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Easy come, easy go

The role of windfall money in lab and field experiments

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Abstract A growing number of experimental studies focus on the differences between the lab and the field. One important difference between many lab and field experiments is how the endowment is obtained. By conducting a dictator game experiment, we investigate the influences of windfall and earned endowment on behavior in the laboratory and in the field. We find subjects donate more in both environments if the endowment is a windfall gain. However, although the experimental design was intended to control for all effects other than environment, there are significant differences in behavior between the lab and the field for both windfall and earned endowment. This points to the importance of discussing the context when interpreting both laboratory and field experiment results as well as when conducting replication studies.

Keywords Charitable giving · Dictator game · Laboratory experiment · Field experiment · Windfall money

JEL Classification C91 · C93 · D64

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1 Introduction

Laboratory experiments are an important tool to gain various economic insights that cannot easily be obtained using market data or field experiment data. While experiments in the laboratory, with greater control over the situation, give higher confidence in the internal validity, the questions about external validity or parallelism of laboratory experiments remain. One crucial question is whether subjects' behavior in the laboratory is consistent with their behavior outside the lab. There are of course many differences between the laboratory and the field; therefore it is difficult to compare behaviors in these two settings. For example, if people do not give away a large share of their income to charity, it does not prove that the behavior in a dictator game, where subjects on average give away 20 % of their endowment (e.g., Camerer 2003), is not externally valid. Levitt and List (2007) argue that a number of factors can explain the behavioral differences found between the laboratory and the real world: scrutiny, context, stakes, selection of subjects, and restrictions on time horizons and choice sets. It is therefore important to carry out empirical studies that are able to examine the potential behavioral differences directly, identify factors that can reduce the differences, or do both (see, e.g., Smith 1982; List 2008; Falk and Heckman 2009).

One focus in the methodological development of lab experiments is to understand and reduce the differences between the lab and the field by, for example, using non-standard subject pools or having subjects earn the endowment. An important reason for the increased use of earned endowments is the intent to mimic the setting outside the lab, where almost all incomes are earned rather than obtained as windfalls. The evidence of the effect of windfall money on subject behavior in the lab is mixed. In dictator games, the dictators contribute less when the endowment is earned (Cherry et al. 2002; Cherry and Shogren 2008; Ruffle 1998; Oxoby and Spraggon 2008). In a public good experiment, Clark (2002) does not find a significant effect of earned endowment on the share of free-riding subjects, while Harrison (2007) shows that the windfall gain in the experiment by Clark (2002) does have a significant effect in a re-analysis of the data. Cherry et al. (2005) find no significant evidence of a windfall-gains effect on the contributions in a public good experiment, saying that although there seemed to be an effect, it was hidden within the more complex considerations of a public good game. However, in a follow-up paper using the best-shot game, Kroll et al. (2007) find significant differences in a public good experiment with heterogeneous endowment. By and large, previous findings seem to indicate that windfall endowment does have an effect on behavior.

In a recent paper, Smith (2010) argues that using laboratory experiments has resulted in many insights into human behavior, but the extent to which these can be carried over to behavior when people's own money is involved is questionable.[1] Note

[1] It should however be noted that stake, selection of subjects, and the choice sets and time horizons of the experiment have been shown to have a significant impact on behavior. For experiments on stake size effects in dictator games, see e.g., Carpenter et al. (2005b) and Cherry et al. (2002) and on selection of subjects see, e.g., Fehr and List (2004). For effects of choice sets in dictator games see Bardsley (2008) and List (2007), who allow some of the subjects in a traditional dictator game to take money from the recipients' endowments as well.

that this should not be seen as a general critique against laboratory experiments. In many instances, when researchers would like to test the effects of a certain treatment or stimuli keeping all other factors constant, there are strong arguments for conducting laboratory experiments, not the least the strong degree of control over the environment in which the decision is made (Falk and Heckman 2009).

In this paper, we are interested in analyzing the behavioral differences between conducting experiments in the lab and the field, and in particular we investigate the role of windfall and earned endowments in the lab and the field. To do this, we use a 2×2 experimental design. We let the subjects participate in a dictator game with a charity organization as the recipient (see, e.g., Eckel and Grossman 1996, for a similar experiment). In the experiment, we keep all factors such as stake, selection of subjects, and the choice sets and time horizons of the experiment constant, only varying windfall gain and whether the experiment is conducted in the lab or in the field. This means that the main differences between the lab and the field in our experiment are due to the environment *per se* and the degree of scrutiny.[2] Thus, we can make two comparisons between the lab and the field. The first one is to what extent they provide similar results in terms of the level of donation, under various conditions. The second one is to what extent a change in the context—in our case a change in how the endowment is obtained—affect behavior differently in the lab and in the field. The difference between lab and field can thus also be seen as part of a broader and more complex area related to how behavior is affected by context. It is evident that subjects are potentially sensitive to the context of the experiment and factors such as the choice set, (e.g., List 2007), social distance (Hoffman et al. 1996), and experimenter demand effects (e.g., Zizzo 2010). For a general discussion on the topic of context see the recent work by e.g. Bardsley et al. (2010) and Smith (2010). The contexts of the lab and the field are in many ways very different. In this experiment we have tried to reduce these differences, but there are indeed some fundamental differences between the lab and the field in our experiment as well.

The advantage of using a dictator game is that the game is very easy to understand and there are no strategic motives involved. The game also resembles a charitable giving situation, which means that it is possible for us to compare the behavior with that in a field experiment involving charitable giving. Treatment 1 is a standard lab experiment with windfall endowment, and Treatment 2 is a lab experiment with earned endowment. Treatment 3 is a field experiment with windfall endowment, and Treatment 4 is a field experiment with earned endowment. Our design allows us to make two important comparisons. First, we can investigate the effect of windfall gain in the lab (by comparing Treatment 1 and Treatment 2) and in the field (Treatments 3 and 4). Second, by comparing Treatments 1 and 3, and 2 and 4, we can make an overall comparison between the lab and the field, conditional on the way the endowment

[2]It is likely that subjects will feel more scrutinized in the lab than in the field. This is not to say that subjects in the natural field experiment do not feel scrutinized at all. Even if the experimenters assure subjects that their choices are private, they might still have the feeling of being observed by, for example, the charitable organization. Scrutiny is also related to the degree of anonymity in an experiment, which could be anything from publicly announced behavior to a double-blind procedure. The general finding is that when the degree of anonymity is reduced, people behave less selfishly (e.g., Hoffman et al. 1996; List et al. 2004; Rege and Telle 2004; Soetevent 2005; Alpizar and Martinsson 2012). Therefore, it is reasonable to expect a difference in behavior between the lab and the field due to scrutiny.

is received and earned, and thus also the effect of windfall gains in the lab and in the field. In addition, we also investigate the effect of show-up fees in a traditional lab experiment with windfall gain in order to investigate whether subjects view the show-up fee as a compensation for their time or as a windfall gain by conducting a follow-up experiment with two treatments (treatment 5 and 6).[3]

Why would windfall money matter in a dictator game? One explanation to the potential difference is that people's preferences for the distribution of money depend on, among other things, the input of the subjects (Konow 2000). When the endowment is a windfall gain, the dictator prefers to split the money more evenly, since she does not do anything to receive the money. Cherry et al. (2002) make a similar argument: earned money legitimizes the endowment and invokes more selfish behavior. In psychology, it has been suggested that subjects use different mental accounts for earned and windfall money (Arkes et al. 1994).

Several previous studies have studied differences in behavior between the lab and the field (e.g., Carpenter et al. 2005a; List 2006; Karlan 2006; Benz and Meier 2008; Laury and Taylor 2008; Antonovics et al. 2009; Carpenter and Seki 2010). However, the only other study we are aware of that makes a direct comparison between lab and field using a dictator game with control for a possible subject effect is the one by Benz and Meier (2008), who use an ingenious within-subject design to compare university students' donation behaviors in the field and in the lab. They conduct a dictator game with two social funds as external recipients, and compare the behavior in the experiment with actual charitable giving by the same subjects. They find a stronger donation behavior in the lab and that there is a positive correlation between behavior in the lab and in the field. An important reason for the difference between the lab and the field settings could be that the lab experiment uses windfall money while the field experiment does not involve an experimental endowment at all. This is exactly what our experimental design allows us to test. By applying a between-subject design and keeping the difference between the laboratory and field experiments to a minimum, our experiment allows us to make clear comparisons of the behavior in the lab and the field. In addition, there is no significant effect on behavior from offering or not offering subjects in a lab a show-up fee. The remainder of the paper is organized as follows. Section 2 introduces the experimental design, and Sect. 3 reports the experimental results. Section 4 concludes the findings.

2 Experimental design

The experiment was conducted in October 2008 at Renmin University of China, which is located in the northern part of the capital Beijing and has approximately 22,000 full-time and 13,000 part-time students. We conducted a one-shot dictator experiment. The subjects were given ten 5-Yuan[4] bills and were subsequently asked

[3] We are thankful to the anonymous referees and the editor for pointing this out.

[4] At the time of the experiment, 1 US dollar = 6.85 Chinese Yuan.

how much they would like to donate to the China Foundation for Poverty Alleviation.[5] This type of campaign, where people are asked to donate to a charity, is not uncommon in China, and the China Foundation for Poverty Alleviation occasionally conducts similar campaigns on campus to give students the opportunity to donate money, old clothes, or other consumer goods to the poor or those in need. In order to test for (i) the difference between the lab and the field and (ii) the effect of windfall gains, we designed an experiment with four treatments using a 2×2 experimental design.

The laboratory experiment was conducted at the School of Economics at Renmin University of China while a supermarket located on the campus of Renmin University of China was used as the setting for our field experiment. The endowment was given either as a windfall or had to be earned by answering a lengthy questionnaire. Since the experiment is a dictator experiment and since we wanted to compare across treatments in a simple way, the earned endowment was the same for all subjects and did not depend on their performance. However, it was clear to the subjects that they earned the money by answering the questionnaire, and always had the possibility to not answer the survey and hence not receive the compensation. The recruitment for all treatments was such that every third male and every third female customer that exited the supermarket was approached.[6] For the laboratory experiment, the customers were approached by one of our experimenters and asked if they would like to participate in a study conducted by university researchers. The field experiments were done in collaboration with the supermarket, and the supermarket employed the experimenters. Therefore, in the field experiments the customers were approached by one of our experimenters dressed in a supermarket uniform and asked if they would like to participate in a campaign conducted by the supermarket. Since we wanted to keep the subject pool variations to a minimum, we only allowed students from Renmin University to participate and therefore all treatments began with a screening question asking whether or not they were students at the university. In addition, all the treatments were double-blind.

We begin by describing the laboratory experiment treatments and then the field experiment treatments. The full scripts are presented in the Appendix 2 (Table 7). Table 1, below, summarizes the key features of the experimental design.

In the laboratory experiment treatments, subjects were asked to participate in an experiment conducted by the School of Economics at Renmin University at a scheduled time.[7] They were told they would receive 10 Yuan as a show-up payment at

[5]This is China's largest and most well-known charitable organization for poverty alleviation. Its main activities include community development, disaster relief, education and training, information technology services, relief, and shelter and housing provision. Most of functions of thus charity's function is actually similar to that of the Red Cross. Traditionally, there has been a low level of trust and thereby low levels of donations to charities in China. However, in the aftermath of the Sichuan earthquake in May 12th, 2008, there were numerous media reports about the earthquake and how the donations that people made actually went to and helped the people in need.

[6]We applied this approach in order to have an equal number of males and females in each treatment.

[7]The recruitment procedure was the same in all experiments, and although the refusal rate was somewhat higher for Treatments 1 and 2, we do not expect any significant differences in subject pools due to the recruitment from a homogeneous subject pool consisting of students. However, not all of the recruited

Table 1 Summary of the experimental design

	Laboratory experiment	Field experiment
Windfall endowment	Treatment 1 (54 obs.)	Treatment 3 (53 obs.)
Earned endowment	Treatment 2 (54 obs.)	Treatment 4 (50 obs.)

the end of the experiment to compensate for the inconvenience of coming to the experimental session on a specific date and time.[8] When subjects arrived at the lab, they were randomly assigned to either the windfall or the earned endowment treatment. In the treatment with the windfall endowment (Treatment 1), an experimenter welcomed the subject who was then led to a cashier where the 50 Yuan payment was given in ten 5-Yuan notes. After the subject had received the money, the experimenter presented the opportunity to donate to the China Foundation for Poverty Alleviation using the money that had just been received. The objectives of the foundation and for what purpose the donations would be used were then explained. At this point, the subjects were again told that the donation campaign was part of a research study. In order to ensure that the decision was anonymous, we put up a booth in which the subjects could make their decisions privately. The subjects were asked to seal any donation they chose to make in a supplied envelope, put it in an official donation box from the China Foundation for Poverty Alleviation and keep the remaining money.[9]

The lab experiment with earned endowment (Treatment 2) was the same as Treatment 1 except that upon arriving at the lab the experimenter asked the subjects whether they would be willing to answer a survey on the use of plastic bags and their views on the supermarket in general.[10] They were told that if they completed the survey they would receive 50 Yuan. The subjects were again reminded that the donation campaign was part of a study conducted by researchers from the School of

subjects showed up at their scheduled time in Treatments 1 and 2. Since the subjects in Treatments 2 and 4 answered the same survey, we can test whether there are any differences in a number of socio-economic characteristics reported in the survey. We cannot reject at a 5 % significance level the hypothesis of equal means or proportions between Treatments 2 and 4 in the variables gender, age, education, income, party membership and family size by using t-tests and proportion tests respectively (see Table 6 in Appendix 1).

[8] Show-up payment is conventionally used in lab experiments, as, for example, in the study by Eckel and Grossman (1996), and in our case it was seen as a compensation for the inconvenience of getting to the lab. We gave the subjects the show-up payment after completion of the experiment with the intention of reducing the influence of an income effect, and of course the field experiment did not involve any show-up payment.

[9] All the subjects could clearly see the box and that it was an official donation box from the charity organization. The donation box was opened at the office of the charity. At that time one of the experimenters was present and recorded the amount of money that was put in each envelope.

[10] The survey was anonymous and we linked subjects' survey information to their donation decisions by using an identification number on the envelopes. The survey was a face-to-face interview with questions about the use of plastic bags and the supermarket. The reason why we asked about the use of plastic bags was that four months before the experiment, a new policy was implemented in China requiring all retailers to charge money for providing plastic shopping bags. None of the subjects refused to participate in the survey at this stage. The survey took 20 minutes, and the experimenters were instructed to use the same amount of time for all surveys.

Economics. It was made clear that the money was to compensate them for their time and effort. Once the survey had been completed, the experimenter asked the subject to go to the cashier, who paid the 50 Yuan in ten 5-Yuan notes. After the subject had received the money, the dictator game was conducted in exactly the same way as in Treatment 1.

In the field experiment with the windfall endowment (Treatment 3), the experimenter informed the subject that the supermarket was conducting a "Thank you Customer" campaign and that the subject had been randomly selected to receive 50 Yuan. In China, it is common that supermarkets conduct commercial campaigns to improve their customer relations, although in most cases vouchers valid at the supermarket are used rather than cash. It is important to stress that they were given the money without any conditions and not the least no in relation to what they had or would purchase at the supermarket.[11] In order to keep the logistics the same, the money was given by the cashier. Once the subject had received the money, the experimenter explained that there was an opportunity to donate to the China Foundation for Poverty Alleviation using the money that had just been received. The donation was made in private in a booth. In order to keep the differences between the laboratory and the field settings to a minimum, we used the same recruitment procedure, the same experimenters, the same payout and donation procedure, the same cashiers, the same charity and dictator game introduction script, and the same donation booth.

Finally, in the field experiment with earned endowment (Treatment 4), the experimenter asked the subjects if they would be willing to participate in a survey carried out by the supermarket on the use of plastic bags and on their views about the supermarket in general. The survey was exactly the same as in Treatment 2. They were told that if they chose to participate, they would be paid 50 Yuan in cash. It was made clear that the money was a compensation for their time and effort. Once the survey had been completed, the experimenter asked the subject to go to the cashier, who paid the 50 Yuan in ten 5-Yuan notes. After the subject had received her earnings, the dictator game was conducted in the same way as in the previous treatments.

We used the same experimenters in all treatments, i.e., female university students not from Renmin University of China. The cashiers who handed out the money were always the same male students (not from Renmin University of China). Each experimenter and cashier conducted the same number of experiments in each treatment. The supermarket where the experiments were conducted is the largest supermarket on the campus of Renmin University with around 1,000 customers per day. Treatments 3 and 4 were conducted first over a two-day period. Then the recruitments to

[11] We considered several options for designing the field experiment. We opted for the "Thank you Customer campaign" since this way of giving money was accepted by subjects in our pilot experiments (at another university), while other ways resulted in many questions on why the money was being given and what was expected from them. Moreover, there is a proper noun for "'Thank you Customer' campaign" in Chinese (directly translated as something like "customer appreciation campaign"). Moreover, there are two types of customer campaigns used by Chinese retailers. The first one is similar to what we used, which is an unconditional gift giving. The second one is a conditional gift giving where a voucher is given in proportion to the value of the purchased goods.

Table 2 Description of donation behavior for each treatment

	Treatment 1	Treatment 2	Treatment 3	Treatment 4
	Lab experiment with windfall	Lab experiment with earned	Field experiment with windfall	Field experiment with earned
Mean	37.1	14.5	18.6	9.5
Standard Deviation	17.8	14.7	16.4	9.7
Mean percentage of donated endowment	74 %	29 %	37 %	19 %
Share of zero donations	0 %	6 %	0 %	10 %
Share donating everything (50 Yuan)	61 %	7 %	14 %	2 %
Number of observations	54	54	53	50
Mean (if donation is above zero Yuan and below 50 Yuan)	16.9	12.4	12.2	9.7
Standard deviation (if donation is above zero Yuan and below 50 Yuan)	11.7	11.0	10.6	9.7
Number of observations	21	47	44	44

Treatments 1 and 2 were made over a two-day period, and the lab experiments were conducted on the two days that followed.[12]

3 Results

In total 211 subjects participated in the main experiments (Treatments 1–4). Table 2 reports the descriptive statistics of the donations for all treatments. The mean donation amount and the proportion of subjects who donated the whole endowment of 50 Yuan vary considerably across treatments.[13] In the standard dictator game (Treatment 1), the average donation is 37.1 Yuan, corresponding to 74 % of the endowment. In the other three treatments, the donations are much lower. The mean donations are higher in the laboratory experiment treatments (Treatments 1–2) than in the field ex-

[12]This campus supermarket has about 1,000 customers per day and is the closest supermarket for over 15,000 full-time students living in the residential area close to the university. In total we recruited 211 subjects over a few days, accounting for a fairly small proportion of the supermarket's customers. It is therefore unlikely that we would approach the same costumer twice. To avoid spreading the information by, for example, word of mouth, we used several experimenters and conducted treatments 3 and 4 over 2 days. The experimenters were also asked to make sure that they did not recruit the same individual more than once. It should be noted that the cashier was the same person throughout the experiment and he consequently met all subjects. We are therefore confident that we did not include the same subject more than once.

[13]Since we could not limit the individual donations to 50 Yuan, particularly not in the field setting, we have three subjects who donated more than 50 Yuan. We truncate these donations at 50 Yuan.

Table 3 Test of difference between windfall and earned endowment

	Windfall vs. earned in the lab	Windfall vs. earned in the field
Treatments	1 vs. 2	3 vs. 4
Differences in mean	22.6	9.1
t-test (p-value)	<0.001	0.002
Rank-sum test (p-value)	<0.001	0.006
Differences in proportion giving 0 Yuan	−0.06	−0.10
Proportion test (p-value)	0.079	0.018
Differences in proportion giving 50 Yuan	0.54	0.12
Proportion test (p-value)	<0.001	0.010
Differences in mean donation if above zero Yuan and below 50 Yuan	4.5	2.5
t-test (p-value)	0.132	0.204
Rank-sum test (p-value)	0.085	0.377

periment treatments (Treatments 3–4). This is to a large extent explained by a higher fraction of subjects donating everything in the laboratory experiments.

The mean donations in our experiment are in general higher than in other similar experiments. For example, with a similar experimental design with a charity recipient, Eckel and Grossman (1996) find that subjects donate on average 30 % of the endowment, while in our experiment the average donation is 74 % of the endowment. On the other hand, the average proportion donated in Benz and Meier (2008) is also rather high, between 62 % and 67 % of the endowment. Clearly, the amount donated is very context specific, but one potentially important reason for the high donation rate in our experiment is that China had just experienced several large natural disasters resulting in a general increase in charitable giving. For example, the total amount of money from individual charitable giving increased in 2008 to 13 times the level of 2007 (Chinese Ministry of Civil Affairs 2007, 2008). On the other hand, in a follow-up experiment to investigate the effect of a show-up fee in the lab, reported below, we observed similar high donation rates.

Table 3 reports the results from statistical tests of the effects of windfall money in the lab and the field environments. We conduct a t-test to test for mean differences as well as a Wilcoxon rank-sum test of equality of distributions for amounts donated across treatments. Moreover, we test the hypothesis of equally sized zero-Yuan and 50-Yuan donation shares and perform t-tests and rank-sum tests for the amount donated conditional on giving a positive amount but less than 50 Yuan.

We can reject the null hypothesis of no effect of windfall gain both in the lab and in the field. In both cases, the mean donation is significantly lower when the subjects have to earn their endowment, and this is largely explained by the large difference in share of subjects donating 50 Yuan. The proportion of subjects giving 0 Yuan or 50 Yuan is significantly different between the windfall and the earned endowment at the 5 % significance level for both the lab and the field experiments,

Table 4 Test of differences between the lab and field experiment contexts

	Lab vs. field with windfall endowment	Lab vs. field with earned endowment
Treatments	1 vs. 3	2 vs. 4
Differences in mean	18.5	5.0
t-test (p-value)	<0.001	0.044
Rank-sum test (p-value)	<0.001	0.039
Differences in proportion giving 0 Yuan	<0.01	−0.04
Proportion test (p-value)	n.a.	0.395
Differences in proportion giving 50 Yuan	0.47	0.05
Proportion test (p-value)	0.000	0.198
Differences in mean donation if above zero Yuan and below 50 Yuan	4.7	2.7
t-test (p-value)	0.109	0.168
Rank-sum test (p-value)	0.061	0.126

except for the proportion of subjects giving 0 Yuan in the lab. However, there is no difference in the amount donated if the two extreme values of donating, either nothing (0 Yuan) or everything (50 Yuan) are removed. This is true for both the lab and the field experiments. Consequently, in both the lab and the field, the major effect of introducing an earned endowment is that it increases the share of zero donations and decreases the share of full (50 Yuan) donations.

The effect of the earned endowment is similar to that of previous studies using dictator games in a laboratory environment in the sense that the mean contributions decrease when the endowment is earned. However, since there are a number of differences in design and context, it is difficult to make direct comparisons. Cherry et al. (2002) finds a stronger effect in terms of subjects offering zero because while around 15–20 percent offered zero in the treatment with the windfall, in the treatments with the earned endowment 70–79 percent offer zero. In Oxoby and Spraggon (2008), all subjects offered zero when their endowment was earned, but only between 11 and 35 percent did so when the endowment was a windfall gain.

Finally, Table 4 reports the statistical test results of the null hypothesis of no difference between the lab and the field, conditional on the endowment being obtained in the same manner. We can reject the hypothesis of equal donation amounts for both the windfall and the earned endowment treatments. However, the difference is much smaller when the endowment is earned. If the extreme donations are deleted, the difference in mean donations is reduced substantially. For the two treatments with earned endowments, the difference in mean donations is not significant using both a t-test and a rank-sum test. For the two treatments with windfall endowments, the difference is significant using a rank-sum test, but not significant using a t-test.

The study of Benz and Meier (2008) is perhaps the study that comes closest to our experiment. They conduct a dictator game with two social funds as external recipi-

Table 5 Description of donation behavior for treatments with and without show-up fee

	Treatment 5	Treatment 6
	Lab experiment with show-up fee	Lab experiment without show-up fee
Mean	35.2	38.5
Standard Deviation	18.1	15.1
Mean percentage of donated endowment	70 %	77 %
Share of zero donations	6 %	0 %
Share of donating everything (50 Yuan)	54 %	55 %
Number of observations	54	54

ents and compare the behavior in the experiment with actual charitable giving by the same subjects. Their study is not tailored to test whether people are more pro-social in the lab compared with the field. However, they do find some indications of stronger pro-social behavior in the lab, for example subjects who did not donate in their field experiment did donate a substantial amount in the lab experiments. As discussed in the introduction of our paper, an explanation for this difference could be that the endowment in the field experiment is earned. Our results suggest that this is an important explanation for the difference between the laboratory and the field results, but even when this is controlled for, a difference in pro-social behavior remains.

One potential explanation for the difference between the lab and the field could be that the lab experiment involved a show-up payment of 10 Yuan, while the field experiment did not for the obvious reason that subjects do not know that they are a part of an experiment.[14] The behavior in the lab could potentially depend on whether subjects viewed the show-up fee as a compensation for their time or as a windfall gain.[15] In particular they might be more generous in the dictator game if they also viewed the show-up fee as a windfall gain. In order to rule out that it is the show-up fee that drives the differences we conducted a follow-up experiment with two treatments. The first, denoted treatment 5, is exactly the same as treatment 1, a lab experiment with a windfall endowment and a show-up fee of 10 Yuan. The new treatment, treatment 6, is a lab experiment with a windfall endowment but no show-up fee. Recruitment was made at the same supermarket and the experiment was conducted in the same place by using exactly the same procedures. We conducted a new round of treatment 1, i.e., treatment 5, since it is conceivable that the donation is dependent on factors such as media coverage of charitable organizations and recent disaster events. The results of the two treatments are presented in Table 5.[16]

It is clear from Table 5 that there is very limited influence from the show-up fee on donations. The average amount donated is actually larger in the treatment without

[14] It should be noted that the lab experiment in Benz and Meier (2008) did not include a show-up fee.

[15] Davis et al. (2010) find that even the timing of the payment of the show-up fee can affect subject behavior.

[16] The full script used in Treatment 5 is exactly the same as in Treatment 1 (see Appendix 2), and in Treatment 6 the description of a show-up fee was deleted.

a show-up fee, but, using a ranksum test, the difference is not statistically significant (p-value $= 0.456$). The same pattern is observed when comparing share of zero donations and share donating everything. Moreover, there is no difference in the proportion of subjects that declined to take part in the experiment after we had given all of the information, including the information about the lack of a show-up fee in treatment 6. Thus, we do not have any direct evidence of a difference in subject pools depending on whether a show-up fee is paid or not. It is also worth noting that the average donations in the two treatments are similar to the ones obtained in treatment 1. To conclude, the observed difference between the lab and field cannot be attributed to the fact that the lab experiment involved a show-up fee while the field experiment did not.

4 Conclusions

The present paper investigates how behavior is affected by windfall endowments as well as by laboratory and field environments. This includes features from the recruitment process and experimenters used to the place where subjects make their decision (in our case the booth). We also vary, in both the lab and the field, how the endowment was obtained. First, we find a substantial and significant difference in behavior between using windfall and earned endowments both in the lab and in the field. The absolute and relative differences are larger in the lab environment, but this can partly be due to the overall higher contribution levels in the lab. Consequently, the strong effects of windfall money found in previous lab experiment studies are not only an artifact of lab environment *per se*. First, even outside the lab, subjects consider how the endowment is obtained, and are much less pro-social when the endowment is earned. Second, there are sizeable and significant differences in behavior between the lab and the field, particularly with the windfall endowment. The overall differences are smaller but still significant when an earned endowment is used. It should be noted that in the more detailed analyses of the data for the earned endowment treatments on the proportion of giving as well as on the amount conditional giving, there were no significant effects between the lab and the field at 10 % significance level. The present study is the first attempt to investigate the issue of windfall gains in different experimental environments while keeping all other things constant, including the subject pool, with the exception of the basic characteristics of lab and field environments. The field experiment was designed to mimic a lab experiment in as many ways as possible, which means that it had to be designed in a very specific way. It is possible that comparisons among the treatments depend on a number of characteristics of our experiment. For example, in the earned endowment treatments all subjects received the same amount of compensation. Future studies are needed to discover how sensitive our results are to various design characteristics and contexts by using for example different donation recipients, different ways in which the endowment is earned, and different environments in which the decision is made, and at a more general level how different games, e.g., public games, are affected by these design features. In addition, we do not have any direct evidence of a difference in donations depending on whether a show-up fee is paid or not in the lab.

Our experiment and results should not be interpreted as an argument against conducting laboratory experiments. For example, we find similar effects from the windfall endowment in the laboratory and the field. Moreover, it is clear that there are many advantages to conducting laboratory experiments (Falk and Heckman 2009). Our results show the importance of using earned money to reduce the gap between the laboratory and the field, but whether this calibration results in different policy conclusions when, for example, comparing different institutions or whether it is a pure level shift is an important question for future research. Although the experimental design was intended to control for all effects other than the environment, we still find differences. This points to the importance of discussing the environment when interpreting both laboratory and field experimental results, as well as of conducting replication studies, especially for field experiments. Behavior in the field is also likely to depend on the context and the environment. For example, it is likely that subjects would have been more generous in the field experiment if we had conducted the experiment at a meeting of the Communist Party in China (or at a church in a Christian country).

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Appendix 1: Table

Table 6 Descriptive statistics for treatments 2 and 4 and tests of equality of means and proportions

Variable	Description	Treatment 2 (lab)		Treatment 4 (field)		*P*-value
		Mean	Std. dev	Mean	Std. dev	
Male	=1 if respondent is a male	0.50	0.505	0.5	0.505	1.000[b]
Age	In years	20.91	2.877	20.22	2.179	0.175[a]
Education	In years	16.78	1.327	16.78	1.329	0.993[a]
Monthly income	= respondent's monthly net income in Yuan	994.44	479.354	1022	388.24	0.749[a]
Party member	= 1 if respondent is a Communist Party member	0.28	0.452	0.28	0.454	0.980[b]
Family size	= number of household members	1.46	0.966	1.56	1.053	0.625[a]
No. of obs.		54		50		

[a]Indicates it is from a *t*-test

[b]Indicates it is from a proportion test

Appendix 2: Script

Table 7 Script

Treatment	Script
Recruitment	
1, 2	"*Good morning/afternoon! I am an enumerator from the School of Economics. Are you a student at this university?*"
3, 4	"*Good morning/afternoon! I am a representative from Wu-mart Supermarket. Are you a student at this university?*"
All	IF NO: "*I'm sorry for bothering you, but we are only looking for students from this university*". Terminate the campaign without payment.
1, 2	IF YES: "*The School of Economics is conducting a study. The study will be conducted this Wednesday and Thursday in the Ming De building, Classroom 405, which is close to here. All in all it will last a few minutes. We will pay you 10 Yuan for showing up at a scheduled time. If you want to participate, let us make an appointment that is convenient for you. Do you have time to participate?*"
3	IF YES: "*To show our appreciation to our customers we are conducting a 'Thank you Customer' campaign. Do you have time to participate?*"
4	IF YES: "*Wu-mart Supermarket is conducting a survey about the use of plastic shopping bags and your opinion about the campus supermarket. The survey will last about 20 minutes. If you participate, we will pay you 50 Yuan in cash after you have completed the survey as compensation for your time spent answering the survey. Do you have time to participate?*"
All	IF NO: "*That's alright. Thank you anyway.*" Terminate the campaign here without payment.
1, 2	IF YES: "*Thank you for participating in this research study! Could you please let me see your receipt?*" Take his/her receipt and have a look at it and keep it. *Let's make an appointment. The study will be conducted this Wednesday and Thursday in the Ming De building, Classroom 405. When are you available on these days?*" Check the answer with the available times slots on the list. "*Could you please come on . . . (day) at . . . (time)?*" If YES continue. If NO, check another time and ask. If NO again, show the list of available times and ask what time would be convenient to come. IF SUBJECT CANNOT PARTICIPATE: because of not being able to make an appointment for one of the available times: "*Thank you anyway. I understand.*" Terminate the campaign here without payment. IF SUBJECT CAN PARTICIPATE: "*Ok, so you will come on . . . (day) at . . . (time) to the Ming De building, Classroom 405*." Fill in a confirmation card and write down the appointment in the time schedule. "*Here is your confirmation card. Since we cannot remind you again, please don't forget to come on time and bring this card with you. Thank you.*" Hand over the card. [Tell the subject he/she will get the receipt back when he/she comes to the appointment if he/she asks for it.] Pack up all the appointment files and paste his/her receipt behind the enumerator's part of the confirmation card.
3	IF YES: "*Thank you for participating in this campaign! Could you please let me see your receipt?*" Take his/her receipt, have a look at it and keep it.
4	IF YES: "*Thank you for participating in this survey! Could you please let me see your receipt?*" Take his/her receipt, have a look at it and keep it.

Table 7 (*Continued*)

Treatment	Script
Experiment	
1	"*Hello, are you here to participate in the study conducted by the School of Economics?*" IF YES: "*Could you give me your confirmation card?*" Take the card, check the card. [If he/she cannot show the card, ask what time his/her appointment is and check the schedule. If appointment EXISTS continue. If NOT, ask the person to leave.] "*Please come with me.*" Go to the interview room. Check the campaign number on the card and take the file with the same number. [Check this carefully] "*Thank you for coming here to participate in this research study conducted by the School of Economics. At the end of the study we will pay you 10 Yuan for showing up at the scheduled time. In this study by the School of Economics, we would like to give you 50 Yuan.*"
2	"*Hello, are you here to participate in the study conducted by the School of Economics?*" IF YES: "*Could you give me your confirmation card?*" Take the card, check the card. [If he/she cannot show the card, ask what time his/her appointment is and check the schedule. If appointment EXISTS continue. If NOT, ask the person to leave.] "*Please come with me.*" Go to the interview room. Check the campaign number on the card and take the file with the same number. [Check this carefully] "*Thank you for coming here to participate in this research study conducted by the School of Economics. At the end of the study we will pay you 10 Yuan for showing up at the scheduled time. You see, the School of Economics is conducting a survey about the use of plastic shopping bags and your opinion about the campus supermarket. The survey will last about 20 minutes. If you participate, we will pay you an extra 50 Yuan in cash after you have completed the survey as compensation for your time answering the survey. Do you have time to participate?*" IF NO: "*I understand. Thank you anyway. Please come with me to the cashier to get the 10 Yuan.*" Lead the subject to the cashier. "*Here is the confirmation card and receipt. Please give him/her the 10 Yuan for showing up.*" Hand over the card and the receipt to the cashier and be prepared to sign the form. Cashier: Take the card and the receipt, and write down the number of the receipt in the form. Let the enumerator sign the form. Take out two 5-Yuan bills from the money box and count them. (These two 5-Yuan bills should have been prepared in advance so that you only show the subject the two 5-Yuan bills when he/she comes to you.) Cashier: "*Here is your money.*" Hand over the money to the subject. "*Please let me sign the form.*" Sign the form. "*Ok, we are done now*." Terminate the campaign. When the subject has left, the enumerator needs to write down the gender on the script page. IF YES: "*Thank you for participating in this survey!*" Conduct the survey "*As compensation for your time answering this survey by the School of Economics, we would like to give you 50 Yuan.*"
3	"*To show our appreciation in this "Thank you customer" campaign, the Wu-mart supermarket would like to give you 50 Yuan.*"
4	Conduct the survey "*As compensation for your time answering this survey by the Wu-mart Supermarket, the Wu-mart supermarket would like to give you 50 Yuan.*"

Table 7 (*Continued*)

Treatment	Script
All	"*Please come with me to the cashier to get the money.*" Lead the subject to the cashier. "*Here is the receipt.*" Give receipt to the cashier and be prepared to sign the form. Cashier: Take the receipt and write down the number of the receipt in the form. Let the enumerator sign the form. Take out ten 5-Yuan bills from the money box and count them. (These ten 5-Yuan bills should have been prepared in advance so that you only show the subject the ten 5-Yuan bills when he/she comes to you.) Cashier: "*Here is your money.*" Hand over the money to the subject. "*Please let me sign the form.*" Sign the form. "*Ok, we are done now.*" Enumerator: Make sure that you stand behind the subject, so that when you start talking, the subject has to turn around, facing you but not the cashier. Preferably walk away a few meters from the cashier.
1, 2	"*We are doing a research study on a donation campaign. The donations will finance advertising material used to collect money for the China Foundation for Poverty Alleviation. The Foundation is a nationwide charitable organization working towards poverty alleviation. Before you leave, you have the opportunity to donate money to the Foundation. Over there is a donation box. Please come with me.*" Lead the subject to the booth and show the donation box to him/her. "*This is a donation box from the Foundation. The donations will be deposited in a special account used to cover advertising material expenditures for collecting money for the Foundation. Your donation is anonymous.*" "*Here is a donation envelope from the Foundation.*" Take out the envelope and hand it over to the subject. "*When I have walked away from here, please go into the booth and leave the money you want to donate in the envelope. Keep the remaining money for yourself and pocket it. Seal the envelope and put it into the donation box. Then go to the place where you received the 50 Yuan to collect your extra 10 Yuan for showing up. Thank you! Goodbye.*" Walk away from the donation booth.
3, 4	"*We are doing a donation campaign. The donations will finance advertising material used to collect money for the China Foundation for Poverty Alleviation. The Foundation is a nationwide charitable organization working towards poverty alleviation. Before you leave, you have the opportunity to donate money to the Foundation. Over there is a donation box. Please come with me.*" Lead the subject to the booth and show the donation box to him/her. "*This is a donation box from the Foundation. The donations will be deposited in a special account used to cover advertising material expenditures for collecting money for the Foundation. Your donation is anonymous.*" "*Here is a donation envelope from the foundation.*" Take out the envelope and hand it over to the subject. "*When I have walked away from here, please go into the booth and leave the money you want to donate in the envelope. Keep the remaining money for yourself and pocket it. Seal the envelope and put it into the donation box. Thank you! Goodbye.*" Walk away from the donation booth.

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