Power to Ignore: An Experimental Study*

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Abstract

Recent studies in experimental economics have documented that communication encourages individuals' altruism and charitable giving in various contexts. Building upon these findings, this paper incorporates and studies the influence of power differences in communication on giving behavior. We conducted a variant of dictator game experiments where a dictator is explicitly allowed to ignore a recipient's message before deciding the split. Power differences between players varied across different treatments on provision of information regarding the dictator's reception of the message and framing on the property right of the endowment. We find evidence that dictators tend to be more generous toward recipients' messages when recipients cannot verify whether dictators have read the message. We interpret these behaviors as a demonstration of psychological mechanisms of individuals being more generous to less powerful counterparts. However, recipient behaviors imply that they have failed at anticipating dictators behaviors, as they asked for more when they had more power and asked less otherwise.

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Keywords: Dictator game; Communication; Power; Empathy gap

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1. Introduction

Fundraising industry and market for charitable giving have continued to be a non-trivial part of the economy in developed countries. Researchers in related fields including behavioral economics, public economics, and management have studied what motivates individuals' charitable giving, how charitable organizations develop effective fundraising strategies, and how should public policies such as taxation intervene in this market to pursue social welfare. For general review of previous research on charitable giving, List (2011) and Andreoni and Payne (2013) are excellent references.

In this domain, understanding individuals' motives for giving and factors that affect giving behaviors are one of the biggest research questions. This is not only because the act of charitable giving is a paradox in itself for traditional economics that postulate self-serving economic agents, but also because they are the driving forces for the market for charitable giving, which is in many aspects distinctive from other markets. Effective incentive schemes and fundraising strategies of charitable organizations in market for charitable giving heavily depend on givers' preferences and their responses to solicitations. Thus, studies on the nature of giving behavior not only shed light on the innate nature of individuals' other regarding preferences and altruism, but also provide hints at understanding the behavior of firms in the market as well.

In understanding the nature of giving, sociality of giving is notably important topic since almost every charitable giving occurs in inherently social interactions rather than in solitudes. Relatedly, communication is a natural stimulus on individuals' altruism as altruistic behavior or charitable giving in reality occurs in the presence of apparent requests from others. A recent literature in economics has illuminated the role of communication in encouraging pro-social behavior including charitable giving. Primary evidence has been collected from various laboratory experiments. For example, Rankin (2006) and Yamamori (2008) studied the effect of numerical requests on giving behavior with laboratory experiments. Both papers conducted dictator game experiments[1] where a recipient sent a numerical request to a dictator

1) For its simple structure and intuitive interpretation, dictator games have been the workhorse for measuring individuals' other-regarding preferences. It is a bargaining game first introduced in Kahneman et al. (1986) where two players, each given a role of dictator and recipient, decide the split of the given endowment. The dictator decides the amount to

before the split, and discovered that asking leads to a significant increase in dictator giving. Andreoni and Rao (2011) also discovered that whenever a recipient spoke to a dictator, giving increased significantly regardless of the contents of verbal messages. This line of results speaks to the "power of asking."

In light of these findings, there are numerous social contexts in reality surrounding the communication and charitable giving that still remain to be studied. In this paper, we focus on the effect of asymmetry in communication power on giving. It is beyond debate that features of communication vary much with power differences between individuals. A great deal of communication in reality is between individuals with asymmetric power, and communication can be one-sided as individuals in higher positions may deliberately ignore or not even read messages from petitioners or strangers. In fact, most requests for charity or altruistic behavior in reality are ignored or declined.

Yet, hardly any of previous research has paid an attention to the potential effect of power differences in communication on altruism. Previous studies with dictator game experiments have limited their attention to the environment where a recipient's message was always delivered to a dictator, which is a strong condition to be satisfied in many cases. It is therefore relevant to investigate how altruistic behaviors could differ across environments with elevated power.

We investigate the effect of communication on giving behavior in the context where a dictator has more discretion regarding the reception of messages sent by a recipient than in previous studies. To this end, we conducted dictator game experiments that explicitly allow dictators to *ignore* messages sent by recipients. In our experiment, a recipient sends his numerical request ("message") to a dictator before the dictator decides the split, but the dictator can choose either to read or ignore the message. Even if she reads the message, there is no commitment to obey the message. Then the dictator decides the split which determines the final allocation of the endowment

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transfer to the recipient, and the recipient has no veto power but to accept the offer. In the absence of the recipient's veto power, the dictator's transfer amount is interpreted as the magnitude of his concern for the opponent's payoff. For meta-analysis on the results from dictator games, see Engel (2011).

between two players.

Power difference between two players is amplified depending on the treatment on information: Known treatment or Unknown treatment. In Known treatment, the recipient receives his payoff with the information whether the dictator made the decision after reading the message or not. In Unknown treatment, the recipient does not know if the dictator read the message. In terms of communication power, recipients in Unknown treatment are quite powerless compared to those in Known treatment, whereas dictators in Unknown treatment are more powerful than those in Known treatment as they can pretend to have not read the message even after reading it.

This intervention is simple yet creates exogenous variation in important aspect of communication regarding charitable giving in reality. The main objective of the solicitor is to put the receiver under social pressure to give, and when asking someone for a favor, sending out solicitation letters or e-mails for example, information on whether the receiver have read the message or not is closely related to the magnitude of the pressure of solicitation. If the sender cannot verify whether the receiver have read the message or not, the receiver may just pretend as if she hadn't received the request at all. Then the sender's capability of imposing psychological burden on the receiver to reply or accept the request is limited, hence less powerful. However, such variation in information structure is subtle and hard to observe in the field. Our design effectively constructs the relevant environment in the laboratory and to the best of our knowledge, this is the first attempt to introduce the asymmetry of information in communication between players in dictator game experiment.

Along with these two treatments, the allocation of endowment is framed differently, either in Giving frame or Taking frame. In Giving frame, the endowment is framed as initially entitled to the dictator whereas in Taking frame, the recipient initially possess the endowment. Thus, dictator's transfer to the recipient is framed as giving out of her own endowment in Giving frame and taking from the recipient's endowment in Taking frame.

Related to a more broader term of "framing effect", recent findings show that dictator behavior is different between giving and taking games. For

example, Korenok, Millner and Razzolini (2014) and Oxoby and Sparragon (2008) find that a recipient's payoff is significantly greater in the taking game, and Korenok, Millner and Razzolini (2018) find that dictators strongly prefer giving games to taking games.[2] Psychological explanation on framing effect is that people display cognitive biases where essentially identical situations with different connotations or descriptions lead to different reactions. These findings suggest that although games in either frames are theoretically identical in that dictators have full authority over the split, property right of the initial endowment influences individuals' perception of power and their behaviors. For example, dictators in Giving frame are more likely to perceive greater power in bargaining than those in Taking frame, as they possess the property right of the endowment to be allocated.

Our two-by-two design creates power differences of different magnitudes in communication between a dictator and a recipient. Elevated power in communication on the dictator's side is expected to influence individuals' behaviors. One natural question arises regarding dictator behavior: Would being powerful in communication leads individuals to exploit their power with self-interested motives or behave in a more pro-social manner? Although the traditional assumption of selfish economic agents supports the former, growing evidence in social psychology suggests that power induces feelings of social responsibility and encourages benevolent behavior. (van Dijk and Vermunt, 2000; Frieze and Boneva, 2001; Handgraaf et al., 2008 and literature review therein). A related question is whether a recipient can correctly anticipates dictator behavior, as individuals in multi-agent interactions often fail at forming accurate beliefs on their opponent's actions.

We found that dictators in our experiment tend to be more generous toward recipients' messages when recipients could not verify whether dictators have read the message, contrary to our general view on the concept of power. However, we also found that recipients' messages were at odds with dictators' responses, as recipients in Unknown treatment asked for less than those in Known treatments. This finding indicates that recipients thought their messages would matter more when they had more power and failed at forming accurate beliefs on dictator behavior. Further, recipients on average asked for a higher

2) Specifically, dictators in Korenok, Millner and Razzolini (2018) were willing to sacrifice 30% of the endowment on average, if they could play the game in Giving frame rather than Taking frame.

amount in Taking frame than in Giving frame, which is again consistent with our intuition that recipients would expect more when they perceive themselves to have greater power over endowment.

Dictator behavior implies that being completely powerless could ironically be helpful for recipients, whereas recipient behavior suggests that individuals often fail at anticipating behaviors of powerful opponents. We argue that these behaviors are not to be seen as mistakes but as systematic behavioral patterns of individuals faced with power differences. In fact, our results are consistent with the findings from ultimatum game experiments with varying veto power of recipients (Handgraaf et al, 2008). Allocators in ultimatum games decreased their offer as the veto power of recipients decreased toward zero, but increased their offer when the recipient had no veto power at all. However, a vast majority of recipients preferred to play with some veto power and expected a higher payoff when having power.[3)]

Subjects in our dictator game experiment display similar behaviors. While recipients in every treatments are virtually powerless as they have no veto power, stripping them of the information on whether the opponent have read their message in Unknown treatments made them completely powerless in communication as well. Matched with these recipients, dictators in Unknown treatments were more generous toward their requests. Nonetheless, recipients did not expect or exploit this fact and asked for less in Unknown treatments.

This paper contributes to the literature on the "power of asking" by incorporating a more realistic aspect of communication, which has not received any attention in previous studies. Our design introduces the dimension of power into pre-play communication in dictator game experiments with simple interventions and identifies how power differences influence individual behaviors. As such, this paper is related to the broad literature on the effects of power on pro-social behavior as well. Our findings support that individuals behave with social responsibility rather than selfish motives for exploitation of their power, although such behaviors are inconsistent with recipients' expectations.

3) It should be noted that recipients' expectations were not incentivized, calling for caution in interpreting the results.

Beyond its direct bearing on charitable giving, evidence from our experiment hold general implications for economic decisions or interactions in the market as well. As a special case of bargaining game, dictator game captures one of the fundamental interactions between economic agents where social preference plays an important role. Growing evidence demonstrates that social preference such as inequity aversion or trust is not peripheral to economic phenomenon but operates as one of the essential components in the economy. For example, individual sellers' degree of pro-social behaviors observed in laboratory experiments is predictive of their success in natural markets (Leibbrandt, 2011), and the success of incentive scheme depends on the construction of pro-social context in the market (Hossain and Li, 2014). Therefore, our study on social preference is expected to be of interest for economists in general.

More specifically, since bargaining in reality are rarely between parties with equal power, it is important to incorporate the role of power asymmetry into the analysis. Our study tackles this issue in the context of communication and finds that people respond sensitively even in the slightest interventions regarding asymmetry in power. The story of this paper is meaningful in understanding topics in labor economics or industrial organization, where power dynamics in negotiation or bargaining matter a lot.

There is a large existing literature on the role of communication in economics. The most active research so far has been conducted in the field of information economics, whose main focus is on studying how and when communication between rational agents could convey private information successfully and improve social welfare. Topics in this area include costly signaling after the seminal work of Spence (1973), cheap-talk messages first introduced by Crawford and Sobel (1982), and Bayesian persuasion following the influential work of Kanemica and Gentzkow (2011).

While this approach is theoretically profound and extensive with numerous applications, it is also restrictive in a sense that it excludes a myriad of psychological and moral motivations underlying communication in reality. Aside from the information and rational agent approach, there is a growing literature on studying the role of communication in encouraging pro-social behaviors, to

which this paper is more linked.

Rich evidence on this topic has been provided from experimental studies. Frey and Bohnet (1995) is one of the earliest attempts to identify the role of pre-play communication on fairness in the laboratory and found that face-to-face communication leads to more generous offers in dictator and ultimatum games. Rankin (2006) and Yamamori (2008) independently discovered that making a request on average leads to a significant increase in dictator giving. Specifically, asking for less than the half of the endowment had a positive effect on dictator giving but asking for more than the half had a negative effect. The mechanisms for the effect of communication suggested by these authors include, among others, the contents of the communication (Mohlin and Johannesson, 2008) and heightened empathy (Andreoni and Rao, 2011).

To the best of our knowledge, however, no study has explicitly looked at the effect of power differences in communication on altruism. Therefore, our main contribution to the existing literature lies in proposing a simple design that incorporates power differences in communication and reporting how subjects' behaviors differ across subtle differences in contexts.

One of the closest study is Andreoni et al. (2017), which conducted a field experiment on fundraising with help from Salvation Army. They observed that people take a detour to get into the mall in order to avoid verbal asking for charity at the entrance of the mall. However, once they faced verbal asking, the number of givers and the amount of giving increased dramatically. The authors explain their results with a giver's sophisticated awareness of the empathy-altruism link.

DellaVigna et al. (2012) is another important field experiment on charitable giving, where the main goal of research was to decompose individuals' motives for giving by letting them self-select into different solicitation options such as checking the box on the solicitation flyer asking not to disturb. Based on the reduced-form results of the experiments and structural estimation of the model's parameters, the authors demonstrate that not only warm-glow of giving but also social pressure from others is an important factor in giving and concludes that door-to-door fundraising is on average harmful for the welfare

of givers.

Our experimental design is similar to both of these field experiments in that the receiver (who is a dictator in our experiment) of the message or solicitation is able to get away from facing the asking. However, our dictator game experiment eliminates other contexts in controlled laboratory settings and emphasizes the awareness of asymmetric power and the conflict of interest between players. While their study's main contribution lies in decomposing the givers' motives for charitable giving and deriving welfare implications, the main findings of our experiment are in identification of the effects of asymmetric information and property rights on altruism.

The remainder of the paper is organized as follows. Section 2 describes the experimental design and procedure. Section 3 reports the results and Section 4 concludes with discussion on our findings.

2. Experimental Design

We propose an experimental design that varies power differences in communication in dictator games. A recipient subject sends a numerical request on his share to a dictator subject. After either reading or ignoring the recipient's message, the dictator decides the split of the resource. After the dictator's decision, each player receives his/her individual share but the information about whether the dictator read the message is known to the recipient in Known treatment only. In Unknown treatment, the recipient cannot verify whether the dictator has read the message.

We further introduce two different frames on both treatments. In Giving frame, the endowment is framed as initially entitled to the dictator whereas in Taking frame, the recipient initially possess the endowment. However, two frames are theoretically identical in a sense that only the dictator has the authority of allocation in both frames. Therefore, for rational agents as assumed in traditional theories, these frames should not matter for their decisions.

To sum up, we consider the following four treatments in Table 1.

Table 1. Treatment Description

	Giving frame	Taking frame
Known treatment	GK (Giving, Known)	TK (Taking, Known)
Unknown treatment	GU (Giving, Unknown)	TU (Taking, Unknown)

Power difference between two players is maximized in GU treatment where both the property right and the information is given to the dictator, and minimized in TK treatment which is the polar opposite of GU treatment.

The experiment was conducted at the laboratory managed by the Center for Research in Experimental and Theoretical Economics (CREATE) at Yonsei University, South Korea. We recruited 318 undergraduate and graduate students for 19 sessions by email and mobile messengers. Every participants in the same session was assigned to the same treatment. The number of participants for each treatment were 80, 82, 80, 78 for GK, GU, TK, TU, respectively, providing us with 40, 41, 40, 39 pairs of subjects.

Even number of subjects were assigned in each session and each subject was randomly matched with one of the other participants. Subjects were not informed of the identity of their counterparts. The instruction was read out aloud by the instructor at the beginning of the experiment, constructing common knowledge on the order of the game and payoff structure. Since every subjects was assigned to the same treatment, subjects weren't informed of other treatments that they weren't assigned to, constituting a clear between-subject design. Then subjects were randomly assigned to the role of either recipient or dictator. The entire interaction between subjects in the experiment was computerized using o-Tree (Chen et al, 2016) and was displayed on each subject's individual monitor, partitioned from each other.

The payoff of a subject was determined by the amount of money left in his/her virtual box. The endowment of KRW 10,000 was put in the dictator's virtual box in Giving frame and the recipient's in Taking frame. At the first stage of the game, subjects playing the role of recipient were asked how much amount out of the endowment they expect from the dictator and

entered their expectations as a number from 0 to 10000.

After recipients entered their decisions, dictators could either click the button "read the message" or "do not read the message." Upon clicking the former button, the numerical request from the recipient is displayed on the dictator's screen and the dictator is asked to enter the amount to transfer from his box to the recipient's box in Giving frame, or enter the amount to leave in the recipient's box in Taking frame. Upon clicking the latter button, the dictator decides the split without receiving the information about the recipient's request.

After the dictator makes a decision about the split, the recipient is provided with the information about the amount in his box. The information on whether the dictator read the message was given to the recipient only in Known treatment. Immediately after the experiment was over, subjects were paid their payoffs which were the sum of the amount in their boxes and a show-up payment (KRW 3,000). The experiment took about 30 minutes and the average payment was KRW 10,700 for dictators and KRW 5,300 for recipients.

Each subject participated in one treatment only (between-subject design). Every treatment was a one-shot game without repetition and followed a double-blind protocol, excluding any other motives for pro-social behavior. To avoid unnecessary confounding factors, we used neutral terminology without imposing any additional framing (i.e., we did not use words such as "dictator," "recipient," "giving" or "taking" in our experiment).

3. Results

Following the order of decision making in the experiment, we move on from reporting recipient behaviors first and then to dictator behaviors.

3.1. Recipient Behaviors

In our experiment, the recipient sends a numerical message between 0 and 10,000 to the dictator before the dictator makes a decision. Figure 1 and 2 show the distribution of recipient messages and Table 2 reports the summary

statistics of recipient messages across four different treatments.

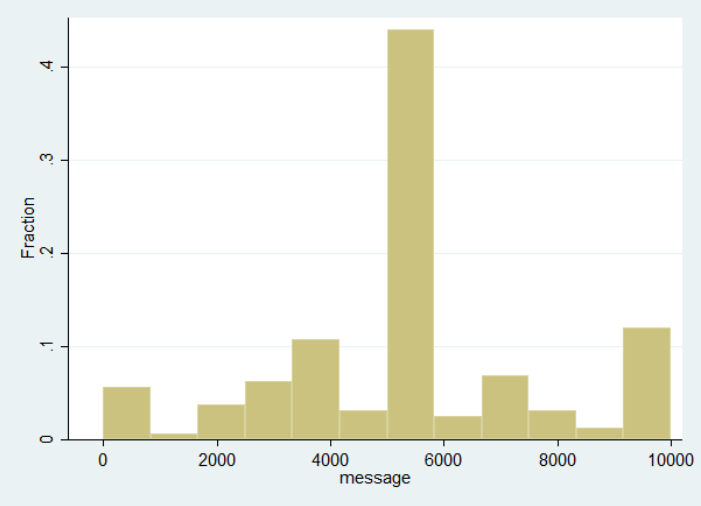

Figure 1. Distribution of messages in the entire sample

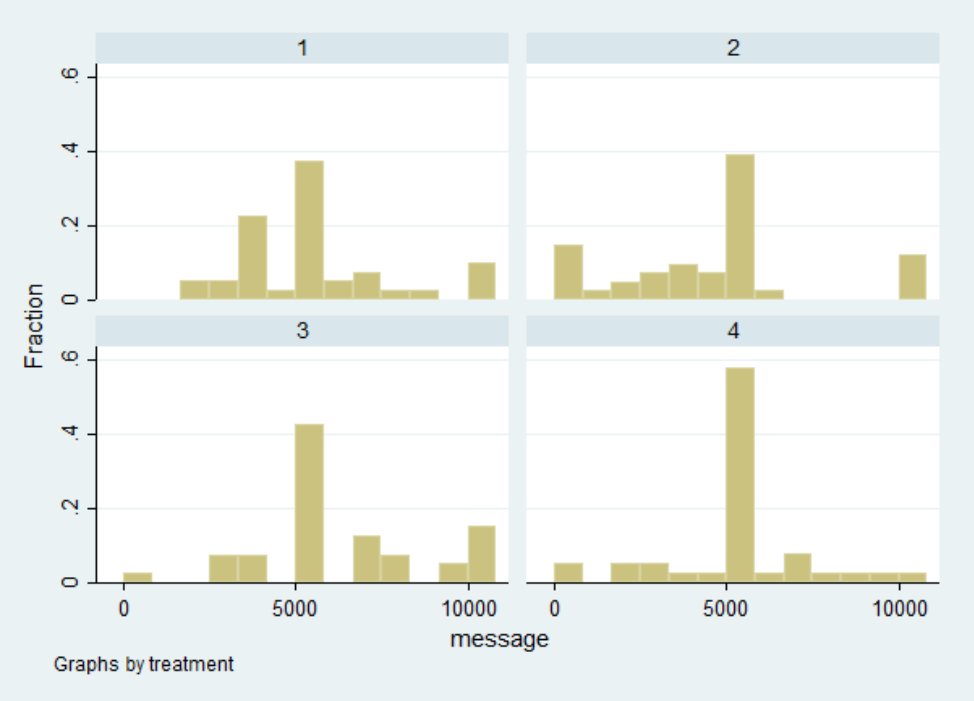

Figure 2. Distributions of messages across four treatments (1=GK, 2=GU, 3=TK, 4=TU)

Treatment	GK	GU	TK	TU	Total
Obs	40	41	40	38	159
Mean	5388	4412	6103	5071	5240
Std Dev	2077	2796	2449	2118	2440

Table 2. Summary statistics of recipient messages

The spike at the middle of the overall distribution of messages implies that 50-50 split was the most frequently requested amount by recipients. The average message is also around 50% of the endowment for all treatments, which is consistent with previous observations in Rankin (2006) and Yamamori (2008). Indeed, asking for an equal division of monetary rewards is widely observed norm in various experiments (see, for example, Andreoni and Bernheim, 2009).

However, Table 2 reports a difference in the average message across four treatments. Recipients on average expected more in Known than in Unknown treatment (about 7% of the reward on average), and in Taking than in Giving frame (about 10% of the reward on average). Testing for statistical significance of these differences shows that the difference is statistically significant at the 10 percent level (p-values are 0.093, 0.094, 0.100, 0.053 for GK vs GU, TK vs TU, GK vs TK, GU vs TU, respectively).[4] Naturally, the difference in the average message between two polar opposite treatments (GU treatment and TK treatment) is stark; recipients with the information on the dictator's reception of the message and the property right of the endowment requested more than 38% of what the recipients without the information and the property right asked for (p-value: 0.003).

Table 3 provides results from regression analysis of recipients' message on treatment variables with further control for demographics. Econ major, Male, Religious are dummy variables that take the value 1 for subjects majoring in economics or related fields, subjects who are male, and subjects who have religion, respectively.

4) If not mentioned otherwise, all statistical results from pairwise comparison are the results of nonparametric Mann-Whitney-Wilcoxon tests. The null hypothesis of the test is that the underlying distributions of the two samples are the same.

Recipients' message	Pooled	Giving frame		Taking frame	
		GK	GU	TK	TU
GU	-845.074	-820.190			
	(533.024)	(545.337)			
TK	889.601*				
	(502.433)				
TU	-212.715			-1112.834**	
	(484.990)			(529.588)	
Econ major	-1228.606***	-792.692	-2117.538**	-1098.726	-827.787
	(382.635)	(600.714)	(807.697)	(831.003)	(693.016)
Male	126.740	586.408	-606.141	274.139	166.841
	(384.131)	(658.529)	(868.378)	(881.750)	(710.997)
Religious	-195.734	-237.227	105.616	-542.741	-18.275
	(378.603)	(674.443)	(979.860)	(789.239)	(805.332)
Age	-57.991	-69.075	32.155	-114.92	-36.504
	(65.558)	(155.872)	(133.713)	(129.327)	(140.841)
Constant	7061.137***	7030.69**	4506.75	9325.041***	6115.299*
	(1662.174)	(3196.012)	(3886.821)	(3312.582)	(3189.985)
R^2	0.1188	0.0512	0.1413	0.0736	0.0334

Table 3. Regression analysis of recipients' message on demographic controls
Robust standard errors are shown in parentheses, * p<0.10, ** p<0.05, *** p<0.01

The estimated effects on treatment dummies are generally consistent with results from Mann-Whitney-Wilcoxon tests. One thing worth noting from Table 3 is that even after controlling for other covariates, participants majoring economics playing the role of recipient have displayed distinctive pattern in that they tend to expect significantly lower amount (10% on average) of the reward than participants with other majors. This pattern was most extreme in GU treatment, where the power of recipient was minimized compared to that of the dictator.

This result implies that people under education in economics may have lower expectation on the power of asking when the opponent in power has no incentive or commitment to comply. It echoes the previous studies on the effect of studying economics including the famous findings in Frank et al. (1993), where students exposed to self-interest model does in fact became not only more selfish but also expect others to be selfish and rational as well. In particular, econ-major subjects in GU treatment seemed to have high

acknowledgment of their powerlessness than other subjects and asked for less than the half of other subjects asked for in the same treatment.

In summary, recipients in TK treatment with greatest communication power and initial property right of the endowment requested the most, whereas those in GU treatment. stripped of communication power and property right, requested the least on average. These results are in line with our intuitions. Recipients seem to have believed that it is harder for dictators to ignore the request after reading it in Known treatment than in Unknown treatment, as dictators are likely to be under more social pressure when recipients know that decisions are made after dictators observing the message. This led to higher expectations in Known treatment. Also, Taking frame may have induced loss aversion to recipients as they possessed the property right of the endowment, leading to higher requests to dictators.

3.2. Dictator Behaviors

After the recipient sent a message, the dictator's choice is twofold. First, she chooses whether to read the message from the recipient. Then she chooses the amount to transfer to the recipient's box in Giving frame or the amount to leave in the recipient's box in Taking frame. Figure 3 shows the distribution of dictator giving in the entire sample and Table 4 reports the summary statistics of dictator giving across four treatments.

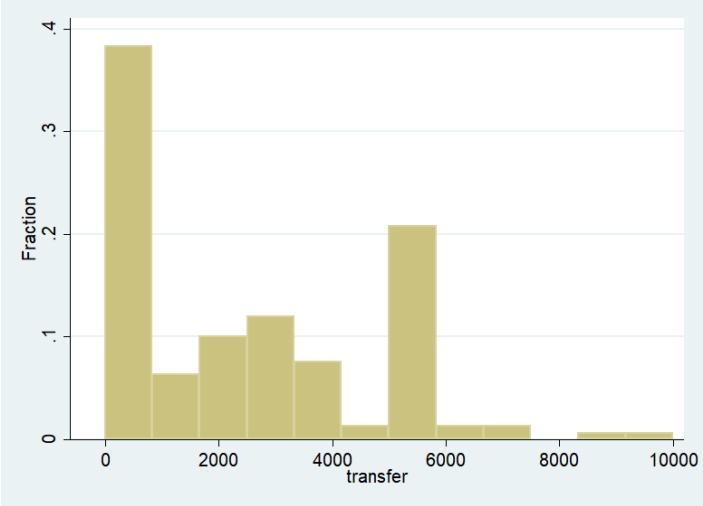

Figure 3. Distribution of dictator giving in the entire sample

Treatment	GK	GU	TK	TU	Total
Obs	40	41	40	38	159
Mean	1975	1659	2485	3132	2300
Std Dev	2211	1994	2225	2411	2260
No. of reading	35	36	31	34	136
Ratio of reading	0.875	0.878	0.775	0.895	0.855

Table 4. Summary statistics of dictator giving

First of all, even with the power to ignore messages, most of the dictators did not ignore but read the message regardless of the treatment.[5] In contrast to the frequent observation of avoiding the ask in Andreoni et al. (2017), this result suggests that mental cost of encountering the asking was much lower for all treatments, potentially due to the dictator's high awareness of power over the recipient or the nature of anonymous interaction in our dictator game experiments. Meanwhile, a high ratio of reading close to 1 gives us a large subsample of dictators with which we can analyze the impact of a recipient's message on a dictator's choice.

The shape of the distribution of dictator giving in Figure 3 resembles a typical distribution of dictators' transfer amounts reported in the literature, where there are two visible spikes at zero and the middle. The dictator giving is in general around 20% of the endowment, which is also typical in the findings from dictator game experiments (Levitt and List, 2007).

However, unlike in the case of recipients, we do not observe statistically significant differences in dictator giving across four treatments, whereas Giving and Taking frames seem to mildly influence dictator giving behaviors. Dictators in Taking frames tend to give more than in Giving frame, although statistical significance of the difference is not as salient as in the case of recipients.[6]

When we compare giving behaviors between Giving frame and Taking frame as a whole, however, we observe stark framing effect. The mean giving amount of two treatments in Giving frame is KRW 2800, whereas the mean

5) There was no difference across different demographic groups in reading behaviors.
6) P-values from Mann-Whitney-Wilcoxon test are 0.717, 0.268, 0.321, 0.027 for GK vs GU, TK vs TU, GK vs TK, GU vs TU, respectively.

giving amount of two treatments in Taking frame is KRW 1814. Both results from parametric t-test (p-value: 0.006) and non-parametric Mann-Whitney-Wilcoxon test (p-value: 0.006) indicate that the difference is statistically significant. Such difference in dictator giving behaviors between Giving frame and Taking frame are predicted by the previous findings on framing effect. Dictators typically display taking aversion and are even willing to sacrifice a certain amount of endowment if they could choose Giving frame rather than Taking frame (Korenok, Millner and Razzolini, 2018). It is considered as a consequence of negative connotation behind the act of taking out of the opponent's endowment, compared to positive connotation behind the act of giving out of one's own endowment.

To investigate the effect of messages on dictator giving, from now on we narrow our attention to the subsample of dictators who actually read the message before deciding the split. Table 5 reports the summary statistics of giving amounts of dictators who read the message.

Treatments	GK	GU	TK	TU	Total
Obs	35	36	31	34	136
Mean	2117	1875	2558	3103	2400
St Dev	2311	2035	2122	2400	2248

Table 5. Summary statistics of giving amounts of dictators who read the message

Even after restricting our sample on the dictators who read the message before deciding the split, we still do not find significant differences in dictator giving across four treatments. In particular, the signs of Known vs Unknown treatment effect are in opposite directions in Giving and Taking frames. Figure 4 displays generally similar distributions of giving amounts of dictators who read the message.

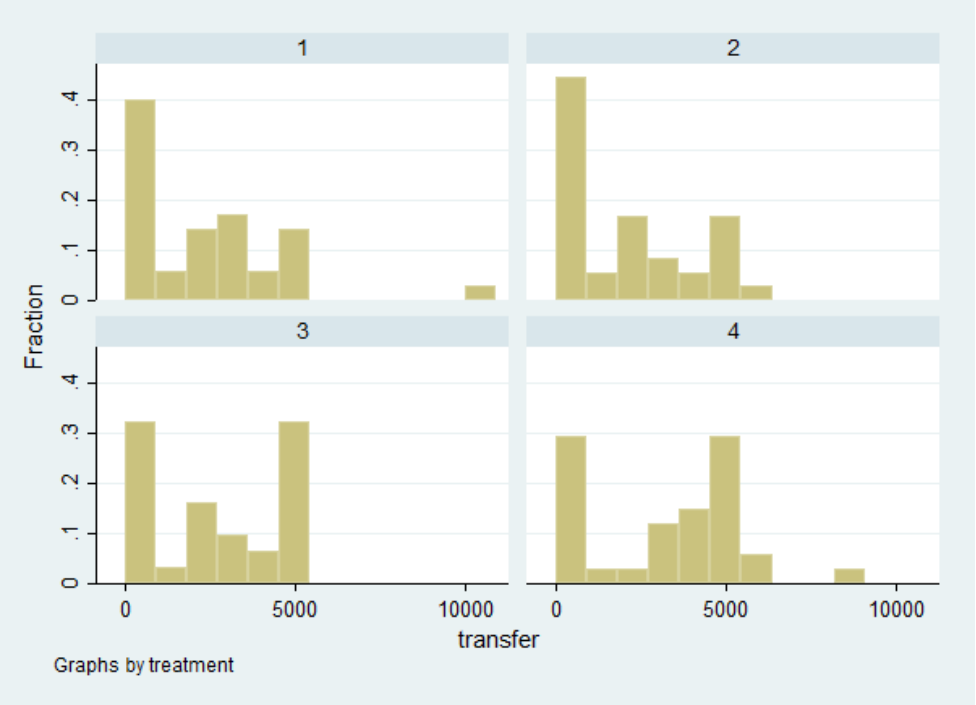

Figure 4. Distributions of giving amounts of dictators who read the message

(1=GK, 2=GU, 3=TK, 4=TU)

Dictator giving at face value, however, does not accurately capture a dictator's generosity toward a recipient. Each dictator in our experiment faced a different numerical request from her matched recipient, which serves as different reference points across dictators. Taking this into account, we calculate a difference between the message and giving amount at individual level, as a proxy for the dictator's generosity or responsiveness toward the recipient's request. Summary statistics of this variable across treatments are in Table 6.

Treatments	GK	GU	TK	TU	Total
Obs	35	36	31	34	136
Mean	-3211	-2531	-3545	-2006	-2806
St Dev	3272	3512	3313	3744	3480

Table 6. Summary statistics of the difference between message and giving

Negative numbers in Table 6 indicate that dictators on average gave less than what recipients asked for. Dictators tend to be more responsive toward

messages, giving an amount closer to messages sent by recipients, in Unknown treatment where recipients are less powerful than in Known treatment in communication. P-values from Mann-Whitney-Wilcoxon tests between Known and Unknown treatments are 0.186 in Giving frame (GK vs GU) and 0.069 in Taking frame (TK vs TU). We do not find a clear treatment effect from framing.

It is interesting to find that dictator behaviors are at odds with our general understanding of power. Dictators in Unknown treatment have greater power in communication than those in Known treatment since they can pretend as if they haven't read the message even after reading it, whereas dictators in Known treatment are more likely to be under pressure after reading the message. However, dictators in Unknown treatment did not exploit the ignorance of recipients but behaved more generously toward their requests on average. This calls for an explanation, which we discuss in the next section.

Further, we conducted a correlation analysis on the relation between the messages and giving amounts of the dictators who read the message. Previous studies have established that asking for less than the half of the resource is positively correlated with dictator giving but asking for more than the half leads to a decrease in giving. Results are summarized in Table 7.

Treatments	pooled	request $\leq$ half	request > half
GK	-0.047(0.790)	0.120(0.569)	-0.554(0.097)*
GU	0.086(0.616)	0.348(0.059)*	0.310(0.550)
TK	-0.200(0.281)	-0.182(0.455)	0.038(0.906)
TU	-0.179(0.310)	0.021(0.920)	-0.546(0.128)

Table 7. Correlation between messages and giving amounts
P-values are shown in parentheses, * p<0.10, ** p<0.05, *** p<0.01

Table 7 shows that in GU treatment, there is a positive correlation between messages and giving amounts if recipients request less than the half of the endowment. In contrast, in GK treatment, if recipients request more than the half, dictators reduce their giving when they observe higher messages. It seems that our dictator subjects evaluated a message favorably when its content (i.e., the amount requested by the recipient) is not aggressive (i.e., demanding less than the half), thereby increasing giving for a higher message.

However, such tendency had a threshold: once a message's content became aggressive (i.e., demanding more than the half), dictators exhibited punishment behaviors by reducing giving for a higher message. These associations are in line with the results from Rankin (2006) and Yamamori (2008), where asking had adverse effect on giving as asking exceeded the half of the endowment.

Finally, we conduct regression analysis of a difference between the message and giving on treatment variables in Giving frame and Taking frame respectively, with further control for demographics. Although statistical significances are weaker, the signs on the estimated effects of GU treatment and TU treatment dummies are positive in both frames and consistent with the results from pairwise Mann-Whitney-Wilcoxon tests. In addition, we do not discover visible differences in behavior between econ-major dictators and non econ-major dictators as in the case of recipients.

Dictators' generosity	Giving frame	Taking frame
GU	652.539	
	(767.977)	
TU		1413.328
		(916.607)
Econ major	-1446.285	-85.026
	(913.545)	(1122.794)
Male	641.204	-1767.426*
	(854.524)	(985.618)
Religious	24.224	916.065
	(846.496)	(943.746)
Age	29.551	106.169
	(108.160)	(172.715)
Constant	-3824.68	-5182.78
	(2525.244)	(3774.414)
N	71	65
R^2	0.0643	0.1185

Table 8. Regression analysis of a difference between the message and giving on treatment variables and demographic controls.
Robust standard errors are shown in parentheses, * p<0.10, ** p<0.05, *** p<0.01

4. Discussion and Conclusion

In our experiment, we found that recipients behaved differently across four treatments regarding power differences in communication and property right. Recipients in Taking frame and Known treatment requested more than in Giving frame and Unknown treatment, both of which seem intuitive when we consider asymmetric power in communication across these treatments.

However, the pattern of dictator giving is more nebulous and even contradictory to our intuitive hypothesis, as they were more generous toward the recipients' requests in Unknown treatment than in Known treatment. Moreover, recipients in our experiment failed to form correct beliefs on such behaviors of dictators. Higher messages in Known than Unknown treatment suggest that recipients assumed that dictators would be more responsive to their requests in Known treatment, which turned out not to be necessarily true.

Psychological studies on social decision making of individuals with power differences provide plausible explanations for our findings. Most related experimental work in the literature is Handgraaf et al. (2008), which studied how power differences influence decisions in ultimatum games by varying the veto power of recipients. They report a non-linear relationship between allocator's offer and the recipient's veto power; allocators decreased their offers as recipients became less powerful as expected, but they increased their offers when recipients had no veto power at all. They explain their findings with the concept of social responsibility; allocators are more pro-social towards completely powerless recipients as feelings of social responsibility are evoked. Feelings of social responsibility make people behave benevolently towards those who are in need. Real world examples for such mechanisms include seniors typically being harsh to middle ranks but more lenient to rookies in organizations, as they feel social responsibility or compassion toward the powerless.

Furthermore, recipients in Handgraaf et al. (2008) did not anticipate advantages from being powerless as most of them chose to play with some veto power, just as powerless recipients in our experiment asked for less even though dictators tend to be more responsive. These results support and add

to the discussions on egocentric empathy gaps, which refers to a cognitive bias in which individuals underestimate the influence of their current states on their thoughts and overestimate the similarity between their own and their counterpart's thoughts.

Empathy gaps have been reported to be prevalent in various contexts. Blount and Larrick (2000) found that players in bargaining games fail to correctly select the frame that provide them with higher payoffs. Van Boven et al. (2000) and Van Bovern et al. (2003) show that egocentric empathy gaps may cause misprediction of the endowment effect on both their own and others' preferences in a market setting, leading to suboptimal behaviors. These findings demonstrate that such a cognitive bias is relevant to economic decision making as well. In our experiment, most recipients in Unknown treatment seem to hold on to their beliefs that power in communication matters. Egocentric empathy gaps prevent them from seeing that dictators faced with powerless counterparts may see a situation differently.

Taken together, our study reports how asymmetric power of communication leads to different responses among players in dictator games. While it has been widely reported that pre-play communication encourages altruism, the effect of power differences in communication has not been investigated. Our study also highlights how the paradox of being powerless and empathy gaps may intervene in social decision making, resonating the previous findings in the related literature. Still, further research on the role of communication and power are to be done in various contexts.

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