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SUSTAINABILITY OF LOCAL COMPLEMENTARY CURRENCIES: CONCLUSIONS FROM AN EMPIRICAL STUDY IN POLAND

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ABSTRACT

This paper draws out key conclusions from a research project – a pilot empirical study on local complementary currencies (exchange systems). The study comprised 15 interviews with coordinators representing 13 existing alternative currency systems in Poland out of 20 identified. The research was conducted between February and April 2017. The main goal of the study was empirical determination of the factors involved in the rise and fall of alternative currencies systems in Poland and conditions for their survival – that is, sustainability factors. The author demonstrated that, among examined system, two are performing better than the others, and they meet the efficiency conditions: they have a relatively high and stable or growing number of active members and exchanges, and they are constantly developed without reporting any substantial problems. Despite many differences, they have much in common. The analysis of the two examples in comparison with other systems enabled forming a list of sustainability factors and suggestions for the coordinators or initiators concerning how and what to do and what to avoid to make the system more sustainable.

KEYWORDS

Poland; complementary currency; community exchange; empirical study; sustainability

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1. INTRODUCTION

In Poland, there are no recorded academic studies or publications, especially empirical, in economics or finance concerning alternative exchange systems (excluding cryptocurrencies). There are authors who have published works on alternative economics, social economics, and financial democracy in recent years, namely Janusz Reichel, Andrzej Żwawa, Szczęsny Z. Górski and Jacek A. Rossakiewicz. However, they represent different milieus from economics or finance, representing sociological, historical, libertarian, ecological, artistic or even anarchistic, anti-system and nationalist endeavours. Furthermore, although their works are a decent source of general and historical information, questions and directions, none of them seems to have a strict academic background in economics.

To start changing that empty landscape of academic analysis of alternative exchange systems in Poland, an empirical study on local complementary currencies (exchange systems) was conducted. The main part of the research was carried out in February 2017 (baseline period), and the rest was completed in March–April 2017.

The main goal of the research is empirical determination of the factors in the rise and fall of alternative currency systems in Poland and conditions for their survival, that is, sustainability factors. The secondary goals are as follows: generating an empirical determination of internal mechanisms of the systems and their relationship with the environment and formulating hypotheses that will generalise the mutual relations between the alternative currencies and the economy (local, national). Due to the pilot nature of the study, an additional aim is to construct further questions and identify important research problems, narrowing or extending the area of research. Therefore, the conclusions should be treated as hypotheses for further investigation, not a guide on how to organise and manage a complementary currency system.

2. METHODS

Currently there are only a few existing and operating alternative currency systems in Poland, while multiple systems are no longer operating, and information on them can be found only in news, articles and magazines or books published a few years ago. Because of this limitation and to preliminarily investigate the phenomenon, a qualitative study was performed.

A thematic analysis of all the data was used based on constructive (inductive) grounded theory (Charmaz 2005) to develop ideas, themes and normative suggestions that formed an analysis tied to the data. As Linden (2006) notes, grounded theory is especially useful for the study of complex, dynamic systems. This approach allows a researcher to critically investigate and code data into analytical concepts, which are then built up into theoretical codes to explore the relationships that may exist among the data. This ensures a rigorous and plausible analysis, producing results closely tied to the data and a qualitative view of informants (Lee, 2009).

In the grounded theory tradition, the result of a study is a complete theory of the phenomenon. This pilot study, however, aims mainly at determining a conceptual framework for further research. In the grounded theory strategy, there are three general rules (Jemielniak 2012b). First, there are no preliminary hypotheses, so that existing theory does not influence the interpretation of the phenomena. Second, it relies on continuous comparison of the data, which leads to determination of the codes for organising and interpreting the data and highlighting the most important categories from which the theory is then built. Third, the data should be collected not by representative rule, but to extend our knowledge of the problem.

In the preparation of the methodological part of the study, I used Flick (2012), Kaczmarek, Olejnik and Springer (2016) and Jemielniak (2012a, 2012b). The data collection for the study was conducted using semi-structured individual in-depth interviews (IDIs).

The research objects were the initiators, coordinators (general management) and animators (operational activities) of the existing alternative currency systems in Poland (working or in temporary suspension), excluding cryptocurrencies. I focussed primarily on those that used an alternative exchange unit (unit of account). Although I focussed on individual interviews with coordinators, I still gathered a lot of important information about the sys-

tem and the participants. This is because these people organise systems where community building is an important integral element and sometimes the main goal. This means a great exchange of information between users and coordinators takes place, so the coordinators have a broad and deep insight into what goes on in the system. Furthermore, the coordinators not only have some views on the alternative system, but they also take action, which influences the community, society and economy, not just their personal environment.

Because of the shortage in the number of existing systems, the sampling was based on availability. I searched for information about existing systems using the Internet (web searches, Facebook, Goldenline and other forums) and in publications of Polish authors and popular magazine articles.

During the search, I found information (descriptions, references or short notices) of about 80 systems that were set up between 2000 and 2013 and ran from 1 to 3 years on average. Most of them were community multilateral credit systems (MCSs) – local exchange trading systems (LETSs), time banks, community exchange system (CESs), one-time banks based on a coin exchange and several business systems based on multilateral barter – or commercial MCS (3C – consumer and commerce circuit or just business to business, B2B). For the purpose of the study, the existence of 20 exchange systems in general, 16 systems with own settlement units (currency systems) and 4 systems supporting exchange without a unit (general exchange systems, GES) was verified.

During the study, 15 interviews were conducted with coordinators representing 13 systems. Two systems (two interviews) proved to be functioning without the support of an alternative exchange unit (marked as GES in the table 1).

The study procedure involved five steps, as follows:

1. Research design (choice of method, preparing a script);
2. Research planning (searching for existing systems, contacting the coordinators, setting a timetable);
3. Conducting the interviews and preparing transcriptions;
4. Data analysis:
    a. Coding the transcriptions using Qualitative Data Analysis software (QDA Minter Lite),
    b. Coding analysis: searching for themes and patterns,
    c. Comparative analysis of the observation and
    d. Generalisation
5. Drawing conclusions, discussion and formulating suggestions.

The interviews with participants were conducted in different places that were close to the participants' place of residence and work for convenience. These were mostly (11/15) locations of the organisations that administered the systems but also cafes (2) and private housing (1). Each interview was scheduled for about 1–2 hours, and all the interviews fit into these limits.

All the interviews were conducted personally by the author. The respondents were informed about the research prospect and overall purpose of the study, and they agreed to participate in the research, including recording, transcription and use of quotes. Respondents did not receive remuneration for participation in the study.

The interviews were conducted in such a way that the respondents perceived freedom of expression. The author also used active listening methods (including paraphrasing, reflection, clarification) to receive the information needed and support the high quality of the messages being recorded. Respondents' questions were postponed beyond the time of the study to avoid suggesting answers. During the interviews, non-verbal messages were not recorded. No third-party presence was planned during the interviews, but in two cases, there were additional people present who were asked (and agreed) not to participate in the core part of the individual interview.

A preliminary analysis of the interviews was conducted during the baseline period, which allowed for minor modifications to the interview scenario (mainly narrowing the list of questions). The study scenario was developed based on Kaczmarek et al. (2016, p. 123) to broadly reflect the issues related to the functioning of systems. When the participant concentrated on a secondary thread that was significant from the point of view of the study, additional deepening questions were asked. This resulted in a lot of additional important information.

The main questions concerned the preparation during the system's launch; motivations for launching; goals, sources of the idea and knowledge; mechanisms of the system; communication of the users and environment; exchanges; level of formalism; benefits the users received; system development; difficulties; role of the coordinator; and effect on members.

A total of 15:44 hours of interviews were recorded; external companies transformed the recordings into 209 pages of transcript. The transcripts were then manually coded in detail into 42 codes. The codes were created based on the content of the scenario and trends in the responses. The coded content covered from 10% to 40% of the interview transcripts. During the coding process, no contradictions in the statements were found.

3. RESULTS

3.1. Examined systems

The results of the analysis of the interview content were broken down by codes or grouped codes. Below, I give selected excerpt of statements, translated from Polish into English, in parentheses, supporting the grouping and the locality of the system with which the cited person is associated. Note that marking in parentheses means that the confirmation for the statement was found in the interview content, but this does not mean that the confirmations were non-existent in other systems.

The general observation on the existing systems in Poland is that there are two types of systems – time banks (most of which are MCS) and one 3C, the commercial system – functioning with some differences. Because of multivariate differences between community currencies and 3C systems, the results of the analysis are described separately. A summary of the basic characteristics of the examined systems is presented in the table 1. In addition to the examined systems, seven others were confirmed as existing and working, as follows: 'Wymiennik. Społecznościowy System Wymiany' (since 2012, MCS/CES system based on web, ca. 4000 users, ca. 1000 exchanges per year, mainly in Warsaw), 'Poleski Osiedlowy Bank Czasu' (Łódź, web-based MCS time bank), 'Tarnobrzeski Bank Czasu' (Tarnobrzeg, GES time bank), 'Piast' (Kielce, MCS/3C), 'Dzielnik Twórców Dobra' (2017, Piaseczno near Warsaw, similar to MCS, web based), 'Thingo' (web-based GES) and 'Wymiennik.com' (web-based GES for students).

NAME	HEADQUATERS LOCATION	Start year	TYPE	P2P	UNIT	MARKET	PAYMENT	REGISTRY	USERS		EXCH.	ADMIN TYPE	FINANCING	RANGE
									Registered	Active	Per year			
Bank Czasu LO Wolsztyn	Wolsztyn	2013	MCS	C2C	Hour	OM + @ (FB)	No reg.	No reg.	X	6–7	N/D	Person	Prv	School
Bank Czasu w Tczewie	Tczew	~ 2003	MCS*	C2C	Hour	OM	Paper	Paper + Excel	150–180	150–180?	N/D	**PSO**	PSO + reward + grants + sponsors	Town
BankCzasu .org	Warsaw	2008	GES	C2C	Hour	@ (own)	No pay.	No reg.	3400	N/D	No record	Prv Com	Prv	Country
Banku Czasu Mam	Warsaw	~ 2014	GES	C2C	U/D	@ (FB)	No pay.	No reg.	300	N/D	N/D	Person	Norwegian Funds + prv	Town
Bartersi	Krzywiczyny/ Wołczyn	2008	MCS	B2B	Pnts	@ (own)	@ (own)	@ (DB)	800	N/D	2–3	Prv Com	N/D	Country
Gliwicki Bank Czasu	Gliwice	2012	MCS	C2C	Hour	OM	Paper	Paper	45	20–30	84	PSO/ NGO	No strict financing/ partly PSO	Town
Katowicki Bank Czasu	Katowice	~ 2005	MCS	C2C	Hour	OM	Paper	Paper	40–60	8–12	24–100	Person	No strict financing/prv	Town
Kielecki Bank Czasu	Kielce	2013	MCS	C2C	Hour	OM + phone	Paper	Paper	40 → 130	N/D	10–20	NGO	No strict financing/ partly NGO/ users	Town
Niepołomicki Bank Czasu	Niepołomice	2014	MCS	C2C	Hour	OM + phone	Paper → @	@ (DB?)	40	20	20–30 h/ mth	NGO	Public grant + prv	Town
Poznański Bank Czasu	Poznań	~ 2005	MCS*	C2C	Hour	@ (own)	Paper → @	@ (DB)	200	50–150	Max 200	NGO	Public grant + prv	Town
Wrocławski Bank Czasu	Wrocław	2015	MCS	C2C	Hour	@ (own)	@ (own)	@ (DB)	450	5–20	36	NGO	Prv + users	Town
Zeit Bank Czasu	Słubice / Frankfurt on the Oder	~ 2012	CbS	C2C /3C	Hour	OM	Coin	No reg.	30	12?	No record	NGO	Public grant + prv	Town/region
Zielony	Starachowice	~ 2015	MCS	3C	1Z = 1zł	@+ mob+ OM	@+ mob+ ***)	@ (DB)	400	400	30 mln zł	Prv Com **)	Self-financing + prv => cooperative	Country

*Notes: '→' (arrow) indicates a change; N/D = no data; TYPE: MCS = multilateral credit system, GES = general exchange system/platform (usually without specifying exchange unit), CbS = coin-based system, P2P: 3C = consumer and commerce circuit/(complete exchange circle and ecosystem; all or most of the following: B2B + B2C + C2B + C2C+ B2W), B2B = inter-company exchange (here: only multilateral barter), B2C = traditional retail trade/sale (customers pay within the system with the system unit for goods), C2B = in traditional view: customers create value for which the company pays; here broader: company repays customers, e.g. a bonus in system unit if they buy items, even for official money, C2C = individuals (customers) exchange goods, services and favours, W2B = company pays the employee salary in the system unit (the whole, part of it or bonuses); ADMIN TYPE: NGO = non-governmental organisation, PSO = public service organization (municipal, local government, governmental), PrvCom = private company/enterprise, *) = not standard (interference with the system mechanism), it was to be CES, **) with plan to change to cooperative (property), U/D = undetermined, MARKET & PAYMENT & REGISTRY: CES = community exchange system online platform, FB = Facebook, DB = database at server, OM = offline meeting, @ = online, own = own platform, mob = mobile app, ***) = with plan to introduce cards (with QR code), no reg. = no registry, no pay. = no means of payment used, prv = some expenditures financed with coordinators funds, users = some expenditures financed with members funds. Arrows indicates changes.*

3.2. Development

In most of the examined systems, the coordinators answering the question about their role, stressed that the coordinator is highly needed in such systems. Their role is to integrate the community, register and maintain accounts, and often, to be the main public trust 'institution' in the marketplace ('People could not call, contact, although they already knew, they felt the need to use the intermediary', Niepołomice, Katowice, Warsaw). However, this is a time-consuming role with a high amount of responsibility. Coordinators reported that, for a relatively small system (up to 150 people) to function properly, a coordinator working from a part-time (Tczew, Niepołomice) to full-time job (Gliwice) is necessary.

Based on the existing literature on alternative exchange systems in Poland, I expected that, among the motivations of the organisers and coordinators, I would find foremost the issues of worldview – coordinators emphasising the separation from the globalised, unsocialised, corrupt world in which mammon reigns, thereby addressing crises, bad economic situations and unemployment. However, some were motivated with anti-system attitudes (prepar-

ing for or counteracting the effects of the crisis, belonging to the anarchist federation). However, most were motivated by willingness to help, share and serve as a social worker, as well as willingness to meet social challenges, including counteraction of anonymity and growth of alienation due to cultural and historical differences ('Prejudice of the residents of Frankfurt against the Poles was big', Słubice) or change in the form and character of social life ('Almost all public places are slowly becoming private places', Słubice; 'the real estate developers [...] do not provide social space', Wrocław, Poznań), some were motivated economically (inability to meet private needs on the market).

The goals set by the coordinators and addressed to the system primarily dealt with issues and social problems and went in line with their motivations, among which were the following:

- Activation and prevention of exclusion of older people (Katowice, Tczew, Niepołomice);
- Allowing intergenerational exchanges ('to draw from the wisdom that these older people have', Gliwice);
- Activation of the society ('to get people out of the house, improve social relationships and do something good', 'motivation to move away from stagnation', Gliwice);
- Promoting the idea of subsidiarity and solidarity ('If you get help for free, then pass it on [...] to make those women feel like they can do something', Warsaw);
- Education (Kielce);
- Raising people's self-esteem ('By activating and taking part in exchanges, we hoped we would be giving a feeling of worth', Kielce);
- Solving the problem of alienation in a new environment (Niepołomice);
- Social integration (Poznań; 'to create a community that will meet, not as an organization, but as a group of people who are able to get to know each other', Wrocław);
- Promoting anti-systemic attitudes ('The goal was to promote this idea of non-cash exchanges, outside the monetary system', Wroclaw); and
- Artistic 'fun' (Słubice).

In one system (Poznań), I heard a declaration that the goal was to provide free services that would otherwise cost money on the market. Economic and financial problems were not the main objective of the community systems, although in some cases, the exchange mechanism was a true support of the main objective (Warsaw, Gliwice: 'to support people who cannot afford to use various services, as well as to give professionals a chance to share their skills', Poznań). In the studied 3C system, the objective was to intensify local economic exchanges so that money did not flow out of the country.

Several systems defined a specific target group: Three were geared toward newcomers in the city environment – incoming students from other cities in internal migration (students – Wrocław, Gliwice; families – Niepołomice); one invited immigrants from other countries (Słubice), and two focussed on the elderly and disabled (Tczew, Niepołomice). In the case of the investigated 3C system, the target groups were companies, mostly micro, small and medium, with Polish capital.

The coordinators were also asked about the motivations of the system users and what the users' benefits were. A representative summary is the statement of the coordinator from the time bank in Poznan: 'There are people for whom the community, the existence of the time bank, is important in their lives; there are those who need one-time help; there are those who support the idea and want to be more in the community to support the idea than to exchange; there are also those who think that this is the way to get something for free'. Briefly, community, individual needs, the idea and personal benefits are also important elements. Some also referred to space for self-realisation, becoming familiar with the new environment or curiosity. An exchange in social networks is often a pretext for moving out of the house, leaving the computer, establishing relationships and being active ('Time bank was like an excuse to get to know yourself', Niepołomice, Katowice, Poznań).

The benefits to members of community systems are directly linked to their motivations and the coordinators' motivations. One of the coordinators also mentioned the important effect on the personal views and life of people involved in the system ('[H] is the oldest, she came here because she got in trouble and had to perform community service as punishment; she came and said that she had been unemployed for 25 years – as if she was proud of it. I

asked her what she would like to do. "I like to tinker" [...]. "Come, then" [...]. And she came on Friday, Saturday, always from 15:00 to 18:00 [...] and started to tinker. [A] came, walked up to her and together they were doing, and more and more people were hooked [...]; and suddenly she, who was such a racist, voted on XXX, that is for the Nazis, thanks to this project, has changed completely', undisclosed). Some coordinators are also aware that not everyone will be willing to enter and use this system.

Members who exchange either do this seriously ('I do not know whether it's their meaning of life, but certainly one of the most important activities, because it is not just the exchange of services, but also relations', Tczew) or treat it only as fun. Attachment to the system may help uphold it when it is declining, for example, due to lack of coordination – the members take over the initiative ('Those people did not want to agree to keep the time bank closed and want to do something for it to last', Gliwice).

What one can see is interesting, but equally interesting is what one cannot see; one such thing is the lack of perception of the system in the economic context by the coordinators of community currencies and – according to their relations – the participants of the system. They do not treat it as money, an economic system, or as a solution to a problem of (own) unemployment. Rather, they see it almost exclusively in a social context. In contrast, 3C systems are designed as an economic support for the official economic system, where economic factors prevail.

For most community systems, coordinators often use casual sources of information while designing and implementing the system mechanisms. These include information from coordinators of other systems, leaflets and articles about other systems, books, the Internet and radio broadcasts. None of the coordinators referred to theoretical or scientific publications, nor did they use guides on how to design and organise such systems.

Almost all the coordinators of community systems were aware of the existence of other time banks. Coordinators of systems working under PSO underlined that this idea was functioning, and it was promoted and developed in the community animation environments (Tczew, Gliwice).

Most systems were organised ad hoc, without substantive merit preparation and planning, without preparing a 'business plan', except for two (Tczew, Starachowice – 3C). However, in most cases, the process of preparation and starting up lasted several months. The detailed mechanisms during this 'birth process' were different: activities of other non-governmental organisation (NGO)/public service organisation (PSO) projects (Tczew), informal exchanges (Tczew), pilotage (Tczew), use of available resources to prepare the information technology (IT) system (Wloclawek, Wrocław) and contact with NGOs/PSOs, which could coordinate or support the system (Niepołomice, Katowice).

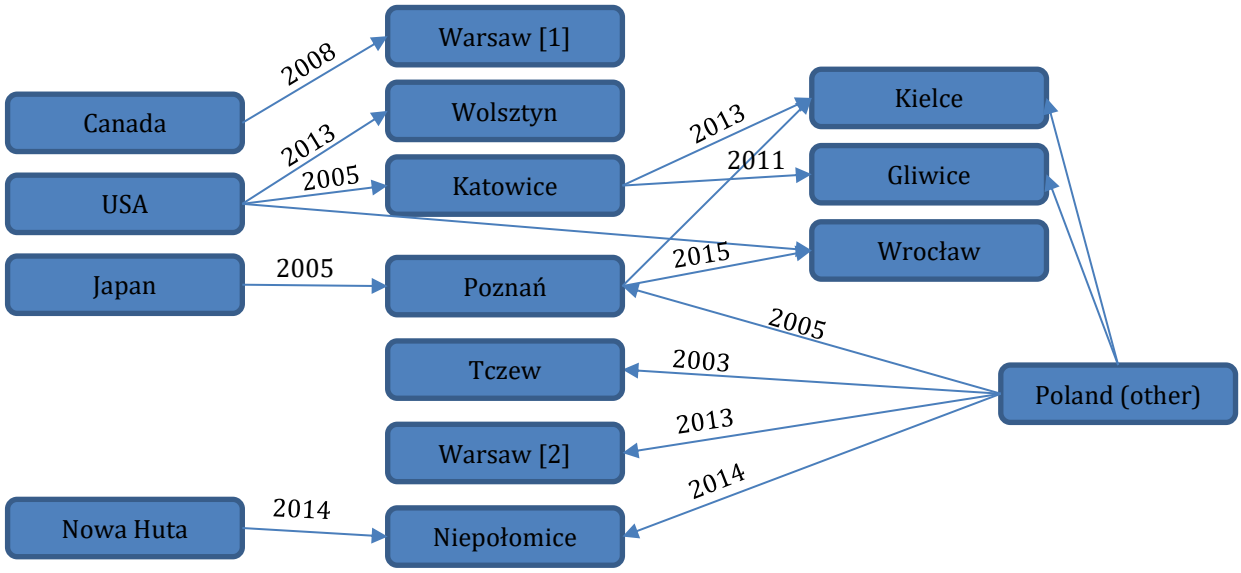
Changes in the activity of members and coordinators (animators) strongly depend on the external financing and the coordinators' personal plans, especially if they do not have sufficient material benefits from the system. In Wrocław, despite a week-long project financed externally during summer vacation, after the start of the semester at the university, some people returned to their hometown, while others focussed on finding a full-time job. In other systems (e.g. in Tczew), the periodicity of exchanges resulted from the change in the activity of members, who entered the 'minimum activity mode' during the holiday periods.

Many initiators start 'with great enthusiasm and little knowledge' (Wroclaw). After some time, however, it turns out that the system management and coordination is burdened with a heavy workload, and even with more experience and knowledge, motivation drops, enthusiasm ends – often coinciding with external financing ending – and coordinators burn out ('Brilliant ideas cease functioning because people just burn out', Warsaw).

A regular feature in the functioning of community systems is that, a few years after the launch, the community ceases to grow and integrates internally. At this moment, it starts running low on funds for development, coordinators lose enthusiasm and the official activity of the system is suspended; however, without the coordinator, the community continues to exchange unofficially with or without the same mechanisms (Niepołomice, Poznan, Wroclaw, Katowice). Often, during the system's rise, time banks are in the media's frame of interest. Information about them spreads and attracts interest in different, often distant, locations. New attempts to create a system appear in those new location at a time when the source system slows down or suspends the official activity ('At the moment when we started, the time bank in Katowice was closing', Gliwice). This seems to be true in the sys-

tems in Wolsztyn, Wrocław, Gliwice, Katowice, Kielce and Niepołomice. This mechanism resembles a process of 'budding' (a bubble grows, bursts and new bubbles start growing in other places).

Drawing 1. Polish community currencies' 'budding' scheme.



Note: Arrows indicate knowledge flow between systems in a specific year. There are two systems from Warsaw.

3.3. System

In terms of organization, three community systems are carried out in the individual (private) capacity of coordinators (Wolsztyn, Wołczyn, Katowice), although in the case of Katowice, cooperation with NGOs is used, and in Wolsztyn, cooperation with the school is evident. Three are organised by companies (two business systems of Warsaw and Starachowice and the GES in Warsaw). Five systems are organised within NGOs and two by public service organisations (NGO Centre, Social Welfare Centre).

Systems that do not have an internal unit of account do not record exchanges. They provide only a mechanism of matching (market mechanism) – one system is using Facebook, the other is based on its own online system. Five community systems operate based on documentation and paper records in conjunction with the need to contact the coordinator (animator).One of them (Tczew) keeps records of exchanges (copies of individual cards exchanged), including in electronic form (Excel tables), which facilitates an evaluation. Two of the studied community systems are based on an individual online system, which provides a market platform, register of accounts and transactions and payment service.

One of the community systems (Słubice) is unique. It does not use a mutual credit, but instead, stamped metal coins are put into circulation in exchange for work done for the benefit of the association. These works are not ordered intentionally and in an informed way; rather, they are ad hoc. The low number of users and exchanges and low system awareness make this form of currency issuance unimportant to the efficiency of the system, since the system is conceived as a fun and social integrator and not a tool to meet needs. The issued coins cannot be officially bought (only earned).

Among the surveyed community systems, all are referred to as 'time banks'. Most of them (except the one in Słubice) rely on mutual credit with a natural unit of exchange (an hour), which is not convertible to the official currency, where the users keep individual billing cards or use an IT system. However, there is a great variety of approaches to implementing the general idea.

To avoid stressing the users, the time bank in Tczew does not record credit balances, although every participant is aware of the number of services he has used. Some time banks (Poznań, Słubice, Wrocław) allow more free valuation of services. In certain time banks that register account statuses, the sum of balances is not zeroed due to the granting of time-creating top-up bonuses (Poznań, Wrocław, Gliwice). Only one system tried to apply a 'demurrage' principle (a subscription that charges 15 minutes per account per month), but this was dropped, as it turned out to be a disincentive for using the system. In two cases, the coordinators referred to the idea of the time bank, but as it turned out, they did not register balances at all.

The 3C system operates based on a standard, coherent MCS system with its own settlement unit, equal in value to the official currency (1 polish zloty). It is aimed for business users (mainly), as well as private individuals. For compliance with existing laws and regulations, the two groups are treated differently in the system. Only business users are given a limited credit option. Private users can use the system only after obtaining a specified number of units in one of three ways – receiving it from the employer as a kind of premium (the salary cannot be paid in the unit, only bonuses), purchasing goods with an official currency from one of the companies in the system that grants the customer a bonus and exchanging private goods and services for payment in the system. However, the unit cannot officially be bought. The system's operation is based on a centralised, centrally managed account and an IT network, which connects mobile applications serving as payment terminals. There is also the possibility of payment using the website. The system is organised as a business community, and its administrator is also a company, but the plan is to gradually transfer the administration of the system to a cooperative of the system users.

Most systems are formal. There are some regulations, where users are required to register in electronic or paper form, sign the consent and fill out a card of needs and offers. For most systems, the documentation of exchanges and account balances is kept – in four cases, in paper form (Gliwice, Katowice, Kielce, Tczew). The coordinators pointed out that the clear rules established and the support of a well-known institution contribute to the participants' sense of security and equity.

In the 3C system, the major document is the formal paper participation agreement between the participant company and administrator, where the rules of cooperation are defined. The agreement is secured by a blank promissory note. For individual users, there are rules that must be accepted when setting up an account on the website or using the mobile application.

The question of the legality of operation of the systems (value added tax on goods and services, income tax, civil law activities tax, protection of personal data, regulation by monetary authorities) is a topic that arouses emotions and uncertainty among coordinators ('I do not know how to approach this, how to calculate it, even if I wanted to', Poznań), and sometimes even fear ('At some point, the time bank in Opole turned to the Tax Office for the individual interpretations, and it said the exchange needs to be taxed; everyone got scared, the exchanges immediately froze, people stopped coming at all', Katowice, Wołczyn). Some have obtained individual interpretations of tax regulations or the opinion of legal advisers (Gliwice, Tczew, Starachowice). However, most of them are based on heard opinions (Katowice, Niepołomice, Wrocław).

In terms of external communication (marketing, public relations) tools used, most systems (including businesses) rely primarily on existing information channels and links to other NGOs, PSOs or business relations. The coordinators also pointed out that the most important and most effective form of marketing was 'whisper marketing' (information passed directly from one person to another). Most also used direct relationships between the administrator and interested parties ('forms are necessary, but above all, a talk with the coordinator of the time bank is important', Gliwice). Most coordinators confirmed having endorsed the use of various other information channels (posters, leaflets, banners, local and national media – radio broadcasts, television, newspapers, social media and even call centres). Representatives of the 3C system have also participated in various business and scientific local and international conferences. However, no other form of communication proved to be more efficient than direct relations.

The term 'time bank' attracts and interests people, including the media, but few want to get inside, or as they already know, decide not to exchange for various reasons. As soon as the individual starts to think about it – 'a bank' does not always arouse good associations – the main function of a bank in addition to taking deposits – which

does not apply to time banks – is lending ('So they thought they would have to borrow', Gliwice). In contrast, the coordinators mentioned the negative reception of 'alternatives' ('Local media (…) treat us like freaks', Słubice).

The common feature of almost all systems is an active involvement in internal communication, regular 'current' activities – monthly or weekly meetings with animators (Tczew, Niepołomice, Katowice, Poznań) – and additional activities supporting the system and participants, which most often take place once every few months. Some also use text and push-up messages, as a form of internal communication (Kielce), or email newsletters (Wroclaw). The coordinators emphasised that such activities are needed; they integrate the group and increase mutual trust, which is necessary in exchange ('So you deliver such a "drip" as the activity drops? – Yes […] there must be an extra impulse', Tczew).

The coordinators were asked about the system's potential. They highlighted its ability to structure the overall activities of the organisation (Tczew), emphasised its feature as a tool, and pointed to the information function (Tczew), which enables the collection of data needed to achieve the organisation's general goals ('Great instrument for exchanges, getting to know new people, new skills and developing oneself, because we invest in ourselves through these exchanges', Gliwice). Some also pointed to the complementary nature of the system to market mechanisms and the official monetary system ('This is a supplement, not a competition; if we are doing a computer skills training for seniors or English language training, is it in competition with language schools? These people can't afford to go to language school anyway', Niepołomice).

3.4. Economics

Some community systems were subsidised (in the form of one-off grants) with public funds, which ranged from about 5000 to 100 000 PLN (≈1200–23 600 EUR). Some systems operate thanks to the organisational subordination to PSOs (Tczew, Gliwice), where the coordinators are full-time employees of these organisations. These are the systems that work the most efficiently (the highest number of users, exchanges, activities, longest history). Most, however, benefit from the volunteer work of the coordinators and suffer from 'permanent lack of funding' of basic activities (Poznań; Słubice) and lack of remuneration for coordinators' work, which demotivates the coordinators ('The subsidy is for a few months; it is hard to manage life with it') and strengthens competition for public (municipal) funds.

The coordinators were asked about the source of personal income, regardless of the financing. There was considerable variability in this regard, but most of them worked full time (Warsaw, Katowice, Kielce, Niepołomice, Wolsztyn, Poznan). Some had independent businesses (Katowice, Wołczyn, Warsaw, Starachowice), and in two systems, the coordinators were employed by the PSOs (Tczew, Gliwice).

In the 3C system, the funding is designed to be internal (self-financing) in the end; however, currently, the coordinators have personal involvement (administering company partners). The system is meant to cover the coordination costs.

The coordinators emphasised that the exchanges did not entail any costs or risks for members, although they often later pointed out, answering other questions, that they were not entirely sure what their legality was, and they mentioned the time and effort for users to make a transaction – contacting the coordinator (animator) and travelling to the exchange place (only three systems had remote payments over the Internet). They did not see what is obvious for economists, namely transaction costs (effort and time needed to find a contractor, waiting time, exchange costs, time to register and settle the system), supplier change costs (from the market to the alternative system), time lags or various risks and uncertainty, which result from the system mechanism (the risk of a system collapse, the risk of not finding a counterparty when needed, risks associated with the lack of quality control mechanisms, etc.), as well as the opportunity costs, which are not present or are significantly lower while meeting the needs in the market. Even if the coordinators saw the symptoms ('People saw the notice board, they were interested in the topic, but when they learned it was an exchange of skills and they would have to offer something to get something else, they retracted and said that they preferred to pay for a certain service and get rid of the problem', Gliwice), they did not try to analyse and counter them.

In the investigated 3C system, both the users (mainly business) and the coordinators are significantly more aware of risks and costs, but in most cases, the economic benefits of such a system make the participants stay in it, sometimes even expecting it to grow. Community network coordinators pointed out the regularity that is also evident in the market system. Often, significant imbalances of demand and supply are recorded, as follows:

- Imbalances of a general nature (demand>supply or supply>demand); or
- Imbalances of a structural nature (demand = supply in general, but no exchanges due to mismatch of the structure of supply and demand).

Contrary to what one may expect from a system that offers 'free' service delivery, there is a permanent surplus of supply over demand ('The worst is always the question, "What do you need?" I don't need anything, but I can bake a cake, does anyone want a cake?', Tczew; Niepołomice; Poznań). In one system, it came from the nature of services (support in a difficult, shameful life situation of young mothers). Elsewhere, it was partly related to the systemic costs ('Things are easier to do alone; even if we do not like it, it's easier, costs us less effort to do it than going through all the formalities', Gliwice). However, in most cases, the problem derived from the difficulty of identifying one's needs and reluctance to express them.

These general market imbalances seem practically impossible to overcome in the systemic mechanisms (without coordinator intervention) due to the lack or ineffectiveness of pricing mechanisms in such systems (pricing in natural units – 'hours'). Moreover, to some extent, they contradict the coordinators' expectations ('People focus on themselves and it is hard for them to give themselves something else', Gliwice). However, with some involvement of coordinators or animators, the demand increased somewhat ('If they sit at a time bank meeting, it turns out that, "I would do something for someone"; you always find the other side that needs it', Tczew; 'I have not yet met the need for which there would be no response among users', Wroclaw).

In addition to general market imbalances, there are also structural imbalances in the community systems resulting from a limited assortment and mismatch of demand and supply structure. This, in turn, mainly results from the relatively small number of people ready for exchange in such systems, as well as from the small diversity of products. Usually, there is a lack of more qualified, complex services that involve a high opportunity cost to offer them in such a system, although sometimes they appear (e.g. piano tuner, faecal examination or lawyer), but as it turns out, there is no demand for them. In contrast, some services are extremely popular (computer fixing, minor repairs, babysitting, animal care, translations, training in foreign languages or computer skills). Sometimes, both types of imbalances result from the appearance of people in the system whose services are popular (e.g. 'Mr. Handyman') but who are reluctant to spend the earned currency.

In the examined 3C system, the coordinator did not mention anything that would be treated as general market imbalance. However, a structural mismatch may manifest with internal competition, which lowers the value of the system for competing companies. Neither type of imbalances seem to occur in the 3C system. This is because the administrator carefully adjusted the number of companies and represented branches, inviting one and rejecting another to keep the system's market balanced and maintain the internal incentives for the companies already in the system (one hotel in the city that accepts the internal unit may be enough to meet the demand valued in the internal unit, which makes belonging to the system a competitive advantage). However, the administrator pointed to a situation in which a small company operating in a competitive market (without a competitive advantage) entered the system, achieved a significant revenue growth in a month, but quickly left the system due to the lack of a hypermarket, to which the company's owner was accustomed. This shows that a certain level of structural imbalance may not be avoidable, even with the members' conscious choice.

3.5. Problems and limitations

Apart from market imbalances, the coordinators mentioned many other system problems and limitations; among these were the following:

- Too large a system to coordinate (Tczew);
- System inflation (Poznan);

- Participants' age (Tczew);
- Underestimated costs of system operation and exchange;
- The too-strong integration of the group;
- Problems with internal settlement;
- Failed attempts to register the initiative in the form of an association;
- The difficulty in formulating the messages;
- The presence in the group of people with ambiguous intentions or problems, and contagion effect ('It is just enough when someone comes who is going to be 5% dishonest or someone behind the gossip');
- Unreliability and irresponsibility of service providers; and
- Difficulty of using IT exchange system.

Paradoxically, a certain restriction on the development of alternative currency systems may be that, in Poland, there have been no deep crises in the last 20 years, and social problems and imbalances are addressed by the relevant institutions, as some coordinators pointed out ('Poland has never had such a crisis or boom. So, in fact, the main motivator for people to use the time bank is simply willingness or good will', Warsaw). This is why people do not seek monetary alternatives.

Another important systemic problem is that coordinators are not aware of competition from the sharing economy services (Uber, etc.); traditional services, namely cooperative banks, online exchange systems and services accessible in Poland (Allegro, Gumtree, eBay, Olx); 'neighbourhood' clubs; or cryptocurrencies. Sometimes, they do not even know about them.

Besides other problems, there seem to arise two paradoxes in community currencies systems. Both show that too much integration in the system ultimately kills the system. First, the general prosocial character of the system can be an obstacle to sustainability because relationships, initially built through a 'trusted' animator, coordinator or IT system, transforms over time into a direct relationship (unless the system is large enough, with a large offer). Direct relationships cause the members to skip the system. Second, maintaining social relationships based on trust and integrating community applies mainly to relatively small communities. However, market liquidity is essential for an exchange system's sustainability, which requires a number of ready-to-buy-and-serve people of different needs and skills. This is possible only in much larger communities. Therefore, in designing a system, it is necessary to choose between the level of trust and liquidity.

4. RESULTS

Based on the coded content grouping, in comparison with the performance of the systems, I determined possible factors of development of alternative systems and formulated suggestions for the actual and potential coordinators and PSOs on how to use the potential of the systems efficiently, that is, to accomplish the following:

1. Attract as many members as the system is able to handle and maintain the number (balance the number of incoming and outgoing);
2. Engage in as many exchanges as people really need;
3. Achieve sustainable development; and
4. Solve internal problems successfully.

Two of the examined systems need to be featured, namely the systems in Tczew and Starachowice. Although they are not perfect, these systems performed the best among the examined systems and met all four efficiency conditions: They have relatively high and stable or growing numbers of active members and exchanges and are constantly developed, with reporting of any substantial problems. The first is an MCS C2C time bank with a natural unit of exchange ('hour'), which is a PSO's project; the second is a private company–administered initiative of an MCS 3C local currency valued in the official currency at a ratio of 1:1. Despite many differences, they have much in common. Both are precisely designed and planned; they have clearly set goals and target groups and assured financing of the system (or are on their way to being financially sustainable). Moreover, the coordinators can devote much or all of their time to managing the system because they have their living secured. In addition, both

have a clear structure. The coordinators prepared before implementing them and periodically evaluate them. They both utilise strong motivations for the users, as well as using direct and many other forms of communication, which supplement the major tools. Finally, both set clear rules.

The two examples in comparison with other systems enabled forming a list of sustainability factors and suggestions for the coordinators or initiators on how and what to do and what to avoid to make the system more sustainable. All the suggestions result from the analysis of alternative currencies in Poland presented above, and they cannot be treated as a complete guide on how to design an alternative currency system in general. However, the chapter aims at summarising some of the good and bad practices (evaluated via comparison among different systems). As almost all the examined systems were community currencies, the conclusions best fit to this type of alternative currency; however, 3C systems may utilise most of them. The development factors and suggestions were categorised into four groups, as follows: Those that seem to be indispensable for the efficiency of a system ('Do'), those that can be considered, those that should be avoided or analysed carefully and those that do not seem to influence the efficiency.

4.1. Do: plan and design

The ultimate factor (a necessary condition, but not always sufficient) for sustainability seem to be a proper preparation of the system (design, planning, careful implementation) preceded by gaining factual knowledge and a pre-launch environmental market analysis. A proper design may describe the basic mechanism of exchange, setting the valuation method (commodity money, credit money – including MCS or other), unit of value and account settlement, medium of exchange (value carrier and transfer method), currency issuance method and accounting records storing method. A proper plan may cover the following: clear goals, basic financing sources, internal structure, a development schedule, rules (responsibilities, governing, evaluation), communication (internal and external) means and incentives for members.

A lack of a specific goal, or a too-general one, makes it difficult to choose proper methods and mechanisms, making the system work on an ad hoc basis: The users do not have any reference in unusual situations. No planned financing restricts and impedes communication, especially in community currencies, which are too small to base their sustainable development on self-financing (increasing the already high costs of exchange in the system). Uncertain external financing, especially for NGOs administering community services, is an important factor causing the coordinators' burnout. No clear internal structure with animators with operational responsibilities (making the markets and acting as intermediaries or moderating the IT system and online exchanges) lowers the development potential and can discourage exchanges, as the animators are important second-level trusted third parties in such systems. The system is more likely to stall if coordinators are directly involved in the operational activities, that is, making the market (everyday intermediary between buyers and sellers). This is a job for animators. Coordinators have much more general management tasks.

No schedule means the system may never start due to infinite postponing deadlines. Moreover, a lack of in-depth knowledge or know-how makes coordinators unable to consciously choose the design, plan and verify whether the exchange in the system is legal. It makes it necessary rediscover every document or file and develop solutions to already solved problems from scratch; thus, coordinators are forced to make the same mistakes. Finally, the lack of at least a basic environment analysis makes it impossible to adjust the design and communication properly to fit into the local environment.

4.2. Do: management

Proper preparation must be followed by proper management (administration, coordination, control, evaluation) of the alternative currency system that separates the operational activities from long-term system supporting activities or system management. The system management requires a trustworthy leader or coordinators with the following characteristics:

- Having a different source of stable income, satisfying basic living needs, and a lot of free time and strong motivation; or

- Tangible benefits from managing the system (a remuneration from the system or the superior institution) that are sufficient for satisfying basic living needs.
- Coordinators need to feel a strong social mission (in times of financial trouble, they still should be motivated to run the system), but in general, in a healthy system, they should not worry about their personal income. It is important to prevent too much rotation of 'staff'. A perfect situation is a leader with the following characteristics:
- An inner need for action;
- Enough free time;
- All needs ensured with, for example, a business or freelance occupation (flexible working time); and
- A certain reward or benefit in the system.

The coordinator's reward has to be relatively important in relation to remuneration from other sources (not necessarily absolutely high), making it sufficient to cover the opportunity costs. The leader cannot be socially excluded. The coordinators have to consider that too much optimism and enthusiasm at the beginning, without rational assessment, precise system design and long-term planning to cover the fundamentals, is likely to result in rapid burnout.

Coordinators play an important role in the system (main administrators, not necessarily the initiators); hence, the key issue is persistent motivation (mainly material, as shown below) or externally imposed duty. Organising co-financing, coordinating the activities of animators and 'brokers', maintaining the IT system (if present), creating the market (not making the market), informing participants, initiating policy changes, resolving disputes and dispelling doubts, moderating the process of approving rules, organising additional activities, evaluating and analysing needs and offers to balance the system, and deciding on the currency (liabilities) restrictions are all their major responsibilities. The coordinators should not have to deal with operational issues; however, they should be able to be the intermediary of last resort. They should encourage people to talk about their needs and report them, and at the same time, search for 'diamond in the rough' among people who can do something (conduct environmental interviews). Even if there is an IT system that helps in creating a market, the coordinator should actively use that knowledge to support the system. All these activities, if they are visible to the participants, will help in collecting potential internal fees (which do not have to be the system financing method, but motivating to exchange). A big number of tasks means that the system can only survive if its coordinator is completely devoted to it. However, the administrator of the non-for-profit system should not be a company, due to the contractual exchange unit and systemic unprofitability of the coordination of C2C exchanges.

4.3. Do: two incentives

The system's complete reliance on emotional involvement and passion seems to be a short-term measure. The emotions can and even should be reinforced. Positive emotions of a personal contact is an important and not marketable benefit. However, the foundation of the system's existence should be something else. Something that sets the system into perpetual motion, making it self-organising and self-regulating, where even without external financing, and even with temporary lack of coordinators or animators (rather impossible in the long-term), is able to keep functioning.

The factor that may answer this call is ensuring that all stakeholders (coordinators; participants: companies, employees, customers; beneficiaries: charities and NGOs) benefit from the system on a daily basis in broad economic terms, which gives them incentives to enter the system, remain there, be active, become involved in the idea, stand by it and promote it. Benefiting in broad economic terms means that all the revenues the stakeholders receive (individually) cover the personal and system costs they have to bear, including the actual ones (system fees, transactional costs), economic costs (opportunity costs: benefits/incomes or utility they would obtain using official systems; cost of changing the supplier: the need to break and change habits, new customs, paths), psychological costs (breaking the barrier to outside help, often from a stranger, barriers to home comfort) and risks. These may also include higher order values (e.g. the idea of an integrated society, an alternative to a social capitalism, building relationships, solidarity, exchange autonomy, etc.).

Building on only one type of motivation for the stakeholders may not be enough. Two simultaneous independent motives/incentives, neither of which is forced on the participants, may be better. These are personal benefit and

emotions and relationships. In case a user chooses not to participate in the meetings and all the social life (e.g. because he/she is already integrated in another social environment, is in conflict with another member of the system or his/her personality makes him/her reluctant to engage socially), he/she can always stick to the system because of personal benefits. If a user does not achieve benefits (e.g. because there is no exchange, no corresponding demand/supply), the inertia of personal ties and habits remains and keeps the user with the system. Both support and strengthen each other, and both should be taken care of and communicated to the potential and factual system members.

If one aims at creating and integrating communities, creating relationships, then we have to appeal to people who do not have too many relationships. Those with a rich social life will not be interested in this aspect of the time bank. If you want to attract them, you will need to appeal to other motivations.

4.4. Do: direct communication

Regardless of the type of system and other factors, the key aspect is the personal and individual, preferably direct and offline contact of the coordinator (animator or broker) with the participants – both before and after joining the system. Automated platforms and contact via Facebook, email or internal systems will not replace personal interviews, surveys or group meetings and building social capital. Personal, open contact inviting one to the system, especially from the trusted person, will be much more effective than advertising on a poster, billboard or even via the media and Internet. However, these marketing channels still have a role in building the brand and general consciousness of the system.

No proper internal communication adjusted to the target group means difficulties in gaining enough attention and possible misunderstandings of the system's goal and mechanisms. In the case of heterogeneous groups, all activities and communication should be differentiated by the role of the people in the system: Different messages and actions can be addressed to groups already familiar with each other (strengthening the exchange and an open integration), new people who do not know anyone (encouraging to adapt), people with a lot of free time (encouraging activation) and people with high debit balances (support with identification of needs and encouraging to be report them). An important role of the internal communication should be ensuring the security of goods, services and exchanges, data security and legality. More or less regular (if less: with good information) non-mandatory meetings are important, but they should not dominate the participants' life; their scheduling depends on the target group, because for students, singles or retired people, this can be their main activity besides their other duties.

Restricting the external communication to existing channels and business relations makes the developing community quite homogeneous and hermetic, which can limit its development by decreasing diversity, stagnation and overconsolidation of existing relationships. It is like we are describing the newly built system and community to people who already know about it. The exchange system may be targeted to certain groups, but complete closure (including indirect – through information inaccessibility) may result in decreased inflow of new members, as well as less diversity, activity and exchanges (it will become less interesting). Whispering marketing, as the most effective and most used form of external communication, should also not be isolated. To be sustainable such marketing should encompass reaching people from different locations and pulling them out of their environments, explaining the substance of the system (like in direct sales), which requires high amounts of energy, and often, costs incurred individually by coordinators and animators without refund.

External communication and forms of marketing that are consistent with the purpose and scope of action should combine twofold activities – integrating the community inside with direct contact and opening it to the new users using other forms, such as articles, posters, leaflets, the Internet. This universal communication should consider the need to overcome consumers' psychological barriers and change the amount of free time or cyclicality of the emergence of certain needs exchanged in the system.

4.5. Do: clear and simple rules

Another essential factor is clear, simple rules without excess bureaucracy and formalities, supplemented with accurate information about the legality and compliance with law and regulations, as well as formal and informal institutions. Rules should promote balance, activity, diversity, openness and building personal relationships based

on trust. The rules should also provide mechanisms that secure the transactions and the system (protection against stowaways, defaults, overusing of the shared resources, moral hazards and other abuses), while setting responsibilities. However, a lower level of formalities usually means lower transactional and systemic costs. Lack of restrictions and governance framework (including competence, responsibilities and means of influence), on the other hand, may reduce trust. A dynamic and elastic equilibrium between formalities and low costs should be preserved, especially in the case of offline exchanges.

4.6. Do: balancing means

An unbalanced system is one of the major problems of alternative currency systems; this must be addressed and dealt with by the coordinators. There seem to be basically five types of imbalances visible in alternative currency systems, as follows:

- General market imbalances;
- Structural market imbalances;
- Market saturation;
- General money supply (macro) imbalances; and
- Paradoxes of community systems.

As stated previously, unbalanced systems in general terms may be caused by individual fear of borrowing, resulting in 'local' insufficiencies of currency in some parts of the system (large liabilities or credit balances automatically act as an exchange deterrent) and inflationary surpluses in others. In contrast, market structural imbalances, along with low market liquidity and the lack of market price setting mechanism, which enables demand and supply adjustments under varying volumes of supply and demand and influences system instabilities, may be another factor repelling potential newcomers from the system.

One of the major solutions of the general market imbalances is favouring zero account balances. In community currencies (especially C2C), where people do not organise production subsystems (internal companies) to monetise the effects of scale or lower transaction costs, it is better to softly encourage (or enforce) using system with null individual balances.

In 3C systems, local imbalances can be eliminated by incentives addressed to producing companies or companies in the group that have permanently high and rising debit balances to spend some of these funds on bonuses for employees – since they cannot be spent on goods and services. It is also important that, in the local subsystem, companies form the full economic circle, so that the employees can actually spend these funds locally. Otherwise, they can flow away from the local subsystem and limit its development, although the whole currency system will function efficiently. The coordinator or local 'broker' has to play an important role in inviting companies that will find the market for its goods and services, and at the same time, complement the system of full economic turnover.

For the long-term performance of 3C systems, achieving a macro-financial (money supply) balance is essential. This problem is partly interconnected with market imbalances, but its consequences are different, namely internal system inflation in case of too much money supply or deflation in case of too little money supply. For time banks, there is no market pricing, so this problem does not apply.

In general, the amount of currency should increase in relation to the increase in turnover in the system, as suggested by economic theory. In MCSs, the currency is issued at the moment of payment with credit (the source account credit balance increases and destination account debit balance increases) and withdrawn at the moment of payment with debit (the source account debit balance decreases and destination account credit balance decreases). The problem may arise in the situation when companies offering final goods spend far more on intermediate goods and raw materials than they receive from customers (individuals and companies). This can happen if the revenues of customers (as employees of companies in the system) are disproportionately smaller than the expenses of the companies producing the final goods. Even if they want to spend a local unit, the customers cannot – they did not receive it in the form of income. The system can operate for a while based on the B2B business cir-

cle, but even in B2B exchange, it can work between companies offering final productive goods and those that offer intermediate goods and raw materials. Each of these types of companies needs both intermediate and final goods. However, ultimately, the economy is working and developing thanks to the demand for final consumer goods. If this is the case, then such a company appears in a system limited to B2B, just like in 3C; it will give out more than it receives, and its account will not be balanced.

The national economy is balanced because of much more liquid markets and the presence of a full economic circle. The amount of money received as a source of income by the manufacturing agents (employees, business owners, investors, tenants, etc.) is roughly equal to the amount of money spent on final goods and services and money saved. The latter ultimately reaches the production companies in the form of new loans or from depository institutions used to make investments (other than loans). Companies producing final consumer goods (and through them, intermediate and final production goods) receive the money saved. In 3C, a full economic circle is not always possible due to regulations and individuals' apathy. In case of such a macro-imbalance, a local version of the 'capital leaving abroad' problem may arise. Thus, in complex systems, it is important to evaluate the flows to identify local imbalances and take actions to eliminate them. Careful selection of invited members and setting maximum credit side accounts (and maybe debit side accounts) has proved to be an effective solution.

There is another type of imbalance in small community currency systems that has not been mentioned previously. 'Saturation' of the market may appear for certain services (language learning), which causes the number of exchanges to fall. In contrast, every member is subject to the risk of 'saturation of the idea', as this is not the major way to meet the basic needs and usually requires more effort than exchanges on the market. This saturation may be addressed by coordinators with constant development and change that brings new goods and services to the system, along with new needs.

To solve the structural system imbalance problem, a number of proposals can be considered and examined in an empirical and theoretical way, the following among them:

- Discouraging excess hoarding, for example, by 'taxing' high debit balances; and
- Discouraging excess borrowing, for example, by 'taxing' high credit balances.
- To resolve the general market imbalance (demand < supply), encouraging expenses is necessary by implementing the following measures:
- A regular 'basic income' (increasing all account the balances) at the expense of the administrator;
- One-time 'quantitative easing' at the expense of the administrator (assuming the total sum of balances in the system is zero);
- Discouraging excess hoarding (as described above); and
- Encouraging borrowing alone (increasing only accounts with a credit balance so that the system is closer to zero).

Bearing in mind the lack of symmetry in demand and supply of the services (stronger supply than demand), a higher hoarding tax would work better. The fact is that, in extremely small systems with small choice, not many exchanges occur, and people use the system as an excuse or motivation to meet and integrate than actually meet their needs with services offered in the system, taxes will certainly kill the system (people will leave). Another contradiction is noticeably in the listed solutions to solve the problem of the two types of imbalances. Encouraging borrowing may eliminate the general market imbalance and put the system in motion, but it may also increase the structural imbalances. In contrast, discouraging borrowing will help the whole system balance, but it may also stall it.

A useful innovation of another type that may help solve the structural imbalance problem is to separate permanent ('long expiry') needs and capabilities from the current ('short expiry') needs and capabilities that coordinators want to offer at a given moment or time. Then, when a new current need is submitted, the current administrator or IT platform that creates the market could search for the corresponding offers – the permanent and current ones. Similarly, by reporting a current ('short expiry') capability to provide a service, the administrator could find the corresponding permanent or current needs. In the face of demand/supply asymmetry, the system's focus needs to be changed to help realise one's needs and motivate and encourage reporting current (with 'short expiry') and permanent needs (with 'long expiry'). It is even possible to opt out of collecting offers for encouraging

response to the currently reported needs (and informing the system only about time-limited offers). Important or special 'long-expiry' services, however, could be registered in the system. This will make people aware that what is difficult for one, what requires substantial effort, can be 'ordered' (or at least report to the system); satisfying these needs for the benefit of both parties in the internal market can be another key to development.

Finally, balancing between integration and size may be crucial for the sustainability of community currencies. One solution to these paradoxes for a community system is a constantly changing system (providing members with different events) with a growing or stable but relatively high number of participants to reach enough liquidity and incentives to always check the availability of the service in the system first and hinder generating too many close relationships. Substantial personal benefit may be another solution.

4.7. Consider

There are some factors and practices that would facilitate exchanges in some circumstances, but are not indispensable, as follows:

- Flexible but regular supportive activities (building relations, integrating, encouraging acceptance of new members);
- Availability of a public or shared place where exchanges take place;
- Targeting people with favourable features (spare time or capacity, ready to give and take);
- Specific target group should be identified;
- Emphasising community relationships and promoting solidarity;
- Connecting to the PSO (social integration, continuous funding);
- Having a public-institution to back the coordination (building sense of safety and security);
- Abolition or invisibility of negative (credit) balances (facilitate exchanges, psychological effect remaining as an 'internal sense of debt');
- Ownership of the system divided among all the users: a cooperative (more egalitarian rules); and
- Cooperation with other systems (common standards for exchange, exchanging experience, knowledge, evaluation methods, joint projects, procurement, tax interpretations, funding).

Services of a sharing economy develop quickly and effectively monetise the social potential by taking over surpluses of free time, thereby generating high opportunity cost and supplier change for the users of the community currencies. If alternative currency systems are to compete with sharing economy services, cooperative banks, online exchange services and 'neighbourhood' clubs – should identify their key competences, thereby giving a competitive advantage. These can be found in utilising unused capacity or a specific assortment, or simply combining relation building with personal exchanges.

Using technologies does not always seem to be important. Systems designed for the elderly function fine without electronic payments and mobile applications. However, in general, proper ICT utilisation (especially mobile) should significantly improve system performance. A mobile application can bring the payment costs in the system closer to the level of the traditional market. If the target group is able to use technology, it should be utilised. Developing an IT system is quite expensive, but there are already at least 14 standard solutions (Cyclos, CES, CClite, Open Universal Dividend Currency, Drupal Mutual Credit Project, etc). The functionality of the system must cover the market creation function (matching needs and resources), representing a system of fair and non-discriminatory reputation (which can be rebuilt), and it must be intuitive and simple. There is also the whole ecosystem of blockchain technologies and cryptocurrencies; with an Initial Coin Offer (ICO), a new currency may be brought to life; however, these altcoins have fundamentally different properties, and they may not always fit into the frame of community currencies.

There is one unusual path, other than those described above, which the development of a system may follow, namely a planned 'development by budding' – raising funds, marketing the idea, setting up a local system, community building, operational management and central coordination and then official closing of the project, or handing the system over to the community for maintaining informal follow up, gathering conclusions and moving to another location. This path is an option for PSOs or NGOs when there is no other way (due to the specificity of

the group, place and so on) or the desire is lacking to go through all the suggested steps to design, plan and manage the system in a sustainable manner.

4.8. Avoid

Physical representation of the unit of account has its power of attractiveness in closed communities. Although this is a fairly demanding form (costly), it is possible to connect it with account registers through the interchange between positive balances (debit balances) and coins. The downside is that it is already strengthening the strong supply side in community currencies (willingness to perform services) with an additional desire to receive an unusual form of money.

Issuing physical tokens based on work done for the administrator can be attractive, if properly planned, but without any system evaluation, and keeping the registry (assuming there are no other problems and imbalances) will either never fire up the system due to an insufficient token number issued or is likely to cause systemic inflation. Without control of the currency issue, the number of tokens in circulation will correspond to the ratio of the demand for work to the administrator and the supply (needs) of the administrator, rather than the demand for the means of exchange and supply of that means resulting from the demand and supply of goods and services. The biggest drawback is that the currencies can be treated by authorities as money in most jurisdictions and immediately closed, if the size of the system goes beyond 'artistic fun'.

Too much change, that is, experiments or ad hoc decisions that influence the whole system or rule changes (e.g. the introduction of additional arbitrarily allocated hours), as well as touting adversely affects the system's sustainability, because it may cause unforeseen and uncontrolled system phenomena. Users treating the system as a channel to sell their products or dominating the system with the administrator's offers is certainly an idea which brings the systems down.

Focussing too much on additional activities, conferences and 'targeted' meetings does not always attract new people to the exchange system. If a currency system is to be sustainable and avoid becoming a private circle of friends, internal communication between systemic activities directly realising or supporting the function of exchange and other integrating activities should be balanced. Combining groups of people of all ages (large spread) may be attractive from the point of view of the idea or coordinators, but it usually is a disadvantage from the participants' point of view.

4.9. Do not matter

There are a couple of factors that alone seem not to make a difference concerning the system's efficiency, as follows:

- Participants' and coordinators' age;
- Lack of economic education of the initiators and coordinators;
- The type of unit of exchange; and
- The specific goal (each system was built for another reason and differently motivated).

I did not find a system which was coordinated by a person with strong economic education background, so I am unable to determine whether such a system would function better.

5. FINAL THOUGHTS

Community currencies are complex systems that are mostly social rather than economic; hence, developing such a system should be strongly based on relations and should not aim solely at (except for 3C) providing solutions to real economic problems. Community currencies can be used as a social tool, catalysing other means or as a standalone institution for activating the elderly or unemployed, intergenerational exchange or social integration, provided that they are designed, implemented and maintained properly, with external funding and paid coordinators. However, they will not help the economy grow much. Instead, 3C systems may be a tool for reinforcing the local economy and reducing disproportions in production distribution under the same conditions. Both types of

systems need to meet several necessary conditions, and the administrators need to address many problems so that the system is sustainable and they can efficiently pursue the goals set for it.

The conclusions from the above analysis come from the Polish systems, but they can easily be adopted for different countries, as they relate to the common primeval human needs of relationships and exchange. However, there is still a wide scope for continuation of research to deepen the chosen fields. During the study, some questions arose to which the research did not provide an answer, as follows:

- Are the identified factors actually indispensable?
- Is the list of factors proposed in the article complete?
- How can the problems of system imbalances, including the two paradoxes of community currencies, be solved?
- Is the current official monetary system fine enough so that there is no need to develop alternatives?
- How does the development of a cryptocurrency ecosystem affect local community currencies?
- Do alternative currencies truly help the economy?

I estimate that there are more than a million options for different system types to choose from. The estimations assume that one needs to choose one or more options in each of seven major dimensions, as follows: valuation/backing method, unit (measure) of value (actual value or reference value), unit of (internal) account settlement, medium of exchange (value carrier) and transfer method, accounting records storage, method of issuance/withdrawal (putting in circulation) and form of administration unit. Each dimension consists of 3 to 18 options. Most options in each dimension are independent. All the combinations give an astounding number of over a million different systems. Therefore, finally, we may ask: How can one choose the type of alternative currency system when there are so many options?

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