Museums as Policy Tools: The Behavioral Impact of Cultural Experiences*

Paolo Pin[s,b], Roberto Rozzi[r], and Alessandro Stringhi[p]

[s]Department of Economics and Statistics, Università di Siena, Italy
[b]BIDSA, Università Bocconi, Milan, Italy
[r]Department of Psychology, Royal Holloway University of London, UK
[p]Department of Management, Prague University of Economic and Business, Czech Republic

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Abstract

Museums can serve as policy tools when their content is purposefully curated. We designed a field experiment at the Santa Maria della Scala museum in Siena that leveraged the site's historical role as a medieval hospital offering care and hospitality. Visitors randomly assigned to a tour emphasizing this function later donated substantially more to a refugee-support NGO than those who followed a standard artistic itinerary, raising both the likelihood and amount of donations by nearly 50 percent. These results show that thematically targeted museum experiences can measurably boost charitable behavior toward vulnerable groups, underscoring the untapped potential of cultural institutions in behavioral public policy.

KEYWORDS: FIELD EXPERIMENTS, CULTURAL EXPERIENCES, NUDGES, PROSOCIAL BEHAVIOR.
JEL CODES: C93, D64, Z18

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[Pre-registration] [Video Repository]

"Cor magis tibi Sena pandit"
Siena opens its heart to you even more than its gate.

Inscription above Porta Camollia (c. 1604), traditionally welcoming travelers and pilgrims arriving from Florence along the Via Francigena.

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1 Introduction

Museums and historical sites, present in almost every city, often contain stories related to care, solidarity, and community. This makes them a promising but underused resource for shaping social attitudes and civic values. Previous research suggests that exposure to art and cultural experiences can positively influence individuals' beliefs and attitudes (Boyd, 2009). This exposure is thought to evoke empathic responses, thereby enhancing prosocial behavior (Andries et al., 2024). However, focusing the experience on a specific topic might improve the beneficial impact of the exposure to art.

In this paper, we study whether cultural institutions can meaningfully influence prosocial outcomes when used in a targeted way. We compare two guided museum tours differing in how deliberately they engage with social themes. The experiment takes place at Santa Maria della Scala, a museum in Siena that served as a hospital for a thousand years. Students in the control group participate in a standard tour focused on traditional artworks and historical artifacts unrelated to the previous role of the museum. Instead, students in the treatment group participate in a curated tour focused on the building's former role as a medieval hospital, with emphasis on frescoes that depict care and hospitality. By subtly connecting the artistic experience to themes of social assistance, this second tour represents a more deliberate, policy-relevant use of cultural content. We measure participants' generosity through real donations to two NGOs—one operating in the field of migration, the other unrelated to those themes—and collect self-reported attitudes toward immigration in a post-tours survey.

We find that exposure to targeted cultural experiences leads to a modest increase in prosocial behavior. Participants assigned to the treatment group donate, on average, €0.36 more than those in the control group, where the baseline donation is €0.84. Similarly, the likelihood of donating to any NGO increases by 6.8 percentage points, from a baseline rate of 18%. This effect is not limited to general giving: donations to the migration-focused NGO increase by €0.30, relative to a baseline of €0.59 in the control group, and the probability of donating to this NGO rise by 5.8 percentage points, from a baseline of 14%. Importantly, these effects are

not uniform across participants. The treatment appears to be particularly effective among female participants. Women in the treatment group donate €0.62 more than women in the control group, while the increase for men is only €0.01. Similarly, the probability of donating rise by 12 percentage points for women, compared to just 1 percentage point for men. These findings suggest that thematically framed cultural experiences are effective, although they may resonate more strongly with female participants. However, despite these changes in donation patterns, we do not observe any significant shift in self-reported attitudes toward migration, as measured through survey questions administered after the tours.

Our study connects with a growing literature in behavioral economics showing that small, non-coercive interventions—so-called "nudges"—can effectively promote prosocial behavior in real-world settings. Previous field experiments have showed that subtle changes in how choices are presented, such as highlighting social norms or increasing visibility of prosocial actions, can significantly increase charitable giving, resource conservation, and cooperation (Frey and Meier, 2004; Allcott, 2011; Ferraro et al., 2011; DellaVigna et al., 2012; Allcott and Rogers, 2014; Andreoni et al., 2017). These interventions often work because they activate social preferences, reduce cognitive frictions, or create implicit reputational incentives (Akerlof and Kranton, 2000; Bénabou and Tirole, 2006; Manna and Stringhi, 2025). In this spirit, our intervention can be seen as a form of "cultural nudge". However, it differs in a key respect: it does not require additional infrastructures and investments. Guided museum tours already exist and are widely accessible; the intervention lies entirely in curating their content more purposefully. By framing the tour around themes of hospitality and care, we show that existing cultural experiences—when used intelligently—can function as low-cost tools for promoting generosity and civic attitudes. This makes our approach scalable and easy to implement in settings where cultural attractions are already in place.

In the literature, similar behavioral responses—such as increased support for refugee-related causes—are often triggered through information provision treatments (see Haaland et al., 2023, for an extensive review of the information provision literature). The evidence on the effects of information provision treatments is somewhat inconclusive. Some studies do not find a significant effect of correcting people's beliefs on migration (Lergetporer et al., 2018; Hopkins et al., 2019; Barrera et al., 2020; Alesina et al., 2023; Rasooly, 2024), and some find positive effects of such interventions (Grigorieff et al., 2020; Haaland and Roth, 2020; Facchini et al., 2022). Furthermore, information provision experiments often suffer from problems of demand effects or a lack of trust in the authority delivering the information. A commonly used solution to these problems is the treatment obfuscation (Haaland et al., 2023). We believe our intervention represents a good alternative to information provision since our

treatment is very obfuscated. Our intervention does not rely on information transmission: real world issues are never mentioned by the tour guides, and therefore, the subjects have to make connections by themselves.

Our work is not the first in employing alternatives treatments to information provision. For example, other works have used visual stimuli to improve hospitality (Alesina et al., 2023; Andries et al., 2024). Specifically, Andries et al. (2024) uses a virtual reality experience—"Carne y Arena"—to trigger empathy in the subjects, subsequently improving their attitudes towards immigration. Conceptually speaking, the targeted cultural experience in our design differs from the experiences used in Andries et al. (2024), since the artistic experience in our case is less direct into triggering subjects' empathy but rather it promotes a reflection on hospitality without directly mentioning real world issues. Despite this indirect link, we still find an increase in donations towards an NGO that explicitly operates with migrants and refugees.

The potential policy implications of our findings are supported by the literature on the effects of various forms of entertainment on individuals' behavior. Indeed, it has been shown that exposure to specific entertainment often has strong effects on attitudes or behaviors directly addressed in the medium (see DellaVigna and La Ferrara, 2015; La Ferrara, 2016, for extensive reviews). Evidence suggests that entertainment can play both positive (La Ferrara et al., 2012; Kearney and Levine, 2015; Banerjee et al., 2019) and negative (Card and Dahl, 2011; Bursztyn et al., 2023; Ang, 2023) roles in shaping individual attitudes. We believe that our work adds a contribution to the growing experimental literature exploring how exposure to targeted forms of entertainment can induce positive changes of attitudes (Greiner et al., 2007; Vogt et al., 2016; Efferson and Vogt, 2018).

The remaining of the paper is organized as follows. In Section 2, we present the design of the experiment in more detail, in Section 3, we present and discuss our results, and in Section 4, we offer some concluding remarks.

2 The Experiment

2.1 Institutional background

Santa Maria della Scala is a museum located in the city center of Siena, Italy. Documented as early as 1090, it was among the earliest civic hospitals in Europe and remained in continuous operation until its closure in 1995. During the medieval period, Siena occupied a strategic position along the *Via Francigena*, the pilgrimage route connecting Canterbury to Rome.

Santa Maria della Scala was originally founded to care for both local residents and pilgrims, offering food, shelter, and medical attention. Over time, the institution evolved into a modern hospital and, at the end of the 20th century,[1] was repurposed as a museum that now preserves its artistic, architectural, and documentary heritage.

Like many large medieval civic hospitals (*spedali*), Santa Maria della Scala served multiple welfare functions beyond medical care. It hosted pilgrims, offering rest, nourishment, and care at their Siena stopover on months-long journeys. For the local population, it functioned as a civic hospital with notably advanced practices for its time, including individual beds for patients and the presence of trained physicians and surgeons. The institution also played a central role in caring for abandoned children: infants left at the hospital's foundling wheel were placed with wet nurses, later trained in a trade, and—upon reaching adulthood—granted savings and, for girls, a dowry. In addition to these core services, Santa Maria della Scala ran soup kitchens and, by the 16th century, housed a small surgical school. Its detailed administrative records, preserved from as early as the 13th century, provide a rich historical account of its charitable mission. These layered functions make it a particularly vivid example of medieval hospitality in practice—one that remains well-suited to contemporary experimental research on themes of care, generosity, and social inclusion.

The building's long history as a medieval hospital is still visible in its architecture and artworks, making it a particularly suitable place to explore themes like *hospitality, care, and generosity*. Its layout—spread across seven floors with separate exhibition spaces—also makes it well-suited for designing *randomized controlled trials*. This flexible structure allows us to offer *different types of tours* to different groups while keeping the setting consistent. In our study, two areas play a central role: the *Pilgrim's Hall*, which clearly reflects the building's original mission of assistance and hospitality, and the *Fonte Gaia exhibition*, which is historically and artistically rich but unrelated to social care.

The *Fonte Gaia* exhibition is the central component of the control condition in our experiment. It features the original marble sculptures from the fountain that once stood in Siena's Piazza del Campo, created by Jacopo della Quercia in the early 15th century. The fountain depicts biblical and allegorical scenes, including the Madonna and Child, the Virtues, and episodes from Genesis. Due to severe weathering, the sculptures were removed in the mid-19th century and replaced with replicas carved by Tito Sarrocchi between 1858 and 1869. The originals were later transferred to Santa Maria della Scala for conservation, along with the 19th-century plaster casts used to produce the copies now in the piazza. While the exhibition holds significant artistic and historical value, it is unrelated to the hospital's original

[1] One of the author of this paper was actually born there.

mission of care and hospitality. As such, it offers an aesthetically engaging but thematically neutral setting for a standard guided tour.

In contrast, the *Pilgrim's Hall* (*Sala del Pellegrinaio*) forms the core of the treatment condition. Built around the early 14th century and reaching its final structural form by the 1380s, it served as a large reception ward for pilgrims and the sick arriving at Santa Maria della Scala. Between approximately 1439 and 1444, it was decorated with a major fresco cycle commissioned during the rectorship of Giovanni di Francesco Buzzichelli, executed by prominent artists including Lorenzo Vecchietta, Domenico di Bartolo, and Priamo della Quercia. Domenico di Bartolo's famous panels—such as Care of the Sick, Distribution of Alms, and Reception of Pilgrims—offer realistic depictions of hospital life: physicians, friars, patients, soup distribution, orphan care, and the daily charity routines that characterized the institution's mission. These images act as powerful visual narratives of hospitality, care, and social support rooted in the institution's original charitable mandate. The treatment tour is intentionally centered on this hall, focusing participants' attention on the artwork and architecture that embody the hospital's historic function—without ever invoking contemporary themes like migration or modern philanthropy. This symbolic framing allows us to investigate whether exposure to these motifs, in a deeply contextualized historical setting, can influence present-day attitudes and behavior.

Santa Maria della Scala shares much with other major medieval hospitals that have since become museums—such as the Ospedale degli Innocenti in Florence, the Hôtel-Dieu in Beaune, and St Bartholomew's in London. Like these institutions, it preserves the architecture, artworks, and historical memory of premodern social care. What sets Santa Maria apart, and makes it especially well-suited for our experimental design, is the combination of preserved hospital spaces, thematically rich visual narratives like those in the Pilgrim's Hall, and a modular museum layout that enables the controlled variation of visitor experiences. While some features are site-specific, the conceptual framework of our intervention—using historical environments to evoke values such as hospitality and generosity—can be adapted to other settings where cultural heritage intersects with social themes.

2.2 Experimental design

The experiment consists of two core components: a 45 minutes guided cultural tour within the Santa Maria della Scala museum and a post-tour survey capturing incentivized and self-reported measures of prosociality and hospitality. All participants receive a fixed show-up fee of €20, paid in the form of an Amazon gift card sent via email within two weeks after their session. After completing the cultural activity with museum employees, participants

are handed a printed questionnaire by the experimenters. This paper form includes both the donation task—where participants could allocate any portion of their €20 compensation to one or both of two non-profit organizations—and a set of survey questions. The two NGOs are the *Consiglio Italiano per i Rifugiati* (CIR), which provides support to refugees and asylum seekers, and the *Lega Italiana Protezione Uccelli* (LIPU), an environmental organization focused on the protection of birds and their habitats. Participants are free to donate any amount, including zero, and donations are deducted directly from their compensation. Experimenters record all the donations and then take care of sending the total amount to the two NGOs at the end of the whole experiment. The same form also includes questions from the European Social Survey (ESS) measuring attitudes toward immigration, along with basic demographic questions and an enjoyment rating for the tour.

Tours in the museum. The core of the field experiment consists of a guided tour in Santa Maria della Scala. Participants are randomly assigned at the session level to one of two tours, which are matched in duration, structure, and delivery format, but differ in thematic focus. In both cases, professional guides employed by the museum lead the tours using scripts developed in collaboration with the research team. Importantly, students sign-up for a non specified tour to the museum and they remain aware of the tour they have been assigned to until the tour starts. This choice allows us to exclude self selection effects into tours and to keep the randomization intact.

Non targeted artistic tour (Control). Participants in the control condition take part in a guided tour centered on the *Fonte Gaia* exhibition. The guide provides an overview of the artistic features and historical context of the fountain, with a focus on its sculptural elements, iconography, and 19th-century restoration. The tour emphasizes aesthetic and historical aspects and do not address social themes such as care, migration, or hospitality.

Targeted artistic tour (Treatment). Participants assigned to the treatment condition visit the *Pilgrim's Hall*, where the guide focuses on the frescoes depicting the historical functions of the hospital. The commentary highlights scenes of medical care, charitable acts, and the reception of pilgrims. In particular, the tour is conducted without drawing any explicit parallels to present-day issues such as immigration, public health, or social policy. The framing remains entirely historical and descriptive, allowing us to test whether exposure to thematically relevant, but non-explicit, cultural content could influence attitudes and behavior.

Importantly, the tours are conducted in Italian by two museum employees who are professional guides. Each is responsible for designing and leading only one of the two tours.

While both were aware that the tours were part of an experiment, they were not informed about the research question or the content of the post-tour questionnaire. They are also explicitly instructed to remain neutral in their delivery. Any connection between the themes of the treatment tour and concepts such as generosity or immigration is meant to emerge spontaneously in participants' minds, without prompting or framing by the guide.[2]

Measures of prosociality and hospitality. Our main outcome is based on an incentivized donation task in which participants decides how much of their €20 show-up fee to allocate to two non-profit organizations. This real-stakes decision allows us to measure prosocial behavior in a consequential way. Total donations across both organizations serve as a proxy for general prosociality. To isolate attitudes specifically related to hospitality, we focus on donations directed to the *Consiglio Italiano per i Rifugiati* (CIR), a prominent NGO supporting refugees and asylum seekers. Because this organization operates in the domain of migration and social inclusion, contributions to it capture participants' willingness to support groups associated with hospitality-related concerns. Donations to the second NGO, the *Lega Italiana Protezione Uccelli* (LIPU), which focuses on environmental protection, serve as a thematically neutral reference point.

Self-reported attitudes towards migration. Subsequently, subjects had to answer six questions from Section B of the European Social Survey (ESS) Round 7 (Card et al., 2005). Specifically, questions B29 to B34. These questions elicit respondents' attitudes and beliefs toward immigration. The questions are reported in Appendix A. We use responses to these items to construct a standardized index capturing individual attitudes toward immigration.

Satisfaction questionnaire. To ensure that our results are not simply driven by participants' enjoyment of the tours—which could be correlated with the specific tour or guide—we ask them to rate their experience on a scale from 1 to 10. We include this rating as a control variable in our analysis.

Procedures. We recruited students from the University of Siena through HROOT. All registered native-speaking students received invitations to participate in guided tours at the Santa Maria della Scala museum. A total of 388 Italian-speaking students took part in the experiment, conducted between March and April 2025 across 16 sessions, equally divided between the two conditions. While assignment to sessions was random from the students' perspective, the actual scheduling of the tours was determined by the availability of the two

[2] A video recording of one control and one treatment tour can be found at the following link. Note that the recording of each type of tours is split in three files.

professional guides, each of whom was responsible for only one type of tour. The full session calendar is reported in Appendix B.

2.3 Testable Hypotheses

We design the experiment to test two primary hypotheses. First, we investigate whether exposure to targeted artistic content increases participants' overall generosity, as measured by the total amount donated to the two NGOs. Second, we examine whether such exposure specifically enhances generosity toward causes related to hospitality, proxied by donations to an NGO operating in the field of migration.[3]

Hypothesis 1 (H1). Total donations are higher in the treatment group than in the control group.

Hypothesis 2 (H2). Donations to CIR are higher in the treatment group than in the control group.

These two hypotheses capture different dimensions of generosity. H1 tests for a general increase in prosocial behavior, while H2 isolates generosity specifically directed toward a cause aligned with the treatment's thematic content. Crucially, the two are not logically linked: total donations could increase without greater support for CIR, or CIR donations could rise at the expense of LIPU, leaving the total unchanged. For our intervention to achieve its intended effect—fostering generosity in the domain of hospitality—both hypotheses must be confirmed.

3 Results

This section presents the main results of the experiment. As pre-registered, we focus on the effects of the treatment on donation behavior. Additional analyses, including robustness checks and secondary outcomes, are reported in Appendix C and discussed after the main regression analysis. To avoid distortions caused by extreme outliers, we exclude the top 1% of donations—three participants who donated their entire €20 endowment.[4]

[3] All hypotheses and pre-analysis plans are available at the following link: https://www.socialscienceregistry.org/trials/14416. Self-reported immigration attitudes, measured through ESS questions, were included as secondary outcomes in the pre-analysis plan.

[4] See Appendix D.1 for a discussion.

3.1 Descriptive Evidence

Participants exposed to the targeted artistic content exhibit higher generosity compared to those in the control group. Here we present the main results, while a detailed table with all t-tests is provided in Table C2 in Appendix C. On average, participants in the treatment group donate €1.19, a substantial increase of approximately 43% over the control group's baseline of €0.84. This difference, while economically meaningful, is only weakly suggestive ($p = 0.120$). Similarly, the likelihood of making any donation rises from 18% in the control group to 25% under treatment—an increase of nearly 40% ($p = 0.112$).

Importantly, this increase in generosity is primarily driven by female participants. Females in the treatment group donate €1.50 on average, significantly more than €0.89 in the control group ($p = 0.050$). Their likelihood of donating rises from 18% to 30% ($p = 0.025$). By contrast, no meaningful differences emerges among male participants, whose donation rates and amounts remain unchanged (18% and €0.67 in treatment vs. 17% and €0.68 in control).

Looking at donations to CIR, the NGO linked to migration and hospitality, participants in the treatment group give €0.89 on average, compared to €0.59 in the control group, a 50% increase ($p = 0.132$). Again, this effect is concentrated among female participants, whose average donations to CIR rises from €0.66 to €1.14 ($p = 0.075$). Donations to the thematically neutral NGO (LIPU) show no significant changes, and remain consistently lower than those to CIR for both males and females (see Table C2).

These findings underscore the economic relevance of the treatment, particularly given that the majority of participants chose not to donate. The effects represent significant relative increases in both likelihood and amounts of donation, especially among women and especially toward the non-profit aligned with the thematic content of the artistic experience. These results support Hypotheses H1 and H2, but only for female participants.

3.2 Regression Analysis

To complement the descriptive evidence, we estimate the effect of the treatment on donation amounts using a censored regression model. Since a large share of participants opted not to donate any portion of their endowment, the distribution of donations is left-censored at zero. To account for this, we employ Tobit regressions, which are appropriate in settings where the outcome variable is censored and a substantial mass of observations lies at the censoring point. Our outcome of interest is the amount donated across the two NGOs, measured in euros. The key explanatory variable is a binary indicator for assignment to the treatment group. We include controls for gender, age, nationality, and self-reported enjoyment of the

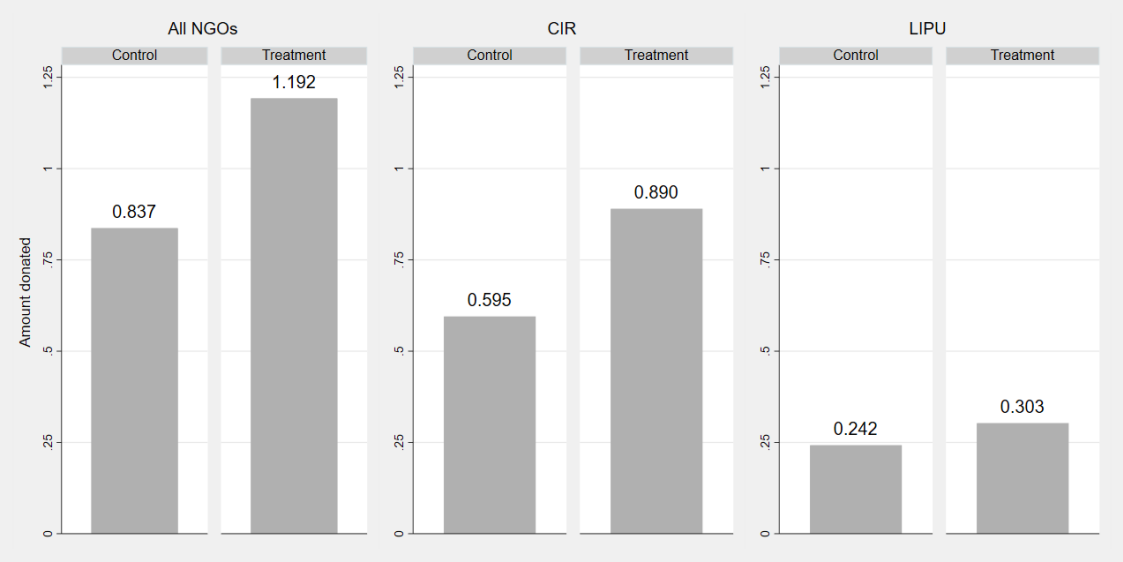

Figure 1: This figure shows the average donations to all NGOs, to CIR, and to LIPU for the Control and Treatment groups.

museum tour.

Results from the Tobit regressions are reported in Table 1. We find that assignment to the treatment group significantly increases total donations. In the full sample, the estimated treatment effect is positive and significant (coefficient = 1.70, $p < 0.05$), confirming the direction observed in the descriptive analysis. The effect is also present for donations to CIR—the NGO aligned with the treatment's thematic framing—where the treatment effect is also sizable and marginally significant (coefficient = 1.77, $p < 0.10$). In contrast, we find no significant effect of the treatment on donations to LIPU, the thematically neutral NGO.

The results also reveal substantial gender effect. Female participants exhibit significantly higher generosity overall (coefficient = 1.94, $p < 0.05$), and especially in donations to CIR (coefficient = 2.79, $p < 0.01$). No significant gender effect is observed for LIPU. Age also appears to be a significant factor in the amount donated to charity. Indeed, older participants donated a larger amount of money to both NGOs, and especially to LIPU.

We obtain consistent results when analyzing the likelihood to donate. Logit and probit regressions, reported in Appendix C, show that participants in the treatment group are significantly more likely to make a donation, with the effect again concentrated among female participants and largely driven by donations to CIR.

Taken together, these findings suggest that the targeted cultural experience increased participants' underlying propensity to give—particularly toward thematically aligned causes—and

that this effect is most pronounced among female and older participants.

	All NGOs	CIR	LIPU
Treatment	1.695**	1.765*	0.696
	(0.823)	(0.900)	(0.987)
Female	1.941**	2.788***	0.162
	(0.865)	(0.849)	(1.141)
Age	0.399**	0.290	0.354**
	(0.183)	(0.211)	(0.158)
Italian	-3.572	-2.977	-4.497**
	(2.306)	(2.356)	(2.116)
Enjoyment	-0.0875	0.00774	-0.234
	(0.251)	(0.297)	(0.317)
Observations	381	381	381

Standard errors in parentheses clustered at session level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1: This table reports Tobit regressions on donation amounts. The first column shows results for the total donations to both NGOs (CIR and LIPU), the second for donations to CIR, and the third for donations to LIPU. All specifications control for gender (female), age, nationality (Italian), and the grade reported in the satisfaction questionnaire.

Gender heterogeneity. To further explore the substantial gender effect suggested by the main regression analysis, we estimate separate Tobit models for male and female participants. The results, reported in Table 2, confirm that only women are responsive to the treatment. Among female participants, assignment to the treatment group significantly increases the propensity to donate (coefficient = 2.20, $p < 0.05$), with the effect driven almost entirely by donations to CIR (coefficient = 2.00, $p < 0.05$). In contrast, we detect no statistically significant treatment effect among male participants in any specification. As for the main regression analysis, these results are also visible in the likelihood to donate as measured through logit and probit regressions (see again Appendix C).

Table 3 shows that gender differences in donation behavior emerge only among participants assigned to the treatment group. In the control group, male and female participants donate similar amounts across all outcomes, with no statistically significant differences in either donation amounts or likelihood of donating. By contrast, in the treatment group, female participants donate significantly more than male participants, both in terms of total donation amounts (€1.50 vs. €0.67, $p = 0.020$) and the probability of making a donation (30% vs.

17%, $p = 0.042$). This gender gap is especially pronounced for donations to CIR, where both the amount donated (€1.14 vs. €0.47, $p = 0.035$) and the likelihood of donating (24% vs. 11%, $p = 0.027$) are significantly higher among women. These results are summarized in Figure 2 and 3.

These findings reinforce the view that the observed effects of the targeted cultural experience are not uniform across genders. Instead, they appear to be driven almost entirely by female participants, complementing the findings from the main regression analysis. A plausible explanation is that, in our experiment, women are more responsive and attentive than men to the part of the treatment tour emphasizing hospitality and generosity. This interpretation is consistent with previous evidence from experimental economics and psychology showing that women are not necessarily more generous, but tend to be more responsive than men to the experimental context and, more generally, to social cues (Gilligan, 1993; Fischer and Manstead, 2000; Croson and Gneezy, 2009; DellaVigna et al., 2013).

	All NGOs (F)	CIR (F)	LIPU (F)	All NGOs (M)	CIR (M)	LIPU (M)
Treatment	2.201**	1.997**	0.415	0.267	0.776	0.256
	(1.073)	(0.943)	(1.273)	(1.166)	(1.617)	(1.429)
Age	0.574**	0.396*	0.745***	0.107	0.173	-0.0702
	(0.225)	(0.238)	(0.164)	(0.240)	(0.279)	(0.202)
Italian	-4.812*	-4.817**	-6.085**	-2.728	36.38***	-5.348
	(2.660)	(2.229)	(2.645)	(4.646)	(5.960)	(3.566)
Enjoyment	-0.319	-0.224	-0.526	0.359	0.617	0.0908
	(0.306)	(0.329)	(0.417)	(0.379)	(0.499)	(0.336)
Observations	244	244	244	137	137	137

Standard errors in parentheses clustered at session level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: This table reports Tobit regressions on donation amounts, estimated separately for female (first three columns) and male (last three columns) participants. For each gender, the columns present results for total donations to both NGOs (CIR and LIPU), donations to CIR, and donations to LIPU. All specifications control for age, nationality (Italian), and the grade reported in the satisfaction questionnaire.

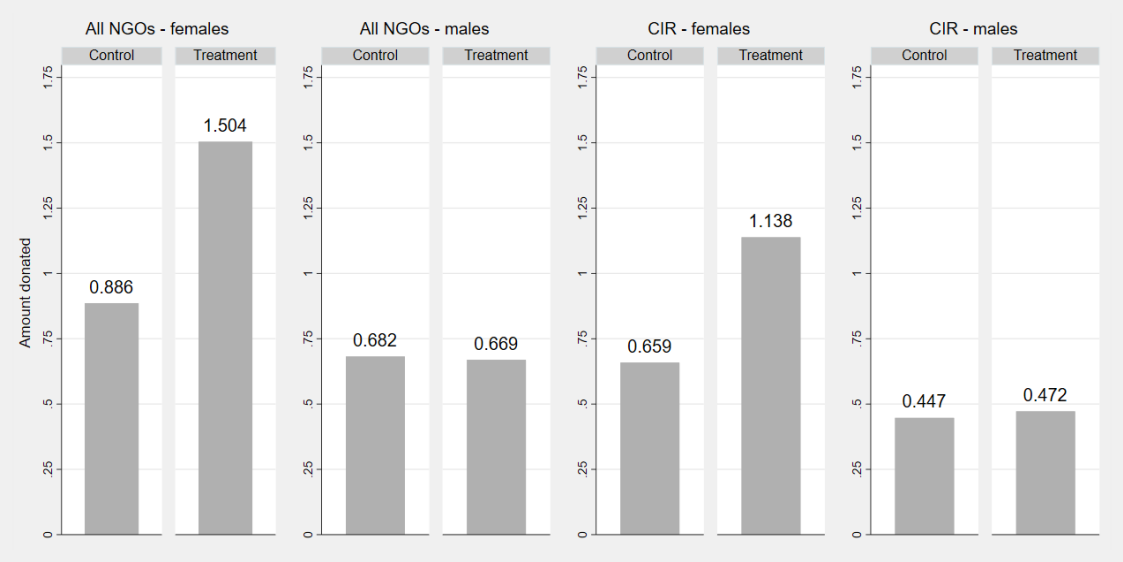

Figure 2: This figure shows the difference in average donations to all NGOs and to CIR between the Control and Treatment groups, separately for females and males.

	Control					Treatment				
	Male	Female	Difference	p-value	Obs.	Male	Female	Difference	p-value	Obs.
Amount Donated	0.68	0.89	-0.20	0.509	189	0.67	1.50	-0.84**	0.020	194
Has Donated	0.18	0.18	0.00	0.960	189	0.17	0.30	-0.13**	0.042	194
Amount Donated to CIR	0.45	0.66	-0.21	0.410	189	0.47	1.14	-0.67**	0.035	194
Amount Donated to LIPU	0.23	0.23	0.01	0.956	189	0.20	0.37	-0.17	0.305	194
Has Donated to CIR	0.11	0.15	-0.05	0.360	189	0.11	0.24	-0.13**	0.027	194
Has Donated to LIPU	0.09	0.08	0.01	0.822	189	0.10	0.11	-0.01	0.876	194

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: This table reports mean donation outcomes by gender for the Control and Treatment groups, including total donations, likelihood of donating, and donations to each NGO (CIR and LIPU). For each measure, the difference between male and female participants, its p-value, and the number of observations are shown.

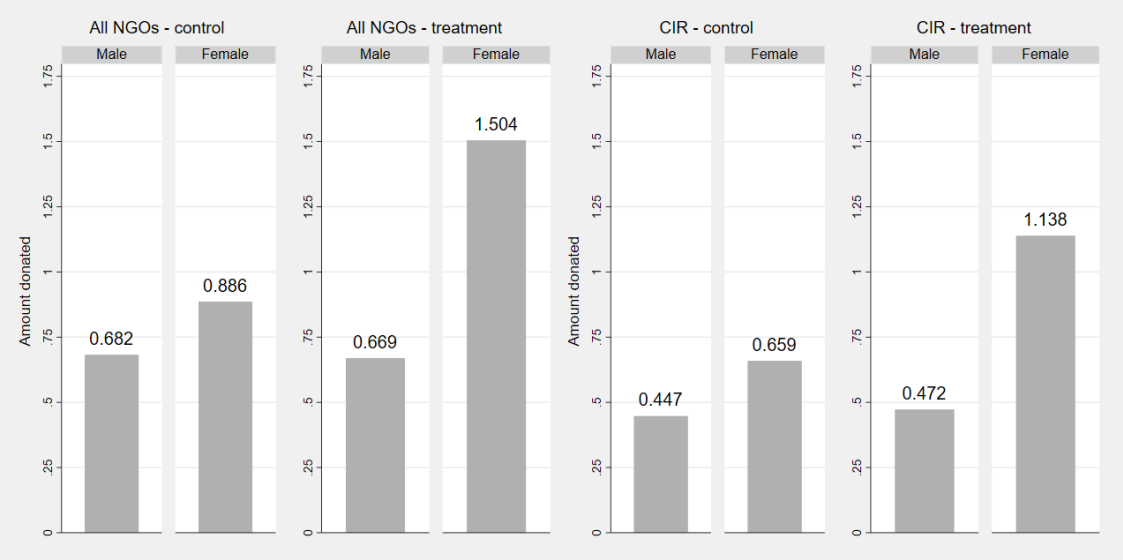

Figure 3: This figure shows the difference in average donations to all NGOs and to CIR between females and males, separately for Control and Treatment groups.

No enjoyment effect. When analyzing the satisfaction questionnaire one could notice that it is unbalanced across the two groups. Specifically, as reported in Table C1, the enjoyment is on average higher in the control than in the treatment ($p < 0.01$). This result allows us to rule out the hypothesis that the positive treatment effect might be driven by a form of reciprocity (e.g., subjects donating more in the treatment group because they enjoyed that tour better).

Migration attitudes. Table C5 shows that the treatment has no detectable effect on participants' migration attitudes. Because the treatment does not shift attitudes, attitudinal change cannot be the channel through which donations rise. The donation effect therefore operates through some other mechanism–e.g., heightened generosity–independent of stated migration attitudes. The explanations behind such lack results on migration attitudes could be multiple. Firstly, the subject pool was young and already quite favorable towards migrants (as reflected by a mean score of 0.77 on a 0–1 standardized index), and thus, potentially lowering the responsiveness to the treatments on their attitudes towards migrants (Haaland et al., 2023). Secondly, the targeted tours did not make any explicit reference to the current refugee situation in Italy or Europe; thus, given the subtleness of our treatment, subjects may have not changed their opinion on the current migration situation.

4 Conclusions

This paper investigates whether cultural institutions can be used as effective tools to promote prosocial behavior. We conducted a randomized controlled trial inside the Santa Maria della Scala museum in Siena, introducing a treatment that emphasizes the site's historical role in welcoming and caring for foreigners. The treatment led to a significant increase in charitable donations toward an NGO supporting refugees, and it was entirely driven by women. This is the outcome the intervention was designed to produce, showing that when cultural institutions are used with a clear purpose, they can effectively promote targeted prosocial behaviors.

In our setting, the emphasis on hospitality—a theme deeply rooted in the museum's religious and civic history—appears to activate behavioral responses consistent with increased generosity. Our paper aligns with a broader literature showing that prosocial behavior is sensitive to contextual cues, social image, and moral salience (Ariely et al., 2009; DellaVigna et al., 2012). It also resonates with models in which attention and situational framing alter public-good contributions (Bordalo et al., 2013; Kessler and Milkman, 2018), and where social preferences are shaped by institutional or cultural context (Bénabou and Tirole, 2006;

Fehr and Hoff, 2011).

From a policy perspective, the intervention we study is a simple, low-cost, and easily replicable across a wide range of cultural settings. Public institutions often overlook museums and heritage sites as tools for civic engagement, yet our findings highlight their potential as platforms for fostering generosity and social cohesion. Importantly, such interventions can complement traditional policies without requiring material incentives or coercion.

Taken together, our findings contribute to the growing literature on behavioral public economics by showing how culturally grounded nudges can shape prosocial decisions. They point to a broader role for institutions of memory, not only as preservers of the past, but as catalysts for present-day public good provision.

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Appendices

A Self-reported measures of attitudes toward migration from ESS

Questions on welcoming of different cultures: for all of them subjects have to pick one of the following answers: *i* Allow many to come and live here (4 points), *ii* Allow some (3 points) *iii* Allow a few (2 points), *iv* Allow none (1 point).

- **B29** To what extent do you think Italy should allow people of the same race or ethnic group as most Italy's people to come and live here?
- **B30** To what extent do you think Italy should allow people of a different race or ethnic group of most Italian people to come and live here?
- **B30a** And how about people from the poorer countries in Europe? Still use this card.
- **B31** How about people from the poorer countries outside Europe? Use the same card.

Questions on intercultural contact/exchange: for each of them, answer from 00 to 10 according to how good do they think it is the scenario proposed in the question.

- **B32** Would you say it is generally bad or good for Italy's economy that people come to live here from other countries? Please use this card.
- **B33** And, using this card, would you say that Italy's cultural life is generally undermined or enriched by people coming to live here from other countries?
- **B34** Is Italy made a worse or a better place to live by people coming to live here from other countries?

B Calendar

The tours were designed and prepared in collaboration with the museum guides, Deborah Barbagli and Nora Giordano, during September 2024 and January 2025. In March-April 2025, we set up the tour calendar jointly with them. Tours were scheduled on Mondays, Wednesdays, and Fridays, with each date randomly assigned to either the control or treatment condition, subject to the guides' availability. The detailed allocation of control and treatment tours is reported below.

Date	Day	Group
March 2025		
3	Monday	Control
5	Wednesday	Treatment
7	Friday	Control
10	Monday	Control
12	Wednesday	Treatment
14	Friday	Treatment
17	Monday	Treatment
19	Wednesday	Control
21	Friday	Control
24	Monday	Control
26	Wednesday	Treatment
28	Friday	Treatment
31	Monday	Control
April 2025		
2	Wednesday	Treatment
7	Monday	Treatment
9	Wednesday	Control

Table B1: Calendar of museum tours used in the experiment, with allocation to control and treatment groups.

C Additional Figures and Tables

C.1 Balance Table

The treatment and control groups are balanced on gender, age, and nationality. However, enjoyment ratings are significantly higher in the control group ($p < 0.01$). Despite this, participants in the treatment group donated more, further ruling out satisfaction as a driver of the treatment effect. This interpretation is reinforced by the fact that enjoyment does not significantly predict donations in any model specification.

	(1) Control	(2) Treatment	(3) Difference (1)-(2)
Female	0.65	0.63	0.02
	(0.48)	(0.48)	(0.05)
Age	23.72	23.84	-0.11
	(2.98)	(2.67)	(0.29)
Italian	0.96	0.97	-0.01
	(0.19)	(0.16)	(0.02)
Enjoyment	9.46	8.62	0.84***
	(1.13)	(1.70)	(0.15)
N	190	195	385

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C1: This table reports baseline characteristics of participants in the Control and Treatment groups, including gender, age, nationality, and self-reported enjoyment. Means (standard deviations in parentheses) are shown for each group, along with their differences and corresponding significance levels.

C.2 Donation Outcome

As reported at the beginning of Section 3, treatment increases donations in both likelihood and amount, particularly among female participants. Table C2 presents the full set of t-test comparisons referenced in the main text.

C.3 Donations Probabilities

Logit and probit regressions in Table C3 confirm that the treatment significantly increases the likelihood of donating ($p < 0.05$). Female participants and older individuals are also more likely to donate, while nationality and enjoyment have no detectable effect.

	Control	Treatment	Difference	p-value	Obs.
Amount Donated	0.84	1.19	-0.36	0.120	385
Has Donated	0.18	0.25	-0.07	0.112	385
Amount Donated to CIR	0.59	0.89	-0.30	0.132	385
Has Donated to CIR	0.14	0.19	-0.05	0.168	385
Amount Donated to LIPU	0.24	0.30	-0.06	0.550	385
Has Donated to LIPU	0.09	0.10	-0.01	0.664	385
Amount Donated (F)	0.89	1.50	-0.62*	0.050	246
Has Donated (F)	0.18	0.30	-0.12**	0.025	246
Amount Donated to CIR (F)	0.66	1.14	-0.48*	0.075	246
Has Donated to CIR (F)	0.15	0.24	-0.09*	0.080	246
Amount Donated to LIPU (F)	0.23	0.37	-0.14	0.329	246
Has Donated to LIPU (F)	0.08	0.11	-0.02	0.513	246
Amount Donated (M)	0.68	0.67	0.01	0.965	137
Has Donated (M)	0.18	0.17	0.01	0.845	137
Amount Donated to CIR (M)	0.45	0.47	-0.02	0.923	137
Has Donated to CIR (M)	0.11	0.11	-0.01	0.902	137
Amount Donated to LIPU (M)	0.23	0.20	0.04	0.761	137
Has Donated to LIPU (M)	0.09	0.10	-0.01	0.879	137

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C2: This table reports mean donation outcomes for the Control and Treatment groups, including total donations, likelihood of donating, and donations to each NGO (CIR and LIPU). For each variable, we present results for the full sample, followed by averages computed separately for female and male participants. Differences between groups, their p-values, and the number of observations are reported in each case.

	Logit	Probit
Treatment	0.418**	0.239**
	(0.203)	(0.114)
Female	0.443*	0.239
	(0.252)	(0.145)
Age	0.0948*	0.0550*
	(0.0495)	(0.0300)
Italian	−1.056	−0.636
	(0.690)	(0.433)
Enjoyment	−0.0456	−0.0241
	(0.0670)	(0.0389)
Observations	381	381

Standard errors in parentheses are clustered at session level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C3: This table reports the results from Logit (first column) and Probit (second column) regressions estimating the probability of donating to both NGOs (CIR and LIPU). All specifications control for gender (female), age, nationality (Italian), and the grade reported in the satisfaction questionnaire.

The treatment effect is driven by donations to CIR, the migration-focused NGO, where both logit and probit models show a significant increase in donation likelihood ($p < 0.05$). No significant effect is observed for LIPU, confirming the thematic specificity of the treatment.

	CIR - Logit	CIR - Probit	LIPU - Logit	LIPU - Probit
Treatment	0.433**	0.239**	0.185	0.107
	(0.208)	(0.114)	(0.390)	(0.195)
Female	0.742***	0.391***	0.0454	−0.0138
	(0.266)	(0.144)	(0.456)	(0.223)
Age	0.0727	0.0405	0.113*	0.0604**
	(0.0558)	(0.0327)	(0.0579)	(0.0306)
Italian	−1.012	−0.590	−1.732*	−0.979*
	(0.711)	(0.444)	(0.895)	(0.540)
Enjoyment	−0.0165	−0.00680	−0.111	−0.0536
	(0.0758)	(0.0427)	(0.125)	(0.0626)

Standard errors in parentheses are clustered at session level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C4: This table reports the results from Logit and Probit regressions estimating the probability of donating to CIR /first two columns) and LIPU (last two columns). All specifications control for gender (female), age, nationality (Italian), and the grade reported in the satisfaction questionnaire.

C.4 Immigration Attitudes

Table C5 shows that the treatment has no statistically significant effect on immigration attitudes ($\beta = -0.0046$, $p = 0.798$), confirming that the intervention did not shift participants' stated views on migration.

	OLS
Treatment	-0.00462
	(0.0198)
Female	0.0621**
	(0.0249)
Age	0.00588**
	(0.00229)
Italian	0.0790*
	(0.0378)
Enjoyment	0.0136**
	(0.00631)

Standard errors in parentheses are clustered at session level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C5: This table presents OLS regression results estimating the impact of the treatment on participants' immigration attitudes. Controls include gender (female), age, nationality (Italian), and enjoyment reported in the satisfaction questionnaire. Standard errors are reported in parentheses.

Mediation Analysis. Table C6 reports a Tobit regression of donation amounts on treatment and immigration attitudes. Notably, both the treatment effect ($\beta = 1.696$, $p < 0.05$) and the effect of immigration attitudes ($\beta = 5.269$, $p < 0.05$) are positive and statistically significant. Importantly, the treatment coefficient remains virtually unchanged when controlling for immigration attitudes (compared to $\beta = 1.695$ in the baseline model without attitudes), indicating that the increase in donations is not mediated by attitudinal change. These findings suggest that the treatment influenced donation behavior through a channel other than stated attitudes—likely a general increase in generosity—consistent with a non-cognitive or affective mechanism.

	All NGOs
Amount Donated	
Treatment	1.696**
	(0.832)
Attitude Immigration	5.269**
	(2.417)
Female	1.568*
	(0.806)
Age	0.368**
	(0.181)
Italian	-3.947
	(2.397)
Enjoyment	-0.127
	(0.239)

Standard errors in parentheses are clustered at session level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C6: This table presents Tobit regression results estimating the effect of the treatment and immigration attitudes on donation amounts to all NGOs combined. Controls include gender (female), age, nationality (Italian), and enjoyment reported in the satisfaction questionnaire. Standard errors are reported in parentheses.

D Robustness

D.1 Outliers

We examine how the results are influenced by the three outliers excluded from the main analysis. All three share very similar socio-demographic and behavioral characteristics: they are Italian females, they donated the full endowment split equally between the two NGOs, they reported the maximum enjoyment score (10), and they display a very high immigration attitude index. Notably, two of the three were assigned to the control group, and their donations account for 20% of the total amount donated by all participants in that group.

We consider it appropriate to exclude these outliers for several reasons. First, their presence heavily distorts the distribution of donations, particularly in the control group (see Table D1). Second, as shown in Table D2, removing them does not substantially change the treatment coefficient, but it reduces standard errors and makes the treatment effect statistically significant. Finally, it is reasonable to assume that had the two control outliers been assigned to the treatment group, they would still have donated the full amount. Even reassigning a single outlier from control to treatment markedly increases the treatment coefficient. For these reasons, we believe it is more appropriate to remove the outliers—even though no exclusion criterion was pre-registered—rather than allow the results of the experiment to be driven by the behavior of only three participants.

	N	mean	sd	skewness	kurtosis
Full sample (control)	192	1.04	2.81	4.13	24.32
No outliers (control)	190	0.84	2.04	2.71	10.41
Full sample (treatment)	196	1.29	2.76	2.98	15.01
No outliers (treatment)	195	1.19	2.41	2.18	7.28

Table D1: Summary statistics of donations by experimental group, with and without the three outliers. Reported statistics include the number of observations (N), mean, standard deviation (sd), skewness, and kurtosis.

	(1)	(2)	(3)	(4)
Treatment	1.678	1.695**	2.223*	2.174**
	(0.104)	(0.040)	(0.061)	(0.023)
Female	2.702***	1.941**	2.663***	2.663***
	(0.001)	(0.025)	(0.001)	(0.001)
Age	0.425*	0.399**	0.423*	0.416*
	(0.065)	(0.030)	(0.064)	(0.065)
Italian	-3.645	-3.572	-3.709	-3.713
	(0.157)	(0.122)	(0.158)	(0.163)
Enjoyment	0.0254	-0.0875	0.0714	0.0687
	(0.932)	(0.728)	(0.824)	(0.824)

p-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table D2: Tobit regression estimates of the treatment effect, with and without the three outliers. Column (1) reports tobit regressions for the full sample, Column (2) reports the estimates for the sample without outliers, Column (3) and (4) report the estimates moving one outlier from control to treatment.