

# Commitment to political ideology is a luxury only students can afford: A distributive justice experiment

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# **Commitment to political ideology is a luxury only students can afford: A distributive justice experiment**

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## **Abstract.**

Using a political-frame-free, lab-in-the-field experiment, we investigate the associations between employment status, self-reported political ideology, and preferences for redistribution. The experiment consists of a real-effort task, followed by a four-player dictator game. In one treatment, dictator game initial endowments depend on participants' performance in the real-effort task, i.e., they are earned, in the other, they are randomly determined. We find that being employed or unemployed is associated with revealed redistributive preferences, while the political ideology of the employed and unemployed is not. In contrast, the revealed redistributive preferences of students are strongly associated with their political ideologies. The employed and right-leaning students redistribute earnings less than windfalls, the unemployed and left-leaning students make no such distinction.

**Keywords:** Economic status, lab-in-the-field experiments, left-right scale, redistribution

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Preferences for the redistribution of earned income have received considerable attention across the social sciences (Alesina and Giuliano, 2011; Margalit, 2013; Owens and Pedulla, 2014). Survey-based studies identify material self-interest (Alesina and La Ferrara, 2005) and ideological factors, most notably political left-right ideology (Alesina and Glaeser, 2004; Fong, 2001), as the principle determinants of such preferences. In most of these studies, redistributive preferences are quantified using politically-framed survey questions invoking specific redistributive schemes or welfare policies. This being the case, if individuals' redistributive preferences vary depending on which policy they have in mind, these frames could be driving the results (Cavaillé and Trump, 2015; Jaime-Castillo and Sáez-Lozano, 2016).<sup>2</sup>

To eliminate the possible effects of political framing, some studies use behavioral laboratory experiments designed to reveal individuals' redistributive preferences through the decisions that they make under abstract and controlled conditions (Barber et al., 2013; Barr et al., 2015; Barr et al., 2016; Durante et al., 2014; Esarey, 2011). These consistently show that economic status affects redistributive preferences, while the association between political ideology and redistributive preferences appears to be more nuanced. Durante et al. (2014) show that, among students, self-identified political liberalism is positively associated with demand for redistribution. However, Esarey et al. (2011) find strong support for the self-interest hypothesis, but only an indirect effect of ideology, specifically, conservatives are more responsive to their self-interests than liberals. And Brown-Iannuzzi et al. (2015) find that attitudes towards redistribution are driven by subjective, relative economic status with ideological principles being used to justify attitudes *ex post*.

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<sup>2</sup> Framing might also be an issue in field studies focusing on a particular redistributive policy (Hårsman and Quigley, 2010).

We complement this literature, by using a “lab-in-the-field” experiment (Morton and Williams, 2010) to investigate the associations between economic status, political ideology and preferences for the redistribution of earned income. The experiment involves a distributive justice game designed to measure individual acknowledgement of earned entitlement, i.e., the strength of the preference *not* to redistribute money that is earned compared to money gained owing to pure luck, and participants’ political left-right ideology is measured using a standard survey question. To identify the effect of economic status on redistributive preferences, employed and unemployed individuals were invited to participate in the experiment. In this regard, we follow recent longitudinal and experimental studies that show that experiencing unemployment is associated with increased demand for welfare policy (Margalit, 2013), redistribution (Owens and Pedulla, 2014), and the public provision of unemployment benefits (Naumann et al., 2016), and a reduced inclination to reward effort and productivity (Barr et al., 2015; Barr et al., 2016). Then, to build a link to the literature on laboratory-based behavioral experiments, we also invited students to participate.

Drawing on the extant attitudinal and behavioral literature on unemployment and redistribution and using the psychological concepts of *cognitive dissonance* (Festinger, 1957) and *self-serving bias* (Babcock and Loewenstein, 1997), Barr and coauthors (Barr et al., 2015; Barr et al., 2016) develop a theoretical framework describing the effect of economic status on redistributive preferences. Within this framework, the unemployed gravitate towards egalitarian principles of justice to reduce the dissonance otherwise caused by sticking to *meritocratic* ideals, while necessarily receiving resources to which they do not feel entitled. In contrast, the employed gravitate towards meritocratic ideals to reduce the dissonance otherwise caused by sticking to egalitarian principles, while not fully redistributing their own earnings in the pursuit of equity.

When applied to our experiment, this framework predicts that the employed acknowledge earned entitlement and the unemployed do not, with political ideology playing no role.<sup>3</sup> For students, cognitive dissonance is less of a concern. They can receive resources despite not working and maintain meritocratic ideals without suffering cognitive dissonance because they are investing in their own future earning capacity. For this reason, Barr et al. (2015) hypothesized that, students, like the employed, acknowledge earned entitlement. However, note that students could, alternatively, choose not to redistribute their own resources to others and maintain egalitarian principles without suffering cognitive dissonance because they have little to redistribute and are investing in their future capacity to contribute to society. In summary, in contrast to those of the employed and the unemployed, students' redistributive preferences can be aligned with their political ideologies without a psychological cost being incurred.

Note that this framework explains the regularities observed in survey data, while being distinct from the material self-interest hypothesis. Specifically, this framework posits that individuals, rather than acting directly in accordance with their own material self-interest, apply the principles of distributive justice that best serve their self-interests in everyday life.

## **METHODS**

The experiment consisted of two parts. In the first part, participants were asked to engage in a real-effort task, an easy-to-understand, manual task for which no skills were required. In the second part, participants engaged in a four-player dictator game (4PDG). A tray divided into four quadrants, with each quadrant corresponding to one of the four players, was handed to each

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<sup>3</sup> Although, consistent with the findings of Brown-Iannuzzi et al. (2015), a political ideology could be used as a post-hoc justification of the self-serving, dissonance-reducing redistributive preferences.

participant. Each participant knew which of the quadrants on the tray corresponded to him- or herself. The initial endowments of each of the four were indicated by black counters placed in each quadrant (1 counter = 1€). The four initial endowment values were 6€, 10€, 12€ and 16€. Participants were then told they could redistribute the counters however they wanted. Once everyone had finished, the final allocations proposed by one of the four, randomly selected, were used to determine the final payoffs for all four players. Three or four groups of four participated in each experimental session. The participants did not know who they were playing with and their redistribution decisions were made in private and kept anonymous.<sup>4</sup>

There were two treatments. In the earned treatment, participants' initial endowments in the 4PDG were directly related to their within-session rankings in the real-effort task – participants who were more productive started the 4PDG with higher initial endowments – and participants knew this. In the random treatment, the initial endowments were randomly assigned and, again, participants knew this.

Following the experiment, participants completed a survey which included questions on employment status, political left-right placement (LERI), and other characteristics. The LERI question invited them to place themselves on a ten-point scale. It was worded as follows: “When people talk about politics, the terms left and right are usually used. Below there is a left-right axis. Where would you place yourself on this axis? Indicate it with an X”.<sup>5</sup>

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<sup>4</sup> The experimental design is fully described and the experimental instructions presented in the *Supplementary Materials*.

<sup>5</sup> In Europe, this is the most commonly used method to elicit political ideology in surveys like the Eurobarometer, European Election Studies, European Social Survey, World Value Survey and most national election studies (Weber, 2011). Empirical evidence in Western Europe suggests that the left-right placement serves as a *heuristic*

We ran 29 experimental sessions involving 161 employed people, 137 unemployed people, and 114 students from across two Spanish cities, Bilbao and Cordoba. The sub-samples were balanced across genders and cities with the students being marginally but not significantly younger and less educated (in terms of years completed). The average participant was 27 years old and had post-secondary education. Ideology was slightly skewed to the left, with a mean value of four.<sup>6</sup> Each experimental session involved a mix of employed, unemployed and students.

To investigate the effects of economic status and LERI on redistributive preferences, we start by estimating an extension of Barr et al.'s (2015) model:

$$\begin{aligned}
 x_{ij \neq i} = & a_0 + a_1 E_i + a_2 y_j + a_3 (E_i * y_j) \\
 & + a_4 U_i + a_5 (U_i * E_i) + a_6 (U_i * y_j) + a_7 (U_i * E_i * y_j) \\
 & + a_8 LERI_i + a_9 (LERI_i * E_i) + a_{10} (LERI_i * y_j) + a_{11} (LERI_i * E_i * y_j) + \varepsilon_{ij} \quad (1)
 \end{aligned}$$

where, as in Barr et al. (2015),  $x_{ij}$  is participant  $i$ 's allocation to participant  $j$  in the 4PDG expressed as a proportion of the maximum amount that  $i$  could allocate to  $j$  (€44),  $E_i$  takes the value 1 if  $i$  played under the earned treatment and 0 if  $i$  played under the random treatment,  $y_j$  is  $j$ 's initial endowment,  $U_i$  takes the value 1 if player  $i$  is unemployed and zero if they are employed or a student and, in the extension of the model,  $LERI_i$  ranges from 1 (extreme left) to 10 (extreme right),  $a_0$  to  $a_{11}$  are the coefficients to be estimated, and  $\varepsilon_{ij}$  is the error term.<sup>7</sup> This

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used by individuals to cope with political complexities, particularly those related to three components of political ideology: social identities (e.g. social class), policy attitudes and party identification (Freire, 2008).

<sup>6</sup> The sample is fully described in Table A.1 of the *Supplementary Materials*.

<sup>7</sup> We extend the model to include  $LERI_i$  following Barr et al.'s (2015) method for including controls in their analysis.

model identifies the slope of the relationship between  $j$ 's initial endowment,  $y_j$ , and  $i$ 's final allocation to  $j$ ,  $x_{ij}$ , and the effects of whether  $j$  earned her initial endowment and  $i$ 's economic status and political ideology on that slope. In this model, acknowledgement of earned entitlement (AEE) manifests as the slope being more positive in the earned compared to the random treatment. The coefficient  $a_7$  identifies the effect of  $i$ 's economic status on the difference in the slope between the treatments, i.e., the effect of economic status on AEE. If, as Barr et al. (2015) predicted and found in the UK, the unemployed do not acknowledge earned entitlement, while the employed and students do,  $a_7$  will be negative. The coefficient  $a_{11}$  identifies the effect of  $i$ 's political ideology on the difference in the slope between the treatments, i.e., the effect of political ideology on AEE. If AEE is strong among people on the political right and absent among people on the political left,  $a_{11}$  will be positive.<sup>8</sup>

The estimation of Model (1) is informative about whether, for the full sample of participants, being unemployed and/or political ideology explain variations in AEE. However, it is not informative about whether and how the relationship between political ideology and AEE varies depending on economic status. To investigate this, we estimate Model (1) excluding the  $U_i$  indicator and all interactions involving the  $U_i$  indicator separately for the employed, unemployed and student participants.<sup>9</sup>

Following Barr et al. (2015), the zero allocations to others made by participants who took all the counters for themselves (41 participants did this) and all participants' allocations to themselves

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<sup>8</sup> For a complete description of the model and its interpretation see section 3 in the *Supplementary Materials*.

<sup>9</sup> An alternative approach would be to include one additional variable (identifying either the employed or the students) and 21 additional interaction terms in the model. This would yield similar and a few extra insights, but interpretation would become very onerous.



are excluded from the analysis.<sup>10</sup> Finally, the allocations to others made by seven additional participants are excluded from the analysis because they did not answer the LERI question in the survey. This leaves three observations for each of 364 participants (144 employed, 121 unemployed and 99 students), 1,092 observations in total. The estimations are conducted using ordinary least squares and then the standard errors are adjusted parametrically to account for clustering within decision-making participants, i.e., within *is*.<sup>11</sup>

## RESULTS

Column (1) of Table 1 presents the OLS estimation of model (1) for the full sample. In this estimation, the coefficient on  $U_i$  is insignificantly different from zero. However, the coefficients on the three interaction terms involving  $U_i$  are each significant at the 5% level (or better).<sup>12</sup> The significance of these coefficients indicates that economic status is associated with AEE. The significant positive coefficient on  $y_j$  interacted with  $E_i$  indicates that the employed and students acknowledge earned entitlement and the significant negative coefficient on  $y_j$  interacted with  $E_i$  and  $U_i$  indicates that the unemployed acknowledge earned entitlement considerably less. Further,

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<sup>10</sup> Models 1 and 2 in Table A.2 of the *Supplementary Materials* indicate that there is no association between, acting selfishly, i.e., taking all the counters for oneself, and either political ideology or employment status.

<sup>11</sup> In Table A.3 of the *Supplementary Materials*, instead of the parametrically adjusted standard errors, we present standard errors estimated non-parametrically using a wild bootstrap to account for clustering (Cameron et al. 2008). This table indicates that our findings are unchanged regardless of the method used to account for clustering and of whether we account for clustering within decision-maker or within experimental session.

<sup>12</sup> If we include an indicator variable for students and its interactions with  $E_i$ ,  $y_j$  and  $E_i * y_j$  in the model, the newly added variables are both individually and jointly insignificant. This indicates that being employed and being a student have statistically indistinguishable effects on allocative decision-making. If we exclude the allocation decisions made by students from the estimation of Model (1), the results are almost identical.

a linear restriction test indicates that we cannot reject the null hypothesis that AEE is zero among the unemployed. In contrast, the coefficients on  $LERI_i$  and the three interaction terms involving  $LERI_i$  are jointly and all individually insignificant; this estimation provides no support of the hypothesis that AEE is associated with political ideology.

Columns (2) to (4) of Table 1 present the estimations of Model 1, excluding the  $U_i$  indicator and all interactions involving the  $U_i$  indicator, for the employed, unemployed and students separately and Figure 1 contains a set of corresponding graphs. The graph in each panel is derived from one of the estimations and plots the effect of a one unit increase in  $j$ 's initial endowment on  $i$ 's allocation to  $j$ ,  $\Delta x_{ij}/\Delta y_j$ , against  $i$ 's  $LERI_i$  placement. The effects under the earned and random treatments are graphed separately. The graph in Panel A is derived from the estimation for the employed, the graph in Panel B from the estimation for the unemployed and the graph in Panel C from the estimation for the students.

In the estimation for the employed (column (2)), the coefficient on the interaction between  $j$ 's initial endowment and  $E_i$  is positive, large and significant at the 10% level and the coefficients on all the terms involving  $LERI_i$  including the interaction with  $y_j$  and  $E_i$ , are small and insignificant. Panel A, which is derived from this estimation, indicates that, among the employed, when initial endowments are randomly assigned,  $j$ 's initial endowment has little or no effect on  $i$ 's allocation to  $j$  and that this is the case for all values of  $LERI_i$ . In contrast, when initial endowments are earned,  $i$ 's allocation to  $j$  is positively affected by  $j$ 's initial endowment and the magnitude of the effect is similar across all values of  $LERI_i$ . Finally, among the employed, AEE (the vertical distance between the lines) does not depend on  $LERI_i$ . In summary, across the political spectrum, employed people acknowledge earned entitlement.

**Table 1. Regression analysis of the effect of ideology and employment status on distributive preferences** (Dependent variable =  $i$ 's allocation to  $j$ )

	(1) <i>Full sample</i>	(2) <i>Employed</i>	(3) <i>Unemployed</i>	(4) <i>Students</i>
Earned treatment ( $E_i$ )	-0.075 ** (0.033)	-0.131 ** (0.055)	0.038 (0.047)	-0.039 (0.052)
$j$ 's initial endowment ( $y_j$ )	-0.073 (0.086)	-0.089 (0.155)	0.073 (0.129)	-0.052 (0.080)
$E_i * y_j$	0.218 * (0.121)	0.414 * (0.212)	-0.087 (0.173)	-0.039 (0.170)
$U_i$	-0.024 (0.017)			
$U_i * E_i$	0.069 *** (0.025)			
$U_i * y_j$	0.127 ** (0.054)			
$U_i * E_i * y_j$	-0.236 *** (0.086)			
$LERI_i$	-0.004 (0.005)	-0.012 (0.008)	0.004 (0.009)	-0.003 (0.005)
$LERI_i * E_i$	-0.005 (0.007)	0.007 (0.013)	-0.017 (0.012)	-0.011 (0.013)
$LERI_i * y_j$	0.006 (0.017)	0.009 (0.032)	0.003 (0.032)	0.006 (0.014)
$LERI_i * E_i * y_j$	0.035 (0.026)	-0.003 (0.048)	0.051 (0.042)	0.078 ** (0.038)
Constant	0.231 *** (0.023)	0.257 *** (0.040)	0.176 *** (0.035)	0.231 *** (0.027)
Observations	1092	432	363	297
Participants	364	144	121	99

**Notes:** Sample includes final allocations made to others by participants who made at least one positive final allocation to another; there are three observations per participant;  $j$ 's initial endowment ( $y_j$ ) =  $j$ 's initial endowment expressed as a proportion of the 44 tokens in the game; Earned ( $E_i$ )=1 if  $i$  made allocations under the earned treatment, =0 if  $i$  made allocations under the random treatment; standard errors clustered at the individual level using the standard parametric approach; \*\*\* - sig. at 1%; \*\* - sig. at 5%, \* - sig. at 10%

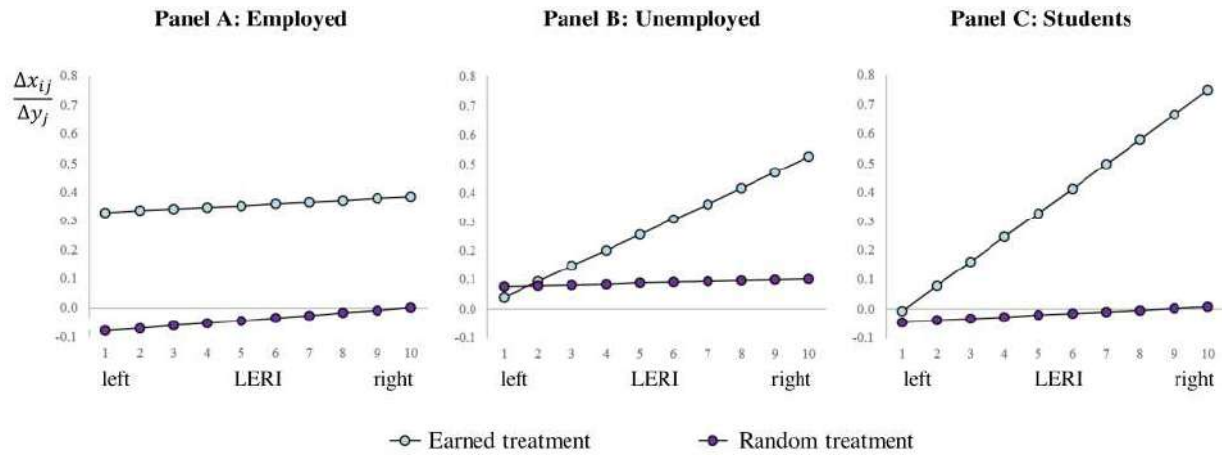
In the estimation for the unemployed (column (3)) the coefficient on the interaction between  $j$ 's initial endowment and  $E_i$  is insignificant and the coefficients on all the terms involving  $LERI_i$  are also insignificant. Panel B, which is derived from this estimation, shows an increasing-to-the-right vertical separation between the lines for the random and earned treatments, suggesting that AEE is greater among unemployed people who are further to the political right. However, the insignificance of the coefficient on the interaction between  $j$ 's initial endowment,  $E_i$  and  $LERI_i$  combined with a set of linear restrictions tests designed to test for AEE at each possible value of  $LERI_i$  indicate that, across the political spectrum, unemployed people do not acknowledge earned entitlement.<sup>13</sup>

Finally, in the estimation for students (column (4)), the coefficient on the interaction between  $j$ 's initial endowment and  $E_i$  is insignificant, while the coefficient on the interaction between  $j$ 's initial endowment,  $E_i$  and  $LERI_i$  is positive and significant at the 5% level. Panel C, which is derived from this estimation, indicates that, among students, when initial endowments are randomly assigned,  $j$ 's initial endowment has little or no effect on  $i$ 's allocation to  $j$  and that this is the case for all values of  $LERI_i$ . However, when initial endowments are earned, while  $j$ 's initial endowment continues to have no effect on  $i$ 's allocation to  $j$  if  $i$  is located on the political left, when  $i$  is located on the political right,  $i$ 's allocation to  $j$  is positively affected by  $j$ 's initial endowment. A series of linear restriction tests indicate that the increasing-to-the-right vertical separation between the two lines is significant at the 5% level or better when  $LERI_i$  is greater than two. In summary, students on the far left do not acknowledge earned entitlement and, as we move to the right, among students, AEE increases.<sup>14</sup>

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<sup>13</sup> When performing this and other sets of linear restriction tests relating to specific values of  $LERI_i$  we use the Benjamini-Hochberg's (1995) false discovery rate procedure to correct for multiple comparisons.

<sup>14</sup> The association between political ideology and AEE among students is robust to the inclusions of age and other demographic characteristics in the analysis (see section 7 of the *Supplementary Information*).



**Figure 1. The effect of ideology on the acknowledgement of entitlement.** The linear functions graphed are derived from the regression models presented in columns (2), (3) and (4) of Table 1.

## DISCUSSION

This paper contributes to the growing literature on preferences for redistribution in two ways. First, it provides an analysis of the associations between political left-right ideology, economic, specifically employment, status and experimentally-elicited distributive preferences. This analysis shows that, when making redistributive decisions in a political-frame-free context, the employed acknowledge earned entitlement, the unemployed do not and, in both cases, political ideology plays no or a very minor role. This is consistent with the findings of several prior survey-based and the experimental studies of Esarey et al. (2011) and Brown-Iannuzzi et al. (2015).

Second, the paper analyses the relationship between political ideology and redistributive preferences, not only for the employed and unemployed, but also for students, thereby

encompassing various heretofore distinct strands in the literature. Here, the analysis reveals that, in contrast to that of the employed and unemployed, students' AEE is directly and strongly related to their political ideology; those on the far left do not acknowledge earned entitlement and those further to the right do. This is consistent with self-declared liberal students choosing a higher tax rate, as reported by Durante et al. (2014).

Our findings are consistent with the idea that, when people are in full time education, they incur no psychological cost from aligning their redistributive preferences with their political ideology. However, when they enter the labor force, especially when they are working, such psychological costs can loom large and their redistributive preferences and political ideology cease to be associated as a consequence.

These findings need to be viewed with a degree of caution. For the employed, the absence of an association between political ideology and AEE is clear and striking. However, for the unemployed, while there is no statistical evidence of AEE anywhere on the political spectrum, Panel C of Figure 1 suggests that movement towards the political right is associated with an inclination towards AEE. Here, working with larger samples and including other covariates in the analysis to account for heretofore unexplained heterogeneity could yield further insights.

For students, the well-defined relationship between self-proclaimed political ideology and the redistributive decisions they make when given the opportunity is robust to the inclusions of age and other demographic characteristics in the analysis.

## REFERENCES

- Alesina, A. and E. L. Glaeser. 2004. *Fighting Poverty in the US and Europe: A World of Difference*. Oxford, UK: Oxford University Press.
- Alesina, A. and E. La Ferrara. 2005. "Preferences for Redistribution in the Land of Opportunities." *Journal of Public Economics* 89: 897-931.
- Alesina, A. and P. Giuliano. 2011. "Preferences for redistribution." In *Handbook of Social Economics*, eds. J. Benhabib, A. Bisin and M. O. Jackson. North Holland: Elsevier, 93–132.
- Barber IV, B., P. Beramendi and E. Wibbels. 2013. "The behavioral foundations of social politics: Evidence from surveys and a laboratory democracy." *Comparative Political Studies* 46(10): 1155-1189.
- Barr, A., J. Burns, L. Miller and I. Shaw. 2015. "Economic status and acknowledgement of earned entitlement." *Journal of Economic Behavior & Organization* 118: 55–68.
- Barr, A., L. Miller and P. Úbeda. 2016. "Moral consequences of becoming unemployed." *Proceedings of the National Academy of Sciences* 113(17): 4676–4681.
- Benjamini, Y., and Y. Hochberg, 1995. "Controlling the false discovery rate: a practical and powerful approach to multiple testing." *Journal of the Royal Statistical Society. Series B (Methodological)* 57(1): 289-300.
- Brown-Iannuzzi, J. L., K. B. Lundberg, A. C. Kay and B. K. Payne. 2015. "Subjective status shapes political preferences." *Psychological science* 26(1): 15-26.
- Cavallé, C., and K.-S. Trump. 2015. "The Two Facets of Social Policy Preferences", *Journal of Politics* 77 (1): 146-160.
- Campbell, C. 2016. "The Formative Years, Economic Hardship, and Beliefs about the Government's Role in Lessening Poverty." *Social Problems* 63: 244-265.

- Cameron, A. C., J. B. Gelbach and D. L. Miller. 2008. "Bootstrap-Based Improvements for Inference with Clustered Errors." *The Review of Economics and Statistics* 90(3): 414-427.
- Durante, R., L. Putterman and J. van der Weele. 2014. "Preferences for redistribution and perception of fairness: An experimental study." *Journal of the European Economic Association* 12(4): 1059–1086.
- Esarey, J., T. C. Salmon and C. Barrilleaux. 2012. "What Motivates Political Preferences? Self-Interest, Ideology, and Fairness in a Laboratory Democracy." *Economic Inquiry* 50(3): 604-624.
- Fong, C. 2001. "Social Preferences, Self-Interest, and the Demand for Redistribution." *Journal of Public Economics* 82: 225-246.
- Freire, A. 2008. "Party polarization and citizen's left right orientations." *Party Politics* 14(2): 189-209.
- Jaime-Castillo, A. M. and J. L. Sáez-Lozano. 2016. "Preferences for tax schemes in OECD countries, self-interest and ideology." *International Political Science Review* 37: 81-98.
- Hårsman, B. and J. M. Quigley. 2010. "Political and public acceptability of congestion pricing: Ideology and self-interest." *Journal of Policy Analysis and Management* 29(4): 854-874.
- Margalit, Y. 2013. "Explaining social policy preferences: Evidence from the Great Recession." *American Political Science Review* 107(01): 80–103.
- Miller, L. 2018. "Replication Data for: Commitment to political ideology is a luxury only students can afford: A distributive justice experiment", doi:10.7910/DVN/OQFMB6, Harvard Dataverse.
- Morton, R. B. and K. C. Williams. 2010. *Experimental Political Science and the Study of Causality: From Nature to the Lab*. Cambridge, UK: Cambridge University Press.



Naumann, E., C. Buss and J. Bähr. 2016. "How Unemployment Experience Affects Support for the Welfare State: A Real Panel Approach." *European Sociological Review* 32(1): 81–92.

Owens, L. A., and D. S. Pedulla. 2014. "Material welfare and changing political preferences: The case of support for redistributive social policies." *Social Forces* 92(3): 1087– 1113.

Weber, W. 2011. "Testing for measurement equivalence of individuals' left-right orientation." *Survey Research Methods* 5(1): 1-10.

# **Appendix for “Commitment to political ideology is a luxury only students can afford: A distributive justice experiment”**

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Supplementary Information

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## **1. Experimental Procedures**

### **1.1. Real-Effort Task**

In the real-effort task participants had to sort yellow and blue gravel into various containers for seven minutes. There were two types of task. In the “filling task”, participants received a tray on which there was a box containing mixed yellow and blue gravel and many small plastic pots. They were asked to put seven pieces of yellow gravel and seven pieces of blue gravel in each small pot. In the “emptying task”, they were given a tray on which there were two empty boxes and many small plastic pots each containing a mixture of blue and yellow gravel. They were asked to empty the small pots sorting the gravel by color, putting the blue gravel in one of the boxes and the yellow gravel in the other. One or other task was undertaken in each session. The emptying task can be viewed as preparation for the filling task and vice versa, which enabled us to tell the participants in each session they were helping us prepare for subsequent sessions by sorting out some materials. Therefore, participants were encouraged to view their efforts as genuinely productive.

In the earned treatment, the initial endowments in the four-player dictator game (4PDG) were determined by the participants’ within session rank in the real-effort task. Rank depended on the number of small pots either filled or emptied.

### **1.2 The Four-Player Dictator Game**

The four-player dictator game (4PDG) was conducted using specially designed and manufactured trays. Each participant received a tray which was divided into four quadrants, each quadrant relating to a participant. The participant’s own quadrant was blue and located at the side of the tray closest to the participant when the tray was placed on the desk in front of him/her. Each quadrant contained black counters which represented the initial endowment of the corresponding participant. One black counter was worth €1. The participants were told they

could rearrange the counters any way they liked, as long as none of the counters were removed from the tray. All instructions were given verbally in Spanish.

### 1.3 Show-up fee

In addition to their final payoffs from the 4PDG, each participant received a show-up fee of €4. In the random treatment, the €4 was presented as a flat fee for the real-effort task. In the earned treatment, the €4 was added to each of the possible earnings levels and then set aside to be collected at the end of the session. Therefore, the €4 represented a minimum total final payoff for each participant.

## 2. Participant Sample

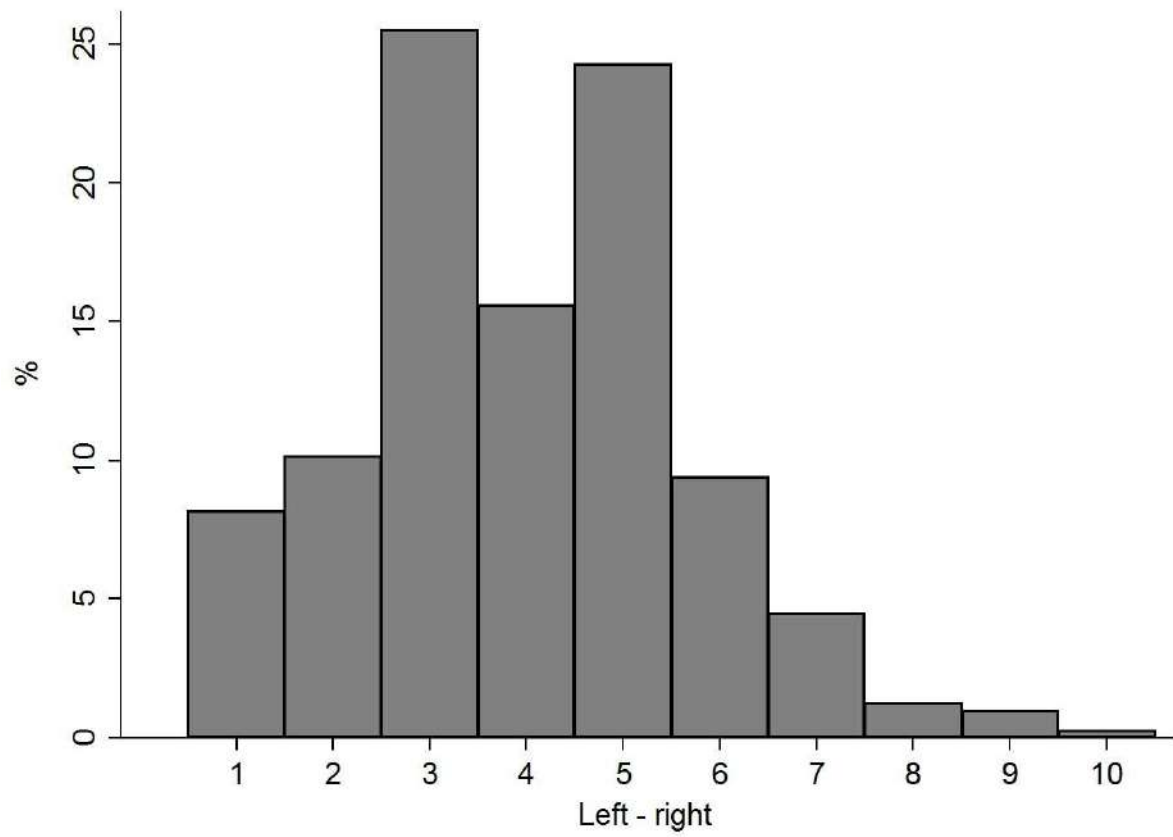
We ran 13 experimental sessions in Bilbao (northern Spain), seven sessions of 16 participants and six sessions of 12, with a total of 184 participants. In Cordoba (southern Spain), we ran 16 experimental sessions, nine sessions of 16 participants and the rest of 12, with a total of 228 participants. The large majority of the sample (95%) was aged 20–35.

Table A.1 displays the main characteristics of our sample, which is evenly distributed across genders and cities. Out of 412 participants, eight people left the ideology question unanswered – less than 2% of the sample. LERI is slightly skewed to the left, with a mean value of four (see Figure A.1).

**Table A.1: Participants and treatment assignment**

	All	Unemployed	Employed	Students
Sample sizes	412	137	161	114
Characteristics				
Female (%)	53.3%	51.2%	57.1%	50%
Age (mean)	26.9	28.8	28.3	22.7
Years in education	17.9	18.1	18.8	16.5
Left-right (mean)	4.0	3.7	4.0	4.3
Location				
Bilbao (%)	44.7%	37.2%	47.8%	49.1%
Cordoba (%)	55.3%	62.8%	52.2%	50.9%
Treatments				
Random (%)	40.8%	45.3%	37.3%	40.3%
Earned (%)	59.2%	54.7%	62.7%	59.7%

**Figure A.1: Distribution of Left-right**



### **3. Regression models and their interpretation**

When estimating Model (1) the analytical objective is to establish whether, how, and to what extent the allocation made by  $i$  to  $j$  in the DJ game is conditioned upon  $j$ 's initial endowment and whether, how, and to what extent this conditioning varies depending on  $i$ 's employment status and political ideology.

Model (1) took the following form:

$$\begin{aligned}
 x_{ij \neq i} = & a_0 + a_1 E_i + a_2 y_j + a_3 (E_i * y_j) \\
 & + a_4 U_i + a_5 (U_i * E_i) + a_6 (U_i * y_j) + a_7 (U_i * E_i * y_j) \\
 & + a_8 LERI_i + a_9 (LERI_i * E_i) + a_{10} (LERI_i * y_j) + a_{11} (LERI_i * E_i * y_j) + \varepsilon_{ij}
 \end{aligned}$$

where:

- $x_{ij \neq i}^*$  is the allocation made by  $i$  to  $j$  in the 4PDG expressed as a proportion of the maximum amount that  $i$  could allocate to  $j$  (€44);
- $E_i = 1$  if  $i$  played the DJ game under the earned treatment, = 0 if  $i$  played the DJ game under the random treatment;
- $y_j$  is  $j$ 's initial endowment in the 4PDG also expressed as a proportion of €44;
- $U_i$  takes the value 1 if player  $i$  is unemployed and zero if they are employed or a student;
- $LERI_i$  captures  $i$ 's political ideology and ranges from 1 (extreme left) to 10 (extreme right);
- $a_0$  to  $a_{11}$  are the coefficients to be estimated; and
- $\varepsilon_{ij}$  is the error term.

Moderate variations in partial selfishness manifest as a vertical shifts in the relationship between  $j$ 's initial endowment and  $i$ 's allocation to  $j$ ; an increase (decrease) in  $i$ 's selfishness leads to a downward (upward) shift in the relationship. Differences in moderate partial selfishness between left leaning and right leaning participants, between the employed and students on the one hand and unemployed on the other, and between treatments are accounted for by including  $E_i$ ,  $U_i$  and  $LERI_i$ , and two-way interactions between the three as regressors in the model.

Assuming linearity (see section 4 for tests), the extent to which the allocation by  $i$  to  $j$  is conditioned upon  $j$ 's initial endowment equals the effect of a one unit change in  $j$ 's initial endowment on  $i$ 's allocation to  $j$ , i.e., it is the slope of the relationship between the two.

**Effect of a one unit change in  $j$ 's initial endowment on  $i$ 's allocation to  $j$ ,  $\frac{\Delta x_{ij}}{\Delta y_j}$ :**

- for an  $i$  who is employed or a student under the Random treatment =  $a_2 + a_{10}LERI_i$ ;
- for an  $i$  who is employed or a student under the Earned treatment  

$$= a_2 + a_3 + a_{10}LERI_i + a_{11}LERI_i$$
;
- for an  $i$  who is unemployed under the Random treatment =  $a_2 + a_6 + a_{10}LERI_i$ ;
- for an  $i$  who is unemployed under the Earned treatment  

$$= a_2 + a_3 + a_6 + a_7 + a_{10}LERI_i + a_{11}LERI_i$$
.

The slopes graphed in Fig. 1, for the three sub-samples of participants are derived from estimations of the following simplified version of the model:

$$x_{ij \neq i} = b_0 + b_1E_i + b_2y_j + b_3(E_i * y_j) + b_4LERI_i + b_5(LERI_i * E_i) + b_6(LERI_i * y_j) + b_7(LERI_i * E_i * y_j) + \mu_{ij}$$

**Effect of a one unit change in  $j$ 's initial endowment on  $i$ 's allocation to  $j$ ,  $\frac{\Delta x_{ij}}{\Delta y_j}$ :**

- for an  $i$  with  $LERI_i = 1$  (extreme left) under the Random treatment =  $b_2 + b_6$ ;
- for an  $i$  with  $LERI_i = 2$  under the Random treatment =  $b_2 + 2b_6$ ;
- for an  $i$  with  $LERI_i = 3$  under the Random treatment =  $b_2 + 3b_6$ ; etc. to
- for an  $i$  with  $LERI_i = 10$  (extreme right) under the Random treatment =  $b_2 + 10b_6$ ;
- for an  $i$  with  $LERI_i = 1$  (extreme left) under the Earned treatment =  $b_2 + b_3 + b_6 + b_7$ ;
- for an  $i$  with  $LERI_i = 2$  under the Earned treatment =  $b_2 + b_3 + 2(b_6 + b_7)$ ;
- for an  $i$  with  $LERI_i = 3$  under the Earned treatment =  $b_2 + b_3 + 3(b_6 + b_7)$ ; etc. to

- for an  $i$  with  $LERI_i = 10$  (extreme right) under the Earned treatment

$$= b_2 + b_3 + 10(b_6 + b_7).$$

The extent to which participants with any given  $LERI_i$  acknowledge earned entitlement can be defined as the difference in slope between the earned and random treatment for such participants. So, for example, the extent to a participant with  $LERI_i = 6$  acknowledge earned entitlement is given by  $b_3 + 6b_7$ .

When estimating the models we exclude allocations to others by participants who took all the counters for themselves. We do this because such participants are signaling nothing about their notion of distributive justice, they are simply aiming to maximize their own personal payoff.

#### **4. Linear restriction tests**

The models presented above and the estimations presented in Table 1 (column 1) assume that, conditional on experimental treatment, the decision-maker  $i$ 's placement on the left-right scale,  $LERI_i$ , and participant  $i$ 's employment status, the relationship between participant  $j$ 's initial endowment and  $i$ 's final allocation to  $j$  is linear. They also assume linearity in the relationship between  $LERI_i$ , and participant  $i$ 's final allocation to  $j$ , this time, conditional on treatment, employment status and  $j$ 's initial endowment.

To test the first assumption, we estimated an unrestricted version of Model (1) and conducted a linear restriction test corresponding to the null hypothesis that the conditional relationships are linear in  $j$ 's initial endowment and the alternative hypothesis that they are not linear. In the unrestricted model,  $j$ 's initial endowment is included as a set of dummy variables, instead of as a single continuous variable, one corresponding to each of the possible values that  $j$ 's initial endowment could take. Then, each of these is interacted with  $E_i$ ,  $LERI_i$ ,  $E_i * LERI_i$ ,  $U_i$  and



$E_i * U_i$ . An F-test indicates that the fit of the unrestricted model is no better than the fit of the linear model (p-value=0.204).

We were unable to test the second assumption using the same method owing to small cell frequencies in  $LERI_i$ . Instead, we estimated an unrestricted model, which included the square of  $LERI_i$  as well as its interactions with  $E_i$ ,  $y_j$  and  $E_i * y_j$ . Once again, the F-test shows that the fit of the unrestricted model is no better than the fit of the linear model (p-value=0.412).

## **5. Accounting for potentially considerable differences in partial selfishness**

To investigate whether there is an association between  $LERI_i$  and selfishness we estimate a version of Model 1 focusing on each participant  $i$ 's allocation to himself/herself. We also estimate a linear probability model with dependent variable  $selfish_i=1$  for respondents who allocated everything to themselves, 0 otherwise. Columns (1) and (2) of Table A.2 display the results. Neither  $LERI_i$  nor  $U_i$  nor any of the interactions involving  $LERI_i$  or  $U_i$  bear significant coefficients, the four  $LERI_i$ -related variables are jointly insignificant (p-value=0.248, 0.175), and the four  $U_i$ -related variables are jointly insignificant (p-value=0.651, 0.978). These results indicate that political and ideology and employment status have no bearing on individual selfishness and that our findings relating to the slopes of the relationship between what one participant allocates to another and whether and how much that other participant earned in the real effort task are not driven by systematic differences in selfishness across sub-samples.

**Table A.2: Regression analysis of selfishness.**Dependent variable (DV) =  $i$ 's allocation to  $i$ 

	(1) Continuous DV	(2) Binary DV
Earned treatment ( $E_i$ )	-0.118 (0.232)	-0.060 (0.246)
$i$ 's initial endowment ( $y_i$ )	-0.386 (0.586)	-0.149 (0.662)
$E_i * y_i$	0.467 (0.834)	-0.102 (0.884)
$LERI_i$	0.010 (0.037)	0.001 (0.042)
$LERI_i * E_i$	-0.020 (0.050)	0.004 (0.056)
$LERI_i * y_i$	0.000 (0.130)	0.016 (0.139)
$LERI_i * E_i * y_i$	0.119 (0.179)	0.104 (0.203)
$U_i$	-0.130 (0.124)	-0.009 (0.134)
$U_i * E_i$	0.114 (0.171)	0.088 (0.185)
$U_i * y_i$	0.458 (0.470)	0.071 (0.501)
$U_i * E_i * y_i$	-0.562 (0.643)	-0.352 (0.688)
Constant	0.497 *** (0.170)	0.094 (0.198)
Observations	404	404
Participants	404	404

Notes: Sample includes allocations made to self; standard errors clustered at the individual level;  $j$ 's initial endowment ( $y_j$ ) =  $j$ 's initial endowment expressed as a proportion of the 44 tokens in the game; *Earned* ( $E$ )=1 if  $i$  made allocations under the earned treatment, =0 if  $i$  made allocations under the random treatment \* -sig. at 10%; \*\* -sig.at 5%; \*\*\* -sig. at 1%.

## 6. Accounting for clustering non-parametrically and at different levels

Finally, we investigate the robustness of our inferences to a change in the method we use to account for clustering at the individual level and to accounting for clustering at the session level. The standard errors presented in Table 1 of the paper are adjusted to account for clustering at the individual level using the standard parametric approach. Here, instead, we us

a wild bootstrap. This method can be applied when the number of clusters is small. So, we can use this method to account for clustering, not only at the individual level, but also at the session level. Treatment assignment was conducted at the session level. So, accounting for clustering at the session level is expected to reduce the power of tests relating to the treatment identifier,  $E_i$ , and all interactions involving  $E_i$ .

Table A.3 presents the estimated coefficients of the models in Table 1, along with the wild bootstrapped p-values clustered at the individual level (p-values in curved brackets) and wild bootstrapped p-values clustered at the session level (p-values in square brackets). The statistical inferences we made based on Table 1 remain unchanged when we shift to clustering at the individual level using a wild bootstrap. When we cluster at the session level, among students, the association between political ideology and AEE is significant only at the 10% level.

**Table A.3: Re-estimation of the effect of ideology and employment status on distributive preferences accounting for clustering non-parametrically and at different levels**  
 Dependent variable =  $i$ 's allocation to  $j$

	(1)	(2)	(3)	(4)
	<i>Full sample</i>	<i>Employed</i>	<i>Unemployed</i>	<i>Students</i>
Earned treatment ( $E_i$ )	-0.075 ** (0.020) [0.036]	-0.131 ** (0.014) [0.014]	0.038 (0.382) [0.412]	-0.039 (0.482) [0.508]
$j$ 's initial endowment ( $y_j$ )	-0.073 (0.530) [0.458]	-0.089 (0.784) [0.692]	0.073 (0.560) [0.522]	-0.052 (0.582) [0.570]
$E_i * y_j$	0.218 * (0.086) [0.056]	0.414 * (0.060) [0.028]	-0.087 (0.594) [0.552]	-0.039 (0.790) [0.860]
$LERI_i$	-0.004 (0.402) [0.424]	-0.012 (0.122) [0.210]	0.004 (0.654) [0.654]	-0.003 (0.556) [0.770]
$LERI_i * E_i$	-0.005 (0.466) [0.510]	0.007 (0.572) [0.562]	-0.017 (0.164) [0.186]	-0.011 (0.432) [0.468]
$LERI_i * y_j$	0.006 (0.834) [0.748]	0.009 (0.886) [0.842]	0.003 (0.946) [0.942]	0.006 (0.716) [0.732]
$LERI_i * E_i * y_j$	0.035 (0.202) [0.188]	-0.003 (0.950) [0.938]	0.051 (0.214) [0.208]	0.078 *# (0.048) [0.092]
$U_i$	-0.024 (0.150) [0.178]			
$U_i * E_i$	0.069 *** (0.010) [0.008]			
$U_i * y_j$	0.127 ** (0.010) [0.028]			
$U_i * E_i * y_j$	-0.236 *** (0.008) [0.014]			
Constant	0.231 *** (0.000) [0.000]	0.257 *** (0.000) [0.000]	0.176 *** (0.000) [0.006]	0.231 *** (0.000) [0.000]
Observations	1092	432	363	297
Participants	364	144	121	99

Notes: Sample includes final allocations made to others by participants who made at least one positive final allocation to another; there are three observations per participant;  $j$ 's initial endowment ( $y_j$ ) =  $j$ 's initial endowment expressed as a proportion of the 44 tokens in the game; Earned ( $E_i$ )=1 if  $i$  made allocations under the earned treatment, =0 if  $i$  made allocations under the random treatment; p-values reported in curved brackets are calculated using a wild bootstrap to account for clustering at the individual level; p-values reported in square brackets are calculated using a wild bootstrap to account for clustering at the session level (29 sessions); \*\*\* - sig. at 1% regardless of clustering level; \*\* - sig. at 5% regardless of clustering level, \* - sig. at 10% regardless of clustering level, \*# - sig. at 1% when clustering at the individual level and at 5% when clustering at the session level, # - sig. at 5% when clustering at the individual level and at

## 7. Inclusion of city of residence, age, gender, and education as controls

In table A.4 we re-estimate our model for the student sub-sample, while including controls for age, city of residence, gender and education and their interactions with  $y_j$ ,  $E_i$  and  $y_j * E_i$ . We introduce one control variable and its interactions at a time to minimize the problem of multicollinearity.

Each column of the table presents the results relating to a control variable that is named in the column header. Two of the control variables, age and city of residence, affect allocations to others. However, only one of the control variables significantly affects acknowledgement of earned entitlement; students in Bilbao acknowledge earned entitlement significantly less than students in Cordoba. Most importantly, the coefficient on  $LERI_i * E_i * y_j$ , which is the estimator of the effect of ideology on the acknowledgement of earned entitlement, remains positive and significant across all the models, indicating that our main finding is robust to the inclusion of controls.

**Table A.3: Re-estimation of the effect of ideology and student status on distributive preferences**

Dependent variable =  $i$ 's allocation to  $j$

Control variable =	-	Age (years)	Bilbao	Female	Education (years)
Earned treatment ( $E_i$ )	-0.039 (0.052)	-0.066 (0.052)	-0.053 (0.052)	-0.057 (0.059)	-0.062 (0.049)
$j$ 's initial endowment ( $y_j$ )	-0.052 (0.080)	-0.166 (0.120)	-0.145 (0.097)	0.010 (0.069)	-0.080 (0.087)
$E_i * y_j$	-0.039 (0.170)	0.108 (0.189)	0.131 (0.168)	-0.068 (0.179)	0.034 (0.158)
$LERI_i$	-0.003 (0.005)	-0.002 (0.005)	-0.004 (0.005)	-0.003 (0.005)	-0.005 (0.005)
$LERI_i * E_i$	-0.011 (0.013)	-0.010 (0.013)	-0.011 (0.012)	-0.006 (0.012)	-0.009 (0.013)
$LERI_i * y_j$	0.006 (0.014)	0.004 (0.016)	0.009 (0.014)	0.004 (0.013)	0.009 (0.013)
$LERI_i * E_i * y_j$	0.078 ** (0.038)	0.073 * (0.039)	0.074 ** (0.035)	0.068 * (0.037)	0.073 * (0.037)
$Control_i$		0.011 ** (0.005)	-0.060 ** (0.026)	0.020 (0.029)	0.007 (0.006)
$Control_i * E_i$		-0.004 (0.006)	0.038 (0.042)	0.002 (0.044)	-0.010 (0.010)
$Control_i * y_j$		-0.027 (0.017)	0.164 ** (0.075)	-0.110 (0.083)	-0.009 (0.020)
$Control_i * E_i * y_j$		0.025 (0.023)	-0.321 ** (0.135)	0.137 (0.147)	0.031 (0.031)
Constant	0.231 *** (0.027)	0.276 *** (0.027)	0.262 *** (0.022)	0.219 *** (0.035)	0.248 *** (0.028)
Joint sig. of Control and interactions		0.0012	0.0002	0.3058	0.4176
Observations	297	297	297	297	297
Participants	99	99	99	99	99

**Notes:** Sample includes allocations made to others; there are three observations per participant;  $j$ 's initial endowment ( $y_j$ ) =  $j$ 's initial endowment expressed as a proportion of the 44 tokens in the game; Earned (E)=1 if  $i$  made allocations under the earned treatment, =0 if  $i$  made allocations under the random treatment; standard errors clustered at the individual level; \*\*\* - sig. at 1%; \*\* - sig. at 5%, \* - sig. at 10%

## 8. Instructions and post-experimental questionnaire

### Experimental scripts

#### Script DJ Experiments

Cordoba and Bilbao, 2013 and 2014

*EARNED-FILLING*

*<EARNED-EMPTYING>*

*{RANDOM-FILLING}*

*!RANDOM EMPTYING!*

*[Before entering the lab subjects need to select a participant letter at random and be asked to sit at the desk bearing their participant letter. Record participant letters on the session form. Once everyone is seated...]*

Thank you for coming here today and for agreeing to take part in this workshop.

When you came in today, you each chose a letter.

This is your player identification letter.

Please keep this player identification letter with you. You will need it at the end of the session to claim your money.

Does everyone understand?

We are now ready to begin so please could you all listen carefully to the instructions.

While the workshop is going on, please do not talk to anyone other than me and my assistants.

If you have any questions, please raise your hand and one of us will come to your desk and answer your question. If you talk to the people around you, you will be asked to leave.

There are three parts to the workshop. I am now going to explain what we want you to do in the first part, but please do not start the task until you are told to do so.

You are going to spend 7 minutes helping us sort out some materials that are to be used in another workshop later today, or tomorrow.

We are not asking you to do this for free, of course. You will be paid for helping us in this way.

On your desk, you will find a box of gravel and some small plastic pots. *[Hold up example pot]*  
<On your desk, you will find some small plastic pots containing blue and yellow gravel, like this one, and two larger containers. *[Hold up example pot]*>

Please put 7 pieces of blue gravel and 7 pieces of yellow gravel in each pot.<Please empty the small pots, one or two at a time, and put the blue gravel in one of the larger containers and the yellow gravel in the other.>

Please be careful when counting the gravel. There should be 14 pieces of gravel in total in each pot, 7 blue and 7 yellow...like this one *[show example]*.<Please be gentle with the small pots so you do not break the hinges on the lids.>

{Only for the filling treatments} Once you have filled a pot, make sure that the pot lid is closed properly.

We will check the pots that you fill<We will check and count the pots that you have emptied>.

{Only for the earned treatments}The more pots you fill <empty>, the more money you will have at the end of this task. You will use this money in the second part of this workshop.

{Only for the earned treatments} However, any pots that do not have 7 pieces of blue gravel and 7 pieces of yellow gravel will not be counted. <However, any pots that have been emptied but the gravel has not been sorted into the larger containers, will not be counted.>

{Only for the earned treatments}The people who fill <empty> the most pots will start the second part of the workshop with more money than the people who fill <empty> the fewest.

If you run out of pots or gravel please raise your hand and we will bring you more. <If you run out of pots please raise your hand and one of us will bring you more.>

Does anyone have any questions?

*[Wait... answer as required]*

Please start filling <emptying> pots now. I will tell you when the 7 (seven) minutes are up.  
*[Note start time]*

*[After 7 minutes...]* Please can everyone stop now. Please raise both hands in the air and keep them there until one of my assistants comes to you. Thank you for your work. We will now collect the trays, pots and gravel.

We will check that each pot has 7 pieces of blue gravel and 7 pieces of yellow gravel, write down the number of pots each one of you has filled and then begin the next part of the workshop. <We are going to count the number of pots that you have emptied, we will check that the gravel has been sorted correctly and then begin the next part of the workshop.> This will take a few minutes. Please be patient and do not talk. I will explain the next part of the workshop once we are ready.



{Only for the earned treatments} *[Rank the subjects according to how many small pots they filled. Disregard pots that do not contain 7+7. Record the number of pots and their rank on the session form. Then, allocate trays to subjects according to Table 1 (which links ranks to tray numbers) at the end of this document. Record their tray numbers on the session form. Also write the participant/desk letters on the tray lids and the corresponding receipts.] < [Rank the subjects according to how many small pots they emptied. Disregard pots from which the gravel has been left unsorted. Record the number of sorted pots and their rank on the session form. Then, allocate trays to subjects according to Table 1 (which links ranks to tray numbers) at the end of this document. Record their tray numbers on the session form. Also write the participant/desk letters on the tray lids and the corresponding receipts.] >*

{Only for the random treatments} *{[Count up and record the number of pots filled, disregarding any pots that do not contain 7+7. Then, allocate each subject a tray by pulling participant letters out of one cup and tray numbers out of another. Record the participant-tray number matches on the session form. Also write the participant/desk letters on the tray lids and the corresponding receipts. While this is going on, the experimenter should read on]}. |[Count up and record the number of pots sorted, disregarding any pots from which the gravel has been left unsorted. Then, allocate each subject a tray by pulling participant letters out of one cup and tray numbers out of another. Record the participant letter/tray number matches on the session form. Also write the participant/desk letters on the tray lids and the corresponding receipts. While this is going on, the experimenter should read on].}*

Alright, we are nearly ready to continue with the workshop. Thank you once again for the effort you put into filling <emptying> the pots.

As promised, you will be paid for this. {Only for the random treatment, filling and emptying} *{4 Euros has been set aside for each of you. You will receive this at the end of the workshop.}*

{Only for the earned treatments} There are two parts to your pay:

{Only for the earned treatments} First, 4 Euros has been set aside for each of you. You will receive this at the end of the workshop.

{Only for the earned treatments} Second, each of you has earned additional money for the next part of the workshop depending on how many pots you filled <emptied>. You will have earned anywhere between an extra 6 Euros and 16 Euros.

Now I am going to explain the second stage of the workshop.

Please listen carefully as these instructions are very important. Once again, please do not start the task until you are told to do so.

In this part of the workshop you are all going to be placed in groups of 4. However, you will never know who else is in your group.

{Only for the random treatments} {You are each going to start off with a certain amount of money. My assistant has pulled participant letters out of a cup, at random, to find out how much money each of you is going to start off with.}

*[Hold up tray photo]* In a few minutes we are going to hand each of you a tray. You will find a copy of this photo to your right.

Each tray has 4 triangles: one triangle for each person in your group. The blue triangle is **your** triangle. The 3 cream triangles are for the other people in your group.

*[Hold up counter]* On each tray there will be several counters, like this one, in each triangle. In the photo, the little black round things to the right of the tray are counters.

{Only for the earned treatments} Each of you has earned a different amount of counters based on the number of pots you filled **<emptied>** in the first part of the workshop.

Each counter is worth 1 Euro, so 6 counters in a triangle is worth 6 Euros, 3 counters is worth 3 Euros, 10 counters is worth 10 Euros, and so on.

The counters that are in the blue triangle show the amount of money that each of you are starting the second part of the workshop with.

The counters in the three cream triangles show the amount of money that the other people in your group are starting the second part of the workshop with.

{Only for the earned treatments} You will never know who else is in your group, you will just know how much money they earned by looking at the number of counters in their triangles.

{Only for the random treatments} {You will never know who else is in your group, you will just know how much money they are starting out with.}

At the end of the workshop, these counters will be changed for real money.

We are going to hand the trays out now so you can see how much money you and the other people in your group have at the start of this part of the workshop. Each tray is covered by a lid (please only lift the lid when the tray is on your desk so that it cannot be seen by anyone else. It is important that no one sees the contents of your tray).

*[Hand out the trays being careful to hand the right tray to the right participant. Meanwhile say...]*

There are a total of 44 counters on each tray. Please do not take any counters away with you. It is very important that we get all the counters back. Please have a look at the tray so you know how much money you have and everyone else in your group has at this point in this workshop.

{Only for the earned treatments} Remember as you look at the tray, the person with the most counters in the group has the most money because they filled **<emptied>** the most pots. The person with the fewest counters has the least money because they did not fill **<empty>** as many pots as others.

{Only for the random treatments} {Remember as you look at the tray, the person with the most counters in the group has the most money, and the person with the fewest counters has the least money at this point in the workshop.}

Everyone should now have a tray and should know how much money they and the other people in their group have for the second part of the workshop.

If anyone does not understand their tray, or has any other questions please raise your hand.

OK. In this stage, if you choose, you can change the amounts of money that you and the other members of your group are to take home at the end of the workshop by moving the counters from one triangle to another.

In other words, you can take as many counters away from some people, including yourself, and give those counters to other people, including yourself.

If you want, you can move the counters between the triangles any way you choose until you are happy with the number of counters in each triangle. However, you are not allowed to take any counters completely off the tray. There are 44 counters on the trays and all 44 counters need to be on the trays when they are returned to us.

Let me repeat this as it is important. If you want, you can move the counters between the triangles any way you choose until you are happy with the number of counters in each triangle. However, you are not allowed to take any counters completely off the tray. There are 44 counters on the trays and all 44 counters need to be on the trays when they are returned to us.

Before you start moving the counters on your tray, I have to mention something important. Once everyone has decided how to move the counters we will collect the trays. Then, for each group of four, we will put the four tray numbers into a cup and pick one at random. This will be done for each of the groups. The money you receive at the end of the workshop –on top of the 4 Euros already put aside—will depend on the decision made by the person in your group whose number is picked. Every person’s tray has an equal chance of being picked, so every person’s decision has an equal chance of being carried out. It is important that you think about your decision very carefully.

Finally, the decision you make will be kept secret. No one will ever know whether you were in their group or whether you moved money to them or away from them.

In summary:

- 1. The blue triangle is your triangle.**
- 2. The other triangles relate to 3 other people but you don’t know who they are.**
- 3. The counters are equivalent to money.**
- 4. The number of counters in a triangle tells you how much that person earned.**
- 5. You can move the counters on your tray any way you choose.**

- 6. If and how you move them will never be known by anyone else.**
- 7. At time of payment, only one person's decision about final payments will be carried out. This decision will be randomly picked out of a cup which has all four tray numbers that correspond to all four people in the group.**

If you do not understand what you are being asked to do or how it might affect yourself and others, or if you have any other questions, please raise your hand and we will help you.

You may now make your decisions about whether and where to move counters. You can have as much time as you want. When you have arranged the counters as you see fit please close the lid of your tray and put up your hand so that one of us can collect your tray from you.

*[When all trays collected...]* We are going to hand out questionnaires that we would like you to fill out. This questionnaire is the third part of the workshop. When this part of the workshop is finished you will be paid and will be free to leave. Please note that the questionnaire is on both sides of the pages. When you have finished filling out the questionnaire please raise your hand.

*[Hand out and later collect questionnaires once they finish. Calculate pay with reference to notes in the next section of this document. Draw up receipts.]*

We are now finished. Thank you for being so patient and thank you for participating in this workshop. We have worked out how much money each of you is to be paid. In a minute I will ask you to come, one by one, to the desk in the waiting room so we can give you your money and you can sign a receipt. Once you sign the receipt, you will be free to leave.

# Experimental Questionnaire

Letter ID for the session: \_\_\_\_\_ Personal ID Code: \_\_\_\_\_

Date: (dd/mm/yy) \_\_\_\_\_ Time of Session: \_\_\_\_\_

## *Research on Individual Decision-Making*

*Thank you for participating in this research. Please take a few moments to fill out the questionnaire below. All your answers will be kept confidential. There are no right or wrong answers, so please answer honestly.*

**0. Did you participate in this study last year?**

1.  Yes

2.  No

If you answered YES, proceed to question 01. If you answered NO, proceed to question 02.

**01.**

**A) Could you please tell us why you made the decision you made in the game?**

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**B) Was your decision affected by the experience you had last year in our experiment?**

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**02.**

**A) Could you please tell us why you made the decision you made in the game?**

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- 9.  = Bachelor's degree (under the old system)
  - 10.  = Second Cycle Studies
  - 11.  = Bachelor's degree (under the new system)
  - 12.  = Master
  - 13.  = MBA
  - 14.  = PhD
  - 15.  = Other (specify)
- 

**7. Please select the option or options that best describes your current situation**

- 1.  Employed part-time
- 2.  Employed full-time
- 3.  Unemployed

How long have you been unemployed (number of months: \_\_\_\_\_)?

- 4.  Retired
- 5.  On maternity leave
- 6.  Housewife/Looking after family
- 7.  Studying part-time
- 8.  Studying full-time
- 9.  On sick leave or disabled
- 10.  Other  
(specify \_\_\_\_\_)

**8. Have you been unemployed in the last year, i.e., since April 2013?**

- 1.  Yes
- 2.  No

**9. If yes, how many months in total have you been unemployed in the last year?**

\_\_\_\_\_

**Please also indicate the date**

From \_\_\_\_\_ Until \_\_\_\_\_

From \_\_\_\_\_ Until \_\_\_\_\_

From \_\_\_\_\_ Until \_\_\_\_\_

From \_\_\_\_\_ Until \_\_\_\_\_

From \_\_\_\_\_ Until \_\_\_\_\_

From \_\_\_\_\_ Until \_\_\_\_\_

**10. Do you currently do any work for which you earn money, i.e., do you have a job or a business?**

1.  Yes

2.  No

**11. If yes, how much do you earn a month? (net income)**

\_\_\_\_\_ €

**12. Is this work full-time or part-time?**

1.  Full-time

2.  Part-time

3.  Other (specify) \_\_\_\_\_

4.  Not Applicable (if you are not working)

**13. If yes, how many hours do you work per week? \_\_\_\_\_**

**14. How did you find your current job?**

1.  Through a family member    2.  Through a friend    3.  Through an employment office

4.  On my own    5.  Other (specify) \_\_\_\_\_



**15. If you are currently working for money, when was the last time you were either a full-time student or unemployed?**

Last time a full time student (mm/yyyy): \_\_\_\_\_

Last time unemployed (mm/yyyy): \_\_\_\_\_

**16. If you are NOT currently working for money, do you have any other form of income?**

(you may tick more than one box)

1.  Pension
2.  Child Care Grant
3.  Disability Grant
4.  Unemployment Insurance
5.  Subsidy
6.  Support from family members (grandfathers, fathers)
7.  Other \_\_\_\_\_

**17. If you are NOT currently working for money and NOT studying full time, when was the last time you were either a full-time student or in full time paid employment?**

Last time a full time student (mm/yyyy): \_\_\_\_\_

Last time in full time paid employment (mm/yyyy): \_\_\_\_\_

**18. If you are NOT currently working for money and NOT studying full-time, are you receiving or have you recently received (in the last 6 months) any training designed to help you gain employment?**

1.  Yes
2.  No

**19. If yes, could you please tell us which public organization or which organization offered this training?**

\_\_\_\_\_  
\_\_\_\_\_

**20. If you are a full-time student, please write the name of the degree you are studying for, e.g., Business or Vocational Studies (What specialty?).**

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**21. If you are a full-time student, when was the last time you were either in full-time paid employment or unemployed and claiming benefits or some type of grant?**

Last time in full time paid employment (mm/yyyy): \_\_\_\_\_

Last time unemployed and claiming benefits or a grant (mm/yyyy): \_\_\_\_\_

**22. How many people, including you, live in your household? (here, you should include all those people who sleep in the same household as you on a regular basis)**

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**23. Would you describe your family as:**

1.  Rich 2.  Upper income 3.  Middle income 4.  Lower income 5.  Poor

**24. Which of the following people or organizations do you think has the greatest responsibility to help the poor? (choose one answer only)**

1.  The Church 2.  Charities or non-profit organizations 3.  The government  
4.  Families and relatives of the poor 5.  The poor themselves

**25. When people talk about politics, the terms left and right are usually used. Below there is a left-right axis. Where would you place yourself on this axis? Indicate it with an X.**

Left  
Right

1	2	3	4	5	6	7	8	9	10
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**26. Finally, look around the room and tell us how many of the other people in the workshop do you know well or think of as friends \_\_\_\_\_**