen over a non-profit cooperative because the latter are perceived as 'Left-wing' in Sardina, whose politics are even more polarized than in the rest of Italy, and they felt that this could be an obstacle to the joining by average businesses. The Sardex s.r.l. ('Ltd') bylaws dictate that all profit be reinvested in the company, which now counts approximately 15 employees.

[13] http://en.wikipedia.org/wiki/Sardinia
[14] http://www.sardex.net

As a final point on the founding of Sardex, it is interesting to note that none of the founding members has an economics or engineering/computer science background. They are all humanists.

Post-Capitalist Economics

The reasoning behind institution-making through bottom-up social interactions, along with the added value it imputes to micro- and meso-agency and transformation, is bound to bump up against the objection that grander systemic forces and structural laws or dynamics of the national and global economy will most likely crush or co-opt any alternative social practices, even if they are mainly complementary on a local scale rather that antagonistic and head-on confrontational. How could local currencies, for instance, compete with a powerful continental currency such as the Euro, which is backed by the strongest state and financial organizations of the continent, dominates continental economic activity and is a key player in global markets?

Furthermore,

> The unique ability of the WIR Bank to provide new payment media via the granting of credit and the simultaneous creation of WIR money has occasionally given rise to the criticism that the WIR Bank represents an incalculable disruptive factor for the Swiss National Bank's fiscal policy, since it is the only Swiss institution aside from the National Bank able to create money. (Studer 1998: 44)

Although Studer goes on to explain why such concerns are unfounded, most governments are likely to share them precisely because whoever has the ability to create money wields immense power. In Italy, money creation is a state monopoly by law, so Sardex credits cannot be called 'money'; this is part of the reason Sardex is called, rather, a 'mutual credit system'. And yet, the rules of operation and transaction all members are bound to by contract, when they join, safeguard the interests of government, for example through full fiscal transparency and a net increase in GDP.

To address such widespread scepticism, to uphold the value of bottom-up social construction and to illuminate the worth of supplementary exchange systems instituted by local communities, we call upon the critique of 'capitalocentrism' formulated by Gibson-Graham (2006) and the 'reading for difference rather than dominance' (xxi-xxii) which they perform in their understanding of contemporary economies. They contest the representation of the latter as unified systems ruled by stable and self-reproducing structures and as spaces determined by fundamental and universal laws which produce an essentially singular 'capitalist system'. They propose, instead, to grasp economies as zones of contest and coexistence among diverse economic forms and logics. There is an uneven concentration of power, entrenched institutions, and sedimented practices within hegemonic social structures. But these are pushed and pulled by various determinations, and there is no compact global apparatus of power or economic structure which must be dismantled before engaging in different economic activities. Accordingly, local transformation does not require change at larger scales as a precondition, although it may foment such transformative effects. And co-optation is not a necessity, but an ever-present danger that requires constant vigilance (xxi-xxxvi).

By bringing into light and documenting the multitude of practices which lie on the margins of prevailing economic representation and escape the profit-oriented, monetized, private and entrepreneurial models, Gibson-Graham trace the contours of a heterogeneous economy. In this picture, 'capitalism' is dispersed into a variety of forms and activities, and it entertains relations of co-habitation, antagonism or mutual reinforcement with diverse types of 'non-capitalist' practice: non-market transactions, local trading systems, volunteer labour, family care, communal self-managed or worker-owned co-operatives, and others (61-76). We appeal to this account of systemic complexity, differentiation, contradiction, dispersion, and openness in order to make room for the possibility of crafting new, different and salient economic institutions on small and middle scales without pre-empting their feasibility and their prospects on the grounds of an all-encompassing, uniform, air-tight,

and law-governed system of economic structures. The notion of diverse and loosely integrated economies with concentrations of power, antagonisms and contested spaces allows us also to place alternative or complementary institutions such as local currencies in a wider context, to situate them thus in a broad explanatory framework and to ponder their potential, their impact, and their possible future trajectories.

More specifically, as it highlights the initiative, the struggle, the uncertainties and the contradictoriness of agency involved in these divergent undertakings of a diverse economy, this theoretical approach turns analytical attention towards: 'the centrality of subjects and ethical practices of self-cultivation; the role of place as a site of becoming....; the uneven spatiality and negotiability of power...; the everyday temporality of change and the vision of transformation as a continual struggle to change subjects, places, and conditions of life under inherited circumstances of difficulty and uncertainty' (xxvii).

Nine Sardex Interviews

The companies interviewed between the 30th of June and the 3rd of July 2014 (Dini and Sartori 2014) are listed in Table 1. All companies are located in Serramanna, a small town of 10,000 people about 20km North of Cagliari, on the train line towards Sassari. Serramanna is the hometown of the Sardex founders and it is the location where the headquarters of Sardex are located, although they also have an office in Cagliari.

Table 1: Sardex Members Interviewed

Business	***Person interviewed***	***Type of organization***
Clothing	Owner	Retail, Family business
Building decorator	One of three partners	SME, Crafts
Small supermarket	Co-Owner	Retail, Family business
Butcher	Co-Owner	Retail, Family business
Hairdresser	Owner	SME
Professional training association	President	Non-profit social association
Blacksmith/metal door craftsman	Owner	SME, Crafts
Bar/café	Two co-owners	SME, Hospitality
Restaurant	Owner	Hospitality, Family business

The interviews ranged from 11 minutes to 35 minutes in length, depending on how busy the persons interviewed were at the time. Therefore, they could not go into great depth. However, there were several recurring themes, observations, and motivations. Coupled with the fact that the adoption and use of the Sardex credits is fairly straightforward, in most cases there was not much scope for a longer or more in-depth discussion in any case.

The most important recurring observation was the increase in turnover brought by Sardex, on the order of 10% on average. This was mainly attributed to acquisition of *new* customers/clients who could pay in Sardex or in a combination of Sardex and Euro (the first 1000 Euro of any transaction must be paid 100% in Sardex, whereas above 1000 Euro the proportion of Sardex and Euro is negotiable and up to the transacting parties). This increase in turnover is a direct consequence of import substitution. There is also an 'early bird' effect, in the sense that when Sardex brokers approach potential new members in a new town they try to select businesses from different sectors, in effect granting each a certain level of exclusivity. This effect will wear off as the circuit grows in size and more companies from the same sector join from the same locality.

The Sardex-paying customers are either other companies in B2B transactions or they are owners of other companies who spend the Sardex they have earned through their business transactions for personal use at various retail shops. As long as the business is small with sole ownership it is not a problem in Italy to mix company income with the personal income of the company owner. A relatively

new development in the system is that it enables the larger companies to pay a portion of their employees' salaries in Sardex, who are then also able to spend them in retail shops.

All companies interviewed had total trust in Sardex as an institution. Several of them expressed genuine gratitude towards the brokers who are seen as problem-solvers and match-makers, for example alerting potential transacting partners located in different towns about each other. It was clear, in fact, that in most cases the brokers have developed personal relationships with many circuit members. In most of the cases in this round of interviews, the person interviewed had some connection with Sardex or with their founders: friendships that predate the founding of Sardex, family relations, or a family relations working for Sardex. Therefore, the trust in the institution could be said to have originated through non-business channels. However, it was interesting to note that in Serramanna there are only 25 companies that are members. The next town, Villacidro, has 15,000 inhabitants and currently 35 members. Several interviewees pointed out that there is still a great deal of scepticism among most of the stores and companies in Serramanna, in spite of the fact that the sceptics often know the members interviewed and Sardex adopters very well.

One of the causes of concern among the sceptics is tax. This concern is misplaced since the tax accounting system that members must follow is completely transparent. For example, let's take a purchase that is less than 1000 Euro, say 200 Euro, in value and must therefore be paid 100% in Sardex if the buyer wants to use Sardex. The seller must issue a receipt for 200 Euro using the normal teller machine *and* a second receipt for 200 Sardex. The first receipt is required by law since the teller machine records the purchase and the corresponding 22% VAT; the second receipt is only required for the internal accounting of the Sardex system (to keep track of credit and debt balances, as explained above). At the end of the trimester, each company pays VAT in Euro according to the sum accrued through all the sales, as always, regardless of whether they were transacted in Euro or Sardex. The Sardex receipts can be written on paper by hand in cases where the members are not technically savvy, or they can be issued electronically through a smartphone. A personalized smart card system has also been prototyped and is being tested.

The Post-Anarchist Perspective

In his cognate work in the domain of contemporary political theory, Richard Day (2005) gives a political and ethical twist to the above empirico-analytical argument of economic theory that comes to the aid of micro- and middle-level institutional activity. Day makes a case to the effect that experiments in social construction outside the mainstream are not only feasible and effective, they are also politically and ethically desirable in terms of pragmatically promoting freedom and equality in our times. He contends, indeed, that they can be grasped in their diversity as an entire alternative strategy of social transformation which dispenses with both revolution and reform, and with both top-down state policies and mainstream corporate market models (2005, 4-6, 176, 215).

Political tactics and collective initiatives such as the landless peasants' movement in Brazil (MST), indigenous communities in Latin America, local trading systems and social centres across Europe, among many others, exhibit an affinity 'for non-hierarchical, non-coercive relationships based on mutual aid and shared ethical commitments' (9). They set out to dismantle relations of vertical direction and coercive governance, staging open and horizontal associations which manage directly their collective affairs through consensus and decentralized deliberation, speaking to the needs of wider communities (25-45, 186-197).

What marks off these strains of contemporary activism from earlier modern revolution and reformism is a deeper commitment to anti-authoritarian and pluralistic processes. They do not strive to implement a uniform project of social transformation along all or some global axes of society, and they forswear the use of the coercive apparatus of the state by manufacturing minoritarian alternative spheres (45). They set up loose network coalitions, but they do not subscribe to a universal plan of social restructuring nor do they seek to forcibly generalize their outlook (156-7, 172). If we identify the

modern politics of "hegemony" with the pursuit of totalizing change through authoritarian state means, then the political practices at issue are non-hegemonic (45, 65). They renounce the recourse to non-defensive force and the equally repressive presumption that there is a singular mould of organization through which to realize social freedom. Different communities may reasonably dissent over the best way to realize freedom, justice, prosperity and happiness. By unleashing their constituent, institution-making powers, they are likely to engender diverse patterns of social forms. Flexible, infinitely expanding webs of heterogeneous multiplicities that collaborate along some lines while colliding along others can shore up the freedom of differentiation and minimize the violent imposition of "universal truths" (182-3).

To these virtues of counter-hegemonic strategies one should add the pragmatic value of constructing alternative zones of conviviality, communal life and mutual aid at a time when there is neither a majoritarian will for revolutionary upheaval nor an imminent prospect of consensus over the directions of desirable change (124-126). Minorities yearning for social transformation can partly accomplish their visions here and now, in the gaps left open within asymmetrical and repressive relations, rather than wait for a millenarian revolution or foist their ideas on unwilling others. Agents aiming at the "structural renewal" of some social bonds can always display their solidarity with society at large by inciting others to join them or to initiate their own practices of renovation (16, 91, 123-126). They may build attractive examples which prefigure concretely new social landscapes, and they can advance voluntary large-scale transformation by coalescing with other autonomous spaces in horizontal, self-directed nets (217).

A crucial hallmark of such autonomous efforts to build different institutions is that they disavow basic articles of faith in modern utopianism: the belief in a definite and total overcoming of domination, the horizon of a finally-found, free and harmonious society across the globe (Stavrakakis 1999, 99-121). The singular and the universal give way to plural and aberrant routes. Harmony surrenders to conflict and dissent in a perpetual attempt to overcome injustice, domination, material hardship and so on (Day 2005: 126-128, 153-154, 182, 217). Activists of freedom, justice and social welfare could remain thus utopian dreamers without degenerating into dystopian despots, fanatics, totalitarians, or blind sustainers of domination.

In terms of institutional learning, we are particularly keen to stress the educative, personal-and-political impact of contemporary ventures in autonomous social organization, self-management and self-institution. Self-mobilized communities, such as those which initiate and sustain local currency systems, nurture here and now new social practices and subjectivities, fashioning them gradually and 'from below' through the untutored synergy of individuals and collectivities, unguided by political or remote business authorities. By contrast, conventional strategies of reform and revolution set out to reshape institutions, opinions and mores forcibly and artificially 'from above'. As a result, their surgical interventions into social bodies turn out often to be shallow and ineffective. As they are imposed on their subjects, they do not activate their own capacities for critical thought and creative action. Insofar as they do not flow directly from the will of individuals themselves, they are likely thus to fall aground on the lack of sufficient motivation, the failure of understanding, or strong resistances.

By contrast, the autonomous activism of urban movements, self-managed spaces, industries, and currencies is moored in self-reliant thought and action. It cultivates the ability of individual agents to take up new initiatives and to govern themselves as it energizes constantly this ability by calling for creative responses to new challenges. By engaging in the long and hard labour which is required for the reconstruction of subjectivity, such endeavours raise thus the founders of new social relations where collective self-organization will be undertaken by reflective, creative individualities.

As opposed to centralized, avant-guard revolutions and top-down reforms, the practical difference of this mode of social renovation is equivalent to the difference between the free art of craftsmen who know, learn, collaborate and invent, and the manufacture of products by people who carry out orders without fully understanding them and without necessarily agreeing with them. The pastoral or military guidance of the masses by heads of power in the state, the party etc. impedes the development of

autonomous praxis. The longer such manipulation goes on, the longer active self-determination will be prevented from unfolding. On the contrary, movements of social self-institution, which implement in their own organization and struggles the practices of autonomous decision-making, group and individual mobilization, do not merely forestall the side-effects of authoritarian ways to social transformation. They sustain themselves by sustaining and educating the agents of self-management who operate the self-governing communities. They shape, moreover, the social bodies that will foster effectively the dissemination of an ethos of open, creative self-definition across the sea of social relations.

Contemporary workshops of self-organization and creative institution-building assume precisely this vital role of a catalyst and hotbed for the constitution of autonomous subjectivities which take initiatives and self-manage their social structures and exchanges. It is hard to learn to swim, and we are likely to drown if we jump helpless in the ocean amidst the tumult of a tempest. On the other hand, the only way to learn to swim is by swimming, in the water, in practice and by exerting oneself. No theoretical or psychic preparation will do.

Finally, incipient autonomous construction of institutions rekindles the will of their agents, offering a measure of personal enjoyment and satisfaction. Individuals are not devoted to and consumed by a sacrificial logic of endless fight and deprivation for a future which, in all likelihood, they will not experience themselves. A process of institutional innovation which prefigures another possible future is evident in the practices through which social agents reconfigure their material environs and their social connections, in social spaces where new codes of social exchange are being forged. People pursue here and now the autonomy of agents who release their potential for invention and self-determination through voluntary associations. The material anticipation of a vision which is partly realized here and now provides a source of enjoyment for its agents as they live now moments of another world that they may envisage. It is not only the will of utopia-builders which gains more force and substantiation, but also the body of the new subjectivity which foreshadows future possibilities, as it hones its capacities for self-determination and collective autonomy by actively inventing and living today a potential future to come.

4. A LONGSTANDING MISUNDERSTANDING: CAPITALISM VS. THE MARKET

David Graeber, an anthropologist, recently published a very insightful and rather upsetting book on the history of debt (Graeber, 2011). He shows how the concept of private property originated in slavery and how the roots of money are linked to violence and war, although the violent dimension of money is better understood through phenomena like lifelong debt bondage rather than through its association with war.

Graeber explains that money was invented approximately 5000 years ago to pay soldiers that were stationed in or near a given village or town. Before money was invented, credit notes and individuals' memory about who owed what to whom were sufficient to make small-scale economies function. The problem with soldiers was that they usually came from other towns or even other countries, so they were disconnected from the local social networks and it was difficult for them to get credit. Governments therefore invented the ingenious mechanism whereby coins would be minted to pay the soldiers, who would spend them in the local shops, and a portion of the same coins could then be recovered by the government in the form of tax. Of course, the depersonalization of economic exchange that money brought also allowed economies to scale up in size and geographical extent more easily than the social relationships between villagers. Secondly, the introduction of money interest strengthened the perception of the store-of-value property of money that it already had by virtue of being made of precious metals or (more recently) being a token for so much gold.

As discussed above, money becomes reified and objectified while at the same time its origins remain beyond our grasp because the concept of social construction is so strange and abstract. The depersonalization of money and the introduction of interest exacerbated this divergence between

perception and understanding, making it easier for money to acquire a 'mythical' life and fetish quality of its own in the collective imagination.

The Unholy Spiral

The depersonalization of credit and money interest are two of the three elements of an 'unholy spiral', shown in Figure 3. The third element can be variously called 'progress', 'growth', 'utility maximization', 'drive for survival and territory', 'greed', 'social status', or a combination of the above. Whether the basis of the human drive to acquire wealth and territory is biological or cultural/socially constructed, the important point is that it feeds on our perception of money as something that should be hoarded and held since its value will increase over time, while remaining unchecked by social constraints given that money has been a depersonalized and disembedded medium of economic exchange for thousands of years in many human cultures – and especially in the Western one.

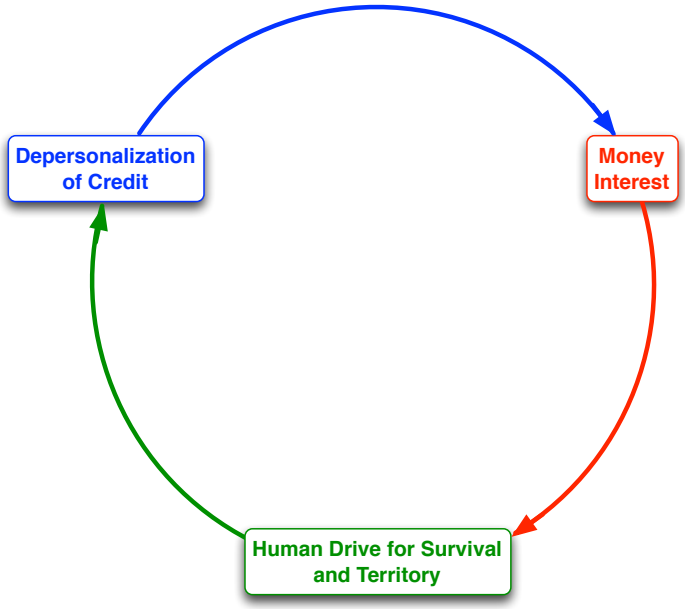

Figure 3: The unholy spiral

These considerations should now be combined with the scale effects of private institutions, most of which have a mandate to maximize profit for their shareholders. Because private institutions can be very large and have the same rights as individuals, they become effectively 'lumbering giants' that roam freely among us. It then becomes apparent how even their perfectly legal actions can wreak havoc among smaller players.

With these points we are not saying that interest should be abolished unequivocally, that all corporations are evil, and that capitalism is always 'bad'. For some kinds of economic transactions some level of interest is useful and fair, while for others it is not (e.g. loan sharks). Corporations are a 'work in progress', we need a much more sophisticated theory of institutions to begin to come to terms with them and to integrate them into a society of individuals and other institutions. And the current economic system seems rather crude: the same mechanisms and the same unit of account, medium of exchange, and store of value apply at all scales, from the newsstand to financial markets, and it is mostly self-serving rather than in the service of society. Something more nuanced is called for.

The Political Economy Implications of Sardex

'While markets are ways of exchanging goods through the medium of money, … capitalism is first and foremost the art of using money to get more money' (Graeber 2011: 260). In other words, capitalism and the market are not *necessarily* synonymous – as the uncritical adoption of money-as-we-know it has led us to believe. The essential achievement of systems such as WIR and, even more, Sardex, is to have created a non-capitalist market. Remarkably, these markets appear to work to the benefit of their users *and* their governments. In addition, as was evident from the people interviewed in Serramanna (Dini and Sartori 2014), Sardex appears to have struck a healthy balance between commercial pragmatism and community identity and solidarity.

This means that while the Sardex members interviewed spoke of other members as regular business partners, and sometimes competitors, they were also proud to belong to the same experiment in economic innovation (they were also aware of the social dimension of this experiment but were less able to talk about it). The glee expressed by some of the respondents at being able to side-step some of the throttling fees imposed by commercial banks was palpable. The trust each participant extends to the Sardex central credit-clearing institution is easily extended to any other circuit members they interacted with: dishonesty loses its rationale, it just does not "fit". Also interesting, in the context of Sardinia as an autonomous region, was the sometimes very strong feeling of identification of Sardex with Sardinian identity and pride in Sardex as a concrete statement of autonomy from Italy. Given that within the Italian context the Sardinian experience over the past 150 years has been and to some extent continues to be that of an overexploited colony, this point acquires a particularly poignant significance that extends well beyond Italy and is in fact most relevant in the global South.

A community that creates its own money makes the ultimate statement of self-empowerment and self-determination. And yet, given the interdependences of trade with the mainland and other parts of the world, it is in everyone's interest to focus on hard work and constructive socio-economic engagement, within the bounds of the law and of fiscal policy. In other words, since its inception 4 years ago, Sardex has been a profoundly significant example of peaceful and constructive cultural transformation that appears able to withstand, with simplicity and composure but also with self-assurance and a modicum of pride, the tsunami-like forces of the global neoliberal economy.

With the benefit of this experience and of Graeber's insights, one can't help wondering if some of the post-capitalist economic experiments reported by Gibson-Graham (2006), which require heroic levels of commitment and hard work, might have (had) a significantly easier time if they had adopted a medium of economic exchange that insulated them better from the corrosive effects of "regular" money.

5. Money, the Social Construction of the Economy and Participatory Governance

There can be no social construction without a medium of communication, i.e. some form of language. In our view, language is not the essence of social structure (for example, in the sense of Luhmann 1995); it is a medium that enables individuals to create social and cultural facts through shared and intersubjective (Popper 2002 [1935]) understandings. Our work takes this hypothesis as the kernel of a media-centric model of institution formation whereby Berger and Luckmann's dialectic (i.e. interactive) balance between subjective meanings and social facts engenders an open, recursive, evolving and self-reinforcing bootstrapping process that links individual expression to context-dependent structures through a system of feedbacks between different forms of social construction.

Processes of social construction are *open* because any individual, merely by speaking, will contribute to them. They are *recursive* because different higher-level "technologies" that emerge from social and cultural processes, such as different kinds of literary/artistic genres, information and communication technologies (ICTs), and money itself, themselves act as media of communication between individuals or institutions, leading to higher-level social constructions.

As the anchor of subjective experience, face-to-face consensus-building, and negotiation is left behind through processes such as reification, the dynamics between and among social constructions assumes a more "systemic" character. The corresponding discourse shifts from hermeneutic and phenomenological to objectivist/structuralist. As discussed more fully in Dini et al. (2011), this interplay between objectivist (integrated natural and computer science) perspectives and subjectivist (hermeneutic and socio-constructivist) perspectives is represented graphically in Figure 4. This figure can also be seen as a first attempt at conceptualizing an 'apparatus' for the knowledge society (Foucault 1980). This figure is rooted in the engineering practice of using schemata to formalize and communicate the structural and functional architecture of systems. When the systems in question involve social actors such schemata cannot help but appear to be reductionist, requiring complementary argumentation and explanation.

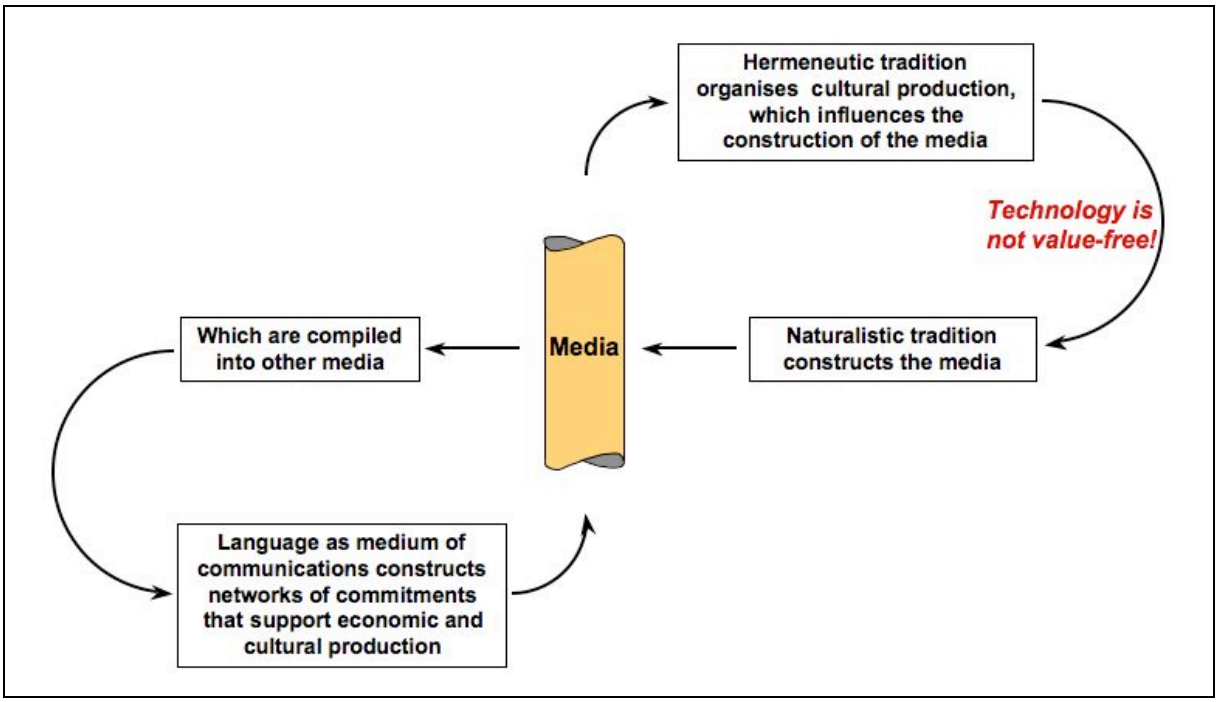

Figure 4: Media as the nexus of different epistemological currents: The kernel of a Foucauldian 'knowledge society apparatus'

The figure schematically depicts important sociological arguments about the ways in which ICTs are integrated in the social life of their users (see e.g. Bell 1979; Castells 1996, 2003; Webster 2006; Mansell 2010). Figure 4 proposes that this can be explained through a virtual circle or a closed and self-reinforcing cycle that links ICT production to ICT consumption through feedbacks that are tighter than is observed for older, physical technologies. Starting with the development of software, i.e. of the *medium*, a case can be made for a 'reverse compilation' process that can in principle transform electronic circuits into corresponding software programs, then into formal languages, and ultimately into natural language grammars, i.e. 'syntax as machine'.

Moving left, this process of progressive abstraction encounters the still-open debate about the signifying capacity of syntax vs. semantics. At this preliminary stage of (meta-)theory construction we gloss over the finer points of this debate, claiming that we have a 'language' – which can usefully underpin social constructivist processes involving human beings. Such processes, in turn, mediate the formation of social groups, institutions, and cultural production. Such intangible artefacts of the knowledge economy are then channelled through ICTs for wider distribution and consumption. The life of a society or an economy is studied by social science. In our application of social science to cultural production and expression, i.e. to the *message*, we draw upon critical theories of technology (Feenberg 1991, 2002) to indicate that our technologies embody cultural values or, reciprocally, that our cultures influence the technologies that are produced, thereby closing the cycle.

We contend that a similar loop can be drawn where the role of the 'pipe' or medium is taken by *money* and the role of the message is taken by *value*. The way money is 'designed', therefore, influences the kind of economy and society that results from its mediation of economic interactions. The economy and society, in turn, reciprocally influence the nature and properties of money. In this schema, the 'compilation' between different technologies in the horizontal direction from right to left map to different forms of value mediation, with social and commons-based mediation on the far left, where the boundary between the medium of economic exchange and the value being exchanged blurs. Economic anthropology enables a smooth transition back towards products and artefacts that are traded through the pipe, closing the cycle.

The corollary of CCs mediating some forms of social value is that these same social values must needs follow the rules by which the CC operates as an institution. Therefore, the establishment of a CC implicitly establishes, at the very least, a lightweight governance framework that the members literally subscribe to when they sign the membership contract. Once the members of the circuit have become explicitly conscious of the mutual responsibilities and accountability of the CC stakeholders, it would seem like a relatively straightforward step to set up additional governance structures such as a governing board and so forth.

In conclusion, we have shown that mutual credit systems such as Sardex appear to grow and remain sustainable for long periods of time without the need for fixed and strong ideological commitment. However, this sweeping statement should be tempered by pointing out that in this paper we have argued that such credit systems also involve the construction, assimilation, diffusion and cultivation of new ideas, beliefs and ethical relations. For this kind of market to operate successfully and productively a wide range of visions and beliefs can be accommodated: from the most cynical that views even honesty and accountability as functional requirements to the most idealistic views of community and solidarity, as long as the simple rules of the non-capitalist market are followed. But these rules themselves contain and presuppose particular conceptions of money as a deliberate social construction which can be collectively managed, norms of reciprocity, and trust in communal autonomy, among others. For these reasons, we conclude that such credit systems offer a significant promise in enabling economies at the margins to strengthen their self-sufficiency, economic autonomy, collective empowerment and market power through a participative, conscious, and reflexive institutionalization process.

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REFERENCES

Bell, D (1979). Communications technology – for better or for worse. *Harvard Business Review*, 3, 20-42.

Berger, P and Luckmann, T (1966). *The Social Construction of Reality*, Penguin Books.

Breitstein, L and Dini, P (2011). A Social Constructivist Analysis of the 2007 Banking Crisis: Building Trust and Transparency through Community Currencies, *Journal of Banking Regulation*, Vol 13, pp 36-62. http://www.palgrave-journals.com/jbr/journal/v13/n1/abs/jbr201116a.html

Castells, Manuel. 1996. *The Rise of the Network Society*. London: Blackwell.

Castells, Manuel. 2003. *The Internet Galaxy: Reflections on the Internet, Business and Society*. Oxford: OUP.

Crenos Territorio (2014). Appendice Statistica, 21^0 Rapporto sull'Economia della Sardegna. http://crenos.unica.it/crenosterritorio/

Croall, J (1997). *LETS Act Locally*, London: Calouste Gulbenkian Foundation.

Day, R J F (2005). *Gramsci Is Dead*, Toronto: Between the Lines.

DeMeulenaere, S (2011). Private communication.
Dini, P, Iqani, M and Mansell, R E (2011). The (Im)Possibility of Interdisciplinarity: Lessons from Constructing a Theoretical Framework for Digital Ecosystems, *Journal of Culture, Theory and Critique*, **52**(1), 3-27. http://eprints.lse.ac.uk/29152/
Dini, P (2012). Community Currencies and the Quantification of Social Value in the Digital Economy. Unpublished working paper. http://eprints.lse.ac.uk/47349/
Dini, P and Sartori, L (2014). Interviews conducted in Serramanna, Italy, July.
Economist, The (2011). Beware of falling masonry, Briefing: The euro, 26 November, pp 85-87.
Feenberg, A (1991). *Critical Theory of Technology*, Oxford: Oxford University Press.
Feenberg, A (2002). *Transforming Technology: A Critical Theory Revisited*. Oxford: OUP.
Foucault, M (1980). *Power/Knowledge*. London: Longman.
Gesell, S (1934 [1906]). *The Natural Economic Order*, San Antonio, TX: Free Economy Publishing Company.
Gibson-Graham, J K (2006). *A Postcapitalist Politics*, University of Minnesota Press.
Giddens, A (1984). *The Constitution of Society: Outline of the Theory of Structuration*. Cambridge: Polity.
Graeber, D (2011). *Debt: The First 5000 Years*, Melville House.
Gudeman, S (2001). *The Anthropology of Economy*, Blackwell.
Hayek, F A (1976). *Denationalisation of Money*, London: Institute of Economic Affairs.
Jackson, M (1997). The Problem of Over-Accumulation: Examining and Theorising the Structural Form of LETS. *International Journal of Community Currency Research*, Vol 1. http://www.ijccr.net/IJCCR/1997_(1)_files/IJCCR%20Vol%201%20%281997%29%202%20Jackson.pdf
Kadet, A (2010). Struggling towns printing their own cash. Smart Money. http://articles.moneycentral.msn.com/Banking/BetterBanking/struggling-towns-printing-their-own-cash.aspx
Lietaer, BA (2001). *The Future of Money*, London: Century.
Linton, M (2005). Private communication.
Littera, G, Sartori, L, Dini, P and Antoniadis, P (2014). From an Idea to a Scalable Working Model: Merging Economic Benefits with Social Values in Sardex, Inaugural WINIR Conference, Greenwich, London, 11-14 September.
Luhmann, N (1995). *Social Systems*, Stanford, CA: Stanford University Press.
Mansell, R E (2010). The Life and Times of the Information Society, *Prometheus* 28(2): 165-186.
Polanyi, K (2001[1944]). *The Great Transformation*, Boston: Beacon Press.
Popper, K (2002 [1935]). *The Logic of Scientific Discovery*, London: Routledge.
Schraven, J (2000). The Economics of Local Exchange and Trading Systems: a Theoretical Perspective. *International Journal of Community Currency Research*, Vol 4. http://www.ijccr.net/IJCCR/2000_(4)_files/IJCCR%20Vol%204%20%282000%29%205%20Schraven.pdf.
Schroeder, RFH, Miyazaki, Y and Fare, M (2011). Community Currency Research: An Analysis of the Literature. *International Journal of Community Currency Research*, Vol 15 (A): 31-41. http://www.ijccr.net/IJCCR/2011_(15)_files/IJCCR%202011%20Schroeder.pdf.
Solomon, LD (1996). *Rethinking Our Centralized Monetary System: The Case for a System of Local Currencies*, Westport, Connecticut: Praeger.
Stavrakakis, Y (1999). *Lacan and the Political*, London/New York: Routledge.
Stodder, B (2009). Complementary credit networks and macroeconomic stability: Switzerland's Wirtschaftsring, *Journal of Economic Behavior & Organization*, 72(1): 79-95.
Studer, T (1998). *WIR and the Swiss National Economy*, Basel: WIR Bank.
Webster, F (2006). *Theories of the Information Society*, 3rd Edition, Routledge.