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Master Thesis Behavioural Economics

I need your opinion

Name student: Luuk Weidema

Student number: 511984

Supervisor: M.F.M. Hainguerlot

Second assessor: J.T.R. Stoop

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Erasmus School of Economics

Erasmus University Rotterdam

Abstract

In this thesis the main question is whether it is possible to persuade people to write a fake review. This is examined by using a 2 x 2 between subjects experiment where we switch up the expression (positive vs negative) and the incentive (monetary vs social) for writing the review. The emotions reported by the participants are the main point of focus within this research. We find that our respondents perceive the request to write a negative review as more unethical, immoral, and selfish compared to writing a positive review. Thereby, we find that a social incentive does not convince more people to write a fake review compared to a monetary incentive. Men and women seem to be equally willing to write a fake review. Furthermore, older people do not show more altruistic behaviour than younger people. The last take away of this thesis is that our participants feel guilty if they decide to write a fake review.

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1. Introduction

In today's world, we do not want to be unsure of something. We almost never leave something to chance. That seems logical in a world where information about every minor detail can easily be found on the internet. When doubting where to go for a drink, what is the nicest restaurant nearby or whether to stay at the hotel around the corner, the first thing most people do is look up some reviews. After all, if other people had a good time there in the past, then chances are high that they will experience the same thing. On the other hand, if someone states that the food is terrible or the service is not good, most people make sure to skip this place. The influence of positive online reviews on the number of visitors is positively correlated (Mauri & Minazzi, 2013) which makes it important for each company in the hospitality industry to ensure that their online reviews are as high as possible.

The power of online reviews became even more visible when Oobah Butler created 'The Shed at Dulwich' in 2017. The journalist claimed his shed to be a new restaurant and asked friends and family to leave positive reviews on TripAdvisor. His restaurant became the number 1 restaurant in London although it did not exist. However, it also received a 1-star review which his friends and family did not post. It could be from a competitor trying to decrease the average rating. Butler is familiar with such stories as he used to post fake reviews in exchange for 10 pounds per review (Creet, 2018).

Stories about fake reviews have been around for a long time, but most people stay well clear of it. In this research we do the opposite. Our research question is if it is possible to convince people to write a fake review. We use a monetary and a social incentive and ask people if they are willing to write a positive and a negative review. The emotions awakened with this request play a huge role in analysing their behaviour. The participants are asked how unethical, immoral, self-beneficial, and altruistic they find the proposal to write a fake review. After connecting these emotions with the tone of the review using regressions, we will be able to draw a conclusion on what emotions people feel when dealing with this question and if that influences their willingness to writing a fake review.

This thesis is a partly replication of the paper by Choi et al. (2016) and an extension of their research. They analysed the relation between the tone of the review and the emotions reported by their participants. In this research also the willingness to write a fake review is accounted for. Together with factors as age and gender gives this research a more elaborated view on the current market for fake reviews. Thereby, also the feeling of guilt is discussed which has not yet been investigated.

2. Relevance of research

2.1 Market for reviews

In between the thousands of reviews written every day on the internet, there are a lot of fake ones. In fact, 61% of all reviews on electronics on Amazon are fake (Dobrilova, 2022). Thereby, more than two million reviews on Amazon were written by unverified accounts of which 99.6% gave the highest rating. So fake reviews are a huge problem for major internet companies. Also, customers seem to mistrust these reviews, as only 17% of the users believe they are reading other people's opinions. Although only a handful of people trust what they read, 82% of adults in the United States search for reviews before they buy a product. This is where the market for online reviews is built upon. Almost none of us believes the reviews, but almost everyone wants to read them.

He, Hollenbeck and Proserpio (2020) studied this market. They find that after buying fake reviews, there is a significant short-term increase in the number of reviews and the average rating. They also find that a specific group of products is targeted with fake reviews, namely the low-quality products. They hypothesized that fake reviews could also be used to boost the attention for new high-quality products as a kind of advertising, but that did not seem to be the case. So, in the end, consumers are being sold a bad-functioning product.

There have been several people who offered to write fake reviews in exchange for a monetary reward. This is a thorn in the eye for all entrepreneurs on the internet. If one's competitor uses this service, then either the competitor's rating raises or his own rating falls, depending on the type of reviews written.

2.2 Impact

The impact of fake reviews can be described by numerous stories. Around 2008 there was a man called Mr. Rutherford (Carlson, 2012). He wrote press releases for authors who hoped to be picked up by professional reviewers. As time passes by, the authors sold more books due to the starting review of Mr. Rutherford, which gave him the idea to ask money for his reviews. He charged $99 for one review, $499 for twenty reviews, and $999 for 50. At one point he earned $28.000 a month. The formula he created worked and that was why people came back to him. The authors gained more publicity which yielded them also more money as their books were sold more often.

Although fake positive reviews are more common compared to fake negative reviews, the impact of the latter one can be much bigger. People often search for the most negative reviews, and it then takes twelve positive reviews to counteract one negative review (Reputation X, 2021). Negative fake reviews have been far more controversial as they intend on harming another person or company. In 2013, Samsung was fined $340.000 for hiring two companies that had to write negative reviews about HTC, a huge competitor of Samsung (Lappas, Sabnis & Valkanas, 2016).

Also, the hotel branch is heavily impacted by reviews. Their visibility depends on their ratings for several categories, such as hygiene, quality of the food, and friendliness of the staff. Negative reviews can decrease these individual ratings. If an individual then only wants to see hotels with an exceptional rating for the breakfast, because that is most important for this customer, then some hotels might not be shown to him because of those negative reviews. It would be very beneficial for other hotels to decrease the ratings of their competitors because that would mean that customers who search for a specific rating, will only see them (Lappas et al., 2016).

3. Literature Review

3.1 Fake reviews

This research is partly a replication of a study by Choi, Mattila, Van Hoof & Quadri-Felitti (2016) and an extension of that research. These researchers created an imaginary situation for the participants where they found a flyer that asked them to write either a positive or negative fake review in exchange for a monetary or charity reward. The monetary reward was a $10 gift card to a national retailer and the charity reward was a $10 contribution to the local food bank. The participants did not have to write the review but are asked to fill in a 7-points Likert scale about four emotions. They were asked how immoral, self-beneficial, unethical, and selfish they found the proposal. The researchers then analysed these results using different ANOVAs.

This research will simulate a similar situation; however, participants are also asked whether they would accept the offer. Thereby, they are also presented the same situation with an opposite tone, where that was not the case in Choi et al. (2016). Furthermore, guilt was not a part of their research, which makes this paper a more elaborated and extended version of theirs.

Choi et al. (2016) concluded that people in the positive fake review scenario found the proposal equally unethical and immoral independent of incentives, but more self-beneficial and selfish for the monetary incentive.

The same conclusion holds for the negative fake review scenario. They then look at the difference between the positive and negative scenario and conclude that people who are asked to write a negative review perceived the request as more immoral and unethical compared to people who are asked to write a positive review independent of the type of incentive. Therefore, the first hypothesis in this research is exactly the same as the first hypothesis by Choi et al. (2016), namely:

Hypothesis 1: **"Individuals will perceive posting a *negative* fake review about a competitor as more (a) unethical and (b) immoral than posting a *positive* fake review about the focal service provider." (Choi et al., 2016)**

3.2 Incentives

The importance of online reviews for local businesses is becoming bigger and bigger. Pitman (2022) concluded that 99% of people read online reviews for local businesses. Thereby, only 3% of those people would consider using a business with two or less stars out of five. Those two statistics alone already show the importance of online reviews for local businesses. These companies rely so heavy on their reviews that they would do anything to strengthen their position.

In their search for attention, entrepreneurs are often willing to provide those who help them with some kind of reward. Usually, this reward is a free meal, gift card or other form of monetary incentive. The monetary amount offered is positively correlated to the willingness to perform the intended action (Hua, Cheng, Hou & Luo, 2019), which is writing the review in this case.

The research by Choi et al. (2016) compared this monetary incentive with a charity incentive. However, charity might not have been the best competitor to the monetary incentive. In this research another factor is analysed which is thought to often cause friction when it comes to a monetary transaction. In this research 'charity' will be replaced with 'friendship'. Friendship is often considered as more valuable than money. Nguyen (2021) concluded that an individual can 'buy' a new friend with an income shock of $5.000. As the rewards in our research are way below that limit, expectations are that friendship will overrule the monetary reward.

As there is almost no research done in comparing a social incentive to a charity incentive, there has been done some research about friends and strangers. Clark, Mills & Corcoran (1989) show that our attention is higher if a friend needs help than a stranger. Thereby, in some situations is a friend even more important than family, as Cengiz & Tanik (2020) show. This leads to the second hypothesis of this research:

Hypothesis 2: **A social incentive convinces more people to write a fake review compared to a monetary incentive independent of the tone of the review.**

3.3 Lying

3.3.1 Dishonesty

Writing a fake review can also be seen as lying. One person is deceived because of the benefit of another. This lying behaviour is strengthened because of the online environment in which it takes place. Drouin, Miller, Wehle & Hernandez (2016) show that deception is an everyday problem in the online world. 16%-32% of all participants report that they are always honest across different sites they were confronted with, and only 0%-2% suspect that others are always honest across the same sites. If the participants were then asked why they lie or why they believe that others lie, is their response similar: “because everybody lies on the internet.”

That raises the question why so many people lie. Lying has become part of our everyday life. Kalish (2004) finds that 93% of the 2624 participants in their research report to engage in at least one kind of dishonesty at work or school. The ease of calling in sick, taking some materials from work, and pimping up your CV leads to an environment where lying is half accepted. Thereby, people do not realise what consequences their actions have. Purpura (2013) estimated an annual worldwide loss of $2.9 trillion due to internal theft.

This same lying behaviour can also be seen in online dating profiles. Just like in a restaurant review, you present another person what they may expect from you. Thereafter, a group of people are caught by the description and intent on meeting. Like a restaurant, the higher the stars or the more beautiful the pictures are, the more people are willing to make an appointment.

3.3.2 Characteristics

In the online dating world, big lies are rare. However, small adjustments to improve one’s picture or lying in the description is common (Ellison & Hancock, 2013). Height, weight, and physique are the top three lies in the dating profiles (Dosh, 2012). Thereby, men seem to lie significantly more about their figure compared to women. This is interesting because studies about offline lying have not come to a unanimous conclusion. Dreber and Johannesson (2008) concluded that men are more likely to lie than women to secure a monetary benefit. However, Childs (2012) and Nieken & Dato (2016) do not come to the same conclusion in studies conducted later.

Gylfason, Arnardottir and Kristinsson (2013) replicated Childs' study and came to the same conclusion. They thought that when stakes are small, women would have a bigger aversion from lying compared to men. However, personality may be an influencing factor as they suggest. They also tested for cultural differences in their research, but with no result. This introduces the third hypothesis, namely:

Hypothesis 3: **Men and women are equally willing to write a fake review independent of the tone of the review.**

So, as it may seem, there is no comprehensive evidence of a gender difference in lying behaviour. However, there could be other demographics which could help explaining lying behaviour such as age. Glätzle-Rützler and Lergetporer (2015) and Alempaki, Fu and Fu (2021) concluded that lying significantly decreases with age for children under the age of 18. That result can be extended to adults as Gneezy, Rockenbach and Serra-Garcia (2013) show. People realise that their actions may have consequences when growing older. Lying could influence other people's opinion about an individual which may harm that person in future occasions.

Furthermore, income could also influence lying. It is less important for an already wealthy person to secure an extra monetary benefit. However, tax evasion is a common problem in the higher circles of society. There has no research be done on the relation between willingness to lie and income. Though it seems logical that lying for a small monetary benefit decreases with income and for a big monetary benefit increases with income.

Lastly, age could play a role in the willingness to write a fake review. Swami, Chamorro-Premuzic, Snelgar & Furnham (2010) concluded that altruistic behaviour is associated with age. They also find that egoism is not related to age. That would indicate that becoming older makes people more generous and willing to help others. This thought is also supported by Chou (1998) who concludes that there is a positive age effect on altruistic behaviour.

However, Davidovic et al. (2010) find the opposite. They state that people who become older, are the more selfish people in society. Their steady character makes them grow older. This would indicate that people of a higher age are more likely to do only things which benefits themselves.

This contradiction leads to the fourth hypothesis of this research, namely:

Hypothesis 4: **There is a positive relation between age and altruistic feelings independent of the tone and incentive of the request.**

3.4 Guiltiness

Feeling guilty can be explained as having a moral compass (Wiersma et al., 2021). You know that what you did is not right, and you will withhold yourself from executing the same action in the future. Leaving a fake review can also awaken feelings of guilt. People who read your review can decide whether or not to go to a restaurant you suggested or advised against. In both cases, someone can be hurt. The people who decide to go to a restaurant you suggested, without going there by yourself, have a chance to be disappointed as they expected more. On the other hand, also the restaurant owner of the restaurant you advised against can miss customers due to the one review you left.

The feeling of guilt is among the negative feelings (Carlsson, 2022). The awakening of such feelings when dealing with fake reviews is not yet investigated. It is therefore interesting to evaluate whether or not people feel that they did something wrong when writing a fake review. If Wiersema et al. and Carlsson are right, then our respondents should question their actions and have a feeling of guilt.

In this research only those respondents who intended on leaving a positive fake review are asked the question where the level of guilt is measured. That is done on purpose, since the participants might not have thought about the consequences their actions have. It is obvious that leaving a negative review will impact the company or product you write that review about. However, leaving a positive fake review can also have negative side-effects which might not be thought about when deciding whether or not to write the review. It is not always clear if people think about the unintended consequences one's action can have (Elster, 1990). Therefore, this hypothesis only focusses on positive fake reviews.

Therefore, the fifth hypothesis is:

Hypothesis 5: **People feel guilty after leaving a positive fake review independent of the incentive.**

3.5 Summary of hypotheses

This is a brief overview of the hypotheses that will be tested in this research.

-Hypothesis 1: "Individuals will perceive posting a negative fake review about a competitor as more (a) unethical and (b) immoral than posting a positive fake review about the focal service provider". (Choi et al., 2016)

-Hypothesis 2: A social incentive convinces more people to write a fake review compared to a monetary incentive independent of the tone of the review.

-Hypothesis 3: Men and women are equally willing to write a fake review independent of the tone of the review.

-Hypothesis 4: There is a positive relation between age and altruistic feelings independent of the tone and incentive of the request.

-Hypothesis 5: People feel guilty after leaving a positive fake review independent of the incentive.

4. Methodology

4.1 Research Design

This experiment aims to find out if people are willing to write a fake review and under what circumstances they are more likely to succumb. To test the hypotheses, a quantitative research is set up. To gather data, a survey is created on Qualtrics which is spread through social media like WhatsApp and Facebook. Most participants are friends and family, but also some close contacts were asked if they would also be willing to spread the survey in their network to get a more diverse set of responses. A 2 (tone: positive or negative) x 2 (incentive: monetary or social) between subjects design is held where a built-in function of Qualtrics for randomization distributed the participants in one of the four groups, thus creating four groups as can be seen in table 1.

Table 1: Research design

Incentive \ Tone	**Positive**	**Negative**
Monetary	Group 1	Group 2
Social	Group 3	Group 4

A between subjects design is held rather than a within subjects design. This is done because the main interest of this research is the differences in responses between subjects in different groups. Analysing an effect within the same subject is not part of this research.

4.2 Survey design

The survey first shows an introductory page where is stated that the data will be anonymously stored and used, and will be deleted afterwards. Also is mentioned that one randomly chosen participant that leaves his or her email can win a €20 gift card. This is a monetary incentive that increases the attention of the participants and willingness to complete the survey. Thereafter, the respondents will be asked whether or not they are willing to write a fake review under certain circumstances. People who intent on writing a review are asked to give a rating between 1 and 10 stars. People who do not intent on writing a review skip this question. Thereafter, all participants are asked to fill in how present four selected emotions are awakened by the request to write a fake review. Lastly, participants who did not intent on writing a fake review are asked if they would change their mind if certain circumstances changed.

The survey then goes into a second round of questions where participants who were first in group 1 are now in group 2 and vice versa. The same holds for people who were first in group 3, since they are now in group 4 and vice versa. The same questions are asked in the same order. However, if the previous questions are asked, now two final questions are added to the survey which are about the feeling of guilt. People who were willing to write a positive review in either round 1 or round 2 are presented an imaginary situation. Afterwards they are asked how guilty they feel for leaving the review and if they are willing to pay to delete it. People who rejected the request to write a positive review skip these questions. Lastly, the respondents are asked to fill in some demographics such as gender and age. That closes the survey. A scheme of the survey that gives a brief overview can be found in Appendix A. The full list of questions including the order of asking can be found in Appendix B.

4.3 Measures

In this section the measures that are used will be shown:

-*Willingness to write a fake review*

The willingness to writing a fake review is an important measure that was not mentioned in Choi et al. (2016). Participants are asked whether or not they are willing to write a fake review given the circumstances of the group they are in. They either answer with 'yes' or 'no'. This measure is collected in question 1 and 5 (see Appendix B).

-*Rating*

The rating given by the respondent is a short measure for the review in case the respondent has accepted the request to write a fake review. Participants are asked to give a score how they would rate the restaurant between 1 star as the lowest and 10 stars as the highest. This measure is collected in question 2 and 6 of Appendix B.

-*Emotions*

The emotions collected are a vital part of this research. All participants are asked to fill in how immoral, ethical, self-beneficial, and selfish their find the request to write a fake review. All emotions are measured on a 7-point Likert scale. 1 means extremely unethical/self-beneficial/immoral/selfish, and 7 means extremely ethical/other-beneficial/moral/altruistic. These emotions are taken from the research by Choi et al. (2016) who adapted them from Dubois, Rucker, and Galinsky (2015). These emotions are needed for the replication of the first study by Choi et al. (2016). The emotions are collected in question 3 and 7 of Appendix B.

-Alternative

Every participant that denies the request to write a fake review in the social group is faced a question whether they want to change their decision if the reward is increased. They either answer with 'yes' or 'no'. Offering an alternative is measured in question 4 and 8 of Appendix B.

-Guilt

The level of guilt is measured by presenting a hypothetical situation to the respondents who intended on leaving a positive fake review. Thereafter, they must report how guilty they feel for writing the review on a 7-point Likert scale where 1 means extremely innocent and 7 means extremely guilty. This is question 9 of Appendix B.

-Regret

Regret is measured by giving the respondents who answered question 9 a chance to delete the review they wrote. They get the opportunity to delete their review in exchange for €30 (we are still in a hypothetical situation, so the money does not actually have to be paid). They answer with 'yes' or 'no'. This is question 10 of Appendix B.

-Demographics

In the demographics section the following questions are asked:

-What is your gender? (possible answers: male/female)

-What is your age? (possible answer: any number)

-What is the highest level of education you have completed? (possible answers: primary school/high school/vocational education/bachelor's degree/master's degree/PhD)

-What is your yearly gross income in euro's? (possible answers: €0-€2.500/€2.500-€10.000/€10.000-€25.000/€25.000-€40.000/€40.000-€60.000/€60.000-€100.000/€100.000-€250.000/>€250.000)

4.4 Data analyses method

The results section will start with an overview about the demographics using the statistical software STATA. Thereafter, the two-sample t-test will be performed to test whether there is a difference in outcomes before and after the incentives are switched. To replicate the first study by Choi et al. (2016) a one-way ANOVA is used to find out what emotions are stronger for which incentive. A Chi-squared test in combination with a two-sample t-test is used to analyse gender differences. Furthermore, we use a two-sample t-test to test whether there are differences between the willingness to write a review if we focus on incentives. An OLS regression is used to test whether there is a relation between age and the emotions collected. Finally, a one-sample t-test is used to test the guiltiness of the participants by setting a standard value and measuring the deviation from that value.

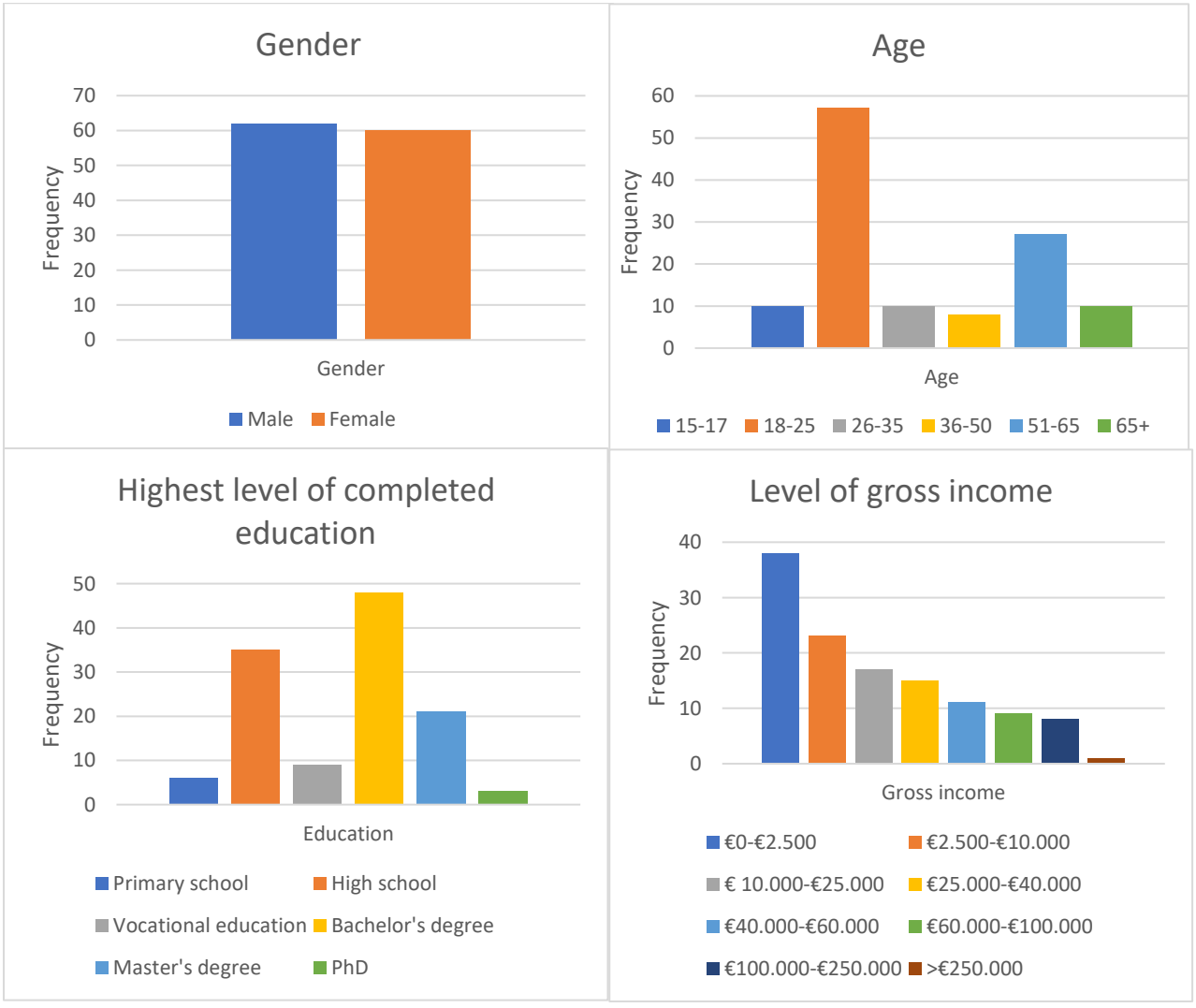
5. Data analysis

5.1 Descriptive statistics

We will start this section by looking at the distribution of the demographic variables which are presented in figure 1. A total of 122 participants are recruited. The split between males and females is almost identical with 50.8% male and 49.2% female. The largest group of people with 46.7% is between 18 and 25 years old. That can be explained due to the network the author possesses. Thereby, the second largest group with 22.1% are people with ages between 51 and 65. Older relatives have spread the survey under their acquaintances which has worked in reaching more older people. The average age is 34.85 with a standard deviation of 18.55. It is also no surprise that the largest group of people are university students who have finished their bachelor's degree (39.3%) or master's degree (17.2%). Lastly, we notice that level of income is right-skewed and that 31.1% of people is in the lowest income category.

Figure 1

Demographic statistics



In table 2 we see the distribution of participants per group and their willingness to write a fake review in both question rounds. Due to randomization each respondent is assigned an incentive (monetary or social) and a tone (positive or negative). In round 1 (which are questions 1,2,3, and 4 in Appendix B) the sample size for each group is almost identical. They slightly differ due to questionnaires that were not entirely finished and had to be left out. 66.7% of people in the social & positive group in round 1 are willing to write a fake review, where that is only 18.9% in the social & negative group. In round 2 (which are questions 5,6,7, and 8 in Appendix B) we see a shift in the percentages. The highest percentage is still in the social & positive group with 56.3%, but in the monetary & negative group is no one willing to write a review anymore.

Table 2

Participants per group

Group	**Monetary & Positive**	**Monetary & Negative**	**Social & Positive**	**Social & Negative**
Round 1				
Sample size (n)	29	31	30	32
Willing to write a fake review	34.5%	19.4%	66.7%	18.9%
Round 2				
Sample size (n)	31	29	32	30
Willing to write a fake review	41.9%	0%	56.3%	3.3%
Total				
Sample size (n)	60	60	62	62

5.2 Round 1 vs round 2

In this section we will look at the two question rounds. Each participant is assigned one incentive (either monetary or social) and one tone (either positive or negative). After question 4, the tone for each participants switches while keeping the incentive the same. This is done to gather more observations. However, the observations of both rounds may not be put together before is analysed whether there is an effect of the order of presenting the questions on the results. If there is a significant difference between both rounds, then further analysis must be handled separately. Therefore, we use the two-sample t-test since this test analyses if there is a significant difference between the means of two groups. We use this test as our data is continuous and has a normal distribution.

We test if there is a difference between the score obtained for every emotion in the first and second round in combination with the incentive. So, for example, there should be no significant difference between the scores for emotions in the monetary & positive group in round 1 compared to the scores for monetary & positive in round 2. This must hold for all groups and emotions. The scores for round 1 can be found in table 10 in Appendix C. The scores for round 2 are displayed in table 11 in Appendix C. The two-sided p-values are presented in table 3.

Table 3

Equality of the two question rounds based on incentive, tone, and emotions

Incentives	Monetary & Positive	Monetary & Negative	Social & Positive	Social & Negative
Immoral	0.5102	0.5952	0.3385	0.9715
Unethical	0.1040	0.3049	0.7733	0.6629
Self-beneficial	0.2572	0.8896	0.2422	0.6414
Selfish	0.1553	0.7728	0.2755	0.4484

Notes: This table shows the p-values of sixteen separately performed two-sample t-tests. These tests are performed to test whether or not there is a difference between the emotions obtained in the first round of questions compared to the second round for each group.

In table 3 the p-values of sixteen separately performed two-sample t-tests are displayed. A p-value below 0.1 indicates that we can reject the null hypothesis that the difference between the means of two groups is equal to 0. In other words, if a p-value is below 0.1, we may not merge the results obtained in the first and second round since there are significant differences between both rounds. However, since all p-values in table 1 are above 0.1, this shows that the results obtained in each group for every emotion show similarities across both rounds.

The emotions reported across both rounds are similar. However, to conclude if both groups are indeed similar, we also analyse the willingness to write a fake review across both rounds. We use four separate two-sample t-tests to analyse whether the mean willingness to write a review differs in both rounds. Writing a review is a binary variable which is 1 if the respondent is willing to write a review and 0 otherwise. The p-values can be found in table 4.

Table 4

Equality of the two question rounds based on willingness to write a review

Groups	**Monetary & Positive (round 1)**	**Monetary & Negative (round 1)**	**Social & Positive (round 1)**	**Social & Negative (round 1)**
M & P (round 2)	0.5608			
M & N (round 2)		0.0120		
S & P (round 2)			0.3142	
S & N (round 2)				0.0627

Notes: This table shows the p-values of four separately performed two-sample t-tests. These tests are performed to test whether or not there is a difference between the willingness to write a fake review obtained in the first round of questions compared to the second round for each group.

In table 4 the four p-values of interest are displayed. We try to reject the null hypothesis that the difference between the means of both question rounds is equal to 0 for each group. As we can see, the Monetary & Positive and Social & Positive groups show p-values above 0.1 which indicates that we cannot reject the null hypothesis that the difference in means of both groups is equal to 0. However, in the Social & Negative group the p-value <0.1 which means that we can reject the null hypothesis at the 10% significance level. For the Monetary & Negative group we can reject the null hypothesis at the 5% significance level.

This means that in two of the four groups there is a significant difference in willingness to write a fake review between round 1 and round 2. Therefore, we cannot merge the results obtained in both rounds since the order of the questions has had an impact on the results.

Figure 2

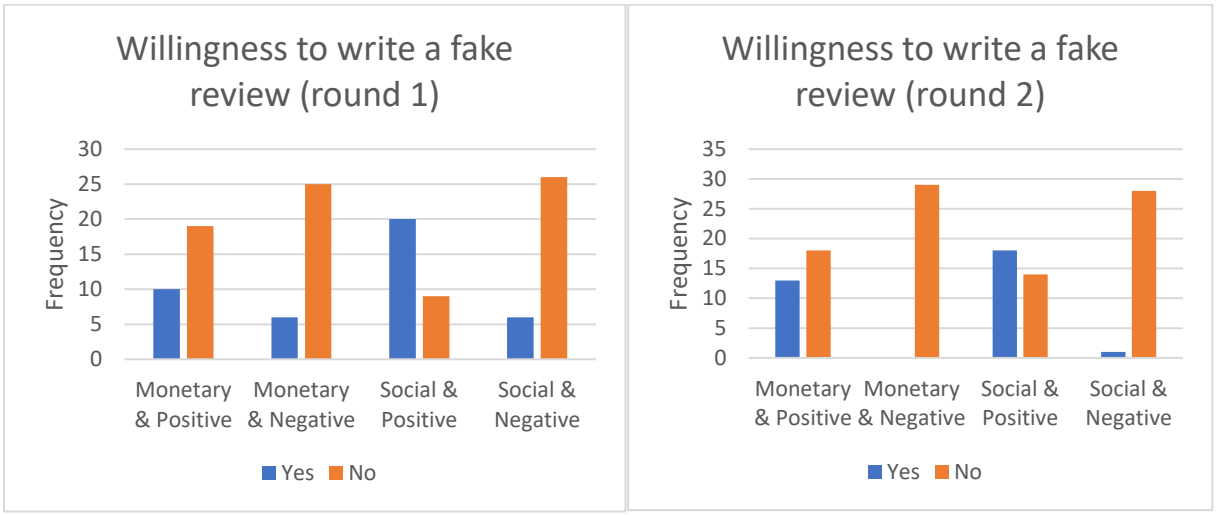


Figure 2 shows evidence for the p-values in table 4. The Monetary & Positive group and the Social & Positive group show a similar distribution in figure 2. Differences between 'yes' and 'no' have slightly declined in round 2 compared to round 1 for those groups, but the pattern is still the same. If we then look at the Monetary & Negative group and the Social & Negative group, we see something different. In round 1 the willingness to write a review is low, however, in round 2 almost no-one is willing to write a fake review. In fact, only one participant is willing to write a fake review in the Social & Negative group and none in the Monetary & Negative group in round 2. That clearly shows the influence of the order of presenting the questions. Conclusively, we can join the results obtained in the two question rounds when analysing the emotions. However, we must treat each round separately when discussing the willingness to write a fake review.

5.3 Hypotheses testing

5.3.1 Hypothesis 1

When testing the hypothesis that individuals will perceive posting a negative fake review about a competitor as more unethical and immoral than posting a positive fake review about a focal service provider, we perform two analyses, one for each round of questions. Both question rounds cannot be combined for testing this hypothesis since we already use all individuals each round.

We first analyse question round 1. We use the tone of the request (positive vs negative) as a factor on the four emotions in four separate one-way ANOVAs to test hypothesis 1. The one-way ANOVA can determine if the means of two groups are similar. We try to reject the null hypothesis that the means of both groups are similar. We find that participants in the negative fake review scenario perceive the request as more unethical ($F[1, 121] = 13.48$, $p<0.036$), immoral ($F[1, 121] = 20.33$, $p<0.002$), and selfish ($F[1, 121] = 19.09$, $p<0.004$) than their counterparts in the positive scenario. We cannot reject the null hypothesis for the self-benefiting/other-benefiting emotion ($F[1, 121] = 5.29$, $p<0.507$).

Luckily, we can extend the research by also looking at our second round. Since there was no significant difference in the emotions reported between round 1 and round 2, it should be that they show a similar result when testing this hypothesis. We find that participants in the second negative fake review scenario perceive the request as more unethical ($F[1, 121] = 50.28$, $p<0.000$), immoral ($F[1, 121] = 38.21$, $p<0.000$), and selfish ($F[1, 121] = 24.00$, $p<0.001$). Similar to round 1, the self-benefiting/other-benefiting emotion does not show a significant relation ($F[1, 121] = 6.13$, $p<0.409$).

This outcome partly strengthens the support for hypothesis 1 since individuals indeed perceive the request to write a negative fake review about a competitor as more unethical and immoral compared to writing a positive fake review about a focal service provider. However, the respondents also perceive the request to be more selfish when asked to write a negative fake review.

5.3.2 Hypothesis 2

The second hypothesis we test is that a social incentive convinces more people to write a fake review compared to a monetary incentive independent of the tone of the review. We already concluded that there is a difference in the willingness to write a fake review between the two question rounds. Therefore, we will treat the data gathered separately.

We create a new variable where the willingness to write a fake review is converted from 'yes'/'no' to 1 or 0. This allows us to perform a two-sample t-test to test where we use incentive as a factor. We first discuss question round 1. 34.45% of people in the monetary scenario and 68.97% of people in the social scenario are willing to write a positive fake review. We try to reject the null hypothesis that the means of both scenarios are similar. Since $p<0.0080$ we can reject this null hypothesis at the 1% significance level.

However, if we then look at people who are willing to write a negative review, both percentages are close to each other (monetary: 19.35%; social: 18.75%). Running a two-sample t-test gives $p<0.9522$ which indicates that we absolutely cannot reject the null hypothesis that the difference between the means of both groups is equal to 0.

We then analyse round 2. In the positive scenario 41.94% of the participants is willing to write a fake review compared to 56.25% in the social group. The two-sample t-test gives $p<0.2631$ which indicates that we cannot reject the null hypothesis. Lastly, we analyse the negative scenario where 0% of the respondents in the monetary group and 3.45% of respondents in the social group is willing to write a fake review. Since $p<0.3216$ we cannot reject the null hypothesis that there difference between the means of both groups is equal to 0.

Therefore, we must reject hypothesis 2 as a social incentive does not convince more people to write a fake review compared to a monetary incentive independent of the tone of the review. Only when people are asked to write a positive fake review for the first time, it is better to use a social incentive instead of a monetary incentive.

5.3.3 Hypothesis 3

The third hypothesis we test is that men and women are equally willing to write a fake review independent of the tone of the review. As we already concluded, we will separately discuss the two question rounds.

We can use the Chi-squared test or a two-sample t-test for our analysis. As both tests can be performed with our data, we will run both tests to control for minor differences.

In round 1 in the positive scenario, 40.74% of all females is willing to write a fake review against 61.29% of men. Since $p<0.1224$ we cannot reject the null hypothesis that there is no relation between gender and the willingness to write a fake review at the 10% significance level. This outcome is confirmed by the chi-squared test which gives $p<0.118$.

In the negative scenario, 15.15% of the females and 23.33% of males is willing to write a fake review. The two-sample t-test gives $p<0.4170$ and the Chi-squared test confirms with $p<0.409$.

In round 2 we see a similar result. In the positive scenario 42.42% of females and 56.67% of males are willing to write a fake review. The two-sample t-test gives $p<0.2660$ and the Chi-squared test gives $p<0.259$. In the negative scenario 3.70% of the females and 0% of the males is willing to write a fake review, which leads to $p<0.2879$ when using the two-sample t-test and $p<0.280$ for the Chi-squared test.

Since all tests gave a p-value of greater than 0.1, we cannot reject the null hypothesis that there is a relation between gender and the willingness to write a fake review. Therefore, we support hypothesis 3 that men and women are equally willing to write a fake review independent of the tone of the review.

5.3.4 Hypothesis 4

The fourth hypothesis we test is that there is a positive relation between age and altruistic feelings independent of the tone and incentive of the request. Since we do not analyse the willingness to write a fake review, are we allowed to combine the data gathered on emotions in both rounds. We perform sixteen separate OLS regressions so that each combination of emotion, incentive, and tone is covered. We expect to see significant positive coefficients for the selfish/altruistic emotion. The results are shown in table 5.

Table 5

OLS regression outcomes for age

Experimental Scenario		**Moral/ Immoral**	**Ethical/ Unethical**	**Self-Benefiting/ Other-Benefiting**	**Selfish/ Altruistic**
Valence	Incentive Type				
Positive	Monetary	-0.008 (0.010)	-0.003 (0.009)	-0.040*** (0.013)	-0.012 (0.012)
	Social	0.006 (0.010)	-0.000 (0.012)	-0.023* (0.013)	-0.002 (0.013)
Negative	Monetary	0.011 (0.012)	0.013 (0.008)	-0.021 (0.014)	-0.004 (0.015)
	Social	0.011 (0.014)	0.015 (0.013)	-0.001 (0.017)	-0.002 (0.015)

Notes: This table shows the outcomes of sixteen OLS regressions performed on age (in numbers).

** = p ≤ 0.1, ** = p ≤ 0.05, *** = p ≤ 0.01*

In table 5 we notice that only two out of sixteen coefficients are significant. Our participants perceive the request to write a positive fake review to be more self-beneficial when becoming older. However, all other coefficients do not show a significant relation between age and the emotions awakened when asked to write a fake review. Therefore, we must reject the hypothesis that there is a positive relation between age and altruistic feelings independent of the tone and incentive of the request.

5.3.5 Hypothesis 5

Lastly, we look at the consequences of the actions taken by our participants. Leaving a fake review without thinking about what impact that will have on other people is quite simple. However, if a participant is willing to write a positive fake review, they are confronted with a hypothetical situation. We test the hypothesis that people feel guilty when leaving a positive fake review independent of the incentive.

In round 1 and round 2 combined there were 61 participants who answered 'yes' to writing the positive fake review. They all filled in a 7-point Likert scale how guilty they feel for leaving that review. The mean outcome is 4.95, which indicates that people do feel guilty for leaving the review.

We can test this assumption by performing a one-sample t-test with 4 as the standard value. 4 is the exact middle of the scale which indicates no feeling of guilt nor an innocent feeling. The one-sample t-test gives $p<0.0001$ which indicates that we can reject the null hypothesis that the mean of the sample is equal to 4 at the 1% significance level. That means that there is a feeling of guilt after leaving a positive fake review. This is in line with hypothesis 5.

Thereafter, we asked the participants if they were willing to pay €30,- to delete the review. This was done to see how desperate they were. We hypothesized that people who are willing to pay to delete their review would feel very guilty. That was proven to be correct. The mean outcome is 6, which is very close to the maximum. To estimate whether or not these people are the upper tier of the whole group, another one-sample t-test is performed with 4.95 as the standard value. Since $p<0.0627$ we can conclude that we can reject the null hypothesis that the mean of this sample is equal to 4.95 at the 10% significance level. That indicates that people who are willing to pay €30,- to delete their review, are the most desperate people.

6. Paper comparison

This research is based upon the research performed by Choi et al. (2016). Although they did not ask the participants if they were willing to write a review, they asked what their emotions are when they were asked such a question. We use the exact same emotions and four possible scenarios in which a participant can be placed. The difference is that they use a charity incentive where this paper uses a social incentive. They only did one question round. However, since our results of the two rounds did not differ significantly, we can compare our results with theirs. Firstly, we will discuss the results obtained in this research. Table 6 is the table created by us, table 8 is the table created by Choi et al. (2016).

Table 6

Means and Standard deviations

Experimental Scenario		**Moral/ Immoral**		**Ethical/ Unethical**		**Self-Benefiting/ Other-Benefiting**		**Selfish/ Altruistic**	
Sample size (n)		60		60		62		62	
Valence	Incentive Type	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Positive	Monetary	3.35	1.49	2.75	1.23	3.68	2.00	3.35	1.78
	Social	3.64	1.45	3.59	1.66	4.28	1.94	3.87	1.82
Negative	Monetary	2.37	1.75	1.72	1.19	3.35	2.11	2.57	2.15
	Social	2.85	1.97	2.52	1.87	3.80	2.34	3.16	2.09

Notes: This table shows the means and standard deviations of the emotions collected in both rounds combined. All means are based on a 7-points Likert scale. (1= extremely immoral/unethical/self-benefiting/selfish; 7= extremely moral/ethical/other-benefiting/altruistic)

In table 6 we clearly see that the scores of both rounds have been combined due to the sample size of each group. We will focus on the differences between incentives per emotion. Eight separately performed two-sample t-tests are performed to analyse if one incentive scores higher compared to the other for the same emotion. The null hypothesis is that there is no difference between both scores, so that the monetary incentive scores equally to the social incentive. The p-values are presented in table 7.

Table 7

Equality of the incentives

Groups	Moral/ Immoral	Ethical/ Unethical	Self-Benefiting/ Other-Benefiting	Selfish/ Altruistic
Positive	0.2817	0.0020	0.0989	0.1160
Negative	0.1544	0.0055	0.2657	0.1240

Notes: This table shows the p-values of eight separately performed two-sample t-tests. These tests are performed to test whether or not there is a difference between incentives.

In table 7 the p-values of eight separately performed two-sample t-tests are shown. We clearly see that we can reject the null hypothesis that the means of both incentives are equal in the ethical/unethical emotion for both the positive and negative scenario at the 1% significance level. This indicates that a social incentive makes people feel that they are doing something more ethical than if they are recruited through a monetary incentive. However, the only other emotion for which we can reject the null hypothesis is the self-benefiting/other-benefiting emotion, and only in the positive scenario at the 10% significance level. We are feeling that leaving a positive fake review benefits others more if we know the person we are writing a review for, rather than if we get paid for it by a stranger.

Furthermore, all other p-values are above 0.1, which means that we cannot reject the null hypothesis. This means that it cannot be confirmed that there is indeed a difference between both incentives for these emotions. That is not in line with the findings by Choi et al. (2016). They find that in the positive scenario the participants perceive the request to write a fake review as equally unethical and immoral. Thereby, they find that participants in the monetary group find the request more self-beneficial and selfish compared to the charity incentive. They find exactly the same results for the negative scenario.

Table 8

Means and standard deviations (Choi et al., 2016)

Experimental Scenario		**Moral/ Immoral**		**Ethical/ Unethical**		**Self-Benefiting/ Other-Benefiting**		**Selfish/ Altruistic**	
Valence	Incentive Type	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Positive	Monetary	2.30	1.92	2.53	1.94	2.03	1.56	2.23	1.72
	Charity	2.53	1.63	2.91	1.80	3.31	1.93	3.06	1.88
Negative	Monetary	1.53	1.24	1.63	1.16	1.47	1.02	1.44	1.01
	Charity	2.14	1.80	2.04	1.73	3.43	1.93	3.32	2.04

Notes: This table shows the means and standard deviations of the emotions collected by Choi et al. (2016). All means are based on a 7-points Likert scale. (1= extremely immoral/unethical/self-benefiting/selfish; 7= extremely moral/ethical/other-benefiting/altruistic)

To analyse whether there is a difference between both studies, we use sixteen separately performed one-sample t-tests. This test can be used to test if there is a difference between our results and the mean collected by Choi et al. (2016). We perform a one-sample t-test for every combination of incentive, tone, and emotion. A p-value below 0.1 means that we can reject the null hypothesis that there is no difference between the means of both studies. The p-values are displayed in table 9.

Table 9

Equality of the two studies

Groups	Moral/ Immoral	Ethical/ Unethical	Self-Benefiting/ Other-Benefiting	Selfish/ Altruistic
Monetary & Positive	0.0000	0.1711	0.0000	0.0000
Social/Charity & Positive	0.0000	0.0022	0.0002	0.0010
Monetary & Negative	0.0005	0.5762	0.0000	0.0001
Social/Charity & Negative	0.0065	0.0471	0.2170	0.5621

Notes: This table shows the p-values of sixteen separately performed one-sample t-tests. These tests are performed to test whether or not there is a difference between the emotions obtained in both studies.

In table 9 the p-values of the one-sample t-tests between both studies are displayed. Firstly, we look at the monetary incentive. These questions are almost identical in both studies. Therefore, it seems plausible that these values should not differ too much. However, according to the p-values, we can reject the null hypothesis that there is no difference between our results and the mean collected by Choi et al. (2016) in six out of eight occasions at the 1% significance level. Only the ethical/unethical emotion shows an insignificant p-value in the positive and negative monetary scenario. Another interesting observation is that all means are higher in our research compared to the research by Choi et al. (2016). It seems like our participants are less strict in giving their opinion compared to the respondents in the other study.

This gap between both studies was not expected. As the age is almost equal (M_{age} = 34.85 in this research; M_{age} = 33.25 in Choi et al. (2016)) and also the number of females does not differ that much (60 vs 48) it seems like the participants in Choi et al. (2016) were more outspoken in their opinion than our participants. It might have something to do with the way of recruiting.

The participants in this research all voluntarily filled in the survey because I asked them to do so. The small reward with a less than 1% chance to win was probably not the main purpose for them to answer the questionnaire. On the other hand, the participants used by Choi et al. (2016) were recruited from Amazon's Mechanical Turk. This platform helps people to outsource their work. A financial compensation is paid to get the work done. It is not specified in their paper, but it could be that the participants in Choi et al.'s (2016) research were paid for their participation. That could be an explanation for the more outspoken opinion. Maybe people are afraid that they do not get paid in full if they only fill in numbers around the middle. Another explanation can be the difference in education level or nationality, but as this data is not available it remains a thought.

We then look at the difference between the charity and social incentive. As written in the literature review, we expect to see higher values for the social incentive than for the charity incentive. We care more about a close individual than strangers we have never met before. In the positive scenario, we reject the null hypothesis that there is no difference between the means of both studies for every emotion at the 1% significance level. However, in the negative scenario, we cannot reject the null hypothesis for the self-benefiting and selfish emotions. In fact, the score for the selfish/altruistic emotion is lower in our research compared to Choi et al. (2016).

Concluding, we found that the studies do not share many common results. Only one fourth of the scores are not significantly different between both studies. Thereby, only one out of sixteen scores is higher in the research by Choi et al. (2016) compared to this research. These differences could be due to differences in the level of education or nationality, however, there is not enough data to conclusively settle this point.

7. Discussion of the results

In this section the findings of this paper will be further discussed.

We first look at which emotions are more vividly present when asked to write a negative fake review compared to writing a positive fake review. This hypothesis was directly copied from Choi et al. (2016) since both studies are almost identical. Therefore, we also used the one-way ANOVA. We find that our participants perceive writing a negative fake review as more unethical, immoral, and selfish compared to writing a positive fake review. That is partly in line with hypothesis 1 and the findings by Choi et al. (2016). They did not find the selfish emotion to be significantly present. This can be explained by the findings by Pietromonaco & Markus (1985). They found that negative thoughts are associated with selfish behaviour. Our respondents seem to be influenced by the request to write a negative review which makes them feel like they are doing something selfish.

When analysing the difference between the monetary and social incentive, we could not prefer one incentive above the other. In the first round of questions only the positive scenario showed a significant favourable position for the social incentive. However, there was no difference between those two in the negative scenario nor in the second question round. Although literature suggests that friendship is worth more than money, we could not find the same conclusion in this research. Therefore, we must reject hypothesis 2 that a social incentive convinces more people to write a fake review compared to a monetary incentive.

When it comes to lying behaviour and gender, there does not seem to be a conclusive statement on which gender is more likely to lie. Some (Dreber and Johannesson, 2008) state that men are more willing to lie. However, most recent studies ((Childs, 2012), (Nieken & Dato, 2016) and (Gylfason, Arnardottir and Kristinsson, 2013)) have concluded that there is no difference in lying behaviour between men and women. In our research we also could not find a difference in willingness to write a fake review, and thus to lie. Therefore, we support hypothesis 3 that men and women are equally willing to write a fake review independent of the tone of the review.

Age is also an interesting variable in our research. According to the literature ((Swami, Chamorro-Premuzic, Snelgar & Furnham, 2010) and (Chou (1998)), older people perform more altruistic behaviour. There seems to be a positive relation between age and being more generous to others. However, this statement is not conclusive, as Davidovic et al. (2010) claim that older people are more selfish. Being selfish is one reason why people become older according to their research. We analysed this question using our own data and must conclude that there is not relation between age and altruistic behaviour as can be seen in table 5. This is not in line with hypothesis 4 where we stated that there is a positive relation between age and altruistic feelings independent of the tone and incentive of the request.

Furthermore, we analysed the level of guilt that arises when confronting people with their own lies. Literature (Elster, 1990) shows that people do not always think about what consequences their actions have. That is where the feeling of guilt can originate. Having such a feeling is not a bad thing. It shows that one possesses a moral compass (Wiersma et al., 2021). These statements are in line with the findings in this research. Our respondents do feel guilty after leaving a positive fake review independent of the type of incentive, which is in line with hypothesis 5. Thereby, it was also noticeable that the consequences were not well considered, as ten people were even willing to pay €30 to delete their review. Making people aware of their actions changes their perspective immediately.

When comparing this research to the paper by Choi et al. (2016) we notice some interesting differences. Although the questioning and set-up of the experiment have a lot in common, results differ significantly. The scores of the emotions found when comparing the negative to the positive scenario in hypothesis 1 differed slightly. We found that the request was also perceived to be more self-beneficial when asked to write a negative review, where Choi et al. (2016) could not draw the same conclusion. Thereby, when comparing the means of both studies, only one fourth of the results was not significantly different. The values reported by our participants are only lower in one out of sixteen occasions. That indicates that the characteristics of the respondents between both studies are different. Nationality, income level, or education might be explanations for these differences. However, since these demographics are not explained by Choi et al. (2016), it remains unsure what caused these inequalities between both studies.

8. Limitations

The main purpose of this thesis is to analyse the impact of incentives on the willingness to write a fake review. Thereby, additional characteristics are examined on the same topic. Also, the emotions of the participants are registered when they are confronted with the question to write a fake review.

It is not possible to measure exactly if people thought about what impact their actions have. Therefore, we cannot analyse precisely if the incentive was the decisive factor for their willingness to write a fake review or that their personal circumstances played a bigger role.

We asked our participants also what their level of income is, so we were able to analyse if income played a role in their willingness to write a fake review. A low income could indicate that more people were willing to write a review if they are in the monetary reward group. However, the data was fairly biased. Some high educated people reported a yearly income between €0 and €2500 which seems implausible. This might be for privacy reasons which is a fair point. For that reason, this topic was left out of the research.

Another limitation could be the order of the emotions. For every emotion it was stated what a rating of 1 represented and what a rating of 7 represented. However, I got a few messages from participants who admitted that they misinterpreted the scale and answered the question the other way around. As only a few people reported this mistake, it should be somewhat outbalanced by the other respondents. However, it has an impact on the results which could have led to false conclusions.

When analysing the level of education, it is noticeable that the largest group are students who completed their bachelor's degree. Since vocational education is the most common level of education in the Netherlands for a long time (CBS, 2004), our sample is not a representative reflection of the Dutch society. That could have biased our results as high educated people might make other decisions compared to lower educated people.

The type of question we ask our participants can also lead to a bias. We specifically ask people to leave a fake review for a restaurant. However, we cannot generalize our results for all online reviews. People might be more or less willing to write a fake review for a product instead of a service. As people might feel compassion with their fellow man, hurting another restaurant might be more difficult than writing down a product they have never used before.

Another bias that can occur is that people did not fill in the questionnaire carefully due to the low reward linked to this research. Since 122 people filled in the survey and only one of them received a €20,- gift card, this could have led to people filling in the survey carelessly. That would impact the results which can then have an impact on the conclusions drawn. Increasing the budget could give a more precise dataset, however that will not necessarily lead to different conclusions.

Nationality can have an impact on the different conclusion between this research and the research by Choi et al. (2016). They did not specify where their respondents are coming from and neither did I ask my respondents that question. However, since almost all my acquaintances are located in or around the Netherlands, it is likely that the split of nationalities is different compared to the other study. Dutch people are helpful (DVHN, 2020) which could be an explanation for the higher values compared to Choi et al. (2016).

Lastly, nationality can also impact the results on guilt. A guilt culture is common in western countries and indicates that someone is able to apologize for his or her mistakes (Schaamte.info, 2021). This was also noticeable in our results since the level of guilt is significantly above the threshold. Thereby, ten participants are willing to pay €30 to rewind a decision they made minutes earlier just by showing them a possible consequence of their actions. The level of guilt can be different in other countries, for example those with a shame culture, which might alter the results significantly.

9. Future research

The first problem is the same Choi et al. (2016) faced. We make use of self-reported data which might not be a representative reflection of the real-life situation. Incentives were not actually paid out and there were not real friends asking for a favour. Future research can tackle the first problem by using a larger budget. That makes it possible to give out money to every individual who is willing to write a fake review.

The second problem is more difficult to counter. Not everyone knows a friend who owns a restaurant. A different setting would be needed to face this problem. A possible solution could be to ask if the participant wants to be a fake reference on someone's curriculum vitae. Then the two incentives can be used. Half of the participants are asked to be a fake reference in exchange for a certain amount of money. The other half is asked to be a reference by a friend. This can also be seen as leaving a fake review, since the participant becomes a review for the person who is applying for a job.

Further research can also look more into the level of guilt accompanied with writing a fake review. Since our dataset was relatively small, it was not possible to analyse the relationship between incentive and level of guilt. That would be a great addition to current research.

Furthermore, in this research we only asked people if they were willing to write a review and not to actually write the review. This was done to acquire more responses due to the expected small sample size. However, in further research it would be interesting to analyse the length of fake reviews. People tend to tell longer and more detailed stories when lying (Strömwall & Willén, 2011). This can be easily evaluated when comparing the fake reviews written by the participants to genuine reviews.

Lastly, further research should recreate this experiment with more question rounds and different incentives. That should account for bias due to not thinking long enough about the question. Then the real difference between monetary, social, charity, and more incentives can be established. Switching up the combinations of tone and incentive will give more randomized data. However, such an experiment is costly and difficult to set up. A funding would be needed to account for all costs.

10. Conclusion

The main aim of this research is to analyse if it is possible to convince people to write a fake review and under which circumstances chances are highest. A social incentive is compared to a monetary incentive. Thereby, emotions play an important role in determining how people feel when confronted with the request to lie.

In this research we saw that lying is part of our life and that stakes do not always have to be high to persuade people to do what you want them to do. Most people do not think the consequences of their actions entirely through, which makes it easier to make them write a fake review. However, if they are confronted with the opposite situation, they start thinking about what impact their decision has on others. That being said, the emotions awakened with such a request stay relatively stable over time.

Furthermore, although it is sometimes said that men tend to find it a bit easier to tell a lie, that statement does not hold in this research. Men and women are equally likely to write a fake review. There also does not seem to be a relation between aging and altruistic feelings. Older people do not perceive the request to write a fake review to be more altruistic compared to younger people, which was thought to be so according to the literature.

Finally, we notice that guilt is an important emotion when asking people to lie. Our respondents are even willing to pay €30 to reverse the decision they made minutes ago. It should be an interesting addition to the literature if the level of guilt was further examined in future research.

Considering all of the above, the market for fake reviews does not seem to be shrinking, but rather increasing. Although emotions of disgust are awakened when asked such a question, people are still willing to turn off their moral compass and help a friend or profit themselves. Since online reviews become increasingly more important for entrepreneurs, they will do all that is in their power to built up or maintain an advantage over their competitors. Therefore, it is likely that this war on fake reviews is not close to its ending, it has just started. We end this research with the hopeful conclusion that friendship seems to be a more convincing method than money when it comes to persuading people. A friend in need is a friend indeed.

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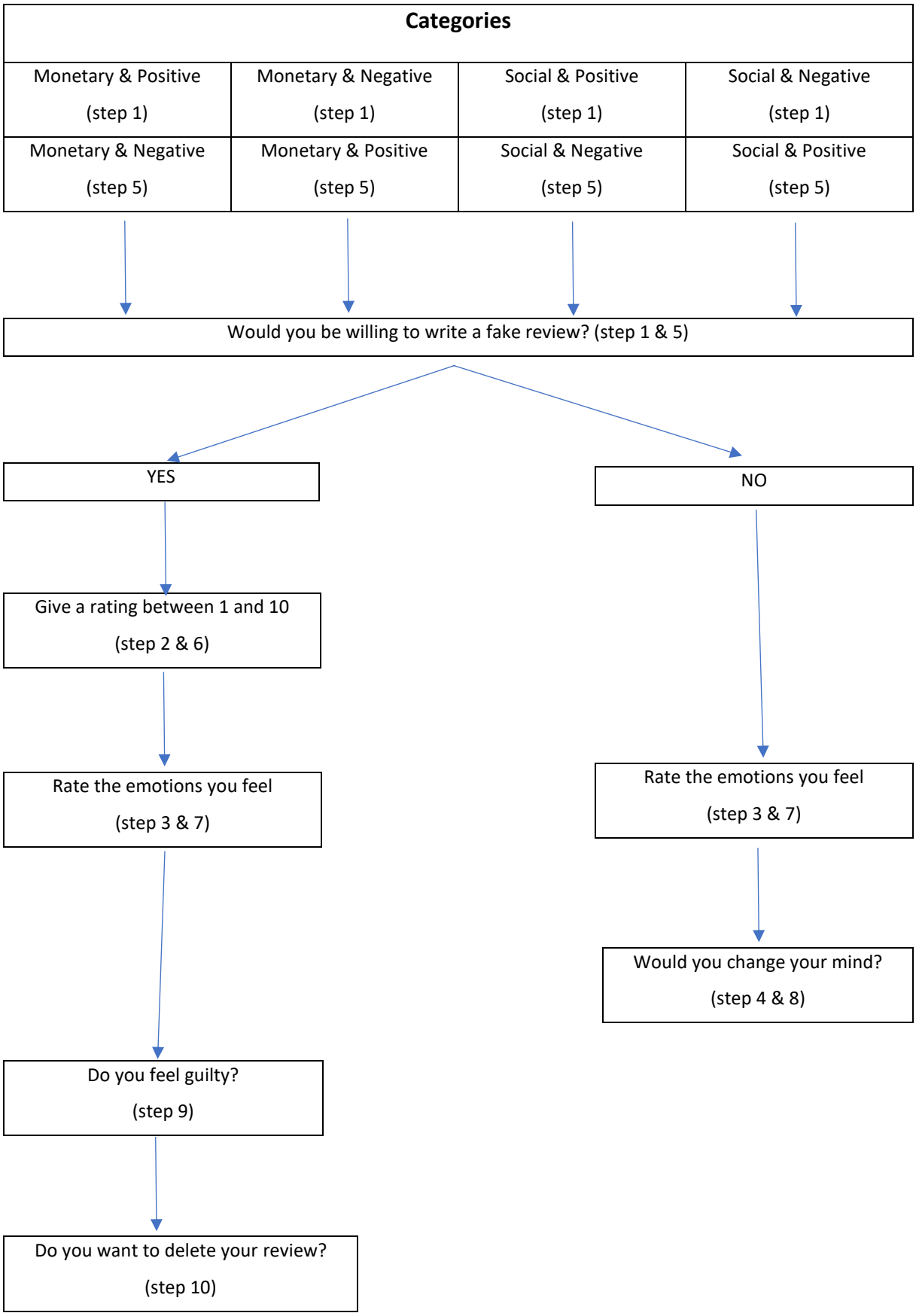
Appendix A


Categories
Monetary & Positive (step 1)
Monetary & Negative (step 1)
Social & Positive (step 1)
Social & Negative (step 1)
Monetary & Negative (step 5)
Monetary & Positive (step 5)
Social & Negative (step 5)
Social & Positive (step 5)
Would you be willing to write a fake review? (step 1 & 5)
YES
NO
Give a rating between 1 and 10 (step 2 & 6)
Rate the emotions you feel (step 3 & 7)
Rate the emotions you feel (step 3 & 7)
Would you change your mind? (step 4 & 8)
Do you feel guilty? (step 9)
Do you want to delete your review? (step 10)

Appendix B

Question 1

Participants randomly answer one of the following four questions:

- Imagine the owner of a restaurant asks you to write a positive online review on www.tripadvisor.com for his restaurant. In exchange you get a free main course in his restaurant. You know nothing about the quality of the food. Would you do that?

- Imagine the owner of a restaurant asks you to write a negative online review on www.tripadvisor.com about his biggest competitor. In exchange you get a free main course in his own restaurant. You know nothing about the quality of the food in both restaurants. Would you do that?

- Imagine a good friend of yours owns a restaurant and asks you to write a positive online review on www.tripadvisor.com for his restaurant. You know nothing about the quality of the food. Would you do that?

- Imagine a good friend of yours owns a restaurant and asks you to write a negative online review on www.tripadvisor.com about his biggest competitor. You know nothing about the quality of the food. Would you do that?

If answered 'yes' to question 1, they got the following question:

Question 2

-Please leave here the rating you would have given the restaurant. (1 star = extremely bad, 10 stars = extremely good)

If answered 'no', this question is skipped.

Question 3

Then each participant is asked to fill in the following questions:

- Please fill in how ethical you found the proposal to write a review. (1= extremely unethical, 7= extremely ethical)

- Please fill in how self-beneficial you found the proposal to write a review. (1= extremely self-beneficial, 7= extremely other-beneficial)

- Please fill in how immoral you found the proposal to write a review. (1= extremely immoral, 7= extremely moral)

- Please fill in how selfish you found the proposal to write a review. (1= extremely selfish, 7= extremely altruistic)

Question 4

If answered 'no' to question 1, participants get this question. If answered 'yes', this question is skipped:

-Would you have answered 'yes' to writing the online review if the whole dinner was for free?

Question 5

The tone of the request is switched from this point onwards. So positive becomes negative and vice versa. The participants now answer one of the following four questions:

- One week later the restaurant owner again asks you to write an online review on www.tripadvisor.com. However, this time you are asked to write a negative online review about his biggest competitor. In exchange you get a free main course in his own restaurant. You know nothing about the quality of the food in both restaurants. Would you do that?

- One week later the restaurant owner again asks you to write an online review. However, this time you are asked to write a positive review about his own restaurant on www.tripadvisor.com. You know nothing about the quality of the food. In exchange you get a free main course in his restaurant. Would you do that?

- One week later your friend again asks you to write an online review. However, this time you are asked to write a negative online review about his biggest competitor on www.tripadvisor.com. You know nothing about the quality of the food. Would you do that?

- One week later your friend again asks you to write an online review. However, this time you are asked to write a positive online review about his own restaurant on www.tripadvisor.com. You know nothing about the quality of the food. Would you do that?

Thereafter, question 2, 3, and 4 are repeated. These questions are now question 6,7, and 8.

Question 9

The participants who answered 'yes' to writing a positive fake review in round 1 or round 2 fill in a 7-point Likert scale where they express the level of guilt they experience. This question is skipped for the other participants.

-You have left a positive online review for a restaurant in one of the previous questions. This review was seen by a happy but fairly poor family. They cannot afford to go out for dinner more than once a year and they decided to go to this restaurant based on your recent published review. The quality of the food was fairly disappointing. Do you feel guilty for leaving this review? (1= extremely innocent, 7= extremely guilty)

Question 10

Participants who answered question 9 get the following question. This question is skipped for the other participants.

-There is an option to delete the review you left. However, the fee you have to pay to delete the review is €30. Would you pay €30 to delete your review?

Thereafter, some general questions are asked to each participant:

- What is your gender?

- What is your age? (In numbers)

- What is the highest level of education you have completed?

- What is your yearly gross income (bruto) in euro's?

Appendix C

Table 10

Means and Standard deviations (round 1)

Experimental Scenario		**Moral/ Immoral**		**Ethical/ Unethical**		**Self-Benefiting/ Other-Benefiting**		**Selfish/ Altruistic**	
Valence	Incentive Type	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Positive	Monetary	3.48	1.55	2.48	1.15	3.38	1.99	3.69	1.81
	Social	3.83	1.42	3.66	1.81	4.59	1.72	4.14	1.87
Negative	Monetary	2.48	1.63	1.87	1.31	3.39	2.14	2.65	2.17
	Social	2.84	1.69	2.63	1.70	3.94	2.33	2.97	1.79

Notes: This table shows the means and standard deviations of question round 1. All means are based on a 7-points Likert scale. (1= extremely immoral/unethical/self-benefiting/selfish; 7= extremely moral/ethical/other-benefiting/altruistic)

Table 11

Means and standard deviations (round 2)

Experimental Scenario		**Moral/ Immoral**		**Ethical/ Unethical**		**Self-Benefiting/ Other-Benefiting**		**Selfish/ Altruistic**	
Valence	Incentive Type	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Positive	Monetary	3.23	1.45	3.00	1.26	3.97	1.99	3.03	1.72
	Social	3.47	1.48	3.53	1.52	4.00	2.11	3.63	1.77
Negative	Monetary	2.24	1.88	1.55	1.06	3.31	2.12	2.48	2.16
	Social	2.86	2.28	2.41	2.06	3.65	2.38	3.38	2.40

Notes: This table shows the means and standard deviations of question round 2. All means are based on a 7-points Likert scale. (1= extremely immoral/unethical/self-benefiting/selfish; 7= extremely moral/ethical/other-benefiting/altruistic)