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## WORKING PAPER SERIES

**Trust and reciprocity in youth labor markets.
An experimental approach to analyzing the
impact of labour market experiences
on young people**

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# Trust and reciprocity in youth labor markets.
# An experimental approach to analyzing the impact of labour market experiences on young people

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**Abstract**. In this experiment, we study whether individuals' labour market state (i.e. employed, student or NEET) affect their trusting and trustworthy behavior. To identify both the effect of labour market state and the effect of information on others' labour market state over one's behavior, we implement an experiment with two one-shot trust games with random and anonymous matching: in the first game, subjects receive no information on the counterpart; in the second one, the labour market state of both players is common knowledge. We find that, amongst the different sub-categories of NEETs, the status of unemployed has a markedly negative effect on trust and trustworthiness. Furthermore, precariousness in the labour market results to be as damaging as unemployment for trust and trustworthiness.

**Keywords** Trust game, Reciprocity, Youth labor market.

**Jel codes** C91, D31, D90.

## 1. Introduction

This paper reports the results of an experiment that seeks to detect the systematic differences in behavioral trust and trustworthiness amongst individuals' in different labour market states (i.e. employed, student or NEET) as well as the effect of the *information* on the counterpart's labour market status over subjects' trusting and trustworthy behavior.

The development of the capacities of entrusting others and being trustworthy is likely to have long lasting consequences on young people's labor market, both for the success rate in the job search and for the job stability. Indeed, trust and trustworthiness induce people to engage in mutually beneficial transactions so as to increase the probability of being successful in the job search. Also, trust and trustworthiness increase the cooperation rate in the job place, boosting firms' benefits and - consequently - reducing the individuals' probability of being fired. The opposite holds for people with lower levels of trust and trustworthiness, which may be severely limited in their opportunities of engaging in mutually beneficial transactions as well as in their willingness to cooperate in the job place. Moreover, it is natural to think of a two-way causal relationship between trust/trustworthiness and the labor market status, since the success in the job search as well as the job stability are likely to further increase individuals' level of trust and trustworthiness. Conversely, the experience of failure in the job search and layoff may negatively affect individuals' trusting and trustworthy behavior. This downward spiral is one factor underlying the hysteresis evident in youth unemployment and which consequently contributes to the social exclusion of some youngsters.

On this account, employed should exhibit a higher level of trust and trustworthiness with respect to students and NEETs. This state-contingency of trust and

trustworthiness entails that the information on the labor market status may be a signal of the individual-specific level of trusting/trustworthy behavior so as to influence individuals' choices in trust relevant interactions. At the same time, the knowledge of the counterparts' labor market state is likely to trigger individuals' other-regarding behavior towards more disadvantaged individuals or people in the same labour market status because of within group preferences.

The proposed analysis grounds in a number of different research lines primarily from labor economics but also covering experimental economics. First, several empirical contributions based on survey data (e.g. Jones & Riddell, 2000, Brandolini et al., 2004, Battistin et al., 2007) find significant behavioral differences between the unemployed and some other forms of NEET. Second, it is well established that the negative consequences of youth unemployment and non-employment persist in terms of long run wage and employment penalties (e.g. Gregg, 2001, and Gregg and Tominey, 2005, Cockx and Picchio, 2011). Third, more recent researches also provide evidence that unemployment reduces young people's trust (Eurofound 2012). This latter effect is likely to contribute to the persistence of wage and employment penalties producing both immediate and longer-term negative consequences for young people's welfare (Caspi et al. 1993; Brook, 2005).

Evidence on social capital and youth unemployment in the existing literature is based almost exclusively on survey measures. Several papers show, however, that such measures are not strongly related to the more relevant behavioral measures derivable from laboratory experiments (e.g. Glaeser et al., 2000, Fehr et al. 2003, and Farina et al., 2009)[1]. Amongst these, Fehr et al. (2003) examine the impact of individual characteristics on behavioral trust/trustworthiness and find a negative correlation between the unemployment state and the trusting/trustworthy behavior of a nationally representative sample of participants in a Trust Game.

[1] The only exception to these negative results is the contribution of Sapienza et al. (2013), which, due to the specific features of their design, have identified a significant correlation of survey measures of trust to both trusting and trustworthy behavior.

This experiment involves groups of young people (18-29) drawn from the outside of the University environment. The experimental sessions have been implemented in three Countries: Hungary (Budapest), Italy (Naples) and the UK (Oxford). Subjects' employment state is elicited through survey questions inspired to the International Labour Organization (ILO) definitions of the relevant labour market states. The core of the design consists of two one-shot trust games with random and anonymous matching: in the first game, subjects received no information on the counterpart; in the second one, players' labour market state was common knowledge. Dictator games and lottery choice problems are implemented to control respectively for altruistic preferences and attitudes towards risk that might affect trusting and trustworthy behaviour. Moreover, survey and behavioural data are combined to test whether subjects' answers to attitudinal questions on trust and reciprocity predict their behavior.

The experiment shows clear differences in behavioral trust and reciprocity according to labor market status and in the way the information about the counterparts' labor market status influences young people's choices. The trial documents that NEETs are not an homogeneous category. Specifically, unemployed NEETs (i.e. non-employed individuals searching for a job *without* success) are less trusting and trustworthy than other NEETs not searching for a job. Moreover, those in precarious employment forms – and above-all those in temporary employment – are less trustworthy in their behavior. The implication is that the increasing tendency to promote flexible employment forms is likely to have long-term negative consequences for young people's labour market, operating through the channel of the negative effects of precarious employment on young people's trust/trustworthiness. The experiments also show that employed players reduce the level of trust/trustworthiness when they get information on the NEET status of the counterpart. Similarly, NEETs reduce their cooperation level when they know to be playing the game with employed people. These results, together with the evidence of a lower level of trust/trustworthiness from NEETs, provides a candidate mechanism for the explanation of

the persistence in the long run of wage and employment penalties for young unemployed people. Finally, the experiments provide some evidence on the relevance of solidaristic motives in determining behavior. Specifically, the information on the status of students induces Employed and NEET to increase respectively their level of trust and trustworthiness.

The chapter is organized as follows. Section 2 describes the experimental design. Section 3 reports the main results of the first trust game (TG1) with no information on the counterpart's labor market state. Section 4 reports the results of the second trust game (TG2) where players' labor market state is made public. Section 5 concludes.

## 2. Experimental Design

The proposed approach combines more traditional survey based measures of attitudes and labor market state with a laboratory based experiment on young people. The aim of the experimental design is to study the behavioral differences amongst individuals in different labor market states as well as the effect of information on the labor market status of their co-players on subjects' trusting and trustworthy behavior.

The entire process took place in the laboratory. Young people aged 19-29 were recruited from outside the University environment. The experiments were run in three countries: Hungary (Budapest), the UK (Oxford) and Italy (Naples). Recruitment aimed at a reasonably sized sample from each of the three broad labor market states rather than a representative sample from the youth population. As can be seen from figure 1, this proved most difficult in Oxford where just under 10% of the sample were NEET. The overall sample comprised a little under one quarter NEET, a little over one quarter students and around one half employed. In all, the

sample comprised 632 young participants, 250 in Budapest, 260 in Naples and 122 in Oxford.

**Figure 1. Distribution of experimental participants (by labour market status and country)**
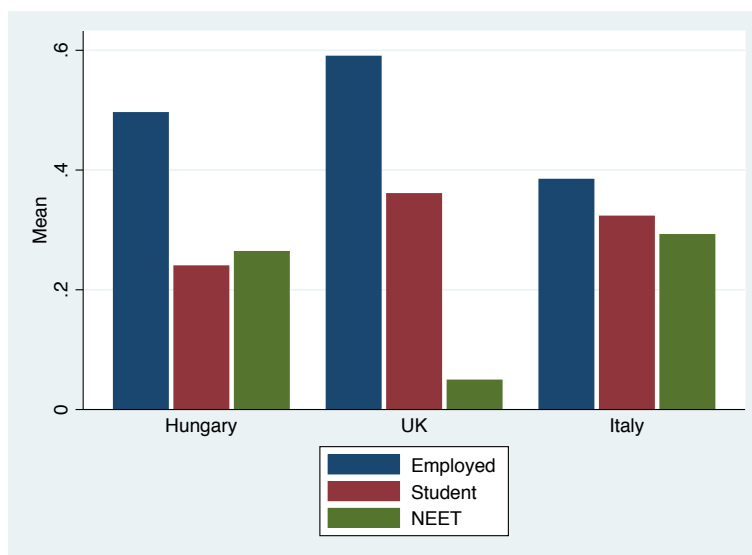


Subjects were invited to participate through the labor office of the relevant countries in experimental sessions, which articulate in six computer-based tasks managed by a server running a z-tree script (Fischbacher 2007). Subjects received instruction phase-by-phase, so that they did not know the entire structure of the experiment at the outset. In each interactive behavioral task, subjects were randomly matched without replacement to guarantee full anonymity.

*1) Survey, part I:* At the very beginning of the experiment, subjects were required to answer a questionnaire aimed at eliciting their socio-economic characteristics.

*2) Dictator Game (DG):* Players were randomly assigned a role of type A (sender) or type B (receiver) which they maintained throughout the experiment. Only senders where endowed with a monetary amount of 10 tokens. This endowment was refunded to senders in all the subsequent interactive behavioral tasks. Players were

then randomly (and anonymously) matched and invited to play a DG, with no information on their counterparts.

*3) Trust Game with 'no information' (TG1):* Subjects had to play a standard trust game with no information on their counterpart. In this game, senders chose whether to give some or all of the endowment (i.e. from 0 to 10 tokens) to the receiver, which got three times the amount originally sent (i.e. from 0 to 30 tokens) and decided whether to give back some or all of it to the sender. Receivers' choices were elicited with the strategy method: i.e. the receiver declared the monetary amount she wanted to give back for any positive amount (from 1 to 10 tokens) the sender could decide to give to her. In such a way, the receiver's *actual* choice was conditional on sender's *unknown* decision.

*4) Trust Game with 'status information' (TG2):* Players took part to a second trust game and received information on the labor market status (in Education, in Employment or NEET) of their co-respondent. This treatment allows identifying the effect - if any - of the information on the counterpart's labour market state on behavioral trust and trustworthiness. On one hand, this knowledge may affect senders' other-regarding motives towards the anonymous recipient; alternatively, senders may interpret the delivered information as a signal of recipients' expected trustworthiness. On the other hand, the information on senders' labour market state can only affect recipients' other-regarding motives in as much as they lack any strategic incentive linked to a potential financial gain.

*5) Lottery choice:* To elicit their risk preferences, players were shown a table (table 1) which lists 6 different – and increasingly risky – lotteries[2]. They had to choose *one* out of the six lotteries and, subsequently, a coin was tossed to decide which outcome was to be applied and players got paid with the actual outcome of the lottery at the end of the experiment. The expected value of the lottery outcome increases as does

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[2] The lottery is a slight modification of those used by Eckell & Grossman (2008) and Casari et al. (2013).

the distance between the better and worse outcomes from lottery 1 to 6[3]. Hence, each lottery choice provides a measure of the range of values of (Constant Relative) Risk aversion. Controlling for risk attitudes allows to see whether differences in behavioral trust observable across individuals in differing labor market states are systematically associated with differences in risk attitudes.

**Table 1. Lottery choice**

|  | Heads | Tails |
|---|---|---|
| **Lottery 1** | 7 | 7 |
| **Lottery 2** | 9 | 6 |
| **Lottery 3** | 11 | 5 |
| **Lottery 4** | 13 | 4 |
| **Lottery 5** | 15 | 3 |
| **Lottery 6** | 17.6 | 0.4 |

*6) Survey, part II:* Players filled out a questionnaire eliciting more qualitative information on their attitudes towards trust and reciprocity, their locus of behavioral control and their family background. Information on attitudes allows examining the nature of the choices taken. This part of the survey was implemented at the end of the trial to avoid conditioning or framing responses by discussing issues related to trust, reciprocity and other relevant attitudes before the behavioral tasks.

Elements (2) – (5) involved choices which had direct financial consequences. Moreover, apart from individuals playing the role of dictators in the DG, outcomes depended on the behavior of others (TG1 and TG2) or upon chance (lottery choice). To neutralize learning effects, players got paid only at the very end of the

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[3] Note however, that lottery 6 is riskier than, but has the same expected value as, lottery 5 hence allowing for the possibility of negative risk aversion (i.e. risk loving behavior).

experiment, when, apart from dictators in the DG, they came to know of the behavior of their counterparts and hence the size of their payments.

Although cross-country differences and the related implications were not the main focus of the analysis, the three countries (Hungary, UK and Italy) were chosen to cover differing economic, institutional and cultural contexts, possibly affecting behavioral trust/trustworthiness (Alesina and Giuliano 2015). Indeed, the specific sites of the experiment (Budapest, Oxford, Naples) within the countries accentuate any such cross country differences. Hungary is a Central European country with a history of centralized planning and subsequent transition to the market with a relatively low unemployment rate (7.1% in December 2014)[4] and a (medium level) ratio of youth to adult unemployment of 2.8 (last quarter, 2014). Budapest has a rate of aggregate unemployment significantly lower than the national average (5.2% in the last quarter of 2014). The UK is also characterized by a relatively low rate of unemployment (5.8% in the last quarter of 2014) but has a relatively high ratio of youth to adult unemployment (3.9 in the last quarter of 2014). Moreover, the UK labor market is relatively flexible with low levels of employment protection. Oxford is a relatively prosperous and well-educated part of the country with an unemployment rate significantly below the national average (3.6% in late 2014). In stark contrast, Italy has a relatively high unemployment rate – 12.4% at the end of 2014 - and a relatively high youth-adult ratio of unemployment rates (3.2 in the last quarter of 2014). Moreover, in Naples the unemployment rates are well above the national average (24.6%) with a correspondingly high rate of youth unemployment (57% in 2014). The Italian labor market is characterized by the so-called Mediterranean model with highly protected core employees (above all prime age male) and a secondary labor market for the young and – to some extent - females in precarious employment with limited access to the core. The three countries also exhibit differing levels of attitudinal trust amongst its citizens, as the European

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[4] Data at the national level and by age are drawn from Eurostat; local unemployment statistics from national statistical services. In both cases these are labor force survey based estimates.

Social Survey (ESS) survey 2012 testifies. Overall, Italy is the least trusting country followed by Hungary and the UK which is the most trusting. However, these differences refer to trust in institutions, rather than to trust in others, which this experiment aims at measuring behaviorally.

**3. Results in TG1 with no information on the counterpart**

*3.1 Senders' behavior*

Figure 2 reports the behavior of senders in the Dictator Game (DG) and in the two trust games (TG1, TG2) without and with information on recipients' labor market status. Overall, senders contribute less in the dictator game than they did in the two trust games. The differences in average offers in TG1 *between* subjects in different labor market states are small and not statistically significant.

**Figure 2. Amounts sent by senders in DG, TG1 and TG2 (sorted by LM status).**
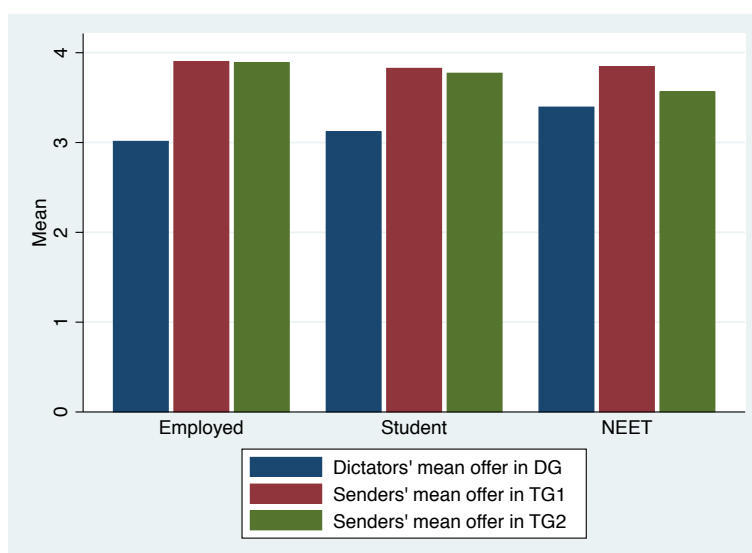


By contrast, the *within*-subjects variation in behavior between DG and TG1 is statistically significant for all senders in different labor market states. However, the
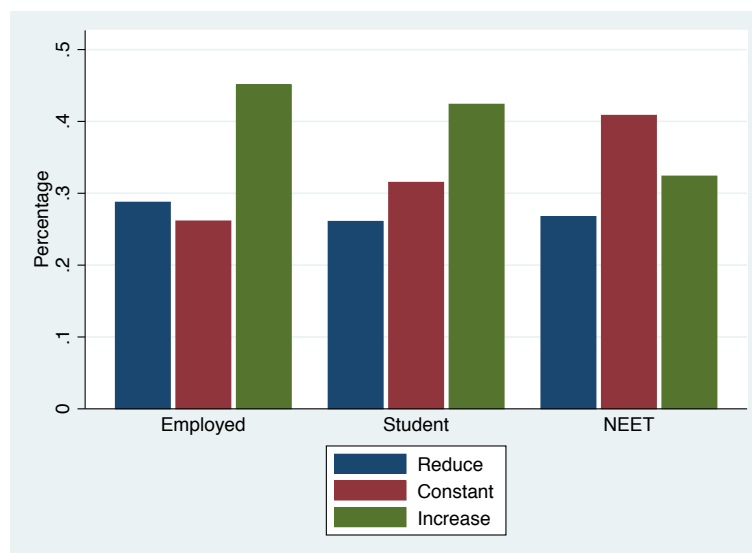
difference in the average level of transfers between DG and TG1, is also relatively small - of the order of 0.8 tokens on average – suggesting that other-regarding motives are relatively strong and investment motives relatively weak in this sample. Table 2 shows the paired means comparison t-tests sorted by senders' labor market status, while figure 3 the behavioral variations at the individual level.

**Table 2. paired means comparison t-tests of senders' giving rate between DG and TG1 (sorted by LM status)**

| Employed | Student | NEET |
|----------|---------|------|
| 0.088*** | 0.070*** | 0.045** |
| (0.000) | (0.006) | (0.033) |
| [0.265] | [0.268] | [0.204] |

\* One-tailed p-values and standard deviations are in parentheses and brackets respectively.

**Figure 3. Differences in senders' behavior between DG and TG1 (by status)**



*Finding 1. The difference in average offers between DG and TG1 is significantly positive but decreasing in subjects' labor market status from Employed to NEET.*

Table 2 documents a general tendency to significantly increase the average level of transfers between the dictator and the trust game. However, the size of the difference as well as its statistical significance is decreasing in the labor market status, from employed to NEET. Indeed, figure 3 shows that NEETs' behavioral patterns are different from those ones of the other categories of players because increasing offers is no longer the most frequent choice, whilst the majority of them (42%) choose to give exactly the same amount as in the dictator game.

*Finding 2. Italians tend to reduce the average level of transfers between DG and TG1.*

An examination of cross country differences (table 3) shows that the means difference for Italian participants is significantly negative. At the individual level (figure 4), 41% of Italian participants reduce their offers in TG1, whilst only 20% of Hungarians and 15% of British people choose to give less. This suggests that strategic motives to trust strangers are relatively strong in the UK, slightly weaker in Hungary and, at the aggregate level, entirely absent in Italy. This is broadly consistent with the levels of attitudinal trust in the countries reported by the ESS survey 2012.

**Table 3. paired means comparison t-tests of senders' giving rate between DG and TG1 (sorted by country)**

| Hungary | UK | Italy |
|---------|-----|-------|
| 0.107*** | 0.229*** | −0.031** |
| (0.000) | (0.000) | (0.028) |
| [0.222] | [0.331] | [0.867] |

* One-tailed p-values and standard deviations are in parentheses and brackets respectively

**Figure 4. Differences in senders' behavior between DG and TG1 (by country)**
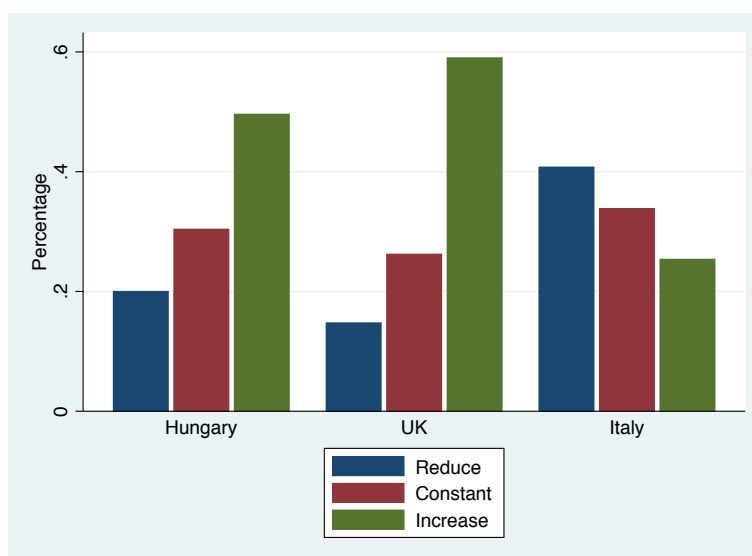


Following Cox (2004), it has often been assumed that the DG is an indicator of other-regarding preferences whilst the TG provides an indication of other-regarding preferences with the addition of the 'trust' or 'investment' motive (i.e. sender's potential financial gain) which is non-negative by assumption. On this account, senders should rationally choose to give more in a TG than they do in a DG. Clearly, this condition is violated by over one quarter of the sample here, and by two fifths of the Italian participants (see figure 4). The additionality assumption, which has been questioned by Ashraf et al. (2006), does not allow for the effects of betrayal aversion (i.e. the disutility of experiencing or anticipating the non-reciprocal behavior by the counterpart) in the decision making process. Specifically, given that receivers in the DG play a passive role, dictators do not run the risk of being "cheated on". By contrast, in the TG the receiver can choose to reciprocate or not the sender's trust. A failure to reciprocate may represent a non-financial cost to the sender, arising from the receiver's 'betrayal' in not responding positively to her "generosity". If this cost is sufficiently large, so as to outweigh any expected monetary return, then senders may give less in the TG than in the DG. Moreover, the subjective degree of betrayal aversion depends *inter alia* on the level of social capital in a given context. Trust in others is relatively low in Italy, and indeed, much of the early evidence on the

negative effect of the lack of social capital comes from Southern Italy *(Putnam et al. 1993)*. If, betrayal aversion is particularly strong in Southern Italy, then the trust motive is likely to be negative due to 'betrayal aversion' (Bohnet et al. 2009).

*3.1.1 Econometric analysis of trusting behavior*

The econometric analysis here implemented allows to fine grain the identification of the determinants of trusting behavior as well as to assess the internal heterogeneity of the relevant labor market states. To this end, an ordered probit model is estimated in two specifications (table 4)[5]. First, the number of tokens senders choose to give is estimated as a function of some basic individual characteristics and variables representing labor market status. The second specification considers also variables representing attitudes and risk preferences. A term controlling for the number of tokens sent in the dictator game (called "other-regarding behavior") is also included in both specifications. Beyond the basic breakdown of participants into "Employed", "Student" and "NEET", the labor market status variables includes further identified forms of temporary and informal employment[6]. Within the NEETs a dummy variable was added for the unemployed referring to the sub-category of NEETs searching for a job without success[7].

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[5] The use of the ordered probit model, though not dominant, is widespread in experimental analyses of trusting and trustworthy behavior. The main reasons of this choices refer to the discreteness and the truncated range of the dependent variable (i.e. the amount sent). See Fehr et al (2003), Johansson-Stenman et al (2011) for a methodological justification of the use of the ordered probit model for experimental analysis of behavioral trust and trustworthiness.

[6] Permanent employees were the default – excluded - category from the regression; informal employees were defined as those with no employment contract.

[7] The sub-categories of NEET and employed were added additionally to the base (NEET or Employed) category so the effect of say being unemployed (as opposed to being a student – the excluded labor market status variable) was the sum of the coefficients on NEET and unemployed.

**Table 4. Ordered probit estimation of the determinants of trust in TG1**

| Amount sent in TG1 | coeff | SE | coeff | SE |
|---|---|---|---|---|
| Other-regarding behavior | 0.32*** | 0.01 | 0.31*** | 0.01 |
| Male | 0.11*** | 0.03 | 0.07* | 0.04 |
| Aged 25-29 | 0.17*** | 0.04 | 0.17*** | 0.04 |
| Tertiary Educ. | 0.09* | 0.05 | 0.06 | 0.05 |
| Hungary | 0.62*** | 0.00 | 0.54*** | 0.05 |
| UK | 0.88*** | 0.07 | 0.75*** | 0.07 |
| NEET | 0.03 | 0.07 | 0.02 | 0.07 |
| - & Unemployed | 0.00 | 0.07 | 0.02 | 0.07 |
| Employed | 0.01 | 0.05 | 0.03 | 0.05 |
| - & Temp. contract | −0.26*** | 0.08 | −0.26*** | 0.08 |
| - & Informal | −0.12* | 0.07 | −0.13** | 0.07 |
| Lottery (risk) | | | 0.08*** | 0.01 |
| Reciprocity | | | 0.00 | 0.006 |
| Trust | | | 0.01*** | 0.003 |
| Cooperation | | | -0.00 | 0.006 |
| Locus of Control | | | 0.01* | 0.005 |
| Pseudo R-Squared (adjusted) | 0.12 | | 0.13 | |
| n | 316 | | | |

Consistently with previous literature (Sapienza et al. 2013, Ashraf et al. 2006) the tokens sent in the Dictator Game stand in a significant positive correlation with those sent in the Trust Game. Hence, other-regarding preferences are the crucial driver of senders' behavior in TG1. Furthermore, young men appear to be more trusting than young women as do older young people (aged over 25) with respect to younger ones[8]. Italians are the least trusting and the English the most. Although Hungarians

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[8] This result is driven by the behavior of Italian young men and women. This evidence is consistent with the results reported in O'Higgins et al. (2015) which found, in contrast to analyses in other countries, that women were particularly ungenerous dictators in DG's run amongst southern Italian students; a finding which is explained in terms of the matrilineal culture of that region.

and English young people send broadly similar amounts in the trust game, it is the English young people's behavior that changes most between DG and TG. This confirms the stronger influence of the investment motive for English people with respect to Hungarians.

*Finding 3. Temporary and informal employment are negatively correlated to trusting behavior.*

Being a NEET does not affect senders' behavior, while temporary employment, and, to a lesser extent informality, stand in a negative correlation with behavioral trust. The results suggest that precariousness have a more detrimental effect on trust than does non-employment per se. This is consistent with the hypothesis of lower levels of trust systematically associated to unstable forms of employment. Introducing attitudinal variables does not change the other parameter estimates greatly. Nonetheless, once risk attitudes are controlled for, the coefficient associated to the parameter on informality becomes more (not less) statistically significant ($p < 0.05$ rather than $0.05 < p < 0.10$). Hence, individuals' attitudes toward risk per se do not determine the negative correlation between precarious employment forms (informality and temporary employment) and trusting behavior. Moreover, this result confirms the tendency of risk-loving young people to choose precarious employment forms.

Turning the attention to the second specification of the model, the results suggest that risk preferences are the primary 'attitudinal' determinants of behavioral trust. Thus, the investment motive is an important factor in determining senders' trusting behavior. Consistent with the findings of Fehr et al. (2003) and Sapienza et al. (2013), the index of attitudinal trust is also positively (and statistically

significantly) associated with senders' behavior, although the size of the effect is numerically smaller than that one for risk attitudes[9].

*3.2 Receivers' behavior*

The previous discussion raises the question of whether it makes sense for senders to 'trust' receivers' sense of obligation, at least in purely financial terms. The strategy method used to elicit receivers' choices is particularly well adapted to answer this question as it allows reconstructing the receivers' mean return rate - defined as the number of tokens returned by recipients divided by the number of tokens sent back - as a function of any amount the sender *may* decide to give.

On average, trusting an absolute stranger pays off; the aggregate mean rate of return is 1.01, just above the break even point of 1 (see figure 5). Moreover, consistently with the hypothesis of positive reciprocity, the return rate is increasing in the potential amount sent by the sender. Specifically, a trusting choice starts to pay off from the potential offer of an equal share of the endowment (i.e. 5 tokens).

**Figure 5. Rate of return in the TG1**



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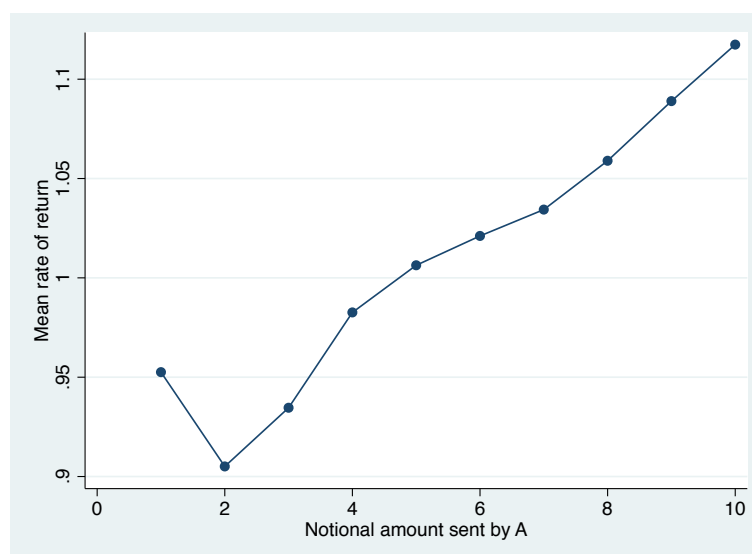
[9] Trust is also positively associated with a more internal locus of control – that is with a greater sense of one's own ability to influence outcomes.

To detail the analysis, figure 6 plots the return rates functions sorted by the labor market status. All the three categories of players behave in broadly the same way, increasing their reciprocity more than proportionately with the number of tokens the senders may give.

**Figure 6. Rate of return in the TG1 (by LM status)**
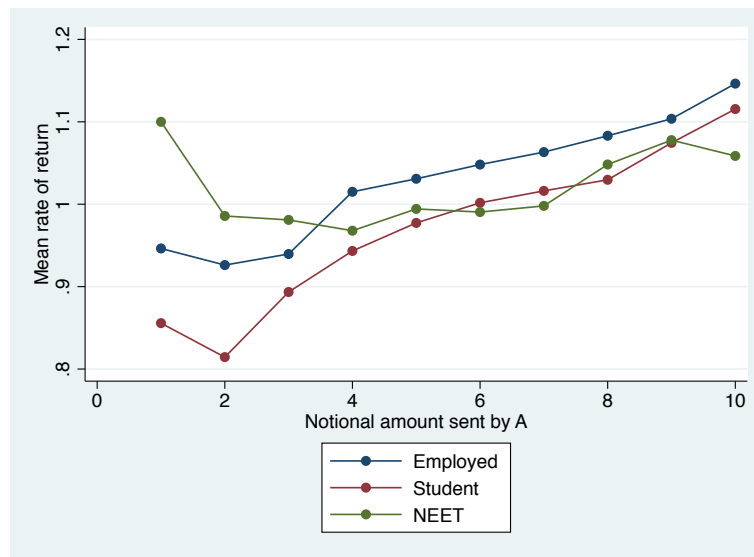


All three types send back 'something' when only a small amount was sent – accounting for the negative slope between one and two tokens of the return functions (see figures 5 & 6). Consistently with Sapienza et al. (2013), the negative slope between one and two tokens documents that receivers interpret senders' notional offers below the equal share of the endowment as an act of charity, which does not ask to be repaid. The employed are the most generous on average (rate of return = 1.03) and the students the least (0.97), although the latter respond the most strongly to (i.e. the rate of return increased fastest with) increases in the number of tokens sent by senders. Finally, NEETs are the least sensitive to increases in the potential amount from senders, and they guarantee a small return from the transaction only if senders offer substantially more than the half share of the endowment. Thus, on average, it is clearly profitable for senders to give half or more of their initial allocation.

*3.2.1 Econometric analysis of trustworthy behavior*

An ordered probit model is estimated in two specifications: i.e. without and with attitudinal variables. Due to the strategy method, ten observations per receiver are recorded; as a consequence, estimates are more precise (table 5)[10].

**Table 5. Ordered probit estimates of the amounts sent back by B players in TG1**

| Amount sent back in TG1 | coeff | SE | coeff | SE |
|---|---|---|---|---|
| **sent by player A** | 0.30*** | 0.01 | 0.31*** | 0.01 |
| **Male** | 0.10*** | 0.03 | 0.09 | 0.03 |
| **Aged 25-29** | −0.04 | 0.04 | −0.04 | 0.04 |
| **Tertiary Educ.** | −0.15** | 0.05 | −0.12** | 0.05 |
| **Hungary** | 0.12** | 0.04 | 0.07* | 0.05 |
| **UK** | −0.27*** | 0.06 | −0.38*** | 0.06 |
| **NEET** | 0.30** | 0.09 | 0.38*** | 0.09 |
| **- & Unemployed** | −0.31*** | 0.10 | −0.39*** | 0.10 |
| **Employed** | 0.13** | 0.05 | 0.10** | 0.05 |
| **- & Temp. contract** | −0.38*** | 0.06 | −0.38*** | 0.07 |
| **- & Informal** | −0.06 | 0.06 | -0.03 | 0.06 |
| **Lottery (risk)** | | | -0.01 | 0.01 |
| **Reciprocity** | | | 0.002 | 0.007 |
| **Trust** | | | 0.02*** | 0.006 |
| **Cooperation** | | | 0.02*** | 0.006 |
| **Locus of Control** | | | 0.02*** | 0.005 |
| **Pseudo R-Squared (adjusted)** | 0.10 | | 0.11 | |
| **N** | 3160 | | | |

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[10] Although due account is taken of the panel nature of the data in the calculation of the standard errors. To control for the non-independence of the 10 observation per individual, an ordered probit model clustering at the subject level (available upon request) has been estimated. Beside a slight reduction in precision, results did not change substantially.

As expected, risk does not play a part in the receivers' decision on the level of transfers. Otherwise, with some minor exceptions, the results are rather similar to those for trust, particularly for labor market status. Individuals on temporary contracts send back significantly less. This mirrors precisely the results for A players reported in table 4 above. A possible cognitive mechanism explaining this evidence is projection onto other individuals. Specifically, decisions by senders concerning how much to give crucially depend on how they expect recipients to react; one possible way of informing this decision is introspection – that is, how senders themselves would react in this situation[11]. If people in precarious (temporary and/or informal) employment perceive themselves to be less reciprocal on average than others, then they would exhibit a lower level of trust because they expect receivers in precarious employment to react as they would[12].

*Finding 4. unemployed NEETs (i.e. NEET searching for a job without success) are significantly less trustworthy than NEETs not searching for a job.*

A stark contrast in trustworthiness emerges between NEETs who are not (ILO) unemployed – that is, young people without work but that do not search for it - and those who are. Individuals outside the traditionally defined labour force are particularly trustworthy (compared to the default group of student), whereas unemployed young people are not; demonstrating essentially the same degree of trustworthiness as students (i.e. the sum of the NEET and unemployed coefficients reported in the table is practically zero). Hence, the experience of failure in the job search mediates the detrimental effect of the unemployment state on subjects' cooperative behavior. Intuitively, the failure in the job search means that an

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[11] See, for example, Sapienza et al. (2013) who provide explicit evidence that senders base their expectations of receivers' reactions on their own trustworthiness.

[12] It is also arguable in this context that if it produces a positive return, as in Hungary, trusting behavior is in a (more general) sense 'rational'.

individual is believed to be untrustworthy for a given task; this may lead a person to deem herself as untrustworthy (i.e. a person not deserving trust), so to exhibit systematically a lower level of reciprocity.

The evidence of employed being more trustworthy than students is consistent with Fehr and List (2004)'s result of students exhibiting a systematically lower level of reciprocity than Chief Executive Officers. This may indicate that the influence of (conditional) other-regarding preferences is stronger for employed people than for students, because the costs of reciprocity *in the lab* are lower for people with a stable income. Alternatively, employed people may know much better than students the benefits of cooperation in the work place, so to exhibit a higher level of reciprocity in one-shot anonymous interactions.

The introduction of attitudes into the analysis again does not change the original parameter estimates very much. Consistently with Fehr et al. (2003), attitudinal trust, cooperativeness and locus of control, but not attitudinal reciprocity, are positively correlated to behavioral reciprocity.

**4 Results in TG2 with information on the labor market state of the counterpart**

*4.1 Senders' behavior*

In the second Trust Game (TG2), players' labor market state is made public: i.e. Senders know whether the person with whom they are interacting is employed, a student or a NEET. A simple way of representing the effects of this information is to examine the change in individuals' behavior between TG1 and TG2. Figure 7 reports the behavioral variations at the individual level sorted by senders' labor market status. This provides a simple benchmark to judge their interaction with the labour market status of recipients. Overall, senders tend most frequently to hold constant their offers in between the two games. However, NEETs are the most (least) likely to reduce (increase) their offers when they get informed on the counterpart's labor market status.

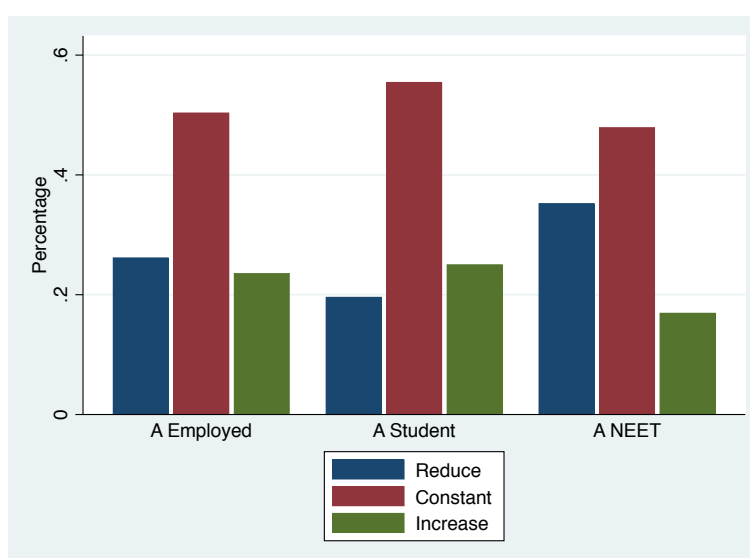**Figure 7. Differences in senders' behavior between TG1 and TG2, by status of senders**



Figure 8 reports the aggregate reaction of senders to the status of recipients. Knowing that the recipient is either a student or unemployed is most likely to induce

senders to increase the transfers level, whilst knowing that the recipient is employed is more likely to be associated with a fall in trust. Given the results reported above in table 4, this is more consistent with some form of other-regarding 'solidaristic' preferences rather than with the investment motive.

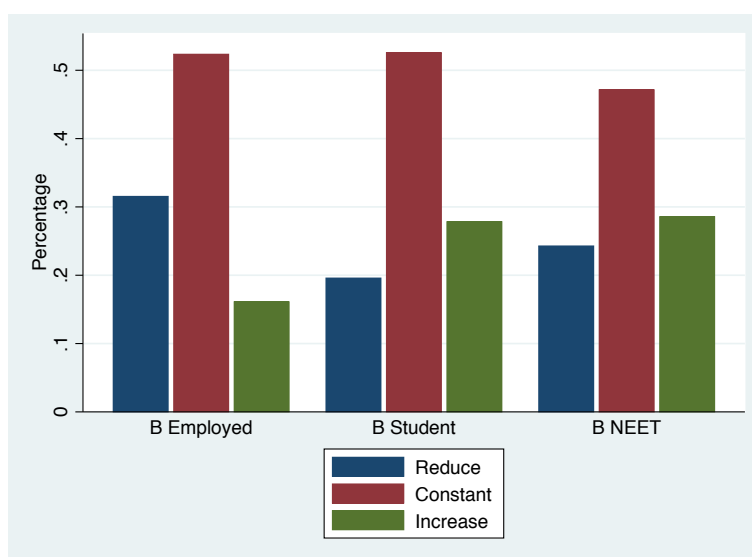**Figure 8. Differences in senders' behavior between TG1 and TG2, by status of receivers**



Table 6 and figure 9 tackle the issue of the effect of the interaction between the status of senders and receivers on trusting behavior. Aggregating across all states (both senders and receivers), the public knowledge of the counterpart's labor market status does not have any effect on behavioral trust. The provision of the information on receivers' LM status has a negative effect (albeit small) only on NEETs' trusting behavior. Also, all senders tend to decrease the average giving rate when they are matched with employed (table 6).

**Table 6. paired means comparison t-tests of senders' giving rate between TG1 and TG2 (sorted by senders' and receivers' LM status)**

| Differences in average giving rate | All States | B Employed | B Student | B NEET |
|---|---|---|---|---|
| **All States** | −0.008<br>(0.182)<br>[0.167] | −0.020*<br>(0.078)<br>[0.178] | 0.006<br>(0.349)<br>[0.156] | −0.002<br>(0.439)<br>[0.156] |
| **A Employed** | −0.001<br>(0.467)<br>[0.197] | −0.012<br>(0.301)<br>[0.218] | 0.046**<br>(0.033)<br>[0.170] | −0.048*<br>(0.064)<br>[0.166] |
| **A Student** | −0.005<br>(0.353)<br>[0.138] | −0.015<br>(0.202)<br>[0.125] | −0.026<br>(0.173)<br>[0.142] | 0.040<br>(0.112)<br>[0.153] |
| **A NEET** | −0.028**<br>(0.032)<br>[0.126] | −0.050**<br>(0.018)<br>[0.120] | −0.037*<br>(0.076)<br>[0.124] | 0.015<br>(0.307)<br>[0.134] |

* One-tailed p-values and standard deviations are in parentheses and brackets respectively.

**Figure 9. Differences in senders' behavior between TG1 and TG2 (sorted by senders' and receivers' status)**
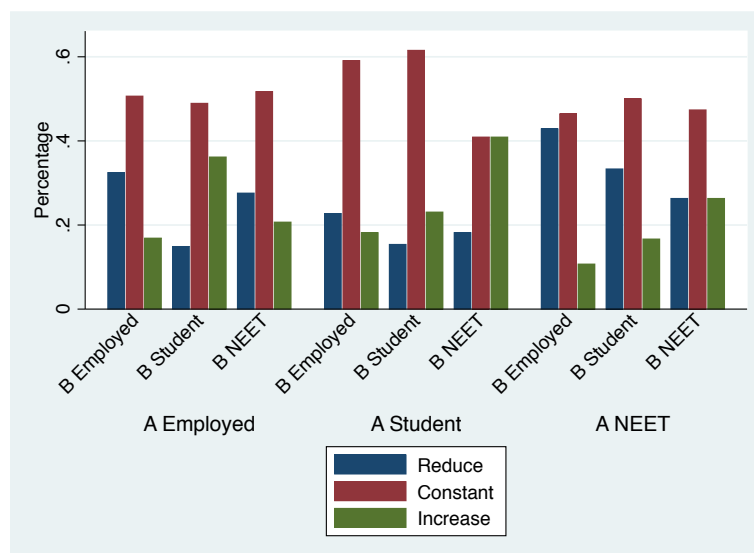
*Finding 5. Employed senders increase the average giving rate when matched with students and reduce it when they interact with NEET.*

The means differences of the average level of transfers are significantly positive when employed senders are matched with students and negative when they interact with NEETs (table 6). Accordingly, at the individual level employed senders are more likely to increase their offers when matched with students than with NEETs (figure 9). Hence, employed senders seem to interpret the status of NEET as a signal of relative lower levels of trustworthiness. By contrast, the information on students, though revealing a category of people without an income, seems to trigger employed senders' cooperative behavior. Finally, employed do not reveal in-group preferences as the information on the employed status of the receiver does not have a significant impact on their trusting behavior (table 6). At the individual level, employed are most likely to reduce their offers when they know to be interacting with receivers of the same state (figure 9).

*Finding 6. NEETs reduce the level of transfers when matched with receivers in different labor market status.*

The means differences of NEETs' giving rate are significantly negative when they play the game with employed and students (table 6), with due differences for the behavioral patterns observed at the individual level. Indeed, NEETs choose more (less) frequently to increase (reduce) the giving rate when matched with students than with employed (figure 9). Moreover, NEETs increase - though not significantly - their average offer when they know to be interacting with receivers of the same status (table 6); In this case, they are more likely to increase the giving rate (figure 9). Plausibly, this is consistent with the hypothesis of in-group preferences that induce

NEETs to be relatively more other-regarding only with receivers in the same labor market status.

*4.1.1 Econometric analysis of changes in trusting behavior*

An Ordered probit model is estimated to identify the determinants of the differences in behaviour between the two trust games and *across* the nine possible matchings in TG2. In the spirit of a time differenced model, all of the attitudinal variables and preferences characteristics are not considered because they are not supposed to change through time, while the nine possible matchings between employed, students and NEETs are introduced as explanatory variables. In the proposed model, the matching Employed/Employed is the default dropped variable.

**Table 7. Estimation of the determinants of changes in trust between TG1 and TG2**

| *Difference in the average level of transfers between TG1 & TG2* | Pooled | |
|---|---|---|
| | coeff | SE |
| *Matching by LM status* | | |
| Employed/Student | 0.485** | 0.20 |
| Employed/NEET | −0.076 | 0.23 |
| Student/Employed | 0.076 | 0.19 |
| Student/Student | 0.103 | 0.23 |
| Student/NEET | 0.498** | 0.27 |
| NEET/Employed | −0.240 | 0.21 |
| NEET/Student | −0.089 | 0.23 |
| NEET/NEET | 0.249 | 0.27 |
| R-Squared (adjusted) | | 0.014 |
| n                316 | | |

**Note:** XXX/YYY in the table indicates that the sender was type XXX and the receiver was type YYY and, in TG2 this information is public.

Employed senders increase significantly the transfers level when they know to be matched with students compared to the default matching: i.e. employed entrust more students than other employed as can be seen from the significantly positive coefficient associated to the matching Employed/Student. Moreover, the small and non significant coefficient associated to the matching Employed/NEET indicates that employed senders exhibit approximately the same level of trust with NEETs and receivers of the same LM status.

The comparison of the coefficients associated to the matchings Student/Employed and Student/Student documents that students exhibit approximately the same level of trust with receivers of the same status and employed. Moreover, the significantly positive coefficient associated to the matching Student/NEET documents that Students exhibit a higher level of trust with NEETs compared to the default matching. By implication, students are more generous with NEET than with the other categories of players, even though the differences of coefficient is not statistically significant.

Consistently with the previous finding, NEETs exhibit a lower level of trust with employed and students compared with the default matching. Moreover, the positive (albeit not significant) coefficient associated to the matching NEET/NEET indicates that unemployed senders are more generous with receivers of the same LM status compared to employed matched with other employed. This entails that NEETs tend to entrust more group members than employed and students, as the significantly positive difference between the relevant coefficients documents.

*4.2 Receivers' behavior*

The knowledge of senders' labor market status can be informative of their willingness to trust, so to influence receivers' level of reciprocity. Table 8 and Figure 10 illustrate respectively the average and individual variations in receivers' rate of return between the two games.

**Table 8. Paired means comparison t-tests of receivers' return rate between TG1 and TG2 (sorted by senders' and receivers' LM status)**

| Differences in average return rate | All States | A Employed | A Student | A NEET |
|---|---|---|---|---|
| **All States** | −0.050*** (0.001) [0.973] | −0.090*** (0.000) [0.912] | 0.026 (0.749) [1.194] | −0.062** (0.013) [0.753] |
| **B Employed** | −0.019 (0.254) [1.155] | −0.035 (0.179) [1.081] | 0.078 (0.113) [1.356] | −0.129** (0.015) [0.993] |
| **B Student** | −0.116*** (0.000) [0.702] | −0.124*** (0.000) [0.802] | −0.174*** (0.000) [0.679] | −0.040*** (0.094) [0.477] |
| **B NEET** | −0.022 (0.243) [0.864] | −0.181*** (0.000) [0.484] | 0.160** (0.034) [0.129] | 0.006 (0.438) [0.611] |

* One-tailed p-values and standard deviations are in parentheses and brackets respectively

**Figure 10. Receivers' behavioral variations between TG1 and TG2 (by receivers' and senders' LM status)**
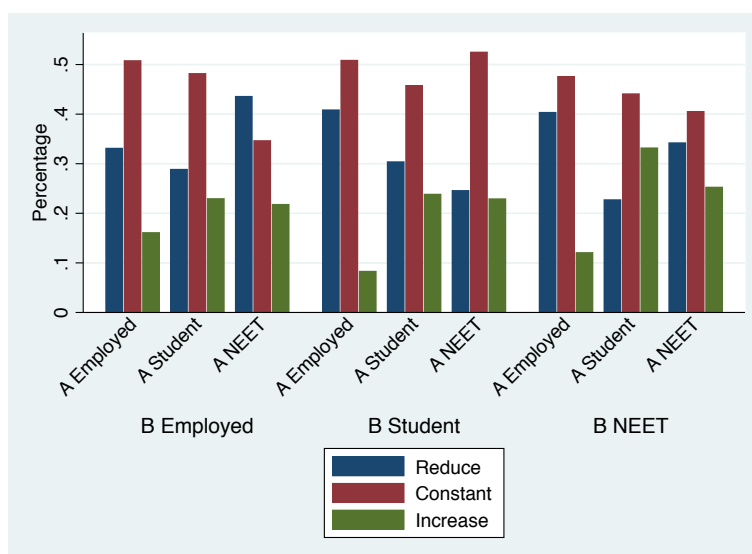


At the aggregate level, the provision of the information on the counterpart's LM status reduces the average level of trustworthiness, with a significant negative effect of the information on the employed and NEET status of the sender. Moreover, students are the most sensitive (in a negative sense) to the information on the counterpart's labor market state, whilst the information on the employed and NEET status of senders reduce the average return rate independently of receivers' state.

*Finding 7. Employed receivers reduce the average return rate when matched with NEETs.*

Employed receivers reduce their level of trustworthiness when they get information on the NEET status of the sender (table 8). Indeed, the matching with NEET senders markedly increases the probability of reducing the return rate from employed receivers (figure 10). The consistency of this result with employed senders' behavior (see finding 5) provides further support to the hypothesis of projection into others as the underlying mechanism driving players behavior when the LM status is known.

*Finding 8. Students reduce the average return rate when matched with employed and particularly with other students.*

Students exhibit a general tendency to reduce the average level of return rate when they get information on the senders' status, but the knowledge of the employed and particularly student status of the counterpart has a stronger negative effect on their average behavior (table 8). However, the individual behavioral patterns show that being matched with an other student rises the frequency of receivers in the same state increasing the return rate with respect to the case of the matching with employed senders (figure 10). Finally, students receivers reduce less the average return rate when matched with NEETs (table 8), although at the individual level they do not significantly differ behaviorally from those students matched with other students (figure 10).

*Finding 9. NEETs receivers increase the average return rate only with students.*

NEET receivers significantly reduce the average level of trustworthiness when they know to be playing the game with employed senders (table 8). Indeed, they are more (less) likely to increase (reduce) the return rate when matched with students rather than with employed (figure 10). Finally, the effect of the information on the NEET status of the sender is negligible (table 8). At the individual level, a substantial part of NEETs (35%) reduce the return rate and the 25% of them (a smaller percentage with respect to NEETs matched with students) increase it.

*4.2.1 Econometric analysis of changes in trustworthiness*

The econometric analysis of receivers' behavioral variation between the two trust games and across the nine possible matchings are broadly consistent with the analysis delivered in the previous section. The results presented in table 9 follows the same logic of those ones illustrated in table 7.

**Table 9. Estimation of the difference in amounts sent back by recipients**

| *Difference in the level of trustworthiness between TG1 & TG2* | Pooled | |
|---|---|---|
| | coeff | SE |
| *Matching by LM status* | | |
| Student/Employed | 0.114** | 0.106 |
| NEET/Employed | –0.127 | 0.08 |
| Employed/Student | –0.221*** | 0.05 |
| Student/Student | 0.245*** | 0.07 |
| NEET/Student | 0.436*** | 0.07 |
| Employed/NEET | –0.139* | 0.08 |
| Student/NEET | 0.424*** | 0.08 |
| NEET/NEET | 0.301*** | 0.10 |
| R-Squared (adjusted) | 0.011 | |
| n | 3160 | |

**Source:** Author calculations

**Note:** In this case, XXX/YYY in the table indicates that the recipient was type YYY and the sender was type XXX and, in TG2 this information is public.

*Finding 10. Employed receivers are more trustworthy with students than with senders in the same LM status and NEETs.*

The significant positive coefficient associated to Student/Employed documents that employed receivers are more trustworthy with students than with senders in the

same LM status. Moreover, employed are less trustworthy with NEETs than with other employed (see the significant negative coefficient associated to NEET/Employed). This entails that employed are more trustworthy with students than with NEETs, as documented by the significant negative difference between the relevant coefficients.

Students exhibit a lower level of trustworthiness with employed compared to the default matching (see the negative coefficient associated to the matching Employed/Student). Moreover, students are more trustworthy with group members than with employed, as the significant negative difference between the relevant coefficients documents. Finally, students are more trustworthy with NEETs than with the other categories, as implied by the significantly positive coefficient associated to the relevant matching.

*Finding 11. NEETs are more trustworthy with players without an income.*

NEETs are less trustworthy with employed senders compared with the default matching. However, NEETs exhibit a higher level of trustworthiness when they know to be matched with students and other NEETs, as testified by the positive sign and the statistical significance of the relevant coefficients. This implies that NEETs are more trustworthy with students and other NEETs than with employed; this is confirmed by the significant positive difference between the relevant coefficients.

## 5. Conclusions

The findings presented here were the result of an innovative approach that combines data on trusting/trustworthy behavior elicited *in the lab* and individuals' labor market states determined *in the real world*. Given the relatively novel approach and the number of possible aspects to study, this chapter aimed to establish the existence

of behavioral differences across labor market states, leaving for further analysis the identification of the sources of this variation.

The analysis showed that NEETs are an heterogeneous category for trusting and trustworthy behavior as has been noted by various commentators in different contexts (Furlong 2006 and Elder 2014). Contrary to the prior expectation of a negative effect of unemployment over trust and trustworthiness, NEETs, in general, are not less generous senders in the Trust Game than other young people. The econometric analysis however, allowed to qualify this basic observation. Specifically, unemployed young people (i.e. NEETs searching for a job *without* success) demonstrated much less behavioral reciprocity than NEETs who are outside the labor force as traditionally defined. Hence, the experience of failure in the job search mediates the detrimental effect of unemployment on trust and trustworthiness. A significant finding was the negative correlation between precariousness in employment and behavioral trust/trustworthiness. In recent years, several concerns have been voiced about the negative effects of the increasing prevalence of temporary employment forms on young people's early labor market experiences (O'Higgins 2010, 2012) and the results presented here appear to strongly support them. Indeed, the ongoing process of labor flexibilization is likely to have long lasting negative consequences on young people's labor market by reducing their level of trust and trustworthiness.

The analysis of the behavioral variation between TG1 and TG2 showed that knowledge of players' labor market status has a general negative effect over employed subjects' trust/trustworthiness, particularly when they know to be matched with NEETs. The latter category, in turn, exhibited a lower level of trust and trustworthiness when matched with employed players. This result suggests a candidate mechanism for the micro-level explanation of the persistence of long-term wage and employment penalties: The lower level of trust and trustworthiness of NEETs provides a rationale for employed people to distrust them; this, in turn, may

impede a successful search for a job, so to explain the persistence in the long run of wage and employment penalties to young unemployed people. Finally, the information on the student status of the counterpart induced employed and NEETs to increase the level of behavioral trust and reciprocity, documenting the existence of solidaristic motivations towards players that are not expected to provide gains from the transaction.

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