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Working Paper

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Working Paper, No. 118

Provided in Cooperation with:

Institute of Empirical Economic Research, University of Osnabrueck

Suggested Citation: Wilde, Joachim (2020) : What drives trust of long-term unemployed in their caseworkers? An empirical analysis using experimental data, Working Paper, No. 118, Osnabrück University, Institute of Empirical Economic Research, Osnabrück

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Working Papers of the Institute of Empirical Economic Research

**What drives trust of long-term unemployed in
their caseworkers?
An empirical analysis using experimental data**

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Working Paper No. 118
April 2020

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What drives trust of long-term unemployed in their caseworkers? An empirical analysis using experimental data¹

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April 2020

Abstract

Overcoming long-term unemployment is a challenging task in which trust of the long-term unemployed in their caseworkers is a key issue. However, research about drivers of this trust is a white spot in the literature. The paper closes this gap. Embedded in a theoretical model at the organizational level a trust game with real long-term unemployed and caseworkers is evaluated empirically. The results support the social identity theory, i.e. trust in members of the “own” group is higher than trust in the members of the “other” group, as well as more traditional explanations of trust. The results are used for policy conclusions.

Keywords: trust, long-term unemployment

JEL classification: C25, C91, J64, J68

¹ The experiment was conducted in Germany in a Lower-Saxon city-center jobcentre. This opportunity originated in my idea to analyze the behavior of the long-term unemployed and jobcentre caseworkers, and my subsequent dialogue with the jobcentre. The specific decision-making tasks used were the ideas of Steve Humphrey (University of Osnabrueck) and Felix Meickmann (University of Osnabrueck), who designed the associated experimental exercises. An accompanying survey questionnaire was designed by me.

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1. Introduction

Research about causes of unemployment and their political implications is a widespread topic in the literature. However, the analysis is usually done either on the macro level or on the individual level of the unemployed, whereas the meso level of the unemployment agency is usually missing. However, the meso level is well suited to analyze the relationship between the unemployed and their caseworkers because caseworkers act as part of their agency. Trust is an important issue for this relationship because trust of unemployed in their caseworkers may influence their willingness to follow suggestions of the caseworkers. This is even more true for long-term unemployed, i.e. for persons that are unemployed for more than 12 months. Due to the long time of unemployment they are often discouraged. Furthermore, their situation is often very complex because multiple constraints hamper their reintegration in the job market. Thus, traditional tools are often not sufficient for this people. Therefore, it is important to analyze what affects trust of long-term unemployed in their caseworkers.

It is obvious that such an analysis cannot be done at the macro level. At the macro-level the influence of macroeconomic conditions and of the legal framework of social security on the level of unemployment can be analyzed. The role of “trust” between the unemployed and their caseworkers cannot be embedded in this analysis. At the individual-level effects of personal characteristics of the unemployed and again effects of the legal framework of social security are analyzed. In these analyses trust can be considered as an explaining variable of the behavior of the unemployed. However, the analysis is restricted to a “passive” view on trust. Neither determinants of trust nor policy implications of the determinants can be analyzed. To close this gap a model at the organizational level of an institution of social security is an appropriate choice. In Wilde (2007) I developed such a model which forms the theoretical framework for the subsequent empirical analysis.

The empirical analysis of trust of unemployed in their caseworkers is a white spot in the literature. Empirical studies usually only analyse the determinants of trust in general without a specific view on unemployed people. Some of these studies use unemployment as an explaining variable (Fehr 2009, Fehr et.al. 2002, Freitag/ Traunmüller 2009, Leigh 2006, Michalski/ Schupp 2009). Usually they find that unemployed trust less than employed persons, although the statistical significance of this result varies in dependence on the definition of trust. Michalski/ Schupp (2009, p. 575) show that this effect becomes stronger if the unemployed person is long-term unemployed. Rothstein/ Uslaner (2005) use receipt of means-tested benefits as an explaining variable and they also found a significant negative effect on trust. All studies use survey data, only Fehr et.al. (2002) combine survey and experimental data.

Empirical studies on the relationship between unemployed and their caseworkers are scarce. Only Behncke/ Frölich/ Lechner analyse this topic. They show that the probability of getting employed rises if the caseworkers and their clients are sufficiently similar (Behncke/ Frölich/ Lechner 2010a) or if the attitude of the caseworker is less cooperative, although the latter result vanishes if the long-term effects are considered (Behncke/ Frölich/ Lechner 2010b). Nevertheless, the relationship between unemployed and caseworkers matters. Like

the other empirical studies mentioned (except Michalski/ Schupp 2009) they do not distinguish between short- and long-term unemployed.

The empirical study of this paper is based on an experiment with real long-term unemployed and caseworkers of a German unemployment agency (a so-called jobcentre) in conjunction with a questionnaire. The latter enables to test well-established psychological explanations of trust. The experiment is the well-known trust game, and the design allows to distinguish whether the payment is given to a member of the “own” group of unemployed or to a member of the “other” group of caseworkers. Following the so-called social identity theory these payments can be different, and this may be an explanation of the level of trust. To the best of my knowledge, a trust game with real unemployed and caseworkers has never been done before in the literature so that the data set is worldwide unique.

Thus, this paper makes the following contributions to the literature:

- It embeds the empirical analysis in a model at the meso-level of the jobcentre. This gains new theoretical insights, and it allows novel policy conclusions.
- It is based on a unique data set of an experiment with real long-term unemployed and caseworkers.
- The econometric model combines the analysis of social identity theory based on the experimental design and more traditional explanations of trust based on a questionnaire.

Section 2 presents the theoretical model (2.1) and the explanations of trust that are tested in the empirical model (2.2). Section 3 describes the German system of unemployment benefits and the population from which the sample for the experiment was drawn. Section 4 describes the experimental design and the questionnaire and their links to the theory in Section 2. Section 5 presents the results of the trust game and bivariate descriptive analyses concerning the hypotheses. Section 6 contains the econometric analysis with the payments of the unemployed as dependent variable and multiple approaches for explaining trust. Although the ordered probit model is well-established there is no common sense about some of the tools used. Thus, section 6.1 deals with the econometric model itself, and afterwards the empirical analysis is done in 6.2. Section 7 concludes with some policy implications of the results and an outlook on further research questions.

2. Theoretical background

2.1 Incentive ethics for long-term unemployed

In Wilde (2007) I developed a model at the organizational level. The organization in this model is the institution responsible for supervising long-term unemployed. This institution is subsequently called jobcentre. The model focuses on the relationship between the caseworkers of the jobcentre and the unemployed. This relation is asymmetric because the caseworkers can instruct the unemployed and can punish them if they do not make enough effort to get a new job. Thus, it is a kind of hierarchical relationship. Although sanctions are part of a “motivation” of the unemployed they will be more successful if they are convinced of what they should do. Own effort is an indispensable part of overcoming unemployment,

and, therefore, strengthening this effort should be an important part of the work of the caseworkers.

Following Wieland (1996) I use three types of goods to describe an allocation mechanism for the relationship between caseworkers and unemployed: economic goods, moral goods and goods of status.³ Economic goods are any kinds of income or any other tradable goods. In conjunction with unemployment such goods are especially the unemployment benefits and the personal income of unemployed after finding a job. Moral goods are also “goods” in a sense that they fulfill a need and that they are scarce, but their characteristics are different. Examples for moral goods are fairness, respect, and telling the truth. Characteristics of these goods are:

- They are not tradable.
- Although they are not tradable they are linked to economic goods, e.g. the relationship between caseworker and unemployed is usually based on the receipt of unemployment benefits. Thus, a joint allocation mechanism of moral and economic goods should be considered.
- Furthermore, allocation of moral goods implies economic consequences, e.g. if the duration of unemployment depends on the (non)allocation of moral goods by the caseworkers.
- Moral goods are only allocated in a relationship. This also implies that they are different from public goods although the moral impetus may be similar. But in contrast to public goods people can be excluded from moral goods, e.g. if a caseworker doesn't act fair against some of his clients.
- Moral goods are allocated for themselves sake. To give an example: If a caseworker sometimes tells the truth to an unemployed and sometimes lies, I don't label his occasional telling the truth as allocation of a moral good. Only if he tries to be *always* truthfully, I would label this an allocation of a moral good.

Goods of status are especially trust and reputation. Their characteristics are similar to those of moral goods. The first four points above are similarly valid for goods of status. However, goods of status are not necessarily allocated for themselves sake. Moreover, usually they are a response to the behavior of the other party. Even if the status is linked to a moral category (e.g. “this person always tells the truth”), both types of goods do not always merge. For instance, a person may always tell the truth without getting the status to do so because other people did not recognize this behavior. The other way around a person may get the status although it sometimes lies. However, in the long run goods of status and moral goods will often coincide if two persons communicate regularly.

Given the three types of goods the allocation mechanism works as follows:

- (1) In a first step the caseworkers allocate moral goods like fairness to the unemployed. This is done continuously during all contacts.

³ Wieland developed this mechanism for the relationships within firms or between firms and their customers.

- (2) As a consequence of (1) the unemployed will allocate goods of status like trust and reputation to their caseworkers.
- (3) This enables additional cooperation between the caseworkers and the unemployed. For instance, the unemployed now take part in an additional education because they trust the caseworker's message that this will improve their position at the job market. Afterwards this cooperation may lead to better paid and/or unlimited jobs so that the unemployed can leave unemployment benefits, i.e. economic cooperation benefits are gained.

The mechanism does *not* exclude sanctions. However, it requires that they are used in a fair and transparent manner. Furthermore, it is necessary to implement this mechanism on the organizational level of the jobcentre. This is necessary for two reasons. First, in the short run, a rude behavior of the caseworkers may be more successful in reducing unemployment (cf. the results of Behncke/ Frölich/ Lechner 2010b). Thus, it can be “costly” für the caseworkers to allocate moral goods if this is not part of the aims of the jobcentre. Second, caseworkers will be less willing to allocate moral goods to the unemployed if they don't receive these goods by their bosses. For instance, why should they tell the truth to the unemployed whereas they are told lies by their bosses?

I name this mechanism a concept of incentive ethics. On the one hand, it gives incentives to the unemployed by moral behavior of the caseworkers. On the other hand, it stimulates the unemployed to behave morally in a sense that they don't rest on the unemployment benefits. It is difficult to test the relevance of the concept directly. An experiment that rebuilds the concept is difficult to implement because of the complexity of the mechanism. Therefore, it is difficult to get a “clean” design that isolates the effect of allocating moral goods. However, the well-known trust game can be used to test whether trust of the unemployed in their caseworkers can be systematically increased. If their trust in caseworkers is significantly lower than that in a comparison group this is a strong indicator that their trust in the caseworkers can be increased. In that case, the concept above can be used to gain additional cooperation benefits. Furthermore, the trust game can be used to identify other influencing factors on trust of unemployed in their caseworkers.

2.2 Influencing factors on trust

Explaining trust in the empirical analysis is based on two approaches. First, trust of the unemployed in caseworkers is compared with their trust in a suitable comparison group. This comparison group is defined using social identity theory. Second, well-established explanations of trust based on the human condition of the unemployed are used. The first explanation is tested using the experimental design; the more traditional approaches are implemented using the questionnaire.

Social identity theory broadens the concept of identity of a person. Whereas personal identity is focused on individual characteristics and motives, social identity is based on belonging to a certain social group, where the group membership influences the self-worth of their members. Thus, social identity theory can explain differences in intra- and intergroup

behavior that are not caused by individual characteristics and motives. Typical examples are a membership in a political party or being a fan of a well-known sports team. Members of another political party or fans of an antagonistic sports team are discriminated just because they belong to the “other” group – even if the personal characteristics are nearly the same. Moreover, even a spontaneous social categorization can be sufficient for discrimination (the so-called minimal group paradigm). For instance, in experiments people that have never acted together were divided in a Klee group and a Kandinsky group. Afterwards a discriminating behavior against the members of the other group was observed (cf. Adams 2015, pp. 205-206).

The concept of social identity implies that identity is influenced by current context and, therefore, identity is partially not stable over time. Furthermore, the importance of personal and social identity may vary. Sometimes personal identity is more salient, sometimes social identity may influence behavior more strongly (cf. Adams 2015, p. 208). For instance, during a game in a football stadium, social identity as fan of the home team is salient. Several days’ later behavior in the office may be influenced more strongly by the personal identity or by another social identity as member of a specific firm department.

An important channel of motivation in social identity theory is self-esteem. The higher the value of the own group is in comparison with the other group the higher is self-esteem. This implies that a large positive distance enhances self-esteem and that people with low self-esteem may try to get a larger positive distance between the two groups, e.g. by devaluing members of the opposite group. Although both implications are obvious, empirical evidence for the first one is stronger than empirical evidence for the second one (cf. Adams 2015, pp. 211-212).

Social identity increases trust in the within-group members. This effect is strongest if social identity is salient (cf. Adams 2015, p. 214). Then trust in the members of the own group will be significantly larger than trust in the members of the other group. Sometimes this is undesirable. E.g., different departments of a firm must work together, and this is easier if the employees of the different departments trust each other. Then distance may be reduced by merging the different groups to a new, joint group. This creates a shared social identity of the former rivals (cf. Adams 2015, pp.214-215). E.g., if the employees identify with their firm as a whole, this may reduce the distance between the different departments.

In this paper social identity theory is adopted to explain trust between the groups of long-term unemployed and caseworkers. The long-term unemployed are a rather specific group. On the one hand, this group is more than a minimal group because long-term unemployment is not a spontaneous categorization, and many group members differ strongly in their individual characteristics from the group of the caseworkers. On the other hand, long-term unemployment is usually not a chosen identity like a membership in a political party or being fan of a sports-club. Membership in this group is usually negatively connoted, and it is aspired to leave the group. Furthermore, the long-term unemployed usually don’t act together as group. Thus, it is interesting whether social identity theory fits to this group. Because of the specific characteristics of the group the effect of social identity may be lower than in more

traditional applications. The empirical evidence mentioned above also indicates weaker effects because self-esteem is often low in the group of long-term unemployed.

Concerning social identity theory empirical evidence for long-term unemployed is missing so far. Behncke/ Frölich/ Lechner (2010a, p. 1431) mention social identity theory, but they only use it as a kind of diving board for their work. Moreover, in their empirical work they focus on the question whether similarities of unemployed and their caseworkers are helpful to overcome unemployment. However, this belongs to interpersonal relationship instead of intergroup relationship; hence the question is linked to personal identity and not to social identity.

Although social identity theory may be an important explanation of building trust, other concepts are also relevant. Following more traditional approaches of explaining trust, the human condition of the unemployed is also important. According to Petermann (2013), the following variables are used. First, a minimum of safety is necessary to trust other people. This includes safety in general as well as a secure behavior of those people that should be trusted in (cf. p. 110). It may be argued that in Germany a minimum of safety exists for most people. However, the level of safety varies, and the higher (perceived) safety is the higher trust may be. Second, trust may be reduced if people feel disadvantaged (cf. p. 111). People may be disadvantaged by bad rules, but usually they have also been treated badly by other people. They experienced that (some) other people are not trustworthy. Thus, they will also be more cautionary in a new relationship, e.g. to a caseworker of a jobcentre, and will trust less.

Third, self-efficacy is an important issue. If people can fulfill tasks successfully and if they are convinced that they are responsible themselves for the success then their self-efficacy is high. They believe in their ability to achieve goals. This increases their self-esteem and enables them to trust more in other people (cf. p. 107). Self-efficacy of long-term unemployed may be low because they were not successful in getting a job for a long time. Nevertheless, the variable may vary between different unemployed, and trust may be lower for those with a comparatively low level of self-efficacy. Fourth, life satisfaction is positively correlated with trust in other people. If people are satisfied they trust more and vice versa (cf. pp. 69, 100). Therefore, life satisfaction is not an explaining variable like the others mentioned before. The coefficient only measures correlation and not a causal effect. Nevertheless, since life satisfaction may be low for many long-term unemployed it may be an indicator for a lower level of trust in the empirical model.

3. Means-tested benefits for long-term unemployed in Germany

There are two types of unemployment benefits in Germany: An unemployment insurance (so-called unemployment benefit I) and a tax financed subsidy (so-called unemployment benefit II). The financial aims are different: Unemployment insurance pays subsidies in accordance to the contributions made before. The higher the contributions were, the higher the subsidy is. Furthermore, the payments are limited to 12-24 months depending on the age of the recipient. In contrast to this, the tax financed subsidies do not depend on former contributions and former income of the recipients. They only finance a subsistence level for

the members of the household. Thus, they only depend on the size and the composition of the household and the level of rents in its commune. They are paid only after means-testing. However, if a household remains eligible it gets the subsidy unlimited. This distinguishes it from programs like the temporary assistance for needed families (TANF) in the US. Since the paper focuses on long-term unemployed, only the tax financed subsidy is relevant.

According to the concept of unemployment benefit II three groups of recipients can be distinguished: The first group are long-term unemployed that are no longer eligible to unemployment benefit I. The second group has not made enough contributions to the unemployment insurance, e.g. students that are unemployed after their studies. The third group works part- or full-time. However, the earnings are below the subsistence level so that they can get an additional payment to fill the gap (so-called “Aufstocker” in German). I.e. unemployed-benefit II is also paid to persons that are not unemployed. The analysis in this paper focuses on the first group. Members of the other groups are excluded. Their motivation may be rather different so that members of the first group should not be mixed with these people.

The support of long-term unemployed and other recipients of unemployment benefit II is done by the jobcentre. This is a joint institution of the Federal Employment Agency of Germany and the local authority of the residence of the unemployed. It combines the competence of the federal agency in supporting job search with the competence of the local authorities in social services like child care or dependence aid. The organization of a jobcentre is usually divided into two sections. The first one deals with means-testing and payments. Means-testing is complex because unemployment benefit II is solely the last “sheet anchor” in the German social net of benefits. It is only paid if own income and property, income of the partner, and other social benefits like housing benefits are altogether below the subsistence level. Thus, the unemployed must fill in a rather long form that has to be checked by a clerk of the jobcentre afterwards. The second section deals with placing the unemployed in a job or – if they are only working part-time with a few hours – in a job with sufficient income. Each unemployed gets a fixed contact person that pilots the unemployed in the job-searching process. In the paper this contact person is named caseworker.⁴ The caseworker generates a working profile of the unemployed and covenants aims and next steps for reintegration in the labor market. These could be, e.g., further training or a fixed number of job approvals per month. The role of the caseworkers is mixed: On the one hand, they advise the unemployed. On the other hand, they sanction them if they do not fulfill their duties. For instance, if the unemployed miss a meeting with their caseworker or reject a job although they are able to do the job then the unemployment benefits are reduced for a fixed time period.

In the paper I focus on the second branch. The first branch just deals with means-testing and determining the amount of the unemployment benefits. Concerning the unemployed this

⁴ I follow the labelling in the international literature. In German this could be misleading because in the official language the so-called caseworkers are people that supervise unemployed with multiple problems, e.g. low-qualified unemployed with a handicap or dependency. The “caseworkers” in the paper are named “individual contact person” (“persönlicher Ansprechpartner” in German) instead.

is a more or less passive role. They just have to bring the necessary documents, everything else is done by the clerk. In contrast to this, the second branch deals with activating the unemployed. Here, the relationship between the unemployed and their caseworkers and trust of the unemployed in their caseworkers may be essential for a successful reintegration in the labor market.

4. Experimental design and questionnaire

The experiment was the well-known trust game with the following payment rules:⁵ Each trustor got 5 Euros and could give an amount in full Euros between 0 and 5 Euros to the trustee. Afterwards, the given amount was tripled and the trustee could decide about his return to the trustor depending on the amount received. The trust game was combined with the strategy method. I.e., each participant had to make four decisions: In the first decision he was the trustor, and the trustee was a caseworker. In the second decision he was the trustee, and the trustor was a caseworker. Here he had to make a contingent decision for every possible amount. In the third and fourth decision the trustee/ trustor was a long-term unemployed. After filling out all decision sheets the payment relevant decision was randomly selected and randomly matched with the payment relevant decision of another person. Decisions and payments remained anonymous. For the topic of this paper I focus on the first and the third sheet of the long-term unemployed, i.e. the payments of the long-term unemployed to the caseworkers and to other members of their own group. Following social identity theory, the payments to other long-term unemployed should be higher than those to the caseworkers.

If such a difference exists it is of interest whether the difference can be reduced by a team-building exercise that merges unemployed and caseworkers to a new, joint group. This was done by a quiz with different payment rules. The quiz took part before the trust game. In the baseline treatment the payment only depended on the own knowledge of each participant. In the team-building treatment the payment depended on the success of the whole group in the room. The different treatments were randomly assigned.⁶

The experiment was conducted in 4 sessions. In every session 10 long-term unemployed and 10 caseworkers participated. Due to logistic reasons two sessions started at 8 am, and two sessions started at 10 am. At both times one session was conducted with the baseline treatment, and one session was conducted with the team-building exercise. Both were done in separate rooms using paper and pen-based questionnaires. The long-term unemployed were recruited via mail. For this purpose, the jobcentre drew a random sample of 800 long-term unemployed and sent an invitation letter of the experimenters to these people. The letter was sent by the jobcentre because the address data of the jobcentre are confidential. Those unemployed who answered the experimenters got an invitation for one of the times above. At both times the 20 unemployed who arrived first took part in the trust game, the following took part in another experiment. The caseworkers were randomly selected directly at the jobcentre.

⁵ Some explanations of the experimental design were taken from Meickmann (2019, ch. 2.3).

⁶ The team-building exercise was designed by Steve Humphrey and Felix Meickmann. The social identity theory itself was introduced to the project by Steve Humphrey.

After the trust game all participants got two questionnaires. The first one asked for the expectations about the average choices in the different situations before and is not considered here. The second one contained demographic and economic characteristics and psychological aspects. It includes the educational and (un)employment history and the usual controls like age and sex. This was necessary because we were not allowed to take any variables from the administrative data of the job-center. Instead of nationality and migration it was asked for the country of birth and the native language(s). On the one hand, these questions are less associated with stigma in Germany. On the other hand, especially language is very important for trust. Building trust needs communication, and linguistic barriers may hamper communication and hence may also hamper trust. Cultural differences may be also measured by these variables. In some of the home countries, government is more corrupt or more arbitrary than in Germany. Thus, trust in governmental organizations like the jobcentre and their employees may be lower.

The other part of the second questionnaire contains subjective assessments of the participants. Using a five-point Likert scale from “I strongly agree” to “I strongly disagree”, the variables safety, disadvantage, self-efficacy and satisfaction are operationalized as follows.⁷ For safety “Many things in my life are uncertain” was stated. Disadvantage was operationalized by “As a recipient of unemployment benefit II I’m disadvantaged”. For self-efficacy a general and a specific approach were used: “I effect much in my environment” was the general approach, for which a positive sign is expected. “My chances on the job market are bad” is the specific approach. Since repeated failure in getting a job by the long-term unemployed may reduce self-efficacy a negative sign is expected. Life satisfaction is measured by a long-term and a short-term approach. “I’m satisfied with my life” is the general, long-term approach. “I’m in a good mood at the moment” is the short-term approach. It is not life satisfaction in general, but perhaps current satisfaction may be also important for trust. In addition to the explaining variables “I trust the staff members of the jobcentre” is stated, i.e. it is asked for the perceived level of trust. Thus, self-perception of trust and paid trust can be compared.

5. Descriptive analysis of trust game and questionnaire

As mentioned above 40 long-term unemployed took part in the experiment. However, one person reported a duration of unemployment of only 3 months. This is far away from long-term unemployment so that this person is excluded from all analyses of chapters 5 and 6. Another person did not answer the question how much she would pay to a caseworker and is therefore excluded from the descriptive analysis. The median duration of unemployment of the remaining unemployed is 26 months, the median age 51 years. This high value is due to the fact that the rules and the responsible department differ between unemployed that are less than 25 years old and those that are at least 25 years old. Since it is difficult to control for all

⁷ Since the questionnaire was written in German language, some questions may sound slightly different from those in the origin.

effects of the different regimes we decided to focus on one of both groups and choose the larger and more representative one.

First, I analyse the payments of the long-term unemployed to the caseworkers descriptively. Figure 1 shows a comparatively high level of trust although the transfers were sent to members of the “other” group. Due to a meta-analysis of Johnson/ Mislin (2011, p. 871), who exploited 161 studies based on a trust game, the mean of the proportion sent was 0.5. In our study the mean is 0.66, i.e. on average two third of the available amount was sent. The head of the jobcentre was not surprised by this result because investing in relationship between caseworkers and unemployed is a strategic aim of his agency.

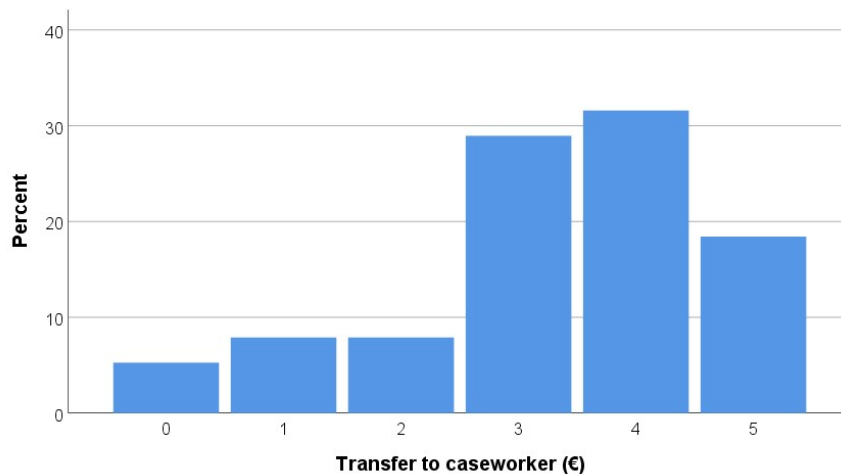


Figure 1: Transfer of long-term unemployed to caseworker, N=38

Thus, it may be expected that the difference of the “within” payment to members of the own group and the “between” payment to the caseworkers is small. However, significant differences can be observed. The mean of proportion sent to other unemployed is 0.78. Whereas the unemployed on average transferred 3.29 € to caseworkers they on average transferred 3.92 € to other unemployed. The difference is statistically significant different from zero at a level of 1 % - regardless whether this is tested parametrically via t-test or nonparametrically via Wilcoxon test. The modus of the difference is zero, i.e. the largest fraction of the unemployed pays the same to other unemployed and caseworkers. Some even pay 1 € more to the caseworkers. Perhaps they trust in a public authority more than in unknown people. Or they may be inspired by a good experience with their own caseworker in the past. Nevertheless, the fraction of unemployed that pays more to their own group is larger than the fraction of zero difference (46 % vs. 40.5 %) and much larger than the fraction that pays more to the caseworkers (13.5%). Thus, the descriptive results support the hypothesis that social identity is important for the level of trust. The whole distribution of the differences is shown in figure 2.

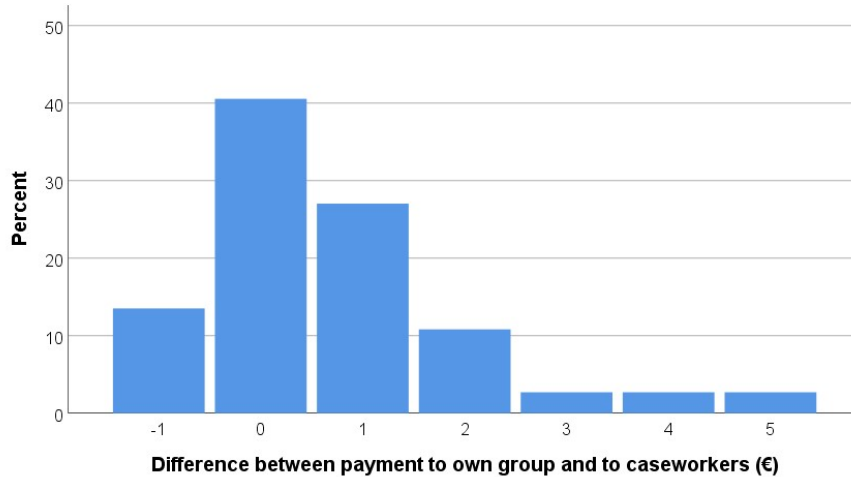


Figure 2: Difference between payment to another long-term unemployed and a caseworker, N=37⁸

Since social identity is important, the effect of the teambuilding exercise is also interesting. However, the result contradicts intuition: Within the teambuilding group (N=19) the difference of the payment to members of the own group and the payment to the caseworkers is *larger* (3.05 € vs. 4.05 €) whereas the difference in the group without teambuilding (N=18) is smaller (3.44 € vs. 3.78 €) and no longer statistically different from zero even at the 10 % level.⁹ Thus, the teambuilding exercise didn't work. It seems to measure something different than expected. Therefore, it is excluded from the econometric analysis.

Combining experimental data and questionnaire enables to compare paid trust and the trust that is reported in the questionnaire by the level of agreement to the statement "I trust the staff members of the jobcentre". In table 1 reported trust is aggregated into the three categories of weak trust, which combines the answers "I strongly disagree" and "I disagree", medium trust ("I partly agree and partly disagree") and strong trust ("I agree" and "I strongly agree"). Paid trust is aggregated in a similar way, i.e. 0 or 1 € defines a low payment, 2 or 3 € a medium payment and 4 or 5 € a high payment:

		Number of cases			
		Payment of unemployed to caseworker			
		low	medium	high	Σ
reported trust of unemployed to caseworker	weak	1	3	2	6
	medium	2	7	5	14
	strong	2	4	12	18
	Σ	5	14	19	38

Table 1: Reported and paid trust of long-term unemployed to caseworkers, N=38

If the reported level of trust is high, a similar tendency can be observed in the payments. However, if the reported level of trust is low, the picture of paid trust is rather mixed. Altogether a positive but moderate correlation between reported and paid trust is observed.

⁸ A third person didn't answer how much she would give to another long-term unemployed, thus the sample reduces to 37.

⁹ Again the method of testing (t-test, Wilcoxon Test) doesn't matter.

The Spearman rank correlation coefficient of the aggregated variables above is 0.272. This underlines that results for paid trust may be different from those for reported values.

Concerning the psychological hypothesis, I compare the corresponding subjective assessments with the payments to the caseworkers. In the dataset, “strongly disagree” is encoded as 0, “strongly agree” is encoded as 4, i.e. a positive sign of the correlation coefficient between assessment and payment means a higher payment for those who agree to the statement.

Concerning safety, the distribution of the answers shows that more unemployed in the sample agree (or strongly agree) to uncertainty than disagree (or strongly disagree) (see table 2). This is entirely different from the caseworkers, where 33 of 40 disagreed or strongly disagreed. For those unemployed who agree more participants pay a low or medium amount to the caseworkers than a high amount, whereas for those who disagree both numbers are nearly equal. However, the differences between low and high safety are not as large as it may be expected. This is in line with a moderate Spearman rank correlation coefficient of -0.250 .

		Number of cases Payment of unemployed to caseworker			Σ
		low	medium	high	
Many things in my life are uncertain.	strongly disagree	-	2	2	4
	disagree	1	2	2	5
	neutral	-	2	8	10
	agree	1	6	5	12
	strongly agree	3	2	2	7
	Σ	5	14	19	38

Table 2: Safety of unemployed and their trust in caseworkers, $N=38$; neutral = „partly disagree, partly agree“ in the questionnaire

Only one unemployed disagrees to disadvantage because of the own status. All other unemployed agree or strongly agree to disadvantages or are at least partly affected by disadvantages (see table 3). Thus, the comparatively high level of trust in the sample is remarkable. Furthermore, variation of the variable is low, and it may be difficult to identify an effect of disadvantages empirically. It can be only identified if the distance between those that are affected and those that are partly affected is large enough. The numbers below don't show this because the share of those who make a high payment is about 50% in all three categories. Hence the Spearman rank correlation coefficient is close to zero (0.052).

		Number of cases Payment of unemployed to caseworker			Σ
		low	medium	high	
As a recipient of unemployment benefit II I'm disadvantaged.	strongly disagree	1	-	-	1
	disagree	-	-	-	-
	neutral	1	4	6	11
	agree	2	5	7	14
	strongly agree	1	4	5	10
	Σ	5	13	18	36

Table 3: Disadvantage of unemployed and their trust in caseworkers, $N=36$, neutral = „partly disagree, partly agree“ in the questionnaire

Concerning self-efficacy, for the general question the numbers of those who agree (or strongly agree) are similar to those who disagree (or strongly disagree). The largest share are unemployed with a “partly agree, partly disagree” answer (see Table 4). Concerning the payments to the caseworkers the picture is mixed. On the one hand for those with low self-efficacy more unemployed pay low or medium amounts than high amounts. On the other hand, the strongest tendency for high payments is in the neutral group. This mixed picture is in line with a low Spearman rank correlation coefficient (0.120).

		Number of cases Payment of unemployed to caseworker			Σ
		low	medium	high	
I effect much in my environment	strongly disagree	1	3	1	5
	disagree	-	3	3	6
	neutral	3	2	9	14
	agree	1	5	3	9
	strongly agree	-	1	3	4
	Σ	5	14	19	38

Table 4: Self-efficacy (general) of unemployed and their trust in caseworkers, N=38, neutral = „partly disagree, partly agree“ in the questionnaire

For the specific question the Spearman rank correlation coefficient is even smaller and close to zero (0.049). Thus, concerning the psychological hypotheses the bivariate analysis only supports the hypothesis that low safety reduces trust, whereas for disadvantages and self-efficacy no or only a low correlation with trust can be found.

6. Econometric analysis of hypotheses concerning trust

The econometric analysis combines the different hypotheses to explain the amount of trust. The dependent variable is the payment of the long-term unemployed during the trust game. Each long-term unemployed is measured twice, i.e. one observation is the payment to another long-term unemployed and a second observation is the payment to a caseworker. A key issue for choosing the econometric model is whether the distance between different payments can be interpreted, e.g. whether the distance between 4 and 5 Euros the same as the distance between 1 and 2 Euros. Concerning the payments this is true. However, the payments measure trust, and the distance of trust may be different in the two cases. Thus, a model that only evaluates the order of the payments is more appropriate. Usual choices in the empirical literature are the ordered logit model and the ordered probit model. A compelling reason for choosing logit or probit doesn't exist (cf. Greene/ Hensher 2010, p. 107). I focus on the ordered probit model because it is easier to test stochastic assumptions in this model. The estimation results for the ordered logit model are rather similar and are given in appendix 1.

6.1 Ordered probit model

The ordered probit model is defined as usual by using a linear regression model for a latent variable that is linked via a threshold condition to the observed endogenous outcome:

$$y_i^* = x_i' \beta + u_i, \quad i = 1, \dots, N, \quad u_i | x_i \text{ iid } N(0, 1)$$

$$y_i = \begin{cases} 0, & y_i^* \leq c_0 \\ 1, & c_0 < y_i^* \leq c_1 \\ \vdots & \vdots \\ 5, & c_4 < y_i^* \end{cases}, \quad c_0 < \dots < c_4$$

y_i^* is the latent level of trust for which a continuous scale can be assumed. x_i is a $(K \times 1)$ -vector of exogenous variables that operationalize social identity theory, other psychological explanations of trust, and the usual controls. β is the corresponding $(K \times 1)$ -vector of parameters. The error terms are assumed to be standard normally distributed with zero expectation and variance 1. The latter value is due to the usual normalization of parameters in a probit model because all parameters are only identified up to a positive scalar. For a similar reason the constant is normalized to zero (cf. Greene/ Hensher 2010, p. 107).

This model implies several assumptions. First, the explaining variables are exogenous, and therefore are uncorrelated with the error term. Since the dependent variable is paid trust this variable is influenced by the explaining variables and not the other way around, i.e. endogeneity of explaining variables should be irrelevant. Correlation due to unobserved heterogeneity may be a topic but cannot be tested here because only cross section data are available. However, since I combine several theoretical approaches for explanation of trust the fraction of observed heterogeneity may be comparably high.

The assumptions about u_i imply uncorrelated and homoscedastic errors. Since the long-term unemployed are independent individuals, it can be assumed that their residuals are uncorrelated as it is usually done using cross-section data. In contrast to this the two observations of the same person may be correlated. However, this dimension is small in comparison with the cross-section dimension so that the problem may be negligible. Using clustered standard errors is not meaningful because at most two observations are available for each individual. Heteroscedasticity may be a topic and is therefore tested here.

Given the assumptions above the parameters can be estimated efficiently via Maximum Likelihood. The probabilities in the loglikelihood function are:

$$P(y_i = j | x_i) = P(c_{j-1} < y_i^* \leq c_j | x_i) = \Phi(c_j - x_i' \beta) - \Phi(c_{j-1} - x_i' \beta), \quad j = 0, \dots, 5,$$

$\Phi(z)$ denoting the cumulative distribution function of the standard normal distribution, and $c_{-1} = -\infty$, $c_5 = +\infty$.

Concerning marginal effects, it is not obvious which probability should be used in the ordered model (cf. Greene/ Hensher, ch. 5.5). Consider, e.g., the effect of safety, for which a positive effect on trust is expected. If this is true, then the marginal effect of high safety on the probability for 5 € should be positive, whereas the marginal effect of high safety on the probability for 0 € should be negative. Both can be used; however, the expected signs are directly opposed. In the paper I choose the marginal effect on the probability for paying 4 or 5 €. Choosing high payments instead of low payments leads to concordant signs of the theoretical hypotheses and the marginal effects. Furthermore, “4 or 5 €” are in line with the

definition of “high trust” in the descriptive analysis, and a substantial number of observations is available. Like in dichotomous models I use the derivative of the probability for continuous exogenous variables and a difference of probabilities for exogenous dummy variables. Since

$$P(y_i \geq 4 | x_i) = 1 - \Phi(c_3 - x_i' \beta),$$

this means

$$\frac{\partial P(y_i \geq 4 | x_i)}{\partial x_{ik}} = \varphi(c_3 - x_i' \beta) \beta_k,$$

if x_{ik} is continuous, $\varphi(z)$ denoting the standard normal density function, and

$$\begin{aligned} & P(y_i \geq 4 | x_i, x_{ik} = 1) - P(y_i \geq 4 | x_i, x_{ik} = 0) \\ &= \Phi(c_3 - (x_{i1}\beta_1 + \dots + 0 + \dots + x_{ik}\beta_k)) - \Phi(c_3 - (x_{i1}\beta_1 + \dots + \beta_k + \dots + x_{ik}\beta_k)), \end{aligned}$$

if x_{ik} is binary.

These marginal effects are estimated by replacing the unknown parameters with their estimates. Like in the dichotomous probit model the marginal effects vary over individuals. I calculate the estimated “global” marginal effect as mean of the individual effects. This is more meaningful than calculating the estimated marginal effect for a “mean individual” because the latter is difficult to interpret in case of exogenous dummy variables. The mean of a dummy variable is the share of ones in the sample, and, e.g., 0.54 women do not exist in reality.

Measuring fit can be done either by a pseudo R^2 measure or by forecasts. McFaddens pseudo R^2 is defined analogously to binary probit models (Greene/ Hensher 2010, p. 161):

$$R^2_{\text{McFadden}} = 1 - \ln l_1 / \ln l_0,$$

$\ln l_1$ the maximum of the loglikelihood function of the unrestricted model, $\ln l_0$ the maximum of the loglikelihood function of the model under the null hypothesis $\beta=0$. Although this pseudo R^2 is bounded by 0 and 1 its values are usually considerably smaller than those of the traditional R^2 in linear regression models. Thus, even values larger than 0.1 indicate some explanatory power of the model.

However, a better measure of fit may be the share of correct predictions. Again, in ordered models with more than two categories the definition of forecasts is less clear than in dichotomous models. In dichotomous models two definitions are available, and they are equivalent for these models:

$$\hat{y}_i = \begin{cases} 1, & \text{if } x_i' \hat{\beta} > 0 \\ 0, & \text{if } x_i' \hat{\beta} \leq 0 \end{cases} \quad \text{or} \quad \hat{y}_i = \begin{cases} 1, & \text{if } \hat{P}(y_i = 1 | x_i) = \max \{ \hat{P}(y_i = 0 | x_i), \hat{P}(y_i = 1 | x_i) \} \\ 0, & \text{if } \hat{P}(y_i = 0 | x_i) = \max \{ \hat{P}(y_i = 0 | x_i), \hat{P}(y_i = 1 | x_i) \} \end{cases}$$

The first definition is based on the latent variable definition of the model, the second one uses the category with the highest estimated probability as forecast. Both definitions can be generalized to ordered models with more than two categories. Greene/ Hensher (2010, p. 164) suggest the second one. However, the estimated probabilities depend crucially on the distance between \hat{c}_{j-1} and \hat{c}_j . Thus, if the most frequently observed categories belong to the smallest intervals, the number of correct forecasts becomes small just because of this technical aspect.

In contrast to this, a generalization of the first definition is free from this problem. Furthermore, it is a natural generalization of forecasting in linear regression models. Thus, I use the forecasts

$$\hat{y}_i = \begin{cases} 0, & \hat{y}_i^* \leq \hat{c}_0 \\ 1, & \hat{c}_0 < \hat{y}_i^* \leq \hat{c}_1 \\ \vdots & \vdots \\ 5, & \hat{c}_4 < \hat{y}_i^* \end{cases}, \quad \hat{y}_i^* = x_i' \hat{\beta}.$$

Afterwards I calculate the share of correct forecasts. If the model is non informative, the number of correct forecasts is about $N/(\text{number of categories})$, whereas otherwise the number of correct forecasts should be substantially higher.

Heteroscedasticity is usually defined as follows for ordered choice models (cf. Greene/Hensher 2010, p. 200):

$$\text{Var}(u_i | x_i) = \left(\exp(z_i' \gamma) \right)^2.$$

z_i is a $(L \times 1)$ -vector of exogenous variables that cause individual-specific variances of the error terms, γ is the corresponding $(L \times 1)$ -vector of parameters. If possible variables are unknown, a general test can be done by choosing $z_i = x_i$. The choice probabilities are now:

$$P(y_i = j | x_i) = \Phi\left(\frac{c_j - x_i' \beta}{\exp(z_i' \gamma)}\right) - \Phi\left(\frac{c_{j-1} - x_i' \beta}{\exp(z_i' \gamma)}\right), j = 0, \dots, 5.$$

Using these formulas joint ML estimation of all parameters can be done. If $z_i = x_i$ is used sometimes ML estimation is not feasible, i.e. sometimes the maximization algorithm does not converge. However, if ML estimation is feasible, heteroscedasticity can be tested easily via the LR principle. The test problem is “ $H_0: \gamma = 0$ against $H_1: \gamma \neq 0$ ”, and the null of homoscedasticity is rejected if

$$2(\ln l - \ln l_r) > \chi^2_{1-\alpha}(L).$$

$\ln l$ is the maximum of the loglikelihood of the model with heteroscedasticity and $\ln l_r$ is the maximum of the restricted loglikelihood of the standard model.

6.2 Results of the econometric analysis

The following latent variable regression is estimated:¹⁰

$$y_i^* = \beta_1 \text{other}_i + \beta_2 \text{uncertain}_i + \beta_3 \text{disadvantaged}_i + \beta_4 \text{badchance}_i + \beta_5 \text{efficacious}_i + \beta_6 \text{pleased}_i \\ + \beta_7 \text{age}_i + \beta_8 \text{female}_i + \beta_9 \text{german}_i + u_i, i = 1, \dots, 68.$$

Except of age all variables are dummy variables. Other is equal to one if the payment is made to a member of the “other” group, i.e. to a caseworker. Uncertain, disadvantaged, badchance, effective and pleased are dummy transformations of the Likert scale-based questions. They equal one if the unemployed agree or strongly agree, i.e. the comparison group are those that (strongly) disagree or that are neutral. They are related to the statements of chapter 4 as follows:

¹⁰ All calculations were done with Stata. The Stata code is given in appendix 2.

uncertain	Many things in my life are uncertain.
disadvantaged	As a recipient of unemployment benefit II I'm disadvantaged
badchance	My chances on the job market are bad.
efficacious	I effect much in my environment
pleased	At the moment I'm in good mood.

Table 5: Exogenous variables and their corresponding statements

The questions for uncertain, disadvantaged and efficacious have been already used in the descriptive analysis. Pleased operationalizes short-term satisfaction. Age and indicators for female sex and that German is the only mother tongue¹¹ are used as controls. Due to the exclusion of one person and to missing values in some answers the number of observations reduces from 80 to 68.

Table 6 summarizes the descriptive statistics for the explanatory variables and the expected signs of the corresponding coefficients. The expected signs of “other”, of the psychological variables, and of German language are based on the theoretical considerations above. Concerning age and gender I follow a recent paper Greiner and Zednik who found a positive linear age effect on trust whereas no gender effects are detected (Greiner/ Zednik 2019).

Variable	Mean	Minimum	Maximum	Expected sign
other	0.5	0	1	–
uncertain	0.54	0	1	–
disadvantaged	0.63	0	1	–
badchance	0.71	0	1	–
efficacious	0.34	0	1	+
pleased	0.38	0	1	+
age	48.49	25	60	+
female	0.41	0	1	?
german	0.76	0	1	+

Table 6: Descriptive statistics of the explanatory variables of the ordered probit model, N = 68

The results of the estimation confirm most of the hypotheses (cf. Table 7). The payments of the long-term unemployed to caseworkers are significantly lower than those to other unemployed at a level of 5%. This result is remarkable because the level of trust in the caseworkers is comparably high in the sample (cf. ch. 5). Furthermore, social identity theory seems to be valid even for the group of long-term unemployed although this group has not a positive connotation. Concerning the psychological hypothesis low safety and a low job market efficacy reduce trust, whereas for general efficacy and disadvantage no statistically significant effects are found – even at the 10 % level. Only the sign of short-term satisfaction contradicts to the expectation. If short-term satisfaction is replaced by life satisfaction in general, the variable becomes statistically insignificant. Most of the results are in line with the bivariate analysis in ch. 5, only the low job market efficacy now shows a statistically significant effect. The control variables are statistically significant with the expected signs. The older the unemployed are, the larger their trust is, and unemployed with German as the

¹¹ The results for this variable are stronger than those for Germany as country of birth.

only mother tongue trust more than those with at least one other mother tongue. In contrast to Greiner/ Zednik (2019) sex is statistically significant, women trust more than men.

Dependent variable:
Paid trust of long-term
unemployed

$\chi^2(9) = 28.68$
p-value $\chi^2 = 0.001$
McFadden $R^2 = 0.138$

variable	coeff	std.error	p-value z-stat	marg. effect
other	-0.567	0.271	0.036	-0.171
uncertain	-0.616	0.295	0.037	-0.182
disadvantaged	0.371	0.305	0.223	-
badchance	-0.702	0.332	0.034	-0.199
efficacious	-0.124	0.307	0.685	-
pleased	-0.645	0.299	0.031	-0.200
age	0.057	0.019	0.002	0.017
female	0.744	0.322	0.021	0.213
german	1.303	0.367	0.000	0.393

Table 7: ML-estimates of the ordered probit model and average estimated marginal effects on $P(y_i \geq 4 | x_i)$, marginal effect of a dichotomous variable = $P(y_i \geq 4 | x_i, x_{ik}=1) - P(y_i \geq 4 | x_i, x_{ik}=0)$, $N=68$

All marginal effects substantial. The variable german has the biggest effect: If German is the only mother tongue, the average estimated probability of high trust is about 40 percentage points higher than for unemployed without this characteristic. This is a strong indicator for comparably low trust of foreign unemployed and for the hypotheses to explain that. The effect of age seems to be low at first glance, but one year is a very short time period. If the effect of age is aggregated over ten years it is in absolute values similar to the effects of most other variables. Concerning the main hypotheses, the effects of social identity and of the traditional variables are of similar size. E.g., the average estimated probability of high trust is 17 percentage points lower if the other person is a caseworker, and it is 18 percentage points lower if many things in the life of the unemployed are uncertain.

The above model has some explanatory power. First, McFadden R^2 is at least of moderate size. Second, the forecasts of the model beat a forecast lottery:

		forecasted payment				
		2	3	4	5	Σ
realized payment	0	1	2	1	0	4
	1	0	1	1	0	2
	2	1	3	1	0	5
	3	0	10	5	1	16
	4	0	5	12	3	20
	5	0	3	6	12	21
Σ		2	24	26	16	68

Table 8: Comparison of realized payments and forecasted payments, forecasts with the ordered probit model based on forecasts of the latent variable and the estimated thresholds. Correct forecasts in bold numbers.

In total 35 of 68 observations are predicted correctly. That is much more than in a lottery, where only 11-12 forecasts would have been correct. If correct forecasts and nearly correct forecasts, i.e. forecasts with a maximal distance of 1 Euro from the true value, are added, 57 of 68 forecasts are good. That's much for a model with 6 categories. However, the quality is different for low and high trust: Whereas unemployed with a payment of at least 3 € are predicted well, those with low trust are predicted badly. Thus, further work is needed to understand the behavior of those people.¹²

Heteroscedasticity is not an issue. Several variants were tested. First, the group of foreign language people is more heterogenous than the group with German as the only mother tongue. Thus, the variance of the error terms of the foreign language group may be larger. Second, social identity may also influence the variance of the unobserved heterogeneity, i.e. the payments to the other group may vary differently than those to the own group. Third, the general hypothesis with $z_i = x_i$ is also examined. The results are summarized in Table 9.

z_i	lnl	LR-statistic	p-value LR-stat
german _i	-89.341	0.112	0.738
other _i	-88.914	0.967	0.326
x_i	-85.992	6.811	0.657

Table 9: LR-tests of the null of homoscedastic error terms against different alternatives

7. Conclusion and policy implications

The paper presents the results of an econometric model with multiple explanations of trust. This model has appreciable explanatory power. It shows that the level of trust is significantly lower for members of the “other” group of caseworkers, i.e. social identity matters for long-term unemployed. This indicates that the level of trust of long-term unemployed in their caseworkers can be risen. Social identity theory itself suggests teambuilding exercises that may reduce the distance between the two groups. However, the empirical results indicate that week teambuilding exercises may not be sufficient. Another way of raising trust is the concept of incentive ethics. Allocating moral goods from the caseworkers to the long-term unemployed will raise the reputation of the caseworkers and subsequently will raise trust of the long-term unemployed in their caseworkers. This is a novel concept even in connection with the social identity theory, where the link to morality is still an open research question (cf. Abrams 2015, p. 219).

The more traditional hypotheses are only partly supported. First, more safety in the life of the unemployed can raise the level of trust. Safety in general includes all areas of life, and thus, can only partly be influenced by the caseworkers. However, the results indicate that the support of the long-term unemployed should not be reduced to job market activities. Reducing unsafety in other parts of the life is also important. Furthermore, implementing the concept of incentive ethics would raise safety in the relationship between long-term unemployed and caseworker. Thus, the concept will contribute to better results also in this way. Second, a low

¹² In the present study it should not be given too much weight on this result because of the low number of observations with 0 or 1 €.

self-efficacy concerning the job market reduces trust. This usually cannot be solved easily. However, preparatory measures that lead to a sense of achievement may be helpful to raise self-efficacy.

Concerning the average marginal effect language has the greatest effect. If German is the only mother tongue the probability of high paid trust is about 40 percentage points higher than for people with other mother tongues. This supports the hypothesis that reducing barriers of language may be very important for building trust. Furthermore, since the mother tongue may be a proxy for cultural background, building bridges to other cultures may be also important. Concerning the concept of incentive ethics this implicates that the focus should be on universal moral goods. If specific moral goods are implemented these must be made transparent to members of foreign cultures.

Further research is needed to implement the concept of incentive ethics. First, it has to be analysed which moral goods are especially important. Second, suitable operationalizations of these goods have to be developed. And third, concepts of business ethics have to be adopted to non-profit organisations to implement the mechanism in the jobcentres. Nevertheless, even without this research the concept can be used as mirror for the work of a jobcentre and as inspiration for feasible initiatives.

Acknowledgement

I thank Felix Meickmann for preparing the paper and pen material and the subsequent data set. Without his effort this paper wouldn't exist. I thank Steve Humphrey for inducing me into social identity theory, and I thank Robert Gillenkirch for very helpful discussions of several aspects of my work.

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Appendix 1: Formulas and results for the ordered logit model

In the ordered logit model, the likelihood functions are

$$P(y_i = j | x_i) = P(c_{j-1} < y_i^* \leq c_j | x_i) = \Lambda(c_j - x_i' \beta) - \Lambda(c_{j-1} - x_i' \beta), j = 0, \dots, 5,$$

$\Lambda(z) = 1/(1+\exp(-z))$ denoting the cumulative distribution function of the logistic distribution with expectation 0 and variance $\pi^2/3$ (cf. Kotz et.al. 2006, p. 4371). Thus the individual marginal effects are calculated as follows:

$$\frac{\partial P(y_i \geq 4 | x_i)}{\partial x_{ik}} = \lambda(c_3 - x_i' \beta) \beta_k,$$

if x_{ik} is continuous, $\lambda(z) = \exp(-z)/(1+\exp(-z))^2$ denoting the density function of the logistic distribution with mean 0 and variance $\pi^2/3$ (cf. Kotz et.al. 2006, p. 4371), and

$$\begin{aligned} & P(y_i \geq 4 | x_i, x_{ik} = 1) - P(y_i \geq 4 | x_i, x_{ik} = 0) \\ &= \Lambda(c_3 - (x_{i1}\beta_1 + \dots + 0 + \dots + x_{ik}\beta_k)) - \Lambda(c_3 - (x_{i1}\beta_1 + \dots + \beta_k + \dots + x_{ik}\beta_k)), \end{aligned}$$

if x_{ik} is binary. The results of the estimation can be found in the following table:

Dependent variable:

Paid trust of long-term
unemployed

$$\chi^2(9) = 30.15$$

$$p\text{-value } \chi^2 = 0.000$$

$$\text{McFadden } R^2 = 0.145$$

variable	coeff	std.error	p-value z-stat.	marg. effect
other	-0.964	0.470	0.040	-0.166
uncertain	-1.043	0.514	0.042	-0.178
disadvantaged	0.622	0.528	0.238	-
badchance	-1.212	0.575	0.035	-0.198
efficacious	-0.200	0.531	0.706	-
pleased	-1.098	0.522	0.035	-0.194
age	0.108	0.033	0.001	0.018
female	1.547	0.574	0.007	0.250
german	2.388	0.657	0.000	0.410

Table A1: ML-estimates of the ordered logit model and average estimated marginal effects on $P(y_i \geq 4 | x_i)$, marginal effect of a dichotomous variable = $P(y_i \geq 4 | x_i, x_{ik} = 1) - P(y_i \geq 4 | x_i, x_{ik} = 0)$, $N=68$

Appendix 2: Stata code for the analysis of the ordered probit model

The variables in the paper are named in the code as follows:

paid trust = gegebenesVertrauen, other = andereGruppe, uncertain = Leben_unsicher, disadvantaged = Benachteiligt, badchance = Chance_Arbeitsmarkt, efficacious = hohe_Wirksamkeit, pleased = momentan_gut_drauf, age = Alter, female = Weiblich, german = Deutsch_eng.

```
/* Estimation of the ordered probit model in Table 7, 10_AU_010 is the identifier of the
person that reports a duration of unemployment of only 3 months, type == 2 restricts the
analysis to the unemployed */
oprobit gegebenesVertrauen andereGruppe Alter Weiblich Deutsch_eng Leben_unsicher
Benachteiligt Chance_Arbeitsmarkt hohe_Wirksamkeit momentan_gut_drauf if ID_paper !=
"10_AU_010" & Type == 2
```

```
/* Forecasted payments in table 8 */
predict yistern if ID_paper != "10_AU_010" & gegebenesVertrauen != ., xb
generate yi_dach = 0 if yistern != .
replace yi_dach = 5 if yistern > _b[/cut5] & yistern != .
replace yi_dach = 4 if yistern > _b[/cut4] & yistern <= _b[/cut5] & yistern != .
replace yi_dach = 3 if yistern > _b[/cut3] & yistern <= _b[/cut4] & yistern != .
replace yi_dach = 2 if yistern > _b[/cut2] & yistern <= _b[/cut3] & yistern != .
tab gegebenesVertrauen yi_dach
```

```
/* Marginal effects in Table 7, "other" is given as an example for dichotomous variables */
generate marg_age=normalden(_b[/cut4]-yistern)*_b[Alter]
generate marg_other = normal(_b[/cut4]-(_b[Leben_unsicher]*Leben_unsicher
+_b[Benachteiligt]*Benachteiligt+_b[Chance_Arbeitsmarkt]*Chance_Arbeitsmarkt
+_b[hohe_Wirksamkeit]*hohe_Wirksamkeit
+_b[momentan_gut_drauf]*momentan_gut_drauf+_b[Alter]*Alter+_b[Weiblich]*Weiblich
+_b[Deutsch_eng]*Deutsch_eng)) - normal(_b[/cut4]-(_b[andereGruppe]
+_b[Leben_unsicher]*Leben_unsicher+_b[Benachteiligt]*Benachteiligt
+_b[Chance_Arbeitsmarkt]*Chance_Arbeitsmarkt
+_b[hohe_Wirksamkeit]*hohe_Wirksamkeit
+_b[momentan_gut_drauf]*momentan_gut_drauf+_b[Alter]*Alter+_b[Weiblich]*Weiblich
+_b[Deutsch_eng]*Deutsch_eng)) if yistern_logit != .
sum marg_age marg_other
```

```
/* ordered probit model with heteroscedasticity, general alternative as an example*/
hetoprobit gegebenesVertrauen andereGruppe Alter Weiblich Deutsch_eng Leben_unsicher
Benachteiligt Chance_Arbeitsmarkt hohe_Wirksamkeit momentan_gut_drauf if ID_paper !=
"10_AU_010" & Type == 2, het(andereGruppe Alter Weiblich Deutsch_eng Leben_unsicher
Benachteiligt Chance_Arbeitsmarkt hohe_Wirksamkeit momentan_gut_drauf)
```