Chapter 7

Time Banks as Transient Civic Organizations? Exploring the Dynamics of Decline

Johannes Glückler and Jakob Hoffmann

After the outbreak of the financial and economic crisis in the US and many European countries in 2007, alternative economic practices have become celebrated responses to cope with unemployment, precarity, and austerity policies. Yet although the economic recession triggered this new call for an “alternative,” diverse (Gibson-Graham, 2008) or community (Gibson-Graham, 2014) practices are neither new nor are exclusively a response to phases of economic downturns. The relative nature of the denominator “alternative” has let its utilizers to conflate a vast variety of attitudes and approaches, ranging from claims to oppose (anti-capitalist), transform (neo-capitalist) or overcome (post-capitalist) the conventional market economy (Sánchez, 2017). Despite these strong normative claims, empirical knowledge about the many forms of alternative practices and their ways of working is still limited, especially because a new multiplicity of practices has only started to emerge. Therefore, social and geographical research on new civic forms of organizing is a timely and valuable contribution to explore the contemporary flourishing of alternative economic practices.

The contemporary surge in these practices also marks a period of social and organizational innovation. The trend of building new forms of organizing coproduction, local trade, and economic solidarity reinforces the notion of the organizational society. Contemporary societies are increasingly configured around (often multiple) memberships of individuals in organizations, such as corporations, associations, clubs, parties, charities, and other civil society organizations (Perrow, 1991). Hence, individual agency hardly occurs without touching upon organizational concerns, such as vested interests, normative positions, and the corresponding interdependencies (Lazega, 2016, 2018). Time banks are one organizational expression of the wide variety of alternative economic practices. Although their number has grown globally (Cahn & Gray, 2015), and especially strongly in Spain in recent years

J. Glückler (✉) · J. Hoffmann

Department of Geography, University of Heidelberg, Heidelberg, Germany

e-mail: glueckler@uni-heidelberg.de; j.hoffmann@uni-heidelberg.de

(Valor & Papaoikonomou, 2016), the broader phenomenon of community currencies was already widely discussed before the 2007 economic crisis, for example, in the UK (Batchelor, 2003; Boyle, 2003; Gregory, 2009; Seyfang, 2003a, 2003b; Stuart, 2003; Thrift, 2002), the USA (Collom, Lasker, & Kyriacou, 2012), and in other countries such as New Zealand (Diprose, 2016), Germany (Meier, 2001), Italy (del Moral-Espín, 2017), or Japan (Hayashi, 2012).

Researchers have often focused on time banks' normative dimension and design principles to strengthen democracy (Thrift, 2002), or to enhance cocreation and reciprocity (Clement et al., 2016). Despite growing empirical research, there is still a lack of understanding of the processes, mechanisms, and dynamics through which time banks evolve and operate. One empirical puzzle researchers have observed is the question why time banks have often been vulnerable and short-lived organizations. Some suggest that community currencies tend to fall short of their ambitious economic goals (Dittmer, 2013; Williams et al., 2001) and struggle with psychological barriers towards participation (Ozanne, 2010). Others find that time banks fail to achieve and retain the critical mass of people to show continuous commitment and long-term engagement (Seyfang & Longhurst, 2013). After the beginning of the economic crisis in 2007, time banks have blossomed in many Spanish and other European cities and regions (Sánchez-Hernández & Glückler, 2019), yet frequently, they began to wither after a few years. How, then, do time banks really work and what are the processes through which they grow and decline?

To answer this question, it is necessary to look behind the normative surface of these organizations and study the empirical practices that define local exchange: its (alternative) economic transactions. It is here that methods of social network analysis are especially helpful (see Chap. 8 by Diani, Ernstson, and Jasny and Chap. 9 by Glückler and Suarsana). They facilitate observing not only individual relations or transactions, but also enable one to map and analyze the overall network structure as well as to trace this structure through time. We argue that the question of how this activity is structured through time is essential for understanding the dynamics of emergence, reproduction, and demise. In this chapter, we offer a brief introduction into relational thinking and the characteristics of social network research, especially in human geography. To illustrate the potential of social network analysis for the study of alternative practices, we present parts of a more comprehensive case study of a time bank in Germany (Hoffmann & Glückler, 2021). Specifically, we illustrate how formal network analysis may help one to understand the dynamics of organizational life through the lens of the structure and trajectory of individual alternative economic practices in a time bank.

Relational Thinking and Social Networks

The analysis of social networks is inspired by a relational view of the social world. *Relational thinking* departs from the notion that social actors are not isolated beings who carry out atomistic behavioral scripts. Instead, they are embedded in a social

context that constitutes meaning through interaction and institutions: “Relational thinking has become an overarching perspective in social theory that shifts the analytical focus from attributes and categories to context, process, and emergence” (Bathelt & Glückler, 2011, p. 240). In geography, for example, a relational view is opposed to traditional approaches, whose proponents use spatial structures or spatial variables as a starting point for analyses. Instead, adopters of relational geography focus on the actors most relevant to the problem or question under investigation. Researchers thus need to study the positioning of actors and agency within broader contexts of social and institutional relations. Social action is assumed both to be constrained by networks of social relations and at the same time to transform these structures in dynamic ways (Bathelt & Glückler, 2018).

The concept of the *network* denotes a set of nodes that are connected by a certain number of ties. Social science researchers focus on *social* networks, in other words, the way in which individuals or organizations are related to one another (Wasserman & Faust, 1994). Beyond this formal definition, social network researchers proceed from the assumption that the structure of relationships as a whole conditions the opportunities and constraints for individual action in the network (Mitchell, 1969, p. 2). In other words, although individuals are embedded into a structure of social relations, the network structure itself also has an effect on individual action.

Researchers use the concept of the network on different analytical levels: as theory, as method, and as empirical object (Glückler, 2013). The starting point of a *theory of social networks* is the axiom of the anti-categorical imperative mentioned earlier. With it, one postulates that explanations of social phenomena—such as power, cooperation, development, or innovation—should not only include the actors’ categorical characteristics but also their embedding in manifold social relations. This relational perspective benefits from both interpretative theories, for example, actor-network theory, and formal network theories, whose proponents focus on explaining the specific characteristics and effects of networks. Both approaches are necessary because network effects depend on the specific meaning of the relationships in a social context. Network structures thus do not have universal, but contingent, social meanings and consequences (Pachucki & Breiger, 2010). Depending on the research interest, three classes of theories can be distinguished (Borgatti & Halgin, 2011).

First, *network theories* explain the social consequences of structural network properties. The theories of weak ties (Granovetter, 1973), structural holes (Burt, 1992), structural equivalence (Burt, 1988), or the theory of small worlds (Uzzi & Spiro, 2005) are well-known approaches used, for example, to link individual advantages such as access to information, negotiation potential, or career opportunities with the increasing centrality of actors. However, specific network structures have differential rather than universal advantages. For example, proponents of the theory of structural folds (Vedres & Stark, 2010) postulate that it is precisely actors’ cohesion that promotes successful innovation cooperation, which stands in opposition to those theorists focusing on networked resource-access such as structural hole theory. Second, and in contrast to relational theories, adopters of *theories of networks* are devoted to explaining structural properties of networks from categorical

initial conditions. They show that relationships arise, for example, as a function of spatial proximity, similar social status, or common organizational affiliation. Third, proponents of *network theories of networks* attempt to explain network consequences from structural network properties. Those adopting dynamic approaches to network evolution, for instance, aim to identify geographically and historically specific development paths, in which the formation and dissolution of relationships is dependent on earlier relationships and in which the change of a development path can thus be explained endogenously from the knowledge of earlier structures (Glückler, 2007). Due to the low availability of longitudinal network data on social or corporate relationships, however, network analytical research on the geographical evolution of networks is still in its infancy (ter Wal & Boschma, 2009).

Researchers can conduct their analysis of social networks with a wide variety of *methods*, ranging from formal network analysis (Borgatti, Everett, & Johnson, 2013; Wasserman & Faust, 1994) or qualitative to mixed methods of network analysis (Domínguez & Hollstein, 2014). In any case, the unit of observation is relational data, that is, information about the existence and quality of relationships between actors. In practice, researchers often use already existing (so-called secondary) data, such as official statistics of patent applications or research cooperation. They offer the advantage of relative completeness of information, depending on the quality of the source. On the other hand, primary data collection such as interviews or surveys enables researchers to observe otherwise inaccessible relationships such as the exchange of information, advice-seeking and recommendations, or mutual support and solidarity between persons. With good planning, they also achieve high response rates.

The procedures of social network analysis start at different levels. They enable the description and analysis of positions of individual actors at the micro level (e.g., centrality), of subgroups of actors at the meso level (e.g., coherent clusters or functional roles), and of structural characteristics at the macro level of the whole network (e.g., centralization, fragmentation, role structures). Building on relational data and the three scales of analysis (actor, substructure, entire network), there is a continuous advance in methodologies and a growing interest in geography to use these methods (Glückler & Doreian, 2016; Glückler, Lazega, & Hammer, 2017). Three recent examples of interest for geographers are methods for positional (Glückler & Panitz, 2016a, 2016b; Prota, 2016), evolutionary (Nomaler & Verspagen, 2016), and multi-level (Brailly, 2016; Lazega & Snijders, 2016) network analysis. In the context of this chapter, we would like to portray a case study of the exchange network of a time bank that is geographically situated in a city in Southern Germany.

A Network Perspective on Time Banks

The inception of time banking in its current form is most often attributed to Edgar Cahn, an American law professor, who conceptualized time banks as a community-based measure against poverty in the 1980s (Cahn & Gray, 2015; Cahn & Rowe, 1992). Time banks respond to a desire for egalitarian economic exchange, which is facilitated by providing a locally limited and community-specific currency. The value of a community currency is equivalent to the time spent on the provision of a service. Participants can valorize their own time through provision of services to other members, and, in turn, spend their income on services provided by others. Of course, the notion of organizing local exchange through a community currency has much older historical roots. Early concepts of community-based economic practices are found in the works of John Bellers (1654 to 1725), Robert Owen (1771 to 1858), or Silvio Gesell (1862 to 1930) (Polanyi, 1944).

In the relatively sparse academic literature, time banks have been associated with community development, social inclusion, and active citizenship (Gregory, 2009; Seyfang, 2004). As such, they have become a tool for local policymaking, aimed especially at the support of disadvantaged neighbourhoods. Despite a rising number of empirical studies on time banks, relatively little is known about the structure and dynamics of exchanges in time banks. Taking a relational view of this type of organization, we conceive a time bank as an evolving network of social exchange (Whitham & Clarke, 2016). As time banks increasingly use digital accounting systems (Cahn & Gray, 2015), transaction records enable us to track each individual transaction and to reconstruct the entire network's process of formation and change.

Although some empirical researchers have partially used transaction data (Carnero, Martinez, & Sánchez-Mangas, 2015; Lasker et al., 2011; Seyfang, 2001), they have rarely exploited it for the analysis of the entire network structure. As an exception, Collom (2008) and Collom et al. (2012) collected egocentric data on the relational patterns of focal individual members (so-called ego networks). To take the potential of network analysis a step further, we aim to overcome the limitations of dyadic atomism (Granovetter, 1992) by using the connectivity of the entire network in a dynamic framework. Such an approach offers a unique opportunity to study the process of emergence and demise as well as aspects of systemic stability, which have been identified as a research frontier in previous studies (Valor & Papaoikonomou, 2016).

An Urban Time Bank in Southern Germany

We focus our research on a time bank (TB) located in Southern Germany (SG), called TBSG hereafter to comply with our agreement not to disclose its true name. Founded in the late 1990s as a loose coalition of citizens in southern Germany, TBSG was established as a mature legal entity of a charitable association by 2008.

The main goal of the time bank is to develop a sustainable network for facilitating neighbourly help. TBSG facilitates the exchange of all goods and services unless prohibited by law or contrary to ethical principles. Offerings are broad and depend on the skills and abilities of the individual members. Services, such as massages, hair cutting, advice, repairs, gardening or teaching, are mainly exchanged directly among members, although the trade of goods, most often self-grown or self-made food, is also common at monthly meetings or celebrations. Members may exchange within the whole region, and some members live in the surrounding towns and villages.

The community currency (so-called ‘talents’) enables members to trade without cash and within a closed economic cycle. One ‘talent’ corresponds to 15 minutes of work; the time value of each trade can be negotiated among the trading partners. Every member registers an account at the beginning of their membership. New members must first earn an initial amount of talents through service or goods before being allowed to use their account. By statute, the account balance is constrained to a lower limit of –20, and to an upper limit of 200 talents (50 hours) to avoid both opportunism and accumulation. Furthermore, a monthly membership fee is collected to cover administrative costs, including a semi-annual magazine, which members use to advertise offerings and requests.

Today, TBSG counts about 100 registered members, not all of whom are necessarily active. The members’ demographic composition has changed remarkably over the last 20 years. Although the average age was 43 years, with only 28% of the members being older than 50 years, in 2000, by 2018, a vast majority of 72% of the members were aged 50 or older, resulting in an average age of 56 years. In other words, the member base generation seems not to have changed very much over the observed period. 79% of the members are women. Despite the apparent endurance of TBSG since its foundation, the time bank has failed to rejuvenate its member base. The base’s ageing points to the organization’s creeping decline, and it reinforces calls for research on the transience of time banks, in particular, and organized forms of alternative economic practices, more generally.

A Longitudinal Network Analysis

We use original relational data on over 6,000 transactions over a period of nine years between 2009 and 2017 to examine the structural characteristics and dynamic changes underlying and shaping the community-building process of TBSG. As members provide a considerable number of services to the time bank itself as organizational assistance, these services would distort the picture of social interaction among members and we have therefore discarded them from the analysis presented here. This leaves 4,477 transactions among a total of 192 participants over a period of more than eight years. We grouped these transactions year by year to construct eight directed networks, which vary in size (number of nodes) as people enter and leave the time bank through the years. As only incomplete data was available for the

years 2009 and 2018 and a comparison with the other years is accordingly not possible, we have discarded these years from the dynamic analyses. Although people can of course have more than one transaction in a given time period, we have coded a tie from A to B as being present (1) if there is at least one account of A receiving a service from B and as absent (0) otherwise. Note the encoding of tie directions, which here follows the flow of currency: the tie A → B indicates that A paid an amount of talents to B in return for a service provided by B to A.

In accordance with previous classifications (Collom, 2012), we distinguish 13 classes of goods and services that are traded through the time bank, plus a “miscellaneous” category for non-classifiable transactions. In Table 7.1, we present the distribution of participants and transactions as well as a few network statistics across the 14 types of goods and services. In Fig. 7.1, we display the corresponding visual graphs for each category of traded services. From a network perspective, the sum of

Table 7.1 Type, number, and connectivity of traded services and goods

	Transactions/		Suppliers	Consumers	Density	InCentral	OutCentral
	N	Ties					
Arts and Crafts Production	97	186/158	65	75	.017	.11	.10
Beauty and Spa	107	299/222	78	86	.020	.14	.16
Cleaning, Light Tasks and Errands	116	338/261	82	103	.020	.12	.10
Computer and Technology	121	373/271	79	100	.019	.12	.10
Construction, Installation, Maintenance and Repair	119	312/241	92	92	.017	.12	.08
Entertainment and Social Contact	96	210/162	65	73	.018	.12	.21
Events and Program Support	52	57/54	33	34	.020	.16	.16
Foods	145	881/506	98	128	.024	.28	.12
Health and Wellness	138	601/383	100	119	.020	.09	.06
Office and Administrative Support	70	89/78	45	49	.016	.10	.10
Sales and Rentals of Items	89	143/124	54	67	.016	.08	.06
Transportation and Moving	129	499/358	95	115	.022	.19	.14
Tutoring, Consultation and Personal Services	79	130/106	49	60	.017	.16	.06
Miscellaneous	125	359/239	86	106	.015	.11	.07

Note. Source: Design by authors

Fig. 7.1 Network graphs of fourteen types of goods and services exchanged in TBSG. Source: Design by authors

these different category networks represents a multiplex network with 14 layers as they represent different types of ties. Considering raw counts of transactions and participating members, we observe considerable variation across the different service categories. Among the most frequent are exchange of food and other item trades and health services, followed by computer-related services. Less prominent are event support, office and administrative support, and transportation.

Network density is used to calculate the proportion of the total number of possible ties that is actually realized in a network. It is thus a measure of overall network connectivity and varies somewhat across the different category networks, with food being the most dense and office support and item sales being the least dense. More interestingly, degree centralization is used to assess to what extent a network's transactions are concentrated on a single actor. Centralization varies between 0 and 1, with 1 representing a star-configuration, where all ties are focused on a single actor. We distinguish here between centralization of indegree and outdegree as proxies for assessing the concentration of supply (indegree centralization) and demand (outdegree centralization), respectively. Here again, trade in food peaks with high indegree centralization, indicating a relatively small number of highly active members who supply food to a larger group of members. Other product categories, such as health and wellness, have much lower centralization in both indegree and outdegree, a sign of a more equally spread exchange structure. Tutoring and personal services are also characterized by a discrepancy in supply and demand concentration. Although the number of suppliers is generally lower than the number of consumers across all goods and services, differences are moderate and no trade category is fully monopolized in that only one or very few people supplied a service exclusively.

Evolution and Demise of the TBSG Network

In the following, we focus on a descriptive analysis of the evolution of TBSG's network structure. Displaying simple aggregate statistics on a year-by-year basis reveals that the number of members, ties, and transactions had initially risen to then revert to a decline of overall activity by 2012/2013. This demise is also reflected in the degree centralization, which started declining equally in 2012 (Fig. 7.2). Gross network indicators such as the number of actors and the number and structure of transactions thus suggest an evolution from initial rise to creeping decline of overall activity, which corresponds with an inverted U-shaped development curve. This trend also corresponds Seyfang and Longhurst's finding (2013) that time banks often lack durability. An analysis of the network dynamics allows us to take a deeper look into the structural changes to explore potential mechanisms and processes that help us to understand such demise.

To further examine the pattern of centralization and decentralization of transactions, we identify different trajectories of individual participation in overall exchange. The goal of such an approach is to provide a micro-level analysis of the

Fig. 7.2 Changes in transactional activity in TBSG, 2010–2017. Source: Design by authors

relational process through which activities decline. Therefore, we consider the activity by network position and time rather than by type of transaction. For this line of analysis, we draw on methods of positional network analysis as well as methods from sequence analysis (Gabadinho, Ritschard, Müller, & Studer, 2011). Positional approaches cluster actors into groups if they are located in equivalent positions within the network (Doreian, Batagelj, & Ferligoj, 2005; Faust, 1988; Glückler & Doreian, 2016). In contrast to conventional clustering approaches, such groups are defined by similarity in relations rather than in characteristics, in other words, by similarity in the way actors are connected to the rest of the network. Among the most discussed positional structures are core-periphery models (Glückler & Panitz, 2016a; Prota, 2016). Such structures are composed of a densely connected core and a periphery, which is loosely connected internally as well as with the core. We here employ stochastic blockmodels (Lazega, Sapulete, & Mounier, 2011; Zhang, Martin, & Newman, 2015) to cluster actors into core and periphery positions for each of the eight annual networks.

Each of the 192 individuals—due to new entries and exits, the number of members exceeds the current number of members in TBSG—can now be assigned to one of three positions for any given point in time: core, periphery, and inactive. As we have eight years of analysis, we have 192 sequences of length eight, using each to summarize a member's positional trajectory of participation in the time bank between 2010 and 2017. We use a hierarchical clustering algorithm and an optimal matching distance measure (Gabadinho et al., 2011) to cluster these sequences into five types of characteristic trajectories (Fig. 7.3).

Fig. 7.3 Types of member trajectories through core-periphery positions at TBSG. Source: Design by authors

With each cluster of sequences, we present a distinctive trajectory of involvement in transactions: First, the *stable core* consists of 13 actors who occupy core positions over most of the observation period. Second, in the *fading core*, many members occupy core positions in the beginning of the observed period, yet as time goes on, many members reduce their activity and drift to peripheral positions. Third, the *stable periphery* includes 26 loyal but sporadic members who hold peripheral positions for long periods of time. Together, these three clusters of trajectories make up for the long-term backbone of the time bank but are also a source of declining activity, as can be seen by the fading part of the core. Fourth, *long-term exits* as well as, fifth, *short-term exits* largely consist of drop-outs. Whereas those of the former had maintained longstanding membership before finally becoming inactive, the latter includes people who had entered the time bank and left shortly thereafter. The sheer size of the fifth cluster and the corresponding scale of relational turnover (Lazega, 2017) reflects the remarkable volatility around the smaller core of long-term members. The cluster of short-term drop-outs also holds some newcomers (indicated by the dashed line in Fig. 7.3), which are not enough to fully compensate for the rate of exits, as can be seen by the declining number of participants.

The decomposition of differential histories of involvement presented here reveals several interesting insights into the exchange dynamics of TBSG. First, most exchanges revolve around a relatively small number of core actors who constitute the robust center of the time bank. Second, this core has not been durable throughout the observation period, as can be seen by many members moving to peripheral positions or becoming dropouts. Third, the densely connected core is surrounded by a relatively stable but smaller periphery of casual members as well as by a large and volatile group of short-term and perhaps experimental members. Finally, as

researchers have often reported for time banks (Collom, 2005), recruiting new members is hard, as can be seen by the relatively low number of newcomers. As a consequence, the time bank struggles to replenish itself and risks fading out with its long-standing core members.

Conclusion

We have proposed a relational perspective to study time banks as a new type of civic organization to enact alternative economic practices. In seeking to understand the mechanisms of such a civic organization's rise and demise, we applied methods of dynamic social network analysis to analyze the relational processes within a Southern German time bank over a period of eight years. From dynamic social network analysis, one can gain original insight into the ways in which a time bank evolves. Given the repeated observation that time banks and other types of alternative economic practices are often characterized by considerable volatility and potential collapse, relational thinking and network analysis are especially suited for unpacking the underlying relational mechanisms that shape these outcomes of volatility and demise.

We have illustrated the benefits of formal methods of network analysis, but are by no means suggesting that researchers should disregard other ways of studying alternative economic practices. We acknowledge that a relational analysis of an emergent phenomenon, which may be easily misread from a dominant way of "capitalocentric" thinking, will benefit from thick description and interpretative methods to capture new logics of action (Gibson-Graham, 2014). In concluding this, however, we should not sacrifice the value of a detailed micro-relational analysis of the social process and the structural dynamics that these practices create. At their best, researchers conducting studies on civic organization and their practices should consider mixed-method designs that combine the best of both worlds (Small, 2011; Glückler, Panitz, & Hammer, 2020). In any case, it is worthwhile and necessary to explore the empirical nature and dynamics of social practices in civic organizations more deeply, rather than limiting the debate to normative accounts of their potential virtues and liabilities. Relational thinking, quickly advancing methods of social network analysis, and an ever-increasing amount of available relational data are a promising offering to complement the diversity of empirical research approaches to civic life.

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