Donation and Strategic Behavior of Millionaires

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Abstract
This paper studies conditions influencing the generosity of wealthy people. We conduct incentivized experiments with individuals that have at least one million euros in their bank accounts. The results show that millionaires are more generous toward low-income individuals in a giving situation than in a strategic setting. Moreover, the level of giving by millionaires is higher than in any other previous study. These results are in stark contrast to studies using student samples, which argue that richer individuals are less generous. Our findings have important implications for charities that deal with wealthy individuals.

Key words: donations, strategic behavior
1. Introduction

Why are we sometimes very generous and sometimes rather parsimonious? For example, we almost always tip in a restaurant, only sometimes in coffee places such as Starbucks, but almost never in fast-food chains such as McDonald’s. The difference in our tipping behavior implies that generosity depends on the context. We thus need to understand the context effects and some general rules concerning possible influencing factors of our perception of generosity and our subsequent behavior in markets.

In this paper, we worked with a large Dutch bank to expand the study of generosity to people who have more than one million euros in their bank accounts (from here on, we call this group of participants “millionaires”). Because a large fraction of charity donations stems from millionaires, understanding what motivates them to donate is important. For instance, in the Netherlands, where the current experiment was conducted, 80% of donations are being made by the richest 20% of donators (Bekkers, 2013).

Laboratory experiments with students have tried to study how being “rich” influences giving. For example, Piff et al. (2010) look at social class differences within a student sample, showing that “upper-class” individuals give less in a dictator game than “lower-class” individuals. They define social class using income, education, and job prestige, noting that their effects of social class on prosocial behavior hold when using objective features of financial wealth, such as income. Erkal, Gangadharan, and Nikiforakis (2011) find that students who end up first in a tournament, and hence receive most income, redistribute less to other students than those who end up at a lower rank. Hence, students with lower income in the experiment redistribute more than students with a higher income. An obvious problem with such studies and any
resulting conclusions is that the degree to which students, who are rich only in relative and not absolute terms and who have limited experience with giving, represent real upper-class individuals is unclear.¹ One major contribution of our study is that we are the first to investigate social preferences in a controlled incentivized experiment with a sample of objectively wealthy people.

Our results show that the financial position of individuals outside of the experiment plays a fundamental role regarding their decisions within the experiment. We first report a set of treatments based on a dictator game (Kahneman et al., 1986; Forsythe et al., 1994). Each millionaire is asked to propose how to allocate 100 euros between herself and a recipient, and this proposal is then implemented. In one treatment, we inform the proposer that the recipient is another millionaire, whereas in a different treatment, we inform the millionaire that the recipient is a low-income individual.

As we expected, millionaires gave more to low-income individuals than to other millionaires. This finding is in line with Cappelen et al. (2013b), who found in a within-subjects design that students in a developed country gave more in a dictator game when they were matched to students from a developing country than when matched to students from a developed country. Cappelen et al. (2013a) find that students participating in a dictator game give more to a needy microfinance borrower in Tanzania than to another student in Norway.

Interestingly, the level of giving by the millionaires is much higher than in any other experiment we are aware of in the literature². When matched with low-income recipients, the millionaires in our dictator game gave away on average 71.4% of the

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¹ See also Trautmann, Van de Kuilen, and Zeckhauser (2013).
² The only exception we are aware of is Cappelen et al. (2013a) who find that Norwegian students give on average 60.2% of the dictator game amount to a microfinance client in Tanzania.
money, with 45.8% giving the entire 100 euros to the recipient. By comparison, in a meta-analysis conducted with more than 100 dictator game experiments, Engel (2011) reports that on average, proposers gave away 28.4%, and only 5.4% of dictators gave the full amount to the other participant. With a non-student population, Cappelen et al. (2014) conducted dictator game experiments with a representative sample of the Norwegian population and found that proposers gave on average about 40% of the pie, and less than 2% gave away everything.

The second element of our paper relates to strategic behavior. We compare the behavior of millionaires in the dictator game to that in the ultimatum game. In the ultimatum game, the receiver needs to approve the proposer’s proposal; otherwise, both players are paid zero. Although this difference may seem small, it has a big effect on the framing of interactions. In the dictator game, the proposer is acting out of generosity, with a given set of norms that go along with such behavior. By contrast, the proposer’s decision in the ultimatum game has a strategic element to it—the need for the receiver to accept the proposal.

This strategic element changes the nature of the interaction; whereas in the dictator game, the interaction could be classified as “communal,” in the ultimatum game, it is classified as “exchange” (Fiske, 1992). Literature has shown that this difference in framing results in strong behavioral differences (Gneezy and Rustichini, 2000; Frey and Jegen, 2001; Heyman and Ariely, 2004; Fehr and List, 2004; Falk and Kosfeld, 2006; Cappelen et al., 2013a). For example, Gneezy and Rustichini (2000) show that paying people to perform a task shifts their mindset from generosity to business, and this shift can decrease rather than increase performance. Hence, two forces are working in opposite directions when moving from the dictator to the ultimatum game. The first we call the “exchange force,” which makes proposers less
generous, because it puts them in an exchange mode. The second, which we call the “strategic force,” is a result of the fear proposers feel when making low offers, because the receiver could reject them. This strategic force makes low proposals risky and thus forces the proposer to increase the amount proposed.

In the literature, proposals in ultimatum games are larger than those in dictator games (Engel, 2011; Oosterbeek, Sloof and Van de Kuilen, 2004; Güth and Kocher, 2013). This difference indicates that the strategic force in the ultimatum game outweighs the exchange force.

In fact, the level of giving in the dictator game is typically so low that a similar proposal in the ultimatum game would have most often been rejected. However, in our experiment, as we predicted, millionaires playing the dictator game were very generous toward low-income people. Proposals by millionaires in the ultimatum game were significantly lower than in the dictator game. In other words, the exchange force—moving from a communal to an exchange game—was stronger than the strategic force. We also observe a significant reduction in the fraction of proposers who proposed the entire 100 euros in the ultimatum game compared to the dictator game.

Combined, these results suggest two key findings. First, when studying generosity, we should be careful when extrapolating from student populations to the behavior of real millionaires. Second, when millionaires are in a “communal” interaction, they appear to be more generous than when strategic elements are added. These findings also have implications for other settings. For example, Falk and Kosfeld (2006) find that forcing others to give can reduce the level of generosity. Monitoring millionaires might be even more harmful than monitoring students.
2. Procedure and experimental design

2.1 Participants

The participants in our experiment are clients of a large Dutch private bank where they have private banking accounts. Individuals must have a net worth of at least one million euros of liquid wealth (not in real estate) at the moment they opened an account.

The bank sent out an email that contained a link to an online survey. The first block of questions targeted demographic characteristics such as gender, age, number of children, and marital status. Then, the participants took part in an experiment, followed by more questions.

Participants were informed that payments as a result of their individual choices in the experiment would be randomly determined at the end of the survey (with a payout probability of 10%). The participants that were selected for payment received their earnings via bank transfer at the moment the data collection was completed. The authors’ university and the bank guaranteed the payments to survey participants.

We invited 5,000 millionaires, of which 328 had no valid email address, giving us a total of 4,672 usable email addresses. Eventually, 633 (13.5%) millionaires completed the experiment.

Individuals from a representative panel of low-income individuals in the Netherlands were the second type of participants in the experiment. Flycatcher, a certified online research panel, administrates this group. The panel members are regularly asked for their gross annual household income. Participants in our “low-
income” group had a yearly income below 12,500 euros. We invited all 1,360 individuals on the Flycatcher panel who had stated having a low income in the previous round of the panel survey. Of those, 584 (42.9%) individuals participated.

Table 1 presents the summary statistics for our sample of millionaires, showing that 77.3% are men, the average age is 64.2, they have 2.04 children on average, and 69.1% are married. Millionaires are well educated, with 60.5% of them holding university degrees. Table 1 also provides information on the wealth distribution of the millionaires in our sample: 39% reported wealth between one million and two million euros; 26.3%, three million to five million euros; and 14.3%, more than five million euros. At the time of the experiment, 7.8% of the sample had less than one million euros of wealth. A likely explanation is that they had one million euros when they opened their accounts, and by the time they participated in our experiment, they had consumed or lost part of their wealth. At the time of the experiment, 27.9% of the millionaires had an annual income between 50,000 and 99,000 euros, more than 40% had an annual income of more than 100,000 euros, and 2.6% had an income below 20,000 euros. The explanation for this relatively low average income is that many of the millionaires are retired (52.1%). Some millionaires got rich by owning their own companies (47.6%), followed by an inheritance (33.6%) and salary (32.4%). These numbers do not add up to 100%, because respondents could select multiple answers.

Millionaires could decide whether to participate in the experiment. Those who agreed were randomly assigned to participate in a dictator game or in an ultimatum game, and were assigned to a certain role. This assignment method resulted in 216 (33.5%) millionaires allotted to the role of an allocator in the dictator game, 225
(34.9%) to the role of a proposer in the ultimatum game, and 203 (31.5%) to the role of a responder in the ultimatum game.

2.2 Experimental design

In the ultimatum game (Güth et al., 1982; see Güth and Kocher, 2013, for a survey) the proposer received 100 euros and was asked to allocate the amount between herself and the responder in increments of 10 euros, including 0 and 100. The responder could then either accept or reject the proposer's offer. If the responder accepted the split, it was implemented; otherwise, both players received zero. In our experiment, responders made their choices via the strategy method. For each of the 11 amounts the proposer could propose—from 0 to 100 euros—the responder indicated a willingness to either accept or reject the offer.

In the dictator game (Kahneman et al, 1986; Forsythe et al., 1994), the proposer was asked to make a unilateral decision on how to divide 100 euros. The other player (the recipient) had no decision to make.

We used a between-participants design in which each participant played one role in one game, that is, one role in either the dictator or the ultimatum game. Participants were informed that they would only make one decision and that all participants of the experiment would remain anonymous during and after the experiment. Appendix A contains the full set of instructions.

In both games, the unique Nash equilibrium is for the first mover to take all the money for herself (or offer 10 euros in the ultimatum game), given the assumption that people are only concerned with maximizing their own monetary payoffs.
3. Results

3.1 Giving in the dictator and ultimatum games

Figure 1 shows the allocation of millionaires in the dictator game. We compare the giving of millionaires in the case in which they were matched to low-income individuals to the case in which they faced other millionaires. Whereas they allocated 49.61 euros on average to other millionaires, they gave 71.40 euros when matched to low-income individuals (Mann-Whitney, p<0.001, KS-test, p<0.001). In other words, millionaires were significantly more generous toward low-income participants than to other millionaires. This result indicates that giving in a dictator game is highly dependent on the financial position of recipients. A particularly interesting finding is that, as the figure shows, 45.6% of the millionaires gave away everything when matched with low-income participants; we are not aware of such a result in the literature.

Result 1: In the dictator game, millionaires give a higher amount to low-income participants than to other millionaires.

Result 2: In the dictator game, millionaires who are matched to a low-income participant give away more than in any other example in the literature.

Table 2 reports the proposals in the ultimatum game. As the table shows, millionaires who are matched to low-income individuals gave more in the dictator
game than in the ultimatum game. Specifically, they gave 71.4% of the pie in the dictator game and only 63.9% in the ultimatum game (Mann-Whitney, p=0.035, KS-test, p=0.044). This result is in contrast to the literature that shows that proposals in the ultimatum game are higher than allocations in the dictator game.

The fact that we observe a strong shift from choosing a 50-50 split in the ultimatum game to choosing a 0-100 split in the dictator game further supports our findings. Figure 2 shows the complete distribution of the amounts millionaires transferred to low-income participants in the dictator game and in the ultimatum game. It shows that a large fraction of millionaires chose one of the two mentioned splits, whereas only approximately one third of them opted for an amount other than 50 or 100 euros. In the ultimatum game, only 29.7% of the millionaires gave away the full amount, compared to 45.6% in the dictator game (Chi-squared test, p=0.014). On the other hand, the number of millionaires choosing a 50-50 split significantly decreased from 30.6% in the ultimatum game to 18.4% in the dictator game (Chi-squared test, p=0.033).

These findings indicate a high level of generosity when the difference in wealth between participants in the experiment is large and the richer participant determines the split. The strategic component then has a negative effect on the proposal.

**Result 3: Millionaires are more generous toward low-income participants in the dictator game than in the ultimatum game.**
3.2 Accepting proposals in the ultimatum game

Figure 3 shows that millionaires who were assigned the role of a responder in the ultimatum game were more likely to accept low proposals from low-income participants than from other millionaires. For instance, 71.2% accepted a proposal of 30 euros from a low-income participant, whereas only 47.5% accepted 30 euros when offered by another millionaire (Mann-Whitney, p=0.001). Similarly, 58.7% of millionaires accepted a proposal of 10 euros from a low-income participant, but only 34.3% accepted it from another millionaire (Mann-Whitney, p=0.001).³

Result 4: Millionaires are more likely to accept low proposals from low-income participants than from other millionaires.

4. Conclusion

In this paper, we study the giving behavior of wealthy people. Using access to Dutch millionaires, we are able to show that wealthy people are much more generous than any other group recorded in the experimental literature. We also show that millionaires are sensitive to the framing of the environment. Adding a strategic element to the environment achieves a surprising result by reducing the millionaires’ level of generosity.

Our findings have implications for organizations interested in raising money for charity from wealthy individuals. In particular, wealthy people may be more generous

³ The graph also shows that millionaires were less likely to accept offers above 50 euros than to accept offers of 50 euros or less. This finding is regularly observed in ultimatum games (Güth and Kocher, 2013).
in donating to charity if they expect no direct benefits. However, once a strategic element is added to the environment—for example, a minimum required donation amount—they might become less generous.

Another implication could be promising with regard to the return on investment for microfinance investments or socially responsible mutual funds. Our results suggest that framing microfinance investments as charity (giving environment) with a chance to get some money back, rather than framing the giving as an investment product (strategic environment), could be more efficient. In this light, Riedl and Smeets (2014) show that socially responsible investments with tax benefits attract both selfish and prosocial investors, but socially responsible investments without tax benefits attract more prosocial investors. Future research can test how the framing of such microfinance products affects their attractiveness to investors.
References


Tables

Table 1 – Characteristics of millionaires in our sample

<table>
<thead>
<tr>
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<th>Mean</th>
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<tr>
<td>Male</td>
<td>77.3%</td>
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<tr>
<td>Age</td>
<td>64.2</td>
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<tr>
<td>Retired</td>
<td>52.1%</td>
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<td>University degree</td>
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<td>Married</td>
<td>69.1%</td>
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<td>Number of kids</td>
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<td>1-2 million</td>
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<td>3-5 million</td>
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<td>6-10 million</td>
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<tr>
<td>50-99k</td>
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<td>150-500k</td>
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<td>More than 500k</td>
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<td>Patent, Invention</td>
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<tr>
<td>Gambling</td>
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<tr>
<td>Other</td>
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<tr>
<td>Do not want to tell</td>
<td>7.6%</td>
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Table 2 – Giving behavior of millionaires in the dictator and ultimatum game

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<tr>
<th>Literature</th>
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<th>Matched to Millionaire (M)</th>
<th>L - M</th>
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<tbody>
<tr>
<td>28.40%(^1) Dictator (D)</td>
<td>71.40%</td>
<td>49.61%</td>
<td>21.79%***</td>
</tr>
<tr>
<td>40-50%(^2) Ultimatum (U)</td>
<td>63.87%</td>
<td>52.02%</td>
<td>11.85%***</td>
</tr>
<tr>
<td>D - U</td>
<td>7.53%**</td>
<td>-2.41%</td>
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</tr>
</tbody>
</table>

*** indicates 1% significance, ** 5% and * 10%, based on Mann-Whitney tests
\(^1\) Engel (2011).
\(^2\) Güth and Kocher (2013).
Figure 1 – Giving behavior of millionaires toward poor and rich people in the dictator game

Millionaires distributed 100 euros between themselves and another person in a dictator game. They were informed that their assignment to a low-income individual or to another millionaire was determined randomly. The game was an anonymous one-shot experiment.
Figure 2 – Giving behavior of millionaires toward poor people in the dictator or ultimatum game

Millionaires distributed 100 euros between themselves and a person with a low income. Whether they participated in the dictator game or the ultimatum game was determined randomly. The game was an anonymous one-shot experiment. The graph presents the distribution of amounts given to a person with a low income.
Figure 3 – Millionaires’ acceptance of offers in the ultimatum game

Using the strategy method, millionaires indicated for each possible amount the proposer could transfer whether to accept or reject the offer. The proposer could be either another millionaire or a person with a low income.
Appendix – Experimental instructions

Dictator game – allocator

The experiment is fully covered on this page.

Your decision

You are randomly matched to another participant. The person to whom you are matched has [less than 12,500 euros gross income per year / more than one million euros in the bank account]. You and the person to whom you are matched can earn real money in the experiment. You receive €100. The person to whom you are matched initially receives nothing. You are asked to send an amount to the other person between €0 and €100. The other person is told that you received €100, the choice you had and the decision you made. He or she does not make any decision.

Earnings in the experiment

The earnings of the other participant are the amount you send to the person. Your earnings are the remainder of the amount, so €100 minus the amount you send to the other person. Select one of the following amounts that you want to send to the other person

- € 0
- € 10
- € 20
- € 30
- € 40
- € 50
- € 60
- € 70
- € 80
- € 90
- € 100

Payment

At the end, the computer will decide randomly whether you and the person to whom you are matched get paid. The chance is at least 10%. If you are selected for payment, the person to whom you are matched gets paid too. You remain anonymous, also to the other participant. Moreover, the outcomes will be analyzed anonymously. ABN AMRO MeesPierson and Maastricht University guarantee that payments will be correct and as described in the instructions. At the end, you can provide details on your bank account to where we will transfer the money.
**Ultimatum game – proposer**

The experiment is fully covered on this page.

**Your decision**

You are randomly matched to another participant. The person to whom you are matched has [less than 12,500 euros gross income per year / more than one million euros in the bank account]. You and the person to whom you are matched can earn real money in the experiment. You receive €100. The person to whom you are matched initially receives nothing. You are asked to send an amount to the other person between €0 and €100. The other person decides whether to accept or reject the amount you send to him / her. Before the other person takes a decision, he or she is told that you received €100 and that you could send an amount between €0 and €100 in steps of €10. The other person is also informed about his or her earnings and your earnings in case the person accepts or rejects the offer.

**Earnings in the experiment**

In case the other person accepts the amount you send, the earnings of the other participant is the amount you send to the person. In that case, your earnings is the remainder of the amount, so €100 minus the amount you send to the other person. If the other person rejects the amount you send, you both earn nothing. Select one of the following amounts that you want to send to the other person

* € 0
* € 10
* € 20
* € 30
* € 40
* € 50
* € 60
* € 70
* € 80
* € 90
* € 100

**Payment**

At the end, the computer will decide randomly whether you and the person to whom you are matched get paid. The chance is at least 10%. If you are selected for payment, the person to whom you are matched gets paid too. You remain anonymous, also to the other participant. Moreover, the outcomes will be analyzed anonymously. ABN AMRO MeesPierson and Maastricht University guarantee that payments will be correct and as described in the instructions. At the end, you can provide details on your bank account to where we will transfer the money.
**Ultimatum game – responder**

The experiment is fully covered on this page.

**Your decision**

Your are randomly matched to another participant. The person to whom you are matched has [less than 12,500 euros gross income per year / more than one million euros in the bank account]. You and the person to whom you are matched can earn real money in the experiment. The other person is asked to divide €100 between you and himself / herself in steps of €10. We ask you to decide whether to accept or reject the amount the other person sent to you.

**Earnings in the experiment**

*Accept*

In case you accept the amount the other person sent, your earnings is the amount the other person sent to you. In that case, the earnings of the other person is the remainder of the amount, so €100 minus the amount he or she sent to you.

*Reject*

If you reject the offer, you both earn nothing.

**Example 1**

The other person sends €30 to you. If you accept, you earn €30 and the other person earns €70. If you reject, you and the other person get nothing.

**Example 2**

The other person sends €80 to you. If you accept, you earn €80 and the other person earns €20. If you reject, you and the other person get nothing.
Please now indicate your choice. Click in the second column for each amount the other person could send to you the word “accept” or “reject”.

<table>
<thead>
<tr>
<th></th>
<th>accept</th>
<th>reject</th>
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<tr>
<td>€ 100</td>
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</table>

More information on the matching to the other person

Before the other person makes a decision, he or she is told what your and his or her options are and what the corresponding earnings are.

Participants in your role will be matched to a participants in the other role at the end of the experiment. At the moment you take the decision, you do not yet know how much the other person sent to you. We therefore ask you to decide whether to accept or reject each amount the other person could send you. After you have been matched to the other person, we will pay you and the other person based on the actual amount the person sent you and the decision you made for that amount.

Payment

At the end, the computer will decide randomly whether you and the person to whom you are matched get paid. The chance is at least 10%. If you are selected for payment, the person to whom you are matched gets paid too. You remain anonymous, also to the other participant. Moreover, the outcomes will be analyzed anonymously. ABN AMRO MeesPierson and Maastricht University guarantee that payments will be correct and as described in the instructions. At the end, you can provide details on your bank account to where we will transfer the money.