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Special Purpose Money for Sustainability

# Is Blockchain a game-changer for social currency systems? Some reflections in light of the experience of Moneda PAR in Argentina

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## Abstract

Social currencies can make a valuable contribution to sustainability as they strengthen solidarity markets, a specific exchange practice that enhances the resilience of their surrounding environmental, social and human systems. Until now, the need to secure trust in a currency has been a major challenge for social currency initiatives not backed by the State. The emergence of Blockchain, which offers security, transparency and auditability to currencies and transactions it supports, seemingly circumvents this issue. This raises the question that this paper seeks to address: is Blockchain a game-changer for bottom-up solidarity economy initiatives? The methodological approach draws on a multidimensional conceptualisation of trust that recognises three components: ethical, hierarchical and methodical trust. It uses Moneda PAR, an Argentinian Blockchain-based social currency, as a case study and draws on use data, participant surveys and direct observation by the authors as action researchers to explore social currency and solidarity economy development in relation to currency performance on each dimension of trust. Findings from the case show that despite strengthening hierarchical and methodical trust, Blockchain needs to be articulated with additional market-building strategies to be a true game-changer in the development of social currency systems.

**Keywords** Special-purpose money · Social currencies · Blockchain · Sustainability

## Introduction

The growing trend in recent decades (especially since the 1980s) towards monetary plurality at the local and regional level is opening up an alternative to the monopoly of second-tier banks on official currencies. More than 5,000 local, community and social complementary/alternative currency experiences have been developed since then, as Blanc (2018a) estimated. Although these currencies have generally been used to foster local development, their concrete implementation has taken a wide variety of forms in different times and places: from mutual credit systems such as LETS to time banks and community banks; from digitised exchange systems to the so-called barter networks in paper

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currency; and from monetary and banking credit systems such as Banco Palmas in Brazil, to complementary currencies sponsored by the municipal state itself, such as the SOL in Toulouse, France.

The rise of Blockchain[1] as a technology where (among other uses) it is possible to build monetary systems has opened a whole new range of possibilities for these alternative monetary systems. First, the earliest use case of Blockchain was the creation of an alternative monetary system itself (Bitcoin). Even more than ten years after its genesis, the monetary–financial dimension is still, by far, the main use of this new technology. Second, Blockchain's main value proposition is greater decentralisation in the sphere of technology (more precisely, in the storage of information) and, to a lesser extent, in the governance dimension of the underlying system. This is particularly relevant for alternative monetary systems because, in theory, applications built on Blockchain do not require users to trust a third party (hence their frequent characterisation as trustless systems). As of October 2023, there were more than 300 million people using cryptocurrencies[2] and the Bahamas, Nigeria and Jamaica had already issued their central bank digital currencies (CBDC), the first two using distributed ledger technology, while more than 100 countries were engaged in exploring this new way of creating money (Soderberg et al. 2022).[3] Thus, the emergence of Blockchain raises the questions of whether we are facing a new paradigm in the construction of money in general and complementary and social currencies in particular, and what the effects are in the communities that use them.

This paper aims to examine to what extent Blockchain can be considered a game-changer in adopting and developing special-purpose monetary systems that intend to transform (part of the) economic practices within a specific territory, as is the case of social currencies. The question has direct implications for sustainability, understood as the ability to maintain a sound balance between human, social and environmental systems (Ávila 2018), as social currencies can play a decisive role in supporting solidarity markets. Inspired by Coraggio (2002), we define these markets as spaces where participants (buyers, sellers, producers, users, regulators, legislators, promoters, etc.) act with a logic in which the search for particular economic advantages is carried out within the framework of moral considerations, which limit the field of acceptable actions so that no one can be adversely affected in the conditions of expanded reproduction of their life (Coraggio 2002). These moral considerations pursue the general objective of allowing the development of human capacities and initiatives, while ensuring—at the same time—the intergenerational reproduction of life for all. The principles of these markets are to buy local products, produced by local manufacturers, in the search of increasing economic activity while reducing the carbon footprint on the planet. While it is clear that buying and producing locally does not lead to a significant reduction of pollution and greenhouse gas emissions by definition, it is the case that solidarity markets tend to be framed in the principles of the social and solidarity economy (SSE)[4] and their participants exhibit a higher degree of environmental awareness. Hence, in the cases where social currencies effectively foster the circulation of environmentally sustainable locally produced goods and services, it may also be expected that they enhance the resilience of local communities and the standards of living of their inhabitants (Michel and Hudon 2015; Dissaux 2023). At a more general level, it has been claimed that alternative monetary systems can help achieve 12 of the 17 Sustainable Development Goals (SDG) prescribed by the United Nations (Lenis Escobar et al. 2020). More recently, Diniz et al. (2024) propose a framework for the design of community currencies aligned with the SDG.

We conduct our analysis within the theoretical framework of monetary institutionalism.[5] In particular, drawing on Aglietta and Orléan (1998, 20021984) notion of ethical, hierarchical and methodical trust, and on Jérôme Blanc's

[1] Blockchain is a decentralised and distributed digital ledger technology that enables secure, transparent, and tamper-resistant recording of transactions across a network of interconnected computers. In a blockchain system, data is organised into blocks, each containing a list of transactions, and these blocks are linked together through cryptographic hashes, forming a chain. The decentralised nature of the technology ensures that multiple participants (usually known as nodes) in the network maintain a synchronised record of the entire transaction history. Blockchain advocates claim that through consensus mechanisms and cryptographic principles, this technology enhances trust, accountability, and integrity, making it a foundational technology for various applications. For a more in-depth analysis on the tension between the concept of trust as presented by Blockchain advocates and the notion of trust in the field of social currencies, see Orzi et al. (2021).

[2] https://earthweb.com/cryptocurrency-statistics/ (consulted on October 17th, 2023).

[3] Given its importance, the case of the Chinese digital yuan (e-CNY) might be the most salient case of a CBDC, though its technology is not entirely based on distributed ledger technologies (Soderberg et al. 2022).

[4] According to REAS (Network for the Alternative and Solidarity Economy), SSE is "an approach to economic activity that takes into account people, the environment, and sustainable development, as a priority above other interests" (https://reas.red/, consulted on October 13th, 2023). According to the International Labour Organization (ILO), the SSE is a viable solution to re-balancing economic, social, and environmental objectives (https://www.ilo.org/global/topics/cooperatives/sse/lang--en/index.htm, consulted on October 13th 2023). While this is not the purpose of this paper, there are different positions with respect to the SSE in the literature deriving from the innate contradictions of these experiments. Suffice here to say that members of Moneda PAR are considered to be part of the SSE.

[5] For a compilation of the major texts of this tradition, see Alary et al. (2020).

(2018b) Polanyian typology of money, we analyse how trust is created and sustained in special-purpose associative money, with a specific emphasis on social currencies. The reflections are guided by the experience of Moneda PAR, a mutual credit system that has been operating in Argentina since 2017 and whose objective is the creation of exchange trading spaces that promote fair trade, local production and self-managed government, all of which should positively contribute to their continuity, growth and impact. The analysis combines our experience as participating observers, the quantitative analysis of the statistics produced by the system and an exploratory survey carried out with the active users of Moneda PAR.

In the next section, we set out the conceptual and theoretical foundations for our analysis ("Theoretical foundations"). We then present the case of Moneda PAR ("The case of Moneda PAR") before outlining our methodological approach to its study ("Methodological approach"), presenting findings ("The trust-building process in Moneda PAR: achievements and unfinished business") and drawing conclusions ("Conclusions").

## Theoretical foundations

In this section, we present the main theoretical foundations for our subsequent analysis. Emphasis will be made on the concepts of "special-purpose money", "associative money" and "social currency", as they provide a useful definition of Moneda PAR and how they might contribute to strengthening the resilience and sustainability of social and human systems. We also elaborate on the notion of trust (applied to money) and reflect on how Blockchain might enhance it, assisting the adoption of special-purpose associative money.

### On special-purpose money

Rather than emerging spontaneously from barter between isolated individuals, as is often claimed in the literature on the origins of money (Servet 1994), money is best seen as an institution stemming from the social life of human communities. At any given time, its particular institutional setup[6] reflects the underlying structure of the social body from which it emerges (Théret 2007a, b). Thus, rather than being an accidental development of (market) exchanges, the monetary institution understood as the complex of a unit of account and means of payments (Keynes 2013 [1930]) is the precondition for material exchanges and, by extension, the precondition for the market economy. Historical records show that the origins of money date back to a time when market economies did not exist yet (Graeber 2014 [2011]). The first forms of money were introduced in Mesopotamia about 2,000 years before the first coins were minted. These ancient societies used their money to measure the size of the debt that each community member had to pay to the gods and to establish the penalties to be paid for the violation of the symbolic values of the community (Ingham 2004). Later, the great ancient empires used money to record the goods produced and stored in their warehouses. In Mesopotamia, for instance, taxes were levied based on "money of account" and were paid in barley. In that way, communities originally created money to facilitate their political and economic organisation.

The origins of money and its role over time,[7] which went hand in hand with the organisation of the society and the State, imply that money is more than just a technology to enhance the functioning of the social processes embedded in the economy. We prefer, rather, to define money (or, more precisely, the monetary system) as an institution, i.e. as "a socially embedded system of rules" (Hodgson 2006) "that binds stable patterns of interaction among social, political and economic agents" (Gómez 2009) in all the aspects that comprise the measurement and transfer of value, wealth, contracts and debts within a given society. "The institution of money comprises the unit of account that is acceptable to use as a standard of value to measure prices, savings, contracts, and debts. Other rules indicate the acceptable ways to obtain, keep, use, and convert money to other units of account. Monetary institutions also involve organisations that regulate money in the territory where it is valid, who is allowed to make it, what it looks like, and what happens to those that alter its appearance or counterfeit it" (Gómez 2019).

Like all institutions, the monetary system is contingent and continuously in the making. Hence, money can take different forms in space and time due to the historical processes that shape it. A useful way to classify the different types of monies developed over time is to take Polanyi's distinction between all-purpose money and special-purpose money (Polanyi 1957, 1968, 1977). While all-purpose money is an instrument that serves all the functions that money is supposed to perform (for Polanyi, payment use, unit of account, and medium of exchange[8]), special-purpose

[6] Cartelier (1995) lists three major elements: the type of monetary instruments used, the way it is coined and accessed, the mechanisms settling individual imbalances.

[7] For a detailed genealogy of money, we recommend Aglietta (2018) and Amato and Fantacci (2013).

[8] In the social sciences tradition inspired by Polanyi's writings, the store of value function is downplayed compared to the other two functions (Théret 2008). However, the contemporary official currencies for which the store of value function constitutes a core element could also (and above every other forms of money) be considered all-purpose money, since they are widely used for almost every type of

money is associated with a single function or, even further, with specific use cases within a function. The example that Polanyi gives to illustrate special-purpose money is the case of ancient societies where "different kinds of objects are employed in the different money uses; moreover, the uses are instituted independently of one another" (Polanyi 1957)". For instance, as mentioned above, in ancient Mesopotamia, taxes were levied based on a unit of account instituted by the State and paid in a different unit, barley. Thus, the unit of account was special-purpose money, as its role was to measure the size of a levy. Barley was also special-purpose money, as it was used as a means of payment but not as a measurement unit.

More recently, Blanc (2018a) reinterprets Polanyi's contributions to defining how special-purpose money appears in contemporary societies. "The modern equivalent of exotic special-purpose money is not necessarily related to community reproduction but rather to the organisation of procedures for accounting and payment in a circuit combining an identified group of users and a set of things covered by the money use" (Blanc 2018a). This definition of special-purpose money in modern societies emphasises the importance of the economic and the social criteria that define the validity of money.[9] The economic criteria define the range of things paid or accounted for by the instrument used as money. The social criteria define the group of people using the instrument. In other words, the main aspects that define special-purpose money are who can use it and for what. According to Blanc, considering these dimensions, contemporary, community and complementary currencies should be understood as particular cases of special-purpose money.

Alongside the definition of Polanyi's notion of special-purpose money in the context of contemporary societies and based on the empirical evidence that nowadays there is a diversity of money issuers, Blanc (2018a) proposes a typology of money that consists of three classes: public money, business money and associative money. Public money relates to the logic of authority and sovereignty via a fiscal circuit in which the treasury captures resources from society in the form of taxes. Business money relates to the logic of resource seeking by business organisations, which can take different forms such as interest rates on credit, levies on transactions or orientation of transactions to their benefit. Finally, associative money relates to the construction of schemes by groups of people who voluntarily associate for collective utility. Unlike public and business money, associative money "…is considered a general way of assembling people around common projects" (Blanc 2018a). While public money, as a result of sovereign power, tends to be all-purpose money, business money can be either all purpose or special purpose, depending on the boundaries defined by the social and economic criteria mentioned above. Associative money, for its part, is always inherently special-purpose money, as it is only valid within the domain of the community that creates it.

## Social currencies as sustainability enhancers

From a substantive economics perspective, as defined by Polanyi in 1944 in *The Great Transformation*,[10] it is not possible to frame both individuals and societies in a single type of economic system or relational logic. Instead, he observed that throughout their history, economic systems have been organised following a combination of the principles of reciprocity, redistribution and exchange. Although the prevailing market system built upon the logic of capital reproduction and wealth accumulation dictates the rules of a large part of the economic activities of society and, therefore, of people's lives, the functioning of the market system rests on a series of equally important, though usually invisibilised activities and relationships. In all societies, there are States that capture resources and redistribute them according to pre-established purposes, more or less arbitrarily. However, there is also a whole series of relationships governed by the logic of reciprocity and householding, where people also satisfy many of their material and immaterial needs.

These relationships, generally ignored by the "formal economy" and taken for granted by the predominant market system, constitute fundamental pillars of every society, since they allow social reproduction within the system itself, contributing to its sustainability. From an ecological economics point of view, Trosper (2009) and Nelson (2022) show how non-market production relationships are essential to build a sustainable economy. When the capitalist market advances on them, it not only damages people's quality of life, but also threatens the very sustainability of the system, meaning the ability to reproduce itself over time without generating contradictions in its environmental, social and economic dimensions, eventually leading to its destruction.

Solidarity markets are spaces that favour sustainability defined in this way since they promote the resilience of local communities (social systems), ways of life not

Footnote 8 (Continued)

transaction within the national boundaries (and in some cases even beyond them).

[9] Blanc (2018a) proposes three additional criteria that define the validity of money: temporal (the time horizon for use of the instrument used as money), territorial (spatial limits of its use), and legal (the regulatory restrictions on use of the instrument).

[10] Polanyi advocated substantivism as a way of pursuing economic research that emphasises the way in which humans interact with their natural and social environments to meet material wants and needs, as opposed to the widespread practice of economic analysis focusing on rational action and decision-making, which he dubbed 'formal economics'.

entirely subsumed by the logic of capitalist accumulation (human systems) and provide a way of reducing the carbon footprint on the planet (environmental systems) (Coraggio 2014). There are plenty of experiences in developing countries where people satisfy all or part of their needs in solidarity markets. Such was the Argentinian *Trueque* from 1995 to 2001 as a general rule (Luzzi 2005) and while this aspect was somewhat reduced following the 2001 crisis of the Convertibility, it persisted in a variety of local communities (Saiag 2016; Cassano et al. 2003; Gómez 2008). Dissaux (2019) reaches similar conclusions in the case of the Kenyan "Bangla-Pesa". But solidarity markets are not only about satisfying material needs—they are also promoters of social bonds through which communities strengthen their capacity to cope with emerging challenges making them a bottom-up approach for strengthening community resilience.

Social currencies, a specific subset of special-purpose associative currencies, are a powerful tool to strengthen solidarity markets (Orzi 2012). Therefore, they can also be important enablers of sustainability, as argued by Diniz et al. (2024). Blanc (2006) defines a social currency as a type of local currency (so, special-purpose money) that is issued on a non-profit basis with three main goals: (i) to protect the local sphere, (ii) to boost exchanges between the community members, instead of wealth accumulation, (iii) to transform the nature of exchange. This transformative aspect of social currencies is, in turn, characterised by three elements: (i) the idea that users of the currency should be "prosumers" (the combination of the notions of "producer" and "consumer") rather than either producers or consumers, (ii) the embeddedness of exchanges between prosumers in a broader relationship that transcends the economic domain, thereby enabling deeper relations such as fellowship or friendship and (iii) the definition of rules on which exchanges are carried out (e.g. fair trade practices or collectively defined prices instead of the free interplay between supply and demand). It is clear from Blanc's definition that there is a strong link between social currencies and sustainability, as almost every element considered is aimed at strengthening the social and human systems of the incumbent communities, while the local focus can reduce some environmental impacts of production and consumption as well.

Social currencies can be considered, therefore, as tools that promote human, social and environmental resilience at the local level. Multiplied in millions of communities around the world, the logic underpinning social currencies and solidarity markets can make a significant contribution to the sustainability transformation of the global economy. Meanwhile, the emergence of Blockchain as a "trustless" system, as argued by the IT (information technologies) researchers, where the monies running on it should need no trust-building process in the users and governing structures raises the question of whether this technological novelty can enhance special-purpose money's role in contemporary societies and, hence, its capacity to foster sustainability. To ascertain how much Blockchain can increase the transformative potential of social currencies, we need to understand which obstacles it removes, or through which channels its potential would unfold. This brings us to the issue of trust, the cornerstone of every monetary system.

## On the concept of trust in money in the times of Blockchain

Once the uses of special-purpose money have been defined, its adoption and maintenance over time rest, ultimately, on the trust of those who make up the space where it is used. According to Aglietta and Orléan (1984, 1998, 2002), trust in a currency is made up, in turn, of three dimensions: ethical trust (symbolic dimension), hierarchical trust (political dimension) and methodical trust (practical dimension). Without these three pillars, the viability of the underlying monetary system is in jeopardy. To analyse the process of trust building in the case of Blockchain-based special-purpose associative money and the specific case of Moneda PAR, it is, therefore, necessary to analyse some of the key elements on which the three dimensions of trust above rest.

Ethical trust refers to the perceived legitimacy of the issuer of money. To be considered legitimate, the whole social system where the money works (society at a national level in the case of public money, a specific community in the case of associative money) has to be aligned with the principles and values of the underpinning society or community. Where do the values inherent to the monetary order that a special-purpose currency seeks to institute come from? According to Aglietta (2018), ethical trust is closely connected to the notion of sovereignty, defined as the foundation of the social order—the element from which it emerges. Based on the values underlying this cohesion, the community can create its institutions (markets, governing rules, etc.), of which money is among its more relevant elements.

Communities organised through and upon social currencies operate within the framework of the SSE. The institutions that rule community members' practices are designed to promote the realisation of the underlying values. In this context, social currencies emerge as a specific case of special-purpose associative money. Upon a series of common values and goals, an already-existing community sovereignly creates a currency, defines its social and economic boundaries (who can use it and for what purposes) and in so doing generates an *ethos* in the use of the currency. A currency created in such a context generates a sense of belonging that ultimately gives currency the attribute of a social bond, the "cohesive link of our mercantile society" and not the mere

"veil" conceptualised by classical and neoclassical economists (Aglietta and Orléan 1984).

Following Polanyi, economic processes like production, exchange and distribution can occur within the logics of market exchange, redistribution and reciprocity (Polanyi 1944). In the case of a social currency, its users tend to relate with each other under a logic of reciprocity. Also, given the horizontality that characterises reciprocal relationships, some degrees of decentralisation in the organisation of markets and the managing of the monetary system are observed. While the Blockchain system does not directly promote the consolidation of the underlying values of the community that creates the social currency, or the social bonds within it, it does contribute to the adoption and development of these special-purpose associative monies by guaranteeing, through its validation system of transactions, that these are not fraudulent or duplicated, giving the currency greater security and transparency.

Besides the prevalence of ethical trust, however, a successful monetary system requires the fulfilment of hierarchical trust and methodical trust (Aglietta and Orléan 1984). Hierarchical trust refers to trust in the authorities that ensure the proper functioning of the monetary system in which money operates. In legal tender currencies, the predominance of hierarchical trust requires belief in the good performance of the Central Bank in the transaction surveillance process, in defending the value of the currency and, in the face of a turbulent situation, in its performance as a lender of last resort, or, otherwise, its capacity to interrupt the chain of payments. In the case of special-purpose associative money like social currencies, at the top of the hierarchy is the organisation (or group of organisations) that ensures compliance with the values and specific properties that have been given to the currency (convertibility, liquidity, etc.). Trust in this governing body is crucial for people and organisations to be willing to become active users of the currency. In this sense, Blockchain contributes, as we have said, in the validation of the transactions, allowing a more agile and secure management of the alternative monetary system.

Finally, methodical trust refers to the daily practice of users. It does not contain the moral or political aspects related to the ethical and hierarchical dimensions of trust. Its foundation is purely instrumental—it is acquired by habit. Generally, the prevalence of methodical trust requires users to experience that the expected function(s) of money are fulfilled in practice. In the case of a social currency, methodical trust implies that users can receive it in exchange for their goods or services and, in turn, use it to acquire other goods and services that they need, all this within a market that respects the underlying values of the community. The successful repetition of this type of interaction establishes the idea that the special-purpose associative money effectively fulfils the function for which it was created, which tends to increase the predisposition to use it. In the specific case of digital social currencies (Blockchain based or not), compliance with methodical trust requires basically two elements: high quality of the currency at performing the functions for which it was created, and the correct functioning of the technological system (high security, high availability, low finality times,[11] etc.). Blockchain contributes to this last characteristic, allowing greater security and speed in the development of the collections and payments chain, because the one who performs the transactions knows that there is no possibility of duplication or forgery of the exchanges from their use.

Table 1 summarises our main reflections on how the three dimensions of trust in money defined by Aglietta and Orléan (1984, 1998, 2002) can be interpreted when applied to special-purpose associative money and, more specifically, how these notions are affected when the monetary system is built on Blockchain. As trust is at the heart of the continuity over time of every monetary system (which depends on its capacity to self-reproduce) it might be hypothesised that blockchain-based currencies could support trust but, because trust is multidimensional, entailing ethical, hierarchical and methodical dimensions, it is important to clarify whether and to which extent blockchain-based currencies can support each specific dimension of trust. While being by no means a sufficient condition for the successful adoption of a social currency and the implementation of a solidarity market that enhances sustainability in a community or a region, Blockchain may contribute by removing many of the barriers related to trust.

In what follows, we use these reflections to analyse the specific case of Moneda PAR, a Blockchain-based social currency working under a mutual credit system that was launched in Argentina in 2017. The conclusions drawn from Moneda PAR may be useful for both practitioners and researchers working in the field of social currencies but before the analysis, it is worth giving some context about the origins and evolution of Moneda PAR.

[11] By finality, we refer to the feature of irreversibility that characterises Blockchain-based monetary systems. Normally, once all the nodes of the Blockchain have verified the validity of the transaction (or block of transactions), it is not possible to undo it. The more decentralised a Blockchain is, the higher the number of nodes that have to verify the transactions and, therefore, the longer it takes for a transaction to be irreversible.

**Table 1** How trust in special-purpose associative money is affected by Blockchain

| | Special-purpose associative money in general | Blockchain-based special-purpose associative money |
|---|---|---|
| Ethical trust | Identification with the principles and values of the system—*What is the money created for?* | Blockchain does not define values. It only strengthens these values and, therefore, ethical trust, if they are related to Blockchain's value proposition (e.g. transparency) |
| Hierarchical trust | Correct administration of the system in such a way that it tends to fulfil its goals—*Who is in charge of the administration and how well do they perform?* | Generally social currency is governed by a group of prosumers that ensures compliance with the values and specific properties that have been given to the currency (convertibility, liquidity, etc.). In this sense, Blockchain contributes in the validation of the transactions, allowing a more agile and secure management of the alternative monetary system |
| Methodical trust | Correct functioning of the system—*Is it useful?* | Blockchain contributes to this last characteristic allowing greater security and speed in the development of the collections and payments chain, because the one who performs the transactions knows that there is no possibility of duplication or forgery of the exchanges from their use |

Source: self-elaborated

## The case of Moneda PAR

Moneda PAR[12] is a Blockchain-based mutual credit system (along the lines of local exchange trading systems (LETS), which are a type of special-purpose associative money) launched in Argentina in 2017. As with all mutual credit systems, Moneda PAR records sales as additions to and purchases as subtractions from balances, which can be net positive or net negative. This means that the system works only if at least some participants have access to (interest-free) loans, which they can use to buy products from others before selling their own, holding a negative balance up to a certain amount. A participant making use of the overdraft facility receives credit from the rest of the network. Similarly, a participant holding a positive balance grants credit to the rest of the network because it means that goods or services have been delivered without anything yet being acquired for consumption in return. Thus, positive balances should be interpreted as a right to claim products from the network for a value equal to the balance, while negative balances should be interpreted as an obligation to deliver products to the network for a value equal to the balance.

In mutual credit systems, the issuance of money is not backed by an asset like gold, legal tender or another cryptocurrency—the value of every monetary unit in circulation is backed by the productive capacity of the community. Thus, liquidity crises cannot happen because as long as there is productive capacity within the network, there will be credit available to let exchanges take place. This is made possible because the credit-creating procedure neither relies on preexisting deposits nor competes with other investments. In Moneda PAR, there is no bank that can make a choice between lending money to an entrepreneur or using it to buy a financial asset. Since credit is only created to finance productive and commercial activities, the monetary circulation is adjusted at all times to the needs of the economy.

To facilitate adoption, a one-to-one relationship between the Moneda PAR and the Argentine peso was adopted, keeping the Argentine peso as the unit of account and giving PAR the role of the medium of exchange. As mentioned before, PAR units are not backed up with fiat currency—otherwise, the money creation process would be tied to the liquidity conditions of the market, when decoupling from those conditions was the original rationale of Moneda PAR. Thus, there is no institutionally guaranteed conversion between Moneda PAR tokens and the Argentine peso.

In its five years of existence, Moneda PAR has exhibited a stable growth in its active users[13] and transactions (Fig. 1), though below the expectations of both users and coordinators. In 2021 there were, on average, roughly 350 users actively participating in the system and making a bit less than 1,500 monthly transactions, implying around 4.3 transactions per user per month. More specifically, in March 2021 (when the survey delivering the findings that are reported in the next section was conducted), there were 11 established local groups holding regular meetings and exchanging goods and services using Moneda PAR. About 5,000 accounts had been registered using the Moneda PAR application, of which a bit more that 2,250 had taken part in at least one transaction. The average number of accounts regularly using the system was lower: as reported, about 300 accounts made at least one transaction per month, with the average value of monthly transactions by active monthly users being about 400 PAR. At this date, 24,000 single transactions had been

[12] For those interested in the origins and evolution of Moneda PAR, see Orzi et al. (2021).

[13] We define an active user as a person that has made at least one transaction per month.

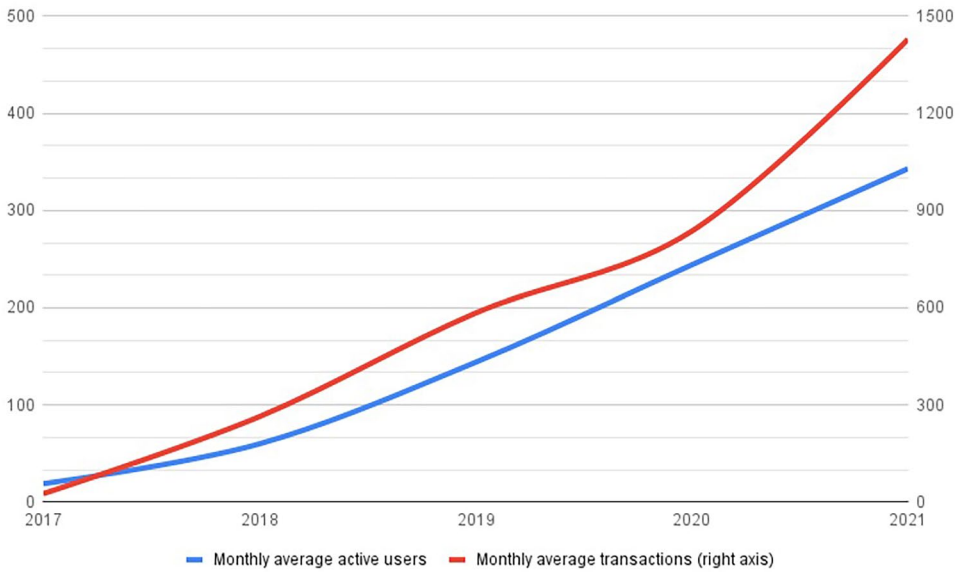


**Fig. 1** Active users and transactions in Moneda PAR. Source: self-elaborated (in percentage of total responses)

made, amounting for an accumulated value of about 14 million MPAR (that is, given the 1:1 parity, 14 million Argentinian peso). Taking into account the peso inflation using the consumer price index measured by the national statistical institute, this would correspond to about 5 million of pesos of December 2016 (around 300,000 USD).

The information presented in the next section, obtained from a survey with a sample of active users, may shed light on what, in the perspective of its proponents, has been a disappointingly slow and limited take-up, use and impact of Moneda PAR to date.

## Methodological approach

The analysis made in this section is based on three sources of information: ethnographic fieldwork; quantitative survey; and the exhaustive database of Moneda PAR. Having to articulate heterogeneous data types to compensate for their respective shortcomings and be able to formulate an empirically grounded argument is a quite established practice in the literature on alternative currencies: the field indeed suffers from a certain lack of systematised data because of the relatively informal nature of the experiments studied.

First, authors' experience as active members of Moneda PAR, each of them playing different roles, provides insights from the perspective of participating observers. Indeed, Sebastian Valdecantos is co-founder of Moneda PAR and was national coordinator between March 2020 and March 2022. Federico Camargo joined the Boedo node of Moneda PAR (in the city of Buenos Aires) in 2018 and took different managing roles both at the local and the national level (in particular, he was in charge of the Economic Affairs area between March 2021 and March 2022). Ricardo Orzi is a researcher on social currencies since 2005 and has been a member of the Boedo node since 2018. He has been in contact with users of other nodes as part of multiple surveys and interviews that we have carried out for different research purposes. Rapahël Porcherot has also visited many nodes and has been in contact with members in the course of his research. During his stays in Argentina, he joined the Boedo node as an active user. This work is thus first based on authors' attempts to reflect on their experience as both researchers and active members of the system. The primary input of this work is the flow of daily experience, duly registered, annotated and scientifically processed as part of the collective effort of reflexivity (Bizeul 1998; Olivier de Sardan 2008).

Second, Porcherot (2023) has conducted two exploratory surveys to complement the other types of data he used to study the Moneda PAR experience. Some of the findings of the first survey appear to bear relevance for the purpose of this present work, since they referred to the way Moneda PAR's members were using the system: what they were selling, buying, would like to buy and only buy because it is available in exchange of Moneda PAR; how often they used the system; how much of their monthly needs they were able to cover, etc. Indeed, this concept in the monetary institutionalist literature refers, among others,[14] to the fact that the market must be sufficiently supplied with goods and services meeting the needs of the participants (see Table 1). Given this definition, estimating the level of methodical trust

[14] Other conditions are the following: the system must be both technologically and economically well functioning; the software must be readily available and usable; the market must include a low degree of opportunist behaviours that negatively affect the trust in Moneda PAR as a monetary instrument.

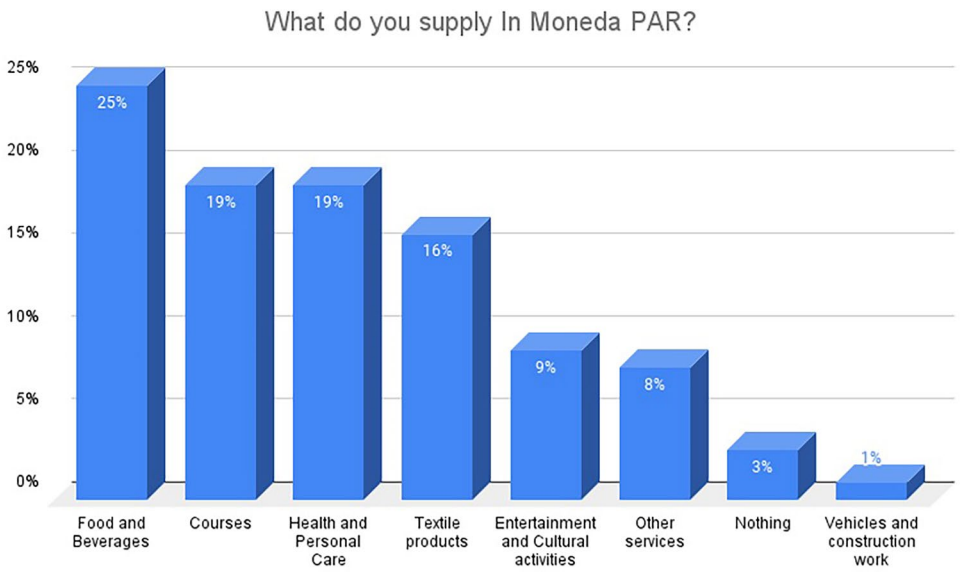


**Fig. 2** Market supply in Moneda PAR. Source: self-elaborated (in percentage of total responses)

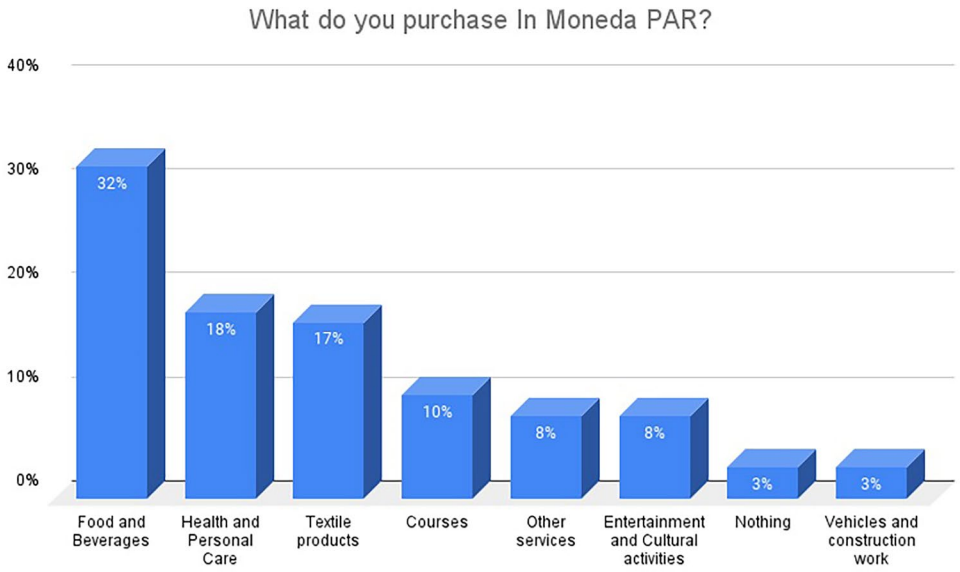


**Fig. 3** Market demand in Moneda PAR. Source: self-elaborated (in percentage of total responses)

implied asking the participants whether they could sell what they produced and buy what they needed. Conducted on the LimeSurvey software, the survey was disseminated through the social networks of local[15] and national groups of Moneda PAR and mails the managing team had collected from the nodes' members. Users received a link leading to the survey. A few duplicated complete answers were removed. This survey was the basis to construct Figs. 1, 2, 3, 4, 5, 6 and 7.

Third, Fig. 1 is constructed using the complete history of Moneda PAR transactions freely available on the Bitshares Blockchain. We use the transaction database to indirectly gauge the relevance of the survey results. Using the pseudonyms of the accounts, we could assign a gender to each user who has made at least one transaction during the time the survey was circulated. This allows us to compute both the average number of accounts active during this period and the percentage of female users among them: of the 308 users active each month on average between February to March 2021, about 70% are women. We observe a similar figure for the share of women in the survey participants. 75% of the latter are wage workers and 75% hold a higher-education degree. The average age is 48 years. Both findings are also in line with information yielded by ethnographic observations. Finally, the 54 survey participants make up for 17.5% of

[15] In fact, each node has at least one, and often more, WhatsApp groups that its members use to coordinate their various activities which are not limited only to the exchange of goods and services.

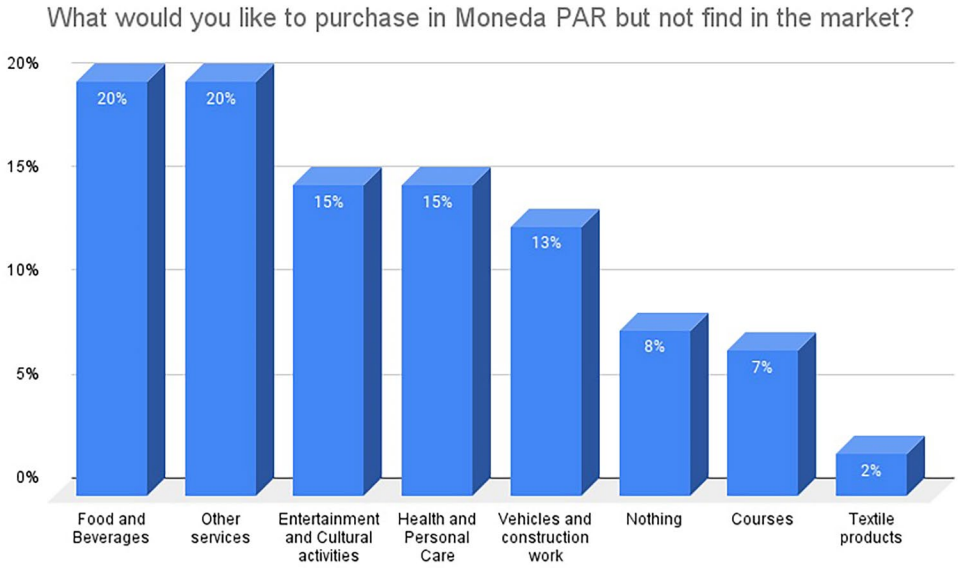


**Fig. 4** Unfulfilled demand (by product category) in Moneda PAR. Source: self-elaborated (in percentage of total responses)

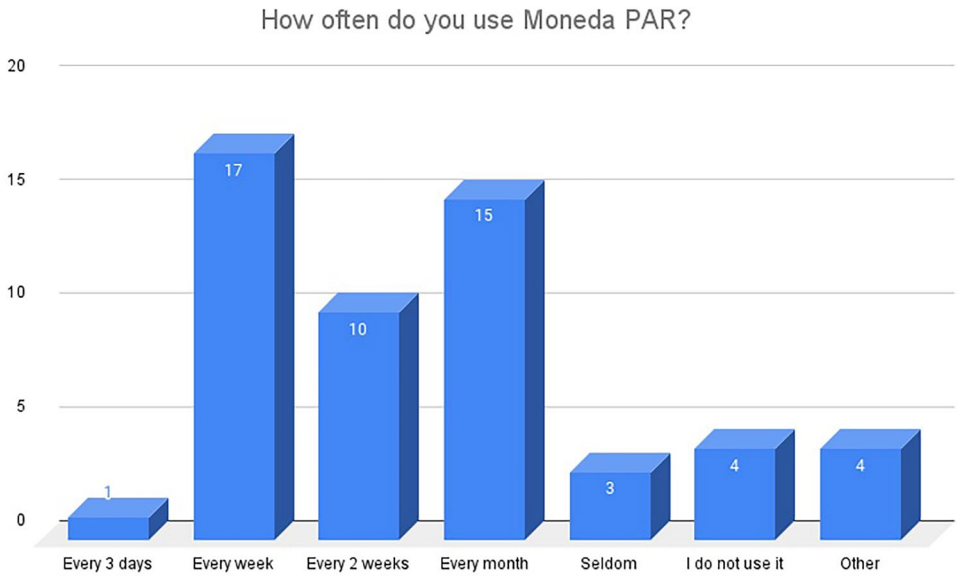


**Fig. 5** Usage frequency of Moneda PAR. Source: self-elaborated (number of respondents)

the whole population of 308 monthly active users on average. This could be seen as the *near* "participation rate" of this survey.

A final caveat must be stated. As this exploratory survey did not aim at any notion of exhaustivity or representativity, no sampling process was conducted. Given the nature of the object and the structure of the data available, the results should not be read as statistically representative in the usual sense of the word. The results are merely indicative of certain tendencies we seek to interpret.

## The trust-building process in Moneda PAR: achievements and unfinished business

The allegedly inherent advantage of monetary systems built on Blockchain is that they allow the exchange and transfer of value without the need for intermediaries in the payment system. Transaction validation is carried out by the network nodes, with the possibility of any community member making their spare computing power available to serve as a network node. Transactions, in turn, are secured through complex cryptographic techniques that allow for their content to be protected even if everything is recorded in a public ledger that is visible and accessible to anyone. The ledger has millions of identical copies stored in each

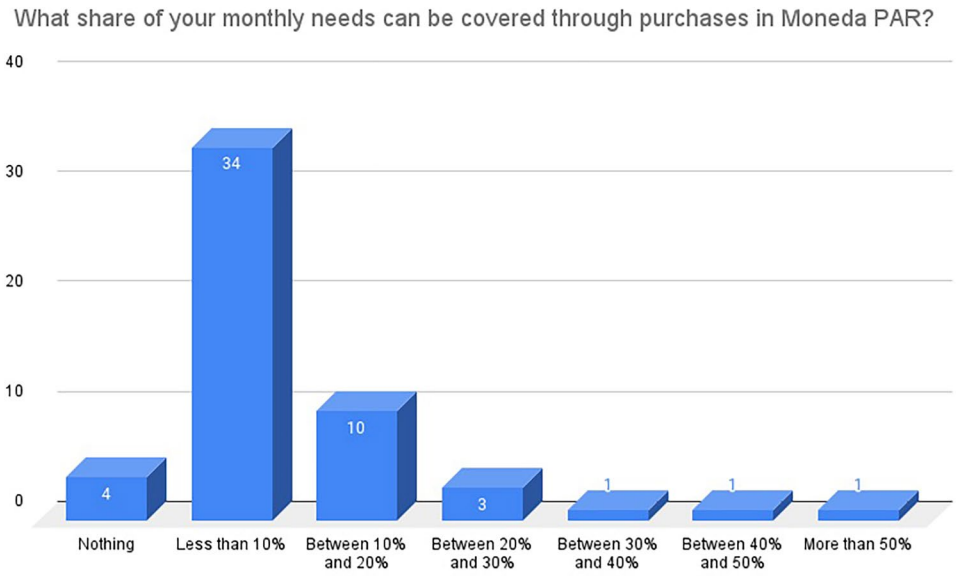


**Fig. 6** Usefulness of Moneda PAR. Source: self-elaborated (number of respondents)

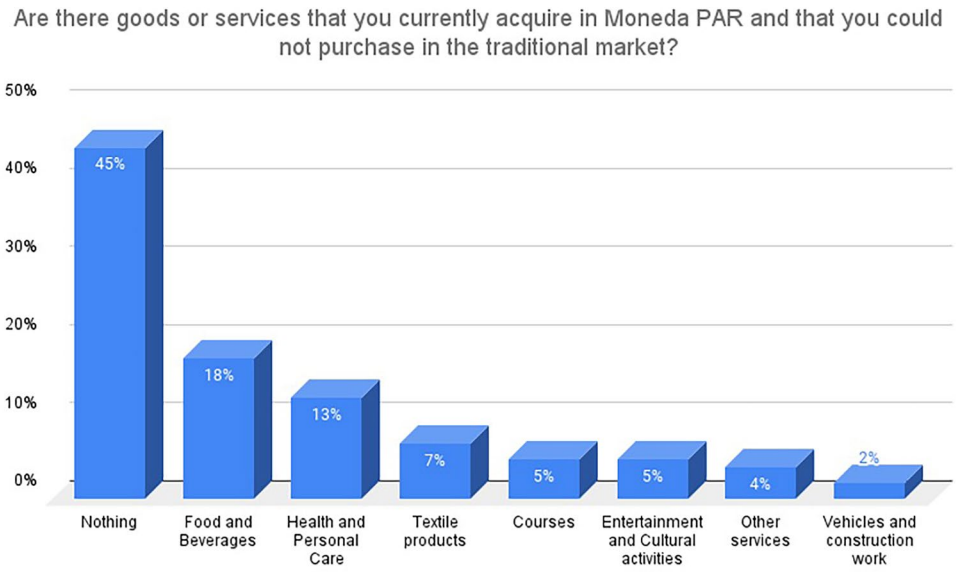


**Fig. 7** Market creation as a result of Moneda PAR. Source: self-elaborated (in percentage of the total responses)

of the network nodes, which continuously verify that the information contained in them matches entirely. According to Lakomski-Daguerre and Desmedt (2015), this makes the ledger infallible since any attempt to manipulate transactions would result in the block containing that transaction being incompatible with both the previous and the next one.

Researchers in the IT field and Blockchain advocates call these systems "trustless"—trust in money and monetary authorities is replaced by a computer system. In light of Aglietta and Orléan's theoretical developments, we know that Blockchain cannot replace the social construction of trust needed to create a social currency. In this sense, Hawlitschek et al. (2016) claim that 'when it comes to more complex social relationships, involving the sharing of resources and assets, Blockchain technology alone is not enough for people to develop trust-based interactions'. Hence, the community needs to construct the social bond necessary for this social currency to develop.

Our contention is that only when this social bond has been established and a market (actual or potential) exists, Blockchain can facilitate that social construction. In other words, creating special-purpose money directed at the increase in the volume of real transactions must go hand in hand with the creation and development of the market where this money is supposed to operate. To assess the state and adequacy of market development, three survey questions were asked: What do you supply in Moneda PAR? What do you purchase in Moneda PAR? What would you like to purchase in Moneda PAR, but cannot find on the market?

A first finding is that "food and beverages" is the most important product category traded by the users of Moneda PAR. This result is in line with what would be expected of a social currency launched in an underdeveloped country with high levels of informality and low levels of financial inclusion. However, it is worth mentioning that "food and beverages" is also the category (together with "other services") where users find more unsatisfied needs. This is, also, not surprising, considering that 25% of the users of a social currency (with about 380 monthly active members) supply these types of products. It does not imply that the wide range of foods and beverages that community members might desire are effectively made available in the market. A similar situation, though to a lesser extent, is observed in the category of "health and personal care", where despite there being a relatively large share of users supplying these products, there seems to be a relevant degree of unsatisfied needs. In the case of textile products, a category that is closely related to a basic need such as clothing, findings suggest, by comparison, relatively high levels of supply and demand, and most needs are satisfied. This can be explained by the fact that part of the supply of textiles is not produced but resold, implying that the value added by the user that supplies the product in exchange for the social currency is lower (and so is, therefore, the "opportunity cost" of not selling the product in exchange for all-purpose money). To sum up, the unsatisfied needs in terms of essential product categories like "food and beverages" and "health and personal care" signal a weakness of Moneda PAR.

To draw a more in-depth conclusion about the usefulness of Moneda PAR for its users, the following three survey questions were asked: How often do you use Moneda PAR? What share of your monthly needs can be covered through purchases in Moneda PAR? Are there goods or services that you currently acquire in Moneda PAR that you could not purchase in the traditional market?

The answers to these more detailed questions about the use of Moneda PAR seem to reinforce the previous findings. Although the majority of users seem to be quite active, as reflected by their usage frequency, the fact that most users can cover less than 10% of their needs through purchases in Moneda PAR poses a significant challenge. Moreover, 45% of users consider that Moneda PAR does not give them the possibility to increase their purchasing power. Still, the remaining 55% think otherwise (the majority of them affirming that thanks to Moneda PAR they can acquire essential products like "food and beverages" and "health and personal care"), which signals that the social currency is useful to a certain extent. Overall, low levels of need satisfaction indicated by users (10%) is worrisome, as the seemingly low capacity of Moneda PAR to satisfy their needs might discourage the incorporation of new participants whose production could eventually solve the prevailing scarcity of products. After five years of experience, it seems that this problem cannot be automatically solved. Instead, an active strategy to stimulate the supply of goods and services seems necessary to quicken the market development process.

These quite negative results in terms of usefulness in Moneda PAR illustrate that Blockchain alone cannot be a game-changer in the deployment of special-purpose associative money. Despite enhancing methodical trust by providing an efficient and well-functioning monetary system, it does not increase adoption by itself. The higher trust in the system on which the social currency runs may be considered a necessary condition for adoption, but not a sufficient one. Sustained adoption requires, first and foremost, actual or potential markets where users can satisfy their needs. Blockchain has little to offer in this matter. What is needed, instead, is a market development strategy accounting for users' needs and productive capacities, but also for the geographical features of the community and the time dimension—while Blockchain enables the rapid creation and deployment of a reliable monetary system, social relationships, trust and markets take more time to consolidate.

What can be said, then, about ethical and hierarchical trust? Being a social currency firmly anchored in the values of the social and solidarity economy and, by definition, a currency that is used voluntarily, the fulfilment of ethical trust is relatively straightforward. People join the community because they feel attracted by the values and the practices promoted by the system. Read jointly with the results of the survey, it could be claimed that it is the alignment of the users with the ethical dimension of Moneda PAR that keeps them away from abandoning the project in a context where they do not find it sufficiently useful in material terms. However, the fulfilment of ethical trust can hardly be attributed to the use of Blockchain.

Finally, hierarchical trust in a social currency relies on the reputation of the governing bodies that execute the functions delegated to it and ensure compliance with the rules defined by the community. Since only part of the rules that define the monetary system upon which Moneda PAR works are embedded in the Blockchain,[16] there are some processes that need to be carried out by some elected community

[16] The three-tier overdraft system is the main process that works fully on-chain, meaning that once users having been granted a credit, they cannot use more of it without anyone having to explicitly reject the transaction where an excessive amount of credit would be used. Also, the transaction whereby users get their credit is fully recorded in the Blockchain.

members[17] or decided by the totality of the users.[18] To enhance users´ trust in the governing bodies, some accountability practices have been introduced in Moneda PAR. Among these, we distinguish the periodic reports of the Economic Affairs area, where a broad set of indicators about the performance and evolution of the system are reported, and the audit reports, where the behaviour of the persons in charge of the granting of credits and the use of the mutual funds of the community is examined. Additionally, every month the full transaction history of Moneda PAR is made available to the users to analyse the data on their own, without any external interpretation.[19] Blockchain contributes to these administrative tasks (and hence, to the trust-building process on governing bodies) by ensuring the inviolability of the transactions record and by allowing all users to individually verify that the provided information is veridic.

Hence, despite the "trustless" nature of Blockchain-based special-purpose associative money, there is an element, also related to trust, that needs to be built beyond the technological sphere. This element is related to the unavoidable inherent territorial anchorage of social currencies, which requires the development of relatively complete markets where users can satisfy at least part of their basic needs. Although a Blockchain-based monetary system can help to overcome some of the challenges entailed in the development of special-purpose associative money, like those relating to hierarchical trust and even the more technical aspects of methodical trust (like the secure and efficient processing of transactions), there are other challenges for which solutions need to be found in the "real world", by attracting a sufficient amount of producers of an also sufficient variety of goods and services that create a market where currency users can satisfy the needs that brought them to the community.

## Conclusions

Although Blockchain was born at the heart of anti-system groups, its outstanding performance in terms of security, transparency, and auditability has driven Central Banks and international organisations to take it seriously, to the extent that nowadays more than 100 countries are at different stages of the process of developing their digital currencies based on similar technologies. In parallel, from the side of the civil society, since the 1980s, there has been a growing trend towards monetary plurality at the local and regional level, with more than 5,000 experiences of local, community, social and complementary currencies. This widespread creation of monetary systems beyond the scope of Nation-States and the traditional banking system puts the spotlight on Polanyi's notion of special-purpose money, a form of money whose use is limited to a specific place and/or to a certain type of transactions.

The motivation of this paper was to analyse whether the use of Blockchain changes the potential of special-purpose money and, more specifically, social currencies to become a powerful tool in fostering sustainability by strengthening solidarity markets. To address this question, we draw on monetary institutionalism's concepts of ethical, hierarchical and methodical trust and Jérôme Blanc's Polanyian typology of money. The reflections were guided by the experience of Moneda PAR, a mutual credit system that has been operating in Argentina since 2017, where we played the role of participating observers and surveyed a sample of the active users. The survey results show that although the majority of the users seem to be quite active, most of them can cover less than 10% of their needs through purchases in Moneda PAR. Thus, despite the social currency running on Blockchain there is a need, additionally and continuously, to build and enhance the solidarity markets in which it works.

In sum, we argue that many of the advantages of adopting Blockchain as the technology for the deployment of social currencies are the same as those that can be described for cryptocurrencies in general. Blockchain can help overcome some of the main challenges involved in the sustained use of a social currency but, as a technology it is not sufficient to create social bonds or develop solidarity markets. We also conclude that despite IT researchers' description of Blockchain as a "trustless system," the adoption and sustained use of social currencies running on this technology requires other dimensions of trust building and social bonding that cannot be provided by a technology in itself.

Do these conclusions imply that Blockchain cannot contribute to accelerating the construction of these social currency projects? Certainly not, developers of social currencies can rely on Blockchain as a powerful tool to contribute to the creation of trust in the system, but must consider developing a parallel strategy that leads to the creation of the markets where the currency is supposed to work. This strategy would benefit not only from the consideration of users' wants, needs, and productive capacities, but also from the proper acknowledgment of the geographical features of the market where the currency

[17] For instance, the allocation of credits to a newly created node does not take place automatically, but it is done by the member in charge of the Economic Affairs area.

[18] An example of this is the decision about credit limits and transaction fees. These types of decisions are made in assemblies where each node of Moneda PAR has a vote. The voting process, however, is made off-chain and the final decisions are then incorporated into the code.

[19] As a matter of fact, being a Blockchain-based social currency, the transaction history is always available without anyone needing to hand it to the users. Still, it is the case that most of the users are not familiarised with the interfaces where the data from the Blockchain can be accessed, so it ends up being necessary to facilitate access to this information for many of the users that want to see the raw data.

is supposed to operate. As in every strategy, the time dimension is also important—while Blockchain enables the rapid creation and deployment of a reliable monetary system, other essential aspects like trust and markets take more time to consolidate. Social currencies and solidarity markets should go hand in hand. Only when these social processes are working together can Blockchain make a decisive contribution to the consolidation of bottom-up monetary systems and, with them, an enhanced resilience of the environmental, social and human systems where they work.

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**Data availability** Both the data extracted from the Blockchain and the results of the survey are available upon request.



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