Measuring the attitude towards a European public budget: A cross-country experiment

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Abstract

We use a multilevel public goods game to investigate attitudes towards national public budgets and a European public budget in six Member States of the European Union: Italy, Germany, France, the Netherlands, Poland, and Portugal. We test to what extent propensities to contribute to public goods differ across countries. Using two efficiency treatments, we also test whether each country group adjusts its contribution when the relative efficiency of the public goods changes. We find no differences across countries in the propensity to contribute to either public budget. Moreover, all country groups level up their contribution to the European public good following an increase in its relative efficiency. We also devise a questionnaire to assess the impact of a sense of identity on contribution decisions and to control for the impact of COVID-19 and the current war in Ukraine on country and EU perceptions.

JEL classification: $C90$; $H41$; $H61$

Keywords: Multilevel public goods game; public budget; European Union; online experiment; efficiency; social dilemma.

1 Introduction

The pandemic crisis and the war in Ukraine represented an unprecedented challenge for the European Union (EU) towards greater cohesion of policies, particularly of political economies, to counterbalance unfavourable shocks. Up to March 2020, the European fiscal policy was guaranteed –with doubtful success– by fiscal rules (i.e., the Stability and Growth Pact) while the European budget was not used as a fiscal policy instrument (e.g., Caselli and Wingender, 2021; De Grauwe and Ji, 2019). Despite being improperly referred to as its own resources, Member States' contributions have always been the source of revenue for the European budget, and European-level taxes have not been directly levied on citizens (Bordignon and Scabrosetti, 2016). In the last four years, being the Stability and Growth Pact *de facto* suspended, the debate has focused on the need to revise it, without modifying the European Treaties because of the long and politically challenging process that the latter would require (e.g., Blanchard et al., 2021; Maduro et al., 2021). In April 2024, an agreement was reached among European countries for a revision of the Stability and Growth Pact that has left no space for the view asking for flanking fiscal constraints with a European fiscal capacity (i.e., common resources) that should be activated in specific contingencies or for the realisation of common projects that are exceptional in nature (e.g., in the energy sector)(Romanelli et al., 2022).

Currently, there is a slight possibility of a reform that would grant European institutions the power to tax, due to the lack of political support from the European Parliament and Member States, along with the prevailing tendencies towards particularism and nationalism that are challenging EU cohesion. However, it appears crucial to understand whether these political tendencies represent citizens' attitudes towards cooperation between European countries and socio-economic integration. In this study, we use the multilevel public goods game (MLPGG) to assess potential barriers to citizens' participation in an institution unified at the European level. In the MLPGG, subjects are assigned to a local group and asked how much of their private endowment they would like to contribute to the public good of their local group or to the public good of a global group that contains other local groups in addition to their own (Blackwell and McKee, 2003; Buchan et al., 2009, 2011; Fellner and Lünser, 2014; Chakravarty and Fonseca, 2017; Gallier et al., 2019).

We designed this setup to detect individuals' preferences toward contributing at a personal cost to the welfare of an overall European community, thereby overcoming potential tendencies to favour their own countries. This setup is obtained employing two main experimental features. The first involves framing the decision as a choice between contributing to the "EU public budget" (i.e., the global one) or the 'Country public budget" (i.e., the local one). This framing explicitly identifies the contribution

to the global good as connected to a European economic institution (as contrasted to the subject's country) to trigger the subjects' association between the contribution choice they make with their attitudes towards an EU-integrated fiscal policy. This association aligns with the fact that the returns from providing the global public good are distributed among participants regardless of their affiliation with their country's local group.

The second feature concerns the composition of the local groups. We group participants in local groups based on their country of residence. They are aware that if they decided to contribute to the Country public budget only persons from their own country of residence would benefit from the local public good provision, while if they contributed to the EU public budget also persons from two other European countries (not explicitly revealed) would benefit from the returns of the global public good. To reach participants from different EU countries we run the experiment online using the Prolific.com platform (Palan and Schitter, 2018). Due to the limitations of country-specific samples among registered subjects on this platform, we conducted a selection process aimed at maximizing socio-economic, cultural, geographical, and historical diversity. For this purpose, we selected six countries among EU Member States: Italy, Germany, France, the Netherlands, Poland, and Portugal, following a similar approach to Buchan et al. (2009, 2011).

The selected countries differ in their roles in the EU unification process. Italy, Germany, and France are founding members and the largest economies in the EU. They also vary in their positions on macroeconomic policies within the EU and have distinct governmental structures, with Germany being the only federal state. The Netherlands is one of the so-called *Frugal Four*, a block of northern countries that is historically the strongest advocate for austerity programs within the EU. Poland is a member of the *Visegrád Group*, a group of four countries in Eastern Europe that joined the EU in 2004 and have disagreed with other EU countries on several topics in the last decade. Finally, Portugal is one of the so-called *PIGS*, a group of Southern European countries characterised by high public debt that has been subject to strong economic and political pressure since the 2008 economic crisis. Moreover, France, Germany, Italy, and the Netherlands are net contributors to the EU budget, while Poland and Portugal are net receivers.

This design allows us to investigate potential differences across countries in the propensity to financially cooperate at the EU level. By identifying themselves with the group of fellow citizens forming their local group subjects' contribution can vary based on the different country-specific group identities involved. The MLPGG literature highlights that when group identity is primed in the local groups, it drives some degree of in-group favouritism that motivates contributions to the local group. Priming group identity is attained through different kinds of manipulations but typ-

ically involves how the local groups are formed, in line with the minimal identity approach (Fellner and Lünser, 2014; Blackwell and McKee, 2003; Chakravarty and Fonseca, 2017; Gallier et al., 2019). Accordingly, given the potential activation of group identity in our experiment, we expect that contribution to the Country public good significantly persists and differs across countries driven by cultural, political, and institutional traits that are related to the national identities.

We further test these potential differences by varying the efficiency of the EU public budget. Specifically, we vary efficiency between treatments by increasing the marginal per capita return (MPCR) of the European Public Budget. The evidence provided by the literature tends to confirm the hypothesis of a *levelling-up* of contribution to the global public good following the improvement of its efficiency. However, this increase of contribution can vary in magnitude and on the source of funds that can either be drawn from the subject's private account (*marginal crowding in*) or from a decrease in contribution to the local public good (*substitution* effect) (see Catola et al., 2023, for a detailed discussion on the differences in results and experimental designs). Consequently, the manipulation of the European public budget efficiency can reveal differences concerning the propensity towards levelling-up held by subjects belonging to different country groups.

Using a public good design to investigate support for institutions is well-established in the experimental literature (Alberti and Cartwright, 2016; Barrett and Dannenberg, 2017; Battaglini et al., 2020; Gallier, 2020; Botelho et al., 2022); however, to the best of our knowledge, no study has examined propensities towards strengthening the European budget through direct contributions. Tax games are usually applied to identify drivers of compliance/evasion to a given tax (Spicer and Becker, 1980; Spicer and Hero, 1985; Coricelli et al., 2010; Bazart and Bonein, 2014; Górecki and Letki, 2021). However, they do not seem suited to our purpose since they deal with the response to exogenously imposed fiscal pressure and not with a voluntary (economic) contribution to an institution that is new and holds spending power in return. Indeed, the acceptability of a fiscal policy depends on the perceived return that subjects expect from the use of the revenues (Thalmann, 2004; Maestre-Andrés et al., 2019, 2021; Drews et al., 2022b,a).

The return from a European public budget is uncertain from the point of view of EU citizens and this might explain the lack of coverage of direct survey focused on attitudes towards the fiscal union. Indeed, no Eurobarometer survey – the standard tool used by the European Commission to assess the attitudes of citizens towards EU institutions and policies – has directly addressed this acceptability issue. Only a few studies addressed citizens' attitudes toward more specific fiscal policies by using non-incentivized surveys experiments based on vignettes. Closer to our study, Franchino and Segatti (2019) investigated the (Italian) public attitudes toward a

policy designed to address asynchronous economic fluctuations in the euro-zone. Bremer et al. (2023) investigated the public support toward the pandemic recovery fund (Next Generation EU) in five European countries. Blesse et al. (2022) elicited fiscal policy preferences and judgements on European governance with a sample of MEPs from France, Germany, and Italy.

Despite their relevance, these studies lack a measure of actual citizens' preferences. We try to fill this gap by focusing on contribution behaviour in the MLPGG and treating cooperation between country groups as an index of propensity towards a unified Europen fiscal institution. In this regard, this study is closely related to Buchan et al. (2009, 2011), who use the MLPGG to study the effects of globalisation on the willingness to contribute to national versus international public goods and to Gallier et al. (2019), who assess the willingness to pay for local and regional public goods among Germans living in two different regions. However, two main features distinguish our design from these studies. First, national identity is not only used to prime group identity in local groups but to frame the whole decision context since it relates to a potential sense of belonging to European society. Second, by framing the decision as an alternative between two different public budgets, subjects are confronted with two labels that may represent the actual institutions to which they act as citizens, thus adding realism to the decision at stake. We completed our study by administering at the end of the experiment a questionnaire aimed at eliciting subjects' personal sense of belonging to national and European institutions, and also personal evaluations about the most recent crises calling for an EU response.

The rest of the paper is organised as follows. Section 2 introduces the MLPGG, describes our treatments and provides details on the employed procedures. Section 3 describes our sample. Section 4 presents our experimental results. Section 5, while discussing the results, concludes the paper.

2 The experiment

2.1 The Multilevel Public Goods Game and treatments

In the main task of our experiment, we ask participants to play a one-shot linear MLPGG. This game is characterised by a nested structure where two or more local groups are part of a higher-level global group. Figure 1 depicts the specific configuration we employ in our experiment.

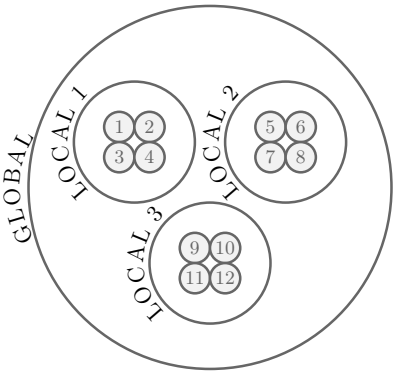


Figure 1: Configuration of our MLPGG.

Participants are randomly matched in local groups of $M = 4$ and, at the same time, in global groups of $N = 12$. Thus, each of the global groups is composed of 3 local groups. In more detail, in our setup, each participant is randomly matched with other 3 participants of the same country of residence to form a local group, and also with 8 other participants from two other local groups, each composed of residents from one of the other 5 EU countries, to form the global group. Therefore, each global group is formed by 3 local groups, each being homogeneous in terms of the country of residence.

Participants are informed about the matching protocol; thus, they are aware that their group was homogeneous with respect to the country of residence and that the other groups were formed of participants from other countries. However, participants do not have any other information about the specific countries involved other than that they also belong to the EU.

We opted to frame the experiment both to enhance the connection to the real world and to help the understanding of the environment and reduce confusion (Alekseev et al., 2017). The public goods of the MLPGG were presented to the participants as, respectively, the Country public budget and the EU public budget. Therefore, the combination of the information provided to players and the framing of the task allows us to capture the willingness of players to contribute to either a group of their fellow citizens or three groups of generic EU citizens.

Each individual i receives an endowment e_i, which she can keep for herself in the private account, contribute to the local public good provided at the local-group level, or contribute to the global public good provided at the global-group level. We set each endowment e_i equal to 10 points. Any amount c_i contributed to the local public good is multiplied by a local-specific factor and divided equally among the 4 local group members. We refer to this ratio as α, the local MPCR. Any amount C_i contributed to the global public good is multiplied by a global-specific factor and divided equally among the 12 global group members. We refer to this ratio as β, the

global MPCR.[1]

Given the game structure, the payoff that each player i receives by playing the game is equal to:

$$\pi_i = e_i - c_i - C_i + \alpha \sum_{j=1}^{M} c_j + \beta \sum_{k=1}^{N} C_k. \quad (1)$$

In our experiment, we set $\alpha = 0.6$, while the value of β is treatment specific:

(i) in treatment *Low*, we set $\beta = \alpha/3 = 0.2$;

(ii) in treatment *High*, we set $\beta = \alpha = 0.6$.

These two treatments are most commonly used in the literature to investigate whether and to what extent participants react to variations in the relative efficiency of the two nested public goods. We measure efficiency in terms of total benefit (TB) which, following Gallier et al. (2019), is defined as the individual earnings obtained from a public good when every group member makes a 1-point contribution to it (i.e., αM and βN, respectively).

Table 1 provides a full summary of the relevant parameters for each treatment.

Table 1: Summary of treatments parameters.

Treatment	Local PG			Global PG		
	M	α	TB	N	β	TB
Low	4	0.6	2.4	12	0.2	2.4
High	4	0.6	2.4	12	0.6	7.2

In the *Low* treatment, the TBs of the two nested goods are equalised ($\alpha M = \beta N$), thus sterilising efficiency effects due to scale. Indeed, the local public good is both less costly and less risky compared to the global one since the individual return from 1 point contributing to it is higher than the return of 1 point contributing to the global public good. Thus, in the *Low* treatment, players have only a weak incentive to contribute to the global public good.

The *High* treatment corresponds to the case where the MPCRs of the two goods are equal, i.e., $\alpha = \beta$. Here, the two public goods are equally costly, but the global public good is more efficient due to scale effects. This, in turn, means that for each player i, the two goods are equally risky, as the return from contributing is the same in both cases. Additionally, while in the *Low* treatment, the local group members are better off if their fellow member i contributes to the local public good rather than to the global one ($\alpha > \beta$), this is not the case for *High* ($\alpha = \beta$). Hence, contributing to the local public good in *High* is neither less costly for contributors nor does it provide higher payoffs for their fellow local group members. Thus, the only monetary

[1] It is worth noting that $(1 - \alpha)$ and $(1 - \beta)$ then represent the actual costs that player i incurs by contributing 1 point to the local and to the global public goods, respectively.

difference due to contributing to the local public good in *High* vs contributing to it in *Low*, is that of excluding the members of the other two local groups from the benefits of the public good provision.

In conclusion, the implementation of these two treatments provides a straightforward way to test the impact of efficiency on contribution decisions as, from a game-theoretical point of view, in each treatment, one good is better than the other (the local good is better than the global in the *Low* treatment, and *viceversa* in the *High* treatment) given that any strategical trade-off is sterilised.

2.2 The post-experimental questionnaire

The post-experimental questionnaire includes three sets of questions to assess if the participant has an immigrant background, her feelings of belonging to the country of residence, to Europe, and her (positive or negative) feelings toward the EU, as well as whether these feelings changed following the most recent dramatic events, e.g., the COVID-19 pandemic crisis and the war in Ukraine. Based on the answers to these questions, we define the control variables of our estimation strategy. The numbered list of questions is available in Appendix A. Unless otherwise specified, all the answers are on a 5-point scale.

The questionnaire begins with three preliminary questions to assess the possible immigration background of participants. First, we ask about the country of birth of the participant (Q1) to verify if she is a first-generation immigrant. Participants born in the country of residence are considered not to have an immigration background, even if they can be second-generation immigrants. Then, we ask first-generation immigrants how old they were when they moved to the country of residence (Q2) to control for the timing of their immigration. Finally, we ask about the country of birth of the participant's parents (Q3 and Q4) to control the parents belonging to an EU country. In sum, our working hypothesis is that participants' decisions to contribute to the Country and EU budgets can be altered by having recently immigrated to an EU country. To assess feelings towards the country of residence and towards Europe, we ask participants how strongly they identify themselves with the country (e.g., how strongly they feel Italian if Italy is the country of residence) and how strongly they feel they are an EU citizen (Q5 and Q6, respectively). Then, we ask for a personal judgement on the EUs image (Q7).

For the COVID-19 questions, we take inspiration from one of the multinational surveys delving into European citizens' attitudes and opinions over the course of the crisis commissioned by the European Parliament and conducted at the end of April 2020 (European Parliament, 2020). We ask participants' opinions about the benefit for their country of being part of the EU before the pandemic (Q8), if they are satisfied with the solidarity between the EU Member States in fighting the pandemic

(Q9), and if their opinion about the benefits of being part of the EU changed after the pandemic (Q10).

Concerning the war in Ukraine, the main aim is to control participants' propensity to contribute to national and EU defence and whether this has been affected by the war. National defence is one of the clearest examples of a public good, and common defence has always been one of the open issues in the European agenda since its foundation in the 1950s. However, it is not granted that every individual looks favourably upon national defence expenditures, as someone may think that not having an army and being neutral makes the country safer than otherwise having an army. To control for this attitude, we first ask participants to assess, on a scale from 0 to 10, how much they agree that higher military spending increases the level of safety (Q11). Then, we ask whether, after the beginning of the war, they were in favour of higher military expenses in their country (Q12) and whether they were in favour of financing a European army before the beginning of the war (Q13) and after the beginning of the war (Q14).

2.3 Implementation

The experiment, which was preregistered (AsPredicted number: #89021) and approved by the Ethical Committee of the University of Florence (Italy), was programmed in oTree (Chen et al., 2016) and conducted online between the 19th and 20th May 2022. The participants were recruited from the EU adult population of the six selected countries through the Prolific platform (Palan and Schitter, 2018). An overall sample of 1,200 subjects living in the EU (i.e., 600 participants per efficiency treatment, equally distributed between the selected countries) was recruited to participate in the experiment. Recruitment was based on the country of residence rather than the country of nationality. We considered this criterion more representative of the individual sense of citizenship since civil rights, such as the right to vote and to stand as a candidate in elections to the European Parliament (Article 22(1) TFEU (2008)), are given to residents of the Member State. The sample size was determined by an *a-priori* power analysis expecting a small effect size (Cohen's $d = 0.35$) with alpha=0.05 and power 0.80 for a two-tailed t-test for a between-subjects design.

Before starting the experiment, subjects were asked to confirm their current country of residence.[2] Then, participants had the opportunity to choose whether to complete the experiment in English or switch to their national language. Before facing the task, subjects had to answer some control questions to test their comprehension of the decision at stake. The experiment did not start until the participants had

[2]Out of the 1203 participants joining the study on Prolific, 3 declared not to live anymore in the country of residence for which they were recruited. We granted them a fixed participation fee without making them proceed with the experiment.

answered all the questions correctly.

The payoffs were expressed in points that were converted to GBP at the rate of 1 point = 0.025 GBP at the end of the experiment. Over all the treatments, mean earnings amounted to 1.53 GBP (including a 0.50 GBP fixed participation fee), and the experiment took on average 7 minutes to complete. The average earnings in the experiment corresponded to a 13 GBP hourly compensation, and thus, they were perfectly in line with the salary of a student assistant in the EU (namely, approximately 15 EUR). Additionally, by keeping the game monetary reward much greater than the fixed participation fee, we ensured that the payoffs of the task were salient.

3 Sample Characteristics

3.1 Demographics

Table 2 reports, separately for each efficiency treatment, summary statistics of demographic characteristics of our sample. The last column reports p-values from either Kruskal–Wallis tests for continuous variables or Fisher's exact tests for dummy variables.

Table 2: Means (and standard deviations) of participants' characteristics per treatment.

	Low	High	p-value
Age	28.60 (8.99)	28.39 (8.61)	0.606
Female	0.51 (0.50)	0.49 (0.50)	0.729
Student	0.45 (0.50)	0.49 (0.50)	0.183
Socioeconomic status	5.55 (1.52)	5.56 (1.46)	0.883
Secondary education	0.33 (0.47)	0.35 (0.48)	0.428
Undergraduate degree	0.26 (0.44)	0.25 (0.43)	0.791
Graduate and Post-graduate	0.36 (0.48)	0.35 (0.48)	0.763
Migrant	0.16 (0.36)	0.17 (0.38)	0.485
Observations	604	596	

Age is the age of the participant at the time of the study. *Female* is a dummy variable that equals 1 if the participant is female. *Student* is a dummy variable that equals 1 if the participant is a student. *Migrant* is a dummy variable that equals 1 if the participant was not born in the country of residence. *Socioeconomic status* measures the self-reported place occupied by the participant on a ladder representing society going from 1 to 10. *Secondary education* is a dummy variable that equals 1 if the participant holds a high school diploma or equivalent. *Undergraduate degree education* is a dummy variable that equals 1 if the participant holds an undergraduate degree. *Graduate and post-graduate* is a dummy variable that equals 1 if the participant holds a graduate or doctorate degree.

Overall, the average age is approximately 29 years old, there is an almost perfect split between females and males, and 16.50% of participants were not born in the same country where they currently reside. Approximately 47% are students. Our sample is, on average, well-educated: 33.91% hold a high school diploma (or equivalent), 25.58% an undergraduate degree, and 35.33% (at least) a graduate degree. Based on the participants' self-reported measure, our sample is, on average, in a middle socioeconomic status in all treatments. Finally, it is clear that, on average, our sample is younger, better educated, and has a higher share of students than the average population in each country. While this could represent a limitation for the representativeness of our results, it is also worth mentioning that this sample is more diverse than the samples usually employed in laboratory experiments, being the latter almost 100% students' samples. The diversity of the sample is, actually, one of the advantages of running an online experiment.

While descriptive statistics do not present statistically significant differences when comparing treatments, this is not the case when we compare countries. This

is not surprising given that there are actual socio-demographic differences across our selected countries. Moreover, it is not possible to recruit stratified samples through Prolific, but we were able to at least impose balanced samples with respect to gender. Table 3 presents the descriptive statistics divided by country in the same manner as Table 2.

Table 3: Means (and standard deviations) of participants' characteristics per country.

	IT	DE	FR	NL	PL	PT	p-value
Age	28.91 (8.93)	29.9 (9.35)	29.93 (9.66)	27.86 (7.47)	26.49 (8.42)	27.91 (8.41)	0.001
Female	0.50 (0.50)	0.50 (0.50)	0.50 (0.50)	0.50 (0.50)	0.51 (0.50)	0.50 (0.50)	1.000
Student	0.50 (0.50)	0.47 (0.50)	0.35 (0.48)	0.44 (0.50)	0.56 (0.50)	0.51 (0.50)	0.001
Socioeconomic status	5.73 (1.44)	5.61 (1.52)	5.49 (1.51)	5.75 (1.68)	5.24 (1.43)	5.51 (1.30)	0.003
Secondary education	0.45 (0.50)	0.36 (0.48)	0.17 (0.38)	0.33 (0.47)	0.47 (0.50)	0.26 (0.44)	0.001
Undergraduate degree	0.20 (0.40)	0.27 (0.45)	0.17 (0.38)	0.38 (0.49)	0.23 (0.43)	0.28 (0.45)	0.001
Graduate and Post-graduate	0.32 (0.47)	0.29 (0.45)	0.61 (0.49)	0.27 (0.45)	0.21 (0.41)	0.42 (0.49)	0.001
Migrant	0.07 (0.25)	0.29 (0.45)	0.27 (0.44)	0.30 (0.46)	0.01 (0.07)	0.06 (0.25)	0.001
Observations	200	200	200	200	200	200	

Age is the age of the participant at the time of the study. *Female* is a dummy variable that equals 1 if the participant is female. *Student* is a dummy variable that equals 1 if the participant is student. *Migrant* is a dummy variable that equals 1 if the participant was not born in the country of residence. *Socioeconomic status* measures the self-reported place occupied by the participant on a ladder representing all the levels in the society that goes from 1 to 10. *Secondary education* is a dummy variable that equals 1 if the participant holds a high school diploma or equivalent. *Undergraduate degree education* is a dummy variable that equals 1 if the participant holds an undergraduate degree. *Graduate and post-graduate* is a dummy variable that equals 1 if the participant holds a graduate or doctorate degree.

It is interesting to note that participants from Germany and France have a higher average age, but for France, this is explained by a sample with a relatively small share of students and a substantially higher share of highly educated participants (approximately 78% of participants hold a university degree, with a remarkable 61% holding masters degree or higher). It is also worth mentioning how the distribution of immigrants in the sample is largely uneven. First-generation immigrants comprise one-third of the samples of Germany, France, and the Netherlands, but comprise a fairly small share of the samples of Italy, Portugal, and especially Poland.

Furthermore, we control whether the randomisation in the treatment allocation worked well within countries. Our tests reject the hypothesis of any statistically

significant differences between demographics in the treatment subsamples for each country (results of the tests can be found in Table B.1)

3.2 The post-experimental questionnaire

We now turn to the answers collected through the post-experimental questionnaire. The following figures present the average answers to each question by country (descriptive statistics by country and the statistical tests can be found in Appendix C).

Figure G.1 depicts the average answers to the questions assessing feelings towards own country and the EU.

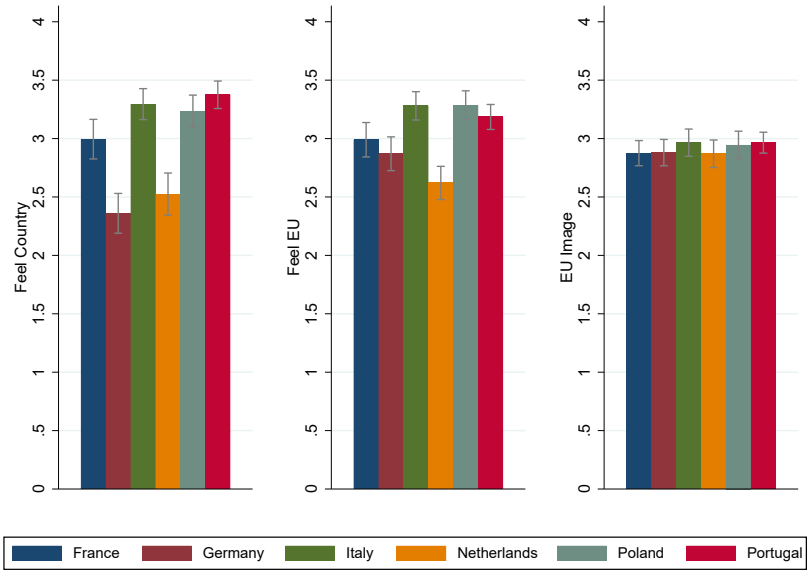


Figure 2: Mean answers to feeling questions by country. Confidence intervals at the 95% level. Feel Country: *How strongly do you feel (country of origin).* Feel EU: *How strongly do you feel an EU citizen?.* EU Image: *In general, does the EU conjure up for you a very positive, fairly positive, neutral, fairly negative or very negative image?*

KW tests for *Feeling EU* and *Feeling Country* find significant differences across countries, while no differences are found for *EU Image*. The pairwise comparisons between each country show that the differences in *Feeling EU* are driven by weaker feelings of belonging to the EU among Dutch residents compared to all others, except for Germany, whose citizens also show a weaker feeling of belonging to the EU compared to Italy and Poland. Similarly, for *Feeling Country*, German and Dutch residents show a weaker feeling of belonging to their own countries compared to all others.[3]

Moreover, as shown in Figure 3, countries display significant differences in the

[3]Appendix G provides a closer look at the relationship between *Feel Country* and *Feel EU* in terms of correlation and differences.

answers to the COVID-related questions. More specifically, Polish residents feel that their country has benefited from being a member of the EU more than the French, German, Dutch, and Portuguese residents, and the Dutch and French residents also reported lower benefits compared to Portuguese and Italian residents. Additionally, Italians and Portuguese participants display higher levels of satisfaction regarding the solidarity between the EU Member States in fighting COVID-19 compared to Dutch and Germans ones, and Portuguese ones also compared to the French and the Polish participants. These answers reflect the type of event at stake. The COVID-19 pandemic has been a huge symmetric exogenous shock for the euro area and the world, but with asymmetric impacts across countries both because of the timing of the spread of the virus and of the differences in underlying economic structures. Accordingly, starting in 2020, the European Commission adopted measures to support national economies (i.e., SURE and NGEU) that are differentiated across countries. Italy was the first country to experience the pandemic, which resulted in a highly severe impact in terms of lives, and thus was one of the first recipients of European support.[4]

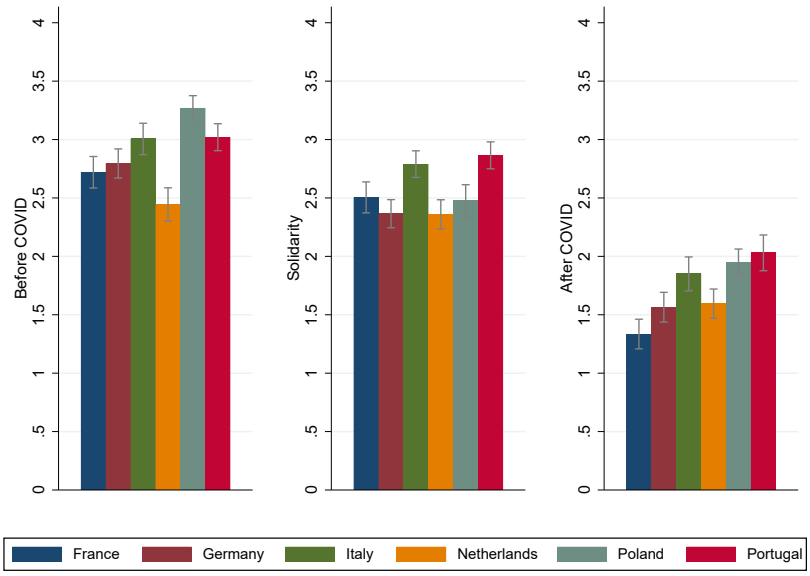


Figure 3: Mean answers to COVID-19 questions by country. Confidence intervals at the 95% level. Before COVID: *Before Coronavirus pandemic, would you say that (country of residence) has on balance benefited from being a member of the EU?*. Solidarity: *How satisfied are you with the solidarity between the EU Member States in fighting the Coronavirus pandemic?*. After COVID: *Has your opinion on the benefits for (country of residence) from being a member of the EU changed after the Coronavirus pandemic?*

[4]In 2021, Italy received slightly less than one-third of the entire SURE funding, while the second recipient is Spain, which received almost one-fourth. For the NGEU program, Italy is expected to receive the equivalent of 11 percent of its GDP, while France and Germany will receive the equivalent of 1.5 and 1 percent of GDP, respectively.

Finally, Figure 4 plots the average answers to the questions concerning the war in Ukraine. We do find some cross-country variability in the answers to the questions. Particularly, Italian and German residents are less convinced that increasing public expenditures on national defense makes them safer than Polish and Dutch residents, and for Italians, this also holds in comparison with Portuguese residents. The Polish participants also hold a stronger positive belief about military spending compared to the French ones. For the *National Army*, Polish subjects agree that their country should increase its public expenditures on the national army after the war's outbreak, more than any other country in our sample. Italian participants show the lowest level of adherence to that statement compared to all other countries, except for the French ones (whose answers to this question are not significantly different). Much less variation emerges when looking at the answers to the two questions on an EU army, with German subjects displaying the lowest levels of agreement to the necessity of an EU army financed by the EU budget, both before and after the Russian-Ukrainian war.

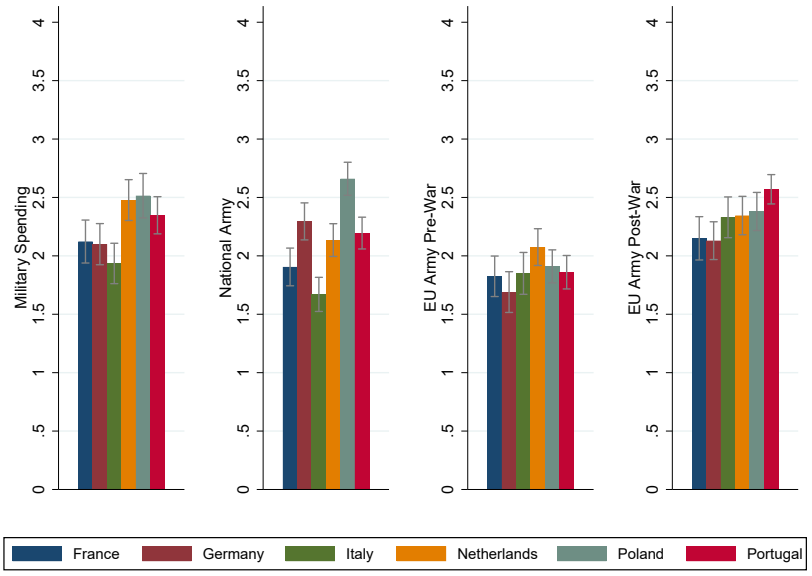


Figure 4: Mean answers to war questions by country. The Military Spending question is standardised to vary between 0 and 5 for graphical comparability. Confidence intervals at the 95% level. Military Spending: *Each person has no choice but to consume the service of the national defence. For those who believe increasing public expenditures on national defence makes them safer, an increase in these expenditures is positive. Others think additional expenditures on armies only lead to arms races and decrease national security. Such individuals value additional public expenditures on national defence negatively. On a scale from 0 to 10, how much do you consider belonging to the first group?* National Army: *After the beginning of the Russian-Ukrainian war, do you think your country (of residence) should increase its public expenditures on the army?*. EU Army Pre-War: *Before the Russian-Ukrainian war, have you ever thought that the EU should have an army financed with the EU budget?* EU Army Post-War: *After the Russian-Ukrainian war, do you think the EU should get an army and finance it with an EU budget?*

4 Results

In this section, we present our results. We first display some descriptive and nonparametric analyses of the contributing behaviour in all countries. We then investigate the presence of efficiency-related effects by making use of regressions, which allow us to control for heterogeneity in participants' demographic characteristics and individual preferences and beliefs. Finally, we investigate how identity traits correlate with contribution decisions.

4.1 Contributing behaviour across countries

Table 4 reports the overall means and standard deviations of contribution decisions by treatments.

Table 4: Means (and standard deviations) of contribution decisions by treatment.

	Country Budget	EU Budget	Total contribution
Low	4.19 (2.22)	3.24 (2.17)	7.43 (2.54)
High	3.25 (2.09)	4.47 (2.70)	7.72 (2.41)
Total	3.73 (2.21)	3.85 (2.53)	7.58 (2.48)

Mean contributions to the Country Budget are 37.30% of the initial endowment (41.90% in the Low treatment, and 32.50% in the High treatment), and mean contributions to the EU Budget are 38.50% of the initial endowment (32.40% in the Low treatment, and 44.70% in the High treatment). The first noteworthy fact documented in Table 4 is that, over all countries, the mean total contribution (i.e., the sum of contributions to the Country and EU Budgets) is, out of 10 points, approximately 7.43 in the Low treatment and 7.72 in the High treatment. This finding shows that contribution levels are higher compared to other most recent online one-shot PGGs that report contributions amounting to 60% of the initial endowment (van den Berg et al., 2020; Catola et al., 2021; Isler et al., 2021; Bilancini et al., 2024), but are in line with recent one-shot MLPGGs where average total contributions in the game are approximately 75% of the endowment (Gallier et al., 2019; Catola et al., 2023).

Although this cross-study comparison can only be qualitative in its nature, it can suggest that the mere addition of a global public good (in our case, the EU one) compared to a situation where only a local one is provided (in our case, the country one) can positively impact total contributions (*categorical crowding-in effect*). This evidence aligns with that found by Cherry and Dickinson (2008), who show that

adding the possibility to contribute to a larger number of public goods results in greater total contributions, and by Chakravarty and Fonseca (2017) and Catola et al. (2023), who obtain the same result in an MLPGG context.

As our focus is on behaviour at the country level, in Figure 5 we provide mean contributions by country and treatment for each of the three variables of interest.[5] We test whether the decisions in the MLPGG from different countries come from the same distribution in both efficiency treatments. In the *High* treatment, KW tests do not reject the null hypothesis that contributions to the Country Budget (χ^2=8.959, p=0.1107), contributions to the EU Budget (χ^2=3.624, p=0.6047), and the Total budget (χ^2=3.910, p=0.5624, respectively) come from the same distribution for all the countries considered. This holds for contributions to the EU Budget (χ^2=1.334, p=0.9314) and Total contribution (χ^2=7.576, p=0.1812) also in the *Low* treatment, while in this condition the only statistically significant difference appears in contributions to the Country Budget (χ^2=11.433, p=0.0434). To further investigate this evidence, we run a set of pairwise comparisons using Wilcoxon rank-sum tests. They indicate that this result is driven by lower contributions performed by German participants to their Country Budget compared to the others. However, after applying Bonferroni corrections, no difference remained statistically significant. This analysis leads to our first result.

Result 1: *Contributions to the Country and EU Budgets, and Total Contribution, at each efficiency level, are not significantly different across countries.*

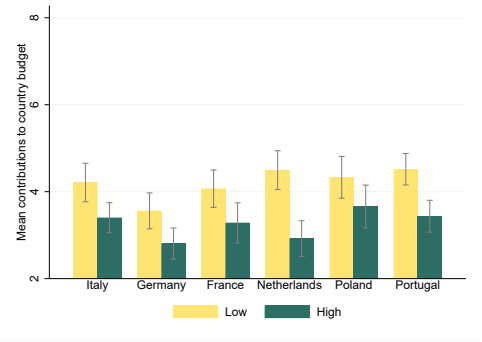
4.2 Efficiency-related effects

We now turn to investigating the efficiency-related effects. Looking again at Table 4, it appears that mean total contributions do not vary between the *Low* and the *High* treatment, suggesting the marginal crowing-in effect is not at stake. On the other hand, the average contributions to the EU Budget in each country seem relatively higher in the *High* treatment compared to *Low* while contributions to the country budget seem to decrease when switching from *Low* to *High*. This reading allows for hypothesising the presence of both levelling-up and substitution effects while ruling out the marginal crowding-in effect. We test these hypotheses through OLS regressions.[6]

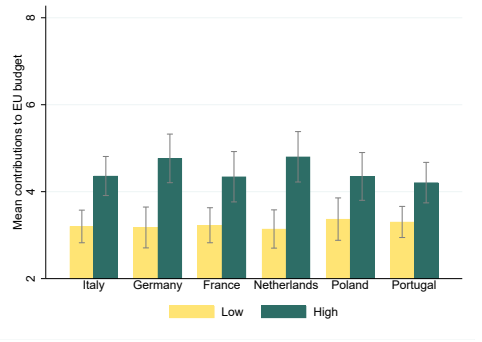
With the regressions displayed in Table 5, we aim to estimate the impact of the efficiency manipulation on the contribution to the Country Budget, the EU

[5] Related details about exact mean values and standard deviations can be found in Table D.1 in the Appendix D

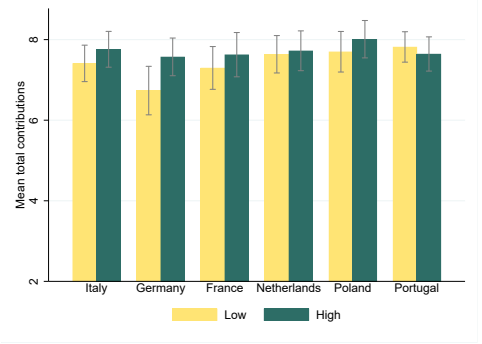
[6] The results are robust to the employment of Tobit models (see Table F.1). We relied on OLS in the main analysis for comparability with the most recent papers of the MLPGG literature (Gallier et al., 2019; Catola et al., 2023) as well as in light of new evidence reevaluating the comparison between estimation methods for public good games (Kent, 2020).



(a) Country Budget



(b) EU Budget



(c) Total contribution

Figure 5: Mean contributions by country and treatment. Confidence intervals at the 95% level.

Budget, and the Total contribution. Accordingly, our main independent variable is the dummy variable High, which is equal to 1 if the observation is from the *High* treatment and 0 otherwise. We also include country dummies to control for country-fixed effects, as well as their interactions with the treatment dummy (Columns 1-3). Finally, we include demographics and answers to the post-experimental questionnaire as control variables (Columns 4-6).

Table 5: OLS models examining the contribution decisions to the Country Budget (Columns 1, 4), to the EU Budget (Columns 2, 5), and the sum of contributions to both budgets (Columns 3, 6) in the MLPGG.

	(1) Country	(2) EU	(3) Total	(4) Country	(5) EU	(6) Total
High	-1.574***	1.661***	0.086	-1.532***	1.766***	0.233
	(0.309)	(0.371)	(0.345)	(0.309)	(0.361)	(0.314)
DE	-0.936**	0.035	-0.901*	-0.849**	-0.117	-0.966*
	(0.310)	(0.328)	(0.387)	(0.316)	(0.334)	(0.379)
FR	-0.426	0.086	-0.339	-0.466	0.019	-0.447
	(0.316)	(0.304)	(0.359)	(0.328)	(0.315)	(0.359)
IT	-0.285	0.059	-0.226	-0.272	-0.300	-0.572
	(0.321)	(0.295)	(0.330)	(0.341)	(0.299)	(0.337)
PL	-0.165	0.228	0.063	-0.214	-0.192	-0.406
	(0.334)	(0.335)	(0.349)	(0.350)	(0.346)	(0.349)
PT	0.020	0.162	0.182	0.024	-0.130	-0.106
	(0.293)	(0.289)	(0.305)	(0.302)	(0.296)	(0.310)
High × DE	0.821*	-0.072	0.750	0.765	-0.239	0.527
	(0.417)	(0.525)	(0.520)	(0.416)	(0.519)	(0.496)
High × FR	0.788	-0.545	0.243	0.827	-0.621	0.206
	(0.446)	(0.517)	(0.521)	(0.445)	(0.507)	(0.499)
High × IT	0.764	-0.501	0.264	0.711	-0.631	0.080
	(0.421)	(0.476)	(0.473)	(0.423)	(0.458)	(0.448)
High × PT	0.904	-0.679	0.225	0.855	-0.834	0.021
	(0.467)	(0.527)	(0.491)	(0.468)	(0.518)	(0.468)
High × PT	0.495	-0.756	-0.261	0.528	-0.879	-0.351
	(0.405)	(0.477)	(0.451)	(0.404)	(0.475)	(0.435)
Age				-0.000	0.003	0.003
				(0.009)	(0.010)	(0.009)
Female				0.228	-0.098	0.130
				(0.127)	(0.145)	(0.150)
Student				-0.185	0.153	-0.032
				(0.148)	(0.168)	(0.173)
Socioeconomic Status				-0.022	0.102*	0.081
				(0.044)	(0.051)	(0.051)
Education				-0.151*	-0.012	-0.164*
				(0.068)	(0.075)	(0.075)
Migrant				0.176	-0.826***	-0.650**
				(0.207)	(0.228)	(0.247)
Feel Country				0.250***	-0.188*	0.062
				(0.072)	(0.078)	(0.077)
Feel EU				-0.013	0.279**	0.265**
				(0.083)	(0.093)	(0.101)
EU Image				0.230*	-0.001	0.229
				(0.106)	(0.126)	(0.129)
Before COVID				-0.081	0.285***	0.204*
				(0.076)	(0.086)	(0.095)
Solidarity				-0.129	0.003	-0.126
				(0.080)	(0.089)	(0.090)
After COVID				-0.063	-0.074	-0.137
				(0.066)	(0.073)	(0.076)
Military Spending				0.006	-0.076*	-0.071
				(0.035)	(0.035)	(0.038)
National Army				0.038	0.062	0.100
				(0.081)	(0.087)	(0.091)
EU Army Pre-War				0.061	0.041	0.102
				(0.066)	(0.079)	(0.082)
EU Army Post-War				-0.084	0.136	0.051
				(0.075)	(0.086)	(0.088)
Constant	4.495***	3.141***	7.636***	4.417***	1.690**	6.107***
	(0.228)	(0.224)	(0.237)	(0.587)	(0.602)	(0.655)
Observations	1200	1200	1200	1200	1200	1200
R^2	0.066	0.064	0.016	0.094	0.121	0.088

Robust standard errors are reported in parentheses. The baseline category for treatment dummies is *Low*. The baseline category for country dummies is NL (=1 when observation is from the Netherlands, and 0 otherwise). *p<0.05, **p<0.01, *** p<0.001

Firstly, the positive and significant coefficients of High in (2) and (5) indicate that there is robust evidence of a levelling-up effect. Indeed, subjects are responsive to efficiency concerns since their contribution to the EU Budget is higher when its relative efficiency is higher.

Result 2: *Contributions to the EU Budget increase on average as its relative efficiency increases, in all countries.*

We also find robust evidence of a substitution effect given the negative and significant coefficients of the treatment variable in the regressions about Country-budget contributions (Columns 1 and 4). Therefore, when the relative efficiency of the Country Budget is lower, subjects contribute less to it.

Result 3: *Contributions to the Country Budget decrease on average as its relative efficiency decreases, in all countries.*

Finally, if we consider the total contribution, the effect of the treatment is not statistically significant, thus suggesting that the levelling-up and the substitution effects balance out, leaving Total contribution unchanged.

Result 4: *There is no statistically significant evidence of an increase in total contribution due to an increase in the relative efficiency of the EU Budget in all countries.*

Overall, these three results are in line with most of the MLPGG literature (Fellner and Lünser, 2014; Gallier et al., 2019; Catola et al., 2023).However, when examining the coefficients of our control variables (Columns 4-6), additional insights can be gained regarding how individual characteristics correlate with contribution decisions. The first consideration concerns the status of being a migrant, which on average, drives subjects in such conditions to contribute less to the European budget and to decrease their total contribution. The second consideration regards the significance of the variables measuring the feeling of belonging towards the country or European community, i.e., *Feel Country* and *Feel EU*. As one would have expected, feeling more attached to one's own country leads subjects to increase their contribution to the Country Budget (to the detriment of contribution to the EU Budget), while feeling more attached to Europe leads them to contribute relatively more to the European budget and also to increase their total contribution. Overall, these considerations point out the relevance of factors connected to one's sense of identity. We devote the next subsection to analysing these factors.[7]

[7]Further insights on these points can be obtained from Table E.2 in Appendix E, where we perform separate regressions for each country subsample allowing for the exploration of the interactions between being placed in a certain country and the above-mentioned identity-related variables. Moreover, the post-estimation tests in Table E.1 show that the difference in contribution decisions by German participants detected in Table 5 holds only when compared to the Dutch participants.

4.3 Attitudes towards the EU community and institutions

In this section, we rely on subjects' answers to our post-experimental questionnaire to investigate how their sense of attachment to and judgments on the EU, as compared to their country of residence, correlates with their contribution decisions. We consider three specific aspects: a) the feeling of belonging to the national or EU community, b) the attitude towards national or EU institutions, and c) the status of being a migrant.

Concerning the feeling of belonging, we refer to subjects' answers to Q5 and Q6, which explicitly elicit subjective attachment to the national or European communities. More specifically, we divide our sample into three groups depending on whether respondents feel more European, more attached to their own country, or if they are equally attached to both communities. To this end, we construct a variable, *Feelings*, that equals either 0 if the answer to the *Feel Country* question is equal to the answer to the *Feel EU* question; 1 if the answer to the *Feel Country* question is higher than the answer to the *Feel EU*, or 2 in the opposite case. We label the first group as *Neutral*, the second group as *Pro Country*, and the third group as *Pro EU*. This approach treats the feeling of attachment as relative in essence. Indeed, the absolute values of those variables do not reveal *per se* the feeling we are investigating, but their relative comparison and the sign (more than the magnitude) of the pertinent difference.

Regarding subjects' attitudes towards a national or European institution, we consider how subjects stated their preferences regarding military spending in questions Q12 and Q14.[8] We consider that – after controlling for the personal attitude towards military spending (asked in question Q11) – by stating their preferences towards financing a European defense as compared to national defense, subjects are revealing their judgment about the institutions and not only the more effective way to protect themselves. Similar to the previous case, we discriminate between those who show a preference for an EU army or a national army or are indifferent between the two. We, therefore, create a variable, *Defence*, that equals 0 if the answer to National Army is equal to EU Army Post-War, 1 if the answer to National Army is higher than the answer to EU Army Post-War, and 2 otherwise. Again, we label the first group as *Neutral*, the second group as *Pro Country*, and the third group as *Pro EU*.

Finally, we analyse the contributing behaviour of the migrants in our sample. The status of being a migrant affects one's sense of belonging to a country and significantly correlates with decisions, as highlighted in the discussion of Table 5. However, this correlation could vary depending on the country of origin. Accordingly, we further develop our analysis by testing whether moving from a country that belongs to the

[8] We chose Q14 focusing on the post-war question for comparison with Q12 which is also stated with a post-war emphasis.

EU or not explains migrants' contribution decisions. Hence, we consider a dummy variable, *Migrant EU*, that takes value 1 if the country of origin of the migrant belongs to the EU and 0 otherwise.

Table 6 reports the frequencies of each value of each considered variable and reveals a wide variability across countries.

Table 6: Percentage distribution of Feeling, Military and Migrant EU variables, per country.

	FR	DE	IT	NL	PL	PT	Total
Feelings							
Neutral	45%	45.50%	56%	37%	50.50%	61%	49.17%
Pro Country	31%	14%	24%	36%	22.50%	27.50%	25.83%
Pro EU	24%	40.50%	20%	27%	27%	11.50%	25%
Defence							
Neutral	41%	44%	40.50%	38%	44.50%	47%	42.50%
Pro Country	22%	31.50%	9%	21%	33.50%	14.50%	21.92%
Pro EU	37%	24.50%	50.50%	41%	22%	38.50%	35.58%
Migrant EU							
0	71.70%	73.68%	78.57%	60%	100%	69.23%	69.19%
1	28.30%	26.32%	21.43%	40%	0%	30.77%	30.81%

In the Feeling variable, a subject is classified as *Neutral* if Feel Country = Feel EU, as *Pro Country* if Feel Country> Feel EU, as *Pro EU* if Feel Country < Feel EU.
In the Defence variable, a subject is classified as *Neutral* if Feel Country = Feel EU, as *Pro Country* if Feel Country> Feel EU, as *Pro EU* if Feel Country < Feel EU.
Migrant EU is a dummy variable that takes value 1 if the country of birth belongs to the EU and 0 otherwise.

Table 7 shows the result of the OLS analysis where we include the *Feelings* and *Defence*.[9] In terms of feelings, the results show that the subjects that have stronger feelings towards the EU behave in the expected way. Compared to those who are neutral, they contribute relatively less to the Country Budget and relatively more to the EU Budget. Interestingly, the *Pro Country* type behaves differently. Compared to the neutral type, they contribute relatively more to the Country Budget, but they do not contribute less to the EU Budget. An additional dimension worth exploring would be the potential role of the feelings toward the EU or the Country of residence on the sensitivity to the efficiency treatment. This does not seem to be the case for our sample (see Appendix G). In contrast, the results concerning the preferences towards an EU versus a national (defence) institution are less substantial. Only

[9]Notice that the variables we are considering substitute the variable Feel Country, Feel EU, National Army, EU Army Pre-War and EU Army Post-War in Table 5. We opted to analyse the impact of the *Feelings* and *Defence* variables in one only regression model. Considering them separately in two regressions produces no differences either in statistical significance or in magnitude. Moreover, we keep the country-fixed effect but not the interaction term between country and treatment, as the focus of our analysis is now different. The reference category for both variables is the *Neutral* group.

the group of subjects with a preference for financing their national army shows a statistically significant different behaviour and contributes more to the Country Budget compared to the other two groups.

Table 7: OLS models examining the contribution decisions to the Country Budget, to the EU Budget, and the sum of contributions to both budgets including control variables for *Defence* and *Feeling*.

	(1) Country	(2) EU	(3) Total
High	-0.921***	1.225***	0.304*
	(0.123)	(0.139)	(0.140)
DE	-0.410	-0.219	-0.630*
	(0.217)	(0.260)	(0.250)
FR	0.061	-0.296	-0.235
	(0.232)	(0.263)	(0.254)
IT	0.228	-0.617*	-0.389
	(0.229)	(0.245)	(0.235)
PL	0.342	-0.538	-0.196
	(0.258)	(0.280)	(0.255)
PT	0.403	-0.515*	-0.112
	(0.222)	(0.251)	(0.235)
Feel Pro Country	0.320*	-0.154	0.167
	(0.163)	(0.175)	(0.178)
Feel Pro EU	-0.336*	0.533**	0.198
	(0.153)	(0.180)	(0.177)
Defence Pro EU	0.107	0.134	0.241
	(0.139)	(0.158)	(0.157)
Defence Pro Country	0.344*	-0.130	0.214
	(0.168)	(0.190)	(0.196)
Age	0.001	0.004	0.004
	(0.009)	(0.009)	(0.009)
Female	0.206	-0.089	0.117
	(0.124)	(0.142)	(0.146)
Student	-0.199	0.162	-0.038
	(0.148)	(0.165)	(0.173)
Socioeconomic Status	-0.018	0.103*	0.085
	(0.044)	(0.051)	(0.051)
Education	-0.161*	0.000	-0.160*
	(0.068)	(0.075)	(0.076)
Migrant	-0.037	-0.868***	-0.905***
	(0.186)	(0.208)	(0.227)
EU Image	0.325**	0.113	0.438***
	(0.100)	(0.119)	(0.123)
Before COVID	-0.089	0.297***	0.208*
	(0.075)	(0.086)	(0.094)
Solidarity	-0.112	0.019	-0.093
	(0.081)	(0.089)	(0.091)
After COVID	-0.053	-0.070	-0.123
	(0.065)	(0.073)	(0.076)
Military Spending	0.011	-0.033	-0.022
	(0.029)	(0.031)	(0.033)
Constant	4.306***	1.968***	6.274***
	(0.555)	(0.586)	(0.636)
Observations	1200	1200	1200
R^2	0.090	0.112	0.072

Robust standard errors are reported in parentheses. The baseline category for treatment dummies is *Low*. The baseline category for country dummies is NL. The baseline category for Feelings and Defence is Neutral. *p<0.05, **p<0.01, *** p<0.001

Table 8 reports the results of an OLS regression where only the migrants are included.

We include – in addition to all the regressors of our main analysis – the variable *Age of Moving* obtained from question Q2, which replaces *Age*. Indeed, the age of moving to the host country could affect the feelings of identity connected to the status of being a migrant. Moreover, we exclude Poland from this analysis since there is only one migrant in the entire subsample.[10] The results show that migrants who come from another EU country tend to contribute less to the Country Budget compared to migrants who come from a country outside the EU. This is not unexpected since these subjects could maintain stronger ties with their native country because it may be easier for them to move back to their countries (due to lighter regulations and travel expenses) and because (consequently) the decision concerning their permanence in the host country could be felt less definitive. These reasons can potentially explain why this group is less willing than the other group to contribute to a budget that benefits only subjects from their host country. In the same fashion, one could expect that this group would also be more willing to contribute to the EU Budget since such a contribution would benefit participants from their native country. However, this is not the case, as there is no statistically significant difference in the contribution behaviour towards the European Public Budget between the two groups. Finally, it is worth noting how migrants react to the change in the relative efficiency of the European public good by showing only the substitution effect (and not the levelling up). In other words, subjects in the High treatment contribute to the Country Budget less than subjects in the Low treatment; however, they do not contribute more to the EU Budget.

[10]The low representation of migrants in Poland on Prolific may be attributed to their intrinsically low proportion within the country. In 2022, migrants accounted for only 2.5% of Poland's population, one of the lowest percentages in the EU (OECD, 2023).

Table 8: OLS models examining the contribution decisions of the subsample of migrants to the Country Budget, to the EU Budget, and the sum of contributions to both budgets.

	(1) Country	(2) EU	(3) Total
High	-1.179***	0.611	-0.568
	(0.293)	(0.346)	(0.405)
DE	-0.538	0.467	-0.071
	(0.403)	(0.448)	(0.539)
FR	-0.760	0.839	0.079
	(0.422)	(0.505)	(0.589)
IT	0.991	0.181	1.171
	(0.525)	(0.595)	(0.736)
PT	0.061	1.594	1.654
	(0.686)	(0.920)	(0.917)
Migrant EU	-0.793*	0.383	-0.410
	(0.375)	(0.490)	(0.513)
Age of moving	-0.012	0.025	0.013
	(0.022)	(0.026)	(0.026)
Female	0.342	-0.338	0.005
	(0.310)	(0.367)	(0.423)
Student	-0.145	0.416	0.272
	(0.303)	(0.380)	(0.426)
Socioeconomic Status	-0.071	0.005	-0.066
	(0.107)	(0.139)	(0.146)
Education	-0.304	-0.091	-0.395
	(0.163)	(0.211)	(0.212)
Feel Country	-0.146	-0.135	-0.281
	(0.143)	(0.193)	(0.188)
Feel EU	0.408*	0.254	0.662**
	(0.175)	(0.188)	(0.222)
EU Image	0.211	0.168	0.379
	(0.203)	(0.278)	(0.308)
Before COVID	0.151	0.390	0.541
	(0.190)	(0.219)	(0.284)
Solidarity	-0.294	-0.215	-0.510
	(0.223)	(0.233)	(0.259)
After COVID	0.059	-0.308	-0.249
	(0.173)	(0.198)	(0.226)
Military Spending	-0.043	0.002	-0.040
	(0.072)	(0.088)	(0.114)
National Army	0.041	0.216	0.257
	(0.199)	(0.227)	(0.253)
EU Army Pre-war	0.158	-0.211	-0.053
	(0.211)	(0.211)	(0.247)
EU Army Post-War	-0.251	0.259	0.008
	(0.214)	(0.223)	(0.249)
Constant	5.382***	0.812	6.194***
	(1.321)	(1.489)	(1.491)
Observations	194	194	194
R^2	0.218	0.184	0.205

Robust standard errors are reported in parentheses. The baseline category for treatment dummies is *Low*. The baseline category for country dummies is NL. *p<0.05, **p<0.01, ***p<0.001

5 Discussion and conclusions

In this paper, we investigated European citizens' willingness to financially sustain a European public budget compared to the public budget of the country in which they live. For this purpose, we relied on an online multilevel public good game involving

a sample of 1,200 participants from six EU Member States. We implemented two treatments that differ with respect to the relative efficiency of the public good representing the European public budget that is increased across treatments while the efficiency of the country's public good remains constant. By applying this design, we were able to address two main research questions: a) To what extent do contribution decisions to the two public budgets differ across countries? and b) To what extent do reactions to the increase in the efficiency of the European public budget differ across countries?

We do find evidence of a sustained willingness to contribute to the European public budget and a positive response to the increase in its efficiency (*levelling up effect*) – which is however not accompanied by an increase in the total contribution (*marginal crowding in*) but by a decrease in the contribution to the country public budget (*substitution effect*). This evidence lets us make a preliminary and provisional point to address the current debate about the opportunity to introduce increasingly stable financial resources to the European budget rather than the current reliance on transfers from the Member States budgets. Overall, European citizens in our sample show a propensity to cooperate at the European level overcoming country-group favouritism (at least in part). In our view, this result constitutes a precondition for potential support for a European institution that is strengthened in its budget capacity, especially if this increased budget capacity translates into higher returns to EU citizens. However, the relevance of this general result must be discussed by referring to some potential limitations of our work.

The first limitation is apparent in the lack of evidence for differences across countries for both our research questions. This lack of evidence could in principle reveal a limited power of our analysis to actually grasp such differences rather than the fact that these differences are not at stake. However, it must be noted that our analysis confirms, for each of the considered countries, the main findings in the literature, i.e., the positive contribution to both public goods, the levelling up effect, and the substitution effect. These results seem to confirm the reliability of our analysis to the extent that they can be considered a genuine robust replication of standard phenomena, with no exceptions across our country samples. However, if this is the case, then what we obtain is an actual lack of differences in the propensities of citizens of the selected countries, who appear equally motivated in their support towards an (efficient) European public budget.

Another limitation relates to the external validity of our experiment. This limitation is due to several factors. Our experiment specifically concerns cooperation across countries as measured by a voluntary contribution. The inference for which the obtained evidence would be representative of support for a policy change and acceptability of direct EU taxation is somehow speculative. However, it can be

considered as evidence of a necessary condition for support and acceptability. In other words, if we found no propensity towards cooperation at the European level we could infer low potential for the discussed institutional change. External validity is also limited by the circumstance that the possibility of inferring actual support for contribution to a European public budget is conditioned by the fact that our country samples are only partially representative of all the EU countries and of each of them. As mentioned in Section 1, our selection process was constrained by country-specific samples from registered subjects on the Prolific platform. Nevertheless, our aim was to maximize socio-economic, cultural, geographical, and historical diversity. Moreover, the homogeneity of our results across countries can again be referred to as a basis for a reasonable generalization. Indeed, our selection of Member States embraces quite a large variability at the level of country-level characteristics, and, notwithstanding, citizens express quite an identical contribution behavior. Thus, it appears not too risky to infer that such a behavior can be considered representative of the overall European population. Moreover, the variability of individuals' characteristics within our overall sample allowed for a heterogeneity analysis that revealed interesting correlations between contribution decisions and the sense of belonging and trust to institutions by the different categories of subjects that we were able to reach thanks to our online tool.

To conclude, our results are limited by the specific setup of our experiment, which we propose as a guiding example for future research in the field of European public finances. For instance, moving to a repeated-interaction setup or elicitating first-order beliefs could provide information on how free-riding might affect contribution decisions over time within the national versus European budget framework. Additionally, thanks to our questionnaire we have relevant but limited information about subjects' attitudes and beliefs whose extension could allow for detecting other potential differences across countries. This elicitation would also reveal traits that relate to group identity, which is not manipulated in our design. Manipulating group identity based on these traits would allow for gaining further evidence about how specific identity factors, possibly variant across countries, impact citizens willingness to cooperate within a unified EU institution.

Replication files

The preregistration document and the data and code for replicating the results of this paper are available at https://osf.io/uvxqw/?view_only=912ec06a38544007b9368fe6fd5f6798. All files are licensed under a Creative Commons Attribution 4.0 International (CC BY 4.0) license.

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Declaration of Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

Alberti, F. and Cartwright, E. J. (2016). Full agreement and the provision of threshold public goods. *Public Choice*, 166:205–233.

Alekseev, A., Charness, G., and Gneezy, U. (2017). Experimental methods: When and why contextual instructions are important. *Journal of Economic Behavior & Organization*, 134:48–59.

Barrett, S. and Dannenberg, A. (2017). Tipping versus cooperating to supply a public good. *Journal of the European Economic Association*, 15(4):910–941.

Battaglini, M., Nunnari, S., and Palfrey, T. R. (2020). The political economy of public debt: A laboratory study. *Journal of the European Economic Association*, 18(4):1969–2012.

Bazart, C. and Bonein, A. (2014). Reciprocal relationships in tax compliance decisions. *Journal of Economic Psychology*, 40:83–102.

Bilancini, E., Boncinelli, L., Nardi, C., and Pizziol, V. (2024). Cooperation is unaffected by the threat of severe adverse events in public goods games. *Journal of Behavioral and Experimental Economics*, 108:102145.

Blackwell, C. and McKee, M. (2003). Only for my own neighborhood? Preferences and voluntary provision of local and global public goods. *Journal of Economic Behavior and Organization*, 52(1):115–131.

Blanchard, O., Leandro, A., and Zettelmeyer, J. (2021). Redesigning eu fiscal rules: From rules to standards. *Economic Policy*, 36(106):195–236.

Blesse, S., Bordignon, M., Boyer, P. C., Carapella, P., Heinemann, F., Janeba, E., and Raj, A. (2022). European fiscal reform preferences of parliamentarians in france, germany and italy. *European Union Politics*, 23(3):529–540.

Bordignon, M. and Scabrosetti, S. (2016). The Political Economy of Financing the EU budget. In Büttner, T. and Thöne, M., editors, *The Future of EU-finances*, chapter 5, pages 63–90. Mohr Siebeck, Mohr Siebeck.

Botelho, A., Harrison, G. W., Pinto, L. M. C., Ross, D., and Rutström, E. E. (2022). Endogenous choice of institutional punishment mechanisms to promote social cooperation. *Public Choice*, 191(3-4):309–335.

Bremer, B., Kuhn, T., Meijers, M. J., and Nicoli, F. (2023). In this together? support for european fiscal integration in the covid-19 crisis. *Journal of European Public Policy*, pages 1–29.

Buchan, N. R., Brewer, M. B., Grimalda, G., Wilson, R. K., Fatas, E., and Foddy, M. (2011). Global social identity and global cooperation. *Psychological Science*, 22(6):821–828.

Buchan, N. R., Grimalda, G., Wilson, R., Brewer, M., Fatas, E., and Foddy, M. (2009). Globalization and human cooperation. *Proceedings of the National Academy of Sciences*, 106(11):4138–4142.

Caselli, F. and Wingender, P. (2021). Heterogeneous effects of fiscal rules: The maastricht fiscal criterion and the counterfactual distribution of government deficits. *European Economic Review*, 136:103748.

Catola, M., D'Alessandro, S., Guarnieri, P., and Pizziol, V. (2021). Personal norms in the online public good game. *Economics Letters*, 207:110024.

Catola, M., D'Alessandro, S., Guarnieri, P., and Pizziol, V. (2023). Multilevel public goods game: Levelling up, substitution and crowding-in effects. *Journal of Economic Psychology*, page 102626.

Chakravarty, S. and Fonseca, M. A. (2017). Discrimination Via Exclusion: An Experiment On group Identity and Club Goods. *Journal of Public Economic Theory*, 19(1):244–263.

Chen, D. L., Schonger, M., and Wickens, C. (2016). otree—an open-source platform for laboratory, online, and field experiments. *Journal of Behavioral and Experimental Finance*, 9:88–97.

Cherry, T. L. and Dickinson, D. L. (2008). Voluntary contributions with multiple public goods. In Cherry, T. L., Kroll, S., and Shorgen, J. F., editors, *Environmental Economics, Experimental Methods*, pages 184–193. Routledge, London.

Coricelli, G., Joffily, M., Montmarquette, C., and Villeval, M. C. (2010). Cheating, emotions, and rationality: an experiment on tax evasion. *Experimental Economics*, 13(2):226–247.

De Grauwe, P. and Ji, Y. (2019). Time to change budgetary priorities in the eurozone. *Intereconomics*, 54(5):285–290.

Drews, S., Savin, I., and Van Den Bergh, J. C. (2022a). Biased perceptions of other people's attitudes to carbon taxation. *Energy Policy*, 167:113051.

Drews, S., Savin, I., Van Den Bergh, J. C., and Villamayor-Tomás, S. (2022b). Climate concern and policy acceptance before and after covid-19. *Ecological Economics*, 199:107507.

722 European Parliament (2020). Uncertainty/EU/Hope: Public opinion in times of
723 COVID-19. Technical report, European Parliament.

724 Fellner, G. and Lünser, G. K. (2014). Cooperation in local and global groups. *Journal*
725 *of Economic Behavior and Organization*, 108:364–373.

726 Franchino, F. and Segatti, P. (2019). Public opinion on the eurozone fiscal union:
727 Evidence from survey experiments in italy. *Journal of European Public Policy*,
728 26(1):126–148.

729 Gallier, C. (2020). Democracy and compliance in public goods games. *European*
730 *Economic Review*, 121:103346.

731 Gallier, C., Goeschl, T., Kesternich, M., Lohse, J., Reif, C., and Römer, D. (2019).
732 Leveling up? an inter-neighborhood experiment on parochialism and the efficiency
733 of multi-level public goods provision. *Journal of Economic Behavior & Organiza-*
734 *tion*, 164:500–517.

735 Górecki, M. A. and Letki, N. (2021). Social norms moderate the effect of tax system
736 on tax evasion: Evidence from a large-scale survey experiment. *Journal of Business*
737 *Ethics*, 172(4):727–746.

738 Isler, O., Gächter, S., Maule, A. J., and Starmer, C. (2021). Contextualised strong
739 reciprocity explains selfless cooperation despite selfish intuitions and weak social
740 heuristics. *Scientific Reports*, 11(1):1–17.

741 Kent, D. (2020). Comparing alternative estimation methods of a public goods game.
742 *Journal of the Economic Science Association*, 6(2):156–167.

743 Maduro, M. P., Martin, P. J., Piris, J.-C., Pisani-Ferry, J., Reichlin, L., Steinbach,
744 A., and Weder, B. (2021). *Revisiting the EU framework: Economic necessities and*
745 *legal options*. Centre for Economic Policy Research.

746 Maestre-Andrés, S., Drews, S., Savin, I., and van den Bergh, J. (2021). Carbon tax
747 acceptability with information provision and mixed revenue uses. *Nature Commu-*
748 *nications*, 12(1):1–10.

749 Maestre-Andrés, S., Drews, S., and van den Bergh, J. (2019). Perceived fairness and
750 public acceptability of carbon pricing: a review of the literature. *Climate Policy*,
751 19(9):1186–1204.

752 OECD (2023). Perspectives des migrations internationales 2023 - pologne.

753 Palan, S. and Schitter, C. (2018). Prolific. ac—a subject pool for online experiments.
754 *Journal of Behavioral and Experimental Finance*, 17:22–27.

Romanelli, M., Tommasino, P., and Vadala', E. (2022). The future of european fiscal governance: a comprehensive approach. Questioni di Economia e Finanza (Occasional Papers) 691, Bank of Italy, Economic Research and International Relations Area.

Spicer, M. W. and Becker, L. A. (1980). Fiscal inequity and tax evasion: An experimental approach. *National Tax Journal*, 33(2):171–175.

Spicer, M. W. and Hero, R. E. (1985). Tax evasion and heuristics: A research note. *Journal of Public Economics*, 26(2):263–267.

TFEU (2008). Treaty on the functioning of the european union. *Official Journal of the European Union. C*, 115:49.

Thalmann, P. (2004). The public acceptance of green taxes: 2 million voters express their opinion. *Public Choice*, 119(1-2):179–217.

van den Berg, P., Dewitte, P., Aertgeerts, I., and Wenseleers, T. (2020). How the incentive to contribute affects contributions in the one-shot public goods game. *Scientific Reports*, 10(1):1–5.

Appendices

A Questionnaire

In this section, we list all the questions included in the post-experimental questionnaire. For each question, we also report in parenthesis the name of the corresponding control variable. For all the questions besides Q11 the answer is on a 0-5 scale.

Migration

Q 1 (Migrant): *Were you born in (country of residence)?*

Q 2 (Age of Migration): *How old were you when you moved to (country of residence)?*

Q 3 (Mother Country): *In which country was you mother born?*

Q 4 (Father Country): *In which country was you father born?*

Feelings

Q 5 (Feel Country): *How strongly do you feel (country of residence)?*

Q 6 (Feel EU): *How strongly do you feel an EU citizen?*

Q 7 (EU Image): *In general, does the EU conjure up for you a very positive, fairly positive, neutral, fairly negative or very negative image?*

COVID-19

Q 8 (Before COVID): *Before Coronavirus pandemic, would you say that (country of residence) has on balance benefited from being a member of the EU?*

Q 9 (Solidarity): *How satisfied are you with the solidarity between the EU Member States in fighting the Coronavirus pandemic?*

Q 10 (After COVID): *Has your opinion on the benefits for (country of residence) from being a member of the EU changed after the Coronavirus pandemic?*

War in Ukraine

Q 11 (Military Spending): *Each person has no choice but to consume the service of the national defence. For those who believe increasing public expenditures on national defence makes them safer, an increase in these expenditures is positive. Others think additional expenditures on armies only lead to arms races and decrease*

national security. Such individuals value additional public expenditures on national defence negatively. On a scale from 0 to 10, how much do you consider belonging to the first group?

Q 12 (National Army): *After the beginning of the Russian-Ukrainian war, do you think your country (of residence) should increase its public expenditures on the army?*

Q 13 (EU Army Pre-War): *Before the Russian-Ukrainian war, have you ever thought that the EU should have an army financed with the EU budget?*

Q 14 (EU Army Post-War): *After the Russian-Ukrainian war, do you think the EU should get an army and finance it with an EU budget?*

B Demographic Characteristics

Table B.1: Means (and standard deviations) of participants' characteristics per country and treatment.

		Age	Female	Stud.	Socioec. Status	Sec. Ed.	Under grad	Grad. and Postgrad.	Migrant
FR	Low	30.00	0.55	0.32	5.38	0.15	0.20	0.60	0.25
		(10.23)	(0.50)	(0.47)	(1.46)	(0.36)	(0.40)	(0.49)	(0.43)
	High	29.83	0.45	0.37	5.60	0.19	0.14	0.62	0.28
		(9.08)	(0.50)	(0.49)	(1.55)	(0.39)	(0.35)	(0.49)	(0.45)
	p-value	0.944	0.157	0.554	0.246	0.580	0.348	0.886	0.632
DE	Low	30.45	0.46	0.43	5.73	0.36	0.26	0.27	0.33
		(9.50)	(0.50)	(0.50)	(1.56)	(0.48)	(0.44)	(0.44)	(0.47)
	High	29.32	0.54	0.50	5.47	0.37	0.28	0.31	0.23
		(9.19)	(0.50)	(0.50)	(1.48)	(0.48)	(0.44)	(0.46)	(0.43)
	p-value	0.283	0.322	0.395	0.195	1.000	0.875	0.643	0.158
IT	Low	28.70	0.50	0.54	5.71	0.43	0.20	0.35	0.08
		(9.25)	(0.50)	(0.50)	(1.50)	(0.50)	(0.40)	(0.48)	(0.27)
	High	29.12	0.50	0.45	5.74	0.46	0.21	0.28	0.06
		(8.64)	(0.50)	(0.50)	(1.37)	(0.50)	(0.40)	(0.45)	(0.23)
	p-value	0.540	1.000	0.258	0.758	0.776	1.000	0.361	0.783
NL	Low	27.89	0.46	0.43	5.81	0.32	0.37	0.27	0.23
		(8.06)	(0.50)	(0.50)	(1.66)	(0.47)	(0.49)	(0.45)	(0.42)
	High	27.83	0.53	0.45	5.68	0.33	0.39	0.27	0.37
		(6.86)	(0.50)	(0.50)	(1.71)	(0.47)	(0.50)	(0.44)	(0.48)
	p-value	0.832	0.396	0.888	0.653	1.000	0.885	1.000	0.045
PL	Low	26.96	0.54	0.53	5.10	0.43	0.25	0.24	0
		(8.43)	(0.50)	(0.50)	(1.51)	(0.50)	(0.44)	(0.43)	(0)
	High	25.98	0.45	0.60	5.38	0.51	0.22	0.19	0.01
		(8.42)	(0.50)	(0.49)	(1.33)	(0.50)	(0.41)	(0.39)	(0.10)
	p-value	0.177	0.258	0.394	0.240	0.321	0.618	0.390	0.485
PT	Low	27.59	0.52	0.43	5.54	0.26	0.27	0.40	0.05
		(7.89)	(0.50)	(0.50)	(1.36)	(0.44)	(0.45)	(0.49)	(0.22)
	High	28.22	0.50	0.57	5.48	0.26	0.28	0.44	0.79
		(8.92)	(0.50)	(0.50)	(1.25)	(0.44)	(0.45)	(0.50)	(0.27)
	p-value	0.943	0.779	0.066	0.691	1.000	1.000	0.670	0.568

Age is the age of the participant at the time of the study. *Female* is a dummy variable that equals 1 if the participant is female. *Student* is a dummy variable that equals 1 if the participant is student. *Migrant* is a dummy variable that equals 1 if the participant was not born in the country of residence. *Socioeconomic status* measures the self-reported place occupied by the participant on a ladder representing society that goes from 1 to 10. *Secondary education* is a dummy variable that equals 1 if the participant holds a high school diploma or equivalent. *Undergraduate* is a dummy variable that equals 1 if the participant holds an undergraduate degree. *Graduate and post-graduate* is a dummy variable that equals 1 if the participant holds a graduate or doctorate degree.

C Answers to the Post-Experimental Questionnaire

Table C.1: Means (and standard deviations) answers to the post-experimental questionnaire by country.

	France	Germany	Italy	Netherlands	Poland	Portugal
Feel Country	3.00	2.36	3.29	2.52	3.23	3.38
	(1.22)	(1.23)	(0.96)	(1.30)	(0.99)	(0.85)
Feel EU	2.99	2.87	3.28	2.62	3.29	3.19
	(1.06)	(1.04)	(0.87)	(1.03)	(0.89)	(0.77)
EU Image	2.88	2.88	2.96	2.87	2.94	2.96
	(0.78)	(0.81)	(0.84)	(0.85)	(0.85)	(0.64)
Before COVID	2.72	2.79	3.00	2.44	3.27	3.02
	(0.97)	(0.90)	(0.97)	(1.02)	(0.76)	(0.83)
Solidarity	2.50	2.37	2.79	2.36	2.48	2.87
	(0.96)	(0.87)	(0.82)	(0.90)	(1.00)	(0.83)
After COVID	1.33	1.56	1.85	1.59	1.95	2.03
	(0.91)	(0.92)	(1.05)	(0.90)	(0.81)	(1.10)
Military Spending	4.25	4.20	3.87	4.96	5.03	4.70
	(2.65)	(2.54)	(2.49)	(2.52)	(2.74)	(2.29)
National Army	1.91	2.29	1.67	2.13	2.66	2.19
	(1.16)	(1.14)	(1.05)	(1.01)	(1.02)	(0.98)
EU Army Pre-War	1.82	1.69	1.85	2.08	1.91	1.86
	(1.25)	(1.26)	(1.29)	(1.13)	(1.02)	(1.03)
EU Army Post-War	2.15	2.13	2.33	2.35	2.38	2.57
	(1.34)	(1.17)	(1.26)	(1.18)	(1.18)	(0.91)

Table C.2: Kruskal–Wallis tests for the answer to the post-experimental questionnaire.

Variable	χ^2	p
Feel EU	78.968	<0.001
Feel Country	136.374	<0.001
Image EU	4.830	0.4370
Before COVID	96.000	0.001
Solidarity	67.127	<0.001
After COVID	69.788	<0.001
Military Spending	32.916	<0.001
National Army	950148	<0.001
EU Army Pre-War	12.691	0.0265
EU Army Post-War	16.396	0.0058

Table C.3: Wilcoxon rank-sum tests.

Country		Country	z	p-value
		Feeling EU		
Germany	vs	Italy	-4.350	p<0.001
Germany	vs	Poland	-4.474	p<0.001
Netherlands	vs	Italy	7.148	p<0.001
Netherlands	vs	France	4.039	p=0.002
Netherlands	vs	Poland	-7.213	p<0.001
Netherlands	vs	Portugal	-5.906	p<0.001
		Feeling Country		
Germany	vs	Italy	-8.215	p<0.001
Germany	vs	France	5.622	p<0.001
Germany	vs	Poland	-8.882	p<0.001
Germany	vs	Portugal	-4.474	p<0.001
Netherlands	vs	Italy	6.557	p<0.001
Netherlands	vs	France	4.131	p<0.001
Netherlands	vs	Poland	-5.992	p<0.001
Netherlands	vs	Portugal	-7.161	p<0.001
		Before COVID		
Poland	vs	France	-5.998	p<0.001
Poland	vs	Germany	-5.596	p<0.001
Poland	vs	Netherlands	-8.337	p<0.001
Poland	vs	Portugal	3.245	p<0.001
Portugal	vs	France	-3.222	p=0.020
Portugal	vs	Netherlands	-6.054	p<0.001
Italy	vs	Netherlands	5.912	p<0.001
Italy	vs	France	-3.359	p=0.012
		Solidarity		
Italy	vs	Germany	-5.033	p<0.001
Italy	vs	Netherlands	4.920	p<0.001
Portugal	vs	Germany	-6.468	p<0.001
Portugal	vs	France	-4.226	p<0.001
Portugal	vs	Netherlands	-6.309	p<0.001
Portugal	vs	Poland	-4.304	p<0.001
		Military Spending		
Germany	vs	Poland	-3.066	p=0.033
Germany	vs	Netherlands	-3.005	p=0.044
Italy	vs	Poland	-4.214	p<0.001
Italy	vs	Portugal	-3.471	p=0.008
Italy	vs	Netherlands	-4.191	p<0.001
Poland	vs	France	-3.057	p=0.033
		National Army		
Italy	vs	Germany	5.399	p<0.001
Italy	vs	Poland	-8.861	p<0.001
Italy	vs	Portugal	-4.874	p=0.008
Italy	vs	Netherlands	-4.258	p<0.001
Germany	vs	France	-3.387	p=0.011
Germany	vs	Poland	-3.333	p=0.014
Poland	vs	France	-6.563	p<0.001
Poland	vs	Netherlands	-5.333	p<0.001
Poland	vs	Portugal	4.888	p<0.001
		EU Army pre-war		
Germany	vs	Netherlands	-3.279	p=0.015
		EU Army post-war		
Germany	vs	Portugal	-3.960	p=0.002

We include only the tests that show a statistically significant difference. P-values are corrected for Multiple Hypothesis Testing using Bonferroni correction.

D Contribution Decisions

Table D.1: Means (and standard deviations) of contribution decisions by treatment and country.

	Country		EU		Total	
	Low	High	Low	High	Low	High
Italy	4.21	3.40	3.20	4.36	7.41	7.76
	(2.26)	(1.76)	(1.91)	(2.29)	(2.30)	(2.26)
Germany	3.56	2.81	3.18	4.76	6.73	7.57
	(2.13)	(1.81)	(2.42)	(2.82)	(3.10)	(2.36)
France	4.07	3.28	3.23	4.34	7.30	7.63
	(2.20)	(2.34)	(2.07)	(2.93)	(2.72)	(2.79)
Netherlands	4.50	2.92	3.14	4.80	7.63	7.72
	(2.26)	(2.10)	(2.23)	(2.97)	(2.35)	(2.53)
Poland	4.33	3.66	3.37	4.35	7.70	8.01
	(2.48)	(2.47)	(2.52)	(2.76)	(2.60)	(2.33)
Portugal	4.51	3.44	3.30	4.21	7.82	7.64
	(1.83)	(1.87)	(1.81)	(2.38)	(1.91)	(2.17)

E OLS Regressions

Table E.1: Post-estimation equality of coefficients of Table 5

	(1) Country	(2) EU	(3) Total	(4) Country	(5) EU	(6) Total
High	-1.574***	1.661***	0.086	-1.532***	1.766***	0.233
	(0.309)	(0.371)	(0.345)	(0.309)	(0.361)	(0.314)
DE	-0.936**	0.035	-0.901*	-0.849**	-0.117	-0.966*
	(0.310)	(0.328)	(0.387)	(0.316)	(0.334)	(0.379)
FR	-0.426	0.086	-0.339	-0.466	0.019	-0.447
	(0.316)	(0.304)	(0.359)	(0.328)	(0.315)	(0.359)
IT	-0.285	0.059	-0.226	-0.272	-0.300	-0.572
	(0.321)	(0.295)	(0.330)	(0.341)	(0.299)	(0.337)
PL	-0.165	0.228	0.063	-0.214	-0.192	-0.406
	(0.334)	(0.335)	(0.349)	(0.350)	(0.346)	(0.349)
PT	0.020	0.162	0.182	0.024	-0.130	-0.106
	(0.293)	(0.289)	(0.305)	(0.302)	(0.296)	(0.310)
High × DE	0.821*	-0.072	0.750	0.765	-0.239	0.527
	(0.417)	(0.525)	(0.520)	(0.416)	(0.519)	(0.496)
High × FR	0.788	-0.545	0.243	0.827	-0.621	0.206
	(0.446)	(0.517)	(0.521)	(0.445)	(0.507)	(0.499)
High × IT	0.764	-0.501	0.264	0.711	-0.631	0.080
	(0.421)	(0.476)	(0.473)	(0.423)	(0.458)	(0.448)
High × PL	0.904	-0.679	0.225	0.855	-0.834	0.021
	(0.467)	(0.527)	(0.491)	(0.468)	(0.518)	(0.468)
High × PT	0.495	-0.756	-0.261	0.528	-0.879	-0.351
	(0.405)	(0.477)	(0.451)	(0.404)	(0.475)	(0.435)
Constant	4.495***	3.141***	7.636***	4.417***	1.690**	6.107***
	(0.228)	(0.224)	(0.237)	(0.587)	(0.602)	(0.655)
Controls	No	No	No	Yes	Yes	Yes
Tests of coefficients (p-values)						
DE vs. IT	0.0354	0.9388	0.0790	0.5563	0.2738	0.7357
DE vs. FR	0.0933	0.8710	0.1700	0.0786	0.5664	0.3289
DE vs. PL	0.0171	0.5771	0.0161	0.8679	0.7327	0.6376
DE vs. PT	0.0007	0.6743	0.0028	0.3172	0.5152	0.1355
IT vs. FR	0.6551	0.9213	0.7507	0.2313	0.6789	0.2097
IT vs. PL	0.7186	0.5900	0.4023	0.4631	0.5268	0.9152
IT vs. PT	0.2956	0.6967	0.1742	0.1008	0.6090	0.3299
FR vs. PL	0.4273	0.6613	0.2812	0.0602	0.8346	0.1632
FR vs. PT	0.1194	0.7840	0.1166	0.0027	0.9687	0.0210
PL vs. PT	0.5457	0.8307	0.7103	0.4357	0.8387	0.3395
High×DE vs. High×IT	0.8861	0.3688	0.3363	0.7874	0.9823	0.7999
High×DE vs. High×FR	0.9368	0.3607	0.3570	0.8922	0.3989	0.3704
High×DE vs. High×PL	0.8541	0.2502	0.3151	0.7495	0.6604	0.8990
High×DE vs. High×PT	0.3935	0.1524	0.0372	0.6371	0.5534	0.3304
High×IT vs. High×FR	0.9564	0.9245	0.9673	0.8840	0.4577	0.5548
High×IT vs. High×PL	0.7576	0.7094	0.9351	0.9530	0.6742	0.7186
High×IT vs. High×PT	0.4877	0.5462	0.2269	0.4652	0.5832	0.2505
High×FR vs. High×PL	0.8070	0.7961	0.9726	0.8410	0.2498	0.3233
High×FR vs. High×PT	0.4798	0.6523	0.2993	0.5323	0.1788	0.0711
High×PL vs. High×PT	0.3498	0.8729	0.2841	0.4508	0.9251	0.4146
Observations	1200	1200	1200	1200	1200	1200
R^2	0.066	0.064	0.016	0.094	0.121	0.088

Robust standard errors are reported in parentheses. Baseline category for treatment dummies is *Low*. Baseline category for country dummies is NL (=1 when observation is from the Netherlands, and 0 otherwise). *p<0.05, **p<0.01, *** p<0.001

Table E.2: OLS models examining the contribution decisions to the Country Budget, to the EU Budget and the sum of contributions to both budgets in the MLPGG by country.

	France			Germany			Italy			Netherlands			Poland			Portugal		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Country	EU	Total	Country	EU	Total	Country	EU	Total	Country	EU	Total	Country	EU	Total	Country	EU	Total
High	-0.605	0.973**	0.369	-0.744*	1.598***	0.854*	-0.807**	1.125***	0.318	-1.499***	1.875***	0.376	-0.809*	0.875*	0.066	-0.941***	0.730*	-0.212
	(0.322)	(0.352)	(0.401)	(0.296)	(0.407)	(0.426)	(0.284)	(0.285)	(0.334)	(0.315)	(0.357)	(0.319)	(0.369)	(0.402)	(0.355)	(0.270)	(0.320)	(0.312)
Age	-0.013	0.020	0.007	0.024	0.005	0.029	-0.034	0.008	-0.025	0.018	0.017	0.035	-0.007	-0.038	-0.045	0.026	-0.009	0.017
	(0.019)	(0.020)	(0.018)	(0.017)	(0.022)	(0.025)	(0.023)	(0.021)	(0.027)	(0.024)	(0.030)	(0.023)	(0.029)	(0.031)	(0.030)	(0.017)	(0.020)	(0.022)
Female	0.195	0.003	0.198	0.488	-0.758	-0.270	0.696*	-0.029	0.667	0.259	0.298	0.557	-0.382	-0.133	-0.515	0.341	-0.358	-0.017
	(0.345)	(0.410)	(0.448)	(0.303)	(0.412)	(0.427)	(0.321)	(0.330)	(0.380)	(0.322)	(0.373)	(0.330)	(0.355)	(0.380)	(0.362)	(0.261)	(0.311)	(0.339)
Student	-0.027	0.223	0.196	-0.004	0.048	0.044	-0.833*	0.699*	-0.133	0.038	-0.144	-0.106	0.047	-0.665	-0.618	-0.345	0.468	0.123
	(0.372)	(0.449)	(0.467)	(0.313)	(0.410)	(0.457)	(0.387)	(0.349)	(0.420)	(0.430)	(0.465)	(0.370)	(0.466)	(0.508)	(0.507)	(0.316)	(0.368)	(0.390)
Socioec.	-0.209	0.290*	0.081	0.113	0.140	0.254*	-0.067	0.072	0.005	0.025	0.020	0.045	-0.004	0.179	0.175	0.034	0.030	0.064
Status	(0.115)	(0.132)	(0.151)	(0.102)	(0.129)	(0.127)	(0.098)	(0.111)	(0.119)	(0.107)	(0.124)	(0.103)	(0.132)	(0.146)	(0.133)	(0.111)	(0.125)	(0.117)
Education	-0.052	-0.255	-0.308	-0.146	-0.164	-0.311	-0.060	0.178	0.118	-0.072	-0.256	-0.328	-0.327	0.267	-0.059	-0.283*	0.193	-0.090
	(0.172)	(0.168)	(0.177)	(0.155)	(0.198)	(0.211)	(0.158)	(0.172)	(0.182)	(0.191)	(0.218)	(0.193)	(0.211)	(0.213)	(0.200)	(0.135)	(0.159)	(0.160)
Migrant	-1.125*	0.280	-0.845	0.293	-0.625	-0.333	0.741	-0.931*	-0.190	0.420	-2.225***	-1.805**	5.920***	-2.934***	2.986***	-0.280	0.513	0.233
	(0.438)	(0.539)	(0.544)	(0.359)	(0.430)	(0.532)	(0.503)	(0.431)	(0.558)	(0.537)	(0.567)	(0.559)	(0.678)	(0.694)	(0.781)	(0.643)	(0.797)	(0.759)
Feel	-0.044	-0.043	-0.087	0.151	-0.321	-0.170	-0.029	-0.052	-0.080	0.395*	-0.324	0.071	0.449*	-0.122	0.327	0.386*	-0.060	0.326
Country	(0.168)	(0.191)	(0.183)	(0.150)	(0.194)	(0.203)	(0.160)	(0.151)	(0.183)	(0.189)	(0.219)	(0.159)	(0.200)	(0.172)	(0.188)	(0.194)	(0.222)	(0.254)
Feel EU	0.029	0.328	0.357	-0.005	0.286	0.280	-0.139	0.391	0.251	0.136	0.056	0.192	-0.067	0.534	0.467	-0.157	0.228	0.071
	(0.213)	(0.232)	(0.261)	(0.183)	(0.249)	(0.277)	(0.223)	(0.228)	(0.289)	(0.171)	(0.213)	(0.198)	(0.256)	(0.282)	(0.281)	(0.217)	(0.247)	(0.256)
EU Image	0.508	-0.209	0.298	0.472*	0.054	0.526	0.171	-0.272	-0.101	0.089	0.530	0.619*	0.199	-0.348	-0.149	0.038	-0.372	-0.334
	(0.277)	(0.320)	(0.378)	(0.237)	(0.352)	(0.374)	(0.282)	(0.279)	(0.309)	(0.229)	(0.279)	(0.245)	(0.329)	(0.323)	(0.330)	(0.232)	(0.318)	(0.281)
Before	-0.100	-0.118	-0.218	-0.080	0.348	0.268	-0.121	0.382	0.261	0.121	0.273	0.394*	-0.118	0.611*	0.493*	-0.216	0.374*	0.159
COVID	(0.185)	(0.219)	(0.263)	(0.186)	(0.217)	(0.246)	(0.190)	(0.196)	(0.244)	(0.189)	(0.211)	(0.187)	(0.257)	(0.272)	(0.232)	(0.162)	(0.179)	(0.208)
Solidarity	-0.289	0.162	-0.127	-0.202	-0.430	-0.633**	-0.045	0.118	0.073	-0.199	-0.020	-0.218	-0.080	0.316	0.236	0.043	0.164	0.207
	(0.188)	(0.190)	(0.228)	(0.158)	(0.249)	(0.226)	(0.268)	(0.200)	(0.289)	(0.211)	(0.247)	(0.203)	(0.196)	(0.181)	(0.190)	(0.170)	(0.252)	(0.224)
After	-0.361*	-0.181	-0.542*	0.316*	-0.248	0.068	-0.260	-0.020	-0.280	-0.148	-0.032	-0.180	0.249	-0.256	-0.006	-0.082	0.087	0.004
COVID	(0.172)	(0.201)	(0.226)	(0.156)	(0.196)	(0.209)	(0.147)	(0.152)	(0.178)	(0.178)	(0.185)	(0.177)	(0.234)	(0.235)	(0.230)	(0.139)	(0.164)	(0.150)
Military	-0.020	-0.167*	-0.187	0.020	-0.063	-0.043	0.098	-0.091	0.007	0.019	-0.188	-0.169	-0.010	-0.075	-0.085	-0.086	0.046	-0.040
Spending	(0.075)	(0.083)	(0.100)	(0.077)	(0.103)	(0.119)	(0.095)	(0.083)	(0.126)	(0.111)	(0.108)	(0.087)	(0.085)	(0.088)	(0.078)	(0.067)	(0.085)	(0.072)
National	0.199	0.268	0.467*	0.200	-0.140	0.060	-0.229	0.263	0.034	-0.215	0.221	0.006	0.026	-0.039	-0.014	0.099	-0.013	0.086
Army	(0.173)	(0.179)	(0.200)	(0.173)	(0.244)	(0.294)	(0.193)	(0.198)	(0.257)	(0.254)	(0.238)	(0.209)	(0.206)	(0.206)	(0.196)	(0.171)	(0.188)	(0.174)
EU Army	0.575*	-0.495	0.080	-0.064	-0.026	-0.090	-0.024	0.389**	0.365*	0.190	-0.045	0.145	0.011	0.224	0.236	-0.066	-0.090	-0.156
Pre-War	(0.235)	(0.286)	(0.278)	(0.141)	(0.185)	(0.227)	(0.148)	(0.148)	(0.177)	(0.236)	(0.249)	(0.224)	(0.179)	(0.222)	(0.197)	(0.142)	(0.165)	(0.173)
EU Army	-0.682**	0.591*	-0.090	-0.057	0.312	0.254	0.075	-0.109	-0.035	0.006	0.022	0.027	-0.087	0.158	0.072	-0.170	0.104	-0.066
Post-War	(0.225)	(0.281)	(0.263)	(0.179)	(0.211)	(0.259)	(0.183)	(0.173)	(0.231)	(0.239)	(0.251)	(0.198)	(0.185)	(0.194)	(0.212)	(0.192)	(0.204)	(0.252)
Constant	6.147***	1.811	7.958***	0.616	3.565**	4.181*	6.697***	-0.681	6.016***	2.583	3.102	5.685***	4.350**	0.057	4.407**	5.227***	1.121	6.348***
	(1.287)	(1.493)	(1.510)	(1.103)	(1.317)	(1.660)	(1.657)	(1.205)	(1.759)	(1.367)	(1.590)	(1.339)	(1.552)	(1.566)	(1.574)	(1.358)	(1.634)	(1.667)
Observations	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200

Robust standard errors are reported in parentheses. Baseline category for treatment dummies is *Low*. *p<0.05, **p<0.01, *** p<0.001

F Robustness Check: Tobit model

Table F.1: Tobit models examining the contribution decisions to the Country Budget (Columns 1, 4), to the EU Budget (Columns 2, 5), and the sum of contributions to both budgets (Columns 3, 6) in the MLPGG.

	(1) Country	(2) EU	(3) Total	(4) Country	(5) EU	(6) Total
High	-1.843***	1.914***	0.191	-1.801***	2.033***	0.424
	(0.368)	(0.442)	(0.514)	(0.366)	(0.429)	(0.472)
DE	-1.115**	-0.015	-1.182*	-1.012**	-0.198	-1.318*
	(0.360)	(0.404)	(0.544)	(0.366)	(0.408)	(0.533)
FR	-0.479	0.018	-0.469	-0.509	-0.072	-0.673
	(0.354)	(0.370)	(0.522)	(0.367)	(0.381)	(0.520)
IT	-0.309	0.063	-0.493	-0.291	-0.396	-1.002*
	(0.360)	(0.353)	(0.468)	(0.384)	(0.358)	(0.479)
PL	-0.207	0.162	0.197	-0.260	-0.356	-0.485
	(0.378)	(0.409)	(0.527)	(0.397)	(0.422)	(0.528)
PT	0.052	0.289	0.124	0.050	-0.087	-0.291
	(0.323)	(0.339)	(0.454)	(0.335)	(0.347)	(0.457)
High × DE	1.027*	0.018	0.978	0.967	-0.188	0.655
	(0.507)	(0.633)	(0.754)	(0.502)	(0.621)	(0.720)
High × FR	0.872	-0.536	0.228	0.915	-0.627	0.127
	(0.528)	(0.617)	(0.761)	(0.526)	(0.603)	(0.726)
High × IT	0.972*	-0.637	0.261	0.918	-0.790	-0.029
	(0.494)	(0.558)	(0.684)	(0.492)	(0.534)	(0.648)
High × PL	1.088*	-0.742	0.187	1.052	-0.924	-0.174
	(0.547)	(0.630)	(0.750)	(0.546)	(0.616)	(0.713)
High × PT	0.629	-0.949	-0.416	0.675	-1.090*	-0.608
	(0.471)	(0.555)	(0.670)	(0.467)	(0.549)	(0.643)
Age				-0.000	0.006	0.007
				(0.010)	(0.011)	(0.014)
Female				0.303*	-0.082	-0.048
				(0.149)	(0.171)	(0.215)
Student				-0.213	0.207	-0.042
				(0.173)	(0.197)	(0.247)
Socioeconomic Status				-0.021	0.123*	0.090
				(0.052)	(0.061)	(0.074)
Education				-0.177*	-0.012	-0.204
				(0.080)	(0.088)	(0.108)
Migrant				0.251	-0.967***	-0.975**
				(0.246)	(0.274)	(0.338)
Feel Country				0.292***	-0.218*	0.079
				(0.086)	(0.092)	(0.110)
Feel EU				-0.018	0.348**	0.333*
				(0.099)	(0.112)	(0.141)
EU Image				0.287*	-0.013	0.254
				(0.127)	(0.151)	(0.185)
Before COVID				-0.112	0.341***	0.342**
				(0.089)	(0.103)	(0.133)
Solidarity				-0.141	0.017	-0.175
				(0.094)	(0.107)	(0.134)
After COVID				-0.045	-0.080	-0.227*
				(0.078)	(0.086)	(0.110)
Military Spending				0.003	-0.090*	-0.108
				(0.041)	(0.043)	(0.055)
National Army				0.049	0.075	0.144
				(0.095)	(0.104)	(0.133)
EU Army Pre-War				0.070	0.046	0.149
				(0.078)	(0.093)	(0.118)
EU Army Post-War				-0.087	0.172	0.056
				(0.087)	(0.102)	(0.128)
Constant	4.460***	3.000***	8.286***	4.226***	1.086	6.535***
	(0.253)	(0.270)	(0.350)	(0.684)	(0.725)	(0.934)
Observations	1200	1200	1200	1200	1200	1200
Pseudo R^2	0.015	0.014	0.003	0.022	0.028	0.019

Robust standard errors are reported in parentheses. Baseline category for treatment dummies is *Low*. Baseline category for country dummies is NL (=1 when observation is from the Netherlands, and 0 otherwise). *p<0.05, **p<0.01, *** p<0.001

G Correlation between Feel EU and Feel Country

In this section, we better explore the relationship between identity variables and efficiency. Firstly, we look at the relationship between the variables Feel EU and Feel Country. Figure G.1 reports the correlation coefficients between these two variables, per country: the variables are positively correlated, even if the strength varies across countries.

Table G.1: Correlation table between Feel EU and Feel Country by country.

Country	ρ	p
France	0.2185	0.0019
Germany	0.4368	<0.001
Italy	0.3295	<0.001
Netherlands	0.3877	<0.001
Poland	0.2143	0.0023
Portugal	0.5243	<0.001
Full sample	0.3816	<0.001

Despite the generally positive correlation, it is worth checking whether at the individual level there are relevant differences within countries. Figure G.1 shows the average difference between the two variables per country.

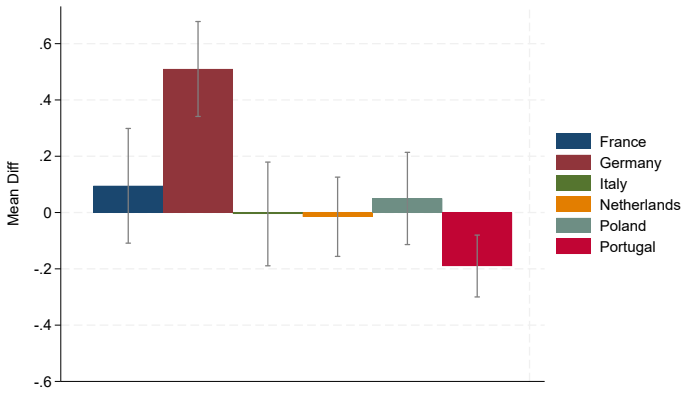

Figure G.1: Mean difference to the answers to feeling questions by country; Feel EU - Feel Country. Confidence intervals at the 95% level.

We can see that while for the majority of countries, there is no statistically significant difference, German subjects show on average a higher feeling of belonging to the EU, compared to the their country, while the opposite happens for Portuguese ones.

It is also worth checking in detail the specific answers at the individual level. 15 subjects answered with a 0 to both questions and 149 subjects have provided answers lower or equal to 2 to both questions.

G.1 Feeling of belonging and efficiency

As a next step, we provide a closer look at the identity variables, specifically the sense of belonging to the own country or to the EU.

We again rely on the variable *Feelings* that we built looking at the differences between *Feel Country* and *Feel EU*. We classify as *Neutral* subjects that provide the same answer to both questions (*Feel Country* and *Feel EU*). Table G.2 shows the results. As a robustness check, we also include the regression using the difference between Feel EU and Feel Country (labelled *Difference*) and three dummy variables for each possible realisation of the *Feeling* variable.

Table G.2: Regressions examining the relationship between *feelings* and demographics dimensions.

	(1) Difference	(2) Feelings	(3) Neutral	(4) Pro Country	(5) Pro EU
Migrant	2.370***	0.629***	-0.467**	-1.373***	1.461***
	(0.233)	(0.121)	(0.161)	(0.253)	(0.167)
Female	0.317	-0.073	0.168	-0.370**	0.151
	(0.184)	(0.091)	(0.117)	(0.136)	(0.139)
Student	0.054	-0.142	0.228	-0.293*	-0.002
	(0.192)	(0.096)	(0.123)	(0.143)	(0.145)
Socioeconomic Status	0.000	-0.000	-0.002	0.013	-0.011
	(0.063)	(0.031)	(0.040)	(0.046)	(0.047)
Education	-0.198*	-0.112*	0.127*	-0.009	-0.166*
	(0.098)	(0.049)	(0.062)	(0.071)	(0.073)
Constant	-1.429**	0.668**	-0.636*	-0.616	-0.769*
	(0.500)	(0.246)	(0.318)	(0.364)	(0.369)
Observations	1200	1200	1200	1200	1200

Robust standard errors are reported in parentheses. Tobit models are used in (1) and (2), Logit models are used in (3)-(5). The baseline category for treatment dummies is *Low*, *Neutral* is a dummy variable assuming value 1 if Feel EU = Feel Country, *ProCountry* is a dummy variable assuming value 1 if Feel EU < Feel Country and *ProEU* is a dummy variable assuming value 1 if Feel EU > Feel Country. The baseline category for country dummies is NL. *p<0.05, **p<0.01, ***p<0.001

Results show that being a migrant has a stronger sense of belonging to the EU compared to the country of residence, while the level of education has a weak opposite effect. Results are consistent between the different measures.

As a second step, we reproduce the same analysis performed in the main text, but we add an interaction term between the treatment dummy (*High*) and the categorical variables that capture the sense of belonging (*Felings*). The aim is to capture whether different sense of belonging can affect subjects' sensitivity to the efficiency effect. Results are provided in Table G.3.

Table G.3: Tobit models examining the contribution decisions to the Country Budget, to the EU Budget, and the sum of contributions to both budgets.

	(1) Country	(2) EU	(3) Total
High	-0.991***	1.247***	0.256
	(0.172)	(0.198)	(0.198)
Feel Pro Country	0.198	-0.228	-0.031
	(0.228)	(0.214)	(0.259)
Feel Pro EU	-0.364	0.667**	0.303
	(0.227)	(0.234)	(0.246)
High×Pro Country	0.276	0.140	0.416
	(0.313)	(0.339)	(0.346)
High×Pro EU	0.030	-0.243	-0.213
	(0.297)	(0.350)	(0.340)
DE	-0.400	-0.268	-0.668**
	(0.216)	(0.259)	(0.251)
FR	0.052	-0.318	-0.266
	(0.233)	(0.263)	(0.254)
IT	0.192	-0.603*	-0.410
	(0.231)	(0.245)	(0.237)
PL	0.352	-0.598*	-0.246
	(0.258)	(0.279)	(0.257)
PT	0.366	-0.524*	-0.157
	(0.222)	(0.251)	(0.235)
Age	0.000	0.004	0.005
	(0.009)	(0.009)	(0.009)
Female	0.214	-0.106	0.109
	(0.124)	(0.142)	(0.145)
Student	-0.194	0.153	-0.040
	(0.148)	(0.166)	(0.173)
Socioeconomic Status	-0.016	0.100	0.084
	(0.044)	(0.051)	(0.051)
Education	-0.158*	0.002	-0.157*
	(0.068)	(0.075)	(0.076)
Migrant	-0.025	-0.880***	-0.905***
	(0.186)	(0.208)	(0.226)
EU Image	0.309**	0.121	0.431***
	(0.100)	(0.119)	(0.123)
Before COVID	-0.076	0.307***	0.231*
	(0.076)	(0.086)	(0.095)
Solidarity	-0.114	0.016	-0.098
	(0.081)	(0.089)	(0.090)
After COVID	-0.055	-0.068	-0.123
	(0.065)	(0.073)	(0.076)
Military spending	0.014	-0.038	-0.024
	(0.029)	(0.031)	(0.033)
Constant	4.447***	1.975***	6.422***
	(0.548)	(0.577)	(0.640)
Wald test (p-values)			
*Feel*Pro Country = *Feel* Pro EU	0.0414	0.0012	0.2584
High×*Feel* ProCountry = High×*Feel* ProEU	0.4889	0.3357	0.1127
Observations	1200	1200	1200

Robust standard errors are reported in parentheses. The baseline category for treatment dummies is *Low*. The baseline category for country dummies is NL and for the Feelings variable is *Neutral*. For each column, we also report the p-values of the pairwise Wald tests on the null hypothesis that there is no difference between coefficients of the different Feelings variables. *p<0.05, **p<0.01, ***p<0.001

Results are consistent with the main analysis. There is an effect on contribution from the *Feelings* variable. Subjects who are *Pro Country* (i.e., those whose Feel Country > Feel EU) tend to contribute more to the Country budget compared to subjects who are *Pro EU*. It is worth noting that the differences are significant only

when comparing the two extremes but not if we compare them to the baseline *Neutral* subjects.

Another relevant result concerns the interaction between the *Feeling* and the treatment dummy. Results show that there is not any statistically significant interaction effect for any comparison. The implication that we derive is that, while both the treatment and the feelings of identification affect the contribution to both public goods, differences in identification do not affect sensitivity to efficiency. Finally, the results are consistent, even for the non-migrant subsample.

H Experimental Instructions

This appendix reports the English instructions we used for the *Low* treatment with Italian residents. The instructions for the *High* treatment and other countries were adapted accordingly and are available upon request.

Please enter your Prolific ID:

Please press NEXT to continue.

NEXT

Welcome!

You are about to participate in a research study.

Please read and accept the following Consent Form to continue.

CONSENT FORM

This study is conducted in a research project of the University of Florence and the responsible is Prof. Chiara Rapallini
(e-mail contact: chiara.rapallini@unifi.it).

Data protection:
All responses you provide will be **anonymous** and treated as **confidential**. Only members of the research team will have access to the collected original data, which will be stored securely on a password-locked computer. The results will be used to write scientific articles and to present in academic forums. In any publication or presentation, information will be provided in such a way that you cannot be identified. Your (anonymous) data may be shared with other researchers or made available in online data repositories.

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Procedures:

The study should take about 5 minutes to complete. Please while taking this study focus on the tasks and avoid any distractions. Also, we kindly ask you to silence your mobile phone and turn off any other device (TV, hi-fi etc.).

Consent statement:

If you do not wish to participate, please close the web-page now.

By clicking on the **AGREE** button below, you acknowledge that:

- You consent to participate in this study, the details of which have been explained to you;
- You understand that your participation in this study is entirely voluntary;
- You have been informed that you are free to withdraw from the study at any time without explanation or prejudice and to withdraw any unprocessed data you have provided;
- The study is for the purpose of research;
- You have been informed that the confidentiality of the information you provide will be safeguarded subject to any legal requirements;
- Any information you provide will be completely anonymous;
- Only members of the research team will have access to your original data, which will be stored on a password-locked computer. Once all identifiable information has been removed, your anonymous responses may be shared with other researchers or made available in online data repositories;
- This consent form will be retained by the researcher.

AGREE

You have been selected to take part in this study since you declared on Prolific.co that you are an Italian resident.

Are you still an Italian resident?

∘ Yes ∘ No

NEXT

Do you prefer to read the following instructions in Italian or in English?

∘ Italian ∘ English

NEXT

Instructions 1/2

In this study, you will be firstly asked to make a decision. Depending on your decision and on the decisions made by other participants, who face the same decision, you will have the opportunity to get some bonus payments.

After this decision, you will be asked to fill in a short questionnaire. You will receive any bonus payment only after the questionnaire is completed.

All amounts will be expressed in Points rather than pound sterling. The exchange rate is 10 Points = £0.25.

NEXT

Instructions 2/2

You are randomly assigned to a group of 4 including you and your fellow citizens.

Your group is randomly matched with other two groups of the same size, making up an overall set of 12 participants. Each of these two groups is composed of people belonging to the same country selected from a group of 5 European Union (EU) countries members.

...

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You are given 10 Points and have to decide how much to contribute to your country public budget (the fund of the group with your fellow citizens) and to the EU public budget (the fund of both your group and the other two groups).

- Your **country public budget** yields the following return: the contributions of the 4 participants are added up and the total is multiplied by 2.4. The resulting amount is equally split among the 4 participants.
- The **EU public budget** yields the following return: the contributions of the 12 participants are added up and the total is multiplied by 2.4. The resulting amount is equally split among the 12 participants.

You keep the Points you do not wish to contribute to the two public budgets. Consequently, your bonus payments equal your earnings from your country budget, plus your earnings from the EU public budget, plus the amount you keep for yourself.

NEXT

Control questions

Please answer the following questions. You will be allowed to go on, only after you correctly respond to both of them.

QUESTION 1: How much do you need to contribute to your country public budget/ the EU public budget to earn the highest payoff for you personally if all others contribute 0 to your country public budget/ the EU public budget?

∘ 10 ∘ 0 ∘ 5

QUESTION 2: How much do you need to contribute to your country public budget/ the EU public budget to allow your fellow citizens/ all the participants to earn the highest payoff if all them contribute 10 to your country public budget/ the EU public budget?

∘ 10 ∘ 0 ∘ 5

NEXT

YOUR DECISION

Please decide how to distribute your 10 Points among the three options (please enter an integer number from 0 to 10, i.e. 0, 1, 2, . . . , 9, 10).

Your contribution to your country public budget:

Your contribution to the European Union public budget:

What you keep for yourself:

Remind: The total amount contributed to your country public budget will be multiplied by 2.4 and divided by 4; The total amount contributed to the European Union public budget will be multiplied by 2.4 and divided by 12.

NEXT

And now, just a few questions about you and your opinions. There are no wrong or correct answers. Please answer with honesty.

- Were you born in Italy?
  ◦ Yes ◦ No
- How old were you when you moved to Italy? ☐ *[if "No" to previous question]*
- In which country was your mother born? ☐
- In which country was your father born? ☐

NEXT

- **How strongly do you feel Italian?**
  ∘ Not at all strongly ∘ Not very strongly ∘ Neutral ∘ Fairly strongly ∘ Very strongly

- **How strongly do you feel an EU citizen?**
  ∘ Not at all strongly ∘ Not very strongly ∘ Neutral ∘ Fairly strongly ∘ Very strongly

- **In general, does the EU conjure up for you a very positive, fairly positive, neutral, fairly negative or very negative image?**
  ∘ Very negative ∘ Fairly negative ∘ Neutral ∘ Fairly positive ∘ Very positive

NEXT

- **Before Coronavirus pandemic, would you say that Italy has on balance benefited from being a member of the EU?**
  ∘ Strongly agree ∘ Agree ∘ Neither agree nor disagree ∘ Disagree ∘ Strongly disagree

- **How satisfied are you with the solidarity between the EU Member States in fighting the Coronavirus pandemic?**
  ∘ Very satisfied ∘ Fairly satisfied ∘ Not very satisfied ∘ Not at all satisfied ∘ Don't know

- **Has your opinion on the benefits for Italy from being a member of the EU changed after the Coronavirus pandemic?**
  ∘ Strongly agree ∘ Agree ∘ Neither agree nor disagree ∘ Disagree ∘ Strongly disagree

NEXT

- **Each person has no choice but to consume the service of the national defense. For those who believe increasing public expenditures on national defense makes them safer, an increase in these expenditures is positive. Others think additional expenditures on armies only lead to arms races and decrease national security. Such individuals value**

additional public expenditures on national defense negatively. On a scale from 0 to 10, how much do you consider belonging to the first group?

∘ 0 ∘ 1 ∘ 2 ∘ 3 ∘ 4 ∘ 5 ∘ 6 ∘ 7 ∘ 8 ∘ 9 ∘ 10

- **After the beginning of the Russian-Ukrainian war, do you think your country should increase its public expenditures on the army?**
  ∘ Strongly agree ∘ Agree ∘ Neither agree nor disagree ∘ Disagree ∘ Strongly disagree

- **Before the Russian-Ukrainian war, have you ever thought that the EU should have an army financed with the EU budget?**
  ∘ Strongly agree ∘ Agree ∘ Neither agree nor disagree ∘ Disagree ∘ Strongly disagree

- **After the Russian-Ukrainian war, do you think the EU should get an army and finance it with an EU budget?**
  ∘ Strongly agree ∘ Agree ∘ Neither agree nor disagree ∘ Disagree ∘ Strongly disagree

NEXT

Thank you for participating in this study!

The £0.50 show-up fee and any additional amounts of money you may have earned will be paid to you as soon as possible.

By pressing FINISH you will be redirected to Prolific and prove that you have successfully completed the study.

FINISH
