ERASMUS UNIVERSITEIT ROTTERDAM

PRO-SOCIAL BEHAVIOR:
THE EFFECT OF WEALTH ON ALTRUISM

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Preface

First of all, I would like to thank my supervisor, Dr. Jan Stoop for his valuable guidance and his always immediate response to all my concerns. In addition, I want to say a great thank you to my parents who were always by my side and supported me from the first till the last day of my postgraduate studies in The Netherlands. Finally, I want to thank my friends and especially Michalis and Nikolas for their help and patience.

Abstract

Behavioural economics is a relatively new field of economics which studies the effect that peoples' behavior has on their decisions. Experimental economists, unlike traditional economics, have showed that people are not always self-interest and in many occasions tend to be pro-social. This thesis is about the effect that peoples' wealth can have on their pro-social behavior and more specifically on their willingness to donate money to those who are in need. To my knowledge, there is not much research available in this domain and the offered studies are based on existing data and subjective wealth indicators. Nevertheless, in this paper a natural field experiment has been conducted in order to investigate this relation. The findings showed that wealthy people donate more money to charity than those with a low income and also provided evidence that both low and high income people give to philanthropy with the same frequency. This study can be valuable in several domains such as the governments which can become aware of which social class is more prone to tax evasion and to humanitarian charitable organizations since they can locate the best target group.

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Chapter 1

Introduction

Traditional economic theory is based on the fact that all people have a self-interest behavior and care only for their own payoff and well-being (Smith, 1975). Some decades ago, however, experimental economists demonstrated that people can also be unselfish and pro-social and share their payoffs with others (Fehr & Schmidt, 2006). Hence, the aim of this study is double; firstly to observe if people are altruistic and donate to charities and secondly whether or not the different income levels affect their pro-social behavior. In particular I want to test if people with a high income tend to be more self-interest and donate less often to philanthropy than those with a low income. I also examine the effect that the income can have on the amount of one's contribution. Consequently, the research question of this study forms as follows:

Do people with a high income behave more altruistically and donate more often and more generously to charities than those with a low income?

I expect that both wealthy and less wealthy people behave altruistically and donate equally often to philanthropy. However, I expect that people with a high income give a smaller amount of their income to charities but a larger amount of money on the whole than those with a low income.

To test these hypotheses, I conducted a natural field experiment which took place in two different beaches. One of them was near expensive hotels while the other one was located near inexpensive accommodation. In this way I managed to distinguish between people with a high income from those with a low one. Thereafter, I gave the subjects a bottle of tea and asked them to donate money to the *Unicef* organization. I informed them that in case they were not willing to contribute they could just keep the bottle of tea for free. This action in reality aimed at finding if people react kindly to kind people and if they are willing to contribute to people in need. In addition, I gathered some secondary information about the participants

namely their gender, education level and profession, to examine if and how these may affect their altruism.

This study can be beneficial in multiple fields, for example the government just to mention one. The tax policy is a means for governments to collect money in order to provide and improve public services such as health care and education as well as public constructions such as roads. However all governments face the problem of tax evasion, some of them to a larger extent while others to a smaller one. It is obvious that the main reason why people commit frauds is either because they want to save money or because they cannot afford to pay the full amount of their somehow hefty taxes. But which social class is more prone to tax evasion? Is it the people with a low or with a high income that tend to show evidence of a fraudulent behavior the most? When people pay their taxes it is a signal that they care about the community they live in and they also care about their fellow citizens. Therefore tax policy can be a way to seek the citizens' pro-social behavior.

In addition, this study can be valuable for charitable organizations and more specifically for the humanitarian ones. As the aim of this study is to discover if there is any difference between wealthy and less wealthy people and their willingness to donate money to philanthropy, the results can be useful for these organizations in their effort to define their target groups. Moreover, in this study I used the bottles of tea as a small gift (Cialdini & Trost, 1998) to the participants in order to motivate them to contribute and make them trust me. If the same research was to take place without the gift, it could be helpful for the charitable organizations in order to test whether or not a small gift increases the donors' willingness to contribute as well as the amount of their contribution.

Moving now to the business domain, pro-social behavior can be a signal of the effort that the employees are willing to make. A study which was conducted by *SEI Private Wealth Management* showed that 82 percent of the wealthy people believed that it is their obligation to donate to charity because they can afford to do so. Therefore, if we interpret this result in the field of work we can say that the higher the wage an employee gets the larger his/ her willingness to make an effort is.

Last but not least this study can be important for the academic community. There seem to exist some relevant researches in the field of charitable giving and different levels of income but, to my knowledge, they are all based on either subjective wealth indicators (Piff et al, 2012) or on existing data (Schervish & Havens, 1995). In the current study I conducted a natural field experiment in order to find people's willingness to donate to philanthropy and I also used some objective wealth indicators (Trautmann et al, 2012) in order to distinguish low and high income people.

The main findings of this study come down to be two. The first one has to do with the willingness that people with different incomes have to donate while the second one deals with the amount of money that they offer. As for the first relation I found evidence that both wealthy and less wealthy people donate equally often to philanthropy. In addition I found that social class affects the amount that people are willing to offer. In particular, the results from the field experiment illustrated that wealthy people tend to donate more money to charity but a smaller percentage of their income in comparison to those with a lower income who seem to contribute less but a larger amount of their income, overall.

This paper is organized as follows. In the following section come the literature review about pro-social behavior and the effect that one's income can have on charitable giving. In section three and four follow the contribution and the two main hypotheses respectively. Right after those the methodology part appears where I explain the conducted experiment in detail while in section six the results follow. The final part of the paper examines the limitations of the findings and provides the conclusion.

Chapter 2
Literature review

2.1 Standard economic theory

Adam Smith was a philosopher and a political economist. One of his primary works and apparently the most well known one is "The Theory of Morals Sentiments" (1759) in which he combined human psychology and behavior, with economics. According to his theory all economic agents are self-interest and they care only for their own well-being. Thereafter, this hypothesis was acquired by many economists (Becker, 1974; Arrow, 1981; Samuelson, 1993). The standard economic theory is built upon this self-interest axiom and since then it is assumed that people take actions which are to their own interest so as to maximize their utility. As Camerer and Loewenstein (2004) mentioned Adam's Smith study consists the core of behavioral economics.

2.2 Evidence of unselfish behavior

After 1980 the well established hypothesis, that self-interest is the *sole* motivation of all people, (Fehr & Schmidt, 2006) started to be reconsidered. Experimental economists conducted multiple laboratory experiments in order to study which strategies people use for their decision making and in order to measure social preferences.

Game theory studies showed the decision strategies pursued by people under different conditions especially when they consorted with other economic agents. This flexible way of seeking peoples' decision strategies is built under the assumption that all agents seek to maximize their expected utility. *Prisoners Dilemma* (Dawes, 1980) and *Public Good Game* (Ledyard, 1995) are two games theory studies which brought the first results considering the strategies that people employ in order to make their decisions. The most important feature of game theory is that of *Nash equilibrium* (Schotter, 2003). Players choose their strategy according to what others players' strategy is and they adjust their strategy when needed until they come to this equilibrium point. Therefore, when players reach this point, *ceteris paribus*, nobody has incentives to change his/ her strategy and move away from this equilibrium point.

The *Ultimatum Game* (Guth et al, 1982), the *Dictator Game* (Kahnema et al, 1986) and the *Trust Game* (Berg et al, 1995) are some of the most important experiments which provided evidence about people's social preferences. The results from all the above studies are remarkable as they opposed to the well established hypothesis until then of "self-interest agents behavior" and showed the fist evidence of peoples' *reciprocity* and *altruism*. At this point I would like to define the meaning of reciprocity and altruism. To begin with, there are two types of reciprocity, the positive and the negative one. Positive reciprocity implies that people respond to unselfish behavior with kindness. However when people perceive unfriendly behavior they also respond with unfriendly behavior (negative reciprocity) even when they are aware that they have to give up some of their payoff in order to do that. Therefore, agents who do not like inequality are sometimes willing to take actions which may reduce their own share (Camerer & Fehr, 2002). On the other hand, altruism is an

unconditional kindness where people do not seek any kind of pay back (Camerer & Fehr, 2002).

The *Prisoners' Dilemma Game* (Dawes, 1980) and the *Public Goods Game* (Ledyard, 1995) are both experimental games that measure cooperation and reciprocity (Camerer & Fehr, 2002). To begin with, the former is a repeated game with two agents who cannot contact each other and they have to make a decision between cooperating and defecting. The following table shows their potential payoffs in each case.

	Cooperate (C)	Defect (D)
Cooperate (C)	H, H	S, T
Defect (D)	T, S	L, L

It is evident that mutual cooperation is a better choice than mutual defect as both players' payoffs are larger in the former case (H>L). In the unlikely event of no cooperation, both agents will be better off if they defect as T>H and L>S. Therefore, both players are better off when they defect no matter if the other player does not do so himself. So in this case, joint defection is the only *Nash equilibrium*. Therefore, mutual cooperation is the best outcome but not the best individual outcome. Agents who are self-interest will choose to defect according to the traditional self-interest behavior hypothesis. However, the results of this experiment showed that 50 percent of the agents chose to cooperate (Dawes, 1980) and this is evidence of reciprocal behavior.

In the *Public Good Game* (Ledyard, 1995) there are again two economic agents in groups with a given amount of tokens y. Each subject can contribute to a group project between zero and y tokens. The individual return from each donation is m<1 dollars. Moreover group's payoff will be equal to mn>1 because of the potential free-ride. The total payoff for each subject is formulated by the initial amount of tokens minus his/ her donation plus the individual return from each donation (m) multiplied by the total amount of tokens donated from all players (G) i.e. $\pi = y - g + mG$. The rational self-interest assumption implies that people should not make any donations as the *Nash equilibrium* is the zero donation. However, again the results

from this experiment showed the weakness of the self-interest hypothesis and that subjects contributed 50 percent of their tokens in the one-shot game (Ledyard, 1995).

The *Ultimatum Game* (Guth et al, 1982) is a way to measure negative reciprocity (Camerer & Fehr, 2002). The design of the game contains two different economic agents and a fixed amount of money. Player 1 is the Proposer and Player 2 is the Responder. The Proposer has the amount of money and has to decide how he will divide it among himself and the Responder. The role of the Responder is to accept or reject Player's 1 proposition. If he rejects the proposition both players will earn nothing but in the opposite case they will have the amount of money Player 1 proposes. According to standard economics, both agents are rational and only care about their own well being (Fehr & Schmidt, 2006), meaning they maximize their utility by obtaining the largest amount of money. Therefore, the Responder will always accept any positive proposition and the Proposer will divide the money in such a way as to keep the larger stack for himself. However, in this game the Responder has the opportunity to reject Proposer's offer in order to punish him if the former considers the offer unfair. This experimental game has been conducted hundreds of times and in many countries. All results showed that half of the time the Responders reject Proposer's offer when it is less than 20 percent of the total amount and that Proposers offer around 40 and 50 percent of the fixed amount to the Responder (Guth et al, 1982). The reasons why the Proposer gives such large stacks are two. Firstly because he is afraid of Responder's negative reciprocity which will drive both of them to end up with zero money and secondly because he does not like inequality.

The context of *Dictator Game* is the same with the *Ultimatum Game* with the difference that the Responder cannot reject Proposer's offer. Therefore, this game is an effective way to measure altruism (Camerer & Fehr, 2002). Again there are two economic agents, the Proposer and the Recipient, and a fixed amount of money. The Proposer has to decide how much money he will give to the Recipient, but the Recipient cannot reject the offer. Even in the case where the Proposer is not afraid of the rejection, the results showed that more than 50 percent of the participants gave some money to the responder and the average amount was between 10 and 25 percent of the fixed sum (Kahneman et al, 1986). The stack portion is smaller than this in the Ultimatum game but still the Proposers gave some money to the Recipient and once

again the self-interest behavior hypothesis is disputed and is replaced by pure altruism.

Last but not least there is the *Trust Game* (Berg et al, 1995) which is another laboratory experiment which proves the altruistic and unselfish behavior that people have. The setting of this game contains two players, the Investor and the Trustee, who both get the same fixed amount of money *S*. The Investor can give the Trustee between zero and *S*. The amount is tripled (*y*) by the experimenter and the Trustee will then receive *S + 3y* and thereafter he can return to the Investor between zero and *S + 3y*. Therefore, the payoff of the Investor and the Trustee is *S − y + z* and *S + 3y − z* respectively, defining z as the amount that the latter will give to the former. Again according to the standard selfish behavior both agents should give zero to each other. However, the results showed that the Investor on average gives almost half of his initial *S* and that the Trustee gives back around *y* (Fehr & Schmidt, 2006). Therefore, we can see that from both sides there is an unselfish behavior and there is clear evidence of positive reciprocity (Camerer & Fehr, 2002).

2.3 Altruism and income

The data gathered until now presents undoubtedly supportive arguments of people's altruistic and reciprocal behavior which made the standard hypothesis of self-oriented economic agents weaker. But which are the features that affect this behavior? Income is one of the most palpable factors that influence unselfish behavior (Chowdhury & Jeon, 2012).

There are two different schools of thoughts about the effect of socioeconomic status on behavior. The first one claims that lower status people tend to have less pro-social behavior. The reasoning behind this is that people in the lower class have budget constraints which make them behave less pro-social (Piff et al, 2012). Less wealthy people have access to fewer resources and are exposed to more uncertainty (Adler et al, 2000; Kraus et al, 2011). Consequently, it is more likely that they will cheat or have a more self interest behavior in order to increase their recourses (Piff et al, 2012) and decrease their variance compared to the upper class. The second school of thought supports that people with higher income and therefore higher status behave more unethical than others. The chances and opportunities for these people to cheat are more, in comparison with those in the lower class, as their budget is high so they can have access to more resources (Kraus et al, 2009, 2010, 2011; Piff et al, 2009).

However, to my knowledge there is not much research concerning unselfish behavior and wealth differences. Andreoni (1990) is one of the researchers who studied this relation. Additional to his main study of public good donations and the sources from which people gained their utility, he also examined the relation among altruism and income classes. In particular, in order to elicit altruism coefficient he applied the Cobb-Douglas utility function and by using existing studies he categorized people's income to seven different classes (Clotfelter & Steuerle, 1981; Clotfelter, 1958). The findings showed that altruism coefficient is decreasing when income increases meaning that wealthier people tend to be more self-interest. However, these results seem to change from the $100,000 income class and over as people turn out to be more altruistic and the related coefficient becomes positive. The conclusion to be

drawn is that people with extremely high incomes tend to be more pro social than those with low and middle wealth.

These results are in line with Chowdhury and Jeon's (2012) study. Chowdhury and Jeon (2012) conduct a dictator game to test the effect of income on peoples' altruistic behavior. The researchers focus on the effect that different amounts of money (income) can have on unselfish behavior by using five treatments with different amounts of money in each one. According to the traditional economic theory, dictator's utility depends on the amount of money he has and therefore, the greater the stack of the experiment, the larger the utility of the dictator is. Interestingly the results showed that the average amount the dictator gave to the responder increased as the show-up fee increased, hence people with higher income behave more altruistically. So when the standard dictator game is conducted with different stacks, subjects with large stacks tend to be more pro social and donate more, meaning that high income increases giving.

On the other hand, Piff et al (2012) study the relation among social class and unethical behavior and their results are not in line with the above researches. They conducted several field and laboratory experiments in order to test when people have more deviant behavior. In their field study of driving, they used the brand, the age and the condition of the car as wealth indicators. The results showed that people of higher social class are more likely to break the law when driving their cars than lower status people. Besides driving, negotiations which took place in the laboratory illustrated that upper status people appear to be more self-interest and behave less pro-social in the working environment. The authors in this study used as a social status indicator the subjective scale of MacArthur (Piff et al, 2012) and they found that upper status people tend to cheat and lie in order to get a larger prize in their job. Consequently, the evidence from both the field and laboratory showed that "wealthier" people tend to be less altruistic and generous in their daily and working life equally.

The recent financial crisis is an additional manifestation of selfish behavior on behalf of high status people (Piff et al, 2012). The current depression reflects the unethical behavior of giant organizations with worldwide reputation in the U.S. (Galperin et al, 2011). The core of the crisis was the unreasonable large bonuses and

reimbursements of the Wall Street executives which drove large firms to go bankrupt and people lose their jobs and savings. This is an additional clue that high status people are not pro social.

All the above studies used subjective income indicators in order to measure peoples' wealth. Trautmann et al (2012) are the first authors that used objective wealth indicators to identify upper and lower class and thereafter measure ethical behavior. In particular, they used financial wealth, income and type of job as well as education in order to categorize people in the two classes. They used a large sample and made two different treatments. In the first one, they conducted a binary trust game and in the second one they gave questionnaires to the subjects in order to reveal their beliefs concerning lying, cheating and stealing. The first treatment included monetary incentives while the second one did not. The results for this study showed that higher status subjects do not behave less ethically than lower status subjects. Additionally, older people are more ethical and there is evidence that males have less ethical behavior compared to females.

2.4 Income and Charitable Giving

From the above it is apparent that in many cases people are willing to contribute some money to their fellows even when the latter are not in need. But how do people behave with those who are actually in need? Do they donate money in charities?

During the 1990s many researchers proved that the relation among U.S. households' income and charitable giving is a U-shape curve (Schervish & Havens, 1995). This U-shape curve means that people with low and high incomes donate more in philanthropy than those with middle incomes. In 1992 the Independent Sector used the household gross income as a wealth indicator in order to test which one contributes more in charities (Schervish & Havens, 1995). In line with the previous studies the findings showed that households which reported low ($10,000 or lower) and high ($100,000 or more) gross incomes contributed 3.6 and 2.5 percent of their income respectively. Middle income households, between $60,000 and $99,999, donated the least with only 2 percent. The conclusion of this study was that U.S. citizens with low and high incomes contribute more than middle income ones and that generally lower income households donate the most.

Nevertheless, Schervish and Havens (1995) re-examine the same hypothesis by using the same data with the previous studies. The difference from the older studies was that the authors, in order to have more precise results obtained only the data that came straight from the income earner. The outcome of this study contradicts the existing conclusion that poor people donate a larger amount of their income in philanthropy and shows the exact opposite relation. There is an upward trend which illustrates that as people's income increases they tend to contribute more on charities and therefore the wealthy households donate a greater amount of money on charities in comparison with the less wealthy ones.

On 2012 researchers from *The Chronicle of Philanthropy* studied the charitable giving among U.S. They used data from the *Internal Revenue Service of Americans* and they study the generosity according to the city, the ZIP code and

people's discretionary income level. The findings showed that the American households which reported $50,000- $75,000 income donated 7.6 percent of their income on charities and richer people with income $100,000 or more gave 4.2 percent. Thus, the middle income people contribute more on philanthropy than wealthy people. Furthermore, this study showed that wealthy people who live in the same areas with other wealthy people tend to spend a smaller amount of money to charities than those who live in districts with less rich people.

Last but not least, Ken Stern (2013) is one more author that provided supportive evidences that high income people donate a smaller amount of their income to philanthropies than those with low income. Specifically he cited in *The Atlantic* magazine that during the year 2011 the wealthy American citizens donated 1.3 percent of their income while the poor gave 3.2 percent.

Chapter 3
Contribution to the literature

Most previous studies focus on the percentage of their income that the U.S. households give to charities. However, the aim of this study is double. Firstly, to measure how willing European citizens are to contribute money to philanthropy when they are asked to, according to their income, and secondly, how much money they contribute. A great advantage of this study, compared to previous ones, is that I did not use existing data about how much people donate but I directly asked them if they want to give some money to the *Unicef* organization. I used positive reciprocity by offering them a free bottle of cold tea and informing them that they can donate any amount of money to this charitable organization, so that participants do not get suspicious by an unknown person asking them for money. This approach aimed at conveying both pro-social behavior and charitable giving as the subjects are required to both trust an unknown person and contribute some money to philanthropy.

In the methodology of this study, I combined all the strong features of the relevant existing studies. I conducted a natural field experiment in which people were not aware that they participated in an experiment so it was more likely that they would react naturally and unbiased, in combination with some of the objective wealth indicators that Trautmann et al (2012) used. In particular, after I conducted the natural field experiment I asked the participants to fill in a form with their personal data and income. Through this I elicited the objective wealth indicators without though missing out on the advantages of the natural field experiment. The combination of these methodologies makes the results of this study precise enough and able to reflect accurately the relation among wealth and altruism.

Chapter 4
Hypotheses

In this study I use the same wealth indicators as Trautmann et al (2012) and I expect that my results will be in line with their conclusion, having both wealthy and less wealthy people behave equally altruistic. Based on this, I expect that the same applies for charitable giving. When people are asked to contribute for philanthropy they are equally willing to do so. Hence, the hypothesis of this study is the following:

H1: *People with high income behave as reciprocal as people with low income and therefore donate as often to philanthropies.*

However I expect the amount of money that people in each class donate to charity will be different. My prospect is in line with, the two most recent study in this field, by *The Chronicle of Philanthropy* (2012) and Ken Stern (2013). Both researches showed that people with lower incomes donate a larger amount of their income to charities than those with high incomes. Moreover, Piff et al (2012) also found that high status people are less pro social than low status people and are more likely to behave unethical. Following this logic, I expect that the former have a self-interest sentiment and prefer not to spend a large amount of their income on others and therefore on philanthropies. Thus, the second hypothesis is:

H2: *High status people contribute a smaller amount of their income to philanthropy but a larger amount of money than low status people.*

Chapter 5
Methodology

5.1 Aim of the experiment

The aim of this experiment is to study whether wealthy or less wealthy people are willing to donate money in charities. The aforementioned literature shows that many people tend to be pro-social and give money to others when they are asked to. However, to my knowledge there is no study concerning charitable giving when people are asked to donate money. Therefore, in this study I did not expect for people to take the initiative to contribute money for charitable reasons but I conducted a field experiment in which I asked them to do so.

The idea for my experiment came from a *You-Tube* video the "Honest Tea: The Most Honest City In America". This video was about a campaign that took place in America in order to find the most honest city among San Francisco, Los Angeles, Washington, Chicago, Atlanta, Boston and New York. They set stands with bottles of tea on the streets with a label informing the passers-by that they can take a bottle by paying $1. They left the bottles unattended and they put hidden cameras in order to monitor people's actions. The results from this social experiment were very interesting as 87% of the citizens in all seven cities gave money before taking the bottle of tea, even in the absence of control.

My intent is to use this idea in a different environment and with a modified concept in order to measure people's altruistic behavior and their willingness to donate money to others who are in need.

5.2 Implemented idea

I conducted a natural field experiment in Greece and particularly in Crete. There I visited two different beaches, the first of which was near some inexpensive hotels while the other one was close to more costly accommodation. I chose the beach as the natural environment of my experiment in order to obtain subjects from the common population, since in Crete the majority of people go to the beach regardless of age, gender, education and budget. Additionally it is a place where somebody can easily find people of different nationalities as many tourists visit this island especially during the summer period. Moreover, I assume that in the seaside people are more likely to be relaxed and thus more willing to spend some of their time listening to me.

5.3 Experiment details

I visited the two beaches for two weekends in a row, the reason being that I could also include in my sample those people working during the weekdays and therefore cannot visit the beach then. The first weekend I headed for the beach near the inexpensive hotels and the second one I visited the beach close to the more luxurious ones. I was wearing a t-shirt with the logo of *Unicef* organization and approached the people who were lying on the beach offering them a cold bottle of tea. The reasons why I chose to give to the participants the bottle of tea are the following. Firstly, as Cialdini and Trost (1998) suggested, I did it in order to motivate them to donate money. Cialdini and Trost (1998) found that the contributions to charity increase when the charitable organization gives to the donors a small gift, which in this case is the bottle of tea. Additionally, people do not easily trust a stranger so by giving them a small gift I assume that they will easier trust me and believe that I will actually donate the sum of money to *Unicef*. Finally, I provide the subjects with a cold tea because the temperature was high enough and I assumed that by doing so would make it more probable on their behalf to accept the beverage and on mine to achieve their positive reciprocity.

The choice of the beaches was as follows. In order to distinguish wealthy and less wealthy people I visited one beach which was close to pricey hotels (approximately more than 150 € per night for a double bedroom) and another one near rather inexpensive hotels (approximately less than 80 € per night for a double bedroom). None of the beaches had neither a cafeteria nor a kiosk nearby from which the bathers could purchase refreshments.

In order to avoid cases, where a group of friends/ family are sited together and everybody gets a free bottle of tea but only one donates money on behalf of everybody else, I gave only one bottle of tea to each group. Hence, I was moving among people on the beach telling them the following story depending on whether or not they were alone:

Single person:

Hello! I have a free bottle of cold tea for you. If you want you can take it and donate any amount of money you wish for Unicef organization. Otherwise, you can still keep it and enjoy the free tea.

Group of people:

Hello! I have a free bottle of cold tea for one of you. If you want you can take it and donate any amount of money you wish for Unicef organization. Otherwise, you can still keep it and enjoy the free tea.

After, I had seen my subjects' reaction, that is if they had contributed money or not, I informed them that this was part of my research and I kindly asked one person from each group to fill in a form with his/ her personal data. The form given contained information about gender, age, nationality, education level, job type and net annul income in a multiple-choice structure (Appendix I). With the beach being the natural environment for my experiment, the case may be that people with low income could find themselves on the seashore near the expensive hotels and vice versa. Therefore, I used this form of questionnaire in order to be certain about my subjects' income and in order to test some additional relations such as donation and gender, age, education and type of job. In the cases of a group of people where only one made a donation, I asked the person who gave the money to fill in the form. When I was dealing with a group of people that nobody made any contribution, I randomly asked somebody to fill in the same form. I explained to all subjects that without hesitation, they could skip any question they wanted to by leaving it unanswered.

5.4 Number of subjects

In this experiment there are two treatments. The first one (Treatment 1) is the wealthy people and the second one (Treatment 2) is the less wealthy people. In order to calculate the optimal number of subjects in each treatment I used List et al (2010) directions. Firstly, I accounted the expected sample variances and the cost of the sessions. Hypothesis number one (H1) states that people in both categories are equally reciprocal and donate to charities with the same frequency. This is in line with Trautmann et al (2012) and according to this hypothesis the expected sample variance is the same for both Treatment 1 and Treatment 2. The cost for both treatments is the same as all subjects will receive the same bottle of tea regardless of whether they are well-off or less wealthy. Additionally, both sessions took place in beaches with exactly the same characteristics, thus the cost for all sessions would be equal. Therefore, the variances and the prices of the observations in both treatments are respectively equal and I divided my sample size equally among all treatments.

Following the standards in literature, I set the significance level of 0.05 and the power to 0.80 and I got = 1.96 and = 0.84. I expected the variance in the choice of donating or not to be equal in both treatments and thus I set = 1 and = 1. From the calculations that are presented in the appendix (Appendix II), I obtained the optimal sample size of 63 subjects in total, given half standard deviation in our results. To reduce the variance of the sample[1] I increased the number of subjects to 100, meaning 50 participants for each treatment. Since the budget and the time I had to spend for this research were limited I could not include more than a hundred participants into my subject pool.

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[1] According to List et al (2010) there are three different ways to reduce the variance of the sample. Increase the number of subjects, reduce the error variance or increase treatment's variance.

5.5 Variables

This study investigates how altruistic people are by measuring their willingness to donate money to charities according to their income. There are two different hypotheses. In the first one (H1), it is assumed that both high and low income people when asked donate to charities with the same frequency. The second one (H2) concerns the amount that they donate and is in line with a previous research (Stern, 2013) which stated that high status people contribute a smaller amount of their income to charitable giving in comparison to those with a lower revenue. Consequently, I have two regressions from which I will measure the efficiency of my data. In the former regression the dependent variable is the *donation* which measures whether or not people contributed to charity and the latter is the *amount*, meaning how much they gave as a percentage of their daily income[2] and it only includes the results from those who donated money.

The independent variables are the *net annual income*, *gender, age, nationality, education level, job type* and *employment. The net annual income* is used in order to distinguish between subjects with low income and those with high income. The *employment type* and *job type* measures whether the participants are employed, unemployed, student or retired and if they work full time or part time respectively. Finally the *education level* shows if subjects have a high school degree or a university degree.

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[2] The amounts that the subjects donated were very small in order to be compared with their annual income. Therefore I calculated their average daily income and I measured the amount of their donation as a percentage of that.

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Chapter 6

Results

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6.1 Descriptive results

This study includes two different samples. One is the low income sample (i.e. net annual income from 0- 29,999€) with 51 subjects and the other one is the high income sample which consists of 49 subjects (i.e. net annual income 30,000€ or more).

The sample with the low income participants includes:

- 21 males and 30 females
- Average age 37.85
- 36 subjects with a university or college degree and 15 with a high school or less degree
- 27 participants who work in a low status job[3], 12 who work in a high status job, 8 who are unemployed and 4 who are retired
- 29 have an annual net income ranging from 0- 14,999 € and 22 have an annual net income between 15,000 € and 29,999 €
- 20 are Greeks, 7 British, 5 Russians and 19 come from various places around Europe

The sample with the high income participants includes:

- 22 males and 27 females
- Average age 48.51
- 33 subjects with a university or college degree and 16 with a high school or less degree
- 17 participants who work in a low status job, 25 who work in a high status job 7 who are retired

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[3] I categorized the participants in low and high status jobs according to Trautmann et al (2012).

- 28 have an annual net income ranging from 30,000€ to 44,999€, 19 have an annual net income between 45,000€ and 59,999€ and only 2 have an income more than 60,000€

- 12 are Germans, 11 British, 7 Dutch, 5 Greeks and 19 come from various places around Europe

After conducting my experiment I found that 17 subjects with low income donated money to charity while 34 did not. The results are almost the same for the people with a high income with 16 and 33 respectively. As for the amount that each case donated, low status subjects donated on average 2.21€ while wealthy ones gave 2.70€. Although high income participants gave a larger amount of money as expected, however, that was a smaller percentage of their daily income[4] (1.09%) compared to the one that low income people donated (6.32%). These results are presented in the following table.

TABLE 1

Descriptive results

	Net annual income	
	Low income	**High income**
Percentage of subjects who donated	33.33% (17)	32.65% (16)
Average amount of donation	2.21 € (17)	2.70 € (16)
Amount of donation as percentage of daily income	6.32%	1.09%

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[4] The amounts that the subjects contributed to charity were very small and in order to be compared to their net annual income I had to calculate their net daily income and make a comparison to that, to the attention of mine that there is a lot of noise to these results. The noise is due to the rough income estimations that I used for this study from which I could not know the exact amount of participants' income.

6.2 Statistical results

So far we have observed that both wealthy and less wealthy people behaved almost equally altruistic. This is because there was almost no difference in the frequency they donated in both treatments (0.68%). Moreover, I found that the subjects with a low income donated on average a smaller amount of money but a larger amount of their daily income in comparison to high income participants who gave a larger amount of money but a smaller amount of their daily income. Apart from these descriptive results I also needed to define the significant statistical results. Therefore in order to find those I transformed all my data, apart from the amount of donation and age to dummy variables[5].

i. *Donation*

To begin with the first hypothesis (H1), I run the *Fisher exact test for 2x2*. The reason why I used this test is firstly because it is a non-parametric test which does not oblige our sample to have a specific distribution and secondly we have two independent treatments/ samples (low and high income people) and two expected outcomes with equal probabilities (donate or not donate). By this I tested whether or not the frequency of donation (donated=1, did not donate=0) is affected by people's annual income (high income people=1, low income people=2). The null and alternative hypotheses are the following:

H$_0$: *High and low income people donate equally.*
H$_1$: *High and low income people donate differently.*

The results from this test did not show any significant relation (0.556) at a 5% significant level and therefore we cannot draw any conclusion about the frequency that people donate. Thus there is space for more research as we only have evidence that both low and high income people donate with the same frequency.

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[5] Dummy is a variable that takes only the values of 0 and 1.

TABLE 2

Statistical results for donation & income

	Net annual income	
	Low income	**High income**
Percentage of subjects who donated	33.33% (17)	32.65% (16)
Difference	0.68%	
P-value	0.556	

Apart from the non-parametric test I also did a *probit model* (since I have a binary dependent variable) in order to see whether or not there is any significant relation between donation and net annual income[6], gender, education, age and type of job. The findings did not show any significant effect of the independent variables on the dependent one.

TABLE 3

Probit model for donation

Variable	Coefficient	P-value	95% Confidence Interval	
			Lower Level	**Upper Level**
Net annual income	-0.073	0.811	-0.669	0.523
Gender	0.026	0.926	-0.531	0.584
Age	0.013	0.249	-0.009	0.036
Education	-0.532	0.076	-1.120	0.055
Job type	-0.176	0.580	-0.801	0.449
Employment	-0.431	0.273	-1.200	0.339

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[6] Net annual income is a dummy variable which takes the value zero for people who have a net annual income among 0 and 29,000 € (low income) and the value one for those who earn more than 30,000 € per year (high income).

Last but not least I found the *marginal effects* in order to be able to interpret the effects that the independent variables have on donation. Again none of the results was statistically significant at a 5% significant level.

TABLE 4

Marginal effects for donation

Variable	Coefficient	P-value	95% Confidence Interval	
			Lower Level	Upper Level
Net annual income	-0.024	0.811	-0.218	0.170
Gender	0.009	0.926	-0.173	0.190
Age	0.004	0.249	-0.003	0.012
Education	-0.173	0.076	-0.356	0.009
Job type	-0.057	0.580	-0.260	0.145
Employment	-0.140	0.273	-0.386	0.105

ii.   *Amount of donation as percentage of daily income*

Moving now to the second hypothesis of this study (H2), I used only the observations from those who donated and then I ran the *Mann-Whitney U* non-parametric *test*, which compares the two independent samples to each other. We want to test if people with a low income donated a larger percentage of their income to charities than those with a high income. Thus the hypotheses for this test are the following:

H$_0$: *The average amount of donation is the same for both low and high income people.*
H$_1$: *The average amount of donation is different between low and high income people.*

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The findings are significant at a 5% significant level with a p-value equal to 0.044. Therefore we can reject the null hypothesis and conclude that high income people give on average 0.49 € more to philanthropy.

TABLE 5

Statistical results for amount of donation & income

	Net annual income	
	Low income	**High income**
Average amount of donation	2.21 € (17)	2.70 € (16)
Difference	0.49 €	
P-value	0.044*	

*Significant at 5%

In order to find the effects that the independent variables (income, gender, education, type of job and age) have on the dependent one (amount of donation as a percentage of the daily income), I did an *OLS regression* with the data collected from the total number of subjects and thereafter I did a *truncated regression* with only the observations from those who donated money. The age, type of job and employment were the only statistical significant results from the OLS regression with a p-value of 0.002, 0.044 and 0.018 respectively.

TABLE 6

OLS regression for amount of donation

Variable	Coefficient	P-value	95% Confidence Interval	
			Lower Level	**Upper Level**
Net annual income	0.022	0.976	-1.425	1.469
Gender	1.194	0.073	-0.119	2.507
Age	0.085	0.002*	0.034	0.137
Education	0.203	0.769	-1.206	-0.047
Job type	-1.671	0.044*	-3.295	3.157
Employment	1.739	0.018*	0.321	1.469

*Significant at 5%

For the truncated regression I found a p-value smaller than 0.05 for gender, age, type of job and employment. The p-value for gender is 0.033, meaning that the expected amount of donation for a female is 2.178 euro higher than the expected amount of donation for a male, ceteris paribus. For the age, the p-value is 0.001 which means that if the age increases one year, the expected amount of donation will decrease by 0.191 euro. Moving to the type of job (p-value= 0.027), the expected amount of donation for a person with a high status job is 2.774 euro lower than the expected amount of donation for a person with a low status job, ceteris paribus. Finally, employment has a significant p-value of 0.005. This can be interpret by means of saying that the expected amount of donation for a subject who has a job is 4.587 euro higher than that of a person who does not have a job, ceteris paribus.

TABLE 7

Truncated regression for amount of donation

Variable	Coefficient	P-value	95% Confidence Interval	
			Lower Level	Upper Level
Net annual income	0.115	0.905	-1.771	2.000
Gender	2.178	0.033*	0.176	4.180
Age	0.192	0.001*	0.074	0.309
Education	0.397	0.708	-1.680	2.474
Job type	-2.774	0.027*	-5.235	-0.314
Employment	4.587	0.005*	1.387	7.787

*Significant at 5%

6.3 Additional relations

Up to this point I have tried to provide answers to the main two hypotheses of this study. However there are some additional relations, which I am interested in, and these are the effects of gender, education, type of job and employment on donation as well as on the amount of donation. In particular I did the *Fisher exact test for 2x2 tables* in order to test if the difference among the two genders and the frequency of donation is statistically significant. Furthermore, I investigated whether the education level plays a considerable role in giving by separating the subjects to low (high school degree or less) and high (university or college degree) education. I was also interested in the relation between the types of employment and giving, so I divided the subjects in two categories - those who have a job and those who do not have one (either because they are unemployed or because they are retired) - and I ran the *Fisher exact test for 2x2 tables*. Moreover, I grouped the participants who have a job in low status (commercial or other mental and manual jobs) and high status ones (academics and professionals) according to their profession and I did the same non-parametric test. Finally I did the *Mann-Whitney U test* in order to see the effect that each independent variable has on the amount of donation.

i.   *Gender*

Many researchers have studied the relation between charitable giving and gender. Piper & Schnepf (2007); Einolf (2006) and Marx (2000) are some of those researchers who found that women are more likely to donate to philanthropy than men. The results from the present study revealed that 32.56% of the female subjects contributed while the males did so by 33.33%. The difference between the two genders is minor and the *Fisher exact test for 2x2 tables* did not show any statistically important result (1.000) at 5% significant level.

TABLE 8

Statistical results for donation & gender

	Gender	
	Male	Female
Donation	32.56 % (14)	33.33 % (19)
Difference	0.77 %	
P-value	1.000	

Piper and Schnepf (2007) found that men may be less willing to donate to charity but when they do they give more than women. In contrast to this finding, the results from this field experiment showed that males gave on average 2.25 € while females gave 2.51 €. However we cannot draw any conclusion from this as the *Mann-Whitney U test* did not reveal any statistically significant relation among gender and the amount of donation at 5% significant level.

TABLE 9

Statistical results for amount of donation & gender

	Gender	
	Male	Female
Average amount of donation	2.25 € (14)	2.51 € (19)
Difference	0.26 €	
P-value	0.751	

ii. *Education*

I also wanted to check whether or not people with high education degree, such as university or college degree, are more altruistic and donate more often to charities than those with a school degree. The descriptive results showed that when both educated and less educated people are asked to contribute to philanthropy they do so by 24.6% and 51.6% respectively. After conducting the *Fisher exact test for 2x2 tables* I found that this result is significant (0.011) at 5% significant level. Therefore, we can conclude that less educated people donate 26.97% more often to charity than those with a higher education. This conclusion is interesting as it contradicts the results from many relevant studies which found a positive relation among education and charitable giving (Feldman, 2007; Brown & Ferris, 2007; Bekkers, 2006b; Bielefeld et al., 2005).

TABLE 10

Statistical results for donation & education level

	Education level	
	School degree or less	University or college degree
Donation	51.61 %	24.64 %
	(16)	(17)
Difference	26.97 %	
P-value	0.011*	

*Significant at 5%

Additionally, I tested whether or not the level of education influences the amount of money that people give to philanthropy. While the difference in the amount of donation among people with a school degree and a university degree is almost one euro, the *Mann-Whitney U test* did not show any statistically result (0.209) at 5% significant level and thus we only have evidence that people with low education

contribute on average a larger amount of money (2.88 €) to charity than those with higher education (1.95 €).

TABLE 11

Statistical results for amount of donation & education level

	Education level	
	School degree or less	University or college degree
Average amount of donation	2.88 € (16)	1.95 € (17)
Difference	0.93 €	
P-value	0.209	

iii. *Type of job*

Moving now to the type of job, I categorized the participants in two different categories - high and low status professions according to their job. In line with Trautmann et al (2012) a high status is defined by the academic and professional jobs while in the low status commercial and other mental or manual professions are included. The descriptive results showed that 38.09% of the subjects with a low status job donated to charity while only 24.32% of those with high status jobs contributed accordingly. After running the *Fisher exact test for 2x2 tables* I did not find any statistical significant result (0.190).

TABLE 12

Statistical results for donation & type of job

	Type of job	
	Low status job	High status job
Donation	38.09 % (24)	24.32 % (9)
Difference	13.77%	
P-value	0.190	

I also tested whether or not the amount of donation is affected by the type of job. The findings showed that the subjects with a low status job donated on average 2.65 € to philanthropy while those with high status jobs gave 1.75 €. The *Mann-Whitney U test* did not reveal a statistically significant relation (0.220) at 5% statistical level.

TABLE 13

Statistical results for amount of donation & type of job

	Type of job	
	Low status job	Low status job
Average amount of donation	2.65 € (24)	1.75 € (9)
Difference	0.90 €	
P-value	0.221	

Therefore, the effects of job type on both donation as well as the amount of donation cannot be explained and we only have evidence that people with low status jobs give to philanthropy more often and larger amounts that those with high status jobs.

iv.   Employment

Last but not least, I was interested in finding out if people who have a job are more pro-social and donate more often to charities than those who do not work (either because they are unemployed or because they are retired). The results showed that almost 60% of those who do not work donated while less that 30% of those who have a job did so. From the *Fisher exact test for 2x2 tables* I found a significant relation (0.015) at 5% significant level. This can be interpreted by saying that people who do not have a job give to charity 30.73% more often than those who have one.

TABLE 14

Statistical results for donation & employment

	Employment	
	Work	Do not work
Donation	27.16 %	57.89 %
	(22)	(11)
Difference	30.73 %	
P-value	0.015*	

*Significant at 5%

The descriptive results for the amount of donation showed that working people tend to contribute on average a larger amount of money (2.46 €) to philanthropy than those who do not work (2.28 €). However, the *Mann-Whitney U test* did not reveal a

major relation on 5% significant level and thus there is space for further research on this topic.

TABLE 15

Statistical results for amount of donation & employment

	Employment	
	Work	Work
Average amount of donation	2.46 €	2.28 €
	(22)	(11)
Difference	0.18 €	
P-value	0.922	

Chapter 7
Limitations

In this study there have been certain limitations which should also be taken into account:

- First of all, because of the time constraint I did not have the chance to realize my initial idea which would make my results more precise. I had planned to visit the cafeterias of two different hotels (an affordable one and a more expensive one) and inform the clients that the hotel would offer one of the ordered beverages for free. A money box would have been placed on the cafeteria's tables and I would ask the participants to optionally donate money to the *Unicef* organization which they would place in the money box. The money boxes would make the participants believe that their donation is anonymous so the conclusions drawn from this experiment would be more accurate as the subjects would have acted more intuitively in contrast to the beach concept where they were face to face with the experimenter. Thus, in the former case their decision would reflect their actual behavior (altruistic or selfish) and therefore their eagerness to donate.

- Due to budget constraint I could not spend more than 100 € on this research and therefore I could only include 100 subjects to my experiment. Consequently the results may not be very representative of the general European population and should not be broadly generalized.

- In this study I focused on one humanitarian organization, *Unicef*, which is an organization providing help to children and women in need, in the developing world. Thus the subjects did not have the chance to choose the charitable organization they would make their contribution to. Therefore, it may be the case that those who did not donate decided so because they were not willing to give money to this specific organization or because they prefer donating to different types of philanthropy (such as animal protection) and not because of a self-interest behavior.

- Using the beach as the natural environment for this study, I did not manage to find many people with extremely high income (meaning more than 60,000 €

per year). Therefore the comparison is basically between the altruistic behavior of low and middle income people.

- All subjects, no matter if they contributed or not, were asked to fill in a form with their personal data. This form was in English and the net annual income was expressed in euro. This was difficult for some subjects who were from a country with a different currency (e.g. U.K.) as they did not know to which category exactly their income fell into.

- Last but not least, although this experiment was a natural field one, some of the subjects were biased. The reason was that some of them watched the others around them donating or not money and thus had more time to think what their response would be. In order to avoid this and make the subjects react intuitively I tried to randomly go around the bathers who were situated at some distance. However there were two cases where the participants kept the bottle of tea without offering any money but after watching some others nearby contributing they decided to do so as well.

Chapter 8
Conclusion

The aim of this thesis is to reveal how eager people with different incomes are to donate money to charitable organizations. Specifically the research question is as follows:

Do people with a high income behave more altruistically and donate more often and more generously to charities than those with a low income?

The conclusions drawn from this study are primarily two. Firstly it was shown that high income people donated larger amounts of money to humanitarian organizations than those with a low income and secondly evidence was shown that both wealthy and less wealthy subjects donated to charity with the same frequency. Specifically, the results from the conducted experiment showed a statistically significant relation between wealthy and less wealthy people as far as the amount of their contribution was concerned. Thus we can conclude that high income people tend to be more altruistic and pro-social. In line with previous researches, I found that while wealthy people are likely to donate more, the amount of their contribution is a smaller proportion of their discretionary income in comparison to those with a low income who offered a larger percentage of their discretionary income. However this result is opposed to Piff et al (2010) where they found that less wealthy people are more pro-social and give more than wealthy ones.

Moving now to the implications of this study, as it was mentioned in Chapter 1, this paper can be beneficial in several fields. Firstly, if we translate these finding to the citizens' willingness to pay taxes we can say that rich people are less likely to commit frauds. The reason is that wealthy people donated larger amounts than those with low incomes so it might be the case that the former care about the community more or they are doing it because they can afford to do so. However this conclusion should not be broadly generalized as the amount of money each subject donated was only a small proportion of their net annual income and it may not reflect an actual willingness of giving.

As for the working environment, if we combine the findings from the current study with those of the *SEI Private Wealth Management* research we can say that the salaries the employees get can affect their willingness to make some effort. In particular the *SEI Private Wealth Management* organization found that wealthy people feel an obligation to donate to charity and the findings from this study showed that actually high income people donate more. Thus, in the world of business, it may be the case that workers who earn high wages are more altruistic and feel the commitment to do their best in their job as a way to show their gratitude to the employer for the high wage they are being offered.

Finally, this thesis contributes to the academic field of behavioural economics by providing a more concrete conclusion about the relation between charitable eagerness and people's income. To my knowledge, the reason is that this is the first study which is actually measuring this relation with the use of a natural field experiment.

Because of time and budget constraints, however, this study presents some limitations which offer the opportunity for future research. The lack of statistically significant results in one of the two main hypotheses of this study - frequency of donation and different social classes - and in some of the additional relations is one of them. This can be attributed to the small number of observations and can be solved by increasing the number of participants in the experiment.

Overall, this study focuses on the effect that people's income has on charitable giving. However, the conclusions drawn from this paper reveal the participants' altruistic behavior only as far as their willingness to contribute to a humanitarian organization is concerned. Therefore, it would be interesting to have a second research where the same experiment would be conducted without though citing a philanthropic organization as the recipient of the sum of the donations.

Another scope for further research would be to find whether or not the findings from this study would change with anonymity and without the use of incentives. In particular, it would be interesting to conduct an experiment where the

participants would not come in contact with the experimenter and they would assume that their contributions stay anonymous. In this way they would act more naturally which would then reveal their actual pro-social or selfish behavior. Moreover, it would be interesting to examine if there is any change in the relation between donation and wealth when the subjects do not receive an incentive, unlike our case with the bottle of tea.

Last but not least, the subject pool of this study includes people with different nationalities. It is known that people with different cultures and levels of wage present a diverse perception of money. This may affect their appetite for charitable giving and an additional research on this topic can show if there is in fact an effect of nationality on the frequency and the amount that people donate in philanthropy.

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Appendix I

Form of personal data:

Gender: ☐ Male
☐ Female

Age:

Nationality:

Education level: ☐ High school degree or less
☐ College or University degree

Job type: ☐ Employment:
☐ Student
☐ Student with job
☐ Unemployed
☐ Retired

Employment type: ☐ Part time job
☐ Full time job

Net annual income: ☐ 0- 14,999 €
☐ 15,000 €- 29,999 €
☐ 30,000 €- 44,999 €
☐ 45,000 €- 59,999 €
☐ More than 60,000 €

Appendix II

Sample size calculation:

The variance of the outcomes in the two treatments we expect to be equal so I used the following formulas according to List, Sadoff and Wagner (2010):

$$\frac{\quad\quad}{\quad\quad\quad\quad}$$

The variance for both samples is equal (   ) and the price a well (   ) so the sample size will be equal (   ). By substituting into δ we get the following:

$$\frac{\quad\quad}{\quad\quad\quad\quad}$$

$$= \quad\quad\quad\quad -$$

$$= \quad\quad\quad\quad - = 62.72 \text{ subjects in total}$$