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If I Were a Rich Man: The Effects of Wealth in Altruism and Trust

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Abstract

There have been numerous studies that have used the dictator game and the trust game in order to measure the altruism and trust of individuals under various circumstances.

This thesis examines whether rich people exhibit different levels of altruism and trust compared to their non-rich counterparts. It also examines whether there are different levels of altruism and trust between those who became rich because of their skills and those who did because of luck.

Two experimental designs are introduced: the ideal experiment which requires a significant amount of resources and is described on a theoretical level and the real experiment which tries to replicate the ideal experiment with much fewer resources. In the real experiment which was conducted, we find no significant differences among rich and non-rich individuals regarding their exhibited altruism and trust.

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1. Introduction

1.1 Towards a Better World

Many could argue that we are living in what could be the most prosperous time of human history. Technological advances and scientific progress has contributed in changing fundamentally the way millions of people live. The global average life expectancy has increased every single year from 1960 until 2014, starting from 52 years in 1960 and reaching 71 years in 2014 (World Bank (c)), which is partly attributed to the advances of medical science. Adult literacy, a major index for education, has grown from 76% in 1990 to 85% in 2010 (World Bank (a)). More importantly, hundreds of millions of people have been lifted from extreme poverty. From 44.3% of the world population that lived under extreme poverty in 1981, the percentage has dramatically decreased to 12.7% in 2012 (World Bank (b)). This means that during these three decades, the people living under extreme poverty has decreased by more than 1 billion people. Global access to electricity has grown from 75.6% of the population in 1990 to 84.6% in 2012 (World Bank (d)). The use of electricity, telecommunications, transportation and the internet has contributed in many ways in making our life easier and providing us with affordable technology that some decades ago could not have been imagined by most of us.

The Human Development Index (HDI), is a composite statistic aiming to measure human development in terms of a long and healthy life (via life expectancy at birth), knowledge (via mean years of schooling and expected years of schooling) and standard of living (via Gross National Income per capita) (United Nations (b)). The HDI has been measured for a total of 188 countries. For 104 countries we have the first data since 1980, while for seven of them only since 2010. It is striking that all but one country has increased their HDI during the period from the first measure until the last one in 2014[1].

1.2 Income Inequality: A Problem for the Modern World

Despite all of the above, it would be an overstatement to say that things cannot get better. It is important to acknowledge the progress that it has been made, but it is also important for global institutions to keep allocating resources towards progress and human development. For example extreme poverty has been declining, but even the latest and lowest figure of 12.7%

[1] The only exception is South Sudan, which was measured at 0.470 in 2010 and at 0.467 at 2014 (United Nations (a)).

of global population amounts to 890 million people, which is still a significant figure. Furthermore, income inequality might prove to be a persisting and even a rising problem in the following years. The issue of the rising income inequality is one of the major discussions of public debate, especially in the United States. In Figure 1 (Saez, 2013) we can see the U-shaped curve of the top 10% income share in the United States from 1917 until 2014. We can infer from that the growing income inequality during the period of the Roaring Twenties, which was followed by a decreasing trend that was maintained from the 1940s until the early 1980s. Since then, income inequality has started growing and reached its peak levels during the last years, equaling the record levels of the 1920s.

Income inequality is not an issue only in the United States of America, but rather a phenomenon that is rising globally. As we can see in Table 1, there are numerous countries that during the last years have seen an increase in their Gini coefficient, which is one of the most commonly used indices measuring income inequality.

Figure 1. *Top 10% income share in the United States 1917-2014* (Saez, 2013)

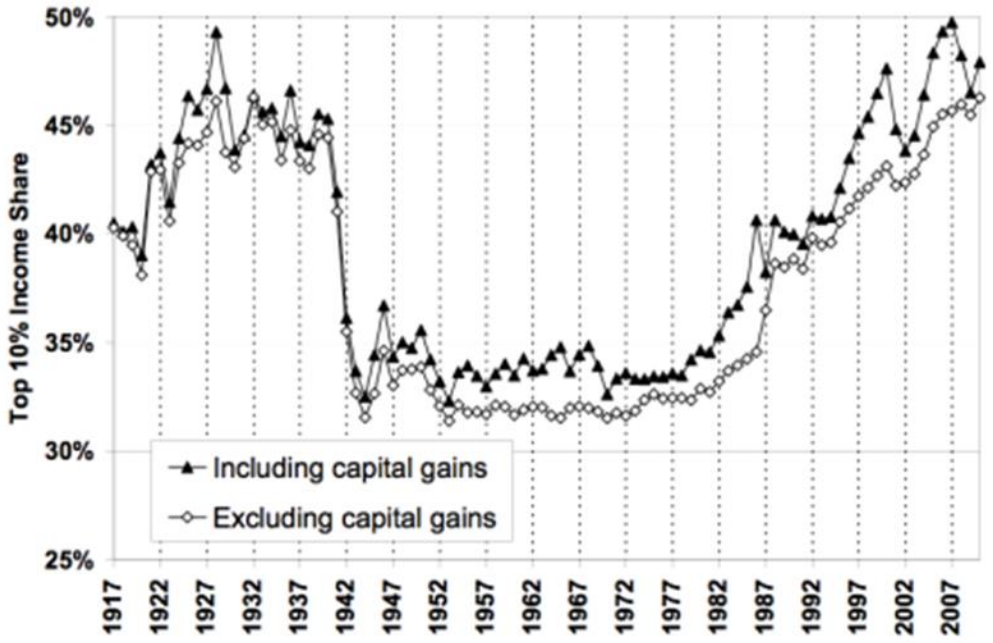
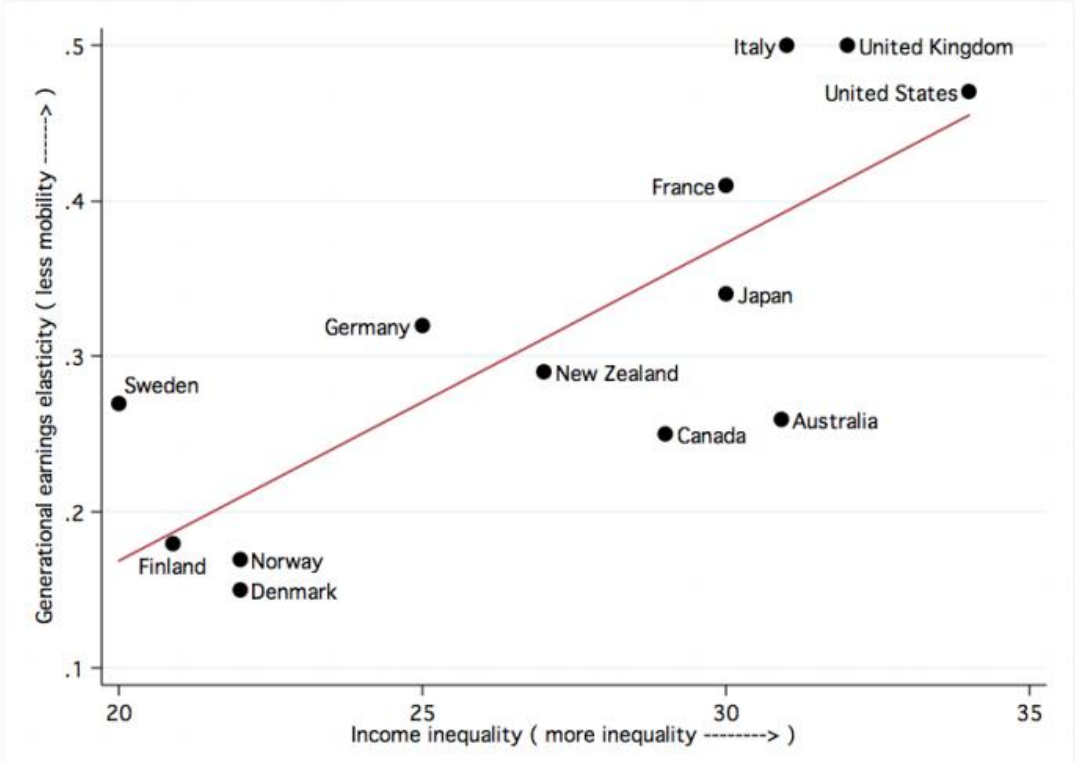


Table 1: *Gini index increase during the last decades per country.* (Data retrieved from the Luxembourg Income Study Database)

Country	**Gini index**		**Difference**
Australia	0.281 (in 1981)	0.330 (in 2010)	+ 0.049
Austria	0.227 (in 1987)	0.269 (in 2004)	+ 0.042
Belgium	0.227 (in 1985)	0.279 (in 2000)	+ 0.052
Canada	0.283 (in 1987)	0.317 (in 2010)	+ 0.034
Czech Republic	0.205 (in 1992)	0.256 (in 2010)	+ 0.051
Finland	0.207 (in 1987)	0.259 (in 2013)	+ 0.052
Germany	0.244 (in 1981)	0.286 (in 2010)	+ 0.042
Israel	0.303 (in 1979)	0.371 (in 2012)	+ 0.068
Italy	0.306 (in 1986)	0.327 (in 2010)	+ 0.021
Luxembourg	0.236 (in 1985)	0.283 (in 2013)	+ 0.047
Mexico	0.430 (in 1984)	0.459 (in 2012)	+ 0.029
Netherlands	0.236 (in 1987)	0.257 (in 2010)	+ 0.021
Norway	0.224 (in 1979)	0.243 (in 2010)	+ 0.019
Poland	0.271 (in 1986)	0.316 (in 2013)	+ 0.045
Slovakia	0.189 (in 1992)	0.263 (in 2010)	+ 0.074
Slovenia	0.229 (in 1997)	0.271 (in 2012)	+ 0.042
Spain	0.318 (in 1980)	0.343 (in 2013)	+ 0.025
Sweden	0.197 (in 1981)	0.237 (in 2005)	+ 0.040
Taiwan	0.267 (in 1981)	0.308 (in 2013)	+ 0.041
United Kingdom	0.267 (in 1979)	0.330 (in 2013)	+ 0.063
United States	0.310 (in 1979)	0.377 (in 2013)	+ 0.067

Alan Krueger (2012) has named the negative relationship between income inequality and upward social mobility as the 'Great Gatsby Curve' (Corak, 2013), while Chetty, Hendren, Kline & Saez (2014) have found that income inequality in the United States correlates strongly with areas that have low intergenerational income mobility and low levels of social capital.

Figure 2. *The Great Gatsby Curve: More Inequality is Associated with Less Mobility across the Generations* (Corak, 2013)



1.3 Altruism, Trust and Social Capital

Social capital is a concept that has been first introduced by Lyda Hanifan (1916) who described it as follows:

'*I do not refer to real estate, or to personal property or to cold cash, but rather to that in life which tends to make these tangible sub-stances count for most in the daily lives of a people, namely, good-will, fellowship, mutual sympathy and social intercourse among a group of individuals and families who make up a social unit…*'

While the concept of social capital is a multidimensional and complex one and because of this it cannot be easily defined by a universally accepted definition, '*we can think of social capital as the links, shared values and understandings in society that enable individuals and groups to trust each other and so work together.*' (Brian, 2007). Woolcock & Narayan (2000) define social capital as '*the norms and networks that enable people to act collectively*' and recognize trust and reciprocity as important features of social capital. Both Coleman (1988) and Putnam, Leonardi & Nanetti (1994) recognize trust as a manifestation of social capital. Bellemare & Kröger (2007) add that '*social capital rests…on the trust, trustworthiness, and altruism between individuals*'.

More importantly Knack & Keefer (1997) conclude that trust is associated with stronger economic performance and growth. Similarly Zak & Knack (2001) found that trust is positively associated with investment rates and growth in per capita income, that investment as a share of GDP rises by about 1 percentage point for every 7 percentage point rise in trust and that average annual income growth rises by about 1 percentage point for each 15 point increment in trust.

Kolm (2006) states that altruism (along with giving and reciprocity) has '*an overwhelming importance in society, its economy and the allocation of resources*.' Altruism permits 'the very existence of a free and peaceful society' and it is '*an essential factor of economic efficiency, productivity and growth through various ways.*' Furthermore, it has been associated with greater well-being, health and longevity (Post, 2005), not to mention the direct positive effects of giving for the people on the receiving side.

In this context, we believe that social preferences[2] like altruism and trust play an important role in our societies and given the widening gap between the rich and the poor we decided to examine social preferences and in particular altruism and trust, and see whether they are related wealth, and if so what kind of relationship this is.

2. Literature Review

The idea that people care for the well-being of other people is not a new one and many influential economists like Adam Smith (1759), Gary Becker (1974) and Paul Samuelson (1993) have expressed it throughout the history of economic thought.

It is thus interesting that many economists in our days believe that just one factor is enough to determine our economic decisions: the maximization of self-interest, expressed in monetary or material terms. While this hypothesis explains very well observed behaviour in certain environments, such as competitive markets (Smith, 1962; Davis & Holt, 1993), it fails to explain equally well behaviour in other types of environments.

Indeed during the last 30 years there have been important findings that contrast the self-interest maximization hypothesis in certain environments. Some of the experimental games that contributed to this are the ultimatum game, the dictator game and the trust game. In the following paragraphs, we are going to describe these experimental games and elaborate on

[2] The term social preferences is also known as other-regarding preferences in the literature. In this thesis we will use the term social preferences, unless the term is quoted.

how through these games, economists came to question the self-interest maximization hypothesis.

One of the most important experimental games that had a major contribution in questioning the validity of the self-interest hypothesis was the ultimatum game that was introduced by Güth, Schmittberger & Schwarze (1982).

In the ultimatum game a pair decides how to allocate a certain amount of money. While one of the participants, the Proposer, decides how to allocate the money, the other, the Responder, can reject his offer and thus force both participants to get nothing. The self-interest hypothesis would suggest that even the smallest positive offer would be accepted, because the Responder would be better-off in monetary terms and so the Proposer should offer (something close to) the minimum positive amount.

However, experimental evidence suggest that this is not the case. The vast majority of the offers of the Responder are between 40% and 50% of the total amount to be allocated and proposals lower than 20% are rejected with 40%-60% probability (Fehr & Schmidt, 2006).

Thus, it is fair to argue that many Responders are willing to sacrifice their monetary improvement in order to punish unfair allocations. On the other hand, Proposers decide to make generous offers because of a combination of two factors: having social preferences, but also fearing that low offers might be rejected (Camerer & Thaler, 1995).

In order to filter out the effect of strategic behavior in the ultimatum game, experimenters can use the dictator game that it was first introduced by Kahneman, Knetsch & Thaler (1986) and was simplified by Forsythe, Horowitz, Savin & Sefton (1994b) in what is considered to be its classic version. In the dictator game, Player 1 decides how to allocate the money, while Player 2 cannot reject his offer, essentially making player 1 a Dictator (instead of a Proposer) and Player 2 a Recipient (instead of a Responder). In this way, *'the dictator game controls for strategic behavior in the ultimatum game'* (Hoffman, McCabe & Smith, 1996b) and this is why we chose to measure social-preferences and altruism in particular through the dictator game, rather than the ultimatum game.

The experimental results from various studies regarding the dictator game have overwhelmingly showed that participants choose to give money to their counterparts, even though it is against their narrow self-interest, as defined by the self-interest hypothesis. In experiments the dictators allocate on average between 10% and 25% of their surplus (Fehr &

Schmidt, 2006), while a meta-analysis by Engel (2011) suggests that the average give rate of dictators from all reported or constructed means of 616 treatments, is 28.35% of the pie. One way to explain this type of consistent and predictable behaviour is through altruism.

In technical terms, people with altruistic preferences have utility functions that depend (partly) on caring about the material resources allocated to other agents in a relevant group. Altruism can be described as *'a form of unconditional kindness'* and *'an altruist is willing to sacrifice own resources in order to improve the well-being of others.'* (Fehr & Schmidt, 2006).

Another important and influential experimental game, used for eliciting social preferences is the trust game. The trust game (Berg, Dickhaut & McCabe, 1995) is a two-player game where subjects are randomly allocated in two rooms. Those who have been allocated in Room A decide how much of the money they received as a show-up fee they will send to their counterpart in Room B. Subjects know that the amount sent from Room A to Room B will be tripled. After the amount is sent, those in Room B decide which part of the tripled amount they will send back to their counterparts in Room A and which part they will keep for themselves.

According to the self-interest hypothesis, those in Room B are expected to keep all of the tripled amount of money sent by those in Room A. Anticipating this, those in Room A are expected to send nothing to those in Room B. Thus, the self-interest hypothesis predicts that during the trust game, the average amount sent from Room A and also the average amount sent back from Room B will be zero. In fact the experimental results are quite different. In the study conducted by Berg et al. (1995) and specifically in the one-shot treatment where subjects do not have any information on previous results, 30 out of 32 subjects decided to send positive amounts of money to those in Room B. It would not be illogical to infer that the participants in Room A need to show some kind of trust to their counterparts in Room B or *'a willingness to bet that another person will reciprocate a risky move (at a cost to themselves)'* (Camerer, 2003), as they transfer them an amount that they could not know beforehand if they are going to get back or not. Interestingly, Johnson & Mislin (2011) have found in a meta-analysis of 162 trust games that the average give rate sent by Senders in Room A is 50%.

Another typical example of social preferences is reciprocity. Cox (2004) describes positive reciprocity as *'a motivation to repay generous or helpful actions of another by adopting actions that are generous or helpful to the other person. An action that is positively reciprocal*

is a generous action that is adopted in response to a generous action by another.' Reciprocity can be divided into 'strong reciprocity' (Gintis, 2000), where the reciprocal behaviour is not based on a future material benefit and can be examined in one-shot experiments and into weak reciprocity, that is motivated by long-term self-interest (Fehr & Fischbacher, 2003).

The main difference between altruism and (positive) reciprocity is that altruism can be classified as unconditional kindness, while reciprocity as conditional kindness. Cox (2004) stresses the importance of separating the actions that are motivated by social preferences into two main categories: 1) actions motivated by trust and reciprocity which are conditional on the behavior of others and 2) actions motivated by social preferences characterized by altruism or inequality aversion that are not conditional on the behavior of another.

This poses a challenge to distinguish between strategic reciprocity (in order to maximize long-term self-interest) and unconditional reciprocity, which is more similar to altruism. In the words of Cox (2004):

'Suppose that the first mover in an extensive form game chooses an action that benefits the second mover. Further suppose that, subsequently, the second mover adopts an action that benefits the first mover. Is the second mover's action motivated by reciprocity or unconditional other-regarding preferences characterized by altruism or inequality aversion?'

To answer this Cox devises a triadic experimental design where treatment A is the trust game, similar to the original designed by Berg et al. (1995) and treatment B is a dictator game. Treatment C involves a decision task of treatment A, but is different, because proposers (or first movers) do not have a decision to make. Every responder (or second mover) is given an initial endowment plus the tripled amount of money sent by one participant in treatment A, while every proposer is given the amount of money kept by one of the responders after the first stage of the game in treatment A. By comparing the results of treatment A and B, Cox separates the effects of trust and altruism, while by comparing the results of treatments A and C, he separates the effects of reciprocity and altruism.

His results show that *'there is significant trusting behavior'* and *'that the subjects exhibited positive reciprocity in the investment game*[3]*.'*

A frequent criticism is that the experimental results might not be robust when larger stakes are in play. It might sound more reasonable for John Doe to punish an unfair allocation of 10%-

[3] The trust game is also known as the investment game. In this thesis we only use the term trust game.

90% in an ultimatum game when he sacrifices an offer of €1, but will he punish an equally unfair allocation when the stakes are much higher? Hoffman, McCabe & Smith (1996a) decided to raise the stakes for the ultimatum game from $10 which was the typical amount used in similar studies (Hoffman, McCabe, Shachat & Smith, 1994; Forsythe, Horowitz, Savin & Sefton, 1994a) to $100 and found no significant differences in the offer distributions between $10 and $100 stakes. Furthermore, Cameron (1999) conducted ultimatum games in Indonesia with the stakes being the equivalent of three months' income and she observed no effect on proposers' behavior and a slight reduction of the rejection probability.

In the long list of dictator and trust game experiments that have been conducted and published several treatments have been tested.

One hypothesis is that people with higher income would give more, compared to those with lower income, at least in absolute terms. Indeed Eckel, Grossman & Milano (2007) findings partly support this notion. On the other hand, other studies find no relationship (Andreoni & Vesterlund, 2001; Buckley & Croson, 2006).

Piff, Kraus, Côté, Cheng & Keltner (2010) hypothesized that lower class individuals care about the welfare of others and engage more in prosocial behavior in order to adapt to their hostile environment. Indeed, they found that lower class individuals were more generous, charitable, trusting and helpful compared to their upper class counterparts. They speculated that this might be in order to '*promote trust and cooperation from others, thus ensuring that in times of hardship, their needs, will, too, be met'*. They have measured generosity in the setting of the dictator game and trust in the setting of the trust game.

There are several studies that support the notion that poor people are more generous than rich ones. In Britain in 2010 and 2011 Yaojun Li has found that the poorest 20% of those surveyed gave 3.2% of their monthly income to charity, while the richest 20% gave just 0.9% of theirs (Pudelek, 2013). In the United States in 2011, the wealthiest 20% of Americans contributed on average 1.3% of their income to charity, while the bottom 20% donated 3.2% of their income, despite the fact that unlike middle-class and wealthy donors, most of them cannot take advantage of the charitable tax deduction on their income-tax returns (Stern, 2013). In Canada in 2013, households with annual income less than 20,000 Canadian dollars (CAD) donated on average 318 CAD annually, while those households with income between 120,000 and 139,999 CAD, donated on average 412 CAD (Statistics Canada, 2015).

We could not find a similar wealth of studies addressing the relationship between wealth and trust.

In this paper we decided to examine whether there is a relationship between wealth and altruism and wealth and trust and if so what kind of relationship this is. In other words, would rich individuals be more or less altruistic and/or trusting compared to their non-rich counterparts? To do this, we are going to use the dictator game, as a proxy to measure unconditional altruism and the trust game in order to measure trust.

Furthermore, we want to examine if the medium of becoming rich affects the level of altruism and/ or trust of rich individuals. In other words, would people that became rich because of sheer luck behave differently from those who became rich (partly) because of their skills? We hypothesize that people who became rich because of luck, would be more prosocial, compared to those who became rich partly because of their skills.

Our hypothesis is based in the concept of Social Dominance Orientation (SDO). SDO is a personality variable introduced by Pratto, Sidanius, Stallworth & Malle (1994) and it measures '*one's degree of preference for inequality among social groups*'. SDO reflects whether an individual prefers a more egalitarian or a more hierarchical structure of society. Ideologies like Social Darwinism, Protestant Work Ethic (Weber, 1904), the belief in a just world (Lerner, 1980) and other meritocratic ideologies support that the fittest individuals advance socioeconomically, while the unfit do not and also that hard work leads to success. Naturally, the supporters of those ideologies are expected to score high on SDO, while supporters of egalitarian ideologies are expected to score low. Pratto et al. (1994) have tested several variables and their relationship to SDO. We are going to focus on just three of them: noblesse oblige (the idea that people who have high social rank or wealth should be helpful and generous to people of lower rank or to people who are poor), meritocratic ideologies (in which the talented individuals are chosen and moved ahead on the basis of their achievement), social welfare policies (that primarily assist disadvantaged groups) and altruism. As expected the three variables that are more egalitarian (noblesse oblige, social welfare policies, altruism) were negatively correlated with SDO. On the other hand some of the meritocratic ideologies were positively correlated with SDO.

We speculate that people that have become rich due to their skills, talents and hard-work, may be more supportive of meritocratic ideologies and may score higher on SDO. However, the relationship between SDO, meritocratic ideologies and wealth are not examined in this thesis.

Another finding in support of our hypothesis has been found by Smith & Stone (1989). They have examined the beliefs of people for the cause of both wealth and poverty and they have found that the majority of their participants attribute poverty and wealth to individual characteristics. More specifically, they asked a group of people why poor people exist today and the five most popular attributions for poverty were the following:

1) Poor people are not motivated due to welfare, 2) they lack drive and perseverance, 3) they live in weak and often broken families, 4) they have loose morals and abuse drugs and alcohol and 5) they lack the talent and ability to succeed.

They also asked why wealthy people exist in America and the five most popular attributions for wealth were the following:

1) They possess drive and perseverance, 2) they are willing to take risks, 3) they have the talent and ability to succeed, 4) they are hard-working and 5) they have contact and 'pull'.

From the aforementioned we can see that among 19 possible attributions for wealth, the four most popular are related to personal talents and qualities, while only one is related to the external environment. Similarly, from 19 possible attributions for poverty, four of the five most popular are related to personal characteristics, while only one does not.

3. Experimental Design

The experimental design consists of two main sections.

The first one describes the experiment that the author would conduct if he had unlimited resources, both financial and non-financial ones. Furthermore, it can serve as a proposition design for other researchers interested in similar topics. We will refer to the first design as the ideal experiment.

The second section describes the experiment that the author conducted, by scaling down the initial (and much more ambitious) design and by making several compromises that were necessary in order to proceed to the realization of the experiment, given the finite resources in hand. We will refer to the second design as the real experiment.

It is important to note that the real experiment cannot be used as a perfect substitute for the ideal experiment and thus the results and conclusions extracted from it cannot be used as if the ideal experiment was conducted. However, the author's goal is to be as close as possible

to the ideal experiment, given the fact that the resources that were used were multiple times lower than those needed for the ideal experiment.

In the following paragraphs we will take a closer look to the experimental games that we have mentioned in Section 2 and which will be used to measure altruism and trust in both the ideal and the real experiment. In particular, to measure trust we will use the trust game and to measure altruism, we will use the dictator game.

In Section 3.1 we will describe the two games that we will use for the ideal experiment, while in Section 3.3 we will describe the versions of the same games used in the real experiment, taking into account the constraints that we have in an online questionnaire.

3.1 Measuring Altruism and Trust: the Dictator Game and the Trust Game

Measuring Trust: The Trust Game

In our trust game, we will follow the procedure that was introduced by Berg et al. (1995). In Stage 1 of the trust game, the subjects are randomly divided into two roles, the Proposers and the Responders. All the Proposers are in one room, let us call that Room A, while the Responders are in another one which we will call Room B.

All subjects are given €10 as a show-up fee. While the Responders keep their recently earned money, the Proposers must decide what part of their money will send to an unknown Responder in Room B.

Every Proposer has the choice to not send anything, send the whole €10 or send every other possible amount of money between €0 and €10. Let us name the amount sent x. The amount of money is then tripled and so the Responder has now €[10+(3*x)], while the Proposer has €(10-x).

Now, in Stage 2 of the game, the Responder has the opportunity to send back to the Proposer any amount from €0 to €(3*x).

The procedure is more easily understandable by giving the following example:

- Proposer 1 (P1) decides to keep €7 and send €3 to Responder 1 (R1).
  The amount is tripled and thus after Stage 1 P1 has €7 and R1 has €19.
- Now in Stage 2, R1 decides to send back €4 of the €9 he received and thus after Stage 2 P1 has €11 and R1 has €15.

What we want to measure in this experiment is the Proposers' trust. We assume that when Proposers send any positive amount of money to the Responders, it is (partly) because they trust them to send back at least the same amount of money they received during Stage 1. We also assume that the higher the amount sent by the Proposer, the higher is his trust.

Table 2: *Example for the payoffs before Stage 1, after Stage 1 and in the end of the trust game*

	Before Stage 1	**After Stage 1**	**After Stage 2**
Proposer	10€	7€	11€
Responder	10€	19€	15€
Total	**20€**	**26€**	**26€**

Measuring Altruism: The Dictator Game

In our dictator game, we will follow the procedure that was used by Forsythe et al. (1994a): subjects are randomly allocated into two rooms. Room A is the Dictators' room, while Room B is the Receivers' room. At the beginning of the session the subjects are given instructions and can ask questions towards the experimenter. The instructions given to the subjects are based on those given in Forsythe et al. (1994a) with only differences in the payoffs and the use of double-blind design instead of the single-blind one.

What we want to measure in this experiment is the Dictators' altruism. We assume that when Dictators send any positive amount of money to the Receivers, it is because of their altruistic preferences, because they do not expect any type of reciprocal behavior and also neither the experimenters nor any of the participants can identify each person's decisions and payoffs, due to the use of the double-blind design. Furthermore, we assume that the higher the amount sent by the Dictator to the Receiver, the higher is his altruism.

3.2 The Ideal Experiment

For both the dictator and the trust game, there will be a control group that consists of non-rich subjects. In order to ensure that our control group is not excessively rich, we need the participants to fill-in a questionnaire where they will specify their monthly income before participating in the experiment. Depending on the country of origin, we set a 'being-rich-limit', which is used to filter out all of our participants that are considered to be rich.

We decided to set this limit as thrice the average personal earnings[4] as it has been defined by the Organisation for Economic Cooperation and Development (OECD) in the 2014 edition of the Better Life Index. The average personal earnings are of course different in different countries. For example in the Netherlands the limit would be roughly $11,340 per month, while in Greece it would be $6,860 per month. Thus, if a participant has a monthly gross income of $10,000 per month, he is eligible to participate in the experiment as a non-rich individual if he lives in the Netherlands, but not if he lives in Greece.

Those who are ineligible to participate in the main part of the experiment, will only receive the €10 show-up fee and will be subsequently dismissed. The remaining subjects will receive relevant information about the experiment and will be randomly assigned to either the Proposer/ Dictator or the Responder/ Receiver role. Both experiments will follow a double-blind design similar to that used by Hoffman et al. (1994) to ensure that subjects will not succumb to experimenter demand effects and act according to their real social preferences.

It is important to clarify at this point that we will use a within-subject experimental design. That is, we will have our subjects participate in either a dictator game or a trust game. Then we will provide them the opportunity to get rich either by luck (by winning a lottery game) or by skill (by winning a quiz competition). For both the lottery game and the quiz competition we define the getting rich as a prize of €1 million. After that, we will have our subjects participate for the second time in a dictator game or a trust game. We are interested in the decisions made by those subjects that will become rich and so we will examine the impact of getting rich (either by luck or by skill) in altruistic and trusting behaviour by comparing the results of subjects in the trust game and the dictator game before and after being rich. We decided to conduct a within-subject design in order to address potential selection biases and to 'isolate' the being-rich effect from other potential confounding factors.

A possible drawback of using a within-subject design is that there might be learning effects among the subjects. For example, a subject that has given a 50/50 share in the 1st dictator game might feel less inclined to give an equally high amount the 2nd time he plays the game. To tackle this problem, we will use the difference between the results of the first and second

[4] '*This indicator refers to the average annual wages per full-time equivalent dependent employee, which are obtained by dividing the national-accounts-based total wage bill by the average number of employees in the total economy, which is then multiplied by the ratio of average usual weekly hours per full-time employee to average usually weekly hours for all employees. It considers the employees' gross remuneration, that is, the total before any deductions are made by the employer in respect of taxes, contributions of employees to social security and pension schemes, life insurance premiums, union dues and other obligations of employees*.'

game between those that got rich and those that did not. By doing that, we are getting closer to isolating the 'learning effect'.

For example, let us suppose that after conducting the experiment, we have the results depicted in Table 3 for the dictator game.

Table 3: *Example of the average payoffs between treatments in the dictator game in the 1st and the 2nd period.*

	Non-rich	**Rich by luck**	**Rich by skill**
Money given (1st period)	**45**	**46**	**43**
Money given (2nd period)	**35**	**28**	**29**

In this case, we can assume that the mitigation of altruistic behaviour might be partly because of learning effects and partly because of wealth effects. In our example the control group drops their contribution by 10 units, while the treatment groups drop their contribution by 18 and 14 units. Thus, it is safe to assume that not all of the difference in the two treatments is caused by the learning effects, as in the control group, where the difference between the 1st and 2nd period was only 10 units.

Treatment 1: Getting Rich by Luck

Now we need to do the same experiment for our treatment groups. The first treatment is for people getting rich by luck. That is, they did not become rich because of their entrepreneurial, job or any other kind of skills, but by pure chance.

To replicate this, we gather our subjects and after filtering out the already rich, we inform them that they will participate in a lottery where they have a 0.2% chance to win €1 million. So from every group of 500 subjects, two will win €1 million and the rest 498 will receive a show-up fee equal to €10. Alternatively and if we want to go for a more pragmatic and feasible approach, we can do our experiments in poorer countries and offer an amount equal to a two years' average wage (for example in Ukraine that will be around €3,450 for women

and €4,680 for men[5]). After the lottery we invite the subjects to participate again in either in the trust game or the dictator game.

Treatment 2: Getting Rich by Skill

The same procedure applies to the second treatment which examines social preferences on people getting rich by skill. That is, they become rich partly because of their skill in doing something better than most people do. In real life people may become rich because of their skills in a variety of different disciplines. These could be extraordinary athletic skills (e.g. Cristiano Ronaldo), entrepreneurial skills (e.g. Bill Gates), writing skills (e.g. J.K. Rowling) or any other type of skill. We decided to replicate this by getting our subjects to have the opportunity to win a significant amount of money by winning in a quiz competition. Quiz competitions typically involve knowledge-based questions in a variety of categories. They are a popular form of entertainment, both as TV shows and as board games and during the last couple of decades also as online entertainment.

For example, Who Wants to Be a Millionaire is a game show that has been aired in 160 countries worldwide, where the contestants have the opportunity of winning significant amounts of money by answering in 15 questions. The contestant can walk-away at any point in the game and receive the amount of money that they had won at the time. The amount of money is rapidly increasing (for example in the British version the first question has a £100 payoff, the tenth £32,000 and the fifteenth £1,000,000). The multiple-choice questions are also increasingly difficult and they cover a wide range of categories, like geography, art and literature, science and nature, sports, history, politics and more. Similarly, Trivial Pursuit is a board game in which the contestants win by correctly answering general knowledge questions. It was first conceived in 1979 by Chris Haney and Scott Abbott, released in 1981 and has sold more than 100 million copies since then.

In our experiment we are going to use a quiz show where participants will be asked 15 open-ended questions covering topics like history and politics, arts and literature, sports, geography and science. We decided to use open-ended question instead of multiple choice in order to minimize the effect of luck that can be a factor in multiple choice questions. Each correct answer corresponds to one point. The participants will have a maximum time of 30 minutes to answer all fifteen questions. The exact questions can be found at the Appendix A.2. Every

[5] This is based on a currency exchange of 1€ = 27.6068 Ukrainian Hryvnia (UAH), retrieved from www.xe.com on July 2nd 2016. The average monthly wage for the first quarter of 2016 in Ukraine is 3,966 UAH for women and 5,379 for men. See also State Statistics Service of Ukraine (2016, June 3).

participant who manages to answer all fifteen questions correctly will be awarded a €1 million prize. In case that less than 5% of the participants manage to answer all questions correctly, then players will be ranked according to the correct answers they gave and the top 5% of all participants would also win the €1 million prize. All the other participants would get a show-up fee of €10 plus €1 for every correct answer. We decided to have a format where the winner should either answer all questions correctly or score in the top 5% of all participants, in order to ensure the sense of achievement for the winners.

After the end of the quiz game, we will thank every participant and give them their payment which will consist of the show-up fee and the potential payout from the game. When all the sessions of the experiment are finished, we will inform the winners that they won the €1 million prize. Subsequently, we invite again the subjects to participate in either in the trust game or the dictator game.

3.3 The Real Experiment

Having used the ideal experiment as a benchmark, we scaled it down significantly, so it could match our finite resources. The experiment consists of an online questionnaire with different versions, so we could test different treatments.

An overview of the whole design can be seen in Figure 3.

The participants were recruited online through university Facebook groups in Greece, Netherlands and other countries like the United Kingdom. When the participants clicked on the provided link, they would get the following welcome message along with the instructions below:

'Welcome to my experiment and thank you for participating!

As you will see, you will have the chance of winning up to €30 for your participation.

Please read the following instructions carefully before you proceed:

In the following experiment you are going to participate in a two-player game.

You are going to be randomly paired with another player.

All the decisions that you are going to make in the game are anonymous to the player you will be paired with.

The whole questionnaire should take you 3-6 minutes to complete.

The following experiment involves monetary rewards.

Some participants will be selected randomly to be paid the money earned during the experiment, while the rest will not.

The amount of money that can be paid in this experiment ranges between €0 and €30 per participant.

If you want to have the opportunity to be paid for this experiment, fill in your e-mail address at the bottom of this page, so that I can contact you and arrange the details of the payment.'

In case the participant decided not to fill-in his email address and essentially opt-out of the potential prize, he would get a message that would provide him a second chance to fill-in his email and have the opportunity to win the monetary reward. 60.5% of the participants (262 individuals) opted to fill-in their email, while 39.5% (171 individuals) opted not to. This means that 262 individuals participated in the experiment knowing that they had an unknown, but positive probability of winning the actual payoff from the dictator or the trust game they participated in, while 171 individuals participated knowing for sure that they will not receive any money (see Tables 4 and 5). We discuss the implications of this, in Section 5.

After that, the participants were asked a question about their monthly income, in order to filter out the participants whose income was high enough to be considered as rich. We decided to set the bar at €9,000 or $11,000, which was the equivalent amount in dollars at the time the experiment was conducted. 53 participants (11.1% of the participants) declared that their monthly income was higher than the amount that we set as a being-rich threshold, they were thanked for their participation and did not proceed to the main experiment.

Then, the remaining 423 participants were randomly divided into 3 different groups: the control group, the rich by skill treatment and the rich by luck treatment. The full instructions for all treatments can be found in Appendix A.1.

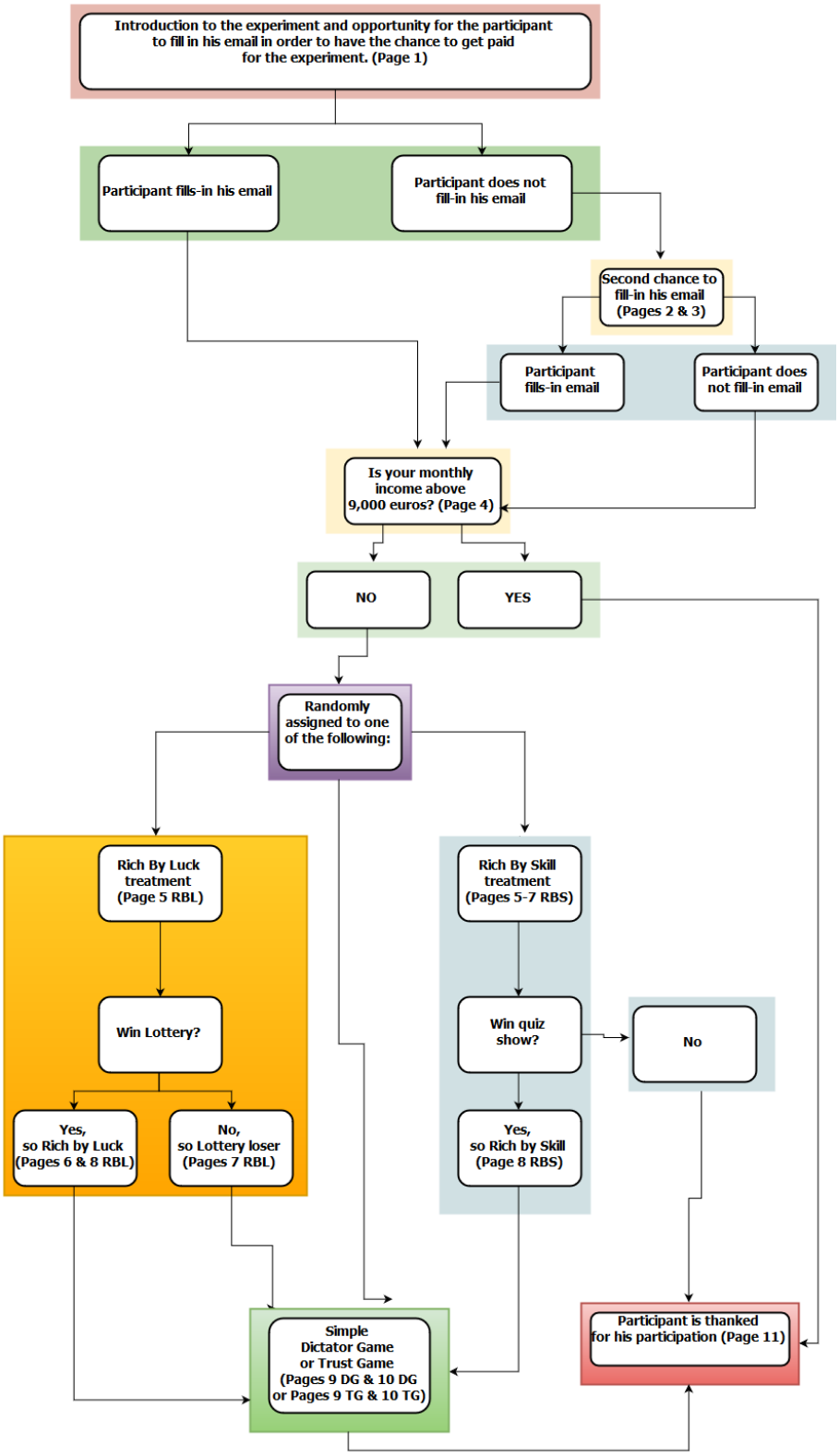


Figure 3. *Flowchart summarizing the experimental design for the real experiment.*

Table 4: *Number of participants per treatment that did and did not play for real money in the Dictator Game.*

Dictator Game					
	Control Group	**Rich By Skill**	**Rich by Luck**	**Lottery Losers**	**All Treatments**
Provided email and played for real money	42	32	27	34	135
Did not provide email and did not play for real money	14	15	35	21	85

Table 5: *Number of participants per treatment that did and did not play for real money in the Trust Game.*

Trust Game					
	Control Group	**Rich By Skill**	**Rich by Luck**	**Lottery Losers**	**All Treatments**
Provided email and played for real money	31	33	28	35	127
Did not provide email and did not play for real money	25	10	28	23	86

The Control Group

Here the participants would be randomly asked to play either the trust Game or the dictator Game. After the participants have played either of the games, they would be thanked for their participation in the experiment.

Getting Rich by Skill

Here the participants were asked to imagine that they participated in a Quiz show, where they have the opportunity to win €10,000 if they answer correctly in 3 multiple choice questions. Those participants who did not answer all 3 questions correctly, were thanked for their participation and did not proceed to the dictator Game or the trust Game[6]. Those who

[6] In hindsight this might not have been the best decision, as we did not follow a similar design for the Rich by luck treatment, where both the lottery winners and the lottery losers were asked to play either in the dictator or the trust game. In this sense it would be interesting to measure the behaviour of the Rich by skill losers.

answered all 3 questions correctly, would get the message that they won the €10,000 prize (and be included in the Rich by Skill group). In our experiment 36 out 126 (28.6%) respondents failed to answer all three questions correctly and as a consequence were eliminated from playing the Dictator Game or the Trust Game.

Ideally, it would be preferable to add a larger number of questions with higher difficulty, in order to increase the feeling of deservedness among winners. However, we had to keep a balance between the difficulty of winning and the number of respondents that we would get, so we decided to choose 3 questions of medium difficulty, to ensure that the number of our winners will be high enough for our analysis. Indeed, the fact that 71.4% of the respondents managed to answer all 3 questions show us that the questions were relatively easy, but not too easy as still more than one fourth of the responders did not manage to answer all of them correctly.

Those who won the quiz show would be asked to take a moment and think what they would do with the money they won and write it down. We added this question in order to encourage participants to actually think about winning €10,000 and replicate more accurately the feeling of winning a considerable amount of money. Indeed at this point, the participants have wrote things that they would do with the 10.000€, such as trips in various countries, purchasing goods (musical instruments, cars, laptops), financing their studies, helping their relatives financially, putting the money in a savings account, investing in the stock market and even doing an eye-laser surgery.

After that, the quiz show winners were randomly asked to play either the trust game or the dictator game. After the participants have played one of the games, they were thanked for their participation in the experiment.

Getting Rich by Luck

Here the participants were asked to imagine that they were going to participate in a lottery, where they would have the chance of winning €10,000 by picking a number between 1 and 99. Randomly half of the participants would get the message that they won the lottery, while the rest would get a message that they did not.

Those who won the lottery, would be asked to take a moment and think what they would do with the money they won and fill it in the box. As in the Rich by Skill treatment, the overwhelming majority of the respondents provided sensible and quite detailed answers in what they would do with the money that they won. After that, both lottery winners and lottery

losers would be randomly asked to play either the Trust Game or the Dictator Game. After the participants have played one of the games, they were thanked for their participation in the experiment.

4. Results

4.1 Results for the Dictator Game

For the Dictator Game, we gathered 219 responses. We summarize the results in Table 6.

Table 6: *Summary of results for the dictator game.*

	Observations	**Average amount of money sent by the Dictator (in €)**	**Median amount of money sent by the Dictator (in €)**	**Mode amount of money sent by the Dictator (in €)**
Control group	56	4.12	5	5
Rich by Skill	47	4.09	5	5
Rich by Luck	62	4.45	5	5
Lottery Losers	55	4.60	5	5
Total	**220**	**4.32**	**5**	**5**
Rich All	109	4.29	5	5
Lottery All	117	4.52	5	5

As mentioned earlier we have gathered responses for 3 different treatments plus the control group. We can see that for all 4 treatments, both the median and the mode amount of money sent by the dictators equals to €5. More importantly, the average in all 5 groups is between €4.09 and €4.60. At a first glance, we can see that the differences among our treatments are relatively small, ranging from a minimum of €0.03 (Control group vs. Rich by Skill), to a maximum of €0.51 (Rich by Skill vs. Lottery Losers).

In order to further analyze our results, we have conducted equality tests for each treatment against the control group. Furthermore we have grouped some treatments to form the following groups:

- Rich All which consists of Rich by Luck and Rich by Skill treatments
- Lottery All which consists of Rich by Luck (lottery winners) and Lottery Losers.

First we have conducted a Shapiro-Wilk test for normality for all treatments. The results of the Shapiro-Wilk test gives us p-values equal to 0.00 for all treatments (including Rich All and Lottery All). As a consequence, we can reject the Ho that our treatment samples come from a normally distributed population.

Because of that we have conducted 7 equality tests, using the Mann-Whitney U test, which does not require the assumption of normal distributions. We have first compared means for the control group, against all three treatments and also against all the grouped treatments. Furthermore, we have compared means for the Rich by Skill vs. the Rich by Luck treatment and the Rich by Luck treatment vs. the Lottery Losers treatment. The results of all the tests can be found in Table 7.

As it can be seen in Table 7 the p-values for all the tests are well above any level of acceptable statistical significance (the lowest being equal to 0.29). As a consequence, and contrary to our expectations, we conclude that none of the tests have produced statistically significant differences for the average amounts of money sent by the dictators among our treatments.

Table 7: *Summary of equality tests results for the dictator game at a 5% significance level. The Mann-Whitney U test has been used for all tests.*

	Mean and Standard deviation	**Result**	**P-value**
Control group (n=56) vs. Rich by Skill (n=47)	Control group=4.12 (s=1.95) Rich by Skill=4.09 (s=2.03)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	P= 0.93
Control group (n=56) vs. Rich by Luck (n=62)	Control group=4.12 (s=1.95) Rich by Luck=4.45 (s=1.45)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	P=0.30
Control group (n=56) vs. Lottery Losers (n=55)	Control group=4.12 (s=1.95) Lottery Losers=4.60 (s=1.72)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	P=0.44
Control Group (n=56) vs. Rich All (n=109)	Control group=4.12 (s=1.95) Rich All=4.29 (s=1.76)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	P=0.47
Control Group (n=56) vs. Lottery All (n=117)	Control group=4.12 (s=1.95) Lottery All=4.52 (s=1.57)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	P=0.29
Rich by Skill (n=47) vs. Rich by Luck (n=62)	Rich by Skill=4.09 (s=2.03) Rich by Luck=4.45 (s=1.45)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	P=0.33
Rich by Luck (n=62) vs. Lottery Losers (n=55)	Rich by Luck=4.45 (s=1.45) Lottery Losers=4.60 (s=1.72)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	P=0.81

4.2 Results for the Trust Game

For the Trust Game, we gathered 213 responses. We summarize the results in Table 8.

Table 8: *Summary of results for the trust game.*

	Observations	**Average amount of money sent by the Proposers (in €)**	**Median amount of money sent by the Proposers (in €)**	**Mode amount of money sent by the Proposers (in €)**
Control group	56	5.42	5	5
Rich by Skill	43	5.36	5	5
Rich by Luck	56	5.57	5	5
Lottery Losers	58	4.69	5	5
Total	**213**	**5.26**	**5**	**5**
Rich All	99	5.48	5	5
Lottery All	114	5.12	5	5

Similarly to the dictator game, we have gathered responses for 3 different treatments plus the control group. We can see that for all 4 treatments, both the median and the mode amount of money sent by the Proposers equals to 5€. More importantly, the average in all 4 treatments is between 4.69€ and 5.57€. At a first glance, we can see that the differences among our treatments are relatively small, ranging from a minimum of 0.06€ (Control group vs. Rich by Skill), to a maximum of 0.88€ (Rich by Luck vs. Lottery Losers).

In order to further analyze our results, we have conducted equality tests for each treatment against the Control Group. Furthermore we have grouped some treatments to form the following groups:

- Rich All which consists of Rich by Luck and Rich by Skill treatments
- Lottery All which consists of Rich by Skill and Lottery Losers.

First we have conducted a Shapiro-Wilk test for normality for all treatments. The results of the Shapiro-Wilk test gave us the following results depicted in Table 9.

As we can see in Table 9, we can reject the Ho that our treatment samples for treatments Rich by Luck, Rich All and Lottery All come from a normally distributed population. On the other hand, , we can see that we cannot reject the Ho that our treatment samples for the Control

Group, the Rich by Skill treatment and the Lottery Losers treatment come from a normally distributed population.

Table 9: *Summary of Shapiro-Wilk normality tests for all treatments of the trust game at a 5% significance level.*

	Result	**P-value**
Control group (n=56)	Cannot reject the Ho	0.47
Rich by Skill (n=43)	Cannot reject the Ho	0.54
Rich by Luck (n=56)	Reject the Ho	0.02
Lottery Losers (n=58)	Cannot reject the Ho	0.11
Rich All (n=114)	Reject the Ho	0.00
Lottery All (n=99)	Reject the Ho	0.00

As a consequence, we have used the Mann-Whitney U test for any equality test where at least one of the treatments does not come from a normally distributed population, while we used the Student t-test for any equality test where both treatments come from a normally distributed population.

Furthermore for all the t-tests, we first need to determine whether the two treatments had equal or unequal variances. We have found through a two-sample variance comparison test that the we can reject the Ho that the variances of the two treatments are equal for the Control Group vs. Lottery Losers test (p-value=0.01), while we cannot reject the Ho that the variances of the two treatments are equal for the Control Group vs. Rich by Skill test (p-value=0.14) at a 5% significance level.

Similarly to the dictator game, we have conducted 7 equality tests, first comparing means for the control group, against all the three treatments and also against all the two grouped treatments. Furthermore, we have compared means for the Rich by Luck treatment vs. the Lottery Losers treatment and the Rich All vs. Losers All treatment.

The results of all the tests can be found in Table 10. Similarly to the Dictator Game results, the p-values for all the tests are well above any level of acceptable statistical significance (the lowest being equal to 0.17) and as a consequence, and again contrary to our expectations, we conclude that none of the tests have produced statistically significant differences for the average amounts of money sent by the proposers among our treatments.

Table 10: *Summary of equality tests results for the trust game at a 5% significance level.*

	Mean and Standard deviation	**Result**	**P-value**	**Test used**
Control group (n=56) vs. Rich by Skill (n=43)	Control group=5.42 (s=3.24) Rich by Skill=5.36 (s=2.59)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	0.89	T-test
Control group (n=56) vs. Rich by Luck (n=56)	Control group=5.42 (s=3.24) Rich by Luck=5.57 (s=2.92)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	0.98	Mann-Whitney U test
Control group (n=56) vs. Lottery Losers (n=58)	Control group=5.42 (s=3.24) Lottery Losers=4.69 (s=2.25)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	0.17	T-test
Control Group (n=56) vs. Rich All (n=114)	Control group=5.42 (s=3.24) Rich All=5.48 (s=2.77)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	0.97	Mann-Whitney U test
Control Group (n=56) vs. Lottery All (n=99)	Control group=5.42 (s=3.24) Lottery All=5.12 (s=2.62)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	0.51	Mann-Whitney U test
Rich by Skill (n=43) vs. Rich by Luck (n=56)	Rich by Skill=5.36 (s=2.59) Rich by Luck=5.57 (s=2.92)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	0.96	Mann-Whitney U test
Rich by Luck (n=56) vs. Lottery Losers (n=58)	Rich by Luck=5.57 (s=2.92) Lottery Losers=4.69 (s=2.25)	Cannot reject the Ho (no significant difference in the amount sent between the two treatments)	0.22	Mann-Whitney U test

5. Discussion

One of the limitations of the experimental design for the real experiment is that participants have the option to either play for real money or to play knowing that they will never get paid. In particular, they knew that by providing the email address, they would have the chance to receive the actual money they won during the dictator game or the trust game, but if they chose not to provide their email, they knew for sure that they would not get paid the money that they won during the experiment. This means that they players that decided not to have included their email, might have expressed different behavior than those who did. In Tables 11 and 12 we sum up this kind of behavior of participants during the game for both the dictator and the trust game.

Table 11: *Results for the dictator game among treatments and between those who provided their email and those who did not.*

Average Amount of Money sent to Player 2 during the Dictator Game					
	Control Group	**Rich By Skill**	**Rich by Luck**	**Lottery Losers**	**All Treatments**
Provided email and played for real money	3.99 (42 participants)	4.09 (32 participants)	4.52 (27 participants)	4.47 (34 participants)	4.24 (135 participants)
Did not provide email and did not play for real money	4.50 (14 participants)	4.07 (15 participants)	4.40 (35 participants)	4.81 (21 participants)	4.46 (85 participants)

In the dictator game, using Mann-Whitney U test, at a significance level of 0.05, we found that for each treatment separately and for all treatments as a total, we cannot reject the Ho that the amounts of money sent by the dictators for those who played for real money and the amounts of money sent by the dictators of those who did not, are equal.

In the trust game we had similar results, except for the Rich by Luck treatment. To be more precise, using Mann-Whitney U test, at a significance level of 0.05, we found that for the Rich by Luck treatment, we reject the Ho that the amounts of money sent by the proposers who played for real money and the amounts of money sent by the proposers who did not are equal. On every other treatment, we cannot reject the Ho that the amounts of money sent by the proposers who played for real money and the amounts of money sent by the proposers who did not are equal.

Table 12: *Results for the trust game among treatments and between those who provided their email and those who did not.*

Average Amount of Money sent to Player 2 during the Trust Game					
	Control Group	**Rich By Skill**	**Rich by Luck**	**Lottery Losers**	**All Treatments**
Provided email and played for real money	6.03 (31 participants)	5.35 (33 participants)	4.75 (28 participants)	4.77 (35 participants)	5.22 (127 participants)
Did not provide email and did not play for real money	4.66 (25 participants)	5.40 (10 participants)	6.39 (28 participants)	4.57 (23 participants)	5.28 (86 participants)

In addition to this, we have to mention that even those who opted to participate in the experiment with real money, knew that there was an unknown probability that they would never receive their actual payoff. In particular the actual wording in the experiment was:

'The following experiment involves monetary rewards. Some participants will be selected randomly to be paid the money earned during the experiment, while the rest will not. The amount of money that can be paid in this experiment ranges between €0 and €30 per participant. If you want to have the opportunity to be paid for this experiment, fill in your e-mail address at the bottom of this page, so that I can contact you and arrange the details of the payment.'

Someone could speculate that this might have played a role in the behavior of the participants during the experiments.

Another point of discussion is whether winning a trivial game entails skill. Some might argue that winning a trivial game entails general knowledge, but not necessarily skill. In order to test if such criticism is valid or not, future researchers could test a different experimental design, where the quiz game is substituted with other tasks like an IQ test or a more complex game that involves different kind of skills.

Furthermore, in our real experiment, we have set the bar of being rich at a monthly income of € 9,000 or $ 11,000, given the exchange currency at that moment (it was at 1€ = 1.22$ at the moment the questionnaire was created and at the moment these words are written is at 1€ = 1.11$). The respondents of the questionnaire were residents mostly of Greece and the

Netherlands, but not exclusively. There were also respondents from other European countries and non-European countries like Brazil, Mexico and Peru. Because of that, it is impossible to set a being-rich limit which is equally valid for all of the world. For example, according to the OECD the average monthly wages in 2014 was for Greece at € 1.534 while for the Netherlands was more than 2.5 times higher at € 3.805. We decided to use a being-rich limit high-enough to be considered as high for almost all countries in the world.

Last, but not least, we set the amount of winning at 10,000€. This amount of money will certainly not be considered for many people as the difference between being rich or not. It is certainly much lower compared to the 1,000,000€ prize of the ideal experiment. In this context, we might think that winning 10,000€ would not replicate the being rich feeling, but we used a moderate amount of money, in order to be more realistic. The thought behind this was that winning a hypothetical amount of 10,000€ is more plausible and easily imagined than winning 1,000,000€. In any case, replicating the being rich feeling with hypothetical money in comparison to actually being rich was an important barrier in the experiment.

6. Conclusion

This thesis is building on the study by Piff, Kraus, Côté, Cheng & Keltner (2010) and examines the relationship between wealth and social preferences. In particular it attempts to find differences in altruism (through the amount of money given via the dictator game) and trust (through the amount of money given via the trust game), between rich individuals and non-rich individuals. Furthermore it examines whether there are differences in altruism and trust between individuals that have acquired their wealth through their skills and those who have acquired their wealth purely because of luck. The underlying hypothesis of our research question is that people who have acquired their wealth due to their skills will be less altruistic and potentially less trusting, compared to those who are not rich or they are rich, but purely because of their luck.

This thesis however did not find any significant differences in altruism and trust among our treatments. This could mean two things: a) either that our underlying hypothesis is simply false, which means that people that become rich (be it through their skills, through luck or both) are not less altruistic or trusting compared to non-rich people or b) that our underlying hypothesis is right, but our experiment has failed to capture and replicate this behaviour. Certain limitations have been discussed in Section 5.

Future research could be directed to different ways of ascertaining whether rich people are indeed equally altruistic and trusting to non-rich ones. More importantly, research could be conducted on how to nudge people both rich and poor in being more altruistic and trusting. Surely our world needs more people displaying immense altruism like Bill Gates through the Bill & Melinda Gates foundation, but the altruism of the everyday people is equally important in building the social capital and a better future for our societies.

A. Appendix

A.1 Online Questionnaire

Introduction

Page 1

Welcome to my experiment and thank you for participating!

As you will see, you will have the chance of winning up to €30 for your participation.

Please read the following instructions carefully before you proceed:

In the following experiment you are going to participate in a two-player game.

You are going to be randomly paired with another player.

All the decisions that you are going to make in the game are anonymous to the player you will be paired with.

The whole questionnaire should take you 3-6 minutes to complete.

The following experiment involves monetary rewards.

Some participants will be selected randomly to be paid the money earned during the experiment, while the rest will not.

The amount of money that can be paid in this experiment ranges between €0 and €30 per participant.

If you want to have the opportunity to be paid for this experiment, fill in your e-mail address at the bottom of this page, so that I can contact you and arrange the details of the payment.

Page 2 (This page appears only to those that decide not to fill in their e-mail in Page 1)

Are you sure you do not want to have the opportunity to win the monetary reward for this experiment?

Yes

No

Page 3 (This page appears only to those who answered No in page 2)

Please enter your e-mail address in order to contact you in case you win the monetary reward.

Page 4

Is your monthly income above €9,000/ $11,000?

Yes

No

Rich by Skill (RBS) Treatment

Page 5 RBS (for Skill treatment)

Imagine that you are participating in a TV-game show where you may win 10,000€ by answering correctly the 3 following questions:

Which of the following countries does not have access to a sea or ocean?

a) Brazil b) Switzerland c) Japan d) Canada

Page 6 RBS (appears only if the answer in page 5 RBS is correct)

Which of the following movies has been directed by Quentin Tarantino?

a) Fight Club b) Pulp Fiction c) Inception d) Lord of the Rings

Page 7 RBS (appears only if the answer in page 6 RBS is correct)

Which of the following has **not served** as the president of the United States of America?

a) Abraham Lincoln b) George Washington c) John F. Kennedy d) Martin Luther King

Page 8 RBS (appears only if the answer in page 7 RBS is correct)

Congratulations! You have won 10,000€!

Please take a moment and think what you will do with the €10,000 and write it in the box.

You have to use at least 15 characters (e.g. trip to Nepal, buy new laptop, put them in a savings account, invest in the stock market, etc.)

Then the participant randomly either plays the Trust Game (see **Pages 9 TG and Page 10 TG**) or the Dictator Game (See **Pages 9 DG and Page 10 DG**).

Rich by Luck (RBL) Treatment

Page 5 RBL

Now you will participate in a lottery where you will have a chance to win €10,000. Please pick a number between 1 and 99.

(The participant randomly goes to either Page 6 RBL or Page 7 RBL)

Page 6 RBL

Congratulations! You have won €10,000!

Page 7 RBL

Unfortunately, you haven't won.

Page 8 RBL (appears only to those who have seen Page 6 RBL, which are those who won the lotter)

Please take a moment and think what you will do with the €10,000 and write it in the box.

You have to use at least 15 characters. (e.g. trip to Nepal, buy new laptop, put them in a savings account, invest in the stockmarket, etc.)

Then the participant randomly either plays the Trust Game (see **Pages 9 TG and Page 10 TG**) or the Dictator Game (See **Pages 9 DG and Page 10 DG**).

Dictator Game

Page 9 DG

You have been asked to participate in an economics experiment.

All participants, including you, will be paid €5 at the end of the experiment.

You may earn an additional amount of money which will also be paid to you at the end of the experiment.

You will be paired with another participant of the experiment.

The experiment is conducted as follows:

A sum of €10 has been temporarily allocated to each pair and you have been randomly selected as Player 1.

Being selected as Player 1, you have to propose how much of the €10 each person is to receive.

To do this, you must fill out the following form.

The form consists of an amount Player 2 is to receive and the amount you are to receive.

The amount you are to receive is simply the total amount to be divided, €10, minus the amount Player 2 is to receive.

After the form has been filled, each person will be paid.

Each person will receive €5 for participating plus the amounts decided by you in the following form.

If you have understood the rules of the game click next.

Page 10 DG

Please fill in the amount that Player 1 and Player 2 receive.

Note that the sum of these amounts must be equal to 10.

Player 1 receives:

Player 2 receives:

Page 11

We thank you for your time spent taking this survey.
Your response has been recorded.

Trust Game

Page 9 TG

You have been asked to participate in an economics experiment.

In this experiment you will be paired with another participant.

This experiment is structured so that both participants will not know the decision of the other.

Each participant has been given €10 as a show up fee for this experiment.

Participants who have been randomly selected as Player 1, as yourself, will have the opportunity to send some, all or none of their show up fee to Player 2.

Each euro sent to Player 2 will be tripled.

For example, if you send €2, the amount that Player 2 receives will be €6.

If you send €9, the amount that Player 2 receives will be €27.

Player 2 will then decide how much money to send back to you and how much money to keep.

For example, if you send €2 to Player 2, the maximum amount he can send you back is €6 and the minimum is €0. He can also choose to send you any other amount that is between the two extreme values of €0 and €6.

Similarly, if you send €9 to Player 2, the maximum amount he can send you back is €27 and the minimum is €0. He can also choose to send you any other amount that is between the two extreme values of €0 and €27.

After this, the game is over and both you and Player 2 are being paid by the experimenter.

If you have understood the rules of the game click next.

Page 10 TG

Please fill in the amount that you will sent to Player 2 and the amount that you will keep. Note that the sum of these amounts must be equal to 10.

Amount of money that you keep:

Amount of money that you send to Player 2:

Page 11

We thank you for your time spent taking this survey.
Your response has been recorded.

A.2 Questions for the Ideal Experiment

1) Q: Which is the second biggest country in the world by land mass?
   A: Canada

2) Q: Ireland suffered the Great Famine beginning in 1845 due to the collapse of what crop?
   A: Potato

3) Q: Who painted the Sistine Chapel?
   A: Michelangelo

4) Q: El Clásico is the name given to football matches between which two teams?
   A: Barcelona and Real Madrid

5) Q: Who was the lead singer of the rock band Queen?
   A: Freddie Mercury

6) Q: Who is the current supreme leader of North Korea?
   A: Kim Jong Un

7) Q: Kopi luwak is a very expensive type of what?
   A: Coffee

8) Q: Who wrote an ancient Chinese military treatise known as "The Art of War"?
   A: Sun Tzu

9) Q: Schrödinger's cat is a thought experiment dealing with which type of mechanics?
   A: Quantum Mechanics

10) Q: Who played Dracula in the 1931 vampire-horror film "Dracula"?
    A: Bela Lugosi

11) Q: What two countries shares the Caribbean island of Hispaniola?
    A: Dominican Republic and Haiti

12) Q: What Portuguese navigator and explorer, in 1519, began the first expedition to circumnavigate the earth?
    A: Ferdinand Magellan

13) Q: After World War II the Israeli secret service located what German Nazi in Argentina, and brought him back to Israel for trial and execution?
    A: Adolf Eichmann

14) Q: In what year did India and Pakistan become independent nations from British rule?
A: 1947

15) Q: What is the name for the land between the Tigris and Euphrates Rivers that literally means "land between two rivers?"
A: Mesopotamia

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