CSCC
Centro di ricerca sulle Scienze Cognitive e la Comunicazione
Cognitive Science and Communication research Centre

Research Memorandum 01/14

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Can love and forgiveness defeat addiction?

First wave - technical report

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MASI Project Consulting Agreement #3534.00, 2013
Can love and forgiveness defeat addiction?

1St Wave - Technical report

1. Participant communities

The first wave of the MASI project has been implemented in 5 rehab communities, following the selection criteria exposed in the Second Pilot Research Plan and Timeline (October 30, 2013). For the sake of a better understanding of this report, the 5 communities have been coded as reported in the first column of Table 1.

Table 1 Rehabilitation communities participating to the MASI Project

Community (Short Name)	Full name	Location
Arezzo (AR)	Casa Jeshua	Central Italy
Caltanissetta (CL)	Casa Famiglia Rosetta	Southern Italy
Frosinone (FR)	Casa Madre - Nuovi Orizzonti	Central Italy
Pistoia (PT)	Casa San Francesco	Central Italy
Trento (TN)	Casa Luce sul Monte	Northern Italy

All the communities have been visited by at least one member of the research team who explained in details the scope and methods of the MASI project. In particular, great attention has been devoted to assure that the ideal conditions for the experiment were met, namely the availability of one or more personal computers connected to the internet in a quiet room, in order to preserve the anonymity of the responses.

All the questionnaires were compiled between November, 27th 2013 and December, 6th 2013.

Some of the sections in the questionnaire included interactive situations that yield non-monetary payoffs (agents are not allowed to use money within the rehab community for the whole duration of the treatment period). The non-monetary payoffs adopted in our study are cigarettes, which are instead allowed within the communities.[1]

All the hosts of rehab communities who took part in our study are referred to as **agents**.

[1]The number of daily cigarettes allowed is slightly different in every community: Trento, 6; Montevarchi, Piglio, Pistoia, 8; Caltanissetta, 20.

2. General overview of the collected data

The total number of agents in the first wave of data collection is 35, distributed among communities as described by Table 2, which also indicates the number of agents under substitutive therapy, an occurrence only pertaining to the Trento community.

Table2 Agents by community

Community	Agents	In therapy
Arezzo	7	0
Caltanissetta	10	0
Frosinone	5	0
Pistoia	5	0
Trento	8	3
Total	**35**	**3**

After the first data collection, a set of variables has been generated, summarizing personal characteristics, behavioral indicators and psychological indicators of each agent. Table 1 provides the outline and description of the variables, along with the indication of its type (C=personal characteristics; B=behavioral indicator; P=psychological indicator).

Table 3 Description of the variables used in MASI study

Type	Variable Name	Variable Description
C	**age**	Age of agent
C	**siblings**	Number of siblings in agent's household
C	**household**	Number of total people in agent's household
C	**religion**	Religious affiliation of agent (1=Christian; 2=Atheistic/Agnostic; 3=Other)
C	**education**	Level of education of agent (1=Primary; 2=Middle School; 3=High School; 4=University)
C	**status**	Self-perceived overall socio-economic condition of agent (1=Wealthy; 2= Affluent; 3=Average; 4=Poor)
C	**days**	Number of days since arriving at the community
P	**esteem**	Self-esteem scale (range 10-40)
B	**dictator**	Share of cigarettes given to Recipient in Dictator Game
B	**idr3_1**	Implicit maximum Inter-temporal Discount Rate 1
B	**incons3_1**	Dummy variable equals to 1 if agent choices are inconsistent in idr3_1
B	**idr3_2**	Implicit maximum Inter-temporal Discount Rate 2
B	**incons3_2**	Dummy variable equals to 1 if agent choices are inconsistent in idr3_2
B	**idr3_3**	Implicit maximum Inter-temporal Discount Rate 3
B	**incons3_3**	Dummy variable equals to 1 if agent choices are inconsistent in idr3_3
B	**ultimatum**	Minimum Acceptable Offer (MAO) in Ultimatum Game
B	**bart**	Number of cigarettes obtained in the BART
B	**trust**	Share of cigarettes given to Respondent in Trust Game
P	**experience_neg**	Forgiveness Scale, negative (range 7-49)
P	**experience_pos**	Forgiveness Scale, positive (range 4-28)

P	**mullet_1**	Lasting Resentment Scale (range 6-66)
P	**mullet_2**	Sensitivity to Circumstances Scale (range 6-66)
P	**mullet_3**	Unconditional Forgiveness Scale (range 5-55)
P	**mullet_4**	Sympathy Scale (range 3-33)
P	**mullet_5**	Mastery Scale (range 3-33)
P	**mullet_6**	Affection Scale (range 3-33)
P	**mullet_7**	Morality Scale (range 3-33)
B	**gratitude**	Average share of cigarettes returned to Proponent in Gratitude Game
B	**grat1_3**	Average share of cigarettes returned to Proponent in Gratitude Game, cases 1-3
B	**grat4_6**	Average share of cigarettes returned to Proponent in Gratitude Game, cases 4-6
B	**grat7_8**	Average share of cigarettes returned to Proponent in Gratitude Game, cases 7-8
B	**grat_diff78**	Difference in shares of cigarettes returned to Proponent between cases 8 and 7.
C	**therapy**	Dummy variable equals to 1 if agent is on substitutive therapy

Finally, in order to provide a more detailed outlook of the sample, Table 3 presents the overall mean values for all the variables (excluding therapy and the 3 "diagnostic" variables related to inter-temporal discount rates, i.e. **incons3_1**, **incons3_2** and **incons3_3**) and reports standard deviations and minimum and maximum values.

Table 4 Mean and mode values of sample data, number of observations=35

Type	Variable	Mean	Std. Dev.	Min	Max
C	**age**	36.09	10.90	18	64
C	**siblings**	1.03	1.27	0	4
C	**household**	4.06	1.49	1	7
C	**religion***	1	-	1	2
C	**education***	2	-	1	4
C	**status***	3	-	1	4
C	**days**	64.94	67.87	1	274
P	**esteem**	27.09	3.79	15	35
B	**dictator**	0.43	0.21	0	1
B	**idr3_1**	44.55	20.79	21.1	72.3
B	**idr3_2**	19.95	7.97	9.3	28.4
B	**idr3_3**	37.11	33.11	0.1	83.9
B	**ultimatum**	0.27	0.19	0	0.6
B	**bart**	9.31	2.86	0	13.5
B	**trust**	0.41	0.21	0	0.9
P	**experience_neg**	20.49	10.28	7	45
P	**experience_pos**	20.60	6.55	4	28
P	**mullet_1**	21.91	14.18	6	61

P	**mullet_2**	27.60	13.16	6	66
P	**mullet_3**	27.91	13.93	5	55
P	**mullet_4**	22.31	9.58	3	33
P	**mullet_5**	12.11	7.85	3	33
P	**mullet_6**	18.09	10.31	3	33
P	**mullet_7**	25.03	7.66	3	33
B	**gratitude**	0.42	0.16	0	0.6
B	**grat1_3**	0.40	0.21	0	0.7
B	**grat4_6**	0.42	0.17	0	0.7
B	**grat7_8**	0.45	0.15	0	0.7
B	**grat_diff78**	-0.02	0.07	-0.2	0.1

* Categorical variable, only modal value is reported

3. An insight of the Personal Characteristics of the agents

Jointly looking to mean values and standard errors in Table 3, personal characteristics appear to be rather homogeneous across the sample, especially in the case of **siblings** (whose median value is 1, but left-skewed), **religion** (over 80% of agents define themselves Christians, and the residual part Atheistic/Agnostic), **household** composition (showing a bi-modal distribution, with mean and median around 4), **status** (the distribution is highly concentrated, with 23 out of 35 agents defining their economic conditions as “average” and 9 “poor”) and **education** (over 65% of agents has “middle-school” degree, about 20% “high school”). The most important element of potential heterogeneity is **age**. On average, the agents in the sample are 36 years old and the distribution is approximately mean-centered. However, the standard error is quite high and the range.is also large (spanning from 18 to 64): therefore, **age** is a potential source of heterogeneity.

Figure 1 provides the frequency distribution for each variable in the C group, offering a more detailed outline of the sample.

Finally, a potential source of bias in the analysis could be given by a process of self-selection of similar agents within different communities. As shown in Table 2 above, the number of agents is not evenly distributed across communities. Table 5 offers a snapshot outlook of the average and modal values of some personal characteristics variables for each community. As the Table shows, the main differences among communities’ mean values are due to **age** and **days**. For this reason, a further inspection of the data will target especially these two variables, to exclude possible selection bias.

Figure 1 Personal Characteristics of agents. Histograms and pie charts of frequency distributions (percent)

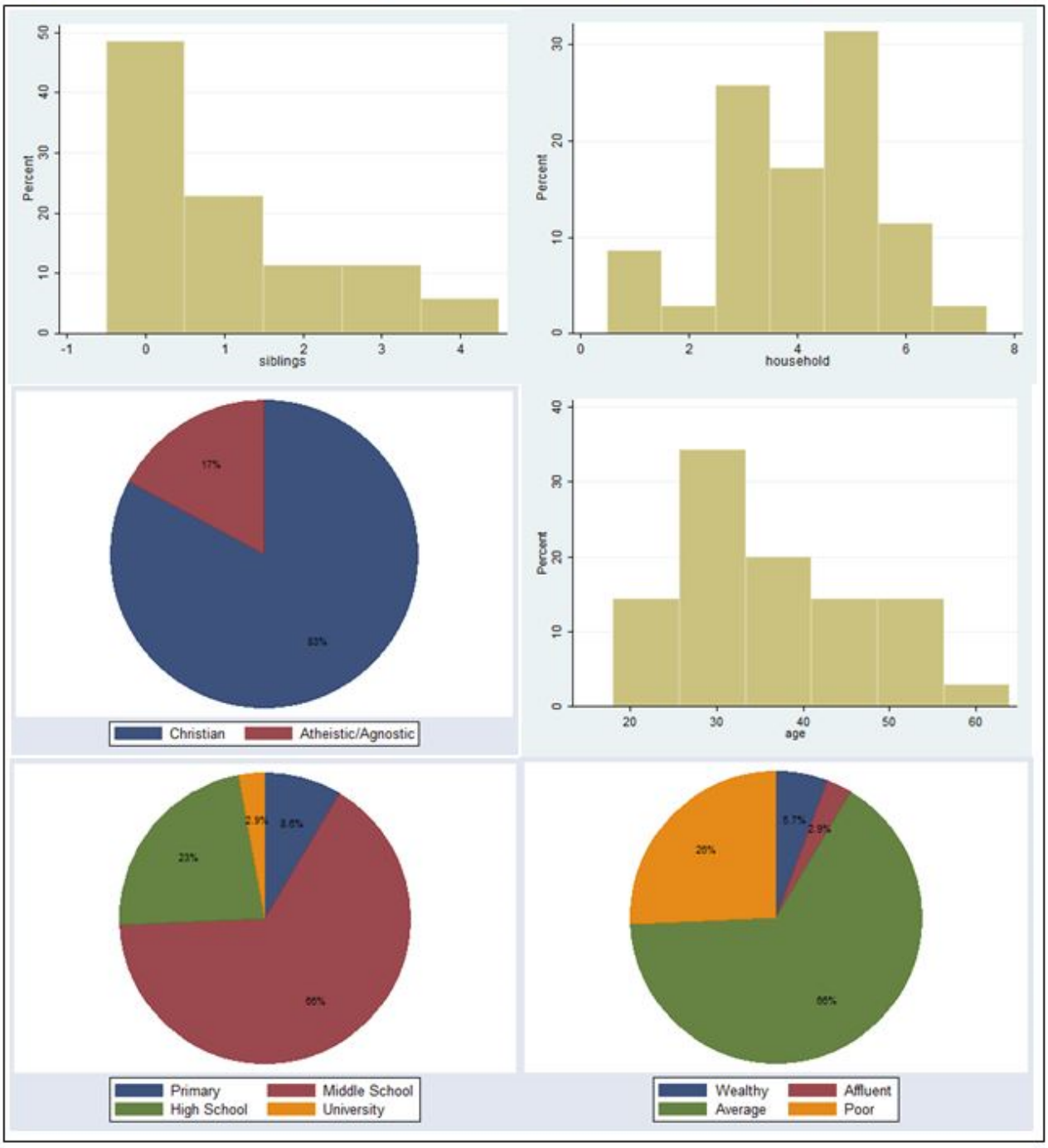


Table 5 Mean and mode of personal characteristics, by community (Section 0)

Community	age	siblings	household	religion (mode)	education (mode)	status (mode)	days
Arezzo	34.57	0.57	3.43	1	2	3	24.43
Caltanissetta	35.80	1.10	4.70	1	2	3	127.10
Frosinone	40.00	1.60	4.20	1	2	4	64.80
Pistoia	37.80	1.00	4.00	1	2	3	49.20
Trento	34.25	1.00	3.75	1&2	2	3	32.63
Total	**36.09**	**1.03**	**4.06**	**1**	**2**	**3**	**64.94**

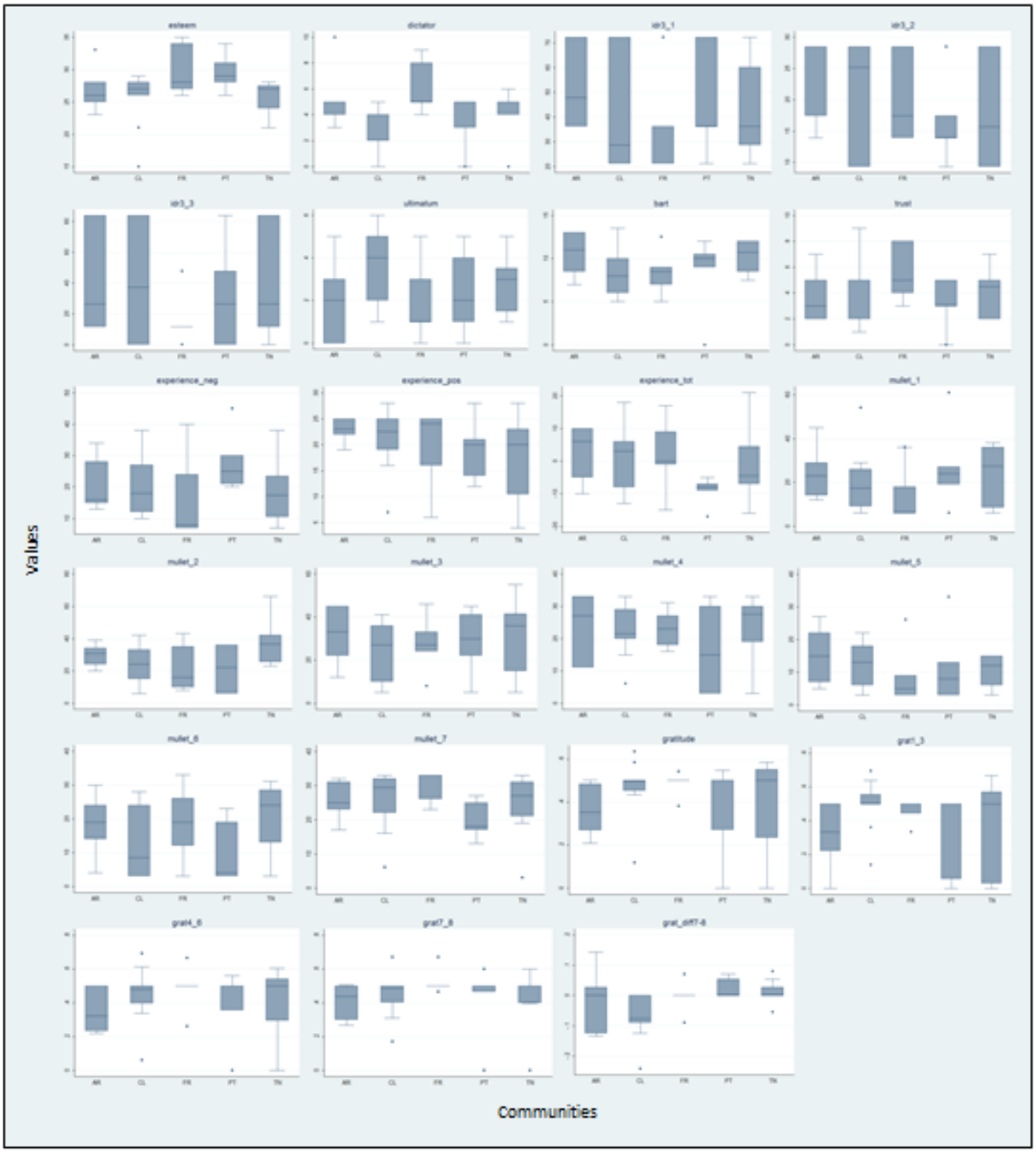
The variables in group C have been inspected through non parametric tests (Kruskall-Wallis test; ANOVA permutation test) in order to exclude the occurrence of self-selection bias across communities. The outcome of these tests confirm that the agents are not systematically different across communities regarding their personal characteristics.[2]

4. Behavioral (B) and Psychological (P) indicators

Figure 2 illustrates a summary of the distribution of variables B and P by community.

[2] The null-hypothesis of this test assumes that all the selected groups (i.e. communities) present the same distribution. As we expected, since the results of the tests do not allow to reject the null hypothesis at the usual levels of significance, the distribution cannot be assumed as systematically different.

Figure 2 Boxplot of Behavioral and Psychological Indicators by community



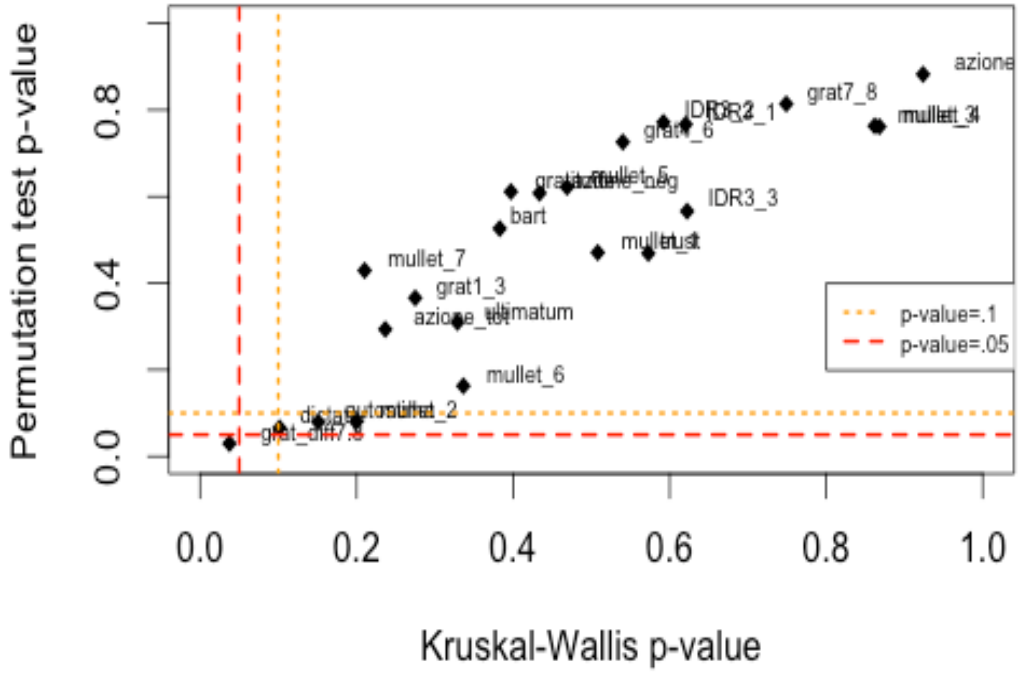
By a preliminary graphical inspection, both B and P indicators do not present any noticeable difference across communities, with some exceptions (such as **days** and **gratitude**).

High variability can be noted indicator-wise as well as community-wise. Implicit maximum Inter-temporal Discount Rate (IDR) based indicators present a non-negligible variability in their own, whereas some communities present a large heterogeneity with respect to the others. For instance, CL and FR communities have a peculiar behavior in all the "**grat**" indicators.

In order to provide further checks on the sample data, we evaluate if there exist a significant mean difference in the B and P indicators across communities, performing two non-parametric tests: permutation based Anova and Kruskal-Wallis test. As for the inspection of variables in the C group, these tests have been chosen to account for the small group (community) sample size and to deal with non-normality. We expect that both tests will provide approximately the same results.

A summary of the results is shown in Figure 3.

Figure 3 Anova and Kruskal-Wallis non parametric tests for B and P variables



The interpretation of the plot in Figure 3 is quite straightforward: the null hypothesis of equal distributions across communities cannot be rejected (except in three cases), thus excluding that the parameters of interest are systematically different among communities. This is an important finding as it implies that the agents can be thought as randomly assigned to each community.

This preliminary inspection of the collected data reveals that in general the experimental design does not suffer for possible self-selection bias. The next parts of this report provide an outline of the results of the first wave, focusing separately on each Section of the Questionnaire and highlighting the observed patterns in relation with existing benchmarks.

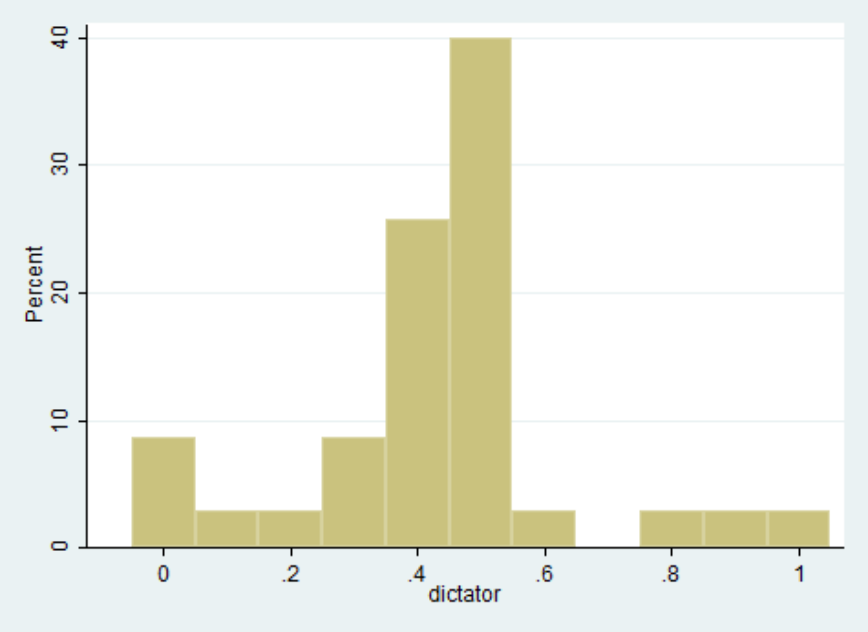
5. Dictator Game (Section 2)

A large number of academic papers in behavioral economics have dealt with Dictator Games in the last 20 years[3]. As a quick reminder, in standard Dictator Games individuals are given the chance of dividing, at their own arbitrary choice, a share of an amount of money, provided to them by the experimenter, with a (usually anonymous) Recipient. Since standard assumptions of rationality predict that the optimal choice for the Dictator is to give nothing, behavioral economists are interested in measuring whether and to what extent experimental results contradict formal theory. In particular, the equilibrium solution predicted by rational choice theory is based on the assumption that each individual is a utility-maximizer, whose choices are essentially driven by self-interest. The Dictator Game investigates whether this assumption is violated in real life, in order to elicit a measure of "human benevolence", or altruism, interpreted as the share of the initial endowment voluntarily given by the Dictator to the Recipient.

Two information are essential in the results of a Dictator Game:

- The average share given to Recipients;
- The fraction of the sample who gives nothing (following a behavior that confirms standard rational choice theory assumptions).

Figure 4 Distribution of shares given by agents in the Dictator Game



In almost all experiments involving Dictator Games the endowment to be shared is monetary.[4] Our experiments target people who are living in rehab communities where money circulation is not allowed.

[3]The Dictator Game has been introduced as a simplified form of the Ultimatum Game firstly by Forsythe, Horowitz, Savin, and Sefton (1994). In their experiment, about 70% of the players makes a donation, whose average is 25%.
[4] Engel, Christoph (2011). "Dictator games: A meta study", Experimental Economics, 14(4): 583-610, p.584

Therefore, the monetary payoff has been substituted with cigarettes, a high valuable good within rehab communities.[5] Clearly, an implication of this choice is that the actual action space is discrete, rather than continuous: however, this occurrence does not alter the scope of the experiment, since, as Engel notes, the classical Dictator Game usually involves the possibility of sharing an amount of 10$ dollars into integers of 1$ (Engel, 2011).

In Section 2 of our questionnaire, the agent (playing as Dictator) is told he receives an amount of 10 cigarettes that he can share with an anonymous person, the Recipient. The agent is also told that the potential Recipient received no cigarettes. Therefore, the agent faces the choice of sending an arbitrary amount of his cigarettes to the other person. The share of cigarettes given (of course, only integers of 1) represents an overall indicator of **generosity**. In particular, the choice to give away some of the received endowment is hypothesized to be driven by other-regarding preferences, i.e. a preference for fairness in distribution. For this reason, it is worth stressing that in our experiment, the Dictator is provided with the information that the potential Recipient has been given 0 cigarettes.

In our sample, the average share donated is 0.43 (see Table 3) and, as Figure 4 shows, the modal share is 0.5. Only a small fraction of the sample gives nothing (about 9 per cent) or a very small share (about 6 per cent gives at least 20 per cent of their endowment). These figures stand slightly above the average values reported by existing literature, since according to the meta-analysis carried on by Christoph Engel, the average donation is about 30 per cent (Engel, 2011, p. 588). Moreover, the distribution seems to approximate a bimodal distribution, as suggested by Camerer.[6] In general, our results present an average measure and a distribution of overall generosity that is higher than the usual benchmark.[7]

Four factors appear particularly suited to explain our experiment's results: **type** of the agents, **age**, **consumption constraints**, **social pressure**.

Firstly, most Dictator Games are played by students that according to empirical evidence are less prone to donate than non-students. Engel's estimates of the student-effect could alone explain almost all the difference between our average value and the benchmark.[8]

A second explanatory factor for the difference between our sample mean and the benchmark is likely to be age. The correlation between **age** and **dictator** is positive (0.284), in line with existing evidence (Engel, 2011, p. 599). Therefore, since average age is quite high in our sample (about 36 years), it is a good candidate in explaining the higher average of the Dictator's outcome. However, a more detailed analysis cannot confirm this hypothesis. In fact, fitting a simple model in which the outcome of the Dictator Game is

[5] In all the rehab communities participating to our research cigarettes can be considered as a substitute for money, as they incorporate both the intrinsic value due to the pleasure of consuming them and the value as a mean of exchange. The choice of cigarettes as payoffs has been made after thorough discussions with experts who daily live and work within the communities themselves.

[6] Camerer, Colin (2003). *Behavioral game theory*, Princeton NJ: Princeton University Press. The author provide a meta-analysis of 11 Dictator Games in which the distribution is bimodal, with two modal values at 0 and 0.5.

[7] It is worthwhile mentioning that as to the date of 31/01/2014, to our knowledge, there are no published results of Dictator Games played in the context of a rehabilitation community.

[8] Engel estimates a negative effect equal to -0.15. Therefore 0.43-0.15=0.28 which is almost exactly the average estimate in his meta-analysis regression (Engel, 2011, p. 597).

explained by personal characteristics (as defined in Table 2) the expected positive effect of **age** is not significant in any of the estimated models (OLS, logit, probit, tobit); nor it is when the dependent variable is restricted to the probability that the Dictator gives 0. The results are unchanged when the sample is reduced in order to exclude agents subject to substitutive therapy. However, the coefficient of **age** in the Tobit model turns significant if a 10% level is considered.[9]

Table 6 Correlations between the outcome in the Dictator Game and personal characteristics

	dictator
age	0.2838*
siblings	-0.1224
household	-0.0886
religion	-0.2476
education	0.1478
status	-0.0624

Notes: * significant at 10% level

Table 6 reports the correlation vector for **dictator** and personal characteristics. As it can be easily observed, **age** and **education** are positively correlated to the outcome in the Dictator Game, as predicted by existing literature. However, only the correlation of **age** is statistically significant at a 10% level.

A third important factor stems by a common norm of all the participant communities. Each community allows for a limited daily amount of cigarettes.[10] This consumption constrain could exert a downward pressure on the actual value of the cigarettes over a certain amount, pushing upward the average donation.

Finally, social pressure (given by the identification of the Dictator) could influence the amount shared (Frey and Bohnet, 1995). The identification of the Dictator generally reduces the probability of giving 0, while it shifts the distribution of the shares around 0.5 (Engel, 2011). Following Hoffman, McCabe et al. (1994) our experiment stresses the impossibility for the experimenter to identify the Dictator. However, we cannot exclude that the fact of living within a rehab community with strong normative settings can exert a (not necessarily explicit) pressure on the agents. In a recent study, Cappelen, Halvorsen, Sorensen and Tungodden[11] (2013) show that the effect of social pressure, as suggested by Dana et al. (2006), increases the amount shared and reduces the chances of giving 0.

After completing the task in Section 2 – as well as after all the other sections involving behavioral games – the agent is asked to motivate his choice by writing a short sentence, in order to obtain some qualitative information for interpreting the results. Since the average gift can be interpreted as a "gross" measure of **generosity**, that is other-regarding preferences, it is interesting to understand whether this is

[9] This analysis is only exploratory, as normality in the error distribution cannot be assured, given the limited number of observations in the sample.

[10] As reported in note 1, this number slightly varies across communities, spanning from 6 to 20.

[11] Cappelen, Alexander, Halvorsen, Trond, Sorensen, Erik, Tungodden, Bertil (2013). Face-saving or fair-minded: What motivates moral behavior? *NHH Dept. of Economics Discussion Paper* No. 05/2013.

driven essentially by **intrinsic moral motivations**[12] or by **extrinsic social motivations**.[13] The textual information provided by the agents have been converted into a set of dummy variables (**intrinsic**, **extrinsic**, **religion**, **other**) related to the words included in the sentences. For instance, an observation of the variable **intrinsic** is coded 1 if the sentence is formulated as to indicate an intrinsic motivation for giving (such as generosity, altruism, etc.), 0 otherwise. Within the **intrinsic** category, two further distinct groups have been identified: **altruism** and **fairness/inequity aversion**. This further grouping has been motivated by the fact that in the textual information is possible to neatly distinguish between these two different, though related, pro-social motivations.[14] A specific variable for religious motives (i.e. **religion**) has been included since it is of particular interest in this research study.

The table below summarizes the motives of **dictator**'s outcome (in percentage of agents).[15]

Table 7 Summary of motivations provided by agents after Dictator Game

Motivation	% of agents
intrinsic	57%
altruism	*9%*
fairness/inequity aversion	*37%*
religion	6%
extrinsic	31%
other	11%

6. Ultimatum Game (Section 4)

A standard Ultimatum Game consists in a bargaining situation in which a Proponent offers a share of an amount of money (received by the experimenter) to a Respondent who in turn can either accept or reject the offer. The payoff is realized only if the Respondent accepts.

In our experiment, Proponent is played by randomly chosen students within the Department of Political and Social Sciences at the Catholic University (Milan), while Respondent is played by each of the survey's agents. Students were asked to send an offer to an anonymous Respondent (by multiples of 0.50 euro) out of a total endowment of 5 euro. Students were told that their offers would be matched to anonymous Respondents, and after the completion of the interaction, their actual payoff would be eventually paid.[16]

[12] A first attempt to introduce moral preferences in economic behavior is due to Kahneman, Daniel, Jack L. Knetsch, and Richard Thaler (1986). Fairness and the assumptions of economics, *Journal of Business*, 59(4): 285–300 and Kahneman, Daniel, Jack L. Knetsch, and Richard Thaler (1986). Fairness as a constraint on profit seeking: Entitlements in the market, *American Economic Review*, 76(4): 728–741.

[13] As recently suggested by Cappelen et al. (2013), cit.

[14] An insightful clarification of these two different, though possibly related, motives can be found in Guala, F., Mittone, L. (2010) Paradigmatic experiments: The Dictator Game, *The Journal of Socio-Economics*, 39, 578-584. They distinguish between *altruism*, defined as a preference for others' material wealth, and *fairness*, defined as a preference for equity in the distribution.

[15] Note: percentages do not sum up to 100 because some motives are not clearly defined and are consequently codified in more than one group. The same applies to all the following Sections.

[16] Therefore actual payments to students have been delayed after all students were matched and all games played. The same procedure has been applied for Trust and Gratitude games.

Students' offers have been then converted into cigarettes (1 cigarette=0.50 euro) and the resulting offers were stored in a digital database. In the web-based questionnaire, Section 4 asked agents to state their **minimum acceptable offer** (**MAO**) for the Ultimatum Game, i.e. the threshold (in terms of cigarettes of Proponent's endowment) for accepting an offer. Their choices were matched in real time by the web application to Proponents' offers stored in the database. In this way, agents were communicated instantaneously the resulting payoff. Anonymity between players and the experimenter has always been guaranteed.

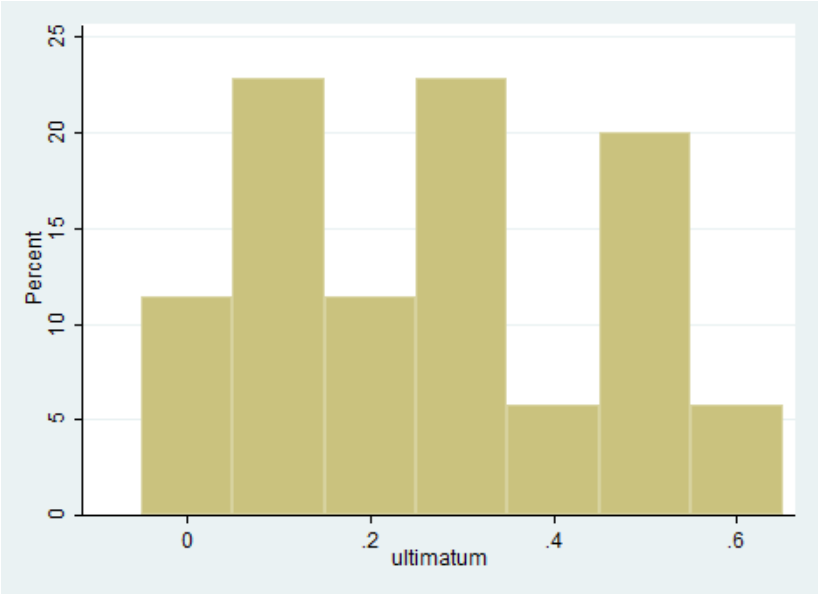
The Ultimatum Game was introduced by Guth, Schmittberger, and Schwarze in 1982[17] to identify empirical patterns of **fairness** (also interpreted as "**inequity aversion**", e.g. Fehr and Schmidt, 1999) which contrasted standard assumptions of rational choice theory. In particular, the focus is on Respondents' choices. In fact, if individuals were utility-maximizer, any positive amount offered by Proponent should be accepted by Respondent (in fact any refusal would lead to a 0 payoff). However, empirical evidence shows that low amounts (usually below 20% of the total disposable amount of Proponent) are often rejected. The main explanation of this finding claims that individuals are available to bear the cost of "punishing" Proponent for making an offer which is judged "unfair" (Diamond and Vartianien, 2007; Camerer, 2003; Fehr and Schmidt, 1999). Camerer defines "**anger**" the emotional status associated to a perceived unfairness suffered by a given person A and distinguishes it from "**indignation**", which arises when the perceived injustice occurs to a third party and it is witnessed by person A. Therefore, in an Ultimatum Game, Respondents react to perceived unfairness bearing the cost of their behavior.

In this respect, the **minimum acceptable offer** (MAO) provides a measure of the aversion to unfairness of Respondents. Existing results of Ultimatum Games present a very regular pattern (Camerer, 2003). In general, offers below 20% are rejected half of the time. This result is substantially confirmed by our experiment as well, since about 54% of agents' MAO is above 20%.

In our sample, about 11% of agents, playing Respondents, indicate a MAO equal to 0. How could this result be interpreted, given that only an amount strictly greater than 0 is rationally desirable? The textual information included in the motivations seems to suggest they justify their decision on the basis of "not wanting to punish" even an unfair offer. Figure 5 shows agents' MAO distribution.

[17]Güth, Werner, Rolf Schmittberger, and Bemd Schwarze. 1982. "An Experimental Analysis of Ultimatum Bargaining." *Journal of Economic Behavior and Organization*, 3:367–88.

Figure 5 Distribution of agents' MAO in the Ultimatum Game



While the left-side of the distribution is similar to the existing benchmark (in the fact that most of offers below 30% of the total endowment are usually rejected), the right-side shows a frequency of MAO above the equal split (i.e. 0.5) that is higher than usual (about 23%). Consequently, the average MAO is sensibly higher than expected. Following the same strategy as in Section 2, the textual information provided by agents are grouped by the main motivation they express, namely **anger** (i.e., more generally, negative reciprocity) or **strategy** (i.e. an attempt to maximize individual utility). 2 out 9 MAO equal to or above 0.5 are clearly motivated by **anger** (signaling a high preference for inequity aversion), 2 by **strategy** (signaling a risky attempt to maximize the payoff) and the residual part by not clearly identifiable reasons. Lower MAO are instead mostly motivated by **strategy**, confirming standard theory prediction (i.e. a low MAO indicates a preference for self-interest, rather than fairness).

Table 8 Summary of motivations provided by agents after Ultimatum Game

Motivation	% of agents
anger	23%
rational	31%
religion	3%
other	46%

In summary, the results of the Ultimatum Game (Respondent) show sensibly higher than usual MAOs. This finding can be interpreted in two different ways. Firstly, the permanence in a rehab community, involving a strong social control, could exert an effect to agents' perception and conceptualization of fairness. Through living in a community, agents are daily exposed to the necessity of taking fairness into serious account. Secondly, as Camerer notes, the results of an Ultimatum Game can be influenced by the personal characteristics of the individual. In a tentative estimation of these effects, the logit and probit

models report significant coefficients for the dummy variable related to higher education: thus, more educated people are more likely to report low MAOs. This finding is consistent with existing evidence relating judgment skills (proxied by type or grade of education) and preference for self-interest[18], although it is partially contradicted by the negative correlation coefficient between **dictator** and **ultimatum**, i.e. an inverse relationship between generosity (in the Dictator Game) and fairness (in the Ultimatum Game).[19]

Table 9 Correlations between personal characteristics and MAO in Ultimatum Game

	MAO
age	-0.2095
siblings	0.3026*
household	0.3455**
religion	-0.1362
education	-0.1754
status	-0.1954

Notes: * significant at 10% level; ** significant at 5% level

Table 9 shows the correlations between MAO and personal characteristics. Interestingly, positive coefficients are recorded only for **siblings** and **household**, suggesting that agents whose family is larger shows higher rejection thresholds. Moreover, these are the only significant correlation coefficients. This finding could be interpreted as a higher sensitivity towards inequality aversion for agents who experienced living in larger families.

For the sake of completeness, we will outline a quick summary of the results of the Proponent role of the Ultimatum Game played by students. Here the distribution of offers is consistent with existing evidence[20], since about 61% are in the 0.4-0.5 range, i.e. near to the equal split (see Diamond and Vartianien, 2007). However, a relatively high share (22%) of students' offers fall above 0.5. It is worthwhile stressing that these results do not affect Respondents' outcome, since the latter were asked to indicate a MAO, not to accept or reject and actual offer.[21]

[18] See for instance Carter, John R., and Michael D. Irons. 1991. "Are Economists Different, and If So, Why?" *Journal of Economic Perspectives*, 5(2): 171-177.

[19] As a further note, once respondents under substitutive therapy are removed from the sample, all the estimated coefficients turn out not to be significant. This finding is quite interesting as recent literature has shown a possible link between biological activity (in particular related to the serotonergic system) and the rate of rejection in ultimatum games. However, the very low number of respondents subjected to substitutive therapy needs that this finding should be treated prudently. See Emanuele, Enzo; Brondino, Natascia; Bertona, Marco; Re, Simona and Geroldi, Diego. 2008. "Relationship between platelet serotonin content and rejections of unfair offers in the ultimatum game" *Neuroscience Letters* 437(2): 158-161.

[20] Fehr, Ernst and Klaus M. Schmidt. 1999. "A Theory of Fairness, Competition, and Cooperation" *The Quarterly Journal of Economics*, 114(3): 817-868.

[21] According to Weber and Camerer adopting a MAO rather than specific-offer methodology could exert an upward bias, by leading Respondents to be more demanding. See Camerer (2003, p. 49).

7. Trust Game (Section 6)

The Trust Game was ideated by Camerer and Weigelt[22] (1988), it was subsequently developed in the most commonly adopted version by Berg, Dickhaut and McCabe[23], and is also labeled "investment game". In the Trust Game, in the first stage a Proponent is paired to an anonymous Respondent. Proponent is given an amount of money, *M*, by the experimenter and can choose to send a fraction *x* to Respondent. This amount *x* is tripled by the experimenter and then sent to Respondent. In the second stage, Respondent can choose to send back a desired fraction *y* of the amount received (3*x*) to Proponent. At the end of the interaction, the payoff of Proponent will be *M*-*x*+*y*, while the payoff of Respondent will be 3*x*-*y*. This game involves two distinct behavioral features. In the first stage, the purpose of the game is to identify a measure of "trust", conceived as a "willingness to bet that another person will reciprocate a risky move (at a cost to themselves)" (Camerer, 2003, p. 85). Conversely, in the second stage the aim is to elicit a measure of "trustworthiness", i.e. a positive response to a trusting behavior.

The original Trust Game was developed to investigates whether traditional rational choice assumptions on individual behavior are violated in real life. In fact, as shown by Kreps[24] the unique stable Nash equilibrium in a theoretical Trust Game implies that Proponent maximizes his payoff by not sharing any fraction of the received endowment with Respondent. The reason lays in the rational incentive of Respondent to adopt an opportunistic behavior and not reciprocate Proponent, retaining for himself the whole amount eventually received by Proponent after his first move. Since Proponent is assumed to be rational, he anticipates by "backward induction" that Respondent will not reciprocate and therefore chooses to send nothing.

In our study, the two stages of the standard Trust Game are played separately. In Section 6, the agents plays as Proponent and are anonymously paired to students (in the same way as explained for the Ultimatum Game, in Section 4). The role of Respondent is played by people in rehab in a different interaction session, presented in Section 9, that we label "Gratitude Game". Both interactions include a full explanation of the dynamics: therefore, Section 6 and Section 9 actually must be considered as two different behavioral games.

In the Trust Game we developed, each Proponent is endowed with 10 cigarettes and he is given the choice to share some of them with an anonymous Respondent. The proponents are told that the amount shared is tripled by the experimenter and that in the second stage Respondent can choose to send back a share of the obtained amount. The share of cigarettes given to Respondent represent a measure of "**trust**", consistently with existing literature (Johnson and Mislin, 2011; Camerer, 2003; Berg, et al., 1995) .

The histogram in Figure 6 shows the distribution of the shares of cigarettes sent by agents to Respondents. This distribution is consistent with existing literature, in which most of Proponents' offers are found around the equal split (Camerer, 2003; Johnson and Mislin, 2011). However, in our sample the

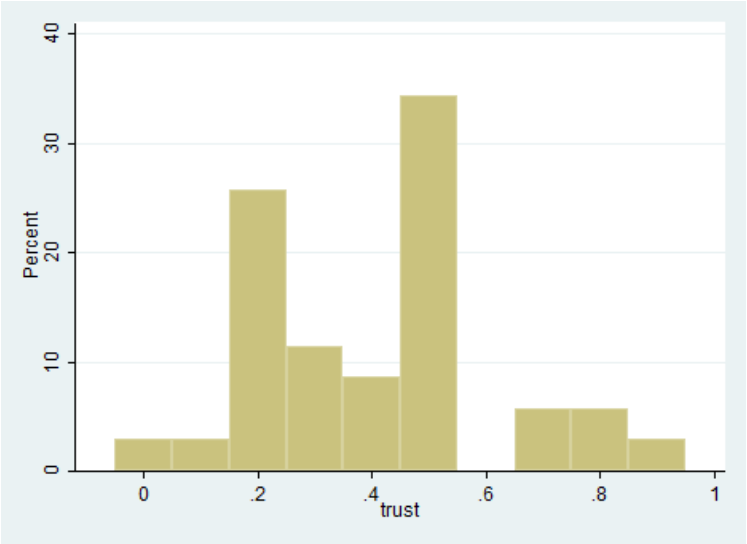
[22] Camerer C. and K. Weigelt,1988, Experimental Tests of a Sequential Equilibrium Reputation Model, *Econometrica*, Vol. 56(1): 1-36.

[23]Berg J.,J. Dickhaut and K. McCabe, 1995, Trust, reciprocity, and social history, *Games and Economic Behavior*, 10: 122-142.

[24] Kreps, D. M., 1990,*Corporate culture and the economic theory*. In: Alt, J. and K. Shepsle (eds.), *Perspectives on positive political economy*, Cambridge University Press, Cambridge, 90-143.

average is lower than usual (0.41, rather than 0.5) and this result is mostly driven by a relatively large proportion of agents (about 37%) who sends a share between 0.2 and 0.4.

Figure 6 Distribution of shares sent to Respondent by agents in the Trust Game



These preliminary findings are indeed interesting as they set the direction for further investigation. As explained above, the purpose of a Trust Game, especially in its first stage, is to identify a measure of trust. The theoretical and empirical literature is not unanimous in suggesting the possible motives of trust. Essentially, the main reasons can be grouped into these categories:

- the expectation of **positive reciprocity** (e.g. Ashraf et al 2006);
- the desire of undertaking a **risky** bet to maximise the return of an investment (Krebs, 1990);
- a concern about one's own **reputation** (Andreoni, 1990; Dickhault et al, 2008)
- pure **altruism** (Rabin, 1993; Chami and Fullenkamp, 2002)

Distinguishing among these different motives is not straightforward. In fact, the Trust Game is constructed in order to entail a risky option for the first mover: therefore, he could decide to send a positive amount of his endowment either for a risky bet on his opponent's behavior, or for pure altruism, or both. In our study at least one of the aforementioned motives can be excluded *a priori*, i.e. reputation. In fact, reputation requires a repeated interaction or at least a "*social history*", i.e. a common knowledge of past behaviors (Berg et al., 1995), but neither of the two occur in our experiment.

With reference to the other motives, there are two possible ways to investigate them. Firstly, as for the other behavioral games of this study, we analyze the textual information provided by the agents. From this analysis, it emerges that 9% of the agents are motivated by **risk**, i.e. they substantially bet over Respondent's trustworthiness. A similar proportion directly refers to a motive related to **positive reciprocity.** The largest fraction of them (63%) indeed is driven by either **altruism** or **fairness**. In this game, no motivations were directly referred to religious motives.

Table 10 Summary of motivations provided by agents after Trust Game

Motivation	% of agents
positive reciprocity	9%
altruism	29%
fairness	34%
risk	9%
religion	0%
other	26%

A further investigation can be made by comparing the results of Trust Game with the share "donated" by agents in the Dictator Game. In fact, the Dictator Game can be thought as a benchmark of an individual's measure of generosity. Therefore, the comparison of the behavior of the same agent in these different situations provides further information on agents' motives. Here the results are very interesting. In fact, the share sent by agents in the Trust Game is higher than the share given in the Dictator Game in 31% of the cases; it is exactly the same in 31% of the cases; and it is lower in 37% of the cases. The overall average of amount sent is lower in the Trust Game than in the Dictator Game. Therefore, this comparison suggests that 31% of our agents actually shows trust (or a risky behavior) in the interaction; 37%, conversely, show the opposite pattern, by reducing the amount offered relative to their behavior in the Dictator Game; finally, in the remaining 31% of the cases it is impossible to distinguish between **trust** and **altruism**.

This result is interesting for two reasons. Firstly, it is a further signal that the shares sent by the agents in our sample are lower than usual. Secondly, it would be reasonable to expect that on average most of agents choose to send a higher share of their endowment in a Trust Game (as an investment) rather than in a Dictator Game. A possible explanation can be searched in the psychology of addiction, since individuals subject to substances abuse tend to be less prone to trust other people. As a further confirmation, the correlation between the share of endowment sent in the Trust Game and in the Dictator Game is positive and high (0.45).

Table 11 Correlations between personal characteristics and share of cigarettes proposed in Trust Game

	trust
age	0.0444
siblings	0.1088
household	0.2597
religion	-0.2308
education	0.0352
status	-0.1788

Notes: * significant at 10% level; ** significant at 5% level

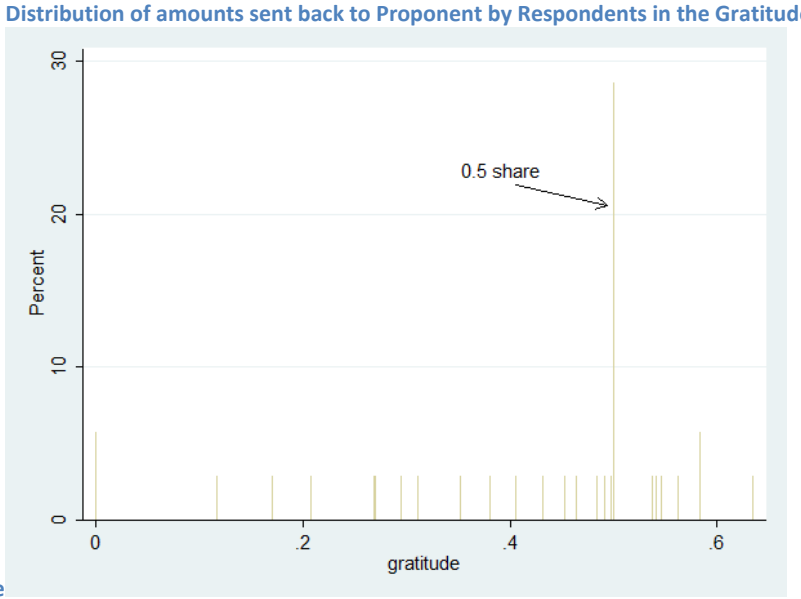
Table 11 presents some interesting, though weak, findings. In fact, none of the correlation coefficients is significant at conventional levels. However, the positive correlations between **trust** and **education** as well as between **trust** and **age** recall the positive correlation of the same variables with the outcome in the Dictator Game. This makes sense, as a component of trust is probably given by other-regarding preferences, i.e. altruism and/or inequality aversion. However, the magnitude of the coefficient is far

lower. Moreover, a positive and quite large correlation can be observed between **trust** and both **siblings** and **household**. Again, these results suggest that the family context exert some influence in agents' attitude towards trust.

8. Gratitude Game (Section 9)

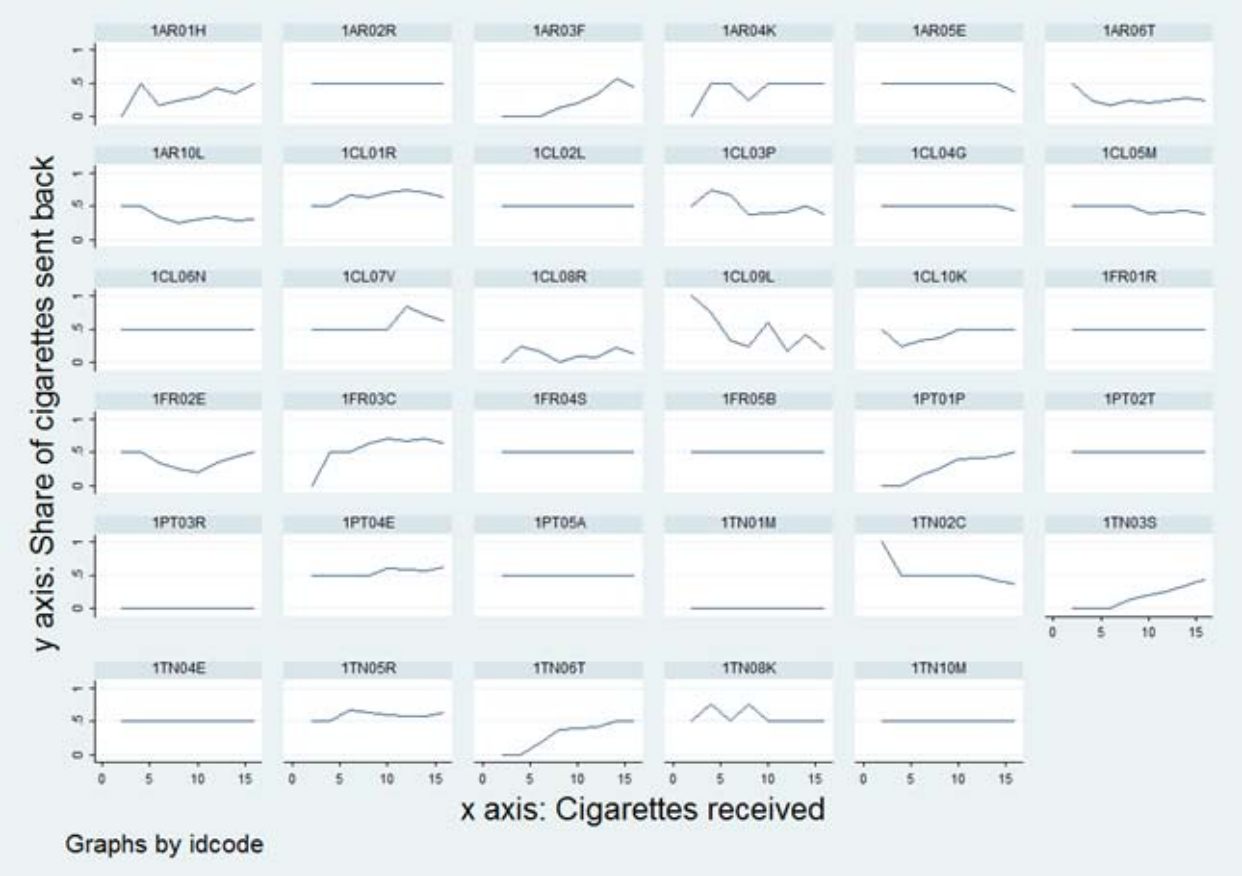
This section presents the outcome of an interaction in which agents play Respondent in a Trust Game (as usual in the strategic form), allowing to observe a measure of "**trustworthiness**" (Camerer, 2003) in a separate game. Trustworthiness "is typically assumed to be reciprocity in behavioral economics" (Ashraf et al., 2006, p.194). The figure below shows the frequency distribution of the shares sent by our agents. The values shown in the figure are obtained by averaging the shares sent by Respondents for every different amount of cigarettes received (in fact the game is presented in the strategy form and asks agents to state how many cigarettes they want to send back to Proponents for every possible amount of cigarettes received). The distribution resembles the Dictator Game's distribution, by presenting a mode at 0.5 (the equal split) and a lower modal value at 0 (representing a pure self-interested behavior).

Figure 7 Distribution of amounts sent back to Proponent by Respondents in the Gratitude Game



A different way to observe the behavior of our agents is presented in Figure 8. Here the shares sent back by Respondents are plotted by agents, showing the evolution of their behavior for any different amount of cigarettes received.

Figure 8 Shares of cigarettes sent back to Proponent for every amount received, plotted by agents



10 out of 35 agents choose a fixed share for any amount received; 12 out of 35 reports a decreasing share in the last option (probably reflecting a pressure effect of the high amount at stake); 2 always choose to send back 0. There is a large variety of patterns, with no straightforward interpretation. However, in analogy to what emerged in the Dictator and Trust Games, the overall average share is higher than standard literature (about 30%, see Camerer, 2003).

A typical problem with the interpretation of **trustworthiness** is due by the mingling effects of pure altruism and positive reciprocity. A strategy to elicit trustworthiness from the Gratitude Game is suggested, among others, by Camerer (2003) who compares the shares sent back by Respondent in the Trust Game with the share donated in a Dictator Game. In our sample, almost 50% of agents reports higher average shares in Gratitude than in Dictator Game, 37% reports lower shares and only the remaining 14% choose exactly the same share. This result is interesting as it allows us to infer that almost half of the agents actually behave according to "**trustworthiness**" (i.e. the desire to positively reciprocate) rather than by pure altruism. The finding relative to the 37% of agents choosing lower shares of cigarettes than in Dictator Game is quite interesting as it could be read in parallel with the analogous behavior in the Trust Game: the experience of addictive behavior could have weaken the disposition of addicted people to both trust and positively reciprocate other people.

As for the other interactive sections, we asked agents to motivate their choice. The textual information have been coded into five variables, reflecting their content (**trustworthiness**; **altruism**; **religion**; **rational**;

other). Interestingly, the motivations expressed by the agents partially contrast with the finding just exposed. In fact, only 11% of the motivations are directly related to **trustworthiness**, while most of them, 54% are justified with **altruism**. A non-negligible 34% of motivations is difficult to interpret and has been therefore coded as **other**.

Table 12 Summary of motivations provided by agents after Gratitude Game

Motivation	% of agents
altruism	54%
trustworthiness	11%
religion	0%
other	34%

Finally, Table 13 reports the coefficients of correlations between the average share of cigarettes sent back and personal characteristics. The pattern reflects those already observed for **trust** and, partially, **dictator**. Very interestingly, the only significant coefficient relates the average share of cigarettes sent back to the number of members of agents' household: probably living together with other people helps developing more "gratitude-oriented" behaviors. Also **religion** curiously reports a significant negative coefficient.

Table 13 Correlations between personal characteristics and average share of cigarettes sent back in Gratitude Game

	Gratitude
age	0.2210
siblings	0.1164
household	0.3982**
religion	-0.3298*
education	0.0274
status	-0.1256

Notes: * significant at 10% level; ** significant at 5% level

9. Intertemporal Discount Rates (IDR) (Section 3)

The concept of intertemporal discounting in behavioral economics is related to individual choices between immediate and delayed reinforces. The observed behavior reflects an individual preference for immediate consumption and the related rate to which the same person "discounts" future consumption. Following Frederick, Loewenstein and O'Donoghue (2002) and Bretteville-Jensen (1999) among others[25], we define the preference for a smaller immediate amount over a delayed larger amount of a given good as "**time preference**". Moreover, the fact that people care less about the future than the present, whatever the reason, is referred to as "**delay discounting**".[26] Therefore, the intertemporal discount rate is a measure

[25] Frederick, S., G. Loewenstein and T. O.Donoghue (2002). Time Discounting and Time Preference: A Critical Review., *Journal of Economic Literature* 40(2), 351-401; Bretteville-Jensen, A. L. (1999). Addiction and discounting, *Journal of Health Economics* 18, 393–407.

[26] Monterosso, J., P. Piray and S. Luo (2012). Neuroeconomics and the study of addiciton. *Biological Psychiatry*, 72(2), 107-112.

of an individual's preference of immediate vs. delayed consumption and is interpreted in behavioral economics as a measure of **impulsivity**.

The use of time discounting to proxy impulsivity has been particularly relevant in studies of addiction. These studies define impulsivity as "the selection of a smaller more immediate reward over a larger more delayed reward" (Bickel and Marsch, 2001).[27] In particular, standard literature hypothesizes that "addicted populations may be more myopic than non-addicted populations" (Ainslie and Monterosso, 2003, p. 37)[28], i.e. that **addicted populations show higher discount rates** (namely a higher preference for immediate smaller rewards). The main problem in testing hypothesis on impulsivity is given by the methodological difficulties in measuring actual individual intertemporal discounting. Following the seminal works by Ainslie (1992) and Ainslie and Haslam (1992) current literature assumes that real intertemporal choices are best approximated by a **hyperbolic discount function**, rather than by an exponential discount function (originally developed by Paul Samuelson in 1937).[29] The main difference between these two functional form is related to intertemporal consistency: in fact, exponential discount functions imply that the discount rate is constant over time; hyperbolic discount function allows for an empirically observed behavior called "preference reversal" (Ainslie and Haslam, 1992) that resolves, more generally, into intertermporal preferences inconsistency.

The most commonly formal representation of the discounting function has been provided by Mazur in 1987:

$$v_i = \frac{A_i}{1 + kD_i}$$

Where v_i is the present value of any desired payoff, A is the value of the delayed reinforcement, D is the delay. The parameter k is included to account for different degrees of discounting that can reflect individual differences. The parameter is a "constant proportional to the degree of temporal discounting" (Vuchinic and Heather, 2003, p. 12). Since this function is in the form of an hyperbola it is referred to as **hyperbolic temporal discounting function.**

The increasing importance of understanding delay discounting in behavioral economics is strictly related to the effort in identifying the causes of addiction. Monterosso, Piray and Luo (2012) note that "delay discounting is arguably the source of systematic irrationality that has been most conclusively linked to addiction" (p. 108). Therefore, they continue,

> "if the high did not set in for weeks, but all the costs arrived immediately, drugs would not be compelling. Indeed, drug intake routes that produce more rapid psychoactive effects seem to be associated with higher addiction liability. If there are individual differences in delay

[27] Bickel, W. K., L. A. Marsch (2001): Toward a behavioral economic understanding of drug dependence: Delay discounting processes. *Addiction* 96, 73– 86.

[28] G. Ainslie, J.R. Monterosso (2003). Building blocks of self-control: Increased tolerance for delay with bundled rewards, *Journal of the Experimental Analysis of Behavior* 79, 27-48.

[29] Ainslie, G. (1992). *Picoeconomics: The Interaction of Successive Motivational States Within the Individual*. Cambridge: Cambridge University Press; Ainslie, G. and N. Haslam (1992) Hyperbolic Discounting. in G. Loewenstein and J. Elster, eds., *Choice over Time*, New York: Russel Sage Foundation.

discounting behavior, it is plausible that individuals that discount steeply will be at greater risk for addiction" (p. 108)

Based on these premises, Section 3 of our questionnaire aims to identify whether and to what extent IDRs vary across our agents. Comparing longitudinal data (starting from the next wave of surveys), it will be possible to investigate whether the "treatment" received in rehab communities contributes to lower the individual average IDR of agents. In fact this would mean that by living in rehab communities the agents are helped to reduce impulsiveness, hence raising their defense against addiction.

Each agent faces three sets (referring to **three different time lags**: today/in a week; in a week/in a month; in a week/today) of **four choices** between a smaller more immediate amount of cigarettes and a larger retarded amount. Each single item implies a specific intertemporal discount rate that makes the agent indifferent between the smaller immediate amount and the larger retarded amount. As the test offered choices among a limited number of options, the implicit annual IDR represents the lower bound of actual IDR value.

Table 14 Implicit maximum annual IDR associated to Section 3 items

varcode	question number	cigarettes today	cigarettes in a week	Implicit Annual IDR
idr1_1	12	2	5	4778%
idr1_2	13	2	6	5728%
idr1_3	14	2	3	2114%
idr1_4	15	2	4	3614%
idr2_1	16	5	9	933%
idr2_2	17	5	12	1389%
idr2_3	18	5	20	2200%
idr2_4	19	5	15	1743%
idr3_1	20	5	2	4778%
idr3_2	21	5	1	8392%
idr3_3	22	5	3	2664%
idr3_4	23	5	4	1164%

In order to obtain an indicator of impulsivity, the individual discount rates are elicited by observing when the agent "switches" from the immediate reward to the delayed reinforcement: the minimum IDR should be in fact the one associated to that indifference point. When the agent is not satisfied with the alternative provided, he could either choose always the immediate or the retarded alternative. In these cases, a default IDR has been assigned to the agent's choice.[30] In this way, three indicators have been constructed: **idr3_1**; **idr3_2**; **idr3_3**, one for each group of items.

In a review of the empirical literature on intertemporal discounting, Frederick, Loewenstein and O'Donogue (2002) point out that the variation of the estimated discount rates across and within studies is

[30] The default values are: 7229% in idr3_1; 2843% in idr3_2 and 0 in idr3_3. These values represent an hypothetical choice consistent with the increase/decrease in the marginal IDR.

"spectacular" (p. 378). Indeed, elicited intertemporal discount rate span on a very wide range which largely depends on the way the experiment is constructed. For instance, our experiment results in very high annualized discount rates due to the nature of the payoff chosen (which is discrete), while using monetary payoffs (as commonly happens in standard experiments) yields overall lower IDR. Therefore, comparing IDR elicited in different studies is potentially misleading. In our experiment the real issue will be the analysis of the difference between the first and second observation within the same agent.

As for these preliminary results, Table 11 shows the correlation coefficients of the three IDR indicators with personal characteristics variables. The first result is the high degree of correlation between the three indicators. In particular, **idr3_1** and **idr3_3** are rightly highly correlated as the latter is included as a control of consistency. The positive correlation between idr3_2 and the other indicators is also a good result, as it witnesses that higher IDR are likely to occur for any time lag: therefore, IDR can be considered as a measure of agents' impulsivity as they are consistent within each agent.

Table 15 Correlations between personal characteristics and IDR

	idr3_1	idr3_2	idr3_3
idr3_1	1		
idr3_2	0.5656	1	
idr3_3	0.8693	0.5713	1
age	-0.029	0.1412	-0.1666
siblings	0.2183	0.1668	0.1103
household	-0.1865	0.0152	-0.1405
religion	0.0685	-0.0457	0.0504
education	0.1035	0.2979*	0.2226
status	-0.214	-0.1382	-0.2725

Notes: * significant at 10% level

As Table 15 shows, some further interesting, though weak, findings emerge: in fact, all but one coefficients turn out to be not significant. However, age is negatively correlated to IDR indicators related to immediate rewards, while it is positively indicated to **idr3_2**, which represents agents' IDR in longer time spans. This finding seems consistent with a priori expectation as age should lower impulsivity and increase self-control. Household and socio-economic status report similar patterns, while curiously **siblings** is positively related to all IDR indicators, implying that a larger number of siblings cohabiting is associated to higher impulsivity.

As a final consideration, Table 16 shows the distribution of agents' IDR. As the table shows, the three distribution patterns are very similar, with the exception of **idr3_2**, whose modal choice is the highest default IDR. This finding is quite interesting because it implies an overall high average IDR also in the more delayed situation. This finding is consistent with the idea that people suffering from addiction tend to exhibit higher than usual impulsivity levels.

Table 16 Distribution of agents (percentage) according to implicit annual IDR level, by subsections

	Sub-sections		
Implicit annual IDR	**idr3_1**	**idr3_2**	**idr3_3**
default (low)			20 %
lowest	29 %	20 %	20 %
mid-low	29 %	20 %	20 %
mid-high	11 %	14 %	11 %
highest	31 %	3 %	29 %
default (high)		43 %	

10. BART (Section 5)

Section 5 provides results on a widely used experimental device, known as BART (Balloon Analogue Risk Task). The BART, originally developed by Lejuez, et al.[31] is a simple laboratory task that aims to capture risk taking in the real world. Each agent is required to "pumping" a virtual balloon appearing on the screen. Each pump yields half a cigarette. The agent must choose when stop pumping and cash in the cigarettes he has obtained. The rationale is simple: the more pumping the more cigarettes obtained. However, the balloon can suddenly burst, in which case all the cigarettes obtained in the session would be lost. Each agent faces 10 sessions (i.e. 10 virtual balloons).

In our experiment, the "bursting sequence" (randomly generated) is given and fixed for all the agents: in other words, each of the 10 balloons burst after a given number of pumps, in the same way for all the agents. This controlled environment allows to explore risk-taking behavior by excluding random unobserved influence.

In the original version of the BART, the measure of risk-taking behavior is obtained from the average number of pumps excluding burst balloons. This input was not recorded by our software in the current round.

Table 17 Random sequence of bursts in BART

Balloon	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Number of clicks before burst	4	8	2	19	9	1	5	14	2	3
Max outcome (cigarettes)	2	4	1	9.5	4.5	0.5	2.5	7.5	1	1.5

Table 18 shows that BART results are positively correlated to the three indicators of impulsivity generated in the IDR Section. In other words, higher intertemporal discount rates (i.e. more impulsivity) are correlated to a higher number of cigarettes in the BART.

[31] Lejuez, C. W., Read, J. P., Kahler, C. W., Richards, J. B., Ramsey, S. E., & Stuart, G. L. (2002). Evaluation of a behavioral measure of risk taking: the balloon analogue risk task (BART). *Journal of Experimental Psychology: Applied*, 8, 75–84.

Table 18 Correlation coefficients between results in BART and impulsivity indicators

idr3_1	0.2018
idr3_2	0.1523
idr3_3	0.1181

Notes: * significant at 10% level; ** significant at 5% level

The correlation coefficients between the BART results and personal characteristics are also not significant.

Table 19 Correlation coefficients between BART and personal characteristics

	BART
age	-0.2545
Siblings	0.2155
household	-0.1423
religion	0.2316
education	-0.1830
status	-0.1389

Notes: * significant at 10% level; ** significant at 5% level