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**Experimental Methods in
Economics/Finance**

**The Impact of Reference Dependent Preference
and Asking on Donation Behavior:
Evidence from a Fund-raising Field Experiment**

Name: So Man Wai (SID: 52948486)
Chau Wai Ling (SID: 52641323)
Chung Yi Ching (SID: 53086775)
Professor: Li King King

The Impact of Reference Dependent Preference and Asking on Donation Behavior: **Evidence from a Fund-raising Field Experiment**

By Man Wai SO, Wai Ling CHAU AND Yi Ching CHUNG

Abstract

We develop a field experiment for analyzing the social preference and donation pattern of people, which experimenters can control the initial endowment and the number of people asking and approaching to subjects. Our result shows that people are likely to have pro-social behavior that drive by intrinsic incentives when they are in charity activities; however, there is a reverse effect on reference dependence. Also, there is no significant increase or decrease when two people approaching, which may be due to the lacking of social signaling effect.

1. Introduction

Donation behavior is one of the biggest topics in the field of behavioral economic. Previous researches had found out lots of factors and characteristics that may affect people's donation. People such as elderly, female, parents and those with higher level of empathy, were proved to give higher amount of money donation. (Yu-Kang Lee and Chun-Tuan Chang, 2007) Supplementary materials like vivid picture can help increasing donation amount but slogan had no significant effect. (Rose M. Perrine and Stacie Heather, 2000) High income people generally give more, while low income group give less if their income is visible. (Anat Bracha and Lise Vesterlund, 2013) These are some findings related to donation behavior, but it conducted under controlled lab experiment. In a reality world, decision-making process of people always involves more angles and aspects. Therefore, undertaking a field experiment to investigate donation behavior would be more precise and might have more surprising results that we did not expect.

In this paper, we develop a natural field experiment to investigate the sole and combine effect of 1) how donation behavior of others affect people, and 2) the power of asking when it comes to charity donation behavior.

Economists seldom considered the relationship between pro-social behavior, such as charity donation, and reference-dependent theory, which may have some degrees of influence in terms of donation amount in charity fund raising activities. One of the most well-known research about reference-dependent model was introduced by Amos Tversky and Daniel Kahneman in 1991, which stated that people may often revise their preference when the reference point changes. The theory may be able to apply on donation behavior, as if people consider the donation amount of others as "reference point", and to see if they change their donation decision when the reference point changes. This theory has not yet been concluded in the field of charity donation, and now become the initial motivation of this paper.

Previous experiments had suggested that people behavior would be affected by the behavior of others. (Richard Martin and John Randal, 2007). In that paper, it set up a donation box with different initial endowments in the box, beside City Gallery in New Zealand, where had no entrance fee. The result showed that donation propensity is decreasing when the initial endowment increases, except for the empty box treatment, where donation propensity was the lowest among all treatments. Martin and Randal suggested that people tend to compare how much to give by themselves and how much the others donate. In another word, people would assume the donation amount of the others as a “reference point”. If the “reference point” they perceived is higher than the amount they want to give, they prefer not to donate. However when they donate, they tend to donate more when endowment increases. Therefore the donation propensity is lower in high endowment but the average donation per donor is higher. The experiment seems to be consistent with the general idea of reference dependent theory. However, we further modified the experimental design in our paper. First, survey shows that 58% of the visitors to the gallery was came from other cities, so they mainly are tourists instead of the citizens. People may be more willing to spend when they are traveling because of happiness and enjoyment. More importantly, the box they used in the experiment was gallery’s donation box, instead of charity organization. Therefore, it is possible that people would consider the donation they gave as a “entrance fee” for supporting the gallery operation, instead of pure altruism behavior. The donation amount they gave might base on their subjective value of gallery. As a result, it might be distracted people from the “reference point” they got from the box. The result may not necessarily be the same when it comes to charity donation. In our research, we try to find the reality behavior of local people when they are dealing with real and well-known charity organization. Therefore, we contacted Oxfam and asked for permission to set up a donation box in City Express of City University of Hong Kong.

Besides, we want to investigate the cross effect of asking when it comes to charity donation. In the paper written by James Andreoni and Justin M. Rao (James Andreoni, Justin M. Rao, 2010), it proved that people would give more when they were being asked. In the modified dictator game used by James and Justin, it showed that people are more selfish than other treatments (including the baseline) when the allocator had the dominant power to “speak“. However if they were being asked, the giving amount was more generous than baseline. The “asking for giving” can neutralized any value of explanation, which lowers the cost of their guilt aversion behavior. It is essential that to prove the level of altruism can be alter by communication. However the actual effect is not yet tested under reality setting.

Moreover, previous research proved that people would behave differently in lab experiment and field experiment. Donation is happened to be the example that was used in the research paper. (Matthias Benz and Stephan Meier, 2008) People would become more generous in the lab experiment than in the field experiment. Even for those who never donated money, they would still donate some money to social fund and charity in the lab experiment, but the effect was less significant in frequent donor group. The lab experiment, indeed, could reflect some degree of correlation to people’s donation behavior in real-life situation but the correlation might be statistically considered as rather weak.

Based on the previous research papers, we try to further develop in a deeper investigation, modified the experimental design, and to see the combine effect of asking and altruism behavior of people, we are motivated to start our own field experiment in our university campus. We argue that **1)** if people would give more when the initial endowment of the box increases, as the initial endowment act as a reference point, which would alter people's donation decision. In another word, the first hypothesis is to test whether reference-dependent theory exists in actual fund-raising activity. Then, **2)** we would like to see if asking can increase the amount of donation, or even alter the result of our first hypothesis. **3)** In addition to these two hypothesis, we arrange two people asking, where one person is holding the donation box, to see if it can induce people to donate money immediately, as this might have the immediate decision effect, and result in higher amount of donation.

2. Experimental Design

Our elicitation method is to design to measure the social preference and reference dependence of the people awareness when they are in charity fund raising activities. For some of the literatures and experiments done by previous economists, they only focuses on single, controlled factor that may affect people behavior. Combined effect of people under reality circumstance was seldom tested. Therefore, we would like to conduct a field experiment to see how the cross effect on asking for donation and their perception of the amount in the donation box, by placing donation box in City University of Hong Kong,

In our experiment, we would like to test the effect of reference dependence, knowing whether the amount in the donation box are affecting the donator's behavior, for example, will people donate more when they see there are more large amount of notes in the box, or in generally, will people donation behavior affecting by the amount they seen in the box. Therefore, we manipulate the amount of initial endowment in the box, which is small initial endowment and large initial endowment. We choose to put coins and some small amount notes in the small endowment box and put large notes in the large endowment box.

In the small endowment treatment, there are three \$10 notes, one \$10 coins, five \$5 coins, and 10 coins for each categories for \$2, \$1, \$0.5, so \$100 HKD in total. In the large endowment treatment, there are three \$500 notes and fifteen \$100 notes, we take care of the trueness of the experiment, it would be abnormal if only put big notes in the donation box, so we also put the small amount coins and notes in the treatment in order to make it more real, hence it is \$2600 in total.

Small initial endowment treatment

$$\$100^* = \$10(\text{note}) \times 3 + \$10 \times 1 + \$5 \times 5 + \$1 \times 10 + \$2 \times 10 + \$0.5 \times 10$$

Large initial endowment treatment

$$\$2600 = \$500 \times 3 + \$100 \times 15 + \$100^*$$

Also, according to Anreoni and Rao in 2010, communication greatly influence level of altruism behavior, we would like to see the people awareness of the donation box and the effect of asking, at such we develop two treatments in the degree of promotion, one treatment is placing the donation box in the certain place

with no asking, and one treatment is one person approach subjects and distribute leaflets which come from the organization. Therefore, all together we have four treatments in the matrix shows below, which are (No asking, \$100), (No asking, \$2600), (One person asking, \$100), and (One person asking, \$2600).

	Degree of promotion (No promotion/One person promotion)	
initial endowment (\$100/ \$2600)	No asking, \$100	One person asking, \$100
	No asking, \$2600	One person asking, \$2600

As our donation box is placed in a certain place which means that it is immobile, we also consider whether there is effect if two people approach one same subject simultaneously, two people asking while one person holding the donation box. When two people approaching to one subject that the donation box is in front of the subject, it might give less cost for the subject to donate, as they do not need to spend extra effort to go to the certain place for donation. On the other hand, we might create pressure for inducing immediate donation effect. Therefore, we additionally run one more experiment for two people asking with small initial endowment (two people asking, \$100).

We avoid giving any advice or suggestion on how much people should donate and how much other people donated since it had been proved that suggested donation can increase or decrease giving, depend on the suggested amount. (Donald J. Dale and John Morgan, 2010) We only mentioned about what is the charity organization and its work, as well as the donation box location. This should be enough to ensure people perceived the amount of donation solely from the money inside the donation box.

Observation is held for five days, which picked the day randomly; every day we conducted one treatment, the observation time is three hours per treatment. We also consider the flow of people for the donation box we place as this is affect our sample size, so we would choose a place which is crowd enough so as to increase the awareness of the donation box. The sample size should be large enough in order to obtain a sound and significant result and implication. Therefore, we would choose the most crowd period for that place to observe. We assumed that all subjects are random variables and we count the average number of people enter and exit in the certain place in certain five minutes in each hour period, say 13:30 - 13:35, and estimate the approximate number of people per hour by multiply it from five minutes to one hour. Before starting the experiment, we put the initial endowment in the donation box, we observe it for the experiment period, and count the donation amount after the experiment, all donation would be proceed to the non-governmental organization for charity purpose.

We have contacted several non-governmental organizations so as to build a fund raising experiment, however, they have the concern that the public might not willing to participate in such experiment and some of the safety problems of the

donation boxes. After that, we partnered with Oxfam Hong Kong, for conducting the field experiment, namely Supporters' Initiated Fundraising Event. They provided us one big donation box with key and one small donation box without the key. The large donation box was for experiment and fund raising purpose and after the experiment we put the whole amount in the small donation box so as to keep it safe. Both donation boxes are stored in Dr. Li King King, the professors' room when it is not in experiment period. The size of large donation box is 8 3/8 inch Height, 4.5 inch Width, 6 5/8 inch Depth. Donation boxes have put with "approved EF student project" on the surface of the box so as to avoid misunderstanding, and let the subjects know that this is for a both fund raising and academic related activity.

We also take care of the variety of the subjects, yet, as the experiment are academic purpose conducted by undergraduate students, we faced some of the constraints when doing the experiment. It is true that the experiment would be deep and wide enough if it could be launched in the public area in Hong Kong, such as streets or near MTR stations, that subjects are come from different classes, so the variety are large, which could have more explanation for looking about the donation pattern. However, there is many complicated procedures to apply for doing fund raising activities in the public areas, it needs the license for raising fund and approval for Social Welfare Department of the Hong Kong Government. At such, we held the experiment in City Express in the City University of Hong Kong instead, the target subjects are those canteen users, mainly students and staffs in CityU and some might are incomers from Festival Walk who have their meal in canteen. We placed one large donation box in City Express, the student canteen on the 5/F, Amenities Building of City University of Hong Kong. It is at the canteen main entrance, under the LED television menu because the box is too big to put in the cashier. Maxim's Catering, which is the main owner of the canteen, and Financial Office of City University of Hong Kong approved it.

The main points of real donation box observation in City Express are followings:

- We put a donation box in City Express with certain control, which allow us for observation.
- The donation box is placed in the canteen main entrance, under the LED television menu.
- We manipulated the amount of initial endowment in the box in two treatments, small initial endowment and large initial endowment.
- We also control the numbers of people approach to the public in two treatments, no asking and one person asking.
- Additionally, we conduct an two people asking with small endowment to see the immediate donation effect
- Observation is held for 5 days, which picked the day randomly; every day we conducted 1 treatment, the observation time is 3 hours per treatment
- We count the average number of people in and out City Express so as to measure the stream of people per hour

3. Main Result and discussion

The results of the treatments are shown in the matrix below:

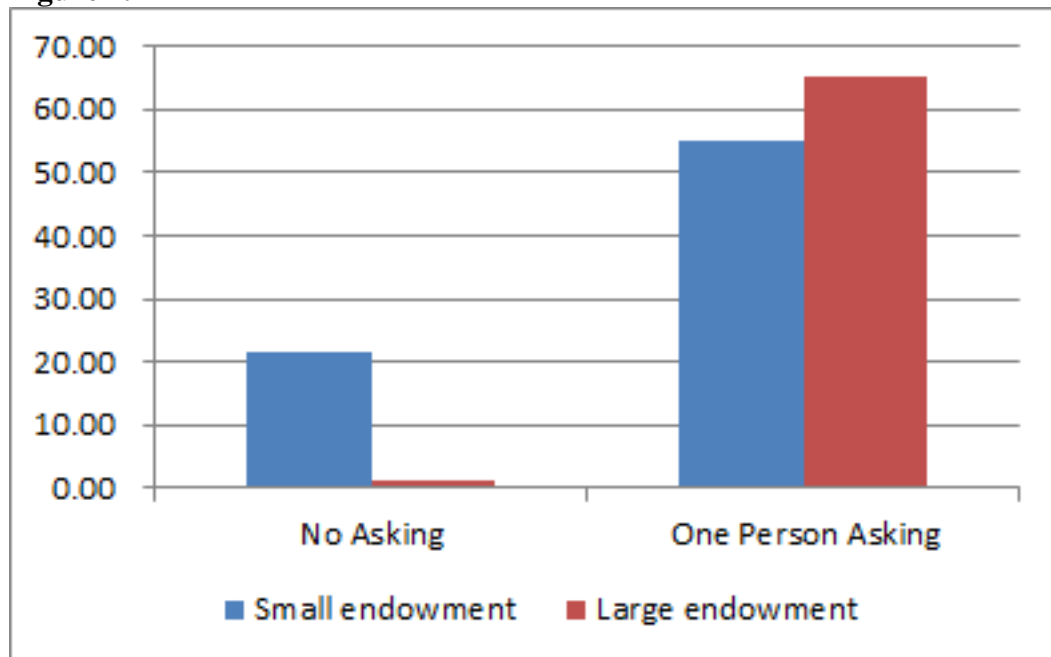
Endowment\ Treatment	No Asking	One Person Asking
Small endowment \$100*	16 th April \$21.5 (2M/2F)	21 st April \$55 (2M/4F)
Large endowment \$2600**	20 th April \$1.2 (0M/1F)	29 th April \$65.2 (2M/2F)

* \$100 = \$10(note) x 3 + \$10 (Coin) x1 + \$5 x5 + \$1 x10 + \$2 x10 + \$0.5 x10

** \$2600 = \$500 x3 + \$100 x15 +\$100*

Within the three-hour experiment duration, the average number of flow of people counted is approximately 20 people per minute, so we could estimate that the average number of the people stream is 1200 people per hour.

Figure 1.



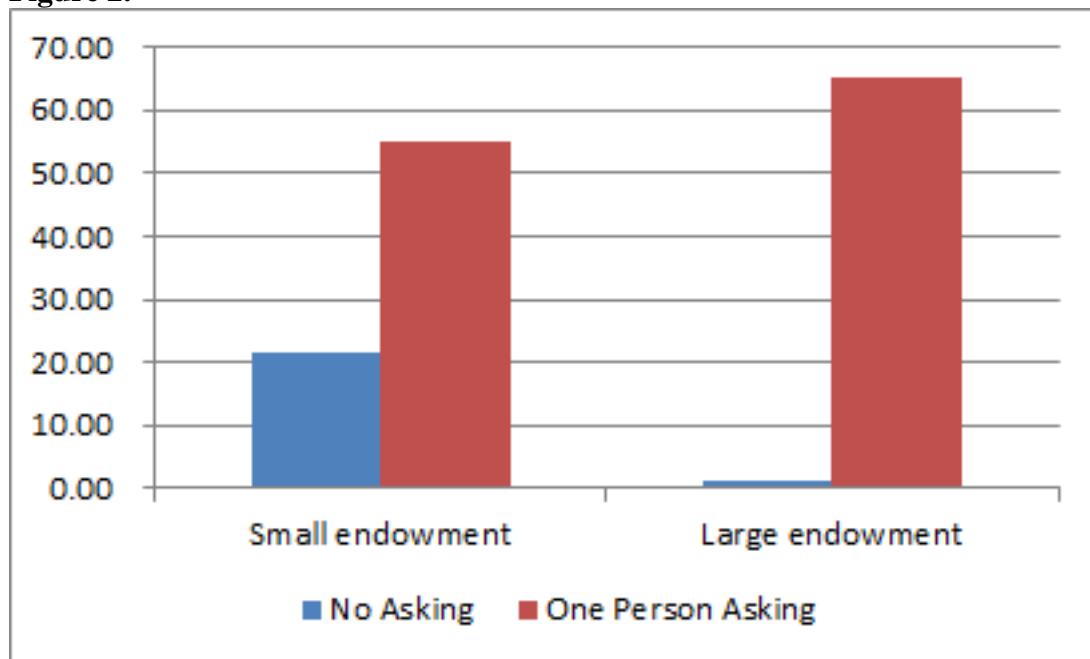
According to Figure 1, for the treatments of the small amount of endowment, two experiments of respectively “No Asking” (which was conducted in 16th April) and “One person asking” (which was conducted in 21st April) shows that with one person attempting to induce people’s donation, there was about 2.5 times (\$21.5 in “No Asking; \$55 in “One person Asking”) more fund raised in terms of the absolute amount that was counted in total.

For the treatments of the large amount of endowment, two experiment of respectively “No Asking” (which was conducted in 20th April) and “One person asking” (which was conducted in 29th April) conducted shows that with one person attempting to induce people’s donation, there was about 50 times (\$1.2 in “No Asking; \$65.2 in “One person Asking”) more fund raised in terms of the absolute amount that was counted in total.

For the number of people amount donated in the treatment of the small amount of endowment, there was fifty percent increase with promotion effort (asking people to donate). While there were two male and two female who had donated in the “No Asking” treatment, there were two male and four female who had donated in the “One Person Asking” one. In terms of the “per hour” measurement, there were 1.33 people per hour who had donated in the “No Asking” treatment, and the amount increase to 2 people per hour with the promotion effort.

For the number of people amount donated in the treatment of the large amount of endowment, there was four hundred percent increase with promotion effort (asking people to donate). While there were no male and merely one female who had donated in the “No Asking” treatment, there were two male and two female who had donated in the “One Person Asking” one. In terms of the “per hour” measurement, there were 0.33 people per hour who had donated in the “No Asking” treatment, and the amount increase to 1.33 people per hour with the promotion effort.

Figure 2.

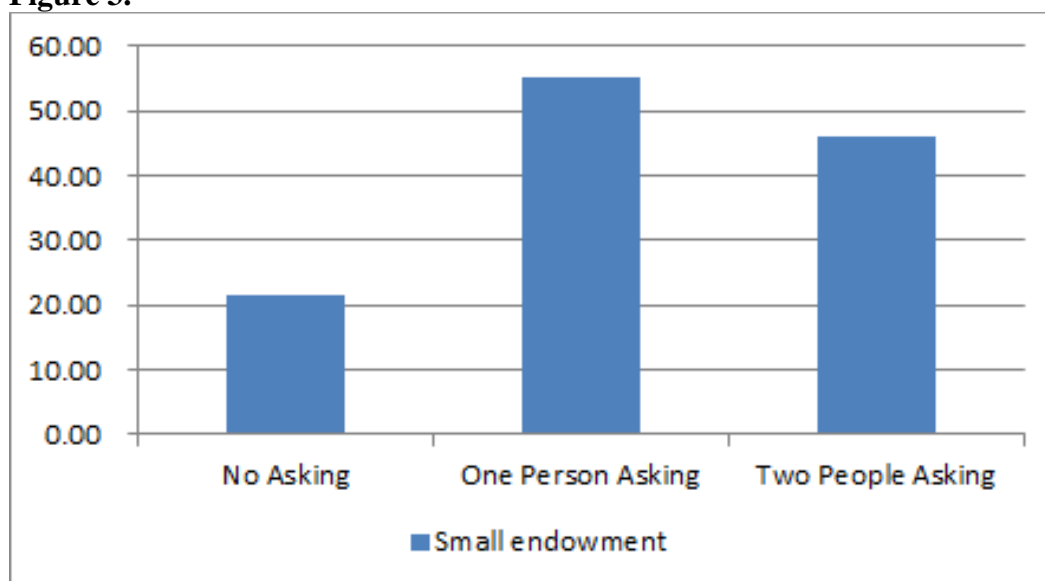


In figure 2, for the “No Asking” treatments, the total fund that small endowment one had raised was about 18 times more than the large endowment one (\$21.5 in “Small endowment; \$1.2 in “Large endowment”). However, for the “One Person Asking” treatments, the total fund that small endowment one had raised was about fifteen percent less than the large endowment one (\$55 in “Small endowment; \$65.2 in “Large endowment”).

The following table is the further investigation of adding one more person (in total two people approaching) in the asking treatment:

Endowment\ Treatment	No Asking	One Person Asking	Two People Asking
Small endowment \$100*	16 th April \$21.5 (2M/2F)	21 st April \$55 (2M/4F)	27 th April \$46 (2M/4F)

Figure 3.



With one more man effort added to carry the donation box to actively approaching people, the total fund raised increased by around a double when comparing with the “No asking” treatment (\$21.5 in “No Asking; \$46 in “Two people Asking”), but the amount decreased by around twenty percent when comparing with the “One person asking” one (\$55 in “One Person Asking; \$46 in “Two Person Asking”).

The statistical features of people who had donated were the same between “One Person Asking” and “Two People Asking”: both had two male and four female donated.

Discussion of the Results

From the above statistic, there are several behavioral patterns observed:

- a) Generally, female are more willing to donate. Out of five treatments, three of them showed that there were more female than male who had donated; while the remaining two treatments obtained an equal donated proportion between male and female. In total, there were 13 female out of 21 people who had donated.

- b) In the “No Asking” ones, there was more total fund raised in small endowment one than in large endowment one, which could imply the existence of the crowding out effect: while people observe the amount is already huge in the box, they reckon that the marginal contribution of themselves is low, which reduced their donation intention. An interpretation to this crowding effect could be the presence of people’s reference dependence preference: they perceived in their mind that, comparing with the amount in the box, they should donate more or less equivalent amount, or otherwise they reckon that the marginal contribution of themselves is low, which reduced their donation intention and give no donation.
- c) The crowding out effect could be eliminated by adding communication effort (promotion), making an approximately 50 times increase in total fund raised (\$1.2 in “No Asking; \$65.2 in “One person Asking”). With one person asking, the total fund raised in large endowment treatment is even larger than in small endowment treatment (\$55 in “Small endowment; \$65.2 in “Large endowment”). Communication eliminates the crowding out effect in the sense that it encourages people to donate rather than reducing people’s donation incentive. Asking could arouse peoples’ mindset that they are “being needed”. In this sense, asking gives people an intrinsic signal of “being needed”, which becomes the primary driver to induce people donation, causing similar amount raised in both small and large endowment treatment.
- d) “Two people approaching to people directly” treatment could neither increase the total fund raised nor number of people who donate in compared with the “One Person Asking” treatment. One explanation is that people do not care about the degree of the promotion effort. That means, once the communication is endowed, the marginal effect of further promotion is insignificant. Another possible explanation is lacking social signaling. Direct approaching method is often seen in Flag Day Fundraising in which a small flag sticker will be given to donator, and this flag sticker is regarded as a social signaling, which might be essential in direct approaching.

4. Further Discussion

In our experiment, we try to modify and minimize the problem of previous paper conducted by others economists, and build deeper investigation in donation behavior, yet, we cannot ignore that we face some of the constraints when setting our experiment design, which leave room for other people to explore it in the future. For example, the sample can be wider as subjects in our experiment might have similar backgrounds, such as university student and staffs, it would be more precise and give more explanatory power if we would have wider subjects. Indeed, the result may be more significant if we can have access to more samples.

Despite there is space for improvement, our research still verified the existence of reference dependent theory in charity donation behavior. People do not decide how much to donate solely by themselves, but also include others into their decision making process. On the other hand, how people react to a reference point and asking is the key question of this research. The result suggested that people would give more

when “one person asking” than that when “no asking”. Asking can further increase the amount of donation. Communication increases the donation amount and has eliminated the crowding out effect. One possible reason is that people’s focus had been switched to the “invitation” rather than the reference point.

Referencing and asking, indeed, is a very powerful tool to makes use of the nature of human mind and induce people to give. The result can be used to explain poor performance of some fund-raising activity, which did not have many people to response. Also, it may be the reason that some fund raising program on TV would continuously show every donation amount on the scrolling text, and some of them even set up a live tracker on the total donation they have received. It is more persuasive for them to use combine effect of asking and referencing that we discussed in this paper.

5. Appendix



Picture 1: The donation box we place in the City Express



Picture 2: Two people asking experiment

Data in each treatment

[Small endowment*No Asking]		
16/4/14 1pm-4pm	Attention (Gender)	Donation
1315	M	
1326	F	
1338	F	YES
1340	F	
1433	M	YES
1434	F	YES
1455	F	
1510	F	
1515	M	
1525	F	
1544	M	
1556	M	YES
1600	M	

[Large endowment*No Asking]		
20/4/14 1pm-4pm	Attention (Gender)	donation
1302	M	
1309	F	
1310	F	
1321	M*4	
1324	F	
1328	F	
1335	F	
1347	F	
1351	F	
1404	M	
1423	M	
1438	F	
1444	F	
1503	F*2	
1514	M	
1516	M	
1543	F	YES

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[Small endowment*One Person Asking]		
21/4/14 1pm-4pm	Attention (Gender)	Donation
1323	M	
1329	F	\$20
1347	F	\$10
1352	F	\$5 x 2
1359	F	\$2 x 3 + \$ \$1 x 2
1408	M	\$2
1429	F	
1452	M	
1454	F	
1459	M	
1501	M	
1514	F	
1515	M	
1519	F	
1537	M+F	
1550	F	
1555	M	
1559	M	\$5

[Large endowment*One Person Asking]		
29/4/14 1230pm-1530pm	Attention (Gender)	Donation
1300	F	\$20 + \$20 + \$10
1307	F	
1315	F	
1328	M	
1329	M	
1339	F	\$2 x 2 + \$ 1 x 1
1340	M	\$5 x 1 + \$0.2 x 1
1345	M	
1404	F	
1424	F	
1430	F	

1431	M	\$2 x 2 + \$ 1 x 1
1435	F	
1437	F	
1450	F	
1500	M	
1515	M	

[Large endowment*Two Person Asking]		
27/4/14 2pm-5pm	Attention (Gender)	Donation
1407	M	\$5
1449	F	\$10
1535	F	\$10
1600	M	\$2 + \$0.5
1604	F	\$10
1640	F	\$5 + \$2 + \$0.5

Approval letter from Oxfam Hong Kong



24 March 2015

City University of Hong Kong – Supporter Initiated
Dr. Li King King, Chau Wai Ling, So Man Wai

**Supporting Oxfam Hong Kong's working against poverty
for the poor people in need**

We would like to express our sincere thanks to your generous support to Oxfam Hong Kong (OHK) and we are delighted to be the beneficiary organisation of the following event. The profit will be donated to Oxfam Hong Kong for support our projects in around the world.

Event details:

Event Title: Supporters' Initiated Fundraising Event
Venue: City U canteens (responded by Maxi Catering) and/or Cutprice (responded by Student Union)
Date: April to May 2015
Description: Fundraising experiment - The experiment is separated into two parts: (1) the field experiment observation and (2) the lab experiment. Then the results in two experiments will be compared.

We should be grateful, if any, you could send us all promotional and advertising materials in connection with the Campaign with Oxfam Hong Kong's name and logo for approval before launching your Campaign. As OHK is not the organiser of the captioned event, please be reminded that the organiser is required to apply related license or authorization if necessary.

Thank you again for choosing Oxfam Hong Kong as the beneficiary organisation of the Campaign. Should you have any further enquiries, please do not hesitate to contact Jacqueline Chan (Tel: 3120 5189 or Email: jacquelinec@oxfam.org.hk) for assistance.

Yours faithfully,
For and on behalf of Oxfam Hong Kong

Brenda Wong
Acting Director of Fundraising and Communications (Fundraising)

香港中環荷李活道26號樓上17樓
17/F, China United Centre, 26 Marble Road, North Point, Hong Kong.
熱線: General line: 8521 2520 2520
傳真: Fax: 8521 2527 5307
網站: Website: www.oxfam.org.hk

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6. Reference

- Lee, Y., & Chang, C. (2007). Who Gives What To Charity? Characteristics Affecting Donation Behavior. *Social Behavior and Personality: An International Journal Soc Behav Pers*, 1173-1180.
- Perrine, R. (2000). Effects Of Picture And Even-A-Penny-Will-Help Appeals On Anonymous Donations To Charity. *PR Psychological Reports*, 551-551.
- Bracha, A., & Vesterlund, L. (2013). How Low Can You Go? Charity Reporting When Donations Signal Income and Generosity. (W-13-11).
- Tversky, A., & Kahneman, D. (1991). Loss Aversion in Riskless Choice: A Reference-Dependent Model. *The Quarterly Journal of Economics*, 1039-1061.
- Martin, R., & Randal, J. (2008). How is donation behavior affected by the donations of others? *Journal of Economic Behavior & Organization*, 228-238

Andreoni, J., & Rao, J. (2010). The Power of Asking: How Communication Affects Selfishness, Empathy, and Altruism.

Benz, M., & Meier, S. (2008). Do People Behave in Experiments as in the Field? - Evidence from Donations. SSRN Journal SSRN Electronic Journal.