

Impact of the other bystander's likelihood of helping on the global Bystander Effect

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Abstract

When a victim is in need, people are less likely to help when there are other persons present. In general, this means that the probability of helping decreases in negative correlation to the number of bystanders affected. In social psychology literature, researchers refer to this phenomenon as the individual Bystander Effect. From another perspective, the decreased probability for the victim to receive help by each additional bystander is called the global Bystander Effect. The purpose of the paper at hand is to predict the global Bystander Effect by use of a model. The model shows that depending on the perceived probability that the other bystander will help the Bystander Effect can be found. According to my model, a perceived high likelihood of helping of the other bystander decreases the bystander's tendency to help when comparing one potential helper to the same circumstance with another person present. Hence, the global Bystander Effect exists. A perceived low likelihood of the other bystander's willingness to help leads to the opposite outcome where no group size effects emerge. Both hypotheses were tested in a lab experiment using the standard dictator game and an adapted version of it by increasing the number of dictators/bystanders from one to two. Moreover, the experiment was conducted with two treatment groups: one where all bystanders were very likely to help and one where most bystanders were unlikely to help. Even though the results revealed the predicted pattern, it was not proved to be significant at a reasonable level. Besides that, I found that women were more likely to provide help than men in all decision rounds.

Keywords: global Bystander Effect, helping game, perceived likelihood of helping, other bystander's influence

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Chapter 1

Introduction

Imagine a victim of an emergency and two bystanders: which impact has the individually perceived likelihood of the other bystander to help on the victim's probability of being assisted?

Over the years, plenty researchers have made attempts to answer this question. Darley and Latané introduced the Bystander Effect (BE) in 1968 and declared that the more bystanders are present the lower the probability that one of them helps in a critical situation. Hence, under certain circumstances helping while being the sole bystander is more likely than helping when there is a second bystander present. In the literature, researchers refer to this concept as the “Individual Bystander Effect”, where the focus is on the bystander’s probability of aiding the victim. However, the question above and this paper overall concentrate on the global Bystander Effect, which approaches the topic at hand through the victim’s probability of receiving help. When the probability of being subject to help decreases with each additional bystander, researchers refer to this as the “global BE”. In other words, the probability is higher that the victim receives help from a person when there is only one bystander present, compared to two or more bystanders. Summing up, a higher number of bystanders decrease the probability of helping or receiving help and these phenomena are referred to as the individual or the global BE, respectively. It is possible that each bystander faces an individual BE since each person’s likelihood to help can be reduced while increasing the number of bystanders. However, a single bystander cannot experience a global Bystander Effect. The latter Bystander Effect is the resulting probability that at least one of the bystander helps, meaning that the likelihood of one bystander could remain or even increase while the overall victim’s likelihood of receiving help shrinks.

Some people feel securer in large cities than in smaller villages at night. They argue that the more people are on the streets and see the critical situation the higher the likelihood that they get helped by at least one person if needed. Merrens (1973), for example, finds that this is likely not to be true since he found that participants helped

less in New York compared to mid-western smaller cities. Still, the overall likelihood of receiving help could possibly increase; therefore, no global Bystander Effect exists. The main purpose of this paper is to investigate the factor which influences the occurrence of the global Bystander Effect. More importantly, the goal is to predict the Bystander Effect with one single variable: the perceived likelihood of the other bystander helping or, in other words, the expected helping rate of the other person.

The paper develops a theory stating that whether the global Bystander Effect exists depends on one single variable. My goal is to predict the Bystander Effect (BE) contingent on the probability that the other bystander helps by use of a model. The results of the model compare the victim's probability of receiving help while being with one person compared to the situation where two bystanders are present. The first hypothesis is that if a bystander perceives a high likelihood that the second bystander will help, then the bystander himself will be less inclined to help. Since both bystanders are less likely to aid, the victim's probability of receiving help decreases as well. Hence, the global Bystander Effect occurs. The second hypothesis predicts the opposite. When the perceived likelihood of the other one helping is low, the global Bystander Effect will be reversed. This would be the case when the bystander thinks the other bystander does not care enough about the victim being assisted.

Thereafter, the hypotheses were tested in a lab experiment using the standard and an adapted version of the dictator game. The number of bystanders were increased from one to two bystanders. Moreover, the experiment was conducted with two treatment groups: one where all bystanders were very likely to help and one where most bystanders were unlikely to help. The experiment reveals the predicted pattern, meaning that a high and low perceived likelihood that others help respectively reduces and increases the probability of receiving help. However, the pattern could not be found to be significant at a reasonable level. Still, the realisation of the pattern leads me to the conclusion that the theory is a promising way of forecasting when the Bystander Effect occurs. Therefore, an in -depth examination should be made. Using this master thesis as a pilot, the theory can be further developed within another comprehensive and larger scaled project.

Aside from continuing a promising research path, the economic world could benefit from this study by spotting the variable which has an impact on the occurrence of the global Bystander Effect in business. To be more precise, economic studies on the phenomenon of the group size effect might give insight into well-functioning marketing strategies. Especially fundraising companies require this kind of knowledge in order to efficiently raise the volume of the donations. Presenting a high number of already existing donors within marketing campaigns might indeed represent a well-working environment as well as previously gained trust in their company. Still, it could harm future earnings due to a possibly occurring individual and global Bystander Effect, when someone expects other "bystanders" to be likely to help. People might be less likely to donate.

The paper continues with a brief overview of the literature on the Bystander Effect in Section 2. This chapter starts with an introduction to the theoretical background of the main variable and, in the next step, presents the model which predicts the pattern of the BE. In Section 4, the results of the decision problem of the model are put in context to the likelihood of receiving help. Based on this data, the hypotheses are displayed in Subsection 4.1 and 4.2. Furthermore, the experimental design is discussed in Section 5 and a presentation of the results follows in Section 6. A quick discussion of the limits to this paper are mentioned in Section 7. Finally, the paper concludes in Section 8, highlighting the most essential findings from the previous sections.

Chapter 2

Literature Review

Research studies have approached the Bystander Effect (BE) in numerous studies throughout the last decades starting in the 1968 with the famous case of Kitty Genovese. Kitty was raped and murdered on the streets of New York in the 1960s, even though the event was witnessed by dozens of people. This event raised huge controversies in the society as well as in the media since nobody had helped her. To find out why no one had intervened, Darley and Latané studied what drives people to help each other; they discovered that people are less willing to help if they perceive that other bystanders can help as well. They defined this phenomenon as the individual Bystander Effect. As a main explanation of people failing to help, the researchers named the group size effect. Thus, more witnesses reduce the likelihood for each bystander individually to help in an emergency. Built on this breakthrough discovery, the researchers further explained why a group size effect could happen by developing the Diffusion of Responsibility Theory. When there is only one bystander witnessing the event, the responsibility lies solely on that person's shoulders. Each individual decides whether to intervene purely on the costs, which this bystander needs to carry (e.g., time spent or risks to safety). However, if there are more bystanders present, this responsibility will be shared by all these people. Feeling a shared and, therefore, lower responsibility makes it less costly for the witnesses not to help in an emergency (Darley and Latané, 1968).

After the introduction of the Bystander Effect (BE), numerous studies were conducted to gain more knowledge of the phenomenon. Most research articles cover the individual BE. Still, those insights help us to better understand the global BE.

While many studies find the individual Bystander Effect, a few studies revealed no group size effects at all. The researchers claimed public self-awareness by introduced accountability cues to be the triggering factor. In the experiment where the participants' names were highlighted and either only seen by themselves or publicly displayed to others no group size effect could be detected. Furthermore, filming the experiment with a webcam to increase self-awareness in another way also hindered the occurrence (M. van Bommel et

al., 2012). Moreover, Pantin and Carver (1982), for example, explored the influence of the bystander's competence on the helping behaviour, finding that the individual Bystander Effect was exclusively present for low competence participants. For participants with high competence the BE was not found.

In the following studies, the Bystander Effect was present and gives insight into influencing factors. Researchers discussed the influence of interference costs on the BE including that dangerous situations incur higher costs and vice versa. Latané and Nida (1981) introduced the intensity of the Bystander Effect in highly dangerous situations, such as emergencies as well as villain acts, compared to low-level situations of danger. Fischer et al (2011) based their subsequent meta-analytic review on Latané and Nida's (1981) distinction. The researchers found that the Bystander Effect is stronger in non-emergencies compared to dangerous emergencies or villain acts.

Aside from the danger level, this paper's theory is based on the impact of the perceived willingness of the other bystander to help on the bystander's choice whether to intervene. How influential is the other bystander on the BE? Latané and Rodin already discovered in 1969 that the familiarity between bystanders had considerable influence on the strength of the BE. As confirmed by Clark and Word (1972) and then later summarized in the meta-analysis by Fischer et al (2011), not knowing compared to being familiar with the additional bystander (including friends and acquaintances) led to a greater individual Bystander Effect. Moreover, Bickman (1971) writes that the perceived ability to help of the other bystanders has a significant effect on the behaviour of the bystanders. Being alone compared to being in a scenario with an unable bystander led to no significant differences on the strength of the Bystander Effect. Nevertheless, the bystanders helped significantly later in the case where both were able to help. Bickman's (1971) finding can be explained by claiming that the bystanders feel alone as responsible as in a situation where the other bystanders are obviously unable to help. It follows that the other bystanders' ability possibly reduces the responsibility of helping. Unfortunately, this experiment was conducted by defining "too far away" from the emergency as "to be unable to help".

Although many experimental studies confirmed the individual Bystander Effect, some as e.g. M. van Bommel et al. (2012) showed that under certain treatments the opposite happens. Due to these mixed previous results, it seems worthy to look for common grounds. As one of the few, this paper focuses on finding the variable which triggers the global Bystander Effect. This means that I focus on the victim's probability of receiving help. According to my theory, each bystander estimates a probability that the other bystander will help and by use of this estimation the Bystander Effect can be predicted.

Chapter 3

Model

To be able to test whether the other bystander's likelihood of helping affects the global Bystander Effect, the event with one and two bystanders are simulated by use of a model. The model is based on the individual choice approach where each bystander decides whether to help or not using a decision problem. Both bystanders' decision problems combined influence the probability of receiving help, and therefore the global Bystander Effect. The results of the simulation will be used in order to predict the outcome of the experiment. In the next section, a concise overview of parts of the psychological literature which addresses the motives of helping and the estimated probability that the other bystander helps will be given.

Whenever individuals face a situation where a victim needs help, he or she must decide whether to help. Which motives lead to actions, which benefit one or more people aside from themselves? Helping is especially interesting since it goes against commonly made assumptions of selfish behaviour. Over the years, economists have been assuming that individuals act based on self-interest. From a purely economic perspective, it is in no one's interest to help due to the arising costs for the active part and no monetary value or tangible items in exchange. However, the motives are well summarized by many scientists in the prosocial behaviour literature. In many papers, a tendency to believe that the actions are predominated mostly by situational factors as the location, ambiguity of the situation, cost of helping, factors concerning the victim as characteristics, similarity or degree of familiarity are the main influencing forces is displayed (e.g. Merrens, 1973; Latané and Nida, 1981; Smith et al, 1970). Nevertheless, a subset of cases can be explained through social preferences. The concept of Inequity Aversion developed by Fehr and Schmidt (1999) as one of the main social inducements concluded that people dislike unequal distributions of goods and prefer fair allocations. It is a way of explaining why people help someone who is in a worse position to gain equality. Worse-off people might also find assistance through altruistic bystanders. Batson and Shaw (1987) define altruism as "a motivational state with the ultimate goal of increasing another's welfare. In contrast to al-

truism, egoism is a motivational state with the ultimate goal of increasing one's own welfare."

Another theory which describes the motivation for helping is the Social Exchange Theory (SET). Firstly introduced by Homans in his paper "Social behaviour as an exchange", the theory states that individuals maximize their own profit and minimize costs by exchanging goods, e.g. helping someone in need with either material or non-material goods. The latter goods can also have the form of reward and appreciation. However, in the case of reciprocal altruism, helping is only profitable and durable existent if the exchange of receiving and giving continues and enables profit maximization (Homans, 1958). Furthermore, the ensuing reciprocal altruism is similar to the Exchange Theory. The conjunction to reciprocal altruism lies in the expected exchange of help and another good in the future. In contrast to the SET, altruistic behaviour is traded with altruistic actions lagging in time (Trivers, 1971). To sum up, knowing that helping will be rewarded either with appreciation or even help in the future could lead to this person's help in a critical situation.

3.1 1-bystander helping game

In the critical situation, the sole bystander faces the strategy choices to help or to refuse helping the victim. The choices j are helping H or not helping NH . The decision-making process builds on the subjective expected utility theory. It is assumed that the bystanders want to rationally maximize their utility. Therefore, the strategy with the highest expected utility is chosen. When deciding the bystander takes his or her and the victims payoff into account. To have a simple but useful representation of the preferences, the utility function for bystander i takes the form:

$$U_i(x_i, x_v) = x_{ij} + m_i * x_{vj} \quad (3.1)$$

where x_{ij} is the bystander's payoff and x_{vj} the victim's payoff where j belongs to $[H, NH]$. So that if $j=H$, then the bystander helps the victim and if $j=NH$, then the bystander does not assist the victim. The helping costs are displayed as the lower payoff for the bystander (x_{iH}) when helping compared to when not helping (x_{iNH}). m_i , however, is defined as the degree of altruism, inequity aversion or other prosocial and situational helping motives of the bystander. If the victim receives the needed help, utility increases. The level of the factor m_i reflects how much a player cares for the victim being helped. In the model, the victim's payoff is lower than the bystander's payoff independent of the decision. The payoff for the victim (x_{vNH}) equals zero when not being helped.

Simulating the decisions, the utility function reacts in the following way:

- Helping H reduces the expected payoffs x_{iH} by choosing to help by the expected helping costs. At the same time, it increases the victim's payoff from x_{vNH} to x_{vH} which influences the utility function of the bystander by the multiplicative factor m_i .
- If the bystander does not help NH the victim's payoff is lower, $x_{vNH} < x_{vH}$. While avoiding the helping costs, the higher payoff for the bystander, $x_{iNH} > x_{iH}$, is partially offset by the lower payoff of the victim. The degree of the effect on the utility function depends on m_i .

To find the best choice for the bystander, I solve the inequality of the utility function for helping and not helping. The bystander helps if the utility to help is higher.

$$U(H) > U(NH) \quad (3.2)$$

$$[U(x_i, x_v) = x_{iH} + m_i * x_{vH}] > [U(x_i, x_v) = x_{iNH} + m_i * x_{vNH}] \quad (3.3)$$

$$x_{iNH} - x_{iH} < m_i * (x_{vH} - x_{vNH}) \quad (3.4)$$

The following is the result of inequality 3.4:

- If the costs of helping, $x_{iNH} - x_{iH}$, are smaller than the factor of helping motives multiplied by the gained payoff of the victim, then helping yields a higher utility.
- In other words, each bystander helps if the costs of helping are lower than the valued gains for the victim.
- If otherwise, the bystander does not help.

3.2 2-bystander helping game

The purpose of this paper is to test if the expected helping rate of the other bystander influences the global Bystander Effect in an emergency. Being in an emergency where more than one person decides whether to assist a victim can be referred to as a "social dilemma". Social dilemmas are defined by Dawes (1975) as games with a dominant strategy for each player, but if all players play the named strategy, it will have a harmful effect on everyone. Put in the context of this paper, if all bystanders decide not to help, the disliking of the victim not receiving help will harm all of them. This is true even if the helping costs that would arise for them are saved. Based on Dawes definition, Diekmann (1985) put the Diffusion of Responsibility Theory (Latanè and Darely, 1968) in the framework of a game and explained the social dilemma faced by the bystanders in case of an emergency.

He assumes that volunteering is costly and that it lowers the players' expected outcome. Hence, the bystanders prefer to take advantages by freeriding when others volunteer. An altruistic bystander will prefer not to help but at the same time dislike if the victim does not receive help.

In contrast to the previous subsection 3.1, the 2-bystander helping game takes the second bystander's probability of helping into account. How likely is it that the other one assists the victim? Each bystander forms his or her own expectation about the other bystander's rate of helping. The helping motives are a combination of the prosocial and situational factors from the briefly summarized literature in Section 3. To be able to further investigate the impact of the probability on the BE, all these theories are summarized with a grouping variable gamma, γ . Therefore, gamma depicts the likelihood that the other one will help. In other words, this probability depends on the bystander's expectation of the interplay and weighting of the helping motives. Going back to the Diffusion of Responsibility it can be assumed that: If a bystander believes that the other bystander's willingness to help (WTH) is high then there is a greater probability to be able to push the responsibility to the other bystander. The reason for a high WTH, and, therefore, a high gamma can be rooted in an elevated level of inequality aversion or altruism. Notably, from another perspective, γ can be viewed as a simple lottery —risking facing social costs when refusing to help. In other words, each bystander faces a risk where he or she gambles to ideally avoid helping but still not having to suffer through the knowledge that the victim is not being assisted.

The prime variable gamma (γ), $\in [0,1]$, in the model of this paper is introduced to empirically test the effect of the expected helping rate on the global Bystander Effect. Depending on γ , each player decides whether to intervene or not.

3.2.1 Decision problem

This model describes a one-time binary choice model regarding two heterogeneous players. During the same period, both decide whether to help an outside victim or not. The decision concerning the aid is made by all the players simultaneously. Incomplete information in the 2-bystander helping game can be assumed, since no player has access to the preferences of the second player. When deciding whether to help or not the player's utility is again based on the following formula:

$$U_i(x_i, x_v) = x_{ij} + m_i * x_{vj} \quad (3.5)$$

However, in this scenario the victim can possibly be helped by the other bystander. Thus, the bystander benefits from it by a higher utility without helping. The payoff combinations of their strategies are presented in Table 3.1. Each decision results in a certain utility

depending on the bystander's and the other bystander's choices. If one of the bystanders helps, both benefit from the additional utility that the victim got helped by $m_{i,k} * x_{vH}$. If the first bystander decides to help, a second bystander helping reduces the own expected payoff without any effects on the first bystander's or the victim's payoff. If no one helps, only the payoff for the bystander when not helping determines the utility. The payoff for the victim, x_{vNH} , equals zero when not being helped. γ_k signifies the probability that the other bystander helps.

| | | Bystander k 's options | |
|--------------------------|---|---|--|
| Bystander i 's options | Helping | Not Helping | |
| Helping | $x_{iH} + m_i * x_{vH}, x_{kH} + m_k * x_{vH}$ | $x_{iH} + m_i * x_{vH}, x_{kNH} + m_k * x_{vH}$ | |
| Not Helping | $x_{iNH} + m_i * x_{vH}, x_{kH} + m_k * x_{vH}$ | x_{iNH}, x_{kNH} | |

Table 3.1: Payoff matrix of the 2-bystander game

The main hypotheses build on a decision problem, which was tested in an experiment. The bystander helps if the utility of helping H is higher than not helping NH with respect to the probability that the other one helps (γ_k). Solving the inequality of both decisions' utilities of Inequality 3.6 as well as rearranging it leads to Inequality 3.14:

$$U(H) > U(NH) \quad (3.6)$$

When bystander i considers to help H then the expected payoffs are based on the likelihood that bystander k chooses option Helping or Not Helping in Table 3.1.

$$H = (x_{iH} + m_i * x_{vH}) * \gamma_k + (x_{iH} + m_i * x_{vH}) * (1 - \gamma_k) = \quad (3.7)$$

$$(x_{iH} + m_i * x_{vH}) * \gamma_k + (x_{iH} + m_i * x_{vH}) - (x_{iH} + m_i * x_{vH}) * \gamma_k = \quad (3.8)$$

$$(x_{iH} + m_i * x_{vH}) \quad (3.9)$$

The payoff for bystander i when choosing Not Helping NH depends again on the payoffs times the likelihood that bystander k chooses to help or not. This is important since if i does not help but the other one does then bystander i still benefits from the higher payoff

$$(x_{iNH} + m_i * x_{vH}).$$

$$NH = (x_{iNH} + m_i * x_{vH}) * \gamma_k + (x_{iNH}) * (1 - \gamma_k) = \quad (3.10)$$

$$(x_{iNH} + m_i * x_{vH}) * \gamma_k + (x_{iNH}) - (x_{iNH}) * \gamma_k \quad (3.11)$$

Here I inserted the end products of Inequality 3.9 and 3.11 into Inequality 3.6 to check when the bystander i helps.

$$(x_{iH} + m_i * x_{vH}) > (x_{iNH} + m_i * x_{vH}) * \gamma_k + (x_{iNH}) - (x_{iNH}) * \gamma_k \quad (3.12)$$

$$(x_{iH} - x_{iNH}) > (m_i * x_{vH}) * \gamma_k - m_i * x_{vH} \quad (3.13)$$

$$(x_{iNH} - x_{iH}) < (m_i * x_{vH}) * (1 - \gamma_k) \quad (3.14)$$

The final Inequality 3.14 shows that the decision problem of the bystander includes the helping costs, $x_{iNH} - x_{iH}$. Other than that, the right side of the inequality presents how much the bystander cares for the victim receiving help, $m_i * x_{vH}$, multiplied by the perceived probability that the other bystander does not help, $(1 - \gamma_k)$. In a nutshell, the right side can be summarized as the perceived risk for the bystander that the victim does not receive help by the second bystander.

It is the goal to predict under which circumstances the bystander helps when in a group of two. Based on the inequality the following outcomes while assuming $\gamma_k \in [0,1]$ can be predicted:

- If the helping costs are lower than the perceived risk that the victim does not receive help by the other bystander, the bystander helps.
- If the helping costs are higher than the perceived risk that the victim does not receive help by the other bystander, the bystander does not help.
- If the probability is low that the other bystander helps and the costs are still sufficiently low, the bystander is very likely to help.
- If the probability is high that the other bystander helps and the costs are still sufficiently high, the bystander is less likely to help.

Since two bystanders face the same situation, the decision problem for bystander i is the same as for bystander k but mirror-inverted. Additionally, it includes the individual degrees of altruism and perceived likelihood of the other bystander to help. The two bystanders decide simultaneously whether to help or not. Since there are only the two possible helpers, their likelihoods of helping affect the probability to receive help for the victim. This core part of the paper is further discussed in the next section.

Chapter 4

Hypotheses

In this section, the theory of the model is summarized through two hypotheses. Both hypotheses were tested with an experiment.

How can a conclusion concerning the prediction of the global Bystander Effect be drawn from the probability that the bystander helps in two different scenarios? The global Bystander Effect can be formalized by equation 4.1. It demonstrates the difference between the probability of the victim receiving help in case there is one bystander or two bystanders present. When the bystander is the sole observer, the individual cares about his or her payoff as well as the payoff of the victim. Each bystander will help if the costs are lower than the expected and valued gains of the victim. The probability that the victim receives assistance by a sole bystander is summarized by the variable $B(1)$. What triggers the probability of receiving help when two bystanders are present $B(2)$? In this case, the bystanders consider their own motivation to help, the helping costs but also the likelihood of the second bystander to help. Both bystanders face the same decision problem from point 3.2.1. The costs are assumed to be equally high in the one and two bystander scenarios. If the outcome of the equation 4.1 results in a positive number, the global Bystander Effect exists and vice versa.

$$BE = B(1) - B(2) \tag{4.1}$$

This paper tests if the BE occurs when the likelihood of the other bystander helping, γ_k , is 100%. Furthermore, it tests if the BE is reversed when the likelihood of the other bystander helping is 40%. The payoff when the bystander does not help x_{iNH} is 70 and 50 when helping x_{iH} . The victim's initial payoff is 10 and when helped x_{vH} it is 40.

4.1 High likelihood of the other bystander helping

In general, if two bystanders respectively were alone very likely to help, then each of them will assume a high probability that the other person will help in the situation with two bystanders. They assume that the level of helping motivation (m_k) of the other one is also high. Afterwards, they conclude a high probability of help through bystander k (γ_k). This could, for instance, take place in a society where people are confident that their fellow citizens are also good persons. If both assume a high probability that the other one will help, then each bystander is, according to the results of the decision problem, less likely to help the victim. Both push the responsibility to the other, thinking that the second bystander helps while not helping themselves. This lowers the probability that the victim receives help when there are two bystanders compared to a sole bystander. Therefore, the global Bystander Effect occurs. To test my scenario, I insert the abovementioned payoffs into the inequality.

$$(x_{iNH} - x_{iH}) < (m_i * x_{vH}) * (1 - \gamma_k) \quad (4.2)$$

$$(70 - 50) < (m_i * 40) * (1 - 1) \quad (4.3)$$

$$20 < (m_i * 40) * 0 \quad (4.4)$$

Both bystanders decide not to help since the inequality is not true. Before, both were highly likely to help; in a group of two both are very unlikely to help. At the same time, the likelihood of receiving help decreases and the global BE occurs.

4.1.1 Hypothesis One

A high γ_k of 1 will lead to the occurrence of the global Bystander Effect. Most importantly, the general equation $BE = B(1) - B(2)$ will be positive to support the hypothesis.

4.2 Low likelihood of the other bystander helping

In general, if both were very unlikely to help when alone, they will each assume that the other one also has a low level of motivation to help (m_k). In addition to that, they interpret a low level of m (m_k) as a low probability of helping. Hence, both are very unlikely to help while believing that the other one will not help either. They each care about the victim to an individual degree and want the victim to receive help. Inserting the values for this scenario results in Equation 4.2.

$$(70 - 50) < (m_i * 40) * (1 - 0.4) \quad (4.5)$$

$$20 < (m_i * 40) * 0.6 \quad (4.6)$$

According to Inequality 4.6 the right side is highly likely to be larger than the left. The interest in the victim's payoff is probably higher than the helping costs. This leads to the conclusion that both are likely to help when there are two bystanders present. This increases the probability for the victim to receive help. A low probability when there is one bystander and a higher probability when there are two lead to a reversal of the global Bystander Effect.

4.2.1 Hypothesis Two

A low γ_k of 0.4 will lead to the opposite of the global Bystander Effect. A rejection of the BE is predicted when the general equation $BE = B(1) - B(2)$ is negative.

Chapter 5

Experimental Design

To begin with, the hypotheses from Section 4 were tested in a lab experiment at Lund University in May 2017. Including 56 participants, this study was conducted in lecture rooms during three sessions. The students were registered at different programmes at Bachelor and Master's level at Lund's School of Economics and Management. Each session lasted around 30 minutes, for which the participants earned on average 62.9 SEK (around €6.46). All the participants in the experiment were bystanders. In the experiment, they were called Active Participants in order not to manipulate the environment. For the same reason, the victims were called the Passive Participants. Through the names and explaining instructions, the bystanders knew that they were deciding actively while the victims had to passively accept their decisions. Moreover, the victims could not influence the decisions in any way. The victims were never present during the sessions but studied at the same faculty as the bystanders.¹

To give a brief overview, every session was divided into three rounds of one decision each. The first round was a dictator game, followed by the second part, which consisted out of round two and three. To test the effect of gamma on the Bystander Effect, the experimenter used the decision of the first round to match each bystander to a pool. The probability that someone helps, gamma, is based on the first round's decision. The experimenter divided two pools into either 40% or 100% helping bystanders. Again, the second round was a dictator game with the extra information to which pool they belonged. In the third round, two bystanders had to simultaneously and without having insight into the other bystander's current action decide whether to help the victim. The last two rounds constitute the main helping game since the effect from the second to the third round are the focus of this paper. To be able to later test for ordering effects, the last two rounds were switched for one half of each group.

¹The instructions were written by Pol Campos Mercadé and me.

5.1 Detailed procedure

In this subsection, the detailed procedure of the experiment is elaborated. In all three rounds, the bystander had to decide whether to help the victim or not. Within the experiment, helping equalled making a payment to the victim and making no payment was translated as not helping. Each round concerned a different victim, meaning that no victim needed help twice.

At the beginning of the session, the experimenter handed out the general instructions as well as the information regarding the first round. All the instructions, which were handed out sequentially, can be viewed in the appendix. In the first round, the initial endowment of each bystander was 70 SEK and the victim started with 10 SEK. Then, the bystander could either pay or not pay 20 SEK. For the victim, there were two possible outcomes. When the bystander gave up 20 SEK the victim disproportionately received a payoff of 40 SEK. Worth mentioning is that the 20 SEK are the costs of helping. Not paying or not helping implied that the victim only earned the initial endowment of 10 SEK. The following matrix depicts the possible earnings for both the bystander and the victim.

| Option | Payoff for bystander | Payoff for victim |
|------------------------|----------------------|-------------------|
| Bystander pays | 50 | 40 |
| Bystander does not pay | 70 | 10 |

Table 5.1: Payoff matrix of the 1-bystander game

As Table 5.1 shows, strategy “Paying” implied a payoff of 50 SEK for the bystander and 40 SEK for the victim. Acting on the strategy “Not Paying” resulted in the bystander earning 70 SEK and the victim’s payoff of 10 SEK. The decision of the first round was used to match each bystander to a pool. Therefore, two pools containing bystanders who helped in the first dictator game at the ratios of 40% and 100% were created by the experimenter. The ratio of people paying in the first round was used to define the probability that another person provides aid. This meant that in the second and third round the bystander knew the probability of help through the other bystander, who was in the same pool. After matching the bystanders to a pool, the main helping game started. The second round continued with another dictator game. The difference to the first round was the knowledge of the ratio of people paying in the previous game. Other than that, the choices were the same. The bystander could either pay 20 SEK so that the victim received 40 SEK instead of its endowment of 10 SEK or not pay and keep the initial 70 SEK. Therefore, I expect the participants to have the same decision in the first and second round. As an example, in the pool of people where 100% paid in the first dictator game I expect them all to pay again in the second round. Most importantly, I want to show the sole effect of variable γ_k which

would be weakened if the second round already differs from the first one. The consistent choices are needed to have an intensified and more stable result of comparing round two and three with each other. In other words, the percentage of payers when alone should again be 100 and then decrease when another bystander is present. If already the decision of round two is different then it results in a blurred and harder to proof effect of gamma.

In the third round, the bystanders played an adapted version of the dictator game with three bystanders. In this round, a bystander was matched to another bystander. Both bystanders belonged to the same pool and knew the probability of the other one paying. They had to simultaneously decide whether to pay 20 SEK to the same victim without any information on the other bystander's choice or preferences. Table 5.2 describes the payoff matrix for the two bystanders. Note that the first, black numbers in the fields represented the payoffs for the bystander, the second, blue numbers mirrored the other bystander's payoffs and the third, green numbers showed the amount which the victim receives due to both players' decisions.

| Payoff for bystander | | |
|---------------------------------------|-----------------------------|---------------------------------------|
| Payoff for the other bystander | | Perspective of other bystander |
| Payoff for victim | | |
| Bystander's perspective | Other bystander pays | Other bystander does not pay |
| Bystander pays | 50, 50, 40 | 50, 70, 40 |
| Bystander does not pay | 70, 50, 40 | 70, 70, 10 |

Table 5.2: Payoff matrix of the 2-bystander game

As long as one bystander paid, the victim received help and gained in total 40 SEK. If one bystander decided to help, the other bystander's decision to help did only reduce the own payoff without having any effects on the other player's or the victim's payoff. If no one helped, the victim received only the initial endowment of 10 SEK.

At the end of the experiment the participants answered to four different questions to control if they understood the experiment completely.

Chapter 6

Results & Discussion

The following results are based on 42 observations obtained from three experiment sessions. The information of 14 out of the total 56 participants was excluded from the analysis either due to wrong answers to the comprehension questions or the change to the new treatment level. Initially, the treatment was set to 100% and 20%. After noticing that the low sample size would cause misleading results, the treatment of the 20% pool was increased to 40% of people who helped in the first round. As this experiment was the pilot experiment of a larger, following experiment, the alteration was possible and needed in order to adapt the treatment factor to overcome the issue. Finally, the analysis regards only the observations with the latter percentage levels of 100 and 40.

The next section is divided in the main results where the experimental results of the central helping game will be discussed with reference to both hypotheses. Subsequently, the results are reproduced with respect to gender differences.

6.1 Main results

In this section, I present the results of the main helping game including the second and the third round. The Y-axis of Figure 6.1 describes the likelihood of receiving help as a victim and the X-axis depicts the number of bystanders. Briefly, the graph shows that the direction of the results goes in the predicted direction.

$$B(2) = 1 - (1 - \hat{\beta}_i)^2 \tag{6.1}$$

The main results, especially the graphical results, are based on the formula of the Bystander Effect $BE = B(1) - B(2)$. From a statistical point of view, the probability that the victim received help in the 1-Bystander-game $B(1)$ is computed by the sample mean $\hat{\beta}_i = \frac{\sum_i^n x_i}{n}$

of the second round. The victim's probability of being aided when two bystanders were present is mirrored by $B(2)$. This likeliness is calculated by Equation 6.1 which describes $B(2)$ as a function of two bystanders' choices. The sample mean $\hat{\beta}_i$ of the third round is used to present named choices.

Figure 6.1: Victim's probability of receiving help by treatment

6.1.1 Hypothesis One

Hypothesis One of the model predicts that the probability of receiving help as a victim decreases with the additional bystanders when the bystanders pay with a 100% chance. As expected the slope of the green line in Figure 6.1 is negative when increasing the number of bystanders. In particular, 80% of the bystanders in this treatment group paid when they were alone, but only 53% paid when they were in a group of two. Remarkably, the individual Bystander Effect is present. However, the focus of this paper is on the global Bystander Effect, which is the phenomenon that the probability of receiving help decreases with an additional bystander. Still, the victim receives help with a probability of 80%. Using equation 6.1, this leads to a 78% chance of receiving help when two bystanders are present.

To support Hypothesis One the following equation needs to be positive:

$$BE = B(1) - F(B(2)) \quad (6.2)$$

$$BE = 0.8 - 0.78 = 0.02 \quad (6.3)$$

Indeed, the effect is positive, but very little. One explanation could be that the curve does not originate from its predicted point. It was assumed that the curve starts at 1, since, in this group, 100% of the bystanders helped in the first round. The games were the same aside from knowing the ratio of helpers in their pool. This should have only affected the results in the third round. However, 20% of the Active Participants of this treatment group were not consistent throughout the first and second decision. Assuming a normal distribution of the variables $B(1)$ and the function of $B(2)$ the Welch's t-test was used to test if 0.8 and 0.78 are significantly different to each other. The Welch's t-test is based on the Student's t-test allowing for equal sample sizes and unequal variances, which is valid for both independent samples (Welch, 1947). As Xu and Long in their paper (2005), I computed the variance of the random variable $B(2)$ by use of the Delta Method. The Delta Method provides a linear approximation of the function $B(2)$ by use of the Taylor

series expansion. The resulting, simpler function is used to calculate the variance with the equation $Var(F(\hat{\beta})) = F'(\hat{\beta})^2 * Var(\hat{\beta})$ where $\hat{\beta}_i = \frac{\sum_i^n x_i}{n}$ (Xu and Long, 2005). The test statistic of the Welch's t-test resulted in 0.1097 with 27 Welch-Satterthwaites' degrees of freedom and a two-tailed p-value 0.9134. The null-hypothesis stating that the means of both samples are equal cannot be rejected.

6.1.2 Hypothesis Two

To test if the second hypothesis is significantly correct, the probability that the victim receives help needs to be increasing when there are two bystanders present and γ_k is low. The experiment shows that 48% of the people in the treatment group ($\gamma=0.4$) helped when they were alone. However, only 33% helped when in a group of two. Using equation 6.1 leads to a chance of 48% for the victim to receive help when alone with one observer, compared to a chance of 56% when in a group of two.

As predicted by my theory, I find the reversal of the global Bystander Effect. The victim is more likely to receive help in a group of two than in presence of just one person. The blue and upward sloping curve in Figure 6.1 shows this effect. In addition, the general formula is negative. This supports the results of the model which show that no Bystander Effect occurs when the possible helpers perceive that other people are unlikely to help.

$$BE = 0.48 - 0.56 = -0.08 \quad (6.4)$$

To check for significance, the Welch's t-test was used on these samples. It resulted in a test statistic of -0.4704 with 49 degrees of freedom and a two-tailed p-value 0.6402 (Welch-Satterthwaite). As a conclusion of the first hypothesis, the null-hypothesis that the means of both samples are equal cannot be rejected.

Finally, ordering effects are the differences in the outcomes depending on the order of the asked questions. In a setting of comparable questions or decisions made in a time-serially sequence it is likely that ordering effects emerge (Schuman and Presser, 1981). To be able to preclude those effects, half of the groups played the opposite order in the second part. In conclusion, no ordering effects were found for all rounds' decisions (always $p > 0.10$, t-test).

6.2 Gender specific results

In this section, I do an exploratory search on gender differences in the outcome of the experiment. Already in the dictator game (DG), I noticed gender-based differences between the outcomes. In this section, the analysis provides insight into the differences. First, the results of the dictator game are presented and, in the next step, the discourse continues to

the noticeable facts of the main helping game. The helping game is again mirrored by the graph showing the different probabilities of receiving help when one or two bystanders are present. However, in this section the graph is divided by gender. In conclusion, the results are linked to gender literature.

Figure 6.2: Dictator game - first round

In Figure 6.2, the horizontal axis presents the share of male and female bystanders. The vertical axis shows the ratio of bystanders paying in the first round of the experiment. 84% of the 19 female participants paid in the DG which is demonstrated by the grey area on the right side. As opposed to this only around the half of the 23 men helped in the same round. The difference in the dictator game attributable to gender is significant at the 5%-level ($p=0.028$, chi-squared-test).

The first findings show that in this experiment the participants' gender had an impact on the outcome of the dictator game in accordance to earlier studies. In 1998, Eckel and Grossmann found that female participants give significantly more than male. Another conclusion was that men behave more selfishly than women in dictator games when excluding the factor of risk, the effect of the experimenter and possible gender-related communication between participants. Even though the findings are controversial due to the small sample size of 60 participants of each gender in Eckel and Grossmann's experiment, the results are perfectly comparable because of the similarity in the experimental design.

Figure 6.3: Victim's probability of receiving help by gender and treatment

In this subsection, I check whether the main helping game's results differ from one gender to the other. Indeed, differences in the pattern of female or male participants can be found in Figure 6.3. Again, the Y-axis of Figure 6.3 describes the likelihood of receiving help as a victim and the X-axis presents the number of bystanders. The left (right) graph shows the results of the female (male) participants. Considering the left graph, the global Bystander Effect occurred in both groups. When considering only female participants, the probability that the victim receives help decreased when the rest of the pool was also less likely to help. In contrast, the results of the male participants are perfectly in line with the model. The huge differences led to the question whether the hypotheses can be tested significantly for one of the genders.

Table 6.1 is a summary of the Welch's t-tests investigating if the pattern for each gender and each share of helpers is significant. The results of $B(1)$ and $B(2)$ for the female bystanders were found to be not significantly different to each other. Even though the overall pattern

Table 6.1: Results divided by gender and treatment

| | Nr. of obs | t-statistic | $B(1)$ in % | $B(2)$ in % | 2-tailed p-value | Significant |
|-------------|------------|-------------|-------------|-------------|------------------|-------------|
| Female 100% | 9 | 0.4002 | 67 | 55 | 0.6947 | No |
| Female 40% | 10 | 0.3113 | 70 | 64 | 0.7594 | No |
| Male 100% | 6 | 3.000 | 100 | 97 | 0.0301 | Yes, at 5% |
| Male 40% | 17 | 0.0301 | 35 | 50 | 0.3735 | No |

for the male participants is not significant the global Bystander Effect occurred. The global Bystander Effect was found to be significant in the 100% treatment group of the male participants ($p < 0.05$). All the participants answered correctly to the comprehension questions. Therefore, the conclusion can be drawn that the women as well as the men decided rationally and the results can be confirmed.

When separating the genders, the prediction of the global Bystander Effect could not significantly be tested (see Table 6.1). Focusing on alterations in helping alone, significant differences between the genders can be found. Women gave significantly more often than men. Divergences in the 100% and 40% group are tested significantly different at the 10%-level due to a p-value of 0.0805 and 0.0892, respectively. However, the study also reveals that gender influences the willingness to give when in a group of two. When another bystander was present and the chance was 100% that the other one gives women and men gave significantly different to each other ($t = -1.8736$, $p = 0.0977$, $df = 8.02777$). Nevertheless, when the chance of the other person helping was 40% in a group of two, no gender differences occurred.

The findings can be explained through the study of Eagly and Carli in (1981). Based on a meta-analysis of 148 studies, researchers revealed that women are more influenceable than men (Eagly and Carli, 1981). The occurring inconsistency within the decision throughout the three sessions displays the differing influenceability. Men were consistent in their decisions, where 91.3% either always paid or never paid. In comparison to men, 68% of the women made the same decision in all rounds. The rest was possibly influenced by knowing the share of people in their pool who paid in the previous round.

Chapter 7

Limits & Proposals

The main hypotheses of the theoretical model are not significant. To reach a significant pattern of the global Bystander Effect, the following facts in the main study subsequent to this pilot could be changed.

Firstly, the choices of the participants in the dictator game and the helping game with one bystander needed to be consistent for the experiment to increase the likelihood of succeeding. Even though the participants had the same options in the first and the second round, the second round differed in the sense that the participants knew the previous behaviour of the other bystanders in their pool. The influenceability and group pressure, which, according to the results, affected mostly women, lead to an inconsistent choice and limited the success. The effect could possibly be reduced by a longer time difference between the first and second game to increase likelihood that the attitude to a decision stays constant. If someone was asked to help and follows the request but is asked again after a lengthy period he or she is likely to help again. But, if someone was asked again after only a short period of time, he or she might not want to face the helping costs again and be likely to decline. Moreover, a subtler way of exposing the participants to the willingness to give/help of the second bystander could positively influence the consistency. Instead of predetermining the gamma in the helping game, I would propose letting each participant define their own by asking them to evaluate the perceived probability that the other bystanders will help. This would affect gamma in the sense that it changes from being an exogenous variable to being an endogenous variable. However, this proposal would make the experiment much more complex since up to 100 different gammas are available. Furthermore, the sample size would need to be larger to get a reasonable number of observations per perceived gamma. But, limiting the perceived gamma to five options e.g. 0-20%, 21-40% can mitigate this specific problem.

Secondly, the experiment implied a helping situation but was never framed as one. Participants were meant to decide neutrally whether to pay or not. The reason was that I wanted to test if gamma is a meaningful predictor of the Bystander Effect. To avoid other

additional effects aside from the effect of gamma, I isolated the situation. However, after analysing the results, I believe that when framing the decisions as helping and not helping the pattern will be intensified. The victim's situation is better presented and closer to my theory of a victim in need. In the experiment, the bystanders did not know whether the victim needed help and to which degree.

Thirdly, I recommend scaling up the number of observations. Increasing the number of observations will lead on average to a more stable result. It will represent the preferences of the population much better. In the study, the tests of the hypotheses were not significant. Which sample size will lead to meaningful results of the first hypothesis using this sample as a basis? The power test revealed a sample size of 13,093 observations to be significant at the 5%-level ($B(1)=0.8$, $F(B(2))=0.78$; $\sigma_1=0.4140$, $\sigma_2=0.4819$). This means that 13,093 observations are needed to significantly test the occurrence of the global Bystander-Effect when having a high gamma. The second hypothesis which predicts that the Bystander-Effect will not occur when having a low gamma needs, according to the sample size test, 1,283 observations to be significant at the 5%-level ($B(1)=0.48$, $F(B(2))=0.56$; $\sigma_1=0.5092$, $\sigma_2=0.6405$). Conceivably, further adapting the experimental design or improving the theory by the first and second proposal could lower the needed number of observations.

Chapter 8

Conclusion

The model predicts that a perceived high likelihood of the other bystander to help reduces the likelihood of receiving help when two bystanders are present with respect to when only one is. Therefore, I concluded that the global Bystander Effect exists under those circumstances. The opposite happens if the perceived likelihood that the other bystander will help is low. Then, no Bystander Effect will occur. Indeed, the experiment reveals the predicted divergence. The main theory as a way of forecasting the occurrence of the Bystander Effect finds support in the results. The likelihood of receiving help increased when the likelihood of another person intervening was low. Even though the effect was small, the hypothesis that the likelihood decreases when another one was highly likely to help is a first step into the right direction. Although both patterns could not be tested to be significant at a reasonable level, it does show that, after adapting the experimental design or environment, the pattern possibly has good explanatory power. Going back to the initial question of whether people should feel safer in larger cities, it can be said that it does depend on many other factors, e.g. as criminal rates and density of police stations. However, applying the theory and the results on the question while assuming the significant validity, the perceived likelihood of helping in the city possibly plays a role. Even within Europe, there are differences in perceiving other helping rates. In a country where the likelihood of helping is low, a larger number of bystanders in a city could increase the probability of receiving help. As opposed to this, in my opinion, a country with people highly likely to help might reduce the probability of getting help. Moreover, the insight can be used to form efficient marketing strategies. Based on the theory, advertising a large donor group could have destructive consequences. Signaling many other bystanders with a high likelihood of making a relapsing donation pushes the responsibility of the bystander to other bystanders and, therefore, reduces the probability for the fundraising companies to receive a donation. To take advantage of theoretical results, it could be beneficial to present a situation where money is needed, e.g. a natural catastrophe, and a low likelihood of others to donate. Note that both applications of the theory to real-world instances need

the assumption of the significant validity.

Nonetheless, the experimental design should be further developed within a larger in-depth study. Using this master thesis as a pilot, the main project could, aside from the main theory, check for gender differences. The reason is that women behave differently by e.g. giving significantly more often than men. More importantly, when including solely male participants, the pattern of the global Bystander Effect was realized. The results offer great possibilities for further investigation, whether this paper's theory is mostly applicable for men or whether these differences occurred due to a low sample size or inconsistent choices.

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Appendix

Experiment Instructions

Dear students,

We would like to thank you for your time. This is a voluntary experiment. This experiment studies how people prefer allocating money between themselves and other persons. In the following pages, you will be placed in different groups and you will make decisions that will affect the payments of the members of the group.

The experiment is divided into two parts. In the first part, that will be played on the next page, you will be placed in a group consisting of you and another participant and we will ask you to make **one** decision that affects the payment of both you and the other participant. In the second part of the experiment, that will be played later, we will ask you to make **two** more decisions. You will always get new and different group members in each round. In total, all participants will make three decisions.

After the experiment, **we will randomly select to pay one of these three decisions.** Then, we will pay the participants real money via Swish according to the decisions of the group members. Hence, all of you will be requested to write down your Swish number at the end of the experiment in order to receive the payment. Your Swish number will only be used for the purpose of paying out the payoffs within this experiment, and will immediately be deleted afterwards.

If you do not have a Swish number, we will e-mail you the instructions to physically and in an anonymous way get the money that you have earned. Anonymity is very important. Please, work independently and concentrate on your own sheet and do not talk or in any way communicate with other participants during this experiment. The use of mobile phones is not allowed. Note that all answers are treated anonymously and that there is no right or wrong answer. If you have questions during the experiment, raise your hand and the experimenter will come to you. Please, read carefully the next pages and answer the questions. Once you have completed one page, you can move to the next page.

Do not turn this first page until you are told to do so by the experimenter.

Round 1

You are an Active Participant. You are paired with another participant, who we will call the **Passive Participant**. The Passive Participant is a student at LUSEM who will be informed about this experiment afterwards and whose payment will be determined by the decision that you make. You have a current endowment of **70 kr** and the Passive Participant has **10 kr**.

In this round, you will be deciding between two options: paying and not paying.

- **Paying** means that you will pay **20 kr** so that the Passive Participant gets an additional **30 kr**. In total, you will get **50 kr** and the Passive Participant **40 kr**.
- **Not paying** means that you will not pay 20 kr. You will therefore get **70 kr** and the Passive Participant **10 kr**.

The following matrix summarizes your options:

| Option | Payoff for you | Payoff for PP |
|----------------|----------------|---------------|
| You pay | 50 | 40 |
| You do not pay | 70 | 10 |

Choose by marking the square in front of the option that you choose with an **X**.

- **Paying 20kr** You will get **50 kr** and the Passive Participant will get **40 kr**.
- **Not paying 20kr** You will get **70 kr** and the Passive Participant will get **10 kr**.

Please, write the number that is on your table: _____

Once you are done answering this page, turn the page over and wait for the experimenter to pick it up.

Dear participant,

These are the options from the round that you played in the first round:

- **Paying 20kr** You will get **50 kr** and the Passive Participant will get **40 kr**.
- **Not paying 20kr** You will get **70 kr** and the Passive Participant will get **10 kr**.

For the next round, we divided the participants into a few different pools. Based on your decision and the decisions of the other participants, you were put in a pool of people where **around 40% of the other Active Participants paid and 60% of the other Active Participants did not pay** in the previous round.

Please, read carefully the next pages and answer the questions. Once you have completed one page, you can move to the next page.

Round 2

As mentioned before, you were put in a pool of people where around **40% of the other Active Participants paid and 60% did not pay** in the first round. Now you are facing a new decision task, which in this case is identical to Round 1. You are an **Active Participant**. You are paired with another participant, who is a **different Passive Participant** from the one in the previous round. The Passive Participant is a student at LUSEM who will be informed about this experiment afterwards and whose payment will be determined by the decision that you make.

You have a current endowment of **70 kr** and the Passive Participant has **10 kr**. In this round, you will be deciding between two options: paying and not paying.

- **Paying** means that you will pay **20 kr** so that the Passive Participant gets an additional **30 kr**. In total, you will get **50 kr** and the Passive Participant **40 kr**.
- **Not paying** means that you will not pay **20 kr**. You will therefore get **70 kr** and the Passive Participant **40 kr**.

This means that if you pay the Passive Participant will get **40 kr** and if you will not pay the Passive Participant will get **10 kr**.

The following matrix summarizes your options:

| Option | Payoff for you, Payoff for PP |
|----------------|--------------------------------------|
| You pay | 50, 40 |
| You do not pay | 70, 10 |

Please, choose by marking the square in front of the option that you choose with an X.

- **Paying 20kr** You will get **50 kr** and the Passive Participant will get **40 kr**.
- **Not paying 20kr** You will get **70 kr** and the Passive Participant will get **10 kr**.

Round 3

As mentioned before, you were put in a pool of people where around 40% of the other Active Participants paid and 60% did not pay in the first round.

The following decision task is different to Round 1, so read carefully. You are an Active Participant. You are paired with another participant, who is a **different Passive Participant** from the one in the previous rounds. The Passive Participant is a student at LUSEM who will be informed about this experiment afterwards and whose payment will be determined by the decision that you make.

You have a current endowment of **70 kr** and the Passive Participant has **10kr**.

In this round, there will be 3 participants in the group: you, an additional **Active Participant** (Active Participant 2) and the **Passive Participant**. The **Active Participant 2** is a student also participating in this experiment who belongs to the **same pool as you** do. This implies that with 40% chance he/she paid in the first round, and with 60% chance he/she did not pay. He/she also knows that you belong to the same pool.

You and **Active Participant 2** will individually, and without knowing what the other participant does, decide between paying or not paying for the **Passive Participant**.

- **Paying** means that you will pay **20 kr** so that the Passive Participant gets additionally **30 kr**. In total, you will get **50 kr**.
- **Not paying** means that you will not pay 20 kr. This means that you will get **70 kr**.

Active Participant 2 faces the same options regarding the same Passive Participant:

- **Paying** means that he/she will pay **20kr** so that the Passive Participant gets additionally 30 kr. In total, he/she will get **50kr**.
- **Not paying** means that he/she will not pay 20 kr and get **70kr**.

Note that the **Passive Participant cannot get more than 40 kr in total**. Therefore, if at least one of you pays, then the Passive Participant will get a payment of **40 kr in total**. If both of you pay, the Passive participant will still get **40 kr in total**. If no one pays the Passive Participant will get **10 kr in total**.

The following matrix summarizes the payoffs depending on your and **Active Participant 2**'s decisions:

| Payoff for you | | |
|--|---------------------------|--|
| Payoff for Active Participant 2 | | Perspective of Active Participant 2 |
| Payoff for Passive Participant | | |
| Your perspective | Active Participant 2 pays | Active Participant 2 does not pay |
| You pay | 50, 50, 40 | 50, 70, 40 |
| You do not pay | 70, 50, 40 | 70, 70, 10 |

Please, choose by marking the square in front of the option that you choose with an X.

- **Paying 20kr** You will get **50 kr** and the Passive Participant will get **40kr**, irrespec-
tively of what Active Participant 2 does.
- **Not paying 20kr** You will get **70 kr** and the Passive Participant will get **10kr** if
the Active Participant 2 does not pay. If the Active Participant 2 pays, then the
Passive Participant will get **40kr**.

Table number: _____

Swish number: _____

If you don't have Swish, write down your email address: _____

Final questions

What is the share of people from your pool who paid in the first round?

In the round with 3 participants in your group: how much money did the Passive Participant earn assuming that both you and the second Active Participant paid?

What is the payoff of the Passive Participant if you did not pay but Active Participant 2 paid?

Would you like to add any comment with regard to how you felt participating in this experiment?

Thank you for participating!

Once you are done answering this page, turn the page over and wait for the experimenter to pick it up.