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IZA DP No. 17858

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ABSTRACT

Solidarity and Discrimination Within and Between Generations: Evidence from a Dutch Population Sample*

Using an artefactual field experiment, we elicit revealed preferences for solidarity of different age groups toward the same and other age groups among a large, diverse Dutch population sample. Preferences are measured with a solidarity game and linked to a unique administrative database, allowing exploration of demographic and socio-economic correlates. In the game, a winner of a money amount is asked ex-ante how much they are willing to transfer to a loser who gets nothing. Participants, on average, show a strong preference for ex-ante solidarity, willing to transfer about 40% of the money. However, participants are overly pessimistic about what others will transfer. We also observe age-based discrimination, as many show stronger solidarity with their own age group. Using questionnaires, we measure stated preferences in various domains and find revealed preferences correlate with some self-reported attitudes and with opinions on social security and solidarity-related field behavior.

JEL Classification: D63, D64, D91, C93

Keywords: solidarity, age groups, group identity, social security systems, large population sample

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1. Introduction

Solidarity is of vital importance for the functioning of societies and many of their institutions. Specifically, the stability and acceptance of social security systems relies on the solidarity within and between different generations. For instance, health insurance systems require solidarity between high and low health risk individuals and rely on transfers from the healthy to the ill, and unemployment insurance requires solidarity between the employed and unemployed and function only when the employed are willing to pay contributions even if their unemployment risk is low. Likewise, many pension systems are based on solidarity both within and between generations; within generations through collective risk-sharing of pension-savers and between generations for pay-as-you-go pension systems where the working population pays the pensions of the retired through their contributions.

In recent decades these institutional pillars of the modern welfare state have been under increased scrutiny and reforms have been discussed and implemented in a number of countries (e.g., the pension reform in Sweden in 2000, the United Kingdom in 2016, and currently in the Netherlands, or the Hartz reform in Germany, to name only a few). Arguably, for well-informed policy design, knowledge of the preferences of those affected by a policy is of crucial importance for the acceptance of this policy. Consequently, for solidarity based institutions a thorough knowledge about solidarity preferences is essential. However, large-scale evidence on the existence and distribution of solidarity preferences is missing. Those studies that elicit solidarity preferences with the help of incentivized experimental measures have mostly been conducted in the laboratory with student participants (see related literature below). Yet, it has been shown that social preferences show considerable heterogeneity (e.g., Engel 2011, Cooper and Kagel 2016, Fehr and Charness forthcoming), making extrapolation from the existing evidence to the general population problematic. Moreover, for solidarity preferences also the target of solidarity may significantly shape a person's attitudes towards redistribution (Tausch et al. 2013). In particular, given that solidarity towards different age groups is an integral element of social security systems, it is important to investigate the interaction between solidarity and the age of donors and recipients.

Our study provides first knowledge about the existence and the distribution of revealed solidarity preferences outside the laboratory, within and between different age cohorts, utilizing a large-scale artefactual field experiment with a heterogeneous population sample in the Netherlands. Existing evidence regarding the general population's attitudes towards solidarity is based on surveys (see, e.g., Vrooman et al. 2014 and Hoff 2015). However, such surveys elicit opinions and stated preferences which may differ from revealed preferences and may suffer from

noise inherent to hypothetical decisions as well as potential biases related to survey responses (Camerer and Hogarth 1999, Bond and Lang 2019).[1] In our study, we collect both stated and revealed preferences about solidarity and investigate the relation between them.

We conduct an artefactual field experiment (Harrison and List 2004) to elicit solidarity preferences within and between generations, using an incentivized distribution task. We adapt an established experimental measure of solidarity preferences (Selten and Ockenfels 1998), which allows us to investigate the willingness of participants to share their income in the face of income risk. In the experiment, we divide participants into three age groups and let them decide on solidarity transfers to each of these groups. The elicited solidarity preferences are then linked to register data from Statistics Netherlands (CBS).[2] This allows us to explore potential demographic and socio-economic correlates of intra-generational and inter-generational solidarity preferences at the individual level. Finally, we test for links between elicited solidarity preferences, stated attitudes related to pro-social behaviors and social security systems as well as self-reported solidarity related field behaviors, like charity giving, volunteer work, and blood donations.

Our study contributes to the literature on large-scale studies eliciting economic preferences in heterogeneous population samples (see, e.g., Bellemare et al. 2008, Dohmen et al. 2011, von Gaudecker et al. 2011; Falk et al. 2013; Falk et al. 2018; Riehm et al. 2022). To the best of our knowledge, our study is the first that analyzes the distribution of solidarity preferences across generations in a large population sample, connects it to official administrative data on demographics and socio-economic characteristics, and tests the relation between revealed preferences, stated attitudes and field behaviors. Importantly, as we elicit preferences for solidarity both within and between generations, our study provides important insights whether own age affects the solidarity towards different age groups and whether there exists a polarization in solidarity between different age groups.

Our results show that participants exhibit substantial preferences for solidarity. On average, they are willing to share about 40% of the potential monetary gains with a needy recipient. However, we also observe significant differences in solidarity towards different generations. A substantial share of our participants discriminates in favor of their own age group, indicating some polarization between different generations. Moreover, participants are relatively pessimistic about the solidarity of others, as in most cases the expected amount is lower than the actually received

1 The link between stated and revealed preferences has been widely discussed also in the context of attitudes towards risk (see, for example, Bokern et al. 2021 for a discussion).

2 Statistics Netherlands is the National Statistical Institute of The Netherlands that provides an extensive set of variables related to longitudinal demographic and socio-economic backgrounds of inhabitants of the Netherlands. It is allowed by law to link data from surveys with register data in the System of Social Statistical Datasets (Bakker et al. 2014).

transfer. In addition, we find that solidarity preferences towards certain age groups as well as the positive discrimination towards one's own age group are systematically related to a number of individual characteristics (such as gender, and education). Finally, revealed preferences for solidarity correlate with a number of stated attitudes as well as with field behaviors expressing solidarity, such as general altruism, preferences for pension schemes and past charitable donations.

The remainder of this paper is organized as follows. Section 2 links our study to the related literature. Section 3 presents the experiment and describes the implementation of the study in the field. Section 4 reports the results and Section 5 discusses our findings and puts forward some conclusions.

2. Related literature

For our study we adapt the solidarity game introduced by Selten and Ockenfels (1998) and adapt it for the implementation in a large-scale online artefactual field experiment and for the elicitation of both intra- and intergenerational solidarity preferences. In the original study, participants are matched in groups of three, where each group member has a 2/3 chance of winning 10 Deutsch Mark (equivalent to about €5) and a 1/3 chance of receiving nothing. Prior to knowing the outcome of the lottery, participants have to decide how much of the prize they are willing to share in case they would win and the other group members would lose. Selten and Ockenfels (1998) report that participants share substantial amounts. A number of subsequent experimental studies have consistently found a general willingness to act solidary, at the same time suggesting an important role for the causes through which recipients have become needy, such as own responsibility or bad luck (see Büchner et al. 2007; Charness and Genicot 2009; Trhal and Radermacher 2009; Bolle et al. 2012, de Beer and Berg 2012a; Cappelen et al. 2013; Tausch et al. 2014; Bolle and Costard 2015, Cettolin and Tausch 2015 and the references cited therein).

None of these studies uses a large heterogeneous population sample as we do but even within these restricted samples there is some suggestive evidence that the strength of solidarity preferences varies between individuals and that they also depend on individual characteristics. For example, in laboratory studies conducted with student samples exploring solidarity among East Germans and West Germans, it is found that the level of solidarity is significantly lower among the East German participants (Ockenfels and Weimann 1999; Brosig-Koch et al. 2011). The study of de Oliveira et al. (2014) uses a sample from a low-income neighborhood in the US and suggests that some socio-economic characteristics of participants (such as the income) do affect decisions

in this setting.[3] Importantly, these studies focused on the elicitation of general solidarity preferences and do not elicit solidarity preferences within and between generations.

Our study is also related to research on the development of social preferences across the life course. Although the evidence is far from conclusive, previous research suggests that older people behave more pro-socially in distribution decisions that involve no exogenous income risk and are also more cooperative and reciprocal (see e.g. Sutter and Kocher 2007; Bellemare et al. 2008; Engel 2011; Gutiérrez-Roig et al. 2016; Kettner and Waichman 2016; Matsumoto et al. 2016; Molina et al. 2018). Romano et al. (2021) implement a lab-in the-field experiment and report on the results of dictator and prisoner's dilemma games in which participants of different age groups can condition their behavior on the age group of their interaction partners. Related to our study, it is found that age is positively correlated with generosity in the dictator game. Moreover, while there is no overall effect of age concerning the level of cooperation in the prisoner's dilemma, participants tend to cooperate more with old and middle-aged subjects, and old participants seem to be more willing to cooperate with young interaction partners if they expect defection. Praxmarer et al. (2024) compare cooperation and third-party punishment behavior of old and young participants in repeated prisoner dilemma games. They find old participants to be significantly more cooperative and at the same time also to be more willing to invest resources to punish free-riding.

Our focus on solidarity within and between generations adds to the understanding of the impact of social identity for economic decisions outside the laboratory. Belonging to a specific generation might create social identity (Tajfel and Turner, 1979; Zacher et al., 2019) which in turn could influence economic decision-making (Akerlof and Kranton, 2000). A number of experimental studies have shown that decision-makers indeed show stronger other-regarding (or pro-social) behavior towards members of their own social group or show differences in discriminating behavior between in- and out-group members (see, for example, Chen and Li 2009; Fong and Luttmer 2011, Ockenfels and Werner 2014, Tanaka and Camerer 2016, Grimm et al. 2017, Hett et al. 2020). However, despite these examples, overall the evidence from economic studies on the role of social identity appears not to be conclusive (see the meta-analysis by Lane 2016).

We are aware of only two studies that look at age as a potential identity establishing characteristic and its effect on behavior. De Beer and Berg (2012b) conduct a lab-in-the-field solidarity game experiment in a multi-cultural environment (a market in Amsterdam), where, prior to deciding on their transfers, participants are informed about a number of demographic

3 In addition to these studies, Lenel and Steiner (2020) and Strobl and Wunsch (2021) test general patterns of solidarity with participants from developing countries.

characteristics of their interaction partners. While this study focuses on the effect of ethnic diversity on solidarity, the authors also consider the impact of age differences. They find that moderate age differences are associated with the highest solidarity transfers while large or small age differences are linked to lower solidarity. In the study by Romano et al. (2021) already described above, the authors find no evidence that people differentiate in favor of their own age group, neither in the dictator game nor in the prisoner's dilemma game.

3. Research Design and Procedures

In the implemented solidarity game, participants were anonymously matched in pairs.[4] In each pair, both participants faced the same situation with uncertain payoffs, involving four possibilities. With a probability of 50%, both received the good outcome of €80 (case 1). With 10% probability, both received the bad outcome of €0 (case 2). In cases 3 and 4, that each occurred with a 20% probability, one participant in the pair received €80, while the other participant received €0. These two latter cases differed only in who of the two participants received the good and the bad outcome, respectively.

In the experiment, a participant had to make a decision only for the case where the participant receives €80 and the matched participant €0. Specifically, participants had to decide how much of the €80 they are willing to transfer to the other participant. We elicited transfer decisions before the cases were actually realized, which allowed us to measure ex-ante risk solidarity and to collect decisions of all participants.[5] Importantly, all participants had to make transfer decisions for three different age groups of the recipient that they could be matched with. We divided participants into three groups: young participants (between 16 and 34 years), middle-aged participants (between 35 and 64 years), and old participants (65 and older). All relevant information about the decision situation was provided truthfully to the participants in the experiment instructions, and it was made clear that all decisions would be anonymous. After participants made their transfer decisions, they were asked to state their (non-incentivized) beliefs about the transfer amounts they would receive on average from members of each of the three age groups.[6] Thereafter, they completed a questionnaire that elicited their attitudes towards general solidarity, aspects related to solidarity within the Dutch pension system as well as attitudes in different other domains, such as

4 The study was approved by Maastricht University's Ethics Review Committee Inner City Faculties (ERCIC_104_04_10_2018).

5 This method is akin to the strategy method (Selten 1967).

6 We chose not to incentivize beliefs for two reasons. First, because there is evidence that incentivized belief elicitation entails the risk that participants hedge between action and beliefs (Rutström and Wilcox 2009; Blanco et al. 2010; Armantier and Treich 2013) and our main focus is on the action (transfers). Second, because explaining incentivized belief elicitation to our general population sample would have been too time consuming with the risk of losing many of the online participants.

altruism, religion, and political participation. The experiment instructions as well as the questionnaire can be found in Online Appendix B.

The experiment and the survey were conducted on-line by the research agency Flycatcher. A representative sample of 6,000 Dutch citizens aged 16 or older was drawn by Statistics Netherlands (CBS) and contacted for the study with an invitation letter[7]. After two weeks they were sent a reminder letter. Every invitee received a link to the study website and an individual code to enter the website. Instructions were provided on-line. The invitation letter informed the invitees that upon participation they would be matched into pairs and would have the chance to share €80 with the matched person, as well as that each tenth pair would be randomly chosen for payout and that their decisions would determine their earnings. From an ex-ante perspective, the expected payoff for a participant accounted for €5.60 and the study duration was about twenty minutes.[8]

The field phase lasted from mid-October to mid-November 2018. Altogether 745 subjects started the study and made transfer decisions to each age group and 693 subjects completed the entire study, yielding a response rate of 11.6%. Table A1 in the Appendix lists descriptive statistics related to demographic and socio-economic characteristics of our sample.

4. Results

We start by reporting the elicited solidarity preferences and analyzing the degree of intra- and inter-generational solidarity. In a next step, we assess the relationship between various socio-demographic characteristics and solidarity preferences and thereafter we link the revealed solidarity preferences to stated attitudes and field behavior. In the main text of the paper, we report descriptive results based on unweighted data. Importantly, our conclusions do not change when we use re-weighted data that are adjusted for a potential non-response bias based on a weighting model which included various population characteristics.[9] Moreover, the parametric analyses reported throughout the paper include these population weights. In the final step of our analysis, we take a closer look at discriminatory behavior related to solidarity and its correlates with individual characteristics of participants.

7 The sample was drawn randomly based on the population database of CBS.

8 The hourly gross minimum wage in the Netherlands in the year the study was conducted (2018) was €9 for people aged 22 or older, and the average hourly gross wage was about 15 euros.

9 This pertains to the following model (number of categories in brackets): marital status (4), density of municipality (6), gender * standardized household income (6), gender (2) * age (8), region (4). Details of the descriptive analyses using weighted data are presented in the Appendix.

4.1 Solidarity preferences of different age groups and expected solidarity

We measure solidarity preferences as the amount in € that a participant is willing to transfer to the other participant when receiving €80, while the other participant receives nothing. Recall, that each participant had to make a transfer decision for each of the three different age groups that the other participant may belong to. Aggregated over all three age groups, participants transfer on average €31.17 (SD = €15.01), thus keeping €48.83 of their endowment of €80. Only 6.3% of all participants exhibit fully selfish behavior by choosing to transfer €0 to each age group. Thus, participants exhibit non-negligible solidarity preferences.

Table 1 reports average transfers chosen by senders from each age subgroup to recipients of each age subgroup separately. The last column and row show aggregate transfers across receiver age group and sender age groups, respectively. We identify young (Y), middle-aged (M) and old (O) participants who made the transfer decisions as *Sender_Y*, *Sender_M* and *Sender_O*, and those from the age groups to whom the amount was transferred as *Transfer_to_Y*, *Transfer_to_M* and *Transfer_to_O*, respectively.[10]

Table 1. Average transfers in € out of €80 to recipients from different age groups

	Transfer_to_Y	*Transfer_to_M*	*Transfer_to_O*	*Average transfer chosen by age group*
Sender_Y	33.33	27.98	29.74	30.35
Sender_M	30.27	32.30	34.31	32.29
Sender_O	27.47	27.39	35.90	30.25
Average transfer sent to age group	30.01	29.68	33.83	31.17

The table shows that there is substantial own-age group (i.e., in-group) favoritism among young and old senders. For these groups, average solidarity transfers to recipients of the own age group are substantially higher than solidarity transfers to recipients belonging to other groups. Young senders are willing to transfer 19.1% and 12.1% more to young recipients than to middle-aged and old recipients, respectively. In-group favoritism is even more pronounced among old participants: they transfer 30.7% and 31.1% more to their own group than to young and middle-aged participants, respectively. For middle-aged participants we do not see this pattern. They transfer 6.7% less to young participants and 5.9% more to old participants than they transfer to members of their own group.[11]

10 When using the weighted data, the average transfers are similar and, qualitatively, the overall pattern is the same (see Table A2 in the Appendix).

Inspection of the frequencies with which certain € amounts are transferred to recipients of different age groups reveals that participants tend to choose prominent amounts (multiples of €10). For all recipients and all age groups of the senders, the modal choice is the equal split of €40. In-group favoritism materializes in a shift away from equal splits to an increased frequency of transferring €0 to the recipient in other age groups (also, see Figures A1 to A3 in the Appendix).

Given the literature on in-group favoritism, the fact that middle-aged participants tend to favor old recipients over their own age group is somewhat unexpected. One reason for this result might be that the group of middle-aged participants has heterogeneous solidarity preferences. To test for this, we use information about the age of participants from the official administrative data and split the sample of middle-aged participants into the group of 35 to 49 years old and 50 to 64 years old (Table A3 in the Appendix lists the details). From this exercise it is apparent that the observed favoritism of old recipients is driven predominantly by the group of participants who are in the older subgroup of 50-64 years old and are thus closer to the oldest age group. These participants transfer significantly more (less) to old (young) participants than to participants of the group of the middle-aged.[12] A possible interpretation for these preferences is that relatively older middle-aged participants identify to a stronger extent with the group of old participants and are thus willing to discriminate in favor of this group.

Next, we explore the expectations participants had concerning the transfers they would receive from other participants belonging to their own and other age groups. Table 2 reports the average expected amounts in € separately for each age group as well as aggregated across age group.

The table reflects substantial unwarranted pessimism regarding the transfers received. On average, expected transfers are lower than actual transfers in most cases, and in some cases they are substantially lower (cf. Table 1). Interestingly, participants of all age groups expected that the transfers they would receive increase with the age of the sender. For young participants, this leads to a remarkable mismatch between expected and actually received transfers. They expect to receive the highest transfers from old participants (€30.01) and the lowest from young participants (€19.69), while actual transfers show exactly the opposite pattern (€27.47 vs. €33.33; see Table 1).[13]

12 These participants transfer significantly more (less) to old (young) participants than to participants of the middle-aged group. Two-sided WMPSR tests comparing transfers to the middle-aged either with transfers to the young or the old both yield p-values of $p < 0.01$. At the same time, middle-aged senders, who are between 35 and 50 years old, do not differentiate significantly between the recipients of different age groups ($p > 0.1$, two-sided WMPSR tests).

13 All but one of the within age-group differences of expectations are significant at $p < 0.01$ (two-sided WMPSR tests). The exception is expected transfers by middle-aged participants from the middle-aged and the old ($p = 0.06$, two-sided WMPSR test). Average expected transfers using the weighted data mirror the patterns from Table 3 qualitatively (see Table A4 in the appendix).

Table 2. Expected transfers from different age groups in €

	Exp (Transfer_from_Y)	*Exp (Transfer_from_M)*	*Exp (Transfer_from_O)*	*Average expected transfer of age group*
Sender_Y	19.69	25.48	30.01	25.06
Sender_M	17.36	26.85	27.80	24.00
Sender_O	18.49	24.24	32.95	25.23
Average expected transfer to be received from age group	18.27	25.66	30.04	24.66

Further evidence for pessimism regarding the solidarity of others can be found when comparing participants expectations about what they will receive with their own actual transfers. Figure 1 plots, separately for each age group of recipients, the percentage shares of senders whose expectations about the amount they will receive from a particular age group is larger than their actual transfers to recipients of this age group (Tr < Exp, i.e., optimistic), are equal to their transfers (Tr = Exp), and are smaller than their transfers (Tr > Exp, i.e., pessimistic).

The figure shows that in the majority of cases the sender's expectations match the transfer decision (including zero transfers), indicating an expected perfect reciprocal solidarity of the other participant (this holds for 46.2%, 56.1% and 57.6% of transfers to young, middle-aged and old recipients, respectively). Cases where expectations are higher than own transfers are relatively rare, indicating that few participants expect others to be more solidary than they themselves (7.3%, 14.6% and 15.0% of transfer decisions to young, middle-aged and old senders). However, for a substantial share of cases the expected solidarity transfers are below the own actual transfers. This pattern is most pronounced for transfers and expectations towards young receivers, where nearly half of the expectations about how much they would receive from this group (= 46.6%) are lower than the respective sender's own actual transfer. This pattern is also prevalent in case of middle-aged and old recipients, albeit to a lesser extent (29.3% and 27.4%, respectively). Hence, pessimism regarding the solidarity of others is wide-spread, and most prominent regarding the solidarity of the young.

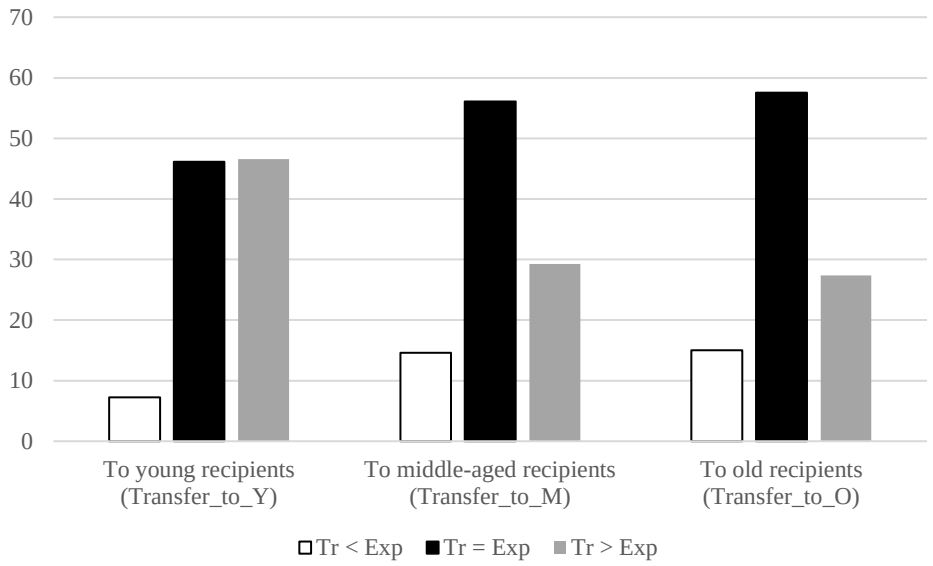


Figure 1. Relation between expectations and transfers to recipients from different age groups (in %)

Note: The figure plots, separately for each age group, the percentage shares of participants whose expectations are larger that their actual transfers to the respective age group (Tr < Exp), equal to their actual transfers (Tr = Exp), and smaller than their actual transfers (Tr > Exp).

Next we conduct parametric analyses to obtain more detailed insights into the determinants of solidarity transfers. For this we look at the expectations as well as demographic and socio-economic characteristics of our participants. Table 3 reports the results of Tobit regression models that account for the censored nature of our dependent variable (participants could not transfer less than €0 and not more than €80). Model 1 uses the average transfer chosen by a participant as the dependent variable (*Avg_Transfer*) and thus a measure for general solidarity. In models 2, 3 and 4 we split the analysis along the different age groups and the dependent variables are accordingly the solidarity transfer to a young (*Transfer_to_Y*), middle-aged (*Transfer_to_M*), and old recipient (*Transfer_to_O*), respectively. To account for a potential non-response bias, we estimate the models using data adjusted with population weights.

As demographic control variables, we include dummy variables for gender (*Female=1)*, marital status (*Married or in partnership=1*), religious affiliation (*No-religious affiliation=1*), and as continuous variable the *number of children in household*. As control variables for socio-economic backgrounds, we use the *Welfare percentile*, a variable that measures the total wealth of the household relative to other households on the basis of assets and standardized income, as well as the highest attained *Education level*. As a proxy for a person's general willingness to contribute to public goods, we include a dummy variable about if a participant stated not having participated in the most recent parliamentary election (*Non-voter=1*). Previous research has indicated the

public good character of voting decisions (see, for example, Schram 2004) and shown a positive correlation between an experimental measure for cooperativeness and the likelihood of participating in a national election (Barr et al. 2014). We also control for participants' living environment, by including dummy variables for the degree of urbanization as well as for the Dutch province where the participant lives (not shown).[14]

Table 3. Determinants of solidarity preferences towards different age groups – Impact of demographic and socio-economic backgrounds

Model No.	1	2	3	4
Dependent variable	*Avg_Transfer*	*Transfer_to_Y*	*Transfer_to_M*	*Transfer_to_O*
Young participant (middle =ref.)	-1.209	2.543	-3.498*	-4.598*
	[1.988]	[2.247]	[2.101]	[2.440]
Old participant (middle =ref.)	-1.201	-3.570	-4.531**	-0.612
	[1.703]	[2.538]	[1.979]	[2.157]
Expected transfer from young participant		0.361***		
		[0.064]		
Expected transfer from middle-aged participant			0.495***	
			[0.063]	
Expected transfer from old participant				0.390***
				[0.062]
Welfare (in percentiles)	0.028	0.069**	0.003	-0.014
	[0.027]	[0.033]	[0.031]	[0.034]
Education level (1=primary to 7=university)	1.574***	2.245***	1.507***	1.236**
	[0.453]	[0.683]	[0.517]	[0.558]
Female (male =ref.)	1.890	0.241	2.276	4.020**
	[1.381]	[1.735]	[1.554]	[1.697]
No. of children in household (0 to 6)	0.299	0.580	0.259	-0.660
	[0.651]	[0.801]	[0.718]	[0.863]
Married or in partnership	2.777*	1.002	1.900	3.531*
	[1.667]	[2.125]	[1.755]	[1.872]
No religious affiliation	1.558	3.274*	0.630	0.547
	[1.358]	[1.774]	[1.572]	[1.694]
Non-voter	-9.632***	-10.726***	-5.037	-9.705*
	[3.282]	[3.817]	[4.104]	[5.005]
Constant	20.353***	6.022	8.859	14.153**
	[4.933]	[6.581]	[5.767]	[5.928]
Observations	688	688	688	688

Note: Models 1, 2, 3 and 4 use the average transfer in € and the transfer in € to young, middle-aged and old participants, respectively, as dependent variables. The models are Tobit specifications to account for the fact that transfers are bounded by €0 and €80. *, ** and *** denote significance levels of 10%, 5% and 1%, respectively. All models use population weights. The models include controls for the degree of urbanization and the province where a participant lives (not shown).

In Model 1 we include the age group of the participant who makes the transfer as independent variables (middle-aged is the reference group) and, in models 2, 3, and 4, additionally the expectations that a participant has regarding the transfer that they will receive from a member of the age group they make the transfer to. In Model 1, where we analyze general solidarity, we do

14 The demographic and socio-economic control variables were either elicited as part of our study or retrieved from administrative data; please see also Table A1 for details.

not control for average expected solidarity because these expectations regarding solidarity are potentially very heterogeneous across the different age groups.

We first observe that in models 2 to 4, the coefficient of participants' beliefs about the transfer from members of the respective age group has a significant and positive effect, confirming a positive correlation between own solidarity preferences and expected solidarity of others. This is consistent with earlier findings (Selten and Ockenfels 1998, Romano et al. 2021).

Regarding the other variables, we observe, first, that overall the welfare of a participant has no significant effect on solidarity preferences. Only transfers to young recipients (Model 2) indicate a significant positive correlation of a participant's welfare with their solidarity preferences. Second, in all models higher educational attainment is significantly positively related with transfers. Third, female participants exhibit stronger solidarity preferences than male participants towards old participants but not towards young or middle-aged participants. This adds evidence to earlier findings that generosity of women tends to depend on the context, in our case the age group of the receiving participant (see, e.g., Croson and Gneezy 2009; Engel 2011; Niederle 2016). Fourth, there are some weak indications that participants that are married or in a partnership and not affiliated with a religious community end to transfer more. However, these relations only hold in some models and only at the 10 percent significance level. Fifth, non-voters generally exhibit weaker solidarity preferences in all specifications and this effect is highly significant in Model 1 and when transfers are toward young recipients (Model 2). Finally, the regression analyses provide some further support for the inter-generational differentiation observed in the descriptive statistics. In the models for transfers to medium-aged and old recipients, some of the age group dummies remain negative and (marginally) significant even after controlling for expectations and individual backgrounds, indicating that senders from a particular age group transfer less to recipients of the respective age group relative to the reference group of middle-aged senders.[15]

Overall, the results from these models provide support for a relevant role of some demographic and socio-economic background variables for solidarity preferences. At the same time, the analyses show that the effect of the background variables may depend on the specific age group of the recipient.

15 In addition, comparing the coefficients for young and old participants with two-sided Wald tests yields p = 0.997, p = 0.043, p = 0.688, and p = 0.146 for Models 1, 2, 3 and 4, respectively. Hence, controlling for beliefs and individual backgrounds, we observe a significant difference in solidarity preferences towards young recipients between young and old senders.

4.2 Relation of revealed solidarity preferences with stated preferences and field behaviors

In this section, we analyze to what extent revealed solidarity preferences correlate with various stated attitudes related to both general solidarity and social security systems. An overview of the exact wording of the survey questions measuring these attitudes can be found in Table A5 in the Appendix. We conducted eight regression models (Model 1-8) that all include the same demographic and socio-economic control variables as the previous regressions reported in Table 3. In each of the models a different stated attitude serves as the dependent variable. To allow for potential heterogeneous effects of solidarity preferences toward different age groups, we run each model separately for our four revealed solidarity preference measures *Avg_Transfer*, *Transfer_to_Y*, *Transfer_to_M* and *Transfer_to_O*. We now first describe the different stated attitude measures and types of regression models used before we discuss the results reported in Table 4. The full results of these models can be found in Tables A6a to A6d in the Online Appendix.

In Models 1-3 we focus on participants' stated views on general solidarity. These are probit models with a dummy as dependent variable equal to one if participants agree that they would be willing to give up some of their income to support younger people (Model 1), support older people (Model 2), or if they agree with the statement that solidarity between the old and the young is under pressure in the Netherlands, thus measuring perceived inter-generational tensions (Model 3).

Models 4 and 5 refer to participants' stated preferences regarding collective and individual pension arrangements. Here, participants were asked to imagine the situation that they started to work for a new employer where they could then choose between different pension arrangements with varying individual responsibility. They could choose between a fully individual pension scheme in which everyone saves for their own pension, a fully collective pension scheme in which good and bad investment results are spread across all members, thus implying risk sharing, or a scheme consisting of a mix of collective and individual components.[16] Model 4 (5) is a probit regression and the dependent variable is equal to one if a participant chooses the fully individual (fully collective) pension scheme, and zero otherwise.

Model 6 refers to stated preferences of altruism. We used a question measuring general altruism from the preference survey module of Falk et al. (2018 and 2023), which asks about a participant's general willingness to give something for a good cause without expecting something

16 We recognize that the formulation of the question only tests participants' attitudes towards the abstract concept of each system but does not control for their understanding of the characteristics and risks of the specific systems.

in return. The altruism score, measured on a Likert scale from 1 to 11, with higher values indicating higher willingness to give, is the dependent variable in this OLS model.

The final two models (Model 7 and 8) are again probit regressions and refer to people's trust in financial and pension institutions, namely banks and the Dutch pension system in general. In Model 7 the dependent variable is a dummy that is equal to 1 if participants stated that they had either a great deal of trust or a quite a lot of trust in banks. Similarly, in Model 8 the dependent variable is a dummy that is equal to 1 if participants stated that they had either a great deal of trust or quite a lot of trust in the sustainability of the Dutch pension system. Table 4 reports the coefficient estimates for our four solidarity preferences measures. The detailed regression results showing all variables can be found in Tables A7a to A7d in the Online Appendix.

Table 4. Relation between revealed solidarity preferences and stated attitudes

Model	Dependent variable	*Avg_Transfer*		*Transfer_to_Y*		*Transfer_to_M*		*Transfer_to_O*	
		Coeff.	Std.err.	Coeff.	Std.err.	Coeff.	Std.err.	Coeff.	Std.err.
1	Help the young	0.011**	[0.005]	0.018***	[0.004]	0.004	[0.004]	0.001	[0.004]
2	Help the old	0.007	[0.004]	0.006	[0.004]	0.002	[0.004]	0.007*	[0.004]
3	Solidarity under pressure	0.003	[0.004]	0.003	[0.004]	0.003	[0.004]	0.001	[0.004]
4	Individual System	-0.013***	[0.004]	-0.006*	[0.004]	-0.011***	[0.004]	-0.011***	[0.004]
5	Collective System	0.009**	[0.004]	0.006*	[0.003]	0.008**	[0.004]	0.006*	[0.003]
6	General altruism	0.032***	[0.009]	0.025***	[0.007]	0.027***	[0.007]	0.018**	[0.008]
7	Trust banks	-0.005	[0.004]	0.000	[0.003]	-0.002	[0.003]	-0.009***	[0.003]
8	Trust pension system	-0.003	[0.004]	0.002	[0.003]	-0.003	[0.003]	-0.006*	[0.003]

Note: The table reports the coefficients for revealed solidarity preferences from models that use answers to survey variables 1 to 8 as the dependent variables. The models for survey variables 1 to 8 are run separately for each of the solidarity preference measures *Avg_Transfer*, *Transfer_to_Y*, *Transfer_to_M* and *Transfer_to_O*. All models are probit specifications, with the exception of model 6 (OLS regression). *, ** and *** denote significance levels of 10%, 5% and 1%, respectively. All models use population weights. Besides the solidarity preference measure, the models include controls for age (dummy variables for young and old participants; middle-aged participants=ref.), welfare (in percentiles), education level (1=primary to 7=university), being female (male =ref.), number of children in household (0 to 6), being married or in partnership (0 or 1), having no religious affiliation (0 or 1), being a non-voter (0 or 1) as well as for the degree of urbanization and the province where a participant lives.

The average solidarity transfer (*Avg_Transfer*) is positively and significantly correlated with the stated willingness to help the young and the self-assessment measure for general altruism. It is also positively correlated with a preference for collective pension systems but negatively with a stated preference for an individual system. Both correlations are significant and the opposite signs

are intuitive. A similar correlation pattern can be seen for revealed solidarity preferences towards the young (*Transfer_to_Y*), although the correlation with preferences for the two alternative pensions systems are statistically weaker. Furthermore, solidarity preferences towards the middle-aged (*Transfer_to_M*) and the old (*Transfer_to_O*) exhibit the same correlations as the average transfer measure, except for that no correlation is found to the willingness to share one's income with young people. Finally, it is interesting to note that higher transfers to the old are negatively correlated with trust in institutions, especially in banks. There is also a weak positive correlation with help for the old and a weak negative correlation with trust in the sustainability of the Dutch pension system.

In the final step in this section, we link revealed solidarity preferences to solidarity expressed in self-reported field behavior. Again, we test for correlations of all elicited revealed solidarity preference measures *Avg_Transfer*, *Transfer_to_Y*, *Transfer_to_M* and *Transfer_to_O*. As dependent variables for field behavior, we include the amount in € donated by the participant within the last 12 months (Model 1, with the value of zero assigned to participants who did not donate money to charity within this period). Model 2 uses the average number of weekly hours used for volunteering, again with the value of zero assigned to participants who state that they do not volunteer at all.[17] In Model 3 the dependent variable is a dummy equal to one if the participant donated blood in the last year, and in Model 4 the dependent variable is a dummy measuring the intention to donate blood in the upcoming year, taking a value of one if participants consider it likely or very likely that they will donate. The results are reported in Table 5.

The table shows that the amount donated is most strongly and consistently related to the elicited solidarity preferences, although the relation is only weakly (not) significant for transfer to the young (old). For the other types of field behavior, however, correlations are very weak. Thus, revealed solidarity preferences seem to have the strongest link to field behavior regarding solidarity expressed in monetary terms, rather than solidarity expressed in-kind.

17 In our survey, the question regarding charitable donations was split in two questions. First, we asked whether or not the participants donated at all. If participants stated that they did so, we asked in the next step for the amounts in €.

Table 5. Relation between revealed solidarity preferences and field behavior

Model	Dependent variable	*Avg_Transfer*		*Transfer_to_Y*		*Transfer_to_M*		*Transfer_to_O*	
		Coeff.	Std.err.	Coeff.	Std.err.	Coeff.	Std.err.	Coeff.	Std.err.
1	Amount donated	2.681**	[1.193]	2.108*	[1.207]	2.280**	[1.124]	1.373	[0.986]
2	Time volunteered	0.019	[0.015]	0.019	[0.012]	0.013	[0.013]	0.009	[0.011]
3	Blood donation	0.012	[0.007]	0.011*	[0.006]	0.008	[0.007]	0.009	[0.006]
4	Intention to donate blood	0.009	[0.006]	0.008*	[0.005]	0.006	[0.006]	0.007	[0.005]

Note: The table reports the coefficients for revealed solidarity preferences from regression models that use a participant's self-stated behavior in the field as the dependent variables. The models for variables capturing field behavior 1 to 4 are run separately for each of the solidarity preference measures *Avg_Transfer*, *Transfer_to_Y*, *Transfer_to_M* and *Transfer_to_O*. Models 1 and 2 are OLS regressions, models 3 and 4 are probit regressions. *, ** denote significance levels of 10% and 5%, respectively. All models use population weights. Besides the specific solidarity preference measure, the models include controls for age (dummy variables for young and old participants; middle-aged participants=ref.), welfare (in percentiles), education level (1=primary to 7=university), being female (male =ref.), number of children in household (0 to 6), being married or in partnership (0 or 1), having no religious affiliation (0 or 1), being a non-voter (0 or 1) as well as for the degree of urbanization and the province where a participant lives.

4.3 Ingroup bias and age-based discrimination

We now come back to the observation that participants discriminate in favor of their own age group. The focus up to now was on average transfers to but this may potentially mask substantial heterogeneity at the individual level. To gain a better understanding of the potentially heterogeneous pattern of discrimination, we measure the prevalence of *in-group favoritism* as follows: we calculate the share of participants who transfer more to a recipient of their own age group than to recipients of at least one of the other two age groups. Likewise, we classify the transfer profile of a participant as *out-group favoring* if a recipient of at least one of the two other age groups received a higher transfer than the recipient belonging to the age group of the transferring participant. Figure 2 displays the shares of participants who do not differentiate at all between recipients of different age groups and contrasts them with the prevalence of favoritism towards both the in-group and the out-group.[18]

The figure shows that the majority of participants (more than 50% of each age group) does not discriminate between recipients of different age groups.[19] However, substantial shares of participants favor their own age group according to the definition above, as indicated by the black

18 Our classification implies that the shares in Figure 2 do not add up to one because a participant can be classified as both in-group and out-group favoring.

19 The shares of senders who do not differentiate are similar across age groups. Only the share of old senders with equal transfers is marginally significantly lower than that of middle-aged senders ($p = 0.09$, two-sided two sample tests of proportions). The other age group comparisons are not significant at conventional significance levels ($p > 0.10$).

bars in Figure 2. For young, middle-aged and old participants these shares account for 34.9%, 27.4% and 39.4%, respectively.[20] On the contrary, only a small minority of young and old participants (9.6% and 11.6%) favor at least one recipient from another age group relative to a recipient from the own age group. Interestingly, middle-aged participants exhibit relatively strong out-group favoritism (29.6%). A more detailed look shows that this is due to mainly favoring the old age group[21] which is consistent with the earlier observation (reported above) that participants of the middle-age group who are 50 years or older send more to recipients of the old age group than to members of their own group. Together the evidence shows that for a non-negligible share of the participants, inter-generational solidarity does not receive the same weight as intra-generational solidarity.

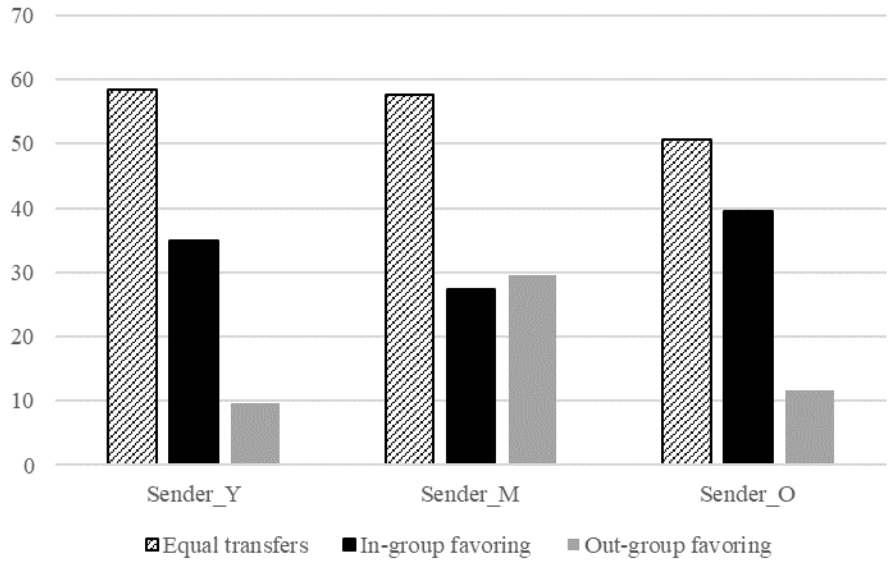


Figure 2. Share of in-group and out-group favoritism for different age groups

Exploiting the heterogeneity of our participant sample, we now investigate to what extent the observed discrimination between recipients of different age groups is related to demographic and socio-economic characteristics. In Table 6, we report the results of Probit and Tobit regressions similar to the previous models.[22]

Model 1 is a probit regression with a dummy dependent variable equal to one if participants exhibited in-group favoritism as defined above and transferred more to a recipient of their own

20 Two sample tests of proportions yield a significant difference in the shares between old and middle-aged participants ($p < 0.01$, two-sided two sample tests of proportions) and a weak difference between young and middle-aged participants ($p = 0.10$, two-sided). Old and young participants do not differ in the shares of in-group favoring patterns ($p = 0.35$, two-sided).

21 A comparison of middle-aged senders to either young or old senders yields significant differences in the shares of out-group favoritism ($p < 0.01$, two-sided two sample tests of proportions). Old and young senders do not differ in the degree of out-group favoritism ($p = 0.54$, two-sided).

22 The only difference to the previous parametric analyses is that we exclude the controls for expected transfers from a specific age group, because the dependent variables here refer to average solidarity transfers.

age group than to a recipient from at least one of the other two age groups. The regression shows, first, that both young and old participants are more likely to favor their own age group relative to middle-aged participants, corroborating the observations from the descriptive results reported in the first subsection. Moreover, female participants discriminate less towards their own groups as the significantly negative coefficient shows. This also tends to hold for highly educated participants. Additionally, participants reporting no religious affiliation are also less likely to favor their own age group. The other demographic and socio-economic background variables show no significant effect on the likelihood of in-group favoritism in this model.

Table 6. Determinants of average solidarity and discriminatory behavior – Impact of demographic and socio-economic backgrounds

Model No.	(1)	(2)	(3)
Dependent variable	*Favored IG*	*Extra transfer IG*	*Average transfer to OG*
Young participant (middle =ref.)	0.279*	3.686**	-2.802
	[0.165]	[1.666]	[2.296]
Old participant (middle =ref.)	0.479***	8.418***	-4.451**
	[0.157]	[1.768]	[1.994]
Welfare (in percentiles)	-0.001	-0.003	0.026
	[0.003]	[0.021]	[0.030]
Education level (1=primary to 7=university)	-0.071*	-0.514	1.871***
	[0.042]	[0.406]	[0.531]
Female (male =ref.)	-0.261**	-2.321**	2.838*
	[0.120]	[1.167]	[1.581]
No. of kids in household (0 to 6)	0.051	0.718	0.054
	[0.060]	[0.530]	[0.744]
Married or in partnership	0.150	0.466	2.759
	[0.140]	[1.397]	[1.860]
No religious affiliation	-0.251**	-1.978	2.419
	[0.122]	[1.224]	[1.544]
Non-voter	-0.115	-0.910	-10.260**
	[0.259]	[3.042]	[4.004]
Constant	-0.999***	2.847	18.589***
	[0.378]	[2.901]	[5.393]
Observations	688	688	688

Note: Model 1 is a Probit specification. Models 2 and 3 are Tobit specifications to account for the fact that transfers are bounded by -€80 and €80 for Model 2 and by €0 and €80 for Model 3. *, ** and *** denote significance levels of 10%, 5% and 1%, respectively. All models use population weights. The models include controls for the degree of urbanization and the province where a participant lives.

Model 2 investigates to what extent the strength of in-group favoritism is correlated with the participants' background. To derive a continuous measure for the variation in in-group favoritism, we calculate by what € amount the solidarity transfer to a member of the own age group differs

from the average transfer to the other two age groups (variable *Extra Transfer IG*). A positive value for *Extra Transfer IG* thus means that the participant on average favors their own age group over recipients from the other age groups (a negative value corresponds to outgroup favoritism). The results of this Tobit regression model are similar to those of Model 1, with the exception that the effect for highly educated participants and participants without a religious affiliation are not significant any more.

In Model 3, as a further measure for a potentially weaker pronounced solidarity towards the out-group, we examine the determinants of the average absolute transfers to members of other age groups (variable *Average transfer to OG*). Here we find that old participants transfer significantly less to recipients from other age groups than middle-aged participants, whereas young participants do not differ significantly from the latter.[23] Concerning the variables capturing socio-economic backgrounds in Model 3, a higher education level is significantly positively related to transfers to other age groups and for non-voters the opposite holds. Being female shows only a weak positive correlation. Taken together, the results of these models robustly show that the level of differentiation in favor of the own age group is largest among old decision-makers.

5. Discussion and Conclusion

In our study, we elicited intra- and inter-generational solidarity preferences among a large sample of the Dutch population. Our results show that participants exhibit both intra- and inter-generational preferences for solidarity but, that at the same time, the solidarity preferences of a significant share of participants are age discriminatory, as they are biased towards their own age group. Moreover, across all age groups, participants beliefs about the strength of the solidarity preferences of their fellow citizens are below their actual strength. These results point to potential inter-generational solidarity tensions as well as overly pessimistic beliefs about solidarity preferences in society.

In addition, we find that demographic and socio-economic characteristics are related to the solidarity preferences. Specifically, women and participants with a higher education tend to show stronger solidarity preferences, whereas non-voters' solidarity preferences appear to be weaker. Yet, this impact differs between solidarity towards recipients of the three age groups, suggesting that policy advice should take this heterogeneity of preferences into account when designing institutions that rely on intra- and inter-generational solidarity.

23 Two-sided Wald tests comparing the coefficients of young and old participants yield $p = 0.317$, $p = 0.037$ and $p = 0.545$ for Models 1, 2 and 3. Thus, old participants seem to choose a significantly higher transfer to recipients from their age groups than young participants.

We also find that solidarity preferences correlate with some of the stated attitudes related to general solidarity and solidarity in social security systems that we consider, as well as to field behavior expressing solidarity in monetary terms. These effects are heterogeneous, and sometimes found only for specific measures. Taken together we see that opinions and preferences regarding solidarity diverge and that survey measures do not necessarily reflect the actual preferences of citizens. It may therefore be wise for policy makers to take the distinction between stated and revealed preferences into account when developing new policies that build on intra- and inter-generational solidarity.

Finally, given that social security systems strongly rely on the solidarity between different generations, it may be seen as worrying that a significant proportion of both young and old participants are not willing to express the same level of solidarity for recipients from different age groups. Therefore, to better understand and mitigate potential tensions between age groups, it would be important to shed more light on the root causes of ingroup favoritism and discrimination against other age groups in the context of solidarity.

Relatedly, participants in our study are generally too pessimistic about the solidarity of others, given that participants on average exhibit substantial solidarity. Hence, from a policy perspective the question arises how these pessimistic beliefs about general solidarity can be debiased. A recent large-scale study conducted in the context of pro-environmental behavior (Andre et al. 2024) shows that by correcting beliefs via social norm interventions, donations to mitigate climate change can be substantially increased among those who are too pessimistic regarding the pro-environmental attitudes of others. Applying these insights to the context of social security systems and testing related policies to increase optimism in intra- and intergenerational solidarity would be an interesting avenue for further research.

References

Akerlof, G.A., Kranton, R.E., 2000. Economics and Identity. *Quarterly Journal of Economics* 115, 715-753

Andre, P., Boneva, T., Chopra, F., Falk, A., 2024. Misperceived Social Norms and Willingness to Act Against Climate Change. *Review of Economics and Statistics* forthcoming.

Armantier, O., Treich, N., 2013. Eliciting beliefs: Proper scoring rules, incentives, stakes and hedging. *European Economic Review*, 62, 17–40.

Bakker, B.F., van Rooijen, J., van Toor, L., 2014. The system of social statistical datasets of Statistics Netherlands: An integral approach to the production of register-based social statistics. *Statistical Journal of the IAOS* 30, 411-424

Barr, A., Packard, T., Serra, D., 2014. Participatory accountability and collective action: Experimental evidence from Albania. *European Economic Review* 68, 250-269

Bellemare, C., Kröger, S., Van Soest, A., 2008. Measuring Inequity Aversion in a Heterogeneous Population Using Experimental Decisions and Subjective Probabilities. *Econometrica* 76, 815-839

Blanco, M., Engelmann, D., Koch, A. K., Normann, H.-T., 2010. Belief elicitation in experiments: is there a hedging problem? *Experimental Economics*, 13, 4, 412–438.

Bolle, F., Breitmoser, Y., Heimel, J., Vogel, C., 2012. Multiple motives of pro-social behavior: evidence from the solidarity game. *Theory and Decision* 72, 303-321

Bolle, F., Costard, J., 2015. Solidarity, Responsibility and In-Group Bias. *Review of Behavioral Economics* 2, 307-330

Bokern, P., Linde, J., Riedl, A., Schmeets, H., Werner,P., 2021. A survey of risk preference measures and their relation to field behavior. *Netspar Survey Paper* 58.

Bond, T.N. Lang, K., 2019. The Sad Truth about Happiness Scales. *The Journal of Political Economy*, 127, 4, 1629-1640.

Brosig-Koch, J., Helbach, C., Ockenfels, A., Weimann, J., 2011. Still different after all these years: Solidarity behavior in East and West Germany. *Journal of Public Economics* 95, 1373-1376

Büchner, S., Coricelli, G., Greiner, B., 2007. Self-centered and other-regarding behavior in the solidarity game. *Journal of Economic Behavior & Organization* 62, 293-303

Camerer, C., Hogarth, R.M., 1999. The Effects of Financial Incentives in Experiments: A Review and Capital-Labor-Production Framework. *Journal of Risk and Uncertainty* 19, pp. 7-42.

Cappelen, A.W., Konow, J., Sørensen, E.Ø., Tungodden, B., 2013. Just Luck: An Experimental Study of Risk-Taking and Fairness. *American Economic Review* 103, 1398-1413

Cettolin, E., Tausch, F., 2015. Risk taking and risk sharing: Does responsibility matter? *Journal of Risk and Uncertainty* 50, 229-248

Charness, G., Genicot, G., 2009. Informal Risk Sharing in an Infinite-Horizon Experiment. *Economic Journal* 119, 796-825

Chen, Y., Li, S.X., 2009. Group Identity and Social Preferences. *American Economic Review* 99, 431-57

Cooper, D., Kagel, J., 2016. Other Regarding Preferences: A Survey of Experimental Results. In: Kagel J & Roth A (eds.) *The Handbook of Experimental Economics*, Vol. 2. Princeton University Press, Princeton, pp. 217-289.

Croson, R., Gneezy, U., 2009. Gender differences in preferences. *Journal of Economic Literature* 47, 448-474

De Beer, P., Berg, M., 2012a. Conditions and motives for voluntary sharing. Results of a solidarity game experiment. University of Amsterdam, *AIAS Working Paper* 124.

De Beer, P., Berg, M., 2012b. Solidarity in a multicultural neighbourhood. Results of a field experiment. University of Amsterdam, *AIAS Working Paper* 125.

De Oliveira, A.C.M., Eckel, C.C., Croson, R.T.A., 2014. Solidarity among the poor. *Economics Letters* 123, 144-148

Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J., Wagner, G.G., 2011. Individual risk attitudes: measurement, determinants, and behavioral consequences. *Journal of the European Economic Association* 9, 522-550

Engel, C., 2011. Dictator games: A meta study. *Experimental Economics* 14, 583-610

Falk, A., Becker, A., Dohmen, T., Enke, B., Huffman, D., Sunde, U., 2018. Global Evidence on Economic Preferences. *Quarterly Journal of Economics* 133, 1645-1692

Falk, A., Becker, A., Dohmen, T., Huffman, D., Sunde, U., 2023. The Preference Survey Module: A Validated Instrument for Measuring Risk, Time, and Social Preferences. *Management Science* 69, 1935-1950

Falk, A., Meier, S., Zehnder, C., 2013. Do lab experiments misrepresent social preferences? The case of self-selected student samples. *Journal of the European Economic Association* 11, 839-852

Fehr, E., Charness, G., forthcoming. Social Preferences: Fundamental Characteristics and Economic Consequences. *Journal of Economic Literature*.

Fong, C.M., Luttmer, E.F.P., 2009. What Determines Giving to Hurricane Katrina Victims? Experimental Evidence on Racial Group Loyalty. *American Economic Journal: Applied Economics* 1, 64-87

Grimm, V., Utikal, V., Valmasoni, L., 2017. In-group favoritism and discrimination among multiple out-groups. *Journal of Economic Behavior & Organization* 143, 254-271

Gutiérrez-Roig, M., Gracia-Lázaro, C., Perelló, J., Moreno, Y., Sánchez, A., 2014. Transition from reciprocal cooperation to persistent behaviour in social dilemmas at the end of adolescence. *Nature Communications* 5, 4362

Harrison, G. W., List, J. A., 2004. Field experiments. *Journal of Economic Literature* 42, 1009-1055

Hett, F., Mechtel, M., Kröll, M., 2020. The structure and behavioral effects of revealed social identity preferences. *Economic Journal* 130, 2569-2595

Hoff, S., 2015. Pensions: solidarity and choice - Opinions of working people on supplementary pensions. *SCP publication* 2015-32, The Netherlands Institute for Social Research.

Kettner, S.E., Waichman, I., 2016. Old age and prosocial behavior: Social preferences or experimental confounds? *Journal of Economic Psychology* 53, 118-130

Lane, T., 2016. Discrimination in the laboratory: A meta-analysis of economics experiments. *European Economic Review* 90, 375-402

Lenel, F., Steiner, S., 2020. Formal insurance and solidarity. Experimental evidence from Cambodia. *Journal of Economic Behavior & Organization* 174, 212-234

Matsumoto, Y., Yamagishi, T., Li, Y., Kiyonari, T., 2016. Prosocial Behavior Increases with Age across Five Economic Games. *PLOS ONE* 11, e0158671

Molina, J.A., Ferrer, A., Giménez-Nadal, J.I., Gracia-Lázaro, C., Moreno, Y., Sánchez, A., 2019. Intergenerational cooperation within the household: a Public Good game with three generations. *Review of Economics of the Household* 17, 535-552

Niederle, M., 2016. Gender. In: Kagel J & Roth A (eds.) *The Handbook of Experimental Economics*, Volume 2. Princeton University Press, Princeton, pp. 481-562.

Ockenfels, A., Weimann, J., 1999. Types and patterns: an experimental East-West-German comparison of cooperation and solidarity. *Journal of Public Economics* 71, 275-287

Ockenfels, A., Werner, P., 2014. Beliefs and ingroup favoritism. *Journal of Economic Behavior & Organization* 108, 453-462

Potters, J., Riedl, A., Smeets, P., 2016. Towards a practical and scientifically sound tool for measuring time and risk preferences in pension savings decisions. *Netspar Design Paper* 59

Praxmarer, M., Rockenbach, B., Sutter, M., 2024. Cooperation and norm enforcement differ strongly across adult generations. *European Economic Review* 162, 104659

Riedl, A., Schmeets, H., Werner, P., 2019. Preferences for Solidarity and Attitudes Towards the Dutch Pension System: Evidence from a Representative Sample. *Netspar Design Paper* 128

Riehm, T., Fugger, N., Gillen, P., Gretschko, V., Werner, P., 2022. Social Norms, Sanctions, and Conditional Entry in Markets with Externalities: Evidence from an Artefactual Field Experiment. *Journal of Public Economics* 212, 104701.

Romano, A., Bortolotti, S., Hofmann, W., Praxmarer, M., & Sutter, M., 2021. Generosity and cooperation across the life span: A lab-in-the-field study. *Psychology and Aging* 36, 108–118.

Rutström, E. E., Wilcox, N. T., 2009. Stated beliefs versus inferred beliefs: A methodological inquiry and experimental test. *Games and Economic Behavior*, 67, 2, 616–632.

Schram, A.J., 2004. Experimental public choice. In: *The Encyclopedia of Public Choice*. Springer, pp. 96-104.

Selten, R., 1967. Die Strategiemethode zur Erforschung des eingeschränkt rationalen Verhaltens im Rahmen eines Oligopolexperimentes. In: Sauermann H (ed.) *Beiträge zur experimentellen Wirtschaftsforschung*. JCB Mohr (Paul Siebeck), Tübingen, pp. 136-168.

Selten, R., Ockenfels, A., 1998. An experimental solidarity game. *Journal of Economic Behavior & Organization* 34, 517-539

Strobl, R., Wunsch, C., 2021. Risky Choices and Solidarity: Disentangling Different Behavioural Channels. *Experimental Economics*, 24, 1185-1214

Sutter, M., Kocher, M.G., 2007. Trust and trustworthiness across different age groups. *Games and Economic Behavior* 59, 364-382

Tajfel, H., Turner, J.C., 1979. An Integrative Theory of Intergroup Conflict. In: Austin WG & Worchel S (eds.) *The Social Psychology of Intergroup Relations*. Brooks/Cole, Monterey, CA, pp. 33-47.

Tanaka, T., Camerer, C.F., 2016. Trait perceptions influence economic out-group bias: lab and field evidence from Vietnam. *Experimental Economics* 19, 513-534

Tausch, F., Potters, J., Riedl, A., 2013. Preferences for redistribution and pensions. What can we learn from experiments? *Journal of Pension Economics and Finance* 12, 298-325

Tausch, F., Potters, J., Riedl, A., 2014. An experimental investigation of risk sharing and adverse selection. *Journal of Risk and Uncertainty* 48, 167-186

Trhal, N., Radermacher, R., 2009. Bad luck vs. self-inflicted neediness – An experimental investigation of gift giving in a solidarity game. *Journal of Economic Psychology* 30, 517-526

von Gaudecker, H.-M., van Soest, A., Wengstrom, E., 2011. Heterogeneity in Risky Choice Behavior in a Broad Population. *American Economic Review* 101, 664-694

Vrooman, C., Gijsberts, M., Boelhouwer, J., 2014. Verschil in Nederland - *Sociaal en Cultureel Rapport* 2014. Sociaal & Cultureel Planbureau, The Hague.

Zacher, H., Esser, L., Bohlmann, C., Rudolph, C.W., 2019. Age, Social Identity and Identification, and Work Outcomes: A Conceptual Model, Literature Review, and Future Research Directions. *Work, Aging and Retirement* 5, 24-43

Online Appendix

Appendix A – Additional analyses

Table A1. Sample characteristics

Age	*No. obs.*	*%*
Between 16 and 34 years	166	22.28
Between 35 and 64 years	328	44.03
65 years or older	251	33.69
Education level	*No. obs.*	*%*
Primary School	10	1.43
LBO - lower vocational education	42	6.01
Secondary general education or vocational preparatory education	99	14.16
Higher general and preparatory scientific education	69	9.87
MBO - intermediate vocational education	128	18.31
HBO - higher vocational education	241	34.48
University	110	15.74
Gender	*No. obs.*	*%*
Male	416	55.84
Female	329	44.16
No. of kids in household	*No. obs.*	*%*
0	465	62.42
1	116	15.57
2	108	14.5
3	44	5.91
4	9	1.21
5	2	0.27
6	1	0.13
Married or in partnership	*No. obs.*	*%*
No	310	41.61
Yes	435	58.39
Religious affiliation	*No. obs.*	*%*
Yes	336	48.07
No	363	51.93
Non-voter	*No. obs.*	*%*
No	659	94.28
Yes	40	5.72

Note: The variables “Gender”, “No. of kids in household”, and “Married or in Partnership” refer to administrative data (n=745) whereas the variables “Education level”, “No religious affiliation” and “Non-voter” refer to data elicited as part of our study and is only available for those subjects who filled in the questionnaire up to this point (n=699). The variable “Age” was elicited at the beginning of our study before the experiment and is therefore available for all participants (n=745).

Table A2. Average transfers (in €) out of €80 to recipients from different age groups (based on population-weighted data)

	Transfer_to_Y	*Transfer_to_M*	*Transfer_to_O*	*Average transfer chosen by age group*
Sender_Y	32.40	28.16	29.77	30.11
Sender_M	29.71	31.82	33.67	31.73
Sender_O	26.10	26.41	35.11	29.21
Average transfer sent to age group	29.66	29.53	32.88	30.69

Table A3. Average transfers (in €) out of €80 by middle-aged participants to recipients from different age groups (based on unweighted and population-weighted data)

	Transfer_to_Y	*Transfer_to_M*	*Transfer_to_O*
Unweighted			
Sender_M, 35-49 years	31.97	32.86	33.28
Sender_M, 50-64 years	29.44	32.03	34.81
Population-weighted			
Sender_M, 35-49 years	30.96	32.06	32.29
Sender_M, 50-64 years	28.37	31.56	35.17

Table A4. Expected transfers from different age groups (in €, based on population-weighted data)

	Exp (Transfer_to_Y)	*Exp (Transfer_to_M)*	*Exp (Transfer_to_O)*	*Average expected transfer of age group*
Sender_Y	18.00	24.73	29.16	23.96
Sender_M	17.27	26.71	26.94	23.64
Sender_O	19.82	24.48	32.40	25.57
Average expected transfer to be received from age group	18.07	25.63	28.84	24.18

Table A5. List of variables and questions related to stated attitudes (translated from Dutch)

Variable name	Survey text
Help the young	I would be willing to give up some of my income to help young people. (disagree, neutral, agree, don't know)
Help the old	I would be willing to give up some of my income to support older people. (disagree, neutral, agree, don't know)
Solidarity under pressure	Solidarity between the young and the old in the Netherlands is under pressure. (disagree, neutral, agree, don't know)
Preference for pension system	Imagine the following situation. You start to work for a new employer and are able to choose between the three pension arrangements listed below. Please state which pension arrangement you would choose. (individual system, collective system, mix, don't know) - An individual pension scheme in which everyone saves for their own pension. The amount of your pension depends on the total premiums you have paid and on the return on these premiums that is ultimately achieved. - A scheme in which everyone saves in a collective scheme and in which good and bad investment results are spread across all members. In this scheme, the premiums paid and the return on these premiums constitute a combined sum of money from which all pensions are paid. - A scheme in which everyone saves in a collective scheme for a small supplementary pension and pays on top of that into an individual scheme.
General altruism	How willing are you to give to a charity without expecting anything in return? (1: "Completely unwilling to do so" to 11: "Very willing to do so", with "Don't know" also possible)
Trust in banks	How much trust do you have in banks? (1: "A great deal of trust" to 4: "No trust at all")
Trust in pension system	How much trust do you have in the sustainability of the Dutch pension system? (1: "A great deal of trust" to 4: "No trust at all")

Table A6a. Relation between revealed solidarity transfers and stated attitudes – Full models, *Avg_Transfer*

Model No.	1	2	3	4	5	6	7	8
Dependent variable	Help the young	Help the old	Sol. under pressure	Individual System	Collective System	General altruism	Trust banks	Trust pension system
Avg_Transfer	0.011**	0.007	0.003	-0.013***	0.009**	0.032***	-0.005	-0.003
	[0.005]	[0.004]	[0.004]	[0.004]	[0.004]	[0.009]	[0.004]	[0.004]
Young	0.141	0.374**	-0.200	0.390**	-0.296*	-0.183	0.488***	0.002
	[0.174]	[0.170]	[0.166]	[0.172]	[0.171]	[0.347]	[0.161]	[0.163]
Old	-0.275	-0.292*	-0.308*	-0.366**	0.204	1.011***	-0.021	0.450***
	[0.182]	[0.176]	[0.161]	[0.160]	[0.151]	[0.309]	[0.159]	[0.149]
Welfare (in percentiles)	0.003	0.000	-0.001	0.005*	-0.005*	0.016***	0.004	0.003
	[0.003]	[0.003]	[0.002]	[0.003]	[0.003]	[0.005]	[0.002]	[0.003]
Education level (1=primary to 7=university)	0.095**	0.082*	0.029	-0.049	0.083**	0.363***	0.011	0.103**
	[0.048]	[0.045]	[0.042]	[0.043]	[0.041]	[0.083]	[0.041]	[0.040]
Female (male =ref.)	0.065	0.178	-0.142	0.099	-0.137	0.646**	0.089	-0.191
	[0.133]	[0.129]	[0.119]	[0.124]	[0.121]	[0.251]	[0.118]	[0.117]
No. of children in household (0 to 6)	-0.021	0.099	-0.002	0.017	-0.111*	0.371***	0.117*	-0.018
	[0.064]	[0.064]	[0.062]	[0.066]	[0.060]	[0.117]	[0.062]	[0.059]
Married or in partnership	-0.234	-0.186	0.091	0.072	0.137	-0.258	-0.099	0.164
	[0.158]	[0.156]	[0.143]	[0.144]	[0.143]	[0.294]	[0.136]	[0.138]
No religious affiliation	0.252*	0.005	0.100	0.186	0.071	-0.301	-0.134	-0.024
	[0.136]	[0.128]	[0.121]	[0.129]	[0.124]	[0.259]	[0.123]	[0.118]
Non-voter	-1.177***	-0.330	0.042	0.027	0.026	0.631	-0.200	-0.213
	[0.404]	[0.275]	[0.254]	[0.246]	[0.265]	[0.620]	[0.242]	[0.255]
Constant	-1.349***	-1.212***	0.350	-0.938**	-0.797*	4.262***	0.083	0.122
	[0.457]	[0.444]	[0.401]	[0.467]	[0.421]	[0.790]	[0.425]	[0.389]
Observations	688	688	688	688	688	673	688	688

Note: All models are probit specifications, with the exception of model 6 (OLS regression). *, ** and *** denote significance levels of 10%, 5% and 1%, respectively. All models use population weights. Besides the solidarity preference measure, the models include controls for age (dummy variables for young and old participants; middle-aged participants=ref.), welfare (in percentiles), education level (1=primary to 7=university), being female (male =ref.), number of children in household (0 to 6), being married or in partnership (0 or 1), having no religious affiliation (0 or 1), being a non-voter (0 or 1) as well as for the degree of urbanization and the province where a participant lives.

Table A6b. Relation between revealed solidarity transfers and stated attitudes – Full models, *Transfer_to_Y*

Model No.	1	2	3	4	5	6	7	8
Dependent variable	Help the young	Help the old	Sol. under pressure	Individual System	Collective System	General altruism	Trust banks	Trust pension system
Transfer_to_Y	0.018***	0.006	0.003	-0.006*	0.006*	0.025***	0.000	0.002
	[0.004]	[0.004]	[0.004]	[0.004]	[0.003]	[0.007]	[0.003]	[0.003]
Young	0.090	0.350**	-0.210	0.414**	-0.318*	-0.294	0.492***	0.004
	[0.173]	[0.169]	[0.166]	[0.170]	[0.171]	[0.346]	[0.162]	[0.163]
Old	-0.265	-0.288	-0.307*	-0.358**	0.200	1.007***	-0.019	0.454***
	[0.188]	[0.176]	[0.161]	[0.160]	[0.152]	[0.307]	[0.158]	[0.149]
Welfare (in percentiles)	0.002	-0.000	-0.001	0.005*	-0.005**	0.015***	0.004	0.003
	[0.003]	[0.003]	[0.002]	[0.003]	[0.003]	[0.005]	[0.002]	[0.003]
Education level (1=primary to 7=university)	0.087*	0.081*	0.028	-0.055	0.084**	0.364***	0.004	0.094**
	[0.049]	[0.045]	[0.042]	[0.043]	[0.041]	[0.083]	[0.041]	[0.040]
Female (male =ref.)	0.088	0.188	-0.137	0.077	-0.122	0.697***	0.080	-0.199*
	[0.135]	[0.128]	[0.119]	[0.123]	[0.120]	[0.250]	[0.118]	[0.117]
No. of children in household (0 to 6)	-0.016	0.098	-0.003	0.016	-0.113*	0.361***	0.114*	-0.020
	[0.064]	[0.064]	[0.062]	[0.066]	[0.060]	[0.118]	[0.062]	[0.059]
Married or in partnership	-0.243	-0.181	0.095	0.045	0.149	-0.212	-0.109	0.155
	[0.161]	[0.156]	[0.143]	[0.143]	[0.143]	[0.289]	[0.136]	[0.138]
No religious affiliation	0.231*	0.005	0.098	0.182	0.066	-0.313	-0.143	-0.035
	[0.137]	[0.128]	[0.121]	[0.129]	[0.124]	[0.259]	[0.123]	[0.119]
Non-voter	-1.117***	-0.322	0.040	0.071	0.002	0.583	-0.156	-0.165
	[0.410]	[0.272]	[0.254]	[0.247]	[0.263]	[0.624]	[0.247]	[0.258]
Constant	-1.448***	-1.162***	0.373	-1.092**	-0.693*	4.573***	-0.022	0.027
	[0.465]	[0.438]	[0.396]	[0.455]	[0.408]	[0.788]	[0.418]	[0.384]
Observations	688	688	688	688	688	673	688	688

Note: All models are probit specifications, with the exception of model 6 (OLS regression). *, ** and *** denote significance levels of 10%, 5% and 1%, respectively. All models use population weights. Besides the solidarity preference measure, the models include controls for age (dummy variables for young and old participants; middle-aged participants=ref.), welfare (in percentiles), education level (1=primary to 7=university), being female (male =ref.), number of children in household (0 to 6), being married or in partnership (0 or 1), having no religious affiliation (0 or 1), being a non-voter (0 or 1) as well as for the degree of urbanization and the province where a participant lives.

Table A6c. Relation between revealed solidarity transfers and stated attitudes – Full models, *Transfer_to_M*

Model No.	1	2	3	4	5	6	7	8
Dependent variable	Help the young	Help the old	Sol. under pressure	Individual System	Collective System	General altruism	Trust banks	Trust pension system
Transfer_to_M	0.004	0.002	0.003	-0.011***	0.008**	0.027***	-0.002	-0.003
	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]	[0.007]	[0.003]	[0.003]
Young	0.133	0.371**	-0.194	0.357**	-0.282*	-0.128	0.487***	-0.005
	[0.175]	[0.171]	[0.166]	[0.172]	[0.171]	[0.346]	[0.162]	[0.163]
Old	-0.275	-0.289*	-0.300*	-0.399**	0.223	1.075***	-0.025	0.442***
	[0.182]	[0.175]	[0.162]	[0.160]	[0.153]	[0.311]	[0.159]	[0.149]
Welfare (in percentiles)	0.003	0.000	-0.001	0.004*	-0.005*	0.017***	0.004	0.003
	[0.003]	[0.003]	[0.002]	[0.003]	[0.003]	[0.005]	[0.002]	[0.003]
Education level (1=primary to 7=university)	0.100**	0.088*	0.029	-0.051	0.085**	0.373***	0.007	0.103**
	[0.047]	[0.045]	[0.042]	[0.043]	[0.041]	[0.083]	[0.041]	[0.040]
Female (male =ref.)	0.074	0.184	-0.141	0.099	-0.136	0.652***	0.083	-0.192
	[0.132]	[0.128]	[0.119]	[0.123]	[0.120]	[0.252]	[0.118]	[0.117]
No. of children in household (0 to 6)	-0.023	0.100	-0.002	0.019	-0.114*	0.363***	0.115*	-0.017
	[0.064]	[0.064]	[0.062]	[0.065]	[0.060]	[0.118]	[0.062]	[0.059]
Married or in partnership	-0.227	-0.179	0.091	0.061	0.139	-0.239	-0.105	0.164
	[0.159]	[0.157]	[0.143]	[0.144]	[0.143]	[0.294]	[0.136]	[0.138]
No religious affiliation	0.259*	0.017	0.102	0.177	0.077	-0.276	-0.140	-0.026
	[0.136]	[0.128]	[0.121]	[0.129]	[0.124]	[0.260]	[0.123]	[0.118]
Non-voter	-1.226***	-0.375	0.035	0.064	0.003	0.508	-0.170	-0.207
	[0.406]	[0.271]	[0.253]	[0.249]	[0.263]	[0.603]	[0.244]	[0.256]
Constant	-1.186***	-1.103**	0.353	-0.951**	-0.775*	4.355***	0.018	0.123
	[0.450]	[0.437]	[0.399]	[0.463]	[0.419]	[0.795]	[0.421]	[0.389]
Observations	688	688	688	688	688	673	688	688

Note: All models are probit specifications, with the exception of model 6 (OLS regression). *, ** and *** denote significance levels of 10%, 5% and 1%, respectively. All models use population weights. Besides the solidarity preference measure, the models include controls for age (dummy variables for young and old participants; middle-aged participants=ref.), welfare (in percentiles), education level (1=primary to 7=university), being female (male =ref.), number of children in household (0 to 6), being married or in partnership (0 or 1), having no religious affiliation (0 or 1), being a non-voter (0 or 1) as well as for the degree of urbanization and the province where a participant lives.

Table A6d. Relation between revealed solidarity transfers and stated attitudes – Full models, *Transfer_to_O*

Model No.	1	2	3	4	5	6	7	8
Dependent variable	Help the young	Help the old	Sol. under pressure	Individual System	Collective System	General altruism	Trust banks	Trust pension system
Transfer_to_O	0.001	0.007*	0.001	-0.011***	0.006*	0.018**	-0.009***	-0.006*
	[0.004]	[0.004]	[0.004]	[0.004]	[0.003]	[0.008]	[0.003]	[0.003]
Young	0.119	0.385**	-0.200	0.378**	-0.291*	-0.176	0.476***	-0.013
	[0.175]	[0.171]	[0.166]	[0.172]	[0.171]	[0.347]	[0.162]	[0.162]
Old	-0.294	-0.318*	-0.313*	-0.329**	0.179	0.934***	0.010	0.467***
	[0.182]	[0.176]	[0.161]	[0.160]	[0.152]	[0.311]	[0.158]	[0.149]
Welfare (in percentiles)	0.004	0.000	-0.001	0.004*	-0.005*	0.017***	0.004	0.003
	[0.003]	[0.003]	[0.002]	[0.003]	[0.003]	[0.005]	[0.002]	[0.003]
Education level (1=primary to 7=university)	0.105**	0.084*	0.032	-0.056	0.089**	0.388***	0.013	0.105***
	[0.047]	[0.045]	[0.041]	[0.042]	[0.041]	[0.083]	[0.041]	[0.040]
Female (male =ref.)	0.079	0.168	-0.140	0.114	-0.140	0.643**	0.110	-0.178
	[0.133]	[0.129]	[0.120]	[0.124]	[0.120]	[0.251]	[0.119]	[0.117]
No. of children in household (0 to 6)	-0.020	0.102	-0.000	0.011	-0.107*	0.389***	0.114*	-0.021
	[0.064]	[0.064]	[0.062]	[0.066]	[0.059]	[0.118]	[0.062]	[0.060]
Married or in partnership	-0.225	-0.192	0.093	0.075	0.137	-0.243	-0.084	0.175
	[0.160]	[0.157]	[0.143]	[0.145]	[0.144]	[0.299]	[0.137]	[0.139]
No religious affiliation	0.263*	0.004	0.104	0.177	0.078	-0.268	-0.134	-0.024
	[0.136]	[0.128]	[0.121]	[0.129]	[0.124]	[0.260]	[0.123]	[0.118]
Non-voter	-1.235***	-0.332	0.027	0.040	-0.004	0.543	-0.242	-0.247
	[0.408]	[0.277]	[0.252]	[0.243]	[0.262]	[0.615]	[0.240]	[0.253]
Constant	-1.115**	-1.247***	0.381	-0.945**	-0.747*	4.514***	0.208	0.208
	[0.448]	[0.446]	[0.401]	[0.467]	[0.418]	[0.795]	[0.427]	[0.387]
Observations	688	688	688	688	688	673	688	688

Note: All models are probit specifications, with the exception of model 6 (OLS regression). *, ** and *** denote significance levels of 10%, 5% and 1%, respectively. All models use population weights. Besides the solidarity preference measure, the models include controls for age (dummy variables for young and old participants; middle-aged participants=ref.), welfare (in percentiles), education level (1=primary to 7=university), being female (male =ref.), number of children in household (0 to 6), being married or in partnership (0 or 1), having no religious affiliation (0 or 1), being a non-voter (0 or 1) as well as for the degree of urbanization and the province where a participant lives.

Table A7a. Relation between revealed solidarity transfers and field behavior – Full models, *Avg_Transfer*

Model No.	1	2	3	4
Dependent variable	Amount donated	Time volunteered	Blood donation	Intention to donate blood
Avg_Transfer	2.681**	0.019	0.012	0.009
	[1.193]	[0.015]	[0.007]	[0.006]
Young	-109.649	-0.701	0.040	0.525**
	[75.786]	[0.428]	[0.243]	[0.213]
Old	57.737	2.921***	-0.853***	-0.444
	[78.060]	[0.792]	[0.286]	[0.299]
Welfare (in percentiles)	3.263***	-0.002	0.001	-0.002
	[1.131]	[0.009]	[0.004]	[0.003]
Education level (1=primary to 7=university)	64.088***	0.166	0.075	0.158**
	[18.538]	[0.151]	[0.086]	[0.074]
Female (male =ref.)	9.716	0.607	0.315	0.316*
	[64.241]	[0.458]	[0.207]	[0.185]
No. of children in household (0 to 6)	-10.900	-0.147	0.094	0.062
	[24.437]	[0.165]	[0.093]	[0.083]
Married or in partnership	123.126*	0.672	-0.173	-0.282
	[69.534]	[0.547]	[0.225]	[0.219]
No religious affiliation	-265.204***	-0.594	-0.152	-0.256
	[72.133]	[0.440]	[0.193]	[0.182]
Non-voter	-73.660	1.090	0.300	-0.301
	[65.173]	[1.039]	[0.332]	[0.307]
Constant	-248.952*	3.744*	-2.446***	-1.982***
	[139.599]	[2.032]	[0.625]	[0.614]
Observations	656	661	573	462

Note: Models 1 and 2 are OLS regressions, models 3 and 4 are probit regressions. *, ** denote significance levels of 10% and 5%, respectively. All models use population weights. Besides the specific solidarity preference measure, the models include controls for age (dummy variables for young and old participants; middle-aged participants=ref.), welfare (in percentiles), education level (1=primary to 7=university), being female (male =ref.), number of children in household (0 to 6), being married or in partnership (0 or 1), having no religious affiliation (0 or 1), being a non-voter (0 or 1) as well as for the degree of urbanization and the province where a participant lives.

Table A7b. Relation between revealed solidarity transfers and field behavior – Full models, *Transfer_to_Y*

Model No.	1	2	3	4
Dependent variable	Amount donated	Time volunteered	Blood donation	Intention to donate blood
Transfer_to_Y	2.108*	0.019	0.011*	0.008*
	[1.207]	[0.012]	[0.006]	[0.005]
Young	-118.358	-0.772*	0.005	0.491**
	[76.580]	[0.438]	[0.242]	[0.211]
Old	57.917	2.922***	-0.855***	-0.441
	[78.213]	[0.791]	[0.290]	[0.299]
Welfare (in percentiles)	3.194***	-0.002	0.001	-0.003
	[1.127]	[0.009]	[0.004]	[0.003]
Education level (1=primary to 7=university)	64.116***	0.160	0.074	0.159**
	[18.611]	[0.151]	[0.086]	[0.074]
Female (male =ref.)	13.534	0.641	0.343*	0.344*
	[64.826]	[0.457]	[0.205]	[0.184]
No. of children in household (0 to 6)	-11.727	-0.153	0.094	0.064
	[24.409]	[0.165]	[0.093]	[0.083]
Married or in partnership	127.064*	0.697	-0.176	-0.277
	[69.603]	[0.548]	[0.226]	[0.219]
No religious affiliation	-266.392***	-0.617	-0.154	-0.251
	[72.187]	[0.439]	[0.193]	[0.182]
Non-voter	-77.567	1.119	0.309	-0.300
	[65.602]	[1.035]	[0.330]	[0.305]
Constant	-226.758*	3.846*	-2.343***	-1.934***
	[137.106]	[2.048]	[0.625]	[0.598]
Observations	656	661	573	462

Note: Models 1 and 2 are OLS regressions, models 3 and 4 are probit regressions. *, ** denote significance levels of 10% and 5%, respectively. All models use population weights. Besides the specific solidarity preference measure, the models include controls for age (dummy variables for young and old participants; middle-aged participants=ref.), welfare (in percentiles), education level (1=primary to 7=university), being female (male =ref.), number of children in household (0 to 6), being married or in partnership (0 or 1), having no religious affiliation (0 or 1), being a non-voter (0 or 1) as well as for the degree of urbanization and the province where a participant lives.

Table A7c. Relation between revealed solidarity transfers and field behavior – Full models, *Transfer_to_M*

Model No.	1	2	3	4
Dependent variable	Amount donated	Time volunteered	Blood donation	Intention to donate blood
Transfer_to_M	2.280**	0.013	0.008	0.006
	[1.124]	[0.013]	[0.007]	[0.006]
Young	-104.794	-0.678	0.045	0.523**
	[75.419]	[0.427]	[0.242]	[0.214]
Old	63.569	2.961***	-0.847***	-0.444
	[77.625]	[0.811]	[0.283]	[0.300]
Welfare (in percentiles)	3.306***	-0.001	0.001	-0.002
	[1.137]	[0.009]	[0.004]	[0.003]
Education level (1=primary to 7=university)	64.795***	0.175	0.082	0.158**
	[18.574]	[0.153]	[0.087]	[0.074]
Female (male =ref.)	9.515	0.614	0.319	0.316*
	[64.287]	[0.455]	[0.208]	[0.185]
No. of children in household (0 to 6)	-11.533	-0.146	0.090	0.059
	[24.683]	[0.166]	[0.093]	[0.083]
Married or in partnership	124.547*	0.685	-0.169	-0.279
	[69.626]	[0.546]	[0.226]	[0.219]
No religious affiliation	-263.015***	-0.578	-0.142	-0.247
	[71.792]	[0.438]	[0.192]	[0.181]
Non-voter	-82.992	1.000	0.235	-0.346
	[65.475]	[1.022]	[0.331]	[0.310]
Constant	-242.752*	3.879*	-2.363***	-1.874***
	[140.141]	[2.062]	[0.623]	[0.607]
Observations	656	661	573	462

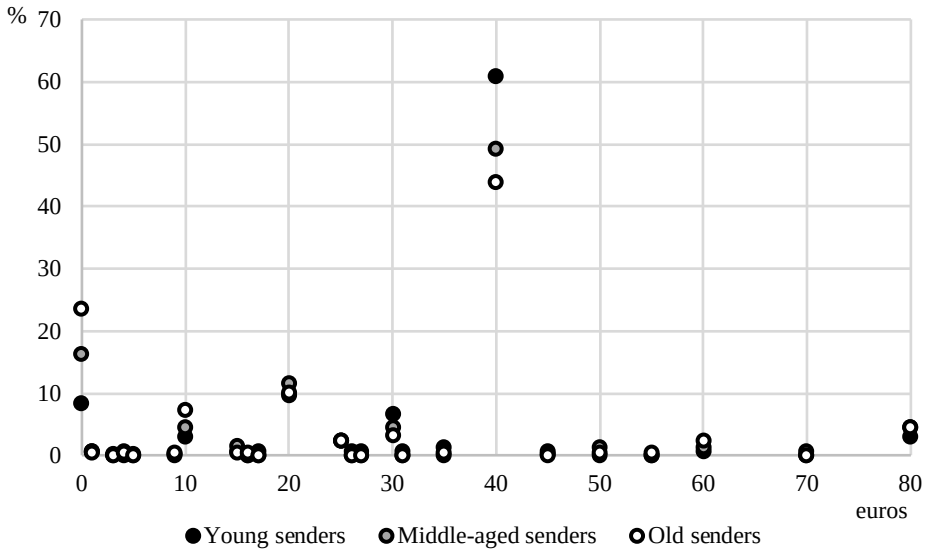
Note: Models 1 and 2 are OLS regressions, models 3 and 4 are probit regressions. *, ** denote significance levels of 10% and 5%, respectively. All models use population weights. Besides the specific solidarity preference measure, the models include controls for age (dummy variables for young and old participants; middle-aged participants=ref.), welfare (in percentiles), education level (1=primary to 7=university), being female (male =ref.), number of children in household (0 to 6), being married or in partnership (0 or 1), having no religious affiliation (0 or 1), being a non-voter (0 or 1) as well as for the degree of urbanization and the province where a participant lives.

Table A7d. Relation between revealed solidarity transfers and field behavior – Full models, *Transfer_to_O*

Model No.	1	2	3	4
Dependent variable	Amount donated	Time volunteered	Blood donation	Intention to donate blood
Transfer_to_O	1.373	0.009	0.009	0.007
	[0.986]	[0.011]	[0.006]	[0.005]
Young	-109.299	-0.702*	0.057	0.539**
	[75.991]	[0.421]	[0.244]	[0.215]
Old	50.953	2.881***	-0.871***	-0.467
	[78.755]	[0.791]	[0.282]	[0.300]
Welfare (in percentiles)	3.319***	-0.001	0.002	-0.002
	[1.136]	[0.009]	[0.004]	[0.003]
Education level (1=primary to 7=university)	66.429***	0.186	0.081	0.161**
	[19.058]	[0.150]	[0.084]	[0.074]
Female (male =ref.)	9.408	0.608	0.296	0.302
	[64.409]	[0.467]	[0.209]	[0.187]
No. of children in household (0 to 6)	-9.534	-0.137	0.098	0.064
	[24.383]	[0.165]	[0.092]	[0.083]
Married or in partnership	124.391*	0.686	-0.176	-0.287
	[69.647]	[0.556]	[0.226]	[0.219]
No religious affiliation	-262.185***	-0.569	-0.139	-0.252
	[71.807]	[0.442]	[0.194]	[0.182]
Non-voter	-85.808	0.995	0.282	-0.309
	[63.490]	[1.033]	[0.332]	[0.310]
Constant	-223.750	3.918*	-2.476***	-1.960***
	[135.853]	[2.035]	[0.619]	[0.609]
Observations	656	661	573	462

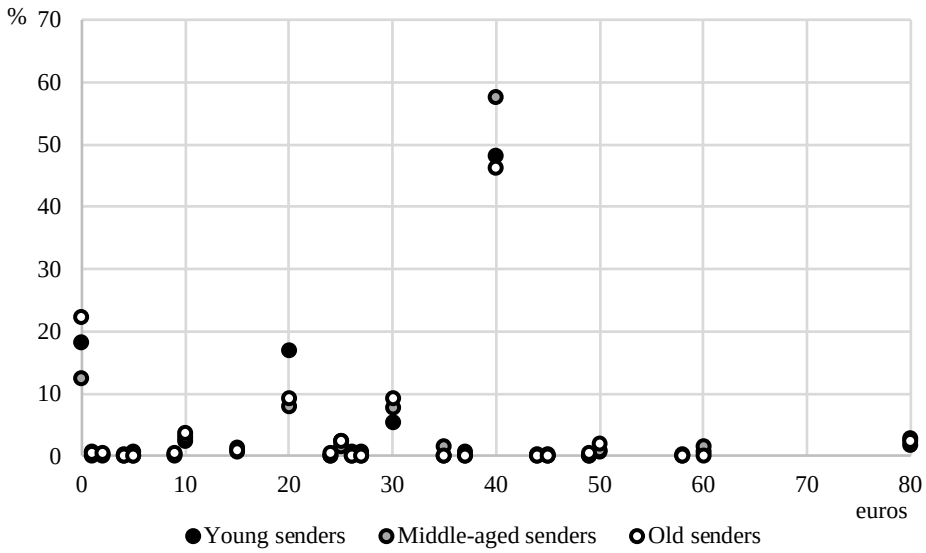
Note: Models 1 and 2 are OLS regressions, models 3 and 4 are probit regressions. *, ** denote significance levels of 10% and 5%, respectively. All models use population weights. Besides the specific solidarity preference measure, the models include controls for age (dummy variables for young and old participants; middle-aged participants=ref.), welfare (in percentiles), education level (1=primary to 7=university), being female (male =ref.), number of children in household (0 to 6), being married or in partnership (0 or 1), having no religious affiliation (0 or 1), being a non-voter (0 or 1) as well as for the degree of urbanization and the province where a participant lives.

Figure A1. Transfers to young recipients, per age group of senders
(frequencies of euro amounts in %)



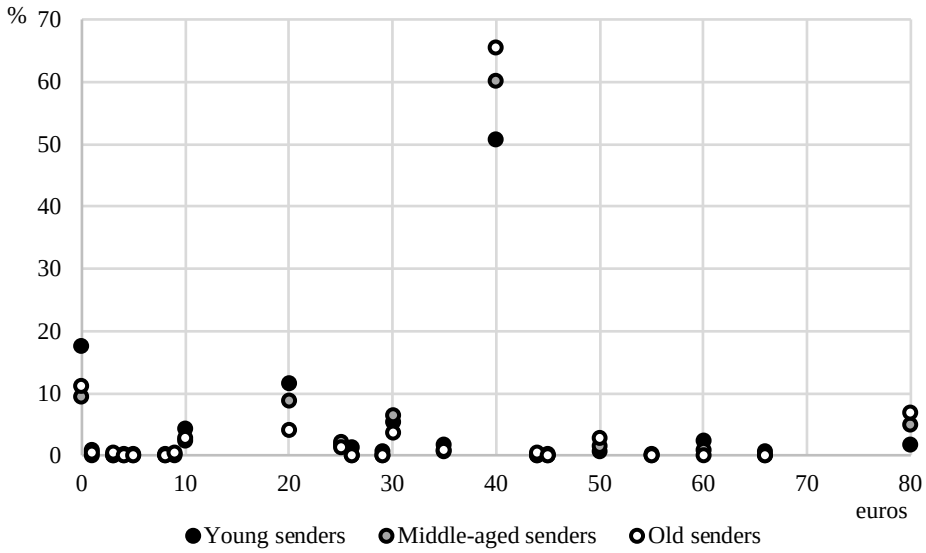
A dot represents the percentage share with which a given € transfer (plotted on the x-axis) is chosen by a sender from a particular age group.

Figure A2. Transfers to middle-aged recipients, per age group of senders
(frequencies of € amounts in %)



A dot represents the percentage share with which a given € transfer (plotted on the x-axis) is chosen by a sender from a particular age group.

Figure A3. Transfers to old recipients, per age group of senders
(frequencies of € amounts in %)



A dot represents the percentage share with which a given € transfer (plotted on the x-axis) is chosen by a sender from a particular age group.

Appendix B – Study Materials

B1. Invitation letter, experimental instructions and questionnaire (Original Dutch language)

****
Invitation letter
****

Geachte heer/mevrouw,

Iedereen zou graag na zijn pensionering over een goed inkomen willen beschikken. Om dit te bereiken moet het Nederlandse pensioenstelsel voortdurend worden onderhouden en aangepast. Voldoet het pensioenstelsel aan uw voorkeuren?

Om erachter te komen hoe mensen over het Nederlandse pensioenstelsel denken en hoe ze in het algemeen met geld omgaan, voeren Maastricht University en het Centraal Bureau voor de Statistiek (CBS) dit onderzoek uit in samenwerking met Onderzoeksbureau Flycatcher. Met dit onderzoek krijgen we meer inzicht in hoe mensen tegen hun financiële situatie aankijken. Ook zullen de resultaten belangrijke inzichten opleveren die kunnen bijdragen aan verbetering van het Nederlandse pensioenstelsel.

Voor dit onderzoek selecteert het CBS een aantal personen. U bent daar één van. U vertegenwoordigt veel andere inwoners in Nederland. Het is daarom belangrijk dat u aan dit onderzoek meedoet.

Hoe kunt u deelnemen?

U kunt op internet aan het onderzoek deelnemen. Voor de bescherming van uw gegevens maken we gebruik van een beveiligde verbinding. Het onderzoek is te vinden op het volgende internetadres:

https://XXXX

Uw login code: <Username>

Maak kans op een beloning

In ons onderzoek zult u een vragenlijst invullen en een beslissing nemen om geld te verdelen. Bij de beslissing wordt u gekoppeld aan een anonieme medeburger die ook meedoet aan het onderzoek. U maakt kans om 80 Euro te delen met deze medeburger en deze medeburger maakt kans om met u 80 Euro te delen. Na afloop van het onderzoek zal 1 van de 10 aan elkaar gekoppelde paren het wel of niet gedeelde bedrag krijgen uitbetaald. Het onderzoek zal ongeveer 30 minuten duren.[24]

Uw gegevens zijn veilig.

Uw gegevens zijn veilig in al onze onderzoeken. Aan het eind van deze brief kunt u meer hierover lezen.

24 Na afloop van het onderzoek ontvangt u informatie over uw verdiensten. We wijzen erop dat deze beloning eventueel onder de inkomstenbelasting valt. Wenst u geen beloning te ontvangen? Dan kunt u dit tijdens het onderzoek aangeven.

Heeft u vragen?

Dit onderzoek wordt uitgevoerd in samenwerking met het onafhankelijke onderzoeksbureau Flycatcher. Flycatcher behandelt al uw antwoorden vertrouwelijk en anoniem. Heeft u vragen? U kunt per e-mail (xxx) en telefonisch (xxx) contact opnemen met onderzoeksbureau Flycatcher. Flycatcher is op werkdagen tussen 8:30 en 17:00 uur bereikbaar.

U doet ons een groot plezier als u een dezer dagen aan ons onderzoek meedoet. We bedanken u voor uw tijd en uw medewerking.

Met vriendelijke groeten,

Arno Riedl – Hoogleraar Economie van de Publieke Sector (Maastricht University)

Hans Schmeets - Hoogleraar Sociale Statistiek (Maastricht University en CBS)

Peter Werner – Universitair Hoofddocent Economie (Maastricht University)

In dit onderzoek werkt Maastricht University samen met het Centraal Bureau voor de Statistiek (CBS). Onderzoeksbureau Flycatcher verzamelt de gegevens namens het CBS en Maastricht University.
Het CBS krijgt naast de verzamelde gegevens ook veel bestanden van andere instellingen. Hierin staan bijvoorbeeld gegevens over bevolking, werk en inkomen. Die informatie voegt het CBS samen. Zo werken we zo zuinig mogelijk.
In dit onderzoek worden deze gegevens met uw antwoorden in de studie op een anonieme manier samengevoegd. In de informatie die Maastricht University van het CBS krijgt, zijn persoonlijke gegevens nooit te herkennen.

****
Instructions and questionnaire
****

Toestemmingsverklaring:

Hierbij bevestig ik dat ik de uitnodigingsbrief heb gelezen en de informatie in deze brief begrijp. Ik bevestig dat mijn deelname vrijwillig is en dat ik, zonder daarvoor een reden te geven, op ieder moment mijn toestemming mag intrekken en mag beslissen om niet langer aan het onderzoek deel te nemen. Als ik me terugtrek, kom ik niet meer in aanmerking voor een eventuele beloning.

Ja, ik geef mijn toestemming en wil verdergaan met dit onderzoek

Nee, ik wil niet deelnemen aan het onderzoek

Op dit en alle volgende schermen moet u op de knop <Volgende> klikken om naar het volgende scherm te gaan. Let op: nadat u op de <Volgende> knop hebt geklikt, kunt u niet meer terugkeren naar het voorgaande scherm.

****

Hoe oud bent u?

tussen 16 en 34 jaar

tussen 35 en 64 jaar

65 jaar of ouder

[Button]: Volgende

****

Beschrijving van uw taak

In deze taak wordt **u gekoppeld aan een anonieme medeburger** (genoemd 'ander') die ook deelneemt aan het onderzoek. U zult de identiteit van de ander nooit te weten komen net als de ander nooit uw identiteit te weten zal komen.

Er zijn **vier mogelijke situaties**.

Hier beschrijven we de vier mogelijke situaties, de kans dat elke situatie daadwerkelijk optreedt, uw taak en de taak van de ander voor elke situatie. Deze informatie worden ook getoond in onderstaande tabel.

Situatie 1: **U en de ander ontvangen elk 80 euro**. U en de ander **hoeven niets te doen**. De **kans** dat deze situatie optreedt, **is 5 op 10**.

Situatie 2: **U en de ander ontvangen elk 0 euro**. U en de ander **hoeven niets te doen**. De **kans** dat deze situatie optreedt, **is 1 op 10**.

Situatie 3: **U ontvangt 0 Euro** en **de ander ontvangt 80 Euro**. De **ander kan beslissen om de 80 Euro met u te delen**. Dit kan op elke wijze die de ander wenst. De **kans** dat deze situatie optreedt, **is 2 op 10**.

Situatie 4: **U ontvangt 80 euro** en **de ander 0 Euro**. **U kunt beslissen om uw 80 euro met de ander te delen**. Dit kan op elke wijze die u wenst. De **kans** dat deze situatie optreedt, **is 2 op 10**.

Situatie	**U ontvangt**	**De ander ontvangt**	**Uw taak**	**Taak van de ander**
1	80 Euro	80 Euro	U hoeft niets te doen	De ander hoeft niets te doen
2	0 Euro	0 Euro	U hoeft niets te doen	De ander hoeft niets te doen
3	0 Euro	80 Euro	U hoeft niets te doen	Beslissen hoe 80 Euro met u te delen
4	80 Euro	0 Euro	Beslissen hoe 80 Euro met de ander te delen	De ander hoeft niets te doen

Elke situatie is mogelijk. **Nadat het onderzoek is afgerond, wordt u geïnformeerd welke situatie zich daadwerkelijk heeft voorgedaan.**

lk bevestig dat ik de beschrijving van de taak heb gelezen.

Ja

[Button]: Volgende

****

Uw beslissing

Stel dat situatie 4 zich voordoet. In dat geval ontvangt u 80 euro en de ander 0 euro.

De ander kan van een vergelijkbare of andere leeftijd zijn dan u. U weet niet hoe oud de ander is. We vragen u daarom om in onderstaande gevallen voor drie leeftijdscategorieën aan te geven **hoeveel u de ander geeft** in het geval dat u 80 Euro ontvangt en de ander 0 Euro.

N.B. **U gaat hier echt geld verdelen** en u en de ander kunnen geld krijgen afhankelijk van uw beslissing. We vragen u daarom om goed na te denken voordat u uw beslissingen neemt.

Als de **ander** tussen **16 en 34** jaar oud is, geef ik aan de ander	____ euro (0 euro t/m 80 euro, alleen hele euro)
Als de **ander** tussen **35 en 64** jaar oud is, geef ik aan de ander	____ euro (0 euro t/m 80 euro, alleen hele euro)
Als de **ander 65 jaar of ouder** is, geef ik aan de ander	____ euro (0 euro t/m 80 euro, alleen hele euro)

[Button]: Volgende

****

Uw verwachting

Stel, dat situatie 3 zich voordoet. In dat geval ontvangt u 0 euro en de ander 80 euro.

Wat denkt u hoeveel de ander u geeft?

Met deze antwoorden kunt u geen geld verdienen. We vragen u om toch zorgvuldig na te denken en een zo goed mogelijke schatting te maken.

Als de **ander** tussen **16 en 34** jaar oud is, denk ik dat de ander aan mij	____ euro geeft (0 euro t/m 80 euro, alleen hele euro)
Als de **ander** tussen **35 en 64** jaar oud is, denk ik dat de ander aan mij	____ euro geeft (0 euro t/m 80 euro, alleen hele euro)
Als de **ander 65 jaar of ouder** is, denk ik dat de ander aan mij	____ euro geeft (0 euro t/m 80 euro, alleen hele euro)

[Button]: Volgende

****

De beslissingstaak is beëindigd. We vragen u nu nog om een aantal vragen te beantwoorden.

We zouden graag weten **hoe u over een aantal uitspraken denkt die betrekking hebben op het Nederlandse pensioenstelsel**. Geef s.v.p. uw antwoord op onderstaande uitspraaken door voor één van de categorieën te kiezen.

Het Nederlandse pensioenstelsel werkt uiteindelijk in het voordeel van…

	Mee oneens	Niet mee eens, niet mee oneens	Mee eens	Weet niet
… jongere mensen tussen de 16 en 34.				
… mensen van middelbare leeftijd tussen de 35 en 64.				
… oudere mensen van 65 of ouder.				

[Button]: Volgende

****

We vragen u om de **onderstaande uitspraken zorgvuldig te** lezen en de antwoord te kiezen die het best met uw mening overeenkomt.

	Mee oneens	Niet mee eens, niet mee oneens	Mee eens	Weet niet
De solidariteit tussen jong en oud in Nederland staat onder druk.				
Ik zou bereid zijn om een gedeelte van mijn inkomen af te staan om oudere mensen te ondersteunen.				
Ik zou bereid zijn om een gedeelte van mijn inkomen af te staan om jonge mensen te helpen.				

[Button]: Volgende

****

<u>Stelt u zich de volgende situatie voor</u>: U begint aan een nieuwe baan bij een andere werkgever en kunt kiezen uit de drie onderstaande pensioenregelingen. We vragen u om aan te geven voor welke pensioenregeling u zou kiezen:

- Een individuele pensioenregeling waarin iedereen voor zijn eigen pensioen spaart. Het bedrag van uw pensioen is afhankelijk van hoeveel premie u heeft betaald en hoeveel rendement uiteindelijk met deze premies is behaald.

- Een regeling waarin iedereen binnen een collectieve regeling spaart en waarin goede en slechte investeringsresultaten onder alle deelnemers worden verdeeld. In deze regeling vormen de betaalde premies en het rendement van deze premies een gemeenschappelijke geldsom waarvan alle pensioenen worden betaald.

- Een regeling waarin iedereen binnen een collectieve regeling spaart voor een klein aanvullend pensioen en bovendien premies voor een individuele regeling betaalt.

- Weet ik niet.

[Button]: Volgende

****

De volgende uitspraken hebben betrekking op **pensioenfondsen** waarbij **iedereen hetzelfde percentage van zijn/haar inkomen als pensioenpremie betaalt**. We zouden graag willen weten hoe u over deze uitspraken denkt.

In een pensioenfonds…	Zeer slechte zaak	Slechte zaak	Neutraal	Goede zaak	Zeer goede zaak
… dragen gezonde mensen bij aan de pensioenopbouw van mensen met een arbeids-ongeschiktheid.					
… betalen mannen relatief gezien te veel premie en vrouwen te weinig, omdat mannen gemiddeld korter leven dan vrouwen.					
… dragen jongere werknemers relatief gezien te veel premie bij, oudere werk-nemers relatief gezien te weinig.					

[Button]: Volgende

****

Uw geschatte aanvullende pensioen wordt vaak aangegeven als percentage van uw laatste verdiende netto-inkomen. **Hoe hoog zal uw pensioen naar uw verwachting zijn als u met pensioen gaat?**

- ...% van mijn laatste verdiende netto-inkomen (in hele getallen, maximaal 100%)

- Geen idee, dit kan ik niet inschatten

Wat vindt u een goed pensioeninkomen, d.w.z. een inkomen waarmee u nadat u met pensioen bent gegaan comfortabel kunt leven?

- ...% van mijn laatste verdiende netto-inkomen (in hele getallen, maximaal 100%)

- Geen idee, ik kan geen antwoord geven

Spaart u extra voor de tijd na uw pensionering?

- Ja

- Nee

[als antwoord "ja"]

Ik spaar ongeveer

- ...% van mijn meest recente netto-inkomen (maximaal 100%)

[Button]: Volgende

****

Over het algemeen gezien, hoe **bereid** of **niet bereid** bent u om **risico's te nemen**?

0 Helemaal niet bereid om risico's te nemen	1	2	3	4	5	6	7	8	9	10 Zeer bereid om risico's te nemen	Weet ik niet

Stelt u zich de volgende **situatie** voor: u ontvangt vandaag onverwacht **1200 Euro**. **Hoeveel van dit bedrag zou u aan een goed doel geven**?

____ euro (0 t/m 1200, in hele getallen)

Geen antwoord

Hoe goed **beschrijft** de volgende uitspraak **u als persoon**?

Ik **geloof dat mensen** alleen de **beste intenties** hebben.

0 Beschrijft mij helemaal niet	1	2	3	4	5	6	7	8	9	10 Beschrijft mij helemaal	Weet ik niet

Hoeveel **vertrouwen** heeft u in **banken**?

- Heel veel vertrouwen

- Tamelijk veel vertrouwen

- Niet zo veel vertrouwen

- Helemaal geen vertrouwen

Hoeveel **vertrouwen** heeft u in de **houdbaarheid van het Nederlands pensioenstelsel**?

- Heel veel vertrouwen

- Tamelijk veel vertrouwen

- Niet zo veel vertrouwen

- Helemaal geen vertrouwen

Vindt u **over het algemeen** dat de **meeste mensen wel te vertrouwen zijn** of vindt u dat **men niet voorzichtig genoeg kan zijn in de omgang met mensen**?

- Meeste mensen zijn wel te vertrouwen

- Men kan niet voorzichtig genoeg zijn

In hoeverre bent u **bereid** of **niet bereid** om **jongere personen tussen de 16 en 34 te ondersteunen** zonder iets terug te verwachten?

0 Helemaal niet bereid om dit te doen	1	2	3	4	5	6	7	8	9	10 Hele maal bereid om dit te doen	Weet ik niet

In hoeverre bent u **bereid** of **niet bereid** om **personen van middelbare leeftijd tussen de 35 en 64 te ondersteunen** zonder iets terug te verwachten?

0 Helemaal niet bereid om dit te doen	1	2	3	4	5	6	7	8	9	10 Hele maal bereid om dit te doen	Weet ik niet

In hoeverre bent u **bereid** of **niet bereid** om **oudere personen boven de 64 te ondersteunen** zonder iets terug te verwachten?

0 Helemaal niet bereid om dit te doen	1	2	3	4	5	6	7	8	9	10 Hele maal bereid om dit te doen	Weet ik niet

[Button]: Volgende

****

In hoeverre bent u **bereid** of **niet bereid** om geld aan een **goed doel te geven** zonder iets terug te verwachten?

0 Helemaal niet bereid om dit te doen	1	2	3	4	5	6	7	8	9	10 Hele maal bereid om dit te doen	Weet ik niet

Heeft u in de **afgelopen 12 maanden geld aan een goed doel gegeven**?

- Ja

- Nee

- Geen antwoord

[als antwoord "ja"]

Wat was **ongeveer het totale bedrag in Euro** dat u de afgelopen 12 maanden heeft gedoneerd? Als u het niet meer precies weet, geef dan een zo goed mogelijke schatting a.u.b.

____ euro

Geef zo nauwkeurig mogelijk aan hoeveel **uren per week u aan vrijwilligerswerk** besteedt.

___ uren

- N.v.t., ik doe geen vrijwilligerswerk

- Geen antwoord

[Button]: Volgende

****

Heeft u de afgelopen 12 maanden **bloed gedoneerd**?

- Ja

- Nee

- Geen antwoord

Hoe waarschijnlijk is het dat u in de **komende 12 maanden bloed zal doneren**?

- Zeer onwaarschijnlijk
- Onwaarschijnlijk
- Waarschijnlijk
- Zeer waarschijnlijk
- Geen antwoord
- Kan vanwege medische of andere redenen geen bloed doneren

[Button]: Volgende

****

Tot welke **kerkelijk gezindte of levensbeschouwelijke groepering** rekent u zichzelf?

- Geen kerkelijk gezindte of levensbeschouwelijke groepering.
- Rooms-Katholiek
- Nederlands Hervormd
- Gereformeerde kerken
- Protestantse Kerk Nederland
- Islam
- Joods
- Hindoe
- Boeddhist
- Andere kerkelijke gezindte of levensbeschouwelijke groepering

– Geen antwoord

Hoe vaak gaat u in het algemeen naar de kerk, synagoge, moskee of een godsdienstige bijeenkomst?

- 1 keer per week of vaker
- 2 tot 3 keer per maand
- 1 keer per maand
- Minder dan 1 keer per maand
- Zelden of nooit

– Geen antwoord

De laatste verkiezingen voor de Tweede Kamer zijn gehouden op 15 maart 2017. **Heeft u toen gestemd**?

- Ja

- Nee

- Niet van toepassing, ik had toen geen stemrecht

– Geen antwoord

[als antwoord “ja”]

Op **welke partij** heeft u gestemd?

- CDA

- PvdA

- VVD

- GroenLinks

- SP

- D66

- ChristenUnie

- SGP

- Partij voor de Vrijheid

- Partij voor de Dieren

- 50Plus

- Forum voor Democratie

- DENK

- Andere partij

- Weet niet meer

- Geen antwoord

Stel er zouden **volgende week verkiezingen voor de Tweede Kamer** worden gehouden. **Zou u dan gaan stemmen of weet u dat nog niet**?

- Ja, ik ga stemmen

- Nee, ik ga niet stemmen

- Ik weet het nog niet

- Geen antwoord

[als antwoord “ja”]

Op **welke partij** zou u dan stemmen?

- CDA

- PvdA

- VVD

- GroenLinks

- SP

- D66

- ChristenUnie

- SGP

- Partij voor de Vrijheid

- Partij voor de Dieren

- 50Plus

- Forum voor Democratie

- DENK

- Andere partij

- Weet niet

– Geen antwoord

Wat is uw **hoogst behaalde onderwijsniveau**?

- Basisschool

- LBO - lager beroepsonderwijs (LTS, LEAO, LHNO, e.d.)

- Middelbaar algemeen voortgezet onderwijs of voorbereidend beroepsonderwijs (MAVO, (M)ULO, V(M)BO, e.d.)

- Hoger algemeen en voorbereidend wetenschappelijk onderwijs (HAVO, VWO, HBS, Atheneum, Gymnasium, Lyceum, MMS, VHBO, e.d.)

- MBO - middelbaar beroepsonderwijs (MTS, MEAO, e.d.)

- HBO - hoger beroepsonderwijs (HTS, HEAO, HHNO, sociale academie, e.d.)

- Universiteit

[Button]: Volgende

****

Na afloop van het onderzoek zal 1 op de 10 van de in de beslissingstaak aan elkaar gekoppelde paren toevallig worden gekozen. Als u deel uitmaakt van één van deze paren dan krijgt u het in de taak wel of niet gedeelde geldbedrag uitbetaald.

Om u te kunnen informeren hebben we uw e-mailadres nodig. We gebruiken het e-mailadres alleen om u te informeren over het te ontvangen geldbedrag. Alleen als u ook daadwerkelijk iets krijgt uitbetaald sturen we een link mee naar een beveiligde pagina waar u uw bankgegevens kunt invullen. We storten dan het geldbedrag op u rekening of giro nummer.

Uw e-mailadres en eventuele bankgegevens zullen niet voor andere doeleinden worden gebruikt dan hierboven aangegeven en worden na beëindiging van het onderzoek en na het overmaken van de betalingen vernietigd.

U kunt ook ervoor kiezen om geen informatie te ontvangen en niet te worden uitbetaald. In dit geval hebben we uw e-mailadres niet nodig.

Ik wil graag de informatie en de eventuele betaling ontvangen, mijn e-mailadres is: ____

Ik wil graag informatie maar geen betaling ontvangen, mijn e-mailadres is: ____

Ik wil geen informatie en geen betaling ontvangen.

Ter controle vragen wij u om nogmaals uw e-mailadres in te vullen: ____

[Button]: Volgende

****

We willen u graag nog vragen stellen over de beslissingstaak.

Na het lezen van de beschrijving van de beslissingstaak.

Was het duidelijk wat uw taak was?

0 Heel onduidelijk	1	2	3	4	5	6	7	8	9 Heel duidelijk

Vond u de beschrijving helder?

0 Heel onhelder	1	2	3	4	5	6	7	8	9 Heel helder

Zou u nog iets kwijt willen over de beslissingstaak? _____

[Button]: Volgende

****

Graag willen wij weten wat u van deze studie vond. Uw mening kan ons helpen toekomstige studies te verbeteren.

Als u deze vraag wilt overslaan, klikt u gewoon op Volgende om uw antwoorden te versturen.

Wat vond u van de studie?

interessant onderwerp	○	○	○	○	○	oninteressant onderwerp
te kort	○	○	○	○	○	te lang
duidelijke vragen	○	○	○	○	○	onduidelijke vragen
prettig om in te vullen	○	○	○	○	○	niet prettig om in te vullen

Indien u nog opmerkingen heeft, naar aanleiding van deze studie, kunt u daarvoor de ruimte hieronder gebruiken. _____

Hartelijk dank voor uw medewerking!

Mocht u nog vragen hebben over ons onderzoek, kunt u graag contact opnemen met de onderzoekers via e-mail address: xxx

Klik op Volgende om uw antwoorden te versturen.

[Button]: Volgende

****

B2. Invitation letter, experimental instructions and questionnaire (English translation)

****
Invitation letter
****

Dear Sir/Madam,

Everyone would like to have a good income after retirement. To achieve this, the Dutch pension system needs to be constantly maintained and adjusted. Does the pension system meet your preferences?

To find out how people think about the Dutch pension system and how they deal with money in general, Maastricht University and Centraal Bureau voor de Statistiek (CBS) carry out this research in collaboration with the research agency Flycatcher. With this study we will obtain more insights into how people view their financial situation. The results will also provide important insights that can help to improve the Dutch pension system.

For this research, CBS selects a number of persons. You are one of them. You represent many other inhabitants of the Netherlands. Therefore, it is important that you participate in this study.

How can you participate?

You can participate in this research via the internet. To protect your data, we use a secure connection. The survey can be found at the following Internet address:

https://XXXX

Your login code: <Username>

Get a chance to win a reward.

In our study, you will complete a questionnaire and make a decision on how to distribute money. When making the decision, you will be matched with an anonymous fellow citizen who is also participating in the survey. You will have a chance to share 80 Euros with this fellow citizen and the fellow citizen will have a chance to share 80 Euros with you. At the end of the survey, 1 out of 10 matched pairs will be paid the amount that they shared or did not share. The research will take approximately 30 minutes.[25]

Your data are secure.

Your data are secure in all our research. At the end of this letter, you can read more about this.

Do you have questions?

This research is being carried out in collaboration with the independent research agency Flycatcher. Flycatcher treats all your answers confidentially and anonymously. Do you have questions? You can contact research agency Flycatcher by e-mail (xxx) and by telephone (xxx). Flycatcher can be reached on working days between 8:30 AM and 5:00 PM.

You will do us a great favor if you participate in our survey sometime soon. We thank you for your time and cooperation.

25 After the research is completed, you will receive information about your reward. We point out that the reward possibly falls under income taxation. Do you not wish to receive a reward? Then you can indicate this during the survey.

Kind regards,

Arno Riedl – Professor of Public Economics (Maastricht University)

Hans Schmeets - Professor of Social Statistics (Maastricht University and CBS)

Peter Werner – Associate Professor Economics (Maastricht University)

Maastricht University is collaborating with Statistics Netherlands (CBS) in this study. Research agency Flycatcher collects the data on behalf of Statistics Netherlands and Maastricht University. In addition to the collected data, CBS also receives many files from other institutions. This contains, for example, data on population, work and income. Statistics Netherlands aggregates this information. In this way we work as economically as possible.

In this study, this data is aggregated with your answers in the study in an anonymous manner. Personal data can never be recognized in the information that Maastricht University receives from Statistics Netherlands.

****
Instructions and questionnaire
****

Declaration of Consent:

I hereby confirm that I have read the invitation letter and understand the information provided there. I confirm that my participation is voluntary and that I, without having to give a reason, can withdraw my consent and can decide not to participate in the study any longer at any time. If I withdraw, I am not longer eligible for a possible monetary reward.

Yes, I give my consent and want to move on with the study.

No, I do not want to participate in the study.

On this and all subsequent screens, you must click the <Next> button to go to the next screen. Note that after you click the <Next> button, you cannot return to the previous screen.

****

How old are you?

Between 16 and 34 years

Between 35 and 64 years

65 years or older

[Button]: Next

****

Description of your task

In this task you are matched with an anonymous fellow citizen (called ‘other’) who also participates in this study. You will never get to know the identity of this other as they will never get to know your identity.

There are **four possible situations**.

Here we describe the four possible situations, the probability that each situation actually occurs, your task and the other's task for each situation. This information is also shown in the table below.

Situation 1: **You and the other each receive 80 Euro**. You and the other **do not have to do anything**. The **chance** that this situation occurs **is 5 out of 10**.

Situation 2: **You and the other each receive 0 Euro**. You and the other **do not have to do anything**. The **chance** that this situation occurs **is 1 out of 10**.

Situation 3: **You receive 0 Euro and the other receives 80 Euro. The other can decide to share their 80 Euro with you** in any way they like. The **chance** that this situation occurs **is 2 out of 10**.

Situation 4: **You receive 80 Euro and the other receives 0 Euro. You can decide to share your 80 Euro with the other** in any way you like. The **chance** that this situation occurs **is 2 out of 10**.

Situation	**You receive**	**The other receives**	**Your task**	**Task of the other**
1	80 Euro	80 Euro	You have to do nothing	The other has to do nothing
2	0 Euro	0 Euro	You have to do nothing	The other has to do nothing
3	0 Euro	80 Euro	You have to do nothing	Decide how to share 80 Euro with you
4	80 Euro	0 Euro	Decide how to share 80 Euro with the other	The other has to do nothing

Each situation is possible. **After the study is finished you will be informed which situation actually occured.**

I confirm that I have read the description of the task.

Yes

[Button]: Next

****

Your decision

Suppose that situation 4 occurs. In this case, you receive 80 Euro and the other receives 0 euro.

The other can be of similar or of different age as you are. You do not know how old the other is. Therefore, we ask you for the following cases to state for three different age categories **how much you give to the other** in case you receive 80 Euro and the other receives 0 Euro.

Note: **You will distribute real money here** and you and the other person can get money depending on your decision. We therefore ask you to think carefully before making your decisions.

If the **other** is between **16 and 34** years old, I give to the other	____ Euro (0 Euro to 80 Euro, only whole Euro)
If the **other** is between **35 and 64** years old, I give to the other	____ Euro (0 Euro to 80 Euro, only whole Euro)
If the **other** is **65 years old or older**, I give to the other	____ Euro (0 Euro to 80 Euro, only whole Euro)

[Button]: Next

****

Your expectation

Suppose that situation 3 occurs. In this case, you receive 0 Euro and the other receives 80 euro.

What do you think the other will give to you?

With these answers you cannot earn money. We ask you to still think carefully and make the best estimate possible.

If the **other** is between **16 and 34** years old, I think the other will give to me	____ Euro (0 Euro to 80 Euro, only whole Euro)
If the **other** is between **35 and 64** years old, I think the other will give to me	____ Euro (0 Euro to 80 Euro, only whole Euro)
If the **other** is **65 years old or older**, I think the other will give to me	____ Euro (0 Euro to 80 Euro, only whole Euro)

[Button]: Next

****

The decision task is over. Now we ask you to answer a number of questions.

We would like to know what you think about a number of statements related to the Dutch pension system. Please give your answer to the statements below by choosing one of the categories.

The Dutch pension system ultimately works to the benefit of…

	Disagree	Neither agree nor disagree	Agree	Don't know
… younger people between 16 and 34.				
… middle aged people between 35 and 64.				
… older people from 65 or older.				

[Button]: Next

****

We ask you to **read the statements below carefully** and choose the answer that best reflects your opinion.

	Disagree	Neither agree nor disagree	Agree	Don't know
Solidarity between young and old in the Netherlands is under pressure.				
I would be willing to give up some of my income to support older people.				
I would be willing to give up some of my income to help young people.				

[Button]: Next

****

Imagine the following situation: You start to work for a new employer and are able to choose between the three pension arrangements listed below. Please state which pension arrangement you would choose.

- An individual pension scheme in which everyone saves for their own pension. The amount of your pension depends on the total premiums you have paid and on the return on these premiums that is ultimately achieved.

- A scheme in which everyone saves in a collective scheme and in which good and bad investment results are spread across all members. In this scheme, the premiums paid and the return on these premiums constitute a combined sum of money from which all pensions are paid.

- A scheme in which everyone saves in a collective scheme for a small supplementary pension and pays on top of that into an individual scheme.

- I do not know.

[Button]: Next

****

The following statements relate to **pension funds** where **everyone pays the same percentage of income as pension premium**. We would like to know what you think about these statements.

In a pension funds…	Very bad thing	Bad thing	Neutral	Good thing	Very good thing
… healthy people contribute to the pension savings of those with work inabilities.					
… men pay relatively too much premium, women too little, because on average they live shorter than women.					
… younger employees contribute relatively too much premium, older employees relatively too little.					

[Button]: Next

****

Your estimated supplemental pension is often stated as a percentage of your last earned net income. **How high do you expect your pension to be when you retire?**

- ... % of my last net income (in whole numbers, maximum 100%)

- No idea, I cannot estimate this

What do you consider a good retirement income, i.e., an income with which you can live comfortably after you retire?

- ... % of my last net income (in whole numbers, maximum 100%)

- No idea, I cannot give an answer

Are you saving extra for the time after your retirement?

- Yes

- No

[if answer "yes"]

I save approximately

- ... % of my most recent net income (maximum 100%)

[Button]: Next

****

In general, how **willing** or **unwilling** are you **to take risks**?

0 Completely unwilling to take risks	1	2	3	4	5	6	7	8	9	10 Very willing to take risks	Don't know

Imagine the following **situation**: Today you unexpectedly receive **1,200 Euro. How much of this amount would you donate to a charity**?

____ Euro (0 to 1200, in whole numbers)

No answer

How well does the following statement **describe you as a person**?

I **assume that people** have only the **best intentions**.

0 Does not describe me at all	1	2	3	4	5	6	7	8	9	10 Describes me perfectly	Don't know

How much **trust** do you have in **banks**?

- A great deal of trust

- A fair amount of trust

- Not so much trust

- No trust at all

How much **trust** do you have in **the sustainability of the Dutch pension system**?

- A great deal of trust

- A fair amount of trust

- Not so much trust

- No trust at all

Do you **generally** think that **most people can be trusted**, or do you think that one **cannot be careful enough when dealing with others**?

- Most people can be trusted

- One cannot be careful enough

How **willing** or **unwilling** are you to **support younger people between 16 and 34** without expecting anything in return?

0 Completely unwilling to do so	1	2	3	4	5	6	7	8	9	10 Very willing to do so	Don't know

How **willing** or **unwilling** are you to **support middle aged people between 35 and 64** without expecting anything in return?

0 Completely unwilling to do so	1	2	3	4	5	6	7	8	9	10 Very willing to do so	Don't know

How **willing** or **unwilling** are you to **support older people above 64** without expecting anything in return?

0 Completely unwilling to do so	1	2	3	4	5	6	7	8	9	10 Very willing to do so	Don't know

[Button]: Next

****

How **willing** or **unwilling** are you to give to a **charity** without expecting anything in return?

0 Completely unwilling to do so	1	2	3	4	5	6	7	8	9	10 Very willing to do so	Don't know

Did you **donate money to a charity in the last 12 months**?

- Yes

- No

- No answer

[if answer "yes"]

What was **approximately the total amount in Euro** that you donated in the last 12 months? If you don't remember precisely, please give your best estimate.

____ Euro

Please specify as precisely as possible how many **hours per week you are engaging in voluntary work**.

___ hours

- N/A, I do not do voluntary work\

- No answer

[Button]: Next

****

Did you **donate blood** in the last 12 months?

- Yes

- No

- No answer

How likely is it that you **will donate blood in the next 12 months**?

- Very unlikely
- Unlikely
- Likely
- Very likely
- No answer
- Cannot donate for medical or other reasons

[Button]: Next

****

To which **religious denomination or religious group** do you count yourself?

- No religious denomination or religious group
- Roman Catholic
- Dutch Reformed
- Reformed churches
- Protestant Church Netherlands
- Islam
- Jewish
- Hindu
- Buddhist
- Other religious denomination or religious group
- No answer

In general, how often do you attend church, synagogue, mosque or a religious gathering?

- Once a week or more often
- 2 to 3 times a month
- Once a month
- Less than once a month
- Rarely or never
- No answer

The last elections for the Tweede Kamer were held on 15 March 2017. **Did you vote then?**

- Yes
- No
- Not applicable, I did not have the right to vote at that time
- No answer

[if answer "yes"]

For **which party** did you vote?

- CDA
- PvdA
- VVD
- GroenLinks
- SP
- D66
- ChristenUnie
- SGP
- Partij voor de Vrijheid
- Partij voor de Dieren
- 50Plus
- Forum voor Democratie
- DENK
- Other party
- Don't know any more
- No answer

Suppose **elections for Tweede Kamer** were to be held **next week**. **Would you vote then or do you not know yet**?

- Yes, I will vote
- No, I will not vote
- I don't know yet
- No answer

[if answer "yes"]

For **which party** would you vote then?

- CDA

- PvdA

- VVD

- GroenLinks

- SP

- D66

- ChristenUnie

- SGP

- Partij voor de Vrijheid

- Partij voor de Dieren

- 50Plus

- Forum voor Democratie

- DENK

- Other party

- Don't know

– No answer

What is your **highest level of education attained**?

- Primary School

- LBO - lower vocational education (LTS, LEAO, LHNO, etc.)

- Secondary general education or vocational preparatory education (MAVO, (M)ULO, V(M)BO, etc.)

- Higher general and preparatory scientific education (HAVO, VWO, HBS, Atheneum, Gymnasium, Lyceum, MMS, VHBO, etc.)

- MBO - intermediate vocational education (MTS, MEAO, etc.)

- HBO - higher vocational education (HTS, HEAO, HHNO, sociale academie, etc.)

- University

[Button]: Next

****

At the end of the study, 1 in 10 of the pairs that were matched in the decision task will be randomly chosen. If you are part of one of these pairs then you will be paid the amount of money shared or not shared in the task.

In order to inform you we need your e-mail address. We only use the e-mail address to inform you about the amount of money you will receive. Only if you are actually paid something will we send a link to a secure page where you can enter your bank details. We will then transfer the money to your account or giro number.

Your e-mail address and any bank information will not be used for any purpose other than that indicated above and will be destroyed upon completion of the study and transfer of payments.

You can also choose not to receive information and not be paid. In this case, we do not need your e-mail address.

I would like to receive information and possible payments, my e-mail address is: ____

I would like to receive information but no payments, my e-mail address is: ____

I would like to receive no information and no payments.

To verify, we ask that you enter your email address again: ____

[Button]: Next

****

We would like to ask you some questions about the decision task.

After reading the description of the decision task.

Was it clear what your task was?

0 Very unclear	1	2	3	4	5	6	7	8	9 Very clear

Did you find the description clear?

0 Very unclear	1	2	3	4	5	6	7	8	9 Very clear

Is there anything else you would like to say about the decision-making task? _____

[Button]: Next

****

We would like to know what you thought of this study. Your opinion can help us improve future studies.

If you want to skip this question, just click Next to submit your answers.

What did you think of this study?

interesting topic	○	○	○	○	○	uninteresting topic
too short	○	○	○	○	○	too long
clear questions	○	○	○	○	○	unclear questions
nice to fill in	○	○	○	○	○	not nice to fill in

If you have any comments regarding this study, please use the space below. _____

Thank you very much for your cooperation!

If you have any questions about our research, please contact the researchers via e-mail address: xxx

Click Next to submit your answers.

[Button]: Next

****