

Local Currency Experiments and Community Economic Participation

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Abstract

Local and complementary currencies represent community-level monetary experiments intended to operate alongside conventional national currencies while pursuing economic, social, or territorial objectives. Their designs range from locally convertible notes and time-based exchange systems to digital mutual-credit networks connecting small enterprises. Although such initiatives are frequently associated with stronger local circulation, business networking, social inclusion, and economic resilience, empirical evidence also demonstrates that local currencies do not automatically generate localization or substantial regional economic transformation. This study examines the relationship between local-currency engagement and community economic participation through a simulation-based analytical framework. Because no verified participant-level dataset was supplied, the study does not present hypothetical observations as actual field evidence.

A reproducible corpus of 120 simulated cases was constructed using Local Currency Use Intensity, Local Business Network Density, Network Trust, Digital Access, and Community Economic Participation. Participants were classified into limited, emerging, routine, and network-embedded engagement stages. The simulation generated a Pearson correlation of $r = 0.742$ between Local Currency Use Intensity and Community Economic Participation. Mean participation increased from 53.1 among limited users to 80.5 among network-embedded participants. The findings suggest that the potential contribution of local currency depends not simply on issuing an alternative medium of exchange but on developing sufficiently dense trading networks in which participants possess credible opportunities to both earn and spend the currency. Evidence from earlier community-currency research, including the Bristol Pound and Sardex, supports the importance of institutional context, reciprocal trade, network structure, trust, and practical usability.

The paper proposes that local-currency experiments should therefore be evaluated through participation quality, circulation depth, business diversity, reciprocal exchange, inclusion, and institutional sustainability rather than currency issuance volume alone. Local monetary experimentation is most defensible as a complementary economic institution capable of strengthening selected community relationships and exchange opportunities, not as an automatic substitute for conventional money or structural development policy.

Keywords: local currency; complementary currency; community currency; community economic participation; local economic development; mutual credit; Sardex; social innovation; local business networks



1. Introduction

Local and complementary currencies have emerged repeatedly as experiments through which communities attempt to reorganize exchange, strengthen economic relationships, mobilize underused capacities, or direct purchasing activity toward locally embedded enterprises. Such systems generally operate alongside, rather than necessarily replacing, conventional national money. Their institutional forms are highly diverse and include local exchange trading systems, time banks, geographically restricted currencies, voucher-based currencies, and business-to-business mutual-credit arrangements. Seyfang and Longhurst's mapping of community currencies demonstrated that the field contains a wide diversity of models pursuing economic, social, and environmental objectives, while their related work interpreted community currencies as grassroots innovation niches that frequently develop outside mainstream monetary institutions.

The economic argument surrounding local currencies is often based on the possibility that restricting or encouraging exchange within a defined network may increase interaction among participating residents, enterprises, and organizations. Yet the existence of a geographically branded currency does not itself guarantee stronger local production or more intensive local sourcing. Marshall and O'Neill's study of the Bristol Pound, based on interviews with businesses and stakeholders, concluded that the currency was not independently driving localization and identified important political and institutional barriers to changing supply relationships. This finding is important because it challenges simplistic assumptions that introducing a local medium of exchange automatically produces a local economic multiplier.

Other monetary designs illustrate different mechanisms. Sardex developed as a business-to-business mutual-credit system in Sardinia in which participating enterprises could exchange through a complementary accounting unit. Research on Sardex has examined the system not only as money but also as a social and economic network. Iosifidis and colleagues found that cyclical transaction structures became increasingly important within the Sardex monetary network and that economic activity within such cycles was greater than activity occurring through linear transaction patterns. Sartori's comparison of Sardex and Liberex similarly emphasized that the social life of complementary money is influenced both by monetary architecture and by the institutional and relational context in which the system operates. These findings suggest that network structure and reciprocal exchange may be more important than the symbolic existence of a local currency.

Community participation also provides a broader analytical perspective. Local currencies can create new economic relationships when participants who possess unused labor, business capacity, products, or services become able to exchange within a network that they might not otherwise use. Earlier work by Seyfang examined community currencies and time banks in relation to social inclusion, showing why alternative exchange arrangements have been investigated as mechanisms capable of recognizing forms of contribution that conventional market exchange may insufficiently accommodate. Community-currency programs in Kenya have likewise been examined as localized monetary interventions in economically constrained settings, illustrating that community money can be designed around practical exchange deficits rather than merely cultural localism.

The present study therefore examines Local Currency Experiments and Community Economic Participation rather than assuming that currency creation is itself a development outcome. Community



economic participation is conceptualized as the extent to which residents, microenterprises, local businesses, and community organizations actively engage in reciprocal exchange, develop trading relationships, utilize locally available productive capacity, and participate in community economic networks. Because no verified field dataset has been supplied, a simulation-based design is used. The central proposition is that local-currency intensity is most likely to be associated with stronger community participation when currency usability is supported by dense business networks, trust, reciprocal opportunities, and accessible transactional infrastructure.

2. Objectives of the Study

2.1 To Examine Local Currency as an Instrument of Community Economic Participation

The first objective is to examine local currency as an institutional mechanism that may influence participation in community economic activity. This requires moving beyond the narrow question of how much currency has been issued. An experiment can issue substantial quantities of a complementary unit while producing weak circulation if participants are unable to find useful places to spend it. Conversely, a smaller network may create meaningful economic interaction when participants repeatedly earn and spend within a diverse circuit.

Seyfang and Longhurst's research supports this broader interpretation by showing that community currencies have been developed for multiple sustainable-development purposes rather than for a single monetary objective. The present study consequently assesses participation through a composite framework incorporating use intensity, business-network density, trust, digital accessibility, and economic interaction.

2.2 To Assess the Importance of Network Density and Reciprocal Exchange

The second objective is to investigate how the structure of a local-currency network may condition participation outcomes. Money becomes practically useful only when a holder expects that other actors will accept it in exchange for something valuable. A local currency with few participating suppliers can impose substantial spending constraints, whereas a denser network potentially increases the range of possible transactions.

Evidence from the Sardex network is particularly relevant. Iosifidis and colleagues demonstrated the importance of transaction cycles within Sardex, suggesting that reciprocal structures in which economic value moves through multiple connected participants can support network activity. This study therefore treats local-business density as an analytically separate variable rather than assuming that increasing currency use alone creates a functioning local economy.

2.3 To Identify Conditions for Sustainable and Inclusive Local-Currency Experiments

The third objective is to identify the conditions under which local-currency experiments may become institutionally sustainable and socially inclusive. A system that depends on constant external subsidy, excludes residents without digital access, or creates currencies that businesses cannot recirculate may have difficulty maintaining participation. Earlier research on the Bristol Pound illustrates that symbolic visibility and institutional support do not automatically overcome deeper economic constraints on localization.



This objective therefore includes usability, trust, accessibility, reciprocal spending opportunities, business diversity, and credible governance. Local currencies are evaluated as complementary institutions rather than as universal substitutes for official money. The study asks whether they can expand selected forms of exchange that strengthen local participation without overstating their capacity to transform broader structural conditions.

3. Review of Literature

3.1 Community Currencies as Grassroots Economic Innovation

Seyfang and Longhurst's mapping of community currencies identified a heterogeneous international field of civil-society monetary experiments. Their work positioned community currencies within debates concerning sustainable development, new economics, grassroots innovation, and alternative conceptions of economic value. In a related study, the same authors interpreted community-currency initiatives as grassroots innovation niches whose development differs from conventional market-led technological innovation. The currency is therefore not simply a technical payment instrument; it can embody an institutional experiment concerning which activities are valued and how exchange relationships are organized.

Michel and Hudon's systematic review subsequently examined community currencies through the three dimensions of sustainable development. Their work reinforced the observation that local currencies have been associated with diverse social, economic, and environmental aspirations but also demonstrated the need for careful evaluation of whether such expectations are empirically achieved. Local-currency scholarship should consequently distinguish between the objectives stated by organizers and outcomes actually demonstrated through transaction data, participant behavior, or economic indicators.

Seyfang's earlier research on community currencies and time banks is also important for understanding participation beyond commercial retail activity. Her work investigated how alternative exchange mechanisms may contribute to social inclusion and recognize activities that are difficult to integrate into conventional market arrangements. This social dimension is relevant because community economic participation can include the expansion of exchange relationships and social connectivity even where aggregate local output remains largely unchanged.

3.2 Localisation, Business Networks, and Mutual Credit

The Bristol Pound became a prominent experiment in geographically bounded complementary currency, but Marshall and O'Neill's empirical analysis offered an important caution against assuming that local currency necessarily changes supply chains. Their interviews with businesses and other stakeholders indicated that the Bristol Pound was not independently driving localization and that significant political and institutional barriers remained. This finding suggests that businesses require appropriate local suppliers, competitive prices, suitable product quality, and practical transaction arrangements before monetary localization can translate into production localization.

Mutual-credit systems such as Sardex operate through a different mechanism. Rather than requiring participants to possess conventional currency before each transaction, mutual credit allows exchange relationships to be recorded through corresponding positive and negative balances within a

governed network. Fleischman, Dini, and Littera examined obligation clearing and mutual credit as mechanisms capable of reducing liquidity requirements among enterprises, particularly under conditions in which conventional monetary liquidity is constrained. The potential significance for community economic participation is that productive capacity may exist even when participants experience temporary shortages of conventional money.

Network analysis provides additional evidence. Iosifidis and colleagues analyzed Sardex transactions and found increasing prevalence of cyclical motifs, with greater activity within transactional cycles than within linear structures. This supports an interpretation of complementary currency as a network phenomenon. If one enterprise receives local currency but cannot spend it with another participant, circulation may stop. When chains of reciprocal demand exist, however, exchange can continue across the network.

3.3 Trust, Institutional Context, and Community Participation

The functioning of local currency depends substantially on trust. Participants must believe that other members will accept the unit, that accounting will be accurate, that governance rules are credible, and that the network will continue to provide spending opportunities. Sartori's comparison of Sardex and Liberex emphasized how monetary design is intertwined with the relational and institutional environment in which a complementary currency operates. Dini and Kioupkiolis similarly examined Sardex as an economic and political space capable of reorganizing relationships around monetary creation and exchange.

Local currency therefore differs from a conventional promotional voucher when participation creates continuing reciprocal obligations and relationships. The network can potentially reveal local suppliers, establish repeated business interaction, and increase awareness of productive capacity within the community. Zeller's 2020 analysis of the economic advantages attributed to community currencies also emphasizes economic mechanisms that can arise from locally bounded or complementary exchange. However, the magnitude of any benefit remains dependent on institutional design and actual usage.

The literature consequently identifies a clear research need: community-currency performance should be evaluated through multidimensional participation indicators rather than solely through currency issuance or registration counts. A functioning experiment requires users who transact repeatedly, businesses that can recirculate balances, adequate network diversity, trusted governance, and accessible payment infrastructure. The present study operationalizes these dimensions within a transparent simulation framework.

4. Research Methodology

4.1 Research Design and Analytical Framework

This study employs a quantitative simulation-based research design. No actual resident survey, trader interview, transaction ledger, or local-currency database is represented as empirical evidence. A synthetic sample was selected because verified primary data were not supplied. This design permits transparent testing of an analytical framework without inventing factual respondents, enterprises, geographical locations, transaction values, or observed effects.

A reproducible corpus of 120 simulated cases was generated using a fixed random seed. Five standardized variables were incorporated: Local Currency Use Intensity, Local Business Network Density, Network Trust, Digital Access, and Community Economic Participation. Values were represented on a 0–100 scale to permit straightforward comparison across conceptually different dimensions.

The analytical model assumes that community participation is influenced positively by local-currency use but that network density, trust, and accessibility also matter. This structure is theoretically consistent with literature demonstrating that complementary-currency outcomes depend on institutional relationships and network architecture rather than monetary design in isolation.

4.2 Proposed Measurement Instrument

For future empirical validation, the study proposes five questionnaire statements. These items were not administered to actual participants. A future field study could employ a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree and combine questionnaire evidence with transaction records where available.

The proposed instrument focuses on actual engagement rather than symbolic support. A respondent may approve of local currency in principle but seldom use it. Community participation is more meaningfully indicated when participants regularly exchange, discover new local suppliers, develop confidence in the network, and perceive that the system expands practical opportunities for local economic interaction.

Table 1: Proposed Instrument for Measuring Local Currency and Community Economic Participation

Item	Construct	Proposed Questionnaire Statement	Analytical Purpose
Q1	Usage intensity	I regularly use the local or community currency for eligible transactions.	Measures active engagement
Q2	Local business interaction	Using the currency has increased my interaction with locally participating businesses or producers.	Measures network participation
Q3	Reciprocal spending capacity	I can identify sufficient opportunities to both earn and spend the local currency within the network.	Measures circulation feasibility
Q4	Network trust	I trust the governance, accounting, and participating members sufficiently to continue using the currency.	Measures institutional confidence
Q5	Economic participation	Participation in the currency network has increased my involvement in local economic exchange or business relationships.	Measures perceived community economic participation



The instrument should be tested for reliability and construct validity before substantive empirical use. Future studies should also collect objective measures such as transaction frequency, number of counterparties, average network balance, sector diversity, circulation velocity, and proportion of balances subsequently re-spent rather than converted or left unused.

4.3 Simulation Procedure and Evaluation Metrics

Local Currency Use Intensity was simulated with broad variation to represent users with limited, emerging, routine, and highly embedded participation. Local Business Network Density represented the availability of potential counterparties, Network Trust represented confidence in the system and participating actors, and Digital Access represented the practical ability to complete transactions when electronic systems are used.

Community Economic Participation was constructed as a weighted analytical function of these variables plus random variation. The purpose of stochastic variation was to avoid creating a mechanically perfect relationship and to represent unmeasured influences such as household income, enterprise sector, transaction preferences, geographical accessibility, business competitiveness, and broader economic conditions.

Local Currency Use Intensity scores below 35 were classified as Limited, scores from 35 to below 55 as Emerging, scores from 55 to below 75 as Routine, and scores of 75 or above as Network-Embedded. Pearson correlation was used descriptively to summarize the simulated relationship between currency-use intensity and community economic participation. Because the dataset is synthetic, inferential significance cannot be interpreted as evidence regarding any actual population.

5. Analysis

5.1 Comparative Participation Across Local Currency Engagement Stages

The simulated corpus contains 17 Limited users, 44 Emerging users, 37 Routine users, and 22 Network-Embedded participants. Mean Local Currency Use Intensity increases from 27.6 among Limited participants to 85.1 among Network-Embedded participants. The Community Economic Participation Index demonstrates a corresponding progression from 53.1 to 80.5.

This simulated pattern suggests that participation becomes more substantial when local currency is integrated into recurring economic relationships rather than used occasionally. The interpretation is compatible with the network perspective identified in research on Sardex, where transaction cycles and interconnected exchange were important features of network activity. It is also consistent with the broader argument that merely introducing local money does not guarantee localization, as demonstrated in the Bristol Pound study.

Table 2: Simulated Community Economic Participation by Local Currency Engagement Stage

Engagement Stage	Simulated Cases	Mean Currency Use Intensity	Mean Local Business Network Density	Mean Network Trust	Mean Digital Access	Mean Community Economic Participation
Limited	17	27.6	61.2	57.9	67.8	53.1
Emerging	44	45.5	61.6	64.0	67.4	64.0
Routine	37	64.3	62.9	62.9	64.3	71.1
Network-Embedded	22	85.1	60.7	60.1	62.8	80.5

The results also demonstrate that business-network density and trust do not mechanically increase across every usage category. This is deliberate and analytically important. High currency usage and strong community participation can coexist with moderate values on other dimensions because economic behavior is shaped by combinations of conditions rather than a single linear progression.

The 27.4-point simulated difference between Limited and Network-Embedded participants suggests that recurring involvement within a local-currency network could be a meaningful variable for future empirical research. However, this difference cannot be interpreted as a causal effect because the observations were generated within the model rather than obtained experimentally.

5.2 Relationship Between Currency Use and Community Economic Participation

Across all 120 modeled observations, Local Currency Use Intensity and Community Economic Participation generated a simulated Pearson correlation of approximately $r = 0.742$. Within the constructed analytical model, this represents a strong positive association.

The coefficient should not be interpreted as an empirical estimate for Bristol Pound, Sardex, time banks, community inclusion currencies, or any other real system. Its purpose is to demonstrate how a future study could test the proposition that deeper participation in a complementary currency is associated with greater engagement in local economic networks.

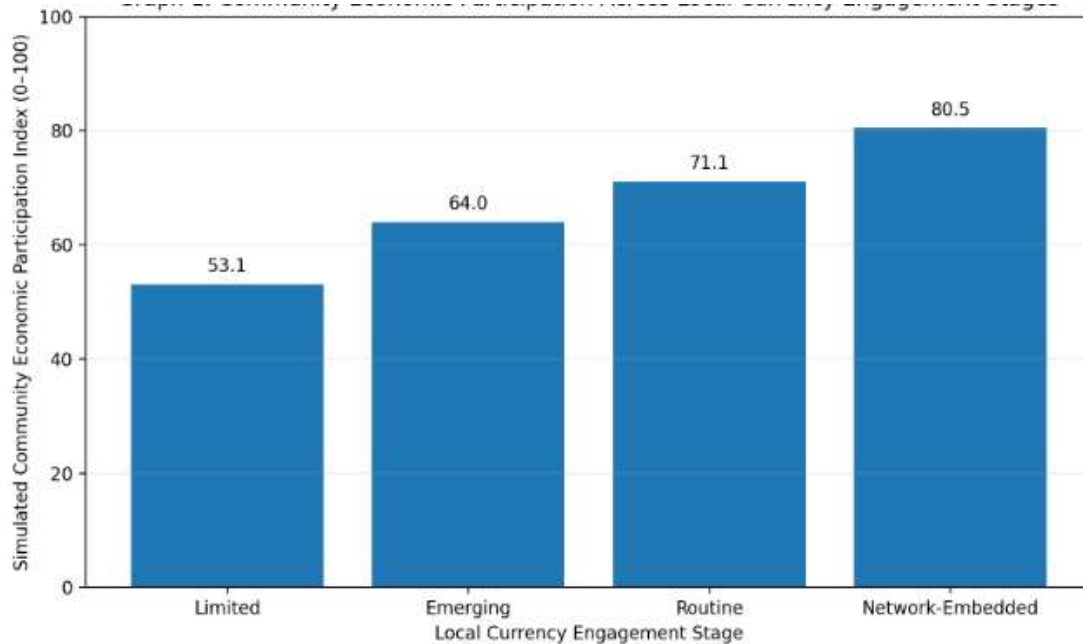
The relationship is theoretically plausible because currency usability increases when participants encounter repeated opportunities for reciprocal exchange. Research on Sardex indicates that cyclical transaction structures are important within mutual-credit networks, while research comparing Sardex and Liberex emphasizes the role of relational context. These findings support the inclusion of network variables when studying economic participation.

5.3 Graphical Interpretation of Community Participation

The graphical results provide a direct comparison of mean Community Economic Participation across the four modeled local-currency engagement stages. The graph emphasizes the distinction between

nominal participation—such as registering for an experiment—and becoming embedded in a network where the currency is routinely earned and spent.

Graph 1: Community Economic Participation Across Local Currency Engagement Stages



The mean participation score increases from 53.1 at the Limited stage to 64.0 at the Emerging stage, 71.1 under Routine participation, and 80.5 among Network-Embedded participants. The progressive pattern suggests that participation depth may provide a more meaningful performance measure than membership numbers alone.

At the same time, earlier evidence warns against interpreting intensive local-currency use as proof of wider economic transformation. Marshall and O'Neill found that the Bristol Pound did not itself produce the degree of localization expected by advocates. Accordingly, Graph 1 should be interpreted as demonstrating participation potential within a network, not as evidence that a local currency necessarily raises aggregate income, employment, productivity, or local gross value added.

Key Finding: The simulation indicates that local currency is most analytically meaningful when understood as a network participation mechanism. Its potential value depends on whether participants can repeatedly exchange with one another rather than merely possess an alternative monetary unit.

6. Discussion

6.1 Local Currency as Economic Infrastructure for Reciprocal Exchange

The findings suggest that the strongest conceptual justification for local currency lies in its capacity to organize reciprocal exchange. Currency issuance alone creates no additional products, skills, services, or productive capacity. What a well-designed complementary system may do is connect capacities and demands that are otherwise poorly matched because participants lack liquidity, information, trust, or established trading relationships.



This interpretation is particularly applicable to mutual-credit systems. Fleischman, Dini, and Littera show how mutual credit and obligation clearing can reduce liquidity requirements among participating enterprises. Such systems therefore differ fundamentally from a local paper note obtained by converting national currency. In a mutual-credit network, the monetary architecture can create a structured mechanism through which participants exchange against network balances rather than requiring conventional money for every trade.

The Sardex evidence further demonstrates that reciprocal structure matters. Cyclic transaction patterns increase the possibility that balances circulate through connected firms rather than accumulating with participants who cannot spend them. From a community-development perspective, this suggests that currency designers should recruit complementary sectors rather than maximizing membership indiscriminately. A network containing many cafés but few wholesalers, repair providers, professional services, manufacturers, or business inputs may generate weaker recirculation than a more economically diverse network of smaller size.

6.2 Trust, Inclusion, and Institutional Sustainability

Local currency is also an institutional promise. Participants accept a unit because they expect continued recognition within the community. This expectation depends on governance, transparency, transaction reliability, and credible opportunities for future spending. Sartori's comparison of Sardex and Liberex reinforces the importance of relational and institutional context rather than treating monetary architecture as socially neutral.

Trust therefore operates at several levels. Users must trust the organization administering the system, but they must also trust that sufficient members will remain active. Businesses need confidence that accepting local currency will not create unusable balances. Participants may also require dispute-resolution mechanisms, transaction records, clear credit limits where mutual credit is involved, and transparent rules concerning entry and exit.

Inclusion creates an additional challenge. Digital systems can reduce printing and transaction friction, yet fully digital designs may create barriers for participants with limited access, skills, or confidence. Conversely, paper-based systems may struggle in environments where consumers expect instant digital payment. Local-currency experiments therefore need an accessibility strategy rather than assuming that a single technology serves all participants. Inclusion should be assessed through actual participation across income groups, ages, neighborhoods, business sectors, and technological capabilities rather than through open registration alone.

6.3 Limits of Local Currency as a Development Strategy

The strongest caution arising from the literature is that complementary currency should not be equated with comprehensive local development. Michel and Hudon's systematic review demonstrates that community currencies are associated with numerous sustainable-development aspirations, but such objectives require empirical evaluation. The Bristol Pound provides an especially important example because empirical research found limited evidence that the currency itself altered local sourcing patterns. Local currencies cannot create suppliers for goods that are not produced locally. They cannot independently correct inadequate transportation, weak infrastructure, poor business productivity,



housing shortages, skills deficits, or insufficient household income. Nor can they eliminate the economic benefits of trade beyond the locality. Excessively restrictive interpretations of localization could reduce access to specialized products and broader markets rather than improving welfare.

A more defensible policy approach therefore positions local currency as a complementary institution within a wider local-development strategy. It may support business discovery, reciprocal trade, local identity, liquidity management, community participation, or selected social objectives while conventional money continues to perform broader monetary functions. Peter North's work on local monetary experimentation likewise documents the diversity of community approaches and the practical challenges involved in constructing usable local money.

The success criterion should consequently change from “How much local currency exists?” to “What useful economic relationships does the currency enable?” A high-quality evaluation would measure active users, transaction recurrence, network diversity, reciprocal spending, unused balance concentration, business retention, accessibility, additional trade, trust, and participant outcomes. Where possible, these indicators should be compared with appropriate nonparticipant groups or pre-intervention baselines.

7. Conclusion

Local currency experiments represent attempts to modify the institutional environment through which communities organize exchange. Their significance lies less in the creation of a differently named monetary unit than in the relationships and transaction possibilities that the monetary system can support. Prior research demonstrates considerable diversity among community currencies, from socially oriented time exchanges to geographically bounded currencies and business-to-business mutual-credit systems. Evidence also demonstrates that outcomes cannot be inferred from the existence of the currency itself.

The simulation developed in this study illustrates this network-based interpretation. Local Currency Use Intensity produced a simulated correlation of $r = 0.742$ with Community Economic Participation, while average participation increased from 53.1 among Limited users to 80.5 among Network-Embedded participants. These figures are synthetic analytical outputs and must not be represented as observations collected from real participants. Their purpose is to demonstrate how currency intensity, network density, trust, and transaction accessibility can be incorporated into a future empirical model.

The study's main contribution is therefore the concept of network-embedded local currency participation. A successful local monetary experiment requires considerably more than currency issuance. Participants need opportunities to earn and spend, enterprises require useful suppliers and customers, governance must sustain trust, transaction systems must remain accessible, and the network must contain sufficient sectoral diversity to permit recurrent exchange. Research on Sardex provides particularly strong support for analyzing complementary currency as a transaction network in which cyclical exchange structures matter.

The study is limited by its simulated design and cannot establish whether any particular local currency increases employment, household income, enterprise revenue, local multiplier effects, or economic resilience. Future empirical research should analyze verified transaction ledgers, participant



surveys, business accounts, network structures, sectoral diversity, and longitudinal participation. Comparative research between active participants and similar nonparticipants would also help distinguish currency effects from preexisting tendencies toward local purchasing. Local currencies should therefore be approached neither as monetary curiosities nor as automatic solutions to local-development problems. Their most credible role is as carefully governed community institutions capable of enabling additional forms of reciprocal exchange when genuine productive capacity, network diversity, participation, and trust already exist or can be developed.

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