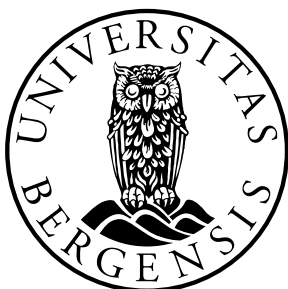


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A Cross-National Study on the Receiver
Game



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Abstract

Money as a medium of exchange is a fundamental principle of economics. Money gives people the opportunity to exchange money for something they value higher including behaving prosocial towards other people. The Receiver game captures the essence of money as a pure medium of exchange. Subjects are asked to choose between receiving more or less money, and the choice has no monetary consequences for other subjects in the experiments. We asked 2,891 subjects from the United States, United Kingdom, France, Germany, and Croatia to choose how much they would choose to receive if they were drawn for a cash prize of 100 \$ (EUR/GBP) in the survey. Out of a total of these 2,891 subjects, 28% of them chose to receive less than the maximum amount. This result may have consequences of interpretation of prosocial behaviour in other experiments.

Keywords: receiver game; self-image; interpretation of prosocial behaviour in economic experiments

JEL classifications: D90; D91

INTRODUCTION

Money as a medium of exchange is a fundamental principle in economics. Money has only value in exchange not in use. As Adam Smith put it, ‘*it is not for its own sake that men desire money, but for the sake of what they can purchase with it*’ (Smith 1776, IV.1.18, p. 439).¹ More money gives people the opportunity to obtain more of necessities and pleasure for oneself, or to behave pro-social toward one’s family, friends, and strangers through charity. Hence, in a choice situation in which people are simply asked to choose between receiving more or less money one would expect them to choose more money over less.

The Receiver Game, introduced by Tjøtta (2019), captures the essence of money as a medium of exchange. In the experiment, the subjects are asked to choose between receiving more or less money. The choice of how much to receive had no money consequences for other subjects. The experiment followed standard experimental procedures, double-blind in which neither other participants nor experimenters could identify the choices and a randomized payment scheme. In such an experimental setting, one would expect subjects chose to receive more money.

Contrary to expectations, in a series of experiments conducted in Norway one-third of 3,503 participants chose to receive less than what was feasible (Tjøtta, 2019). The results are robust to different experimental settings; neither experience with participating in experiments nor deliberation before the choice eliminates the empirical regularity. What is more, the result holds for (i) student populations; (ii) a representative sample of the Norwegian population; and for (iii) classroom; (iv) online; and (v) lab experiments.

Our main aim with this paper is to investigate whether this receiving behaviour in the Norwegian population is also pervasive in other countries.

RESULTS

We employ a pre-registered receiver game in an online survey consisting of a total of 2,891 respondents from the United States, United Kingdom, Germany, France, and Croatia. We followed standard experimental procedures where we use a double blind and random payment

¹ This reference is to *The Wealth of Nations* is to Glasgow edition, Smith (1776). References include, in this order, Book (in upper case Roman numerals), chapter (in Arabic numerals) and paragraph (in Arabic numerals).

scheme. Subjects were asked to choose how much they want to receive conditional on being randomly drawn for a cash prize of 100\$ (EUR/GBP).

We find that in all five countries a majority chose to receive more money. Still, a considerable minority (see Table 1 below) of the subjects chose to receive less money.

Table 1: Percentages of respondents choosing to receive less money over more

	UK	USA	Germany	France	Croatia
Less money	26.4%	23.0%	42.8%	24.0%	25.2%
Age	33	38	31	35	38
Female	64.7%	60.0%	44.2%	59.0%	55.3%
N	641	508	514	507	721

Notes: The payment is conditional being drawn in a randomised payment scheme; the row “Less money” is the percentage of those who chose to receive less than the 100\$ (EUR/GBP). Female is the share of female respondents. Age represents the median years of age.

On average, 28.0 % of respondents choose to receive less than the maximum amount, varying from 23.0 % in US to 42.8 % in Germany, as shown in Table 1. Chi2(4) (N=2,891) test reveals significant differences in receiving behaviour between countries. These results are comparable to Tjøtta (2019), in which 25.0 % of a total of 1,595 subjects from a representative Norwegian online survey chose to receive less money instead of more.² Hence, the results from the Norwegian population reported in Tjøtta (2019) seem to generalize to other populations as well.

DISCUSSION

As money is a medium of exchange, it is a valuable good in the sense that more money is better and less is worse. More money gives people the opportunity to exchange valuable money for something they value higher including behaving prosocial towards other people. While the majority chooses more money, why then would some people choose to receive less money in this experimental situation?

² The Norwegian data is from a web-based survey of a representative sample of the Norwegian population was conducted in March-April 2015 (reported as Experiment 6 in Tjøtta, 2019, p. 71)

The design of the receiver game directs explanations towards self-image. The design rules out pro-social explanations as the monetary consequences are limited to the decision maker only as there are no monetary consequences for other subjects in the experiments. Moreover, as the experiments are double blinded there is no possibility of exchange money for other subjects' social approval of one's choices. But people have a desire to view themselves as upright people, even in the absence of external approval or disapproval. According to Bénabou and Tirole (2006), people have a strong inner desire to maintain conformity between their actions and moral values they seek to uphold. Bénabou and Tirole (2006) trace the roots of this inner desire to Adam Smith's *Theory of Moral Sentiments* (1759). According to Smith, human naturally "desires, not only praise, but praiseworthiness" (Smith 1759, III.2.1, p. 114).³ Obviously, we wish to be praised but we also wish to deserve the praise we receive. More than that, we are even pleased to act praiseworthy even though no praise is given. For instance, subjects choosing to receive less money may do it because they do not want to be greedy to themselves in this situation.

The receiver game offers the ideal environment for experimental subjects to endorse their self-interest. However, even in situations in which reciprocity, reproach, and reward from others is removed we show that some subjects do not fully choose more money over less. This result – that subjects chose to receive less money in this experimental setting – has implications for the interpretation of pro-social behaviour in other experiments, particularly the role of reciprocity. Widespread experiments like the dictator game, ultimatum game, prisoner's dilemma, and tragedy of the commons involve, broadly understood, choices between receiving money for one-self versus giving money to other subjects. Subjects choosing less money for themselves and more for others tend to be interpreted as behaving pro-socially (altruistic, motivated by genuine moral concerns, social image, positive reciprocity). However, if self-image stands as a credible explanation of choices in the receiver game in which there are no actual others who are affected by one's choices, then self-image may also explain choices in experiments where other subjects are present. Hence, subjects' behavior in such experiments can be driven by their self-image, not pro-social behavior such as reciprocity or other motivations in order to avoid inequality

³ This and all subsequent reference to *The Theory of Moral Sentiments* are to Glasgow edition, Smith (1759). References include, in this order, part (in upper case Roman numerals), section (where relevant, in lower Roman numerals), chapter (in Arabic numerals) and paragraph (in Arabic numerals).

Another explanation of subjects choosing to receive less money than more in the receiver game is the experimenter demand effect (Hoffman et al. 1994, Zizzo, 2010, and Chlaß and Moffat 2017). In the introduction screen, the subjects were informed that this study was arranged by researchers from a university. As there was no mention in the instructions about what would happen with the remainder of the money subjects did not chose to receive, subjects may have believed that they are *playing* a dictator game with the researchers.

But the subjects do not seem to have this perception of playing a dictator game with the experimenter. After the respondents made their choices, they were asked to write what motivated their choice. Very few mentioned that the foregone money should go to the experimenter, only 10 out a total of 809 subjects that chose to receive less money and wrote their motivations, mention experimenter as the receiver of the forgone money. This is in line with results in Tjøtta (2019) and Serdarevic (2021), very few of the subjects mentioned research or the experimenter as the receiver of the foregone money

Choosing to receive less money for oneself leaves more money to the researcher. Hence, choosing to receive less money for oneself may be a concern for the experimenter. However, these features are common for economic experiments. First, the subjects are usually informed that they participate in an experiment organized by researchers from a specific university. Second, in many experiments the result of their choices leave money on the table for researchers without the subjects being informed about that. For example, in the ultimatum game, when the recipient rejects the offer from the proposer, all the money remains with the experimenter. In all economic experiments, when the subjects do not maximize their joint payoff they leave money for the experimenters. And it is not common in these experiments to inform the subjects about where the remainder money goes. Hence, if concerns about the reminder money affects subjects in our study in a systematic way, this may also be a plausible explanation for behaviour in other experimental games. Moreover, if this experimenter demand effect is present in other experiments as well, this may compromise how economics experiments are interpreted in general.

METHODS

The experiment was pre-registered at Aspredicted.org "More or Less Money Across Societies" (#54382) and can be retrieved here: <https://aspredicted.org/nb549.pdf>.

Subjects from the United States, United Kingdom, France, Germany, and Croatia were recruited for an online study in the period between 16-21 December 2020. After being presented that we were researchers from the University of Bergen interested in studying how people make decisions in different situations, they were informed that they could be drawn for a cash prize of 100 \$ (EUR/GBP). If they are drawn, they were asked to decide how much of this money they would want to receive. The exact wording of the choice situation is as follows:

“As a participant in this study, you are being included in a draw for a monetary prize of \$100. If you are drawn, you must choose how much of this money you wish to receive.

If I am drawn, I want to receive: ____”

After being asked to explain what motivated their choice, subjects were incentivised to guess the average amount other respondents from their home country would choose to receive in the decision situation. Their guess was incentivised with an additional 10\$ bonus payment. Finally, we asked subjects questions about gender, age and satisfaction with their household income.

The sample from each country was recruited using the fielding company Luc.id.⁴ Subjects were informed about the study being non-deception and that their decisions are anonymous to other subjects and to the experimenter. The experiment lasted approximately three minutes and the instructions were presented to respondents in their native language and in their local currency. Finally, subjects could not use the back-button after finishing one stage and the monetary prize was paid out as an Amazon Gift Card following being ensured that their decisions were entirely anonymous and that the study followed ethical conduct of economics research involving no deception.

After the subjects had made their choice of how much they want to receive, they were asked to write what motivated their choice. The French, German, and Croatian were translated to English using native speaking translators. We report how we categorised open-ended questions results of the explorative categorisation in the Electronic Supplementary Material.

⁴ Please see Appendix C for details about the recruitment procedures.

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Statement and Declarations

Both authors contributed equally to this manuscript. The study was pre-registered at AsPredicted.org. Conflicts of interest: None.

Appendices

Appendix A: Results

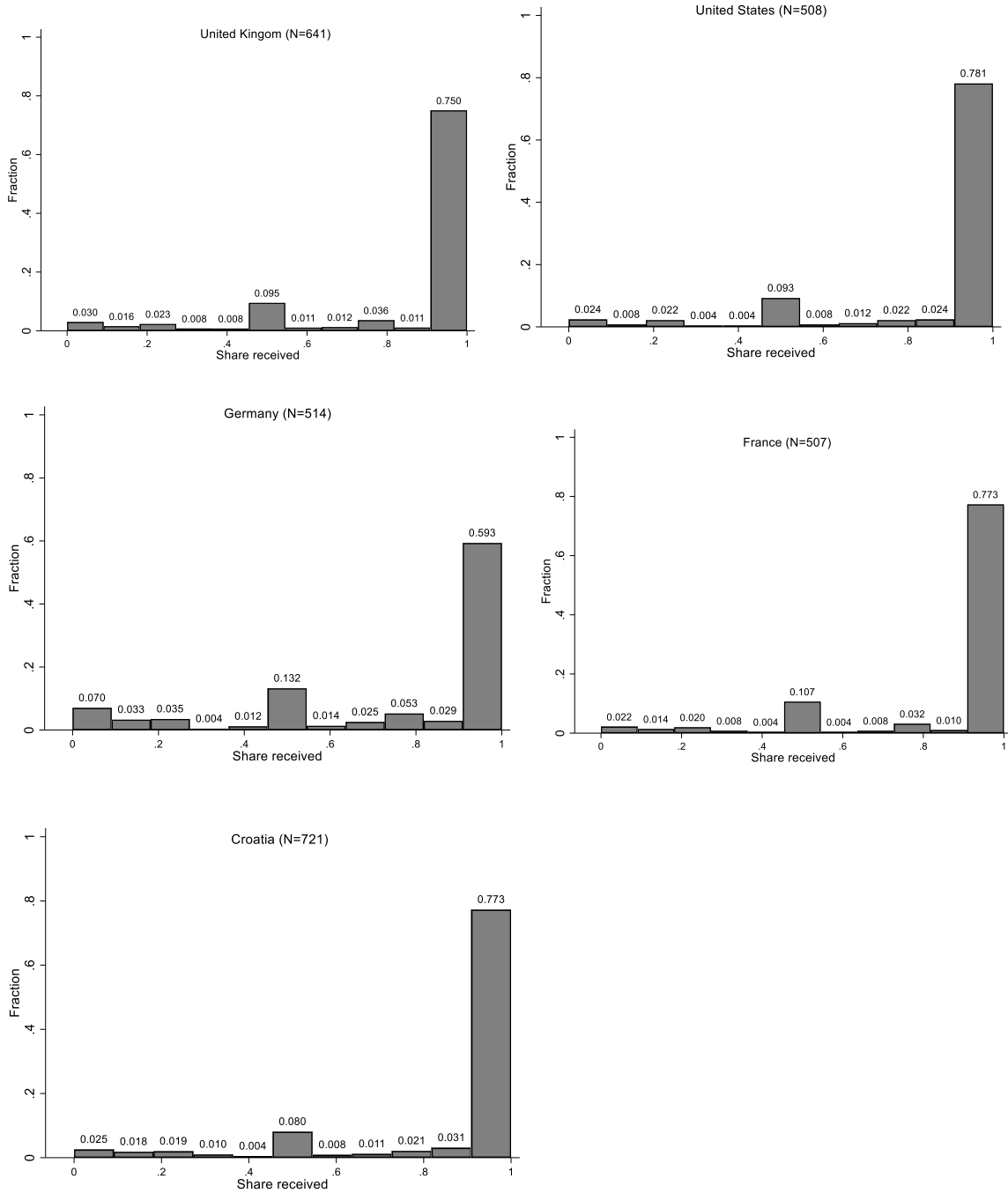
Table A.1 Distribution of Gender (%), by Country

GENDER	UK	US	GERMANY	FRANCE	CROATIA
Male	34.2 %	39.2 %	54.3 %	40.2 %	43.7 %
Female	64.7 %	60.0 %	44.3 %	59.0 %	55.3 %
Not binary	0.9 %	0.6 %	1.0 %	0.4 %	0.5 %
NA	0.2 %	0.2 %	0.6 %	0.4 %	0.4 %
Total	641	508	514	507	721

Table A.2 Distribution of Age (%), by Country

AGE	UK	US	GERMANY	FRANCE	CROATIA
18-24	32.8 %	15.0 %	29.0 %	17.0 %	16.8 %
25-24	21.5 %	24.6 %	30.2 %	29.0 %	22.9 %
35 -44	18.4 %	20.1 %	16.5 %	18.1 %	26.5 %
45-54	13.4 %	12.6 %	9.9 %	8.5 %	15.8 %
55-64	9.0 %	9.2 %	9.9 %	3.2 %	12.5 %
65 +	4.1 %	16.9 %	3.7 %	3.2 %	4.0 %
NA	0.8 %	1.6 %	0.8 %	1.4 %	1.5 %
Total	641	508	514	507	721

Figure A1: Distribution (fraction) of received money (share), by country



Appendix B: Instructions

Welcome!

Thank you for taking part in this study. We are researchers from the University of Bergen in Norway looking to learn how people make decisions in different situations.

This study will take about **5 minutes** to complete. You and your decisions are **anonymous** and the study follows the ethical standards of no deception in economics research.

Please **do not** close this window or leave the web-page. If you do close your browser or leave the web-page, you will not be able to re-enter and you will not get paid.

1. As a participant in this study, you are being included in a draw for a monetary prize of \$100. If you are drawn, you must choose how much of this money you wish to receive.

If I am drawn, I want to receive:

2. Please write what motivated your previous decision.
3. We also asked a group of people from the US how much of the \$100 they would choose to receive if they were drawn for the monetary prize. On average, how much do you think they chose to receive? The person whose guess is closest to the actual number will qualify for a bonus payment of \$10.
4. Before proceeding to the next set of questions, we ask you to answer a control question that has the aim to check whether you as a participant in this study actually read the instructions. You are given several options but are simply asked to choose the answer father. If you click anything else, we will have to disregard all your answers in order to guarantee the validity of our results.

From the set of words that you are presented, which family member do you choose?

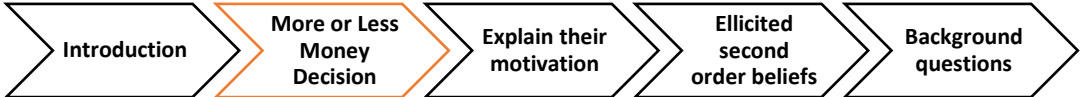
5. What is your gender?
6. What is your age?
7. Which of the descriptions below comes closest to how you feel about your household's income nowadays?
8. As mentioned earlier, you may be drawn to receive a monetary prize. This monetary prize will be paid out as an Amazon Gift Card. Those who are drawn to receive the prize will be contacted via email in order to receive the gift card. The email will only be used for the purpose of the gift card and permanently deleted once we have contacted the respective participants.

If you want to participate in the drawing of the monetary prize, please write your email in the box below, otherwise you can leave it blank.

Appendix C: Recruitment and Procedures

- We used Lucid to recruit respondents from five online markets; US, UK, Germany, France and Croatia.
- The survey was programmed in Qualtrics and lasted approximately 3 minutes.
- Subjects could not ballot box, meaning that each subject could only partake in the survey once.
- Only subjects who correctly answered the attention check were counted as complete.
- Subjects could not use the back-button whilst participating in the survey.
- Prior to fielding the survey, we conducted pilots in each of the five countries. We did not include the data from this pilot in the final dataset.

Figure 1: Stages in the online survey



Electronic Supplementary Material

After the respondents made their choices, they were asked to write what motivated their choice. Given that they were informed that the study will take five minutes and that the maximum allowed number was 100 characters, they wrote short motivations. The average number of words were 6. Due to the relatively short sentences and the difficulty of inferring subjects' motivations, we view this analysis as exploratory.

A common challenge with analysing open-ended answers is that subjects do not necessarily have an incentive to reveal their true motivations (Farell & Rabin, 1996). In other words, talk is “cheap” whereby respondents can rationalise their choices to make themselves look good (Crawford, 1998). Adam Smith would agree; people have a desire to “appear fit society” rather than “to be really fit” (Smith, 1759, III.2.7. p 117). Still, just because talk *can* be cheap does not mean it *is* cheap for people to engage in. Smith claims that while people are not judging others or themselves as perfect human beings, only the “weak and superficial of mankind” can be pleased by merely pretending to be fit. Through the process of moral development, cheap talk becomes costly as people have a natural desire to seek mutual agreement with others. Moreover, even if subjects engage in cheap talk when asked about their motivations, they are revealing that they are in fact aware that their choices are deviating from something they imagine to constitute appropriate by other spectators. One can read Smith as suggesting that cheap talk can be consistent with the search for being praiseworthy and maintaining a positive self-image.

Text categorisation procedure

The subjects' motivations were categorized following Tjøtta (2019) and Serdarevic (2021). We divided answers into two broad categories **Non-distributive** and **Distributive motivations**. Non-distributive motivations comprised of answers mentioning how subjects reasoned about their self-image. Distributive motivations comprised of answers mentioning whether subjects planned to share the money with someone, whether they expected the experimenter to share the money or whether the lack of information whether the remaining money would be shared motivated their choice. To take into account potential experimenter demand effects and comprehension issues we constructed the categories **Experimenter** and **Comprehension**. The rest of the motivations was categorized as **Other**. One of the researchers classified the answers.

Results

Table E1 displays the motivations of subjects who *chose to receive less money* by each country. Answers classified as **Non-distributive** (263/809) were comprised of motivations that related to how subjects viewed themselves, their self-image. Common answers relating to subjects' self-image were "because I'm humble", "modesty", "Life should be modest", "Should not take it all", "I don't want to be too greedy". Other mentioned "50 EUR seems fair to me", "I deserve it", "It's a survey, so not to be paid", "I don't need a lot of money", "Unemployed", "No need", and "Everything needs to be earned."

Table E1: Classification of motivations given by subjects who chose less money

	UK	USA	Germany	France	Croatia	Sum
Non-distributive	62	36	63	36	66	263
Distributive	71	41	51	27	43	233
Experimenter	1	1	3	2	3	10
Comprehension	3	0	6	3	3	15
Other	32	39	97	53	67	288
Sum	169	117	220	121	182	809

Answers classified as **Distributive** (233/809) were comprised of motivations to share the money with others or to leave money so that someone else (in this case, the experimenter) could share the money. Examples of answers were "To help someone else", "So others have a chance to win", "I would share it if I got it". "I would give to charity", "There are others in more need", "One has to share", "A new toy for my dog", "Donate half", "For a friend", and "That is enough for me", and "I leave something for the other participants".

Answers that mentioned the researchers were classified as **Experimenter** (10/809) such as "Half to the company, half to me :)", "I want to help researchers" and "I would like to support you". Answers that mentioned misunderstandings, such as "I did not understand the question" "Lower amount higher probability" and "Confusion" were classified as **Comprehension** (15/809). Answers that were too short or mention money such as "Additional earnings".

Table E2 displays the motivations of subjects who *chose to receive the full amount of money* by each country. Among those choosing more, there were motivations that were classified as **Non-distributive** (794/2,082). Common answers relating to subjects' self-image and esteem were "The inner ego", "Greed", "In this world everyone revolves around money", "Tiredness", "Opportunism", "Everyone wants the whole prize", "It is just logical and economic thinking". Others mentioned "Financial need", "I am not in the best financial situation, so I could use it", "I deserve all the 100", "Every work should be paid", "I consider it an appropriate reward", "If something is being offered, it should not be refused", and "Participation requires reward" and, "My times worth."

Table E2: Motivation (frequency) given by subjects who chose more money

	UK	USA	Germany	France	Croatia	Sum
Non-distributive	201	208	78	99	208	794
Distributive	56	39	29	21	46	191
Experimenter	1	1	1	2	5	10
Comprehension	4	1	2	1	3	11
Other	210	142	184	263	277	1,076
Sum	472	391	294	386	539	2,082

Answers classified as **Distributive** (191/2,082) comprise of motivations to share the money with others, to leave money so that someone else could share it (in this case the experimenter). Some subjects stated that they chose more as they were unaware whether this would have a consequence for anyone else. Examples of answers were "Holiday gifts", "More money to help someone", "Additional earnings for the household", "I could use some gift-money", "I want to please my daughters", "Spoil my grandchildren", "I can donate the money", "Share with the family", and "Why would I want less? Doesn't say it is shared".

Finally, motivations that mentioned the researchers were classified in the **Experimenter** (10/2,082) category and answers that mentioned confusion or misunderstandings, are classified as **Comprehension** (11/2,082).

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