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**Transactions in a World without Monetary Incentives:
Social Embeddedness in Local Exchange Systems**

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Abstract: Transactions in exchange relations entail serious risks such as opportunism and free riding for the actors involved. In our paper we focus on problems of cooperation and their efficient handling. We deal with the problem how to prevent opportunistic behavior in the absence of monetary incentives and contractual safeguarding. We study how trust is generated among transaction partners in such situations. Drawing back on empirical evidence on local exchange trading systems we stress the decisive role of social embeddedness for transaction management. What kinds of safeguards are used within such environments to ensure a smooth transaction management? We try to explain the stabilization of those exchange systems referring to the concepts of temporal and structural embeddedness. Finally we are able to show that embeddedness in durable ongoing relations might mitigate the incentives for opportunistic behaviour. Especially in transactions offering many incentives for opportunistic behavior, social embeddedness is often used as a substitute for contractual safeguards, internal hierarchy and monetary incentives.

There is a long tradition in social sciences analyzing the evolution of social order. Because transactions involve the risk of opportunism and free riding behavior, it is important to find mechanisms guaranteeing a smooth transaction management and thus establishing social order. Thomas Hobbes (1651) addressed this question when he asked how to avoid the war of all against all in the “natural condition of mankind” and Adam Smith (1789) tied up to this problem claiming self-regulating markets. However, his point of view still aroused criticism within classical sociology. As Durkheim put it the “invisible hand” of markets can not be trusted entirely, mutually beneficial exchange rather requires social mechanisms such as norms of reciprocity and solidarity (Durkheim 1893). The *new economic sociology* postulates that social order will not arise spontaneously among self-interested actors and criticizes the “utilitarian” model of markets either. This field of research analyses economic action and phenomena from a sociological perspective and considers them as embedded in their social context rather than isolated and carried out by atomized actors (Granovetter 1985; 1990; Smelser/Swedberg 2005; Swedberg 1990). “Economic action and outcomes, like all social action and outcomes, are affected by actors’ dyadic (pairwise) relations and by the structure of the overall network of relations” (Granovetter 1992, p. 33). Social embeddedness may generate trust which affects the actors’ actions and outcomes. Many empirical studies considering business relations state the relevance of social embeddedness for solving the problem of social order (Abraham/Kropp 2000; Abraham/Voss 1999; Batenburg/Raub/Snijders 2000; Raub 1999). Especially in transactions involving high potential for opportunistic behavior and free riding, social embeddedness may increase the basis for trust as a substitute for contractual safeguards and internal hierarchy. Thus it can be seen as a dimension of social capital (Flap 1988; Voss 1998, p. 103). However, the market and its business relations were the only reference for these studies. Can social embeddedness generate a sufficiently high level of trust and stabilize exchange relations in contexts without either monetary incentives or enforceable contractual arrangements? Considering local exchange systems we will analyze how the problem of social order is addressed in such contexts. We focus on the role of social embeddedness for stabilizing those exchange relations.

Our paper is structured as follows: First, we briefly describe the history and functioning of such local exchange trading systems (section 1). Then we discuss theory and hypotheses concerning the effects of social embeddedness on stabilising transactions within these schemes (section 2). In the next section we describe our data and present our statistical analyzes (section 3) and, finally, we close with a discussion of essential insights and a brief outlook (section 4).

1. Local exchange trading systems – history and functioning

Complementary economies are not a recent invention. The first informal exchange systems have already evolved during the 18th century. These early initiatives mainly pursued objectives of social reform and saw themselves as a response to the upcoming capitalism. In those times capitalism increased the gap between the rich and the poor immensely. Exchange systems like Robert Owen's model of the "equitable labor exchange" or Joseph Pierre Proudhon's "banque du peuple" should help to overcome social inequality and fight poverty. During the Great Depression in the 1930's local currency systems became more popular in different countries. Especially one "social experiment", the local currency program of the Austrian commune of Wörgl (Tirol), has to be mentioned. Here Silvio Gesell's concept of "free money" was implemented in form of "work certificates".¹ The community created opportunities of public work for the unemployed, raised trading turnover and brought in tax arrears (Unterguggenberger 1983; Pacione 1998). However, after 18 months the project was discontinued in spite of its relative success. The Austrian National Bank declared the system as illegal fearing to lose control over their money supply (Hubert 2004, Onken 1983). In post-war Germany modified forms of local currency schemes were initiated with the help of the military government in order to counteract the spreading of black markets and to overcome the shortage in supply.

The complementary economies experienced a renaissance in the form of the Local Exchange and Trading Systems (Godschalk 1986; Kuhn 2002; Paysys 1997). The first "new" LET-System was founded by Michael Linton in 1983 in a small town of British Columbia, Canada, arising out of an

¹ Silvio Gesell (1862-1930) traces the undesirable consequences of capitalism back to the functions of money. Money as a "storage" fosters hoarding of money and thus withholding it from circulation. According to Gesell, money should only function as a medium of exchange. He proposed a concept of "free money". This money has an in-built rate of devaluation, i.e. the value would deteriorate periodically, and thus being uninteresting as an object of hoarding (Offe/Heinze 1990).

economic recession (Hoeben 2002; Pacione 1998; Thorne 1995; Williams 1995).² His project was established to support the local economy and to remove the restrictions to exchange caused by high unemployment. In line with commercial barter clubs, Linton extended his exchange network to a local currency system that enabled indirect and multilateral exchange among its participants (Meier 2001; Peterson 1990). Within the currency system, provided services and goods are compensated using a local unit of exchange. Thus people short of money are enabled to work in this alternative economy and to take part in exchange without using formal media of exchange (i.e. money in official currency). Participants of the exchange system and their households are better able to deal with the consequences of unemployment (Caldwell 2000; Meier 2001; North 1999, Pacione 1997; Williams 1996). However services and goods outside could not be acquired with the local currency. Local Exchange Trading Systems spread over a variety of countries in North America, Australia, and Europe. Most of the German local systems use a time-based currency. In these arrangements one hour of work is valued and “paid” equally regardless of what is done or provided and how it is valued in the formal market (Bebbington 2000; Lee 1996; Thorne 1996). The LETS currency is used in a “virtual sense”, i.e. exchange is facilitated in the form of accounting debits and credits only (Bebbington 2000; Pieper 2002).

One can imagine an exchange as follows: Partner A asks partner B for a service, say ironing. While partner B receives a credit entry to his account, partner A’s account balance is reduced in this amount. Partner B can use his positive account to “buy” goods and services from other members of the exchange system. However, as no interest is charged nor paid and no credit ceiling is implemented, members can issue credit irrespective of the current balance of their account. Thus the individual’s credit/debit balance does not affect their ability to trade. This idea based on Silvio Gesell’s “free money” claims that the welfare of members depends on the circulation of “capital” through trading. Money is not created by a central bank but by the individual participants via their demand for goods and services (Meier 2001; Pacione 1997; 1998). Linton understands his exchange arena to be a “self-regulating economic network which allows its members to issue and manage their own money supply within a bounded system” (Ekins 1986). To protect the system from misuse, there is no banking secrecy. An open statement of each member’s credit or debit balance is provided to all and any member

² Courtney in Comox Valley (Pacione 1997).

is entitled to know the balance and turnover of his partners (Caldwell 2000; Carmen 1997; Meier 2001; Schraven 2000; 2001). Through the structure of these systems there is a risk that free riding becomes a prevalent strategy among the members. There are incentives to take advantage of a range of goods and services without giving the system anything back. The members may finally leave the system with a large deficit in their individual account.

In Germany, the concept of LET-systems got very popular during the 1990's. Meanwhile about 500 local systems are active and apart from regional variations regarding currency forms, trading volume and membership profile all systems are structured similarly along the lines of their Canadian predecessor (Pacione 1998).

2. Problems with transactions and effects of social embeddedness

Economic exchange relations are often associated with opportunism and free riding and thus do not always function smoothly. For self interested actors there is an incentive to defect from fixed agreements as one-sided defection enables them to enlarge their own benefit at the expense of their transaction partner. Thus in economic transactions there are incentives for malfeasance and opportunism and economic actors engage not merely in the pursuit of self interest but also in opportunism (Voss 1998, p. 92; Williamson 1975; p. 255; 1985). As transactions are interdependent relations and outcome depends not only on the actions of a single actor but on the actions of at least two actors, exchange relations also involve a trust problem (Coleman 1990; Dasgupta 1988). Placing and keeping trust induces advantages for both parties but there are great incentives in the short run for breaking trust as everyone is better off not to keep the placed trust (Raub 1999, S. 242; Schüßler 1991, p. 461). The transaction handling in the local exchange systems even intensifies those risks. The regular economy may lower the risks of opportunism because it can assimilate the different interests of the partners drawing back on monetary incentives (Kleine 1995, p. 27; Picot 1999). However, this option to absorb agency problems is not appropriable in the exchange systems. Thus the problems with opportunistic behavior worsen within the context of those systems. Most of the modern exchange systems have already implemented a time-based currency. This form of currency offers no way to ration what is scarce. Every output has to be valued and paid equally regardless of its market value, i.e. there is no price differentiation within the system. As a consequence, the principal must not pay more than an

hours earning for a service taking an hour. Thus the principal can not use monetary incentives to motivate the agent to make higher efforts and to assimilate their different interests. Despite of the benefits of this currency form³ it leads to great disadvantages when coordinating exchange relations – dissociation from monetary incentives increases the potential for opportunistic behavior.

Besides the missing possibility to balance the different interests of the transaction partners using monetary incentives, the legal base of the transactions may raise problems. In most cases, there is a verbal contract between the parties but legal enforcement in case of a dispute will be very difficult if not impossible. Regarding verbal agreements evidence of breach of contracts is hard to provide. Additionally all transactions within the system belong to activities of the informal economy. Taking our existing taxation system as reference, the services offered within those systems border to illicit work. Thus the aggrieved party will refrain from bringing in an indictment for fear of prosecution of his/her own informal activity. As a consequence, contractual arrangements are not suited as safeguards for transactions taking place in local exchange systems either.

Stewart Macaulay has already illustrated in his study on business relations that contracts are not the only appropriate means to avoid and regulate problems with transactions. “Business men often prefer to rely on ‘a man’s word’ (...) keep it simple and avoid red tape.” (1963; p. 58) Following his argumentation many studies stress the role of personal relations and structures of such relations in economic life. Incomplete and implicit contracts⁴ require additional further safeguarding beyond the boundaries of markets (Abraham/Kropp 2000; Batenburg et al. 2000; Granovetter 1985, 1990; Voss 1999)⁵. Our paper focuses on the concepts of social embeddedness and analyzes their effects on transaction management in arrangements where neither monetary incentives nor contracts are available.

We discuss two major types of social embeddedness: temporal and structural embeddedness of transactions. Temporal embeddedness refers to the characteristics of the pair of actors. Often transactions are not isolated but ongoing events, and we therefore distinguish the common history of the transaction partners (shadow of the past) from the actors’ expectations concerning future transactions

³ Because of the time currency formal inequalities between skilled and unskilled workers as well as gender inequalities are not being reproduced in this local exchange economy (Bowring 2000; p. 104).

⁴ Especially long-term contracts with high uncertainty will remain incomplete as people can not foresee all future contingencies by reason of bounded rationality (Azariadis 1987; Macneil 1980; Williamson 1985; 1987).

⁵ Transaction cost theory also incorporates incomplete contracts but it focuses on the efficiency of different organizational forms (governance structures) to solve the problem of order. Social context, relations and networks of relations are not considered (Williamson 1975; 1985).

(shadow of the future). Past transactions provide partners with manifold and valuable information. The partners get to know each other and especially their partners' competences and reliability to withstand short-term incentives for opportunistic behavior (Barber 1983; Batenburg et al. 2000, Raub 1991). Thus this embeddedness allows for learning about the partner. The actors learn to trust each other because they notice over time that the partner does not abuse their trust though having a chance to. On the other hand, the more a certain actor is abusing the placed trust, the less inclined one is to trust that actor. According to these learning effects the actors adapt their estimations of future transactions with their partners. A common history builds up expectations and enables at least partly to anticipate the partner's future behavior. Thus the "shadow of the past" (Snijders 1996; p. 11) is projected onto the present exchange relation. Positive experiences with a partner will lead to further transactions with that partner, as trustworthy behavior in the future is supposed and opportunism is less expected. Besides those learning effects, a prior history generates specific investments in the mutual relationship and thus reduces incentives for opportunism (Rooks et al. 2000). Such investments mainly embody the knowledge of the partner's idiosyncrasies and make a relationship more attractive and profitable for both parties as these investments may be reused in present and future relations. As the value of these investments is lost for both partners should their relationship end, they are a kind of commitment. They have to be depreciated as the match terminates prematurely (Raub/Weesie 2000, p. 17; Williamson 1985). Specific investments in the mutual relationship will tend to reduce the incentives for opportunistic behavior and stabilize the relation (Batenburg et al. 2000; Raub 1991; Raub/Weesie 2000). These personal relations among transaction partners preventing opportunistic behavior may become even more relevant within the local exchange schemes as those systems dissociate themselves entirely from market oriented common safeguards. Our argumentation yields our first hypothesis *that a shadow of the past will tend to reduce opportunistic behavior in transactions.*

Not only experience of previous transactions between the partners, but also expected future transactions influence the present relation. This "Gesetz des Wiedersehens"⁶ (Luhmann 1989) may mitigate opportunism because negative sanctions against this opportunistic behavior are expected in the future. Tit-for-tat like behavior will arise and risks from interdependency can be managed in the

⁶ law of meeting again

case of repeated transactions via conditional cooperation (Axelrod 1987). Transaction partners will refrain from opportunistic behavior if its long-term costs are sufficiently high to compensate short-run gains. This effect of reciprocity presupposes that future outcomes are valued sufficiently high (Batenburg et al. 2000; Raub 1991; Raub/Weesie 2000). It is likely that further expectations of transactions will mitigate incentives for opportunism in the local exchange schemes either. Our second hypothesis thus claims *that opportunism in transactions can be mitigated if the shadow of the future is sufficiently high.*

Additional to the embeddedness in personal relations with each other one can find social embeddedness in networks. This structural embeddedness also effects transaction management – but in a more subtle manner. It includes not only the relation of the pair of partners itself, but also relations with third parties. Similar and in addition to temporal embeddedness it provides opportunities for *learning* and *control* effects (Buskens 1999). Through his network an actor can collect information on the identity and behavior of his partner and this information influences the choice of partners. Thus reputation emerges.⁷ Reputation will significantly affect an individual's behavior as well as collective consequences if the partner's behavior depends on such information (Raub/Weesie 1991, p. 647). Structural embeddedness also allows control besides those learning effect by providing new options for sanctioning opportunism. If negative information about an actor's behavior diffuses within the network his/her reputation becomes worse and sanctioning possible (Voss 1998). Opportunistic behavior can be sanctioned via “voice” – then a partner diffuses the information concerning the opportunistic behavior and thus evokes subsequent reactions of other partners (Hirschman 1970). Another way of sanctioning is via “exit” – then a partner terminates the relationship and enters a new one (Buskens 1999).

However, some social networks are more suited for solving the problem of cooperation than others (Haug 2000). As James Coleman put it, closed knit-groups are more favorable because dense and frequent relationships ensure visibility and sanctioning of the participants' actions (Coleman 1988; 1990). High density networks facilitate the emergence of reputation as in such environments actors are informed on the interactions of their partners with third parties quickly (Raub/Weesie 1990). Thus

⁷ Reputation depends on the embeddedness of interactions in networks of social relations and emerges if future partners of an actor are informed on his present behaviour (Raub/Weesie 1990).

dense networks with many participants and multiplex relations may support the focal actors while discouraging opportunistic behavior (Jansen 2003). In this way, increased long-term costs of opportunism will reduce the actor's temptation for opportunistic behavior (Raub 1999; Rooks et al. 2005). It is also likely that the embeddedness in social structures will affect the transaction management in local exchange systems. On the one hand, regularly held meetings should strengthen the creation of shared norms and values within the system as well as the feeling of solidarity because the participants get to know each other. On the other hand, the social structure of these exchange schemes itself may facilitate structural embeddedness as group size is relatively small with about 60 to 100 participants (Niemeyer 2002). These considerations yield our last hypothesis, that *structural embeddedness may mitigate opportunistic behavior in such exchange relations*.

3. Data and Results

Data for answering our research questions are obtained through a standardized self conducted telephone survey. As field contact was very specific with this special population and, as a German-wide list of persons participating in those exchange systems was not available, we focused on three regional systems only. As a whole, just under 500 participants were interviewed to get information about their management of transaction. This sampling method enables us to incorporate at least effects of different regional settings in our analysis.⁸ For getting initial contact to the exchange systems, key persons⁹ played an important role. If they agreed to take part in the planned survey, they handed over the membership list of their system and announced our survey in a flyer addressed to all members. As the systems are quite small, we aimed at a total sample of the selected systems. Cooperation of the participants was very high and only 2% of the persons contacted refused to take part in our survey. However, we could only realize a response rate of 63%, because membership lists were not up to date, addresses and phone numbers were incorrect, persons left the system or we could not reach the member after contacting him/her seven times.

⁸ In our analysis we control for effects of exchange systems located in *East* vs. *West* Germany. In East Germany, the unemployment is significantly higher compared to West Germany. Incentives to participate in local exchange systems may differ.

⁹ Key persons of those systems are often the systems' founders or coordinators.

The questionnaire contains six thematic topics. The first part addresses the individual's activity as well as his/her supply and demand within the system. The second part examines motivations for joining the system.¹⁰ In the third section the individual's transaction management is analyzed and data of his/her egocentric network are generated. The fourth part deals with solidarity and personal commitment within the system and the fifth section surveys opportunistic problems with transactions. In the end the participant's demographical information is asked for.

Before presenting our results we set out the operationalization of the variables used in our analysis. Primarily we use Likert scales presenting four response categories. Indicators for our dependent variable "opportunism" concerning quality problems are *bad quality of sophisticated services*, *bad quality of services in general*, *missing specifications*. Using those three items we constructed an additive index (quality) and recoded it for our logistic regression model into the two categories "still having been confronted with any kind of quality problems" (Y=1) and "not being confronted with any kind quality problems yet" (Y=0). We focus in our paper on quality problems as these are typical forms of opportunistic behavior in transactions. Of course, poor quality may sometimes also result from adverse environmental conditions, but mostly they are the agent's fault. Agents always have an incentive to shirk, i.e. to put less effort in. As a consequence of this opportunistic behavior often only poor quality is provided. Especially in the exchange schemes bad quality traces back to opportunistic behavior of the agent, as mostly non-professional, do-it-yourself-services involving no serious environmental threats/risks are provided within those systems.¹¹ A count variable (*unknown*) indicates the shadow of the past the *number of transactions with unknown partners per year*. Additionally we construct an index for the shadow of the *past* (0-1) containing the indicators *frequency of exchange with known partners*, *frequency of choosing known partners when selection is possible* and *avoiding unknown partners*. The indicators *planned future transactions with same partner*, *partner's familiarity with this planning* and *individual's power as a result of his/her demand* construe another index (0-1) – the shadow of the *future*. Structural embeddedness is represented by the items *use of recommendation* and

¹⁰ With the help of this section we hope to reveal information concerning the creation of these exchange systems. This article does not address this research question.

¹¹ Our article only focuses on minimizing quality problems, but our research is also concerned with other forms of opportunistic behaviour such as problems with scheduling. Thus another index, not presented here, handles problems with scheduling and includes the items *short-time cancellations*, *missing deadlines* and *long periods of waiting*.

frequency of information received – both items are combined to a further index (*structure*; 0-1). The personal sanctioning through exit is included with the indicators *immediate escape from unsatisfactory transactions* and *no further transaction with the defecting partner in the future*. These indicators were summed up to a further index (*exit*).¹² The indicator *talking about negative events to other participants* represents individual sanctioning through *voice*. The item *judgment of the system's sanctioning* presents how the individual participant perceives the sanctioning capacity of the system (*sanction*).

Additionally, we focus on the ex ante management of the transaction. This ex ante management concerns with the individual's effort to achieve a smooth transaction. Talking about the planned transaction with the partner and specifying the own expectations or taking advice and recommendations of the system's coordinators may ensure a smooth transaction handling as well as the ability of an individual to judge the service received. Indicators presenting this kind of safeguarding are *personal agreements considering the transaction*, *ability to judge service* and *use of recommendation of coordinators*. Besides socio demographic¹³ control variables exchange activity, participation in system's meetings, time of participation and the system's region are integrated in our analysis.

The following table gives a short overview of variables used in our analysis.

¹² For constructing those indexes we used reliability analysis.

¹³ Besides age and sex, we control for labor force participation since it reduces the dependency on the system's services. For similar reasons we control for the household status "living with a partner". Having a partner influences the dependency on the system since one's partner can do the services one is not able or willing to do. In any case, less dependency on the system might reduce the probability of being confronted with opportunistic behaviour. Finally, we control for the membership in other associations. As time is scarce one can not use the time invested in the other organizations in the focal exchange scheme, e.g. for finding an appropriate exchange partner.

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Table 1: Overview of variables

Variable	description	mean	s.d.	min	max
quality*	problems with quality	0.42	0.49	0	1
past (0-1) α : 0,855	shadow of past	0.65	0.26	0	1
Unknown	number unknown partners	2.86	3.94	0	25
future (0-1) α : 0,841	shadow of future	0.56	0.30	0	1
structure (0-1) α : 0,790	structural embeddedness	0.56	0.25	0	1
exit (0-1) α : 0,579	sanctioning through escape	0.92	0.16	0	1
voice**	sanctioning through	0.67	0.47	0	1
sanction**	perceived sanctioning capacity	0.61	0.49	0	1
coordination**	use of coordinators' recommendation	0.41	0.49	0	1
agreement**	personal agreements	0.62	0.49	0	1
judgment**	ability to judge service	0.42	0.49	0	1
Participation	time of participation (years)	4.69	2.45	1	11
Exchange	time per month used for exchange (hours)	4.40	7.20	0	100
Meeting	time per month used for meetings (hours)	3.87	3.39	0	25
region (east:1)	region of exchange system	0.24	0.43	0	1
Age	age	49.42	1,00	23	85
sex (female:1)	sex	0.70	0.46	0	1
occupation (yes:1)	labor force participation	0.51	0.50	0	1
partner (yes:1)	living with a partner	0.49	0.50	0	1
organisation (yes:1)	participation in other associations	0.57	0.50	0	1

Source: Local Exchange Study Konstanz – N= 491; *Dummy- binarisation: 1=ever; **Dummy median split:

1=yes

The dependent variable “quality” is used as a dummy in our logistic regression model. We estimate how different aspects of embeddedness influence the experience of quality problems within the exchange relations (as a major aspect of opportunism). As table 1 indicates, 42% of our respondents reported having been confronted with at least one of the three problems mentioned. In table 2 the regression coefficients and standard errors are reported. Model 1 is estimated without control variables, in model 2 parameters concerning the individual exchange activity and the region of the exchange system are added. Finally, model 3 contains the socio demographic variables as well.

The statistical analysis supports our assumption that the embeddedness of transactions reduces problems of opportunism. As claimed in our hypothesis about the shadow of the past, a shared common history with exchange partners minimizes the probability to face opportunistic behavior. All three models indicate a significantly negative effect of the shadow of the past on the probability to obtain bad quality. We also find a significantly positive effect of the count variable for “unknown” partners. The more transactions are conducted with unknown partners, i.e. no common past exists, the higher the probability of being confronted with quality problems. However, there is no empirical evidence

concerning our second hypothesis. Though the effect of the shadow of the future indicates the right direction, it lacks significance. Other studies show similar results, e.g. an analysis considering the interplay of contracts and trust in buyer-supplier relations in the IT-market (Batenburg et al. 2000). Partly the weak effect may be explained by lower discount factors for the future – in general individuals value future payoffs less, i.e. their discount factors for future outcomes are lower.

Our empirical results concerning structural embeddedness partly contradict our initial assumption. Structurally embedded actors face an even higher risk of being confronted with opportunistic behavior. This surprising result remains stable after having undertaken further investigations not presented here. One possible explanation for a small or a zero effect may be seen in the quality of information received via the network structure. Received information via network embeddedness may be poor and not/little helpful for transaction management. If this is true, one is still puzzled by the unexpected sign of the coefficient and its significance. One might discuss causation: people, who already have been confronted with quality problems, rely simply more often on structural embeddedness. However, this explanation is a weak one as this causation could be true for temporal embeddedness and ex ante management either. At current state of research there is no adequate explanation for this effect but we hope to reveal further information by analyzing the ego centric networks of the system's participants.

Sanctioning – as one component of structural embeddedness – has the supposed negative effect on being confronted with opportunistic behavior. As expected the coefficients for “voice” are significantly negative while in all three models the index “exit” correlates only weakly with the probability of quality problems. Thus our hypotheses concerning the structural embeddedness can be approved at least partly.

The ex ante management of transactions¹⁴ indicates the supposed negative effects on quality problems. Thus an individual's effort to ensure a smooth transaction management lowers the risk of opportunistic behavior. However, only the individual's familiarity with the demanded service and its ability to judge the quality received indicates a significantly negative effect.

¹⁴ In those exchange systems the ex ante management of a transaction is based on social relations.

Table 2: Logistic Regression Model: dependent variable quality problems

Variable	Block 1 coefficient (Std.)	Block 2 coefficient (Std.)	Block 3 coefficient (Std.)
Past	-1.560** (0.706)	-1.635** (0.712)	-1.599** (0.726)
Unknown	0.150** (0.051)	0.138** (0.051)	0.137** (0.053)
Future	-0.461 (0.539)	-0.531 (0.546)	-0.604 (0.053)
Structure	1.292** (0.541)	1.222** (0.567)	1.341** (0.579)
Exit	-0.908 (0.896)	-0.787 (0.908)	-1.061 (0.930)
Voice	-0.566** (0.249)	-0.557** (0.251)	-0.536** (0.255)
Sanctioning	-1.315*** (0.240)	-1.298*** (0.242)	-1.407*** (0.249)
Coordination	-0.199 (0.256)	-0.238 (0.265)	-0.229 (0.269)
Agreement	-0.278 (0.245)	-0.312 (0.252)	-0.379 (0.257)
Judgment	-0.635** (0.232)	-0.641** (0.235)	-0.689** (0.243)
Participation		0.060 (0.047)	0.049 (0.048)
Exchange		0.022 (0.017)	0.024 (0.018)
Meeting		0.000 (0.038)	-0.013 (0.039)
Region (0: west)		0.014 (0.291)	0.064 (0.306)
Age			0.011 (0.011)
Sex			0.097 (0.259)
Occupation			-0.016 (0.250)
Partner			-0.243 (0.237)
Association			0.673** (0.237)
Constant	2.337** (0.917)	2.047** (0.945)	1.532 (1.133)
Chi ²	173.454*** df 10	177.184*** df 14	189.045*** df 19
Pseudo R ²	0.298 / 0.400	0.303 / 0.407	0.320 / 0.403

Source: Local Exchange Study Konstanz – N= 491; p< 0.001: ***, p<0.05**, p<0.1*

The effects of all control variables indicate the right direction. But there are no significant effects given, except of the variable taking part in other “Association(s)”.¹⁵

All in all, temporal embeddedness plays an important part securing transactions against opportunistic behavior. Especially a common history of the transaction partners (shadow of the past) may lower the probability for opportunism significantly. Considering structural embeddedness for stabilising transactions, we are confronted with ambivalent effects. Whereas sanctioning induces the expected strong negative effects on being confronted with opportunistic behavior, structurally embedded actors underlie a significantly higher risk of opportunism. This unexpected effect is a starting point for further analysis in local exchange systems. Considering the ego centered networks of

¹⁵ Considering the individual’s activity within the system we see that the probability suffering opportunistic behavior is higher if the individual is more active, i.e. does many transactions within the system (participation, exchange), and is lower if the individual takes part in community building events. In this case, it gets to know potential partners (meeting). Looking at the socio demographic variables we see that the risk of opportunism is higher for older persons and women, maybe because they are more dependent on the system and probably will demand services with a higher grade of uncertainty, such as craftsmanship. Vice versa, living in a partnership and participating in the labor force have the expected negative effect on the probability of opportunism, probably because in this case the individual is less dependent on the system. The significantly positive effect of further engagement in other associations may be explained by the lower expenditure of time disposable for the choice of adequate partners within the system.

the single actors we hope to get an insight to this field. Clear results again are provided considering the effects of the ex ante management on the stabilization of the transaction. Thus individuals taking more effort to ensure smooth transaction handling suffer probably less opportunism. Finally our results indicate that social embeddedness of transactions is very important in a world without monetary incentives and contractual enforcement.

4. Discussion and Outlook

Our paper provides a theoretical and empirical analysis concerning the transaction management in a world without monetary incentives and contractual enforcement. We focused on effects of social embeddedness and mainly received support for the research hypotheses. Thus the concept of social embeddedness is not only an appropriate complement for monetary incentives, contractual safeguarding and internal hierarchy in business relations and the formal market, but also within those exchange systems dissociating themselves from monetary incentives.

Besides the social embeddedness the system's ideological orientation may ensure its survival and stabilization. A shared view on the objectives of the system and strategies to achieve them are of high importance for the system's development. Other studies reveal that membership has a distinct bias towards persons with 'alternative' or 'green' beliefs (see e.g.: Bebbington 2000; Caldwell 2000; Gran 1999). Members show an 'othering' of certain groups who are thus made to feel excluded. The recruitment of new members supports this tendency of exclusion as the systems are growing predominantly by aiming their publicity at organizations likely to be interested in their activities – such as environmental organizations. Or they rely on a word of mouth strategy to engage new participants. This self-selecting membership growth is typical for the exchange systems and is considered to be essential by some members because of the trust-based nature of the system (Seyfang 1997; Williams 1996b; 1997; 1998).

The specific design of the exchange systems is particularly well suited for exploring the effects of social embeddedness on transactions' stabilisation. In contrast to business relations, legal enforcement and monetary incentives are absent. In our paper we demonstrated that the concepts of social embeddedness are applicable for such forms of social arrangements. Thus we stimulate further investigations concerning the evolution of cooperation beyond the boundaries of markets.

References

- Abraham, Martin/Kropp, Per (2000): Die institutionelle und soziale Einbettung von Suchprozessen für wirtschaftliche Transaktionen: Das Beispiel der Wohnungssuche, in: Regina Metze/Kurt Mühler/Karl-Dieter Opp (Hrsg.), Normen und Institutionen: Entstehung und Wirkungen. Leipzig: Leipziger Universitätsverlag, S. 415-431
- Abraham, Martin/Voss, Thomas (1999): Das Zahlungsverhalten von Geschäftspartnern. Eine Untersuchung des Zahlungsverhaltens im Handwerk für den Raum Leipzig, Arbeitsbericht des Instituts für Soziologie Nr. 2. Leipzig
- Azariadis, Costas (1987): Implicit Contract, in: John Eatwell/Murray Milgate/Peter Newmann (Hrsg.): The New Palgrave: Allocation, Information and Markets, London: Maxmillan, S. 733-737
- Barber, Bernard (1983): The Logic and Limits of Trust. New Jersey. Rutgers University Press
- Batenburg, Ronald S./Raub, Werner/Snijders, Chris (2000): Vertrauen und Verträge: Eine empirisch-theoretische Analyse der Effekte "sozialer Einbettung" auf die Steuerung wirtschaftlicher Transaktionen durch Normen und Institutionen, in: Regina Metze/Kurt Mühler/Karl-Dieter Opp (Hrsg.), Normen und Institutionen: Entstehung und Wirkungen, Leipzig: Leipziger Universitätsverlag, S. 85-413
- Bebbington, Jahn (2000): Local Exchange Trading Systems (LETS): An Introduction and Evaluation of the Challenges to Accounting, Draft 14.5.2000
- Bowring, Finn (1998): LETS: An Eco-Socialist Initiative? in: New Left Review 232, S.91-111
- Buskens, Vincent (1999): Social Networks and Trust. Utrecht: ICS Dissertation Series
- Caldwell, Caron (2000): Why do People Join Local Exchange Trading Systems? in: International Journal of Community Currency Research 4, <http://www.le.ac.uk/ulmc/ijccr/vol4-6/4no1.htm> (22.08.05)
- Carmen, Raff (1996): LETS (Local Exchange Trading Systems): A Local "Win-Win" Counterpractice in a Global "Win-Lose" Economy, in: Development 40, S.75-79
- Coleman, James S. (1988): Social Capital in the Creation of Human Capital, in: American Journal of Sociology 94, S. 95-121
- Coleman, James S. (1990): Foundations of Social Theory. Cambridge: Harvard University Press
- Dasgupta, Partha (1988): Trust as a commodity, in: Diego Gambetta (Hrsg.), Trust: Making and Breaking Cooperative Relations, Oxford: Basil Blackwell, S. 49-72
- Durkheim, Emile (1977): Über die Teilung der sozialen Arbeit. Frankfurt am Main: Suhrkamp
- Ekins, Paul (1986): The Living Economy: A New Economics in the Making, London: Routledge
- Flap, Henk D. (1988): Conflict, Loyalty, and Violence, Frankfurt am Main: Lang
- Godschalk, Hugo (1986): Die geldlose Wirtschaft. Vom Tempeltausch bis zum Barter-Club, Berlin: Basis
- Gran, Even (1999): Green Domination in Norwegian Letsystems: Catalysts For Growth Or Constraint On Development? in: International Journal of Community Currency Research 4, <http://www.le.ac.uk/ulmc/ijccr/vol4-6/4no5.htm> (22.08.05)
- Granovetter, Mark S. (1985): Economic Action and Social Structure: The Problem of Embeddedness, in: American Journal of Sociology 91, S. 481-510
- Granovetter, Mark S. (1990): The Old and the New Economic Sociology: A History and an Agenda, in: Roger Friedland/AF Robertson (Hrsg.), Beyond the Market Place: Rethinking Economy and Society, New York: Aldine de Gruyter S. 89-112
- Granovetter, Mark S. (1992): Problems of explanation in economic sociology, in: N. Nohria/R.G. Eccles (Hrsg.): Networks and Organizations. Cambridge: S. 25-56
- Haug, Sonja (2000): Vertrauen ist gut, Kontrolle ist besser? Soziales Kapital und moralische Normen im Kommunitarismus, in: Regina Metze/Kurt Mühler/Karl-Dieter Opp (Hrsg.), Normen und Institutionen: Entstehung und Wirkungen, Leipzig: Leipziger Universitätsverlag, S. 321-357
- Hirschmann, Albert O. (1970): Exit, Voice, and Loyalty. Responses to Decline in Firms, Organisations, and States. Cambridge: Harvard University Press
- Hobbes, Thomas (1980): Leviathan. Stuttgart: Reclam
- Hoeben, Corine (2003): LETS be a Community. Community in Local Exchange Trading Systems, Groningen: ICS Dissertation Series
- Hubert, Eva-Maria (2004): Tauschringe und Marktwirtschaft. Eine ökonomische Analyse lokaler Komplementärökonomien, Berlin: Duncker & Humblot
- Kleine, Andreas (1995): Entscheidungstheoretische Aspekte der Principal-Agent-Theorie. Heidelberg: Physical-Verlag
- Kuhn, Norbert (2002): Tauschringe – Möglichkeiten und Grenzen einer „geldlosen“ Wirtschaft, Marburg: Marburger Beiträge zum Genossenschaftswesen 39
- Lang, Peter (2000): LETS Work: Rebuilding the Local Economy, Bristol, Grover Books
- Lee, Roger (1996): Moral Money? LETS and the Social Construction of Local Economic Geographies in Southeast England, in: Environment and Planning A 28, S.1377-1394
- Luhmann, Niklas (1989): Vertrauen – Ein Mechanismus der Reduktion sozialer Komplexität, Stuttgart: UTB für Wissenschaft
- Macaulay, Stewart (1963): Non contractual relations in business, in: American Sociological Review 28, S. 55-67
- MacNeil, Ian R (1974): The many futures of contracts, in: Southern California Law Review 47, S. 691-816
- Meier, Daniela (2001): Tauschringe als besondere Bewertungssysteme in der Schattenwirtschaft. Eine theoretische und empirische Analyse, Berlin: Duncker & Humblot
- Niemeyer, Verena (2002): Tauschringe in Deutschland, Diplomarbeit an der Wirtschaftswissenschaftlichen Fakultät der Universität Heidelberg
- North, Peter (1999): Explorations in Heterotopia: Local Exchange Trading Schemes (LETS) and the Micropolitics of Money and Livelihood, in: Environment and Planning D: Society and Space 17, S. 69-86
- Offe, Claus/Heinze, Rolf G. (1990): Organisierte Eigenarbeit. Das Modell Kooperationsring, Frankfurt am Main: Campus

- Onken, Werner (1983): Ein vergessenes Kapitel der Wirtschaftsgeschichte – Schwanenkirchen, Wörgl und andere Freigeldexperimente, in: Zeitschrift für Sozialökonomie 57-58, S.3-20
- Pacione, Michael (1997): Local Exchange Trading Systems – A Rural Response to the Globalization of Capitalism? in: Journal of Rural Studies 13, S. 415-427
- Pacione, Michael (1998): Toward a Community Economy – An Examination of Local Exchange Trading Systems in West Glasgow, in: Urban Geography 19, S. 211-231
- PaySys (1997): LETSsysteme und Tauschringe: Ein Handbuch über Formen und Ausgestaltungsmöglichkeiten lokaler Verrechnungssysteme, Frankfurt am Main
- Peterson, Kerstin (1990): Nebenwährung als Sozialvertrag: Kanadische Erfahrungen mit dem "Local Employment and Trading System" (LETS), in: Rolf G. Heinze/Claus Offe (Hrsg.), Formen der Eigenarbeit. Theorie, Empirie, Vorschläge, Opladen: Westdeutscher Verlag, S. 147-158
- Picot, Arnold/Dietl, Helmut/Franck, Egon (1999): Organisation: Eine ökonomische Perspektive, Stuttgart: Schaeffer-Poeschel
- Pieper, Niklas (2002): Die rechtliche Struktur bargeldloser Verrechnungssysteme unter besonderer Berücksichtigung von Barter-Clubs und LET-Systemen. Berlin: Weißensee Verlag
- Raub, Werner (1999): Vertrauen in dauerhaften Zweierbeziehungen: Soziale Integration durch aufgeklärtes Eigeninteresse, in: Soziale Integration. Sonderheft 39, Kölner Zeitschrift für Soziologie und Sozialpsychologie, S. 239-268
- Raub, Werner/Weesie Jeroen (2000): The Management of Durable Relations, in: Jeroen Weesie; Werner Raub (eds.), The Management of Durable Relations. Amsterdam: ThelaThesis 2000, p. 1-33
- Rooks, Gerrit/Raub, Werner/Selten, Robert/Tazelaar, Frits (2000): How inter-firm cooperation depends on social embeddedness: A vignette study, in: Jeroen Weesie; Werner Raub (eds.), The Management of Durable Relations. Amsterdam: ThelaThesis 2000, p. 81-84
- Schneider, Christian (1995): Barter-Clubs. Chancen und Probleme. Eine theoretische und empirische Analyse, Berlin: Duncker & Humblot
- Schraven, Jorim (2000): The Economic of Local Exchange and Trading Systems: A Theoretical Perspective, in: International Journal of Community Currency Research 4, <http://www.le.ac.uk/ulmc/ijccr/vol4-6/4no5.htm> (22.08.05)
- Schraven, Jorim (2001): Mutual Credit Systems and the Commons Problem: Why Community Currency Systems such as LETS need not Collapse under Opportunistic Behaviour, in: International Journal of Community Currency Research 5, <http://www.le.ac.uk/ulmc/ijccr/vol4-6/5no4.htm> (22.08.05)
- Schüssler, Rudolf (1991): Die zweite Hand – eine Untersuchung über den Tausch ohne Schutz durch Recht und Moral, in: Hartmut Esser / Klaus G. Troitzsch (Hrsg.), Modellierung sozialer Prozesse, Bonn: Informationszentrum Sozialwissenschaften
- Seyfang, Gill (2002): Tackling Social Exclusion with Community Currencies: Learning From LETS To Time Banks, in: International Journal of Community Currency Research 6, <http://www.le.ac.uk/ulmc/ijccr/vol4-6/6no3.htm> (22.08.05)
- Smelser, Neil/Swedberg, Richard (Hrsg) (2005): Handbook of Economic Sociology, Princeton: Princeton University Press
- Smith, Adam (1974): Der Wohlstand der Nationen: Eine Untersuchung seiner Natur und seiner Ursachen. München: Beck
- Snijders, Chris (1996): Trust and Commitments, Amsterdam: ICS Dissertation Series
- Swedberg, Richard (1990): Economics and sociology. Redefining their boundaries: Conversations with economists and sociologists. Princeton: Princeton University Press
- Thorne, L.(1996): Local Exchange Trading Systems in the United Kingdom: A Case of Re-Embedding? in: Environment and Planning 28, S. 1361-1376
- Unterguggenberger, Silvio (1983): 50 Jahre Wörgler Freigeld, in: Zeitschrift für Sozialökonomie 59, S. 37-41
- Voss, Thomas (1998): Vertrauen in modernen Gesellschaften. Eine spieltheoretische Analyse, in: Regina Metzke/Kurt Mühler/Karl-Dieter Opp (Hrsg.), Der Transformationsprozess. Analysen und Befunde aus dem Leipziger Institut für Soziologie, Leipzig: Leipziger Universitätsverlag, S. 91-129
- Williams, Collins (1995): The Emergence of Local Currencies, in: Town and Country Planning 64/12, S. 329-332
- Williams, Collin (1996): Local Exchange and Trading Systems: A New Source of Work and Credit for the Poor and Unemployed? in: Environment and Planning A 28, S. 1395-1415
- Williamson, Oliver (1975): Markets and Hierarchies: Analysis and Antitrust Implications. A Study in the Economics of Internal Organization, New York: The Free Press
- Williamson, Oliver (1985): The Economic Institutions of Capitalism, New York: The Free Press
- Williamson, Oliver (1987): Essays in antitrust economics, Cambridge: Basil Blackwell