DOCTORAL THESIS

Three Essays on Donations

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Abstract

Three Essays on Donations

by Costanza USAI

This doctoral thesis explores the intersection of societal influences and individual prosocial behaviors, with a focus on the influence of information on charity donations and the impact of xenophobic politics, and gender differences in blood donation setting. In Chapter 1, "Optimal Information in Charity Donations," it is analyzed, in an online experimental setting, how different types of information (cause-impact and output-impact) and donor characteristics (warm-glow altruists vs. pure altruists) influence endowment allocation choices in a Dictator Game involving a Non-Profit Organization (NPO). Chapter 2, "The Effect of Xenophobic Politics on Locals' and Immigrants' Prosocial Behavior," examines the repercussions of the rise in populist, anti-immigrant politics on prosocial behaviors. Utilizing data from the Associazione Volontari Italiani del Sangue (AVIS) and focusing on municipal election timings, this study seeks to identifies whether a decrease in civic engagement, proxied by blood donations, occurs as a consequence of a rise in popularity of anti-immigration parties. Chapter 3, "Proximity Matters: Exploring the Influence of Distance on Gender Differences in Blood Donation Dropouts," investigates the role of geographical distance and its impact on the gender gap in blood donation behavior. By considering the spatial distribution of donors and their proximity to donation centers, this research aims to uncover underlying factors contributing to gender-specific donation patterns. Together, these chapters provide comprehensive insights into how information, political climate, and logistical factors shape individual and collective prosocial actions, highlighting the complex dynamics at play in fostering or hindering altruistic behaviors.

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To my Family.

Introduction

As societies evolve, understanding the dynamics of prosocial behaviors becomes crucial in shaping cohesive and cooperative communities. Prosociality stands as a solid cornerstone of the societal fabric. This intrinsic value fosters social harmony by promoting behaviors that prioritize the others' well-being, positively influencing a range of diverse socio-economic outcomes. These include (but are not limited to) economic growth, workplace productivity, educational attainment, poverty alleviation, healthcare access, social welfare, as well as enhanced trust, conflict resolution and increased social capital. These values are often ingrained in social norms and ethic principles that are transmitted from one generation to the other and contribute to shape cooperative and altruistic individuals which altogether constitute a closely-knit social fabric and promote a sense of collective responsibility within the community. Prosociality can indeed be considered a cultural heritage.

Acknowledging the dynamic nature of societies and the ever-evolving feature of human interaction, it is vital to keep studying the mechanisms and dynamics that underpin prosociality. Research on altruism allows us to adapt and tailor our understanding to the changing needs of societies. By investigating factors that enhance or impede prosocial inclinations, we can better face the challenges of contemporary life.

The decision to concentrate my doctoral research on the world of donations stems from series of reasons. At the heart of this choice there is an intrinsic fascination with the altruistic behaviors that underpin the act of giving, a curiosity about the psychological and social motivators that drive individuals and organizations to contribute to

causes beyond their immediate self-interest. The complex interplay between personal values, societal pressures, and economic incentives presents a rich pool for academic exploration, offering insights into human behavior that are broadly impactful.

Moreover, the evolving landscape of philanthropy, marked by technological advancements, shifting societal norms, and growing demands for transparency and impact, have highlighted the urgency and relevance of studying donations. In a world struggling with vast social and environmental challenges, understanding how to optimize charitable contributions for maximum societal benefit is not only an academic pursuit but also a pressing societal need. My research is driven by the desire to enhance the efficiency of the philanthropic sector, informing strategies that ensure resources are channeled where they are most needed and can do the most good.

My focus emphasizes exploring the intricate panel of motivations behind philanthropy, including social and cultural norms, which entails the interplay of social networks and societal expectations. By delving deep into these dimensions, my work aims to shed light on how these diverse factors serve as catalysts or barriers to the altruistic impulse to give, offering insights into the essence of prosociality. The present dissertation analyse in particular two donation domains: charity donations and blood donations. Although these two domains display many obvious similarities, they actually show some peculiar aspects. On the basis of these underlying specifities I shaped the three chapters of my thesis.

First of all, Chapter 1 is focused on studying the relationship between information and charity donations, which I deem crucial for enhancing philanthropic effectiveness and donor engagement. In an era where information is readily available, understanding how and what type of information influences donor behavior can significantly impact fundraising strategies. Transparent and accessible information about a charity's operations, impact, and financial stewardship can increase donor trust and confidence,

leading to higher donation rates and sustained support. Furthermore, analyzing this relationship helps identify the most effective channels and messages for reaching potential donors and optimizing resources. This knowledge not only benefits charities in achieving their missions more efficiently but also empowers donors to make more informed decisions about where to allocate their resources.

The exploration of information provision takes on a pivotal role in the world of charity donations, particularly due to the vast constellation of organizations operating within the sector. Potential donors are often faced with a disparate array of choices, each organization competing over scarce resources (that is money). In this context, the motivation for studying how information influences donation behavior becomes twofold. Firstly, it addresses the critical need for clarity and direction amidst the multitude of charitable causes, aiming to understand how specific types of information can guide potential donors through a maze of options, helping them make informed decisions that align with their values and the impact they wish to create. This is especially significant in charity donations context, in contrast with the relatively simple decision-making process associated with blood donations, which typically involves a single end beneficiary, generally a person in need of blood, and where the pool of organizations to rely on to donate is significantly less. Secondly, in the sphere of charity donations, the provision and framing of information are essential not only for attracting initial support but also for building long-term relationships with donors. By unfolding the dynamics of how information provision affects donor behavior, this research seeks to illuminate the pathways through which charities can effectively communicate their mission, demonstrate their impact, and thereby cut through the noise to engage and retain the support of the public. This endeavor not only enhances our understanding of donor motivations and behaviors but also equips charitable organizations with the insights needed to tailor their communication strategies, ensuring they stand out in a crowded and competitive

landscape.

In Chapter 2 I deal with the impact that political climate might have on levels of blood donations. In this context two phenomenon are at work: role identity of the donor and the social identity bias.

Lee et al. (1999) delineate role identity as a crucial facet of self-perception, deeply intertwined with one's engagement in defined roles within society, such as that of a donor. This concept emphasizes the significance of societal expectations and personal interactions in shaping how individuals perceive their contributions to altruism, influencing their motivations and actions in prosocial domains. Role identity, dynamic in nature, is constructed from the reflections on one's societal roles, echoing internalized norms and values that steer individuals towards continued altruistic behaviors. Particularly, in the context of blood donation, this identity may face heightened challenges compared to charity donations, given the anonymity of beneficiaries. In the second chapter of the thesis, the resilience of role identity is examined under the strain of xenophobic sentiments surfacing during elections, highlighting the tension between donors' self-perceptions and the realization that their donations may benefit "out-group" individuals, such as immigrants. This exploration intersects with social identity bias theory, first posited by Tajfel et al. (1979), which posits that individuals categorize themselves and others into various social groups, leading to in-group favoritism and potential out-group bias. The thesis aims to unravel how role identity, when juxtaposed with social identity biases, responds to the revelation that blood donations may cross these in-group and out-group boundaries, especially in times of societal polarization, thereby offering an understanding of the interplay between personal identities and broader social dynamics in the context of prosocial behavior.

Finally, Chapter 3 delves into the examination of how material barriers, particularly distance, impact the likelihood of women and men to donate blood, underpinned by the premise that these barriers might influence the two genders differently due to distinct lifestyle constraints and societal expectations. This exploration is especially pertinent to blood donation: a context that demands not just a physical part of oneself but also a considerable investment of time, often encompassing the entirety of a day for the journey to the center, the donation process itself, and the recovery period thereafter. Unlike charity donations, which have largely transitioned to the digital sphere allowing for effortless online contributions, blood donation presents unique challenges in terms of time availability and transportation accessibility.

The investigation is motivated by an understanding that women, frequently tasked with a larger share of domestic responsibilities and caregiving roles, may find these material barriers more daunting with respect to their male counterparts. This disparity invites a closer look at how the availability of time — not just in terms of being able to visit a donation center but also in managing daily responsibilities such as childcare, groceries, and other tasks — along with access to transportation, such as having a private vehicle, might differentially affect men and women's ability to participate in blood donation. The assumption here is that the act of donating blood, with its intrinsic demands for physical presence and time, might uncover broader gender-based discrepancies in how individuals can engage in altruistic acts, reflecting the intersection of personal willingness, societal roles, and material constraints in blood donation setting.

Chapter 1

Optimal Information in Charity Donations

1.1 Introduction

Charitable giving has long been a significant global industry, reaching a total of $182 billion in 2021 (CAF, 2021). However, in the last few years a new trend has been identified in developed countries such as the UK and US, the so called "donors down, donations up" (GivingUSA, 2018; CAF, 2021).

In the UK, during the years prior to the Covid-19 pandemic, this pattern of fewer people giving more was already recognised by the Charities Aid Foundation (CAF, 2021). Data collected during 2020 and 2021 pointed out that this trend has gained some momentum during the pandemic. In the UK the total amount donated to charitable causes rose from £10.6 billion in 2019 to £11.3 billions in 2020, while the number of donors dropped from 40% to 30% in the same period (CAF, 2021). Therefore, it has become crucial to consider new strategies aimed at enlarging the pool of no-profit donors. Consequently, it arises a twofold question concerning how to engage with new potential donors and how to increase donations from regular ones.

In this regard, many studies have investigated several communication strategies in or-

der to further understand the underlying motivation behind donation decisions Bekkers and Wiepking (2011). This project focuses on the dichotomous feature of the giving act, encapsulated by the concept of pure and impure altruism. The first kind of (potential) donor is thought to give in order to maximize his own utility, which is derived from the mere act of giving; while the latter is deemed to aim at maximizing social welfare (Andreoni, 1989). In this respect, a first essential step in the present study is to find confirmation in line with the existing literature, using a novel survey tool[1] introduced by Carpenter (2021) to differentiate between pure and impure donors.

Another important element mediating the relationship between donors and nonprofits is represented by the information provision. Charitable organizations in their attempt to gain new donors and maintain constant or increase regular contributors' giving, have to deal with limited attention of the public they want to interact with. This leads NPOs to concentrate on determining the kind and amount of information to present about their programs.

In this vein, optimal information provision has gained traction in the nonprofit research field. Research on effective information in this context has found a solid ally in tangible information. This type of information is defined in Cryder and Loewenstein (2010)'s book as an «[...] information that is specific and concrete as opposed to general and abstract», adding that «information can be inherently tangible, such as when it is highly specific and imbued with rich detail or information, and can become more tan-

[1]Conventionally, warm-glow is assessed using an experimental procedure that provides indirect measures of impure altruism. For instance, initial experiments aimed at disentangling pure and impure giving made use of public good games. Specifically, when participants were informed that another entity would contribute financially on their behalf, a pure altruist would likely choose to crowd out, given that the final product would still be realized, while a warm-glow contributor is deemed to give anyway - since his utility benefits from the act of giving *per se* (Andreoni, 1993; Crumpler and Grossman, 2008; Eckel et al., 2005; Konow, 2010). Of course, in the context of charity giving there is no ceiling to contributions, therefore experimenters came up with alternative measures for this study setting (e.g. Carpenter et al., 2008; Null, 2011).

gible due to the way it is processed.» There are many ways in which an information can be tangible. An example of this is represented by the "identifiable victim effect" (Kogut and Ritov, 2005), according to which donors tend to donate more if the recipient is an individual rather than a group. This phenomenon builds upon both the "denominator effect"[2], and an increased emotional response on the part of the giver.

Another type of tangible information refers to the type of message disclosure which makes the recipient aware of the impact the aid programs have on social welfare on the short-, medium- and/or long-term (Bodem-Schroetgens and Becker, 2020). For example, in 2006, Pampers, a diaper brand, in partnership with UNICEF, initiated a charitable campaign to fund vaccine provision in South Africa. The campaign's success was largely attributed to its effective slogan: "1 pack = 1 vaccine." This initiative was later compared with other campaigns that employed less specific slogans that did not resulted to be equally impactful (Cryder and Loewenstein, 2010).

A further dimension relatable to tangibility concerns NPOs' performance of fiscal propriety. Indeed, one common tool employed by nonprofits' managers to signal trustworthiness and efficiency, is the program spending ratio as a proxy for performance, also known as the overhead ratio. Consequently, those nonprofits showing a high overhead ratio are perceived as less effective, spending away from aid programs.

Tangible information, in this sense, is disclosed in order to reduce the asymmetry of information that typically arises in this study setting. Indeed, nonprofits face a trade-off: on one hand, outcome observation and transparent reporting are essential for accountability and performance improvements, but, on the other hand, these processes demand control and audit procedures that come with a price, thereby inflating overhead ratios

[2]This effect arises from the feeling that your contribution alone is marginal, «like a drop in a bucket» (Cryder and Loewenstein, 2010).

(and potentially reducing perceived trustworthiness). Thus, nonprofits face further disincentives for producing outcome information, as higher overhead rates can deter future contributions.

Programs impact monitoring and reporting and NPOs' spending efficiency is gaining traction under the label of "instrumental philanthropy" (Mitchell and Calabrese, 2020), and, we posit, it might incentivize in the form of information provision those type of donors oriented at maximizing the impact of their giving (pure altruists). On the other hand, effectiveness and efficiency type of information could be detrimental when associated with high warm-glow individuals, for a twofold reason. First, the disclosure of more output-oriented information could diminish the personal impact felt by an impure altruist. Secondly, a sort of "strategic ignorance" (Carrillo and Mariotti, 2000) might play a fundamental role for these kind of personalities. The absence of outcome information may be beneficial to maximizing purchaser satisfaction. No space is left for disappointment if the desired outcome is not achieved. It may be this license that philanthropists purchase, rather than outcomes *per se*. In this decision-maker category (i.e. warm-glow donors) what is really purchased is an irrevocable «license to feel good» (Mitchell and Calabrese, 2020).

In this project, the objective is to unravel, through an online experiment, the specific types of tangible information that influence donation behavior for different donor profiles. We intend to administer two types of treatments: Cause-oriented Information (CI) and Outcome-oriented Information (OI). While both types fall under the umbrella of tangible information, CI concentrates on the recipients and the personal impact of donations, whereas OI offers metrics on the effectiveness of the programs and NPO's financial details.

As for the definition of donors types we employed the study of Carpenter (2021).

The standard division in literature is the one given originally by Andreoni (1989), which is "limited" to pure and impure (i.e. warm glow) altruists. Carpenter (2021) decided to further divide the last donors category into high warm glow and low warm glow types, based on their reported reasons for giving. This categorization was not arbitrary. This differentiation was validated through structural estimation and a survey tool, which revealed large differences in preferences between the two groups. Specifically, the study found that high warm glow participants had estimated preference parameters indicating that their contributions would increase as the charity claimed a larger share of the contributions. This was consistent with high warm glow donors being more motivated by the act of giving itself rather than the size of the prize in a lottery, which matched the standard theoretical assumptions of warm glow being concave and increasing in one's donation. On the other hand, low warm glow participants were estimated to have parameters predicting that their contributions would fall as the charity claimed a larger share, consistent with them being more motivated by the incentive structure rather than by the intrinsic satisfaction of contributing to a charity.

This research hypothesizes that pure altruists may be more motivated by outcome-related information, whereas this same information could potentially discourage contributions from high warm glow donors. Conversely, high warm glow donors are likely to increase their donations when presented with Cause-oriented Information, while pure altruists may reduce their giving in response to CI. Low warm glow donors, reflecting findings by Carpenter (2021), are expected to donate less with respect to their counterparts irrespective of the treatment they are in.

To summarise, the main research questions investigated by this study are the following:

1. Do different types of tangible information (Cause-impact vs Output-impact) influence donation decisions?;

2. Do the two types of donors (high warm-glow vs low-warm glow vs pure altruists) contribute in a different way with respect to each other?;

3. Given donors' limited attention constraint, which is the best communication strategy to adopt in terms of impacting the probability to donate and the amount donated, conditional on the type of donor?

This study's main contribution lies in its investigation of how different stakeholders' profiles, distinguished by their altruistic motives — either pure or impure —, choose to engage financially with a cause. It delves into the differential impact that OI, which quantifies the nonprofit's achievements, as opposed to CI information type, which aims at emphasizing the donor's personal gratification and emotional connection to the giving experience, has on different types of donors.

1.2 Literature review

1.2.1 Information and charitable giving

The literature on the impact of information on charitable giving presents mixed findings, reflecting a complex interplay between donor preferences and the nature of the information provided.

For example, Krasteva and Yildirim (2016) posits that informed giving is not an usual practice and, according to Null (2011) and Karlan and Wood (2017), potential information buyers show a certain level of aversion when asked to pay for information that would allow them to make a more informed donation decision. In line with this evidence, Metzger and Günther (2019) designed a laboratory experiment where participant were randomly assigned to one of three information treatments, in each of which they were given the opportunity to acquire with a small cost additional information con-

cerning impact of aid, the types of recipients, and administrative costs of the nonprofit they where associated with. Findings from this research show that a notable fraction of subjects opted not to seek out this potentially decision-altering information. These results remained unaltered even in the case in which additional information was given for free.

Conversely, a significant segment of studies within the nonprofit sector has examined how donor behavior is influenced by the type of information provided. In this vein, we find quite a few pieces of evidence about the effectiveness of emotional appeals in charitable context. For example, it has been found that donations increase when detailed information regarding the type of recipient (Schelling, 1968; Kogut et al., 2018; Bachke et al., 2017) or the nonprofit projects were disclosed (Bachke et al., 2014), even if results are highly dependent on the type of information provided. In this vein, Small et al. (2007) and Sah and Loewenstein (2012) reported in their studies that people in general are more benevolent when the recipient is an identifiable victim with respect to the case in which the beneficiaries are described statistically as a group. Interestingly, Aknin et al. (2013) found that the participants reported higher perceived impact when provided with detailed information about what their individual donations can buy.

Additionally, studies examining the type of information related to the effectiveness of project outcomes have yielded diverse results. Bodem-Schroetgens and Becker (2020) contribute to this strand on outcome oriented information literature, studying how nonprofit campaigns providing information on three effectiveness indicators, (i.e. outputs, outcomes and impacts) can alter donation behavior. Outputs refer to immediate effects, outcomes reflect the intermediate effects, and impacts describe the long-term effects of a project on recipients. Their study revealed that donors value outcome and impact indicators more than output information, without any differences between the two. Pointing to the opposite direction, Crumpler and Grossman (2008) revealed that people will

contribute to nonprofits even under the certainty that their contributions will have no impact.

As for the financial transparency feedback information, we have several studies that have investigated how information about administrative costs could affect donation decisions. Most of the overhead ratio experiments lead experimental subjects to concentrate on overhead information, asking them to make a comparison and judge charities with different overhead ratios (Duncan, 2004; Gneezy et al., 2014). The general evidence arising from these studies show that donors react negatively to nonprofits with high overhead ratio (Bowman, 2006; Brown et al., 2017; Caviola et al., 2014; Charles et al., 2020; Grant, 2021; Gregory and Howard, 2009; Portillo and Stinn, 2018; Szper and Prakash, 2011). For example, Grant (2021) estimates that donations to highest-rated charities maintain stable contributions, while for each consecutive lower star, donations decrease, arriving to the point that 1-star rated charities lose about 12%–14% of potential contributors.

1.2.2 Information, charitable giving and donor type

In the past years, studies trying to tackle the dynamics underlying the size of average donations and the expansion of the the donor base has increased (Karlan and Wood, 2017; Eckel et al., 2017; Agerström et al., 2016; List and Lucking-Reiley, 2002; Meier, 2007; Wang and Graddy, 2008; Sargeant et al., 2000; Croson et al., 2009). In particular, research has focused on the factors that affect donation behavior. Bekkers and Wiepking (2011) provide a systematic and extensive review of all possible rationales behind charitable giving, and isolate eight main domains: awareness of need, solicitation, costs and benefits, altruism, reputation, psychological benefits, values, efficacy.

Within this strand of literature investigating why people gain utility from donating to charity, stands out the seminal work by Andreoni (1989, 1990). He shaped the "warm-

glow" theory, according to which altruism can also stem from a personal gain motive. This theory has attracted a lot of attention in the field and has been often tested in experimental economics (e.g. Crumpler and Grossman, 2008; Tonin and Vlassopoulos, 2010; Null, 2011; Evren and Minardi, 2017).

However, not many studies have taken into consideration the relationship occurring between donor type and information type in charitable giving context. Null (2011) provided one of the first works accounting both for donor type and information provision. In this field experiment, 200 donors were confronted with a series of decisions about how to divide a gift between a set of similar charities. Most donors simultaneously contribute to multiple development charities with similar mission statements. This occurs even when the social benefit of the gifts, indicated by the matching rates received by the charities, is unequal. Given the donors' preferences for these charities, such choices lead to significant inefficiencies. Final results from this lab experiment demonstrate how donors often spread their gifts across several charities, potentially forfeiting social surplus (matching funds) equal to 25% of the value of their gifts. Null (2011) therefore infers that inefficient resource allocations might be indirect evidence of both warm-glow - which lead to a preference for variety even among similar charities - or, risk aversion over the social value of charitable gifts. Moreover, she observes that only a little share of participants were willing to pay for information that could have enabled them to increase the social benefit of their gifts. However, as explicitly reported in the paper, it was impossible in his experimental design to disentangle warm-glow giving motive from risk aversion.

Lastly, the study most closely related to the current research is the one by Karlan and Wood (2017). The authors of this study manipulate the information provided to potential donors through direct mail solicitations, varying the content to include discussions on the program's impact as validated by scientific research. The core focus is on observ-

ing how different types of information (emotional appeal vs. evidence of effectiveness) influence the likelihood and magnitude of donations. The key findings were that the addition of scientific impact information did not affect the average likelihood of giving or the average gift amount. However, there was notable heterogeneity in responses: large prior donors increased their contributions when presented with evidence of the charity's effective poverty reduction efforts, valuing the tangible impact of their donations. In contrast, small prior donors reduced their giving when faced with the same information, possibly because the emotional appeal, rather than the effectiveness of aid, motivated them. However, in Karlan and Wood (2017) the association between kind of donor and both donation decision and type of message is speculative. The integration of pure and warm glow donors is indirectly inferred through the observed differential responses to the effectiveness information provided in fundraising appeals and on the basis of being a large or small prior donor.

The study by Karlan and Wood (2017) does not explicitly categorize donors as pure or warm glow upfront. In the present work we try to disentangle different donor types by means of the survey tool designed and validated by Carpenter (2021) (see Survey supplemental material - Questionnaire, Question 1, in Section A.1.1 of the Appendix).

1.3 Experimental design

1.3.1 Experiment overview

This work shows results from a pilot study, programmed in Qualtrics software (Qualtrics, 2005), of 159 participants residing in the UK, recruited on the online platform Prolific Academic (Prolific, 2014).

The actual experiment has been designed to follow five stages. Firstly, participants were presented the usual Informed Consent, followed by the recording of unique al-

phanumeric Prolific Identification code and experiment instructions, where they were informed they would be given 0.60 GBP as show-up fee (see Figure A.1 in the Appendix).

Immediately afterwards, participants were asked to carry out a real effort task, at the end of which they would be paid 1 GBP. For this purpose, it has been employed the slider task created by Gill and Prowse (2012) to exert effort, in which subjects were asked to move six sets of three sliders each to a specified number on a range of integers between 1 and 100 (see an excerpt of the task in Figure A.2 in the Appendix). The slider task is an effective mechanism to capture effort, as it is unlikely to be affected by pre-existing knowledge or ability compared to other effort tasks (e.g., algebra problems). Moreover, the task is easy to communicate, understand and implement (Faravelli et al., 2020).

The second stage has been omitted in the pilot to simplify the design and in order not to insert additional heterogeneity within a reduced sample. In this part of the experiment participants are asked to choose one charity organization from a menu of NPOs with different missions (e.g. environment, humanitarian aid, health) in order to increase the level of engagement with the selected cause. With the aim to increase participants' involvement with the study, they are presented a further choice stage from which they have to indicate a specific program offered by the previously chosen charitable organization.[3]

Since this stage has been omitted in the pilot, we had to choose a cause that could

[3]This intermediary stage actually represent a trade off, since it helps augmenting participant engagement, which is quite crucial in charity donation context (Cryder and Loewenstein, 2010). At the same time, it introduces heterogeneity in the design: participants choosing animal aid foundations, for example might present different characteristics from those going for organization working in the development programs. Of course, this heterogeneity in the sample can be controlled, but the sample size in the real experiment should be adequately increased.

embrace and mobilize our sample to the fullest extent. Therefore, for the third stage of the experiment, subjects were provided with information concerning an actual charity organization, the Children International nonprofit. This charity helps children receive access to health care, educational resources and life-changing programs in safe, clean spaces. The rational behind the choice of this charity is to attribute to more than one aspect. First of all, for the selection of the cause and program we relied on the findings of Bachke et al. (2014). Indeed, they find that children-oriented charities are among the most "popular" causes and that health programs are among the most followed aid projects. Secondly, NPO's reputation is likely to play an important role in this study setting. Therefore, in order to exclude prior knowledge effect as a possible reason in the donation choice, a relatively unknown NPO in the UK was chosen [4]. Thirdly, this organization has been chosen for its "virtuous" communication strategy. Indeed, it is one of the few association which reports in a quite accessible way all information necessary for the treatment conditions. Lastly, Children International met the requirement of being an excellent performing organization with an 82% of its expenses employed in aid programs [5].

Before randomly assigning participants to one of the two treatment conditions, they were all shown a page with basic information on the charity mission (see Figures A.3 in the Appendix). Then, a randomized share of the sample (79 subjects) was confronted with the first information treatment, the Cause Information treatment, containing the self impact oriented information type. While the other part of the sample (80 subjects) was assigned to the second information treatment, the Output Information treatment,

[4] This has been controlled with a specific question in the survey part (see Survey supplemental material - Questionnaire, Question 2 (ii), in Section A.1.1 of the Appendix).

[5] An optimal performing charity has been chosen since it is not in the interest of this study to observe donation decision along the dimension of good/bad performance of the NPO.

enclosing the program impact oriented information type.

The fourth stage of the experiment asked participants to choose whether and how much to donate to the organization using the endowment they earned from the effort task.[6]

Finally, in the last part of the study participants had to answer a short survey part (see Survey supplemental material - Questionnaire in Section A.1.1). The first item in the questionnaire was the warm-glow survey tool (Carpenter, 2021). This survey instrument allowed us to categorize participants into three subgroups: pure altruists, low warm-glow (LWG) altruists and high warm-glow (HWG) altruists.

Secondly, a scale developed by Webb et al. (2000) was utilized to measure Attitudes toward Charitable Organizations (ACO). This scale included items such as "the money given to charities goes for good causes" or "much of the money donated to charities is wasted". Then, two control questions were included in the questionnaire, specifically regarding prior knowledge of the Children International charity and participant behavior in terms of donation frequency. Finally, participants were confronted with a two-item tool created by Falk et al. (2018), in order to measure the level of individual prosocial behaviour.

Selected demographics about participants were provided by Prolific platform. In particular, demographics generally associated with charitable giving were chosen, such as age, gender, ethnicity, marital status, level of education, religiosity, political party, employment status, household and personal income levels (Bekkers and Wiepking, 2011). A set of individual descriptive statistics by treatment group are summarised in Table A.1 in Appendix.

[6]It was specified to participants that the show-up fee was not part of the allocation choice. Only the additional earnings upon completion of the effort task could be redistributed among themselves and the NPO.

1.4 Treatment conditions and Measures

1.4.1 Information Treatments

Both treatments centered on particular programs focused on adolescent health. (see Figures A.4 and A.5 in the Appendix).

The CI treatment page highlights the mission and objectives of the health programs and seeks to convey the purpose and emotional aspect of the charity's work. It communicates the ways in which support is utilized, focusing on the outcomes like developing healthy habits and connecting children with services. It includes a testimonial that emphasizes the program's impact on an individual's life, and highlights the weight of how the individual personal impact could affect the recipient with his donation.

For example,

Your sponsorship helps children in our communities by providing health programs that focus on two important outcomes:

- *Developing healthy habits*
- *Connecting children with services when they need help.*

in association with a message of the type,

Make the difference.

The OI treatment page focuses on the quantifiable impact of the health programs. It also details financials, showing the distribution of expenses and the portion of total expenses devoted to charitable programs. This type of information is concrete, measurable, and outcome-focused, providing clear, quantifiable data points that demonstrate

the effectiveness and financial stewardship of the organization. For example,

[we observed] the 45% decrease in substance abuse

to which in addition subjects were shown charity financial accountability data such as,

82% of our total expenses in 2021 funded programs that helped children [...]

1.4.2 Measures

Once the participant exited the treatment page, he was asked how much of the 1 GBP earned upon effort task completion, he wanted to devolve to the charity organization in question. The question was framed as shown in Figure A.6 in Appendix, and the participant could chose a value ranging from 0 to 100 (cents). Table A.2 summarises participants' contributions for the whole sample, providing an overview of the raw outcome variable distribution.

The question that served as the dependent variable in this study was articulated as follows:

- A binary variable was used to capture the decision to donate zero or any positive amount. The variable *Donated* takes a value of 1 for participants who decided to donate a positive amount (63.5% of subjects), and a value of 0 for those who did not donate at all (36.5% of the subjects).
- Additionally, to account for different levels of donations (i.e., the magnitude of contributions), we employed both a count variable (*Donation*) with discrete values

ranging from 0 to 100, and a categorical variable organized into four categories (*Donation Categories*).

1.5 Results and Discussion

1.5.1 Main results

The primary objective of this study was to examine the impact of different types of information on the endowment allocation in a Dictator Game involving an actual Non-Profit Organization as the recipient. By employing various information treatments in an online experimental setting, we sought to understand how cause-related and charity metrics oriented information influenced donation behaviors among participants characterized by distinct motivational profiles: high warm glow altruists, low warm glow altruists, and pure altruists.

Our analysis entailed both parametric (ANOVA) and non-parametric (Kruskal-Wallis) tests to accommodate for the parametric assumptions violations concerning normality and homoscedasticity, as confirmed respectively by the Shapiro-Wilk and the Levene's tests on the count dependent variable. The interaction effect between donor type and info type is non significant (*Donated*: 0.035, p-value 0.843; *Donation Cat.*: 0.303, p-value 0.848) [7], using both the binary and the categorical variables (Table 1.1 and Table 1.2).

Looking at the individual factors (i.e., *Info type* and *Donor type*), it is evident that the treatments did not independently affect the donation decision apart from their interaction with the donor typology (*Donated*: 0.115, p-value 0.455; *Donation Cat.*: 0.292,

[7] Throughout the analysis, robustness of results was tested by restricting the sample to participants who spent at least 10 seconds on the treatment pages. The restricted sample comprised 128 observations.

TABLE 1.1: Two-way ANOVA for binary dependent variable.

Variables	*df*	MS	F-value	P-value
Info type	1	0.115	0.56	0.455
Donor type	2	1.864	9.03	0.000
Info type X Donor type	2	0.035	0.17	0.843
Residual	122	0.206		

Note: The dependent variable, *Donated*, takes value 1 if the participant contributed an amount X > 0, and takes value 0 otherwise.

TABLE 1.2: Two-way ANOVA for categorical dependent variable.

Variables	*df*	MS	F-value	P-value
Info type	1	0.292	0.16	0.691
Donor type	2	9.511	5.15	0.007
Info type X Donor type	2	0.303	0.16	0.848
Residual	122	1.846		

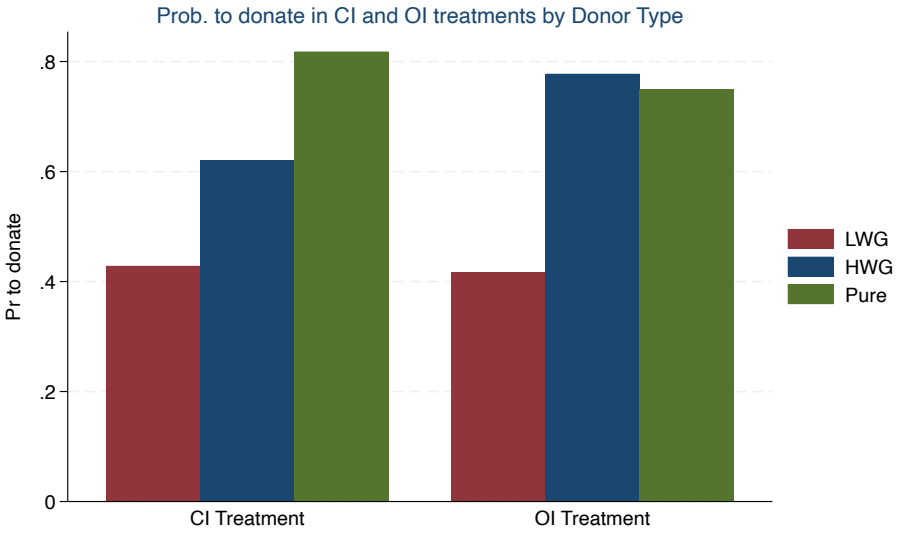
Note: The dependent variable, *Donation Categories*, consists of four categories: (1) 0-25 GBPs; (2) 26-50 GBPs; (3) 51-75 GBPs; (4) 76-100 GBPs.

p-value 0.691). In contrast, the donor category shows a significant impact on giving behavior (*Donated*: 1.864, p-value 0.000; *Donation Cat.*: 9.511, p-value 0.007).

For a graphical representation, Figure 1.1 and Figure 1.2 showcase box plots for the results of the two ANOVA analyses. Despite the inconclusive outcomes of the treatments, the trend in donations is still observable. Contrary to our initial hypothesis, it appears that pure altruists are more likely to donate and do so in greater amounts within the CI treatment compared to the OI treatment. Conversely, HWG donors demonstrate an opposite tendency, with a higher likelihood of donating within the OI group. Notably, LWG contributors display a remarkably consistent level of donation probability

and amount across both treatment groups.

FIGURE 1.1: Mean probability to donate across CI and OI treatments and type of donor.



Secondly, a set of Kruskal-Wallis (KW) tests has been performed and is summarized in Table 1.3[8]. The overall p-value from these tests are significant for both the binary variable (p-value 0.003) and the categorical one (p-value 0.042). However, we farther analysed these findings, running a post hoc Dunn's Multiple Comparison test, in order to observe where differences between donors categories lie (Table A.3 and Table A.4 in Appendix.) In this pairwise comparison tests we observe that groups of interest - i.e. Pure altruists in CI vs. Pure altruists in OI, HWG in CI vs. HWG in OI and LWG in CI vs. LWG in OI - are not (or barely) statistically significant for all outcome variables.

[8]This test does not allow for interactions. Therefore, six subgroups were formed, combining the two information treatment (cause-related vs. tangible information) and the three donors types (HWG, LWG and pure altruists). This estimates should be more reliable given that interactions in the parametric model assume residual variance is homoscedastic among the three donors categories, which is not this the case.

FIGURE 1.2: Mean donations levels across CI and OI treatments and type of donor.

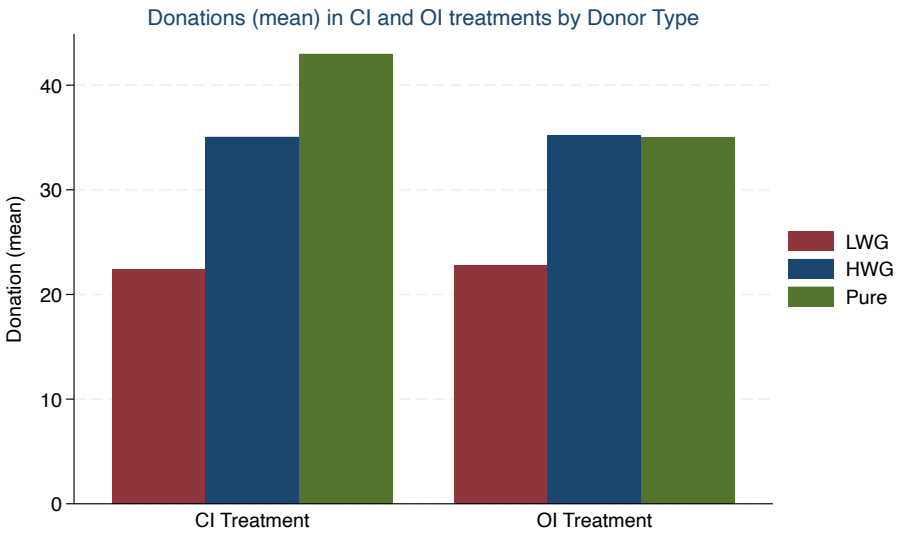


TABLE 1.3: Kruskal-Wallis Test Results for Donated and Donation Category by Group

Group	**Obs**	**Rank Sum**	
		Donated	**Donation Cat.**
CI & LWG	28	1780.00	1829.50
CI & HWG	29	2286.50	2369.00
CI & Pure	22	2080.00	2080.00
OI & LWG	24	1503.00	1522.50
OI & HWG	36	3288.00	3145.50
OI & Pure	20	1782.50	1773.50
Chi-squared (5)		12.163	9.812
Prob		0.0326	0.0807
Chi-squared with ties (5)		17.496	11.468
Prob with ties		0.0036	0.0429

For a more straightforward interpretation of results, the sample was segmented according to different types of information and donor characteristics. Across the different

segments tested, the Kruskal-Wallis tests generally did not find significant differences in the likelihood of donating or in the categorization of donation amounts based on the type of information provided (CI vs. OI) (Table 1.4). However, the variation in responses appears evident when comparing donations across different donor types within the same information category (Table 1.5). Therefore we can conclude that, KW tests resembles previous ANOVA results.

TABLE 1.4: Kruskal-Wallis Test Results for Donated and Donations Categories

Measure	Donor Type	Info Type	Obs	Rank Sum	P-value
Donated	LWG	Cause Info	28	746.00	0.9415
		Output Info	24	632.00	
	HWG	Cause Info	29	875.00	0.2792
		Output Info	36	1270.00	
	Pure	Cause Info	22	488.00	0.7056
		Output Info	20	415.00	
Donation Cat.	LWG	Cause Info	28	745.50	0.9487
		Output Info	24	632.50	
	HWG	Cause Info	29	924.00	0.6632
		Output Info	36	1221.00	
	Pure	Cause Info	22	489.00	0.6870
		Output Info	20	414.00	

TABLE 1.5: Kruskal-Wallis Test Results for Donation Decision and Donations Categories by Information Type

Measure	Donor Type	Info Type	Obs	Rank Sum	P-value
Donated	Cause Info	LWG	28	922.00	0.0205
		HWG	29	1175.00	
		Pure	22	1063.00	
	Output Info	LWG	24	736.00	0.0556
		HWG	36	1624.00	
		Pure	20	880.00	
Donation Cat.	Cause Info	LWG	28	931.00	0.0954
		HWG	29	1188.50	
		Pure	22	1040.50	
	Output Info	LWG	24	757.00	0.0775
		HWG	36	1584.50	
		Pure	20	898.50	

Finally, acknowledging for constraining sample size limitations, an exploratory analysis is performed by filtering the data across genders. Performing again the Kruskal-Wallis test, in addition to donor type factor, also information type (but not the interaction between the two) was found to significantly affect the decision to donate (but not the levels of donations) among females (p-value < 0.05); and running the usual pairwise comparison test, it emerges that pure altruists females in OI treatment donate more with respect to their counterparts in CI. Conversely, males show the opposite trend, with higher probabilities to donate in CI treatment. This effect hints that there might be gender differences in information processing and donation behavior.

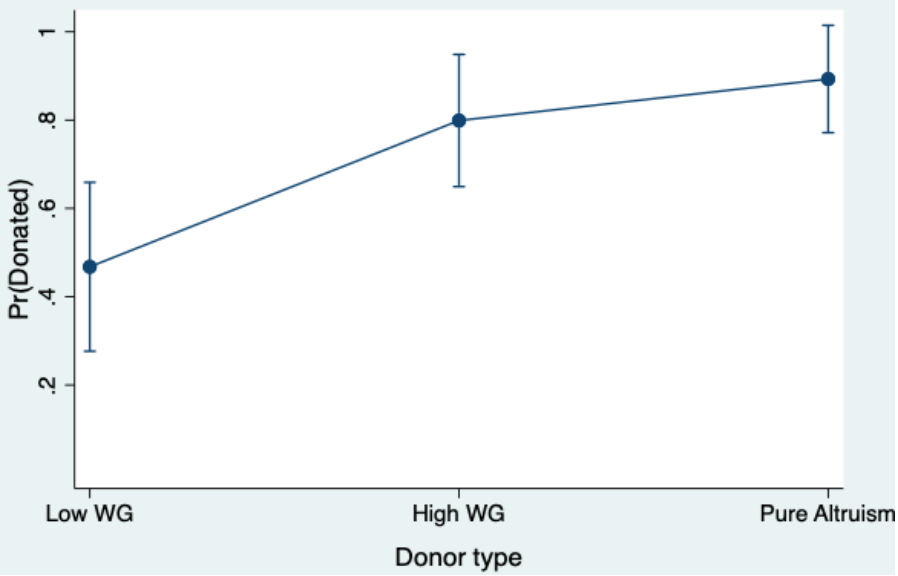
1.5.2 Secondary results

A further regression analysis has been performed in order to better observe donation behavior conditional on the type of philanthropist. A logistic regression was conducted using the binary variable *Donated*, and an ordinal logistic regression was employed to examine the impact of the categorical variable *Donation Categories* on the four donation groups (results are reported in Table A.5 in Appendix).

Looking at predicitive margins of the logistic output (Table A.6 in Appendix), it is clear that pure altruists contribute with a higher probability with respect to the other two categories, but the marginal effects are minimal when it comes to pure and HWG altruists (only 0.05 points of difference). The greater difference arises between LWG and the the other two categories (0.31 and 0.36 for HWG and pure alruists, respectively). The binary choice model's predictive effects are graphically reported in Figure 1.3 (in Appendix).

Margins for the ordinal logistic regression are displayed in its graphical representation in Figure 1.4 for a more straightforward interpretation of the results. The graph shows

FIGURE 1.3: Plot of logistic predictive effects.

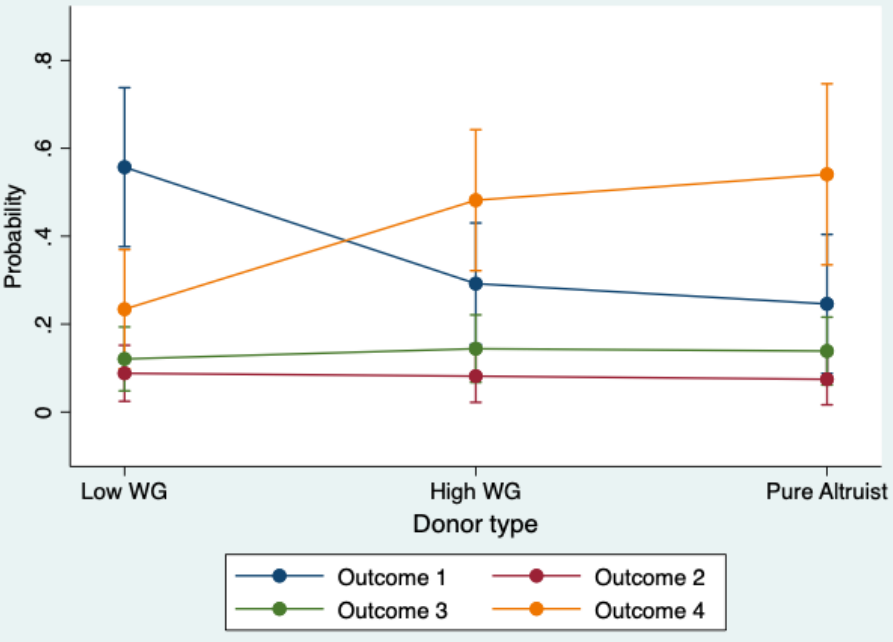


that the extreme categories ("output 1" and "output 4") of donation variable, corresponding to the lowest and the highest donation amounts, differ among the three kinds of donors. Low warm glow donors reveal an high probability to give the minimum share and are less likely to donate greater shares of their endowments. The exact opposite trend holds for high warm glow benefactors.

As for the pure altruists' giving behavior, the graph reveals the same pattern observed for the high warm glow donors but more pronounced, with an higher likelihood of donating larger amounts and a lower probability to contribute the minimal share. Finally, the two middle donation categories remain constant among the three different types of donors.

The ordinal logistic regression findings in part confirm theoretical and empirical results obtained by Carpenter (2021) (at least at the extreme values), as they corroborate the hypothesis that, while low warm glow givers are less generous, high warm glow

FIGURE 1.4: Plot of ordinal logistic predictive effects.



givers are more altruist, as the level of contribution increases.

A last point to stress on this regard, concerns a more general result coming out from pooling together the two warm glow donors groups. In Figure A.7 (in Appendix) are plotted the four donation outcomes for being or not being a pure altruist. Intuitively (from the previous graphs), pure altruist donate more overall.

1.6 Conclusions and Limitations

There are possible impairments that could have undermined the treatments effect in the pilot presented above.

The first notable constraint of this study stems from its preliminary nature as a pilot, and it is enclosed in the reduced sample size, especially when it comes to the further subdivision into six distinct categories based on donor types and information treatments.

Despite the efforts to capture a comprehensive snapshot of donor behavior, the reduced sample sizes within these categories pose challenges to the statistical robustness and generalizability of findings. As a result, while certain patterns and tendencies among donor types in response to different information treatments have been identified, these findings should be interpreted with caution. The possibility that we might not have captured the full extent of the effects due to power limitations cannot be discounted. In light of these considerations, our study serves as a preliminary step towards a larger, more definitive investigation. Future research should aim to replicate and extend the findings of this pilot with larger sample sizes.

Another potential limitation is represented by the trivial non effectiveness of the treatments in the form as they were conceived. Recent finding by Haaland et al. (2023) provide a wide set of guidelines when dealing with information provision experiments. One aspect that might have undermined the experimental design is the length of treatments pages. It is possible that having opted for a written text half a page long, could have been detrimental in association with the online setting. Indeed, the authors stress the need for "short and neutrally framed" experiments to maximize effectiveness and minimize demand effects concerns.

Moreover, the online setting is a double-edged sword. On the one hand, it represents an optimal environment for the present study. Indeed, online donations have increased, also due to the Covid-19 pandemic (CAF, 2021). Therefore, it is likely that online information provision will be increasingly demanded in response to new donors needs. However, online experiments do not enable control over the environment in which participants complete the experiment. Further on this regard, the level of engagement could have represented a further issue.

Chapter 2

The effect of xenophobic politics on locals' and immigrants' prosocial behavior

2.1 Introduction

Transfusion services are fundamental for the sustainment of the health system, and their efficiency depends on the balance between blood products supply and demand, maintained through the cooperation of public, private and, in particular, non-profit organisations. In the Italian context of non-remunerated voluntary blood donation system, the understanding of donors' motivations to begin and continue this prosocial activity is a crucial factor in keeping constant the primary level of the blood donation chain, as well as the capability of public organisations to manage the hospital departments necessity and local supplies (Saturni et al., 2017).

In many Western countries, the pool of active blood donors is contracting. Periodically, several urgent calls for blood to the general population pop up in newspaper (e.g. Yang, 2022; Roxby, 2022). In Italy the situation is no different. According to the

Italian National Blood Centre (CNS, 2021) the decline observed in recent years continues its downward path, with a downturn in both established and new donors. The mean age of donors is progressively increasing, accompanied by a decline in contributions from individuals aged 18 to 25 and those up to 45. However, donations from individuals above 45 years old are on the rise. This trend highlights the importance of inter-generational turnover in the blood supply chain in order to avert future shortages (Wittock et al., 2017). Particularly, Italy is facing the problem of a negative demographic trend, resulting in a reduction in the available pool of volunteers (Saturni et al., 2017; Istat, 2022).

Accounting for this warning trend in blood donation, it becomes of major importance to attract and retain not only Italian donors. Indeed, minority populations (such as immigrants and refugees) are under-represented in the blood donor pool (Rastogi, 2011; Murphy et al., 2009), and the involvement of this significant segment of the population has become crucial in order to keep constant the inflow of blood (Klinkenberg et al., 2019). Immigrant communities have the potential to contribute to the maintenance of a consistent blood supply, thereby addressing the demographic deficit faced by Italy. Moreover, although migrants are underrepresented as blood donors, they are not such as transfusion patients and may show a higher likelihood of requiring blood transfusions due to specific genetic conditions, such as haemoglobinopathies prevalent among the North African population (Polonsky et al., 2011a).

The majority of blood donation research primarily focuses on identifying effective strategies for engaging and retaining donors. However, it is also important to pinpoint the determinants behind declines in blood donation rates. In this context, the aim is to examine the potential effect of the political climate, particularly during election periods, on both local and immigrant donors. Specifically, the investigation seeks to understand

the impact of far-right propaganda, which utilizes xenophobic rhetoric, on the willingness of established donors to donate.

Far-right movements generally espouse ideologies that prioritize the interests of the native population above all else, emphasizing ethnocentrism and cultural heritage preservation. Such parties often mobilize supporters through rhetoric that scapegoats immigrants, blaming them for societal problems such as economic inequality, unemployment, and criminality. By stoking fear and resentment towards "outsiders", far-right politics can generate significant social tensions and provoke adverse behavioral responses from both natives and immigrants (Magistro and Wittstock, 2021). Scholars who establish a connection between cultural grievances and the success of far-right movements often do so within the framework of social identity theory (Tajfel et al., 1979). This theory posits that individuals have an inherent inclination to associate themselves with similar individuals and that a desire for self-esteem leads people to perceive their own group as superior to others. Far-right parties effectively exploit and foster these natural inclinations by emphasizing the alleged incompatibility between the behavioral norms and cultural values of immigrants and those of the native population. Ivarsflaten (2008) argues that no far-right party has achieved success without capitalizing on grievances related to immigration.

This political climate might foster a twofold negative effect.

On the one hand, we could witness a decline in contributions from native donors in areas where far-right parties are active during political elections. Aggressive far-right propaganda that demonizes immigrants can have far-reaching effects on locals' prosocial behaviors. When immigrants are consistently targeted and portrayed as threats, this might create an atmosphere of fear, mistrust, and division within society (Golder, 2016). By promoting nationalist narrative, such political campaigns seek to create a sense of

unity and common identity among natives, which can lead to the marginalization of immigrants. The populist propaganda often builds upon existing social and economic anxieties, and exploit them to fuel negative perceptions of immigrants. It exaggerates the perceived impact of immigration on native communities, depicting immigrants as competitors for jobs, resources, and public services. These messages instill a belief that natives should prioritize their own interests above the needs of others, eroding the sense of social cohesion (Golder, 2016; Norris, 2005; Ivarsflaten, 2008). As a consequence, native individuals may exhibit reduced inclination towards engaging in prosocial behaviors, such as blood donation, upon recognizing that such actions could also extend benefits to immigrants. They may perceive such actions as benefiting a diverse society that they have been led to believe is detrimental to their own well-being.

On the other hand, the negative spillover effects of far-right politics extend beyond natives' communities. The growth in support for the far-right wing has often been associated with an increase in discrimination and violence against minorities around the globe (Guriev and Papaioannou, 2020). The core of far-right political ideology relies on the concept of land ownership threat to legitimize their territorial claims of sovereignty, along with all corresponding rights and entitlements, including the exclusion of foreigners (Fernandes-Jesus et al., 2023; Brylka et al., 2015; Verkuyten and Martinovic, 2017).

The populist xenophobic rhetoric and propaganda, common to these political parties, has the potential to spillover into societal hostility towards immigrants and might foster social stigmatization of these groups. The final outcome could translate in a sensible erosion of the non-natives' civic and social capital. Indeed, one of the major barriers to donate blood among immigrants is represented by ethnic discrimination. Perceived personal discrimination was found to be negatively associated with donating blood in the host country (Renzaho and Polonsky, 2013). Experiences of discrimination inside and outside the blood donation setting has been found to negatively impact migrants'

view towards blood donation (Polonsky et al., 2011b). Moreover, according to Polonsky et al. (2011a), those who felt discriminated against deemed that the local population would not want to receive their blood.

Until now the literature on the political spillover effects on society has concentrated on victims' well-being and anti-social behaviours exhibited by perpetrators. For example, Bracco et al. (2022) found that in municipalities where elections occur and the anti-immigration party Lega Nord is entrenched, immigrant children are bullied and bully more. While Romarri (2020) established a causal relationship between the appointment of a far-right mayor and the increase in the likelihood of hate crimes occurrence during the subsequent quinquennial term of office.

The main research question that this study seeks to answer is whether in those municipalities where far-right parties settled, the immigrant and local communities are less likely to engage in prosocial activities, such as blood donation, compared to those municipalities where less conservative positions are entrenched.

The analysis leverages administrative elections data from the Tuscany region. Tuscany is one of the Italian regions which better represents the *exploit* experienced by far-right parties at the 2018 Italian national political elections. Indeed, this region has always been mainly led by leftist administrations, with a non-existent (or negligible) far-right opposition[1]. Analyzing the period from 2017 to 2021, the study captures the increase in votes for the radical right movement in the region.

Furthermore, the occurrence of administrative elections is utilized as a source of

[1]Tuscany region has a long tradition of leftist administrations, and, together with Marche, Umbria, and Emilia-Romagna, is considered to be the most left-leaning region in Italy. Together, these regions form what is commonly referred to as the "Red Belt". The dominance of leftist parties in Tuscany can be traced back to the post-World War II period when the Italian Communist Party (PCI) gained considerable support in the region (Ceccarini and Newell, 2019).

exogenous variation in the political climate. The study compares how elections influence the number of Italian and foreign donors in municipalities where an anti-migration party (primarily Lega) has emerged as a significant political actor in recent elections, contrasting with municipalities where such a party is not active.

Tuscany comprises a total of 273 municipalities spread across 10 provinces. These municipalities serve as the foundational units of government and play a key role within the institutional framework, providing access to public services, guaranteeing public safety, supporting education and cultural activities. Since Italian municipal elections afferent to the same election round are held in different years[2], I adopted a staggered Difference-in-Differences (DiD) design.

In order to examine fluctuations in the number of blood donors, I utilize the dataset provided by the Associazione Volontari Italiani del Sangue (AVIS), an Italian association working in the field of blood (and its components) collection. It is a longitudinal dataset (2008-2022) containing individual level information on blood donors behaviour in the Tuscany region. These data, aggregated at municipal level, are then merged with municipal electoral results[3] in Tuscany.

[2]Originally, all municipalities conducted elections in two separate rounds each year starting from 1946. However, over time, the electoral schedule has undergone changes - early elections were called - in many municipalities due to various reasons (e.g. mayor's resignation or death). In such cases, elections are held prior to the original schedule, resulting in subsequent elections being conducted at different times compared to municipalities that adhere to the standard cycle (Bracco et al., 2022).

[3]Source: Italian Interior Ministry.

2.2 Background and Data

2.2.1 Political framework

In recent years, Italy has witnessed the emergence and consolidation of far-right parties, which have gained significant traction in the country's political landscape. These parties, known for their nationalist, anti-immigration, and Eurosceptic ideologies, have tapped into societal discontent, challenging traditional political dynamics and reshaping the political debate (Magistro and Wittstock, 2021).

Far-right parties in Italy have experienced varying degrees of electoral success over the years. The most notable recent surge came after national political elections in 2018, when Lega, under Salvini's leadership, formed a coalition with another populist movement, The *Movimento 5 Stelle* (M5S), resulting in a far-right skewed government. Salvini served as Deputy Prime Minister and Interior Minister until the coalition dissolved in 2019. This electoral success highlighted the growing influence of far-right parties and signaled a shift in the Italian political landscape.

The major actors of far-right political parties in Italy include the League (*Lega*), initially founded as a regionalist party advocating for greater autonomy for Northern Italy, which under the leadership of Matteo Salvini has transformed into a national party with a strong anti-immigration platform, Eurosceptic sentiments, and a focus on law and order; Brothers of Italy (*Fratelli d'Italia*), led by Giorgia Meloni, which promotes national conservatism and traditional values; CasaPound, a neo-fascist organization advocating for nationalist and anti-globalization policies; The Right (*La Destra*), founded by Francesco Storace, emerged as a splinter from the National Alliance, espousing national conservatism and right-wing populism; and Tricolour Flame (*Fiamma Tricolore*), another post-fascist party, that maintains a focus on Italian nationalism and social conservatism,

continuing the legacy of the Italian Social Movement.

These actors, while distinct in their histories and specific policy priorities, share common themes of nationalism, skepticism towards the European Union, and opposition to immigration. Their influence on Italian politics has been marked by increasing electoral successes and a shift in public discourse towards issues of national identity and sovereignty. The 2018 Italian national political elections, in particular, highlighted the growing strength and appeal of these far-right parties, as they capitalized on economic uncertainties, cultural anxieties, and a general disillusionment with traditional political establishments.

In this context, a potential cause of omitted variable bias within this context arises from a potential surge in net immigration shortly prior to the election period, which could have influenced individuals' voting choices. This aligns with the established literature on conflict theory. Conflict theory suggests that individuals' preferences on immigration evolve in reaction to a perceived threat from an out-group over scarce resources, such as jobs, access to housing, and other opportunities. In such circumstances, the members belonging to the same group tend to attribute economic problems to the outgroup, generating prejudice and discrimination (Dustmann and Preston, 2007; Mayda and Facchini, 2006; Scheve and Slaughter, 2001). According to Golder's (2003) research, there exists a positive correlation between unemployment and immigration, as voters tend to associate immigration with unemployment. He suggests that far-right support increases as a result of unemployment, but this effect is observed only when immigration reaches a certain threshold. However, the author himself finds that subsequent research has only provided limited confirmation of his findings (Golder, 2016).

However, conflict theories are currently called into question by a recent research strand that finds public opinion on immigration to be remarkably stable (Dennison and Geddes, 2019; Mader and Schoen, 2019; Magistro and Wittstock, 2021; Kustov et al., 2021). The recent contribution by Kustov et al. (2021) demonstrates, through an extensive analysis of panel datasets in the United States and Europe, that preferences on immigration remained unchanged despite economic crises or increases in immigration inflow. The researchers suggest that xenophobic attitudes can remain dormant in individuals and are activated by specific cues and environmental factors. This activation does not imply a shift in preferences but rather prompts voters to express their existing political opinions. Hopkins (2010) supports this argument by asserting that attitudes towards immigrants in the context of immigration in the US are significantly influenced by negative political rhetoric rather than actual immigration levels. Also Citrin et al. (1997) posited long time ago, that the level of politicization of immigration has a greater impact on opinion formation than the actual demographic realities.

In favour of this explanation we also find the study of Magistro and Wittstock (2021). The authors of the study support the idea that the salience of the far-right political agenda is the main factor influencing voters' opinions, rather than actual fluctuations in immigration inflows. Their analysis focuses on the Italian case and utilizes multiple data sources to examine immigration preferences during the 2006, 2013, and 2018 Italian political elections. The study suggests that voters are more likely to support anti-immigration parties when immigration is a highly salient issue, indicating that salience, rather than changing preferences, is associated with the success of far-right politics. The political elections occurred in 2018 show clearly this trend. In political elections occurred in the 2013, in the aftermath of the eurozone crisis, the political agendas of all parties (far-right ones included) were centered entirely on issues other than immigration, allocating relatively low priority to this issue in their electoral programs. Instead,

their focus was primarily on topics such as EU relations, austerity measures, and political and economic reform strategies. However, although the number of migrants living in Italy grew from 3 million people in 2008, to 4.4 million people in 2013 (Magistro and Wittstock, 2021), anti-immigration parties performed poorly at 2013 polls.

The refugee crisis reached a new high in 2015 and opened new cleavages in the European political landscape. The EU's response to refugee crisis lacked centralization, generating strenuous debate among European countries on EU border control, cultural and religious diversity conflicts, and the additional costs bared by some countries to face the emergency. The refugee crisis may have thus exacerbated existing grievances, and it gave certain political actors the opportunity to capitalise on it. The electoral programs of the 2018 elections indicate the change in the salience in favour of immigration. The issue was the central point for far-right parties' propaganda. With the aid of social media, Salvini was able to engage in continuous political campaigning, effectively influencing domestic political discussions on topics such as identity, immigration, and law and order. Not surprisingly, votes in favour of Lega at 2018 poll skyrocketed (Magistro and Wittstock, 2021). Evidence from this study shows that the electoral performance of anti-immigration parties in Italy does not appear to be directly correlated with the level of net immigration in the pre-election period. Rather, the political salience of immigration seems to be relevant in mediating the influence of changes in immigration preferences.

In this vein, the contribution by Bursztyn et al. (2020) on the erosion of social norms is also noteworthy. Social norms are usually persistent (Voigtländer and Voth, 2012; Algan and Cahuc, 2010; Alesina et al., 2013), but they can change very quickly when new public information arrives, such as a surprising election outcome. In this paper, the authors propose that societal aggregators of private opinions, such as elections, have the potential to shape individuals' perceptions of prevailing beliefs within their social cir-

cles. Consequently, these aggregators can prompt rapid shifts in the social acceptability of holding and expressing certain opinions. As a result, there is a greater probability that these opinions will be openly voiced, and the level of negative judgment and social sanctions towards such expressions may diminish. In their experiment, it has been shown that a positive, experimentally induced update in people's beliefs about Donald Trump's local popularity increased their willingness to publicly express xenophobic views. This findings are plausible, as the authors stress, with the recent upsurge in anti-immigrant and anti-minority sentiment in the developed world.

The issue of endogeneity is not fully addressed by the above-mentioned argument; however, the most concerning source of estimate bias has been identified within this context. However, there may be additional unobservable dynamics that influence both the outcome and the treatment. Table 2.1 presents summary statistics for control and treated municipalities. It is noteworthy that the two groups differ in reported municipal characteristics, indicating that municipalities supporting far-right parties differ from those that do not. Therefore, to establish causality, it is crucial for the parallel trends assumption to hold, particularly because the distribution of far-right parties across specific municipalities may not be random. This assumption requires that blood donation trends between the treated (municipalities with active far-right parties) and control (municipalities without far-right parties) groups are comparable during the pre-treatment period. By ensuring that the treated and control groups have similar pre-treatment trends, the parallel trends assumption helps mitigate potential confounding factors and allows for a more accurate assessment of the causal impact of far-right party distribution on the outcome of interest.

The occurrence of municipal elections is exploited as a source of exogenous variation in the political environment. The analysis compares how elections affect the number

TABLE 2.1: Average characteristics for municipalities with high far-right voting share and municipalities with low voting share.

Municip. type	High right share	Low right share	Diff. (p-val.)
Population (2011)	25662.58	5456.509	0.000
Surface (km^2, 2011)	80.757	86.289	0.000
Altitude (m, 2011)	148.657	355.547	0.000
Immigrants share (% of pop, 2010)	8.570	7.668	0.000
Unemployment rate (2011)	7.724	7.052	0.000
Income (log, 2016)	19.145	17.634	0.000
Higher education (% of pop, 2018)	29.507	29.166	0.000

of Italian and foreign donors in municipalities where an anti-immigration party has emerged as an active political actor in recent elections, relative to how they affect donor behavior in municipalities where this type of party is not active. In order to assess whether a high far-right voting share impacts the number of donors, I considered the results of municipal elections occurred in Tuscany during the 2017-2021 period. For each local election, data included information on the vote share of each candidate, the political parties or lists supporting them, and the date of the election.

A complicating factor arising in the context of Italian administrative elections is the presence of local voters' associations, known as Civic Lists (*Liste Civiche*). Indeed, national political parties do not always participate in mayoral elections, especially in smaller municipalities, where *Liste Civiche* are predominant. To address the issue of *Liste Civiche* in my analysis, I conducted a thorough examination of each candidate's list. Specifically, I searched local newspapers to see if any candidates running on a *Lista Civica* were openly endorsed or supported by far-right national parties.

The final sample consists of 255 different Tuscan municipalities[4]. A dummy variable for identifying far-right municipalities was created by calculating the mean far-right

[4]Municipalities that underwent mergers during the analysis period were excluded, as distinguishing whether voting decisions were influenced by preferences regarding municipal fusions or other political agendas was not feasible.

voting share for all of Tuscany during both the elections prior to the analysis period and the current election cycle[5]. Subsequently, a binary variable was generated, with a value of 1 assigned to municipalities where the voting share exceeded the regional mean level (5.22%), and 0 otherwise. During the pre-period, with few exceptions, all municipalities remained below this threshold, while a substantial number of municipalities reached a value of 1 during the analysis period. To give an idea of the extent of the phenomenon, from a 5% of municipalities over the threshold in the previous electoral cycle, we jump to the 41% in period of the election taken into account (Table 2.2)

TABLE 2.2: Number of municipalities in the past and present election period divided by far-right voting share.

Time	Low share	High share	Total
Previous elections	228	12	234
present elections	139	95	234

2.2.2 Blood donation

Every day blood transfusions are used to save lives after traumatic events as well as in treatment of serious diseases. To ensure a sufficient supply of blood products, hospitals heavily rely on donors who voluntarily donate blood to help anonymous recipients in the absence of (financial) compensation. For this reason, blood donation is often regarded as an archetypal example of altruistic behavior (Titmuss, 2018). Blood donation makes an interesting application for examining charitable donations. In most of the cases when individuals decide to donate to a charity cause, they know precisely the tar-

[5]For the pre-period, political results from the immediate previous cycle of elections were imputed. Capalbio and Larciano were excluded from the analysis due to electoral reruns following mayoral resignations. Additionally, municipalities consistently exhibiting high far-right voting shares in both the pre-period and current period, or showing a reverse trend, were removed from the sample.

get group that they are benefiting. In the case of blood donation, or organs donation, donors are giving unconditionally to the one individual who need it the most. Therefore, donors pool could resent of the social identity bias.

Social identity theory was formally incorporated into economic theory by Akerlof and Kranton (2000), who supplemented the standard economic framework by recognizing that individual choices and behaviors are influenced by social identity. Chen and Chen (2011) conducted a series of laboratory experiments demonstrating that under experimentally induced identities, mere categorization into groups can produce group-contingent social preferences and affect equilibrium selection. Moreover, they showed that subjects, when interacting with an in-group member, exhibited significantly more altruism, reciprocity, forgiveness than when facing an out-group member.

Social capital is considered to have an important role in this setting. Sharp and Randhawa (2012) highlight this in the specific application of organ donations. They discuss the concept of social capital and its influence on the cohesiveness of local communities. Evidence underlines that the presence of strong *bonding social capital*[6] within these communities could contribute to a reluctance to donate outside of them. This reluctance may stem from limited connections with other social groups, known as low levels of "bridging". As stressed by Putnam in a interview (White, 2022) for the newspaper *The Guardian*, multiculturalism and migration have contributed to a decline in social capital. In the context of deceased organ donation decisions, people's national identity, trust in society and strangers, and potential concerns regarding the allocation of organs to perceived out-group members, may influence their preferences for organ

[6] *Bonding social capital* is within a group or community whereas *bridging social capital* is between social groups, social class, race, religion or other important socio-demographic or socio-economic characteristics (Putnam, 2000).

recipient allocation.

This mechanism is expected to have a significant impact also in the context of blood donation, and its influence may be particularly pronounced during political election cycles when anti-immigration positions are central in political programs.

2.2.3 Avis dataset

AVIS (*Associazione Volontari Italiani del Sangue*) is a private, non-profit association which pursues an aim in the public interest: to ensure adequate availability of blood and its blood components to all patients who need it, through the promotion of donation.

Thanks to the dataset provided by the AVIS association, access was gained to individual blood donor information in Tuscany, available since 2008 and continuously updated. Data comes from the regional Avis database, Dat@VIS, a digital platform service that records all donation activities in Tuscany. Today AVIS is the largest Italian blood voluntary organization which accounts for approximately the 75% of the total national supply of blood in Italy, and it includes about 1.3 million donors across the country that every year contribute to the collection of over 2 millions of blood (and its derivatives) units (Saturni et al., 2017).

Moreover, the dataset contains additional information relative to individual characteristics such as age, gender, blood type, and donation characteristics such as donation center and type of donation (i.e., if it is whole blood or plasma). The AVIS dataset involves 440,000 donations for the period of my analysis.

The original dataset consists of a panel dataset with each entry corresponding to an individual donation event. These entries are sequentially arranged in a chronologically ascending order for each donor. However, for the purpose of my analysis I collapsed the dataset to focus on donor counts at the municipal level. The two dependent variables representing Italian and immigrant populations respectively, are calculated as the ratio

between the number of (Italians and immigrants) donors and the total population of each municipality.

2.3 Empirical strategy

The empirical strategy looks at changes in the number of donors in the far-right municipalities relative to the non-far-right ones before and after the election period. I estimate this using a staggered DiD strategy.

First, a two-way fixed-effect (TWFE) event-study model is estimated to assess the evolution of relative outcomes, controlling for fixed differences across municipalities and quarterly trends over time:

$$Y_{mt} = \alpha + \beta_k \sum_{\substack{k=-10, \\ k \neq -1}}^{k=6} D_{mt} + \gamma_m + \delta_t + \epsilon_{mt}$$

where Y_{mt} represents the outcome for municipality m that voted at time t (in trimesters), α_m are the municipality fixed effects and δ_t denotes calendar time fixed effects. D_{mt} is equal to $I[t - t_m = k]$, an indicator for a treatment unit m in cohort t_m (the period of treatment) being k periods away from the start of treatment.

Instead of using a single binary treatment indicator as in the TWFE baseline specification (i.e. the non-dynamic model), the event-study specification utilizes a set of relative-time indicators.

Breaking the sum in above equation into $\sum_{k=-10}^{k=-2} D_{mt}$ and $\sum_{k=0}^{k=6} D_{mt}$, we obtain for the first summation the time periods leading up to the treatment ("leads"), while the second summation captures the time periods following treatment ("lags"). The reference group, that I excluded from the analysis, is $k = -1$.

Thus, the main parameter of interest, β_k, corresponds to the difference between the

outcome differences between treated and untreated observations k periods from treatment t_m relative to the outcome differences between treated and untreated observations in the excluded periods.

Very recently it has been shown that TWFE specification relies on the relatively strong assumption of homogeneity in treatment effect (Borusyak et al., 2021; Callaway and Sant'Anna, 2021; De Chaisemartin and d'Haultfoeuille, 2020; Sun and Abraham, 2021; Roth et al., 2023). Therefore, accounting for recent evidence on limitations of the TWFE approach, an alternative estimator introduced by Borusyak et al. (2021) is also considered, which is robust to treatment heterogeneity.

2.4 Results

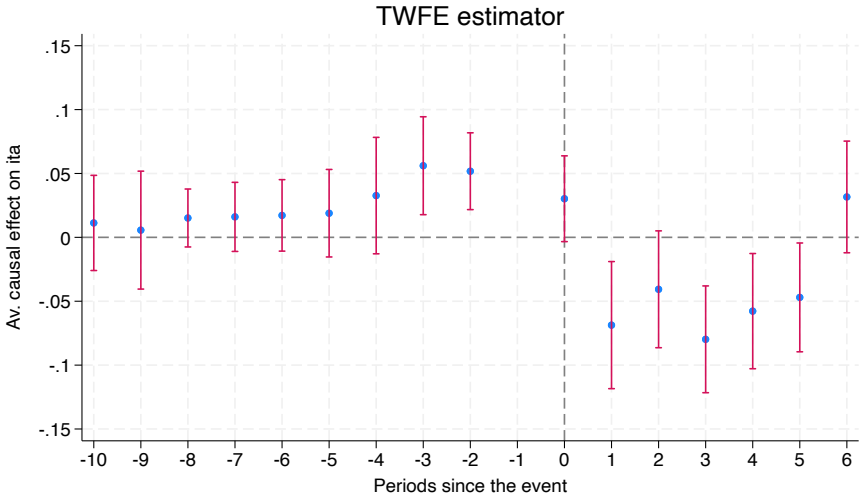
Starting from the TWFE baseline specification (non-dynamic model), results show a negative effect for both Italians (-0.213, p-value 0.000) and immigrants (-0.006, p-value 0.002), indicating a decrease in the number of volunteers living in municipalities where far-right gained substantial traction.

The event study model results, graphically reported in Figures 2.1 and 2.2, enable an examination of the parallel trends assumption. For both Italian and immigrant donors, the graphical representation suggests that the parallel trends assumption is upheld. The event study graphs also display the average treatment dynamic effect, in which we observe a drop rightly after treatment period (represented by the 0 on x-axis)[7]. These results can be verified in Table A.7 in Appendix, where event studies coefficients and p-values are reported for all pre- and post-periods of the TWFE model specification. Con-

[7]In all specified scenarios, a single pre-period shift was allowed to synchronize the initiation of the treatment with the onset of the propaganda period, thereby accounting for a potential anticipation effect.

centrating our attention on short-term post treatment estimates[8] we have that, Italian donors display negative and significant coefficients, but immigrants donors estimates, even if negative, are not statistically meaningful.

FIGURE 2.1: TWFE est. - Average causal effect of far-right propaganda on Italian donors.



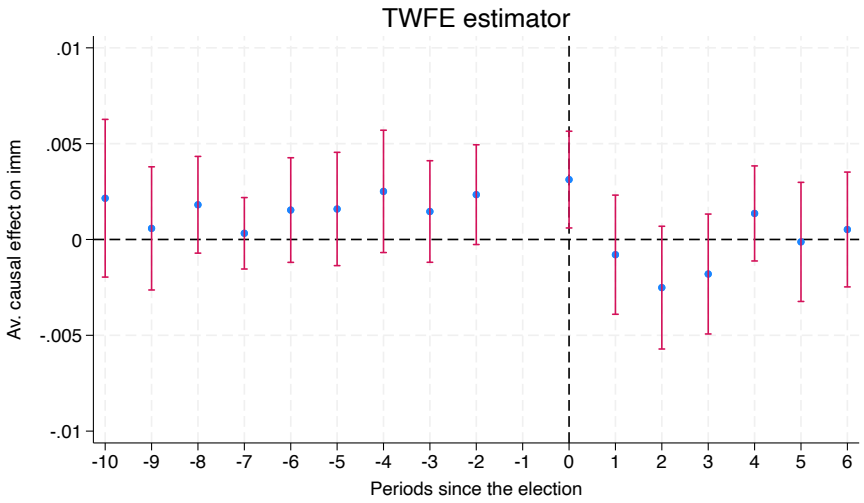
Notes: The bars represent 95 percent confidence intervals. Standard errors are clustered at municipal level.

Moving to the Borusyak-Jaravel-Spiess (BJS) estimation approach, it appears that these set of results do not align with the previous findings. Indeed, we observe a shift in sign with respect to the above TWFE models.

The baseline specification here is positive and significant for Italians (0.052, p-value 0.012) and positive but not significant for immigrants (0.0002, p-value 0.931). Let us look again at the graphical representation of the dynamic models showed in Figure A.8 and

[8]It is hypothesized that the effects of the political climate, influenced by electoral periods, would likely extend no further than 3 or 4 trimesters. Moreover, should this not be the case, it would be challenging for us to disentangle political environment effect from the potential policies enacted by newly elected local administrations - at least in those municipalities where a change in leadership occurred.

FIGURE 2.2: TWFE est. - Average causal effect of far-right propaganda on immigrant donors.



Notes: The bars represent 95 percent confidence intervals. Standard errors are clustered at municipal level.

A.9 (in Appendix). Looking at pre-treatment estimates, we can conclude that parallel trends hold quite well for both sub-populations. But moving to ex-post estimates, we notice that overall coefficient display a positive trend. In particular, for Italian donors, the estimates for the initial two post-treatment periods are significant, whereas for immigrant donors, the post-treatment estimates achieve statistical significance only for period one.

2.5 Discussion

The explanation for the flip in signs observed for the two models (TWFE and BJS) is provided by Roth et al. (2023). Their joint review concerning issues arising in the TWFE approach, concentrates particularly on the case in which heterogeneity of treatment effects varies across both time and units. They highlight a problem of negative weights,

that might yield a negative β_{post} coefficient (as observed in TWFE estimator result). β_{post} may not be a sensible estimand when treatment effects differ across either units or time, because of the inclusion of "forbidden comparisons" (Roth et al., 2023). This argumentation seems particularly applicable to the present project since the intensity of propaganda can differ substantially from one municipality to the other and can be endogenized differently by each individual. Also heterogeneity in treatment across cohorts observed in different years could play a role. On this regard, I additionally estimated average treatment effect by cohorts by means of the Callaway and Sant'Anna (2021) estimator. In Figure A.10 we observe similar trends to the ones found in previous estimators only for cohorts voting in 2018 and 2019. This is plausible with the effect of the massive anti-immigrant propaganda conducted ahead of the political elections held in March 2018, just before the administrative ones, which occurred in June of the same year. Indeed, we observe the same trend for the following year (2019), but not for the previous round of administrative elections (2017), when the anti-immigration debate was not salient yet[9].

Finally, speculative interpretations of the results obtained from the BJS estimator will be provided. Looking carefully at BJS's estimates of interest we do not see an actual rise in the number of donors in treated municipalities, but rather a constant trend with respect to pre-periods. On this regard, donors represent a peculiar share of the general population. They distinguish themselves from the others for their propensity to prosociality. Therefore, they might be less affected by populist and xenophobic rhetoric. This might be the reason for which we do not observe a drop in the number of donations in

[9]In the graph, the 2020 and 2021 cohorts are not present, since in the former year there are no treated units, and for the latter we have really few observations. Indeed, the analysis is mainly led by years 2018 and 2019, that are the most numerous cohorts with 1,750 and 250 observations, respectively. This actually safeguards against the considerable effects of COVID-19 pandemic on donor numbers in 2020 and 2021.

the immediate aftermath of elections, that remains quite constant. Going even further in this speculation, in Figure A.10, where are reported lags until the 10^{th} trimester, we can discern an ascendant significant trend starting from the 5^{th} trimester (approximately after one year from elections), indicating a possible increase in prosociality far from the election period and far-right propaganda.

2.6 Conclusions and Future lines of work

This research is currently ongoing, and additional strategies will be employed to further explore the obtained findings. A priority is to update the AVIS and Elections datasets with data from the year 2023 and years 2022/2023, respectively. The latter task is particularly time-consuming and involves a comprehensive review of local newspapers to classify *Liste Civiche*.

Subsequently, Propensity Score Matching will be applied to establish a control group that is statistically similar to the treated group based on observed characteristics during the pre-period.

Moreover, the inclusion of relevant time-varying covariates will be considered to examine conditional parallel trends.

Additionally, a series of placebo tests will be conducted to assess the robustness of the results. For instance, the analysis will be replicated using leftist municipalities as the treatment group to compare and contrast findings with those obtained for far-right areas. Similarly, comparisons will be made between findings from non-election periods and those from propaganda periods.

Finally, an additional robustness check will be performed using national political elections data, encompassing both Chamber and Senate elections. This comparison will validate the consistency and reliability of the findings across different types of elections, confirming their robustness.

Chapter 3

Proximity Matters: Exploring the Influence of Distance on Gender Gap in Blood Donation.

3.1 Background

In the last years, thanks to the development of the Gender Medicine, namely the gender-based approach to clinical practice, there has been an increase in interest and research on the gender differences in all the fields of health services. According to the World Health Organization (WTO), biological (sex-based) and socioeconomic and cultural differences (gender-based) have an impact on people's health[1]. Even if there are still important gaps in the study of gender differences in the development of diseases, their symptoms, their prevention, diagnosis and treatment, nevertheless there is an increased awareness regarding this area.

Conversely, the literature on gender differences in blood donations is still scarce.

[1]WTO, definition available at: https://www.epicentro.iss.it/en/gender-medicine/

Blood donation, in many countries, is a voluntary, non-remunerated and anonymous activity which plays a crucial role in supporting various medical treatments and saving lives. For this reason, it is important to deepen the topic in order to shed light on the processes that motivate people to donate and on the main deterrents to blood donation. Examining the underlying processes of recruitment and retention of blood donors implies to consider how men and women may differ in their motivations and patterns of blood donation.

The gender differences about the frequency of donations is related to biological reasons, but also to psychological, cultural and societal factors that are connected with the context, motivations, and also state policies. Important gender differences on the frequency of donations may be related to biological reasons, for example women are more often deferred because of low haemoglobin concentration compared to men, and female donors tend to have more difficulties in venous access and vasovagal reactions (Madrona et al., 2014). In addition, many works provide evidence that women are more frequently affected by physical conditions when undergoing the process of blood donation. They are found to encounter more exclusions from this activity compared to men due to higher rates of anemia, low blood pressure, and adverse reactions (Bani et al., 2014; Newman et al., 2006).

Among motivations, some studies do not find gender differences in reasons to donate blood (Sojka and Sojka, 2008), nevertheless in many studies it seems that there are significant differences in women's and men's motivations where women demonstrate more altruistic reasons compared to more men's individualistic motivations (e.g. Guiddi et al., 2015; Glynn et al., 2002).

As concerns state state restrictions, it is important to mention that, according to the

EDQM[2] Blood Guide, the restrictions on the frequency of blood donations in Europe for male and female donors are a maximum of six times and four times, respectively, per year, with at least 2 months between any two donations (Vuletić et al., 2002). On the other hand, in Italy these are a maximum of four times for men and two for women of childbearing age.

Studies on blood donation indicate that women are underrepresented among regular donors (Misje et al., 2010; Royse and Doochin, 1995). According to Bani and Giussani (2010) and Bani et al. (2014), in Italy (and Greece), the gender gap is more pronounced compared to other European countries in terms of donation frequency and the number of donors. Therefore, focusing on gender is crucial for developing initiatives aimed at increasing donation rates among women and reducing their attrition. Many studies examining factors that can affect the blood donation behavior have demonstrated the influence of several individual characteristics (e.g. Bani et al., 2014; Bekkers, 2006; Gillespie and Hillyer, 2002; Hollingsworth and Wildman, 2004; Misje et al., 2010).

However, limited research has analysed the geographical distribution of donors and the community-level variations in donating blood. Indeed, the demographic and environmental composition of neighborhoods, communities, towns, cities, and counties could potentially affect access to blood donation centers within a specific area, thereby influencing the volume of donations. Practical motivations and barriers to donate blood are likely to be associated with material costs in terms of distance and time. In a study conducted within a voluntary and non-remunerated system in the region of Quebec (Canada), the primary deterrents to blood donation include time constraints related to work (or studies) and family commitments, as well as waiting times at blood donation centers. Additionally, factors such as the lack of nearby blood drives frequented by

[2]European Directorate for the Quality of Medicines and HealthCare

potential donors and difficulties in accessing blood drives (such as parking or public transportation issues) were also identified (Charbonneau et al., 2016).

Supporting evidence that distance impacts donation behavior comes from studies showing that donors are more likely to discontinue donating if their donation center closes or relocates to a less convenient location. These studies were conducted in the Netherlands (Piersma et al., 2021; Klinkenberg et al., 2018), Canada (Cloutier et al., 2012), and the US (James et al., 2014). They all find evidence that proximity of donor residences to blood donation sites significantly influences donor behavior.

In this regard, the literature on the gender mobility gap may offer useful insights into the factors contributing to gender disparities in blood donations. Many studies indicate that women and men exhibit different travel patterns behavior. For example, women tend to rely more on walking and public transportation, in contrast to men who favor car as their primary mode of transportation (Ceccato, 2017; Goel et al., 2023; Kawgan-Kagan, 2020). Additionally, men's daily routes seem to be longer but simpler, while women undertake shorter yet more intricate journeys (Kawgan-Kagan, 2020). This added complexity arises from women often being responsible for daily tasks such as taking care of children, elderly family members and handling grocery shopping, which often involves multiple stops (i.e. "trip chaining") (Kawgan-Kagan, 2020; Sola and Vilhelmson, 2022; Scheiner and Holz-Rau, 2017).

Another factor contributing to gender mobility disparities is the accessibility of financial resources. Women are more likely to work part-time or hold lower-paying full-time jobs, which results in lower income (e.g., Behr and Theune, 2018; OECD, 2018). Consequently, due to greater financial constraints, women have limited access to paid mobility options, particularly costly ones such as owning a car.

Taking all of these factors into account, we posit that longer travel distances and

times may have a more significant impact on women's donation demeanour. An additional, yet to be explored, determinant that might explain part of the gender gap in this context pertains to the mismatch between women's lifestyles and engagement in this altruistic endeavor, such as work-related issues, time constraints and difficulties in reaching collection points.

All these factors considered, this study seeks to investigate the impact of distance on gender disparities in blood donation dropouts, donation frequency, and intervals between donations in the Tuscany region. The study utilizes data from AVIS in Tuscany and contributes to the two aforementioned strands of literature.

3.2 Research questions

In the context of the existing literature and the identified gaps, this study aims to explore the intricate relationship between geographical proximity to blood donation centers and the behavior of potential donors in the Tuscany region. Furthermore, it seeks to examine the gender intricacy within this relationship, providing insights into the differential impacts of proximity on men and women. These considerations lead to the formulation of the following research questions, which are pivotal to our investigation.

The primary question of this research seeks to understand the comprehensive impact of geographical proximity to collection sites on blood donation behavior within the Tuscany region. This question is rooted in the hypothesis that logistical factors, such as the ease of access to donation centers, significantly influence an individual's decision to donate blood. By examining this relationship, the study aims to contribute to the broader discourse on improving blood donation rates through strategic location planning of collection sites.

Subsequent to identifying the role of proximity in donation behavior, this study delves into the gender-specific aspects of this relationship. The first branch of this in-

quiry focuses on whether the proximity to collection sites differentially affects the probability of dropout among male and female donors.

Lastly, the research investigates whether geographical proximity to collection sites influences the frequency of blood donations differently for men and women. Research questions are summarized as follows:

1. Does **proximity** to collection sites impact blood donation behavior in Tuscany?

    1A. Are there gender differences in how the proximity to collection sites impact on the **probability to dropout** among blood donors?

    1B. Are there gender differences in how the proximity to collection sites impact on the **frequency** of blood donation?

By addressing these research questions, the study aspires to make a significant contribution to the limited literature on the impact of distance and gender differences in blood donations.

3.3 Descriptive Statistics and Trends in Blood Donation

The analysis of blood donation trends and demographic characteristics of donors within the Tuscany region offers a revealing snapshot of donor dynamics over the period under study. From a general perspective, as shown in Table 3.1, the average donor is approximately 39 years old, with a mean distance of nearly 5 kilometers from the donation site. This proximity suggests that the majority of donors reside relatively close to the donation centers.

Diving deeper into the demographic breakdown, summary statistics delineate a gender distribution of 40% female donors and the presence of O-negative blood type in

a small portion of the population, amounting to 7%. Additionally, immigrants comprise 6% of the donor pool, illustrating a modest but noteworthy participation of non-native residents in blood donation activities.

TABLE 3.1: Summary Statistics

	Mean	SD	N
Individual-level stats			
Female	0.40	0.49	89860
Age	38.76	12.63	89859
0-negative blood	0.07	0.26	89860
Immigrants	0.06	0.24	89860
Distance (km)	4.95	4.54	89860
Municipal-level stats			
Municipal surface (km^2)	131.21	116.46	89860
Population resident	59382.87	77096.70	89860
Income	20626.64	2271.80	89860
NPO	17.74	7.87	89860
Unemployment (%)	3.68	0.53	89860
Secondary education (%)	36.70	2.39	89860
Old-age index (%)	224.76	48.51	89860

The temporal trends in donation, presented in Figure A.11, uncover fluctuations that suggest a range of underlying factors at play. The overall number of donors has experienced growth until 2016 followed by a plateau and a remarkable downward spike around 2020 due to the COVID-19 pandemic. Recovery in subsequent years suggests a resilience in the donor population, yet the level of donors keep showing a negative steep. Disaggregating by gender, Figure A.12 reveals that both males and females follow the same donation trend throughout the years, with males consistently outnumbering females throughout all periods.

A similar pattern of donation is observed for all the age groups (Figure A.13). But a more granular analysis of the donor base segmented by age, reveals progressive growth across all groups until a recent downturn, with the 45-59 age cohort consistently leading

in donor numbers.

When gender is introduced into this age-based analysis (Figure A.14), gender disparities in the number of donors among ages become evident. In Table A.8, it is observed that the youngest age group, 18-24 years old, shows almost equal numbers of donors from both genders, with females representing about the 49.24% of the donors in this age cohort. This balance, however, begins to shift as we move into higher age groups. The gender gap becomes markedly pronounced in the 30-44 and 45-59 age categories, where males constitute the 60.20% and 64.25% of the donors, respectively, significantly outnumbering their female counterparts. This trend suggests that as individuals transition from their late twenties into their thirties and beyond, factors influencing the decision to donate blood begin to diverge sharply along gender lines.

The transition into the 30-44 age group coincides with a period commonly associated with increased family responsibilities and possibly the commencement of childbearing years for many women[3]. It is within this pivotal stage that the gender gap in blood donation first widens, suggesting that societal roles and health factors related to fertility may contribute to a decline in female donor prevalence. This hypothesis is reinforced by the observation that the gender gap, once established, does not subsequently narrow in the older age categories. In fact, the gap appears to stabilize or even widen further, which could be reflective of the cumulative effects of ongoing gender-specific responsibilities and health factors that persist into later stages of life.

[3]In the Tuscany region, mothers' age at the birth of their first child has been constantly high in the last decade, maintaining an average of 32.1 years in 2013, rising to 32.8 years in 2022 (ARS Toscana, 2022). However, we have checked results for summary statistics (and following statistical analysis) applying age cut-off at both 25 (in Table A.8) and 30 (in Table A.14) years old, in order to account for different fertility age thresholds.

3.4 Data and Methodology

3.4.1 AVIS data

The data on blood donations used in this analysis were obtained from the Associazione Volontari Italiani del Sangue (AVIS), and are the same utilized in Chapter 2. For a detailed description of the dataset consult Section 2.2.3 in Chapter 2.

For the purpose of the present project, the entire timeframe covered in the dataset, spanning from 2008 to 2022, is utilized. The final dataset comprises 1,092,974 observations (i.e., donations) involving a total of 94,831 donors.

3.4.2 Distances dataset

In assessing the impact of geographical distance on blood donation behaviors, a crucial measure to retrieve was the distance between the donors' residences and the nearest blood collection site. Although data on the actual locations of each donation were available, the analysis adopted a more conservative approach by calculating the minimum potential distance a donor would need to travel to donate. This decision was informed by the observation of notable outliers within the dataset, where donors were found to travel to blood collection sites outside their residential municipalities. A plausible explanation for such behavior could include personal preferences or "affection" for specific blood collection sites, or personal needs (e.g. commuting), or, again, the presence of site-specific donation campaigns, which could introduce bias into our estimation of distance effects.

To compute consistently distance measures, we utilized a geographic information system software, namely QGIS (QGIS Development Team, 2002). Firstly, the precise addresses of the donors and the blood collection centers throughout Tuscany were geocoded. Subsequently, a distance matrix was computed along with all possible routes combina-

tions between each donors house and each collection center. As mentioned above, it was selected as preferred distance measure, the one matching the path from each donor's residence to their nearest collection center.

Distances has been calculated as linear (i.e. straight-line) measurements, in accordance with the findings of Boscoe et al. (2012). In this contribution the authors demonstrates that linear distances serve as effective proxies for actual travel distances. The geographic distribution of donor residences and blood collection centers, illustrated in Figure 3.1, provides a comprehensive overview of the potential travel requirements for donors within the region.

3.5 Measures and Empirical strategies

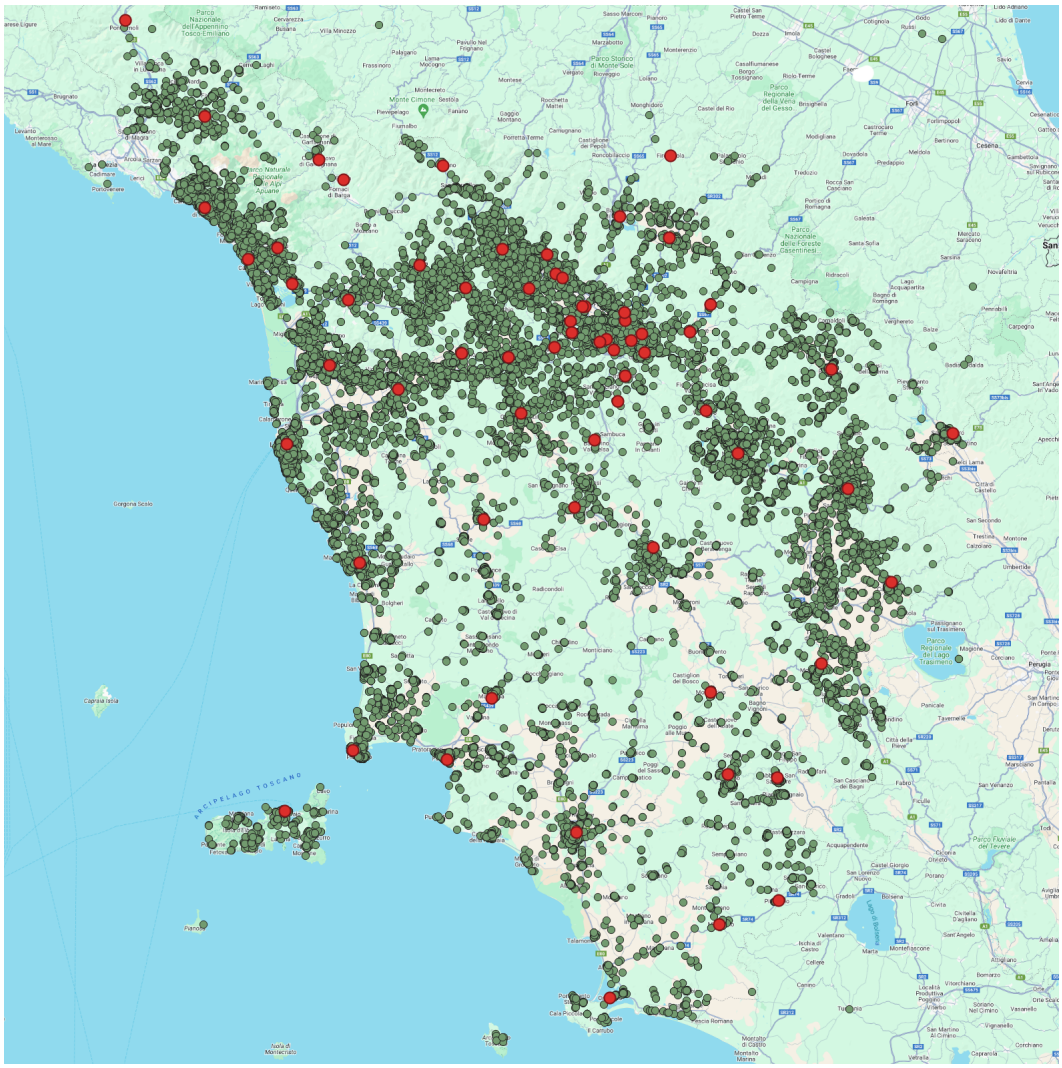
3.5.1 Measures for Prosociality in Blood Donation

Concerning the dependent variables for this study, the intention is to initially examine the probability of discontinuing blood donation activity through a Probit regression. The dependent variable for this analysis was constructed by defining, according the European guidelines for blood donation management (DOMAINE; Piersma et al., 2021), a donor who has ceased donating for more than 24 months as a dropped out donor.

The second outcome measure for this study is the number of donations per donor, analyzed using a Poisson regression approach. To accommodate the variation in donation frequency, it has been introduced the number of days between the individual's first and last donation as an exposure variable. This metric aims at capturing the intensity of donation activity, serving as a proxy for donor productivity during their active donation period.

The third measure examined focuses on temporal intervals between consecutive donations (in terms of days) for each donor. This measure is important for assessing

FIGURE 3.1: Distribution of Donors Addresses and Blood Collection Centers in Tuscany Region.



Notes: The green dot represents donors addresses, while red one are the blood collection centers. All addresses were computed inserting exact addresses of donors and centers. We integrated Google Maps as base layer to provide geographical context for data points. Google Maps API enabled us to access Google's extensive mapping data, and managed to geolocate accurately the 98.8% of the addresses.

whether distance impact the tendency to delay donations. In order to analyse this we employ two different methods. Firstly, an Ordinary Least Squares (OLS) regression approach is applied. Secondly, in order to address non-linearities and censoring issues inherent in this analysis, a Duration analysis is subsequently undertaken.

3.5.2 Empirical Strategies

Central to this investigation is the exploration of how gender and geographical proximity to donation centers intersect to impact donor engagement. This endeavor unfolds through the lens of three distinct statistical approaches, each tailored to a specific aspect of donation behavior.

3.5.2.1 Probit Model

At the core of our first analytical approach is the Probit model, which is employed to assess the probability of donor attrition. The model is structured as follows:

$$Y_i = \theta_0 + \theta_1 Sex_i + \theta_2 Distance_i + \theta_3 (Distance_i \times Sex_i) + \theta_4 X_i + \epsilon_i$$

Here, Y_i denotes the likelihood of a donor i dropping out from blood donation activity. Within this model, Sex_i and $Distance_i$ represent the donor's gender and the logarithmic distance from the nearest donation facility, respectively. The parameter of interest, θ_3, for interaction term $Distance_i \times Sex_i$, captures how distance influences donation patterns differently across genders. Control variables are enclosed within X_i, and ϵ_i signifies the model's error term.

3.5.2.2 Poisson Model

Moving to the frequency of donations, the Poisson model serves as our second statistical tool, formalized as follows:

$$\lambda_i = \exp\left(\beta_0 + \beta_1 Sex_i + \beta_2 Distance_i + \beta_3 (Distance_i \times Sex_i) + \beta_4 X_i\right)$$

where, λ_i quantifies the number of donations for individual i, while the other variables are the same introduced in the Probit model: β_1 for gender, β_2 for distance, β_3 for

their interaction, and β_4 for a set of covariates.

3.5.2.3 OLS Model

The third part of our empirical strategy engages with the temporal intervals between donations, adopting an OLS framework. The definition of the OLS specification is as follows:

$$\omega_{it} = \alpha_0 + \alpha_1 Sex_i + \alpha_2 Distance_i + \alpha_3 (Distance_i \times Sex_i) + \alpha_4 X_i + \epsilon_i$$

Here, ω_{it} measures the inter-donation interval for donor i at time t. Specifically, ω_i represents the number of days since last donation occurred for each donor i.

3.5.2.4 Duration Model

Complementing the OLS analysis, the Survival analysis is presented, that, by means of a Proportional Hazards (PH) model, tests the timing of donations while accommodating for right-censored events. The model is articulated as follows:

$$h(t_i) = h_0(t_i) \exp\left(\gamma_1 Sex_i + \gamma_2 Distance_i + \gamma_3 (Distance_i \times Sex_i) + \gamma_4 X_i\right)$$

In this formulation, $h(t_i)$ is the hazard function for donor i at time t, representing the rate of donation at time t given survival (no donation) up to time t. $h_0(t_i)$ is the baseline hazard function, capturing the risk of donation at time t for a baseline category of donors. The coefficients γ_1, γ_2, γ_3, and γ_4 measure, as usual, the impact of sex, distance, their interaction, and other control variables X_i, respectively, on the hazard rate of donation.

3.6 Main results

In this section, we present the findings derived from the statistical methods discussed previously. Across all models, we detail four distinct specifications: specification (1) outlines the baseline model; specification (2) incorporates individual-level covariates; specification (3) introduces socio-economic controls at the municipal level; finally, specification (4) includes geographical controls to the municipal level. All estimates presented below remain consistently significant across all model specifications.

Starting from the Probit regression analysis results, reported in Table A.9, we can observe positive coefficients for the variable *Female* (0.123, p-value 0.000)[4] suggesting that women are more likely to discontinue blood donations compared to men. The coefficient for *Distance* (0.021, p-value 0.000) is also positive, indicating that an increase in the log of distance is associated with a higher probability of donor dropout. Notably, the positive interaction term, *Female* × *Distance* (0.019, p-value < 0.05), reveals that the probability of dropout for women increases along with an increase in the distance with respect to their counterparts.

The Poisson regression (in Table A.10), which examines the count of blood donations, presents a negative coefficient for being a woman (-0.207, p-value 0.000), indicating that females donate blood less frequently than men. The coefficient for distance is also negative (-0.024, p-value 0.000), showing that a greater distance from the donation site is associated with a lower number of donations, irrespective of gender. Moreover, the interaction term shows a negative coefficient (-0.005, p-value < 0.05), indicating that distance has a more detrimental effect on donation frequency for females compared to males, albeit the coefficient's magnitude is relatively small.

[4]For sake of readability, only baseline results are reported hereafter.

The Ordinary Least Squares (OLS) model, shown in Table A.11, focuses on the interval between donations. The *Distance* coefficient (1.42, p-value 0.000) is positive, indicating that a longer distance to the donation site leads to an increased interval between donations. The *Female* variable also has a positive coefficient (45.76, p-value 0.000), suggesting that the interval between donations is longer for females with respect to their counterparts. The interaction term presents a positive coefficient (0.8, p-value < 0.05), implying that the incremental effect of distance has an impact on intervals between donations more for women than men.

Finally, as for the Duration model, results are presented in Table A.12 in the form of Accelerated Failure-Time (AFT), which is equivalent to PH estimates but has less straightforward interpretation[5]. Coefficients for *Female* (AFT: 0.357, PH: 0.764, p-value 0.000) and *Distance* (AFT: 0.006, PH: 0.995 p-value 0.000), support the findings of the OLS model that females wait longer between donations (the 23.6% more with respect to men) and that increased distance correlates with longer intervals (with 0.5% lower risk of experiencing the event of donation). The interaction term *Female* × *Distance* in this model is also positive (AFT: 0.003, PH: 0.997, p-value < 0.05), and corroborates OLS model findings, with a reduction of 0.3 percentage points to incur in the event for women being at a greater distance from blood donation centers with respect to men.

Across all models, the coefficient associated with the *Female* variable indicates that gender is a significant factor in blood donation behavior, with women being less likely to donate and having longer intervals between donations than men. The distance variable consistently shows that increased distance from the donation center is associated with

[5]In STATA, it is not feasible to directly obtain PH coefficients when using the Gamma distribution, which proved to best fit the data. However, PHs can be easily derived from the AFT model output. This is accomplished by applying the formula $-\exp(logs) \times \beta_{PH} = X$ to convert the AFT coefficients into PHs. Exponentiating this resultant value, X, provides the corresponding PH.

less favorable donation behaviors, affecting both the likelihood of continued donation and the frequency of donations. The interaction term between being a woman and distance indicates that females are affected more adversely by the distance than their male counterparts.

3.7 Discussion

This study contributes to the existing body of literature on blood donation by offering an examination of the influence of gender and geographical distance on donor behavior. Our findings derived from multiple statistical models — Probit, Poisson, OLS, and Survival analysis — consistently indicate that females are more likely to drop out from blood donation, less productive donors and donate at less frequent intervals compared to men. This gender disparity in donation frequency and retention is exacerbated by the distance from donation centers, highlighting a significant barrier to female participation in blood donation activity.

These findings also point towards potential socio-economic and cultural factors that may underpin the observed gender differences in blood donation behaviors. While our study controls for various individual and municipal-level socio-economic and geographic factors, the persistence of gender disparities suggests that more complex social dynamics, including gender roles, caregiving responsibilities, in addition to health-related issues (such as high anemia rates), might be at play in this context. These insights align with the documented phenomena of gender-related mobility patterns and accessibility challenges. Women's complex travel patterns, often characterized by trip chaining and reliance on public transportation or walking, may contribute to the decreased likelihood of blood donation as distance from donation centers increases.

The interpretation of the OLS and Duration models further corroborates the trend observed in the Probit and Poisson models, with both indicating an increase in the time

interval between donations for individuals living farther from blood centers, particularly for females. The Duration model, in particular, suggests that this temporal gap in donation behavior is sustained over time, substantiating the challenge of maintaining a stable donor base among the female population.

These results are not only statistically significant but also carry substantial implications for the design and implementation of donor recruitment and retention strategies. In light of these findings, blood donation campaigns may need to be tailored to address the specific obstacles that deter women, particularly those residing farther from donation centers.

3.8 Conclusions and Limitations

In conclusion, the present study underscores the need for gender-sensitive approaches and geographically informed strategies to enhance blood donor recruitment and retention. By addressing these critical factors, healthcare systems and blood donation organizations can work towards a more equitable and efficient donor base.

Together, these models furnish a comprehensive framework to dissect the patterns of donor behavior. By examining how gender and proximity to donation centers interweave to influence the probability of dropout, frequency of donations, or the time between donations, this paper contributes to a richer understanding of donor dynamics.

The overall findings in blood donation reflects a persistent gender gap, starting during fertility age, that does not exhibit signs of closing. Such a sustained gap could point to systemic issues that may discourage or hinder female participation in blood donation across their lifespan. These findings prompt a call for tailored interventions that consider the unique challenges and barriers faced by women, particularly during the reproductive and middle years, to support and facilitate their continued engagement in

blood donation.

Despite the extensive and unique nature of AVIS dataset allowed us to address research questions at hand, limitations arise from the lack of key individual-level variables. These covariates, such as employment type and modes of transportation used, would enhance our comprehension of the mechanisms driving the observed results.

Lastly, we plan to carry out a further analysis in order to incorporate public transportation networks specific to each municipality. This will involve obtaining a proxy measure that captures the quality and extensiveness of local public transportation systems, in order to evaluate the extent to which it contributes to the gender gap in donations.

Appendix A

Appendix

A.1 Chapter 1 Appendix

A.1.1 Survey supplemental material

Questionnaire:

1. **Warm-glow survey tool** (Carpenter, 2021).

Think about a situation in which you are asked to donate. What would be most important to you?

(i) the total amount given by everyone,

(ii) the amount that you personally give

(iii) some other aspect of giving

2. **Questions on priors of participants.**

(i) Did you already know International Children organization? (yes, no)

(ii) How frequently do you donate? (Do not donate, occasionally, regularly)

3. **Attitude toward Charitable Organization scale (ACO)** (Webb et al., 2000).

What do you think about charitable organizations? (5 item Likert scale answer)

(i) The money given to charities goes for good causes.

(ii) Much of the money donated to charities is wasted.

(iii) My image of charitable organizations is positive.

4. **Global Preference Survey (GPS) - Altruism survey tool** (Falk et al., 2018).

(i) Imagine the following situation: Today you unexpectedly received 1,000 Dollars. How much of this amount would you donate to a good cause? (Values between 0 and 1000 are allowed.)

(ii) How willing are you to give to good causes without expecting anything in return? A 0 means you are "completely unwilling to do so" and a 10 means you are "very willing to do so". You can use any number between 0 and 10 to indicate where you fall on the scale.

TABLE A.1: Descriptive statistics by information type

Variable	Cause Info Treatment			Outcome Info Treatment		
	Mean	SD	N	Mean	SD	N
Gender	0.49	0.50	79	0.51	0.50	80
Age	39.91	13.22	79	44.87	13.84	80
Socioeconomic Status	5.47	1.49	79	5.10	1.58	80
Left Political Affiliation	0.39	0.49	79	0.45	0.50	80
Employed	0.76	0.43	79	0.70	0.46	80
Higher Education Level	0.71	0.46	79	0.60	0.49	80
Low Household Income	0.18	0.38	79	0.25	0.44	80
Married	0.42	0.50	79	0.45	0.50	80
Christians	0.32	0.47	79	0.28	0.45	80
Non-religious	0.56	0.50	79	0.56	0.50	80
Student	0.11	0.32	79	0.15	0.36	80
Conservatives	0.23	0.42	79	0.15	0.36	80
Low Personal Income	0.20	0.40	79	0.20	0.40	80
Children	0.47	0.50	79	0.61	0.49	80
Household Size	3.03	1.30	78	2.83	1.10	80
Siblings	2.09	1.39	79	1.94	1.55	80
Donation Decision	32.78	37.36	79	31.43	33.42	80
Pure Altruist	0.28	0.45	79	0.25	0.44	80
HWG	0.37	0.49	79	0.45	0.50	80
LWG	0.35	0.48	79	0.30	0.46	80

FIGURE A.1: Experiment Introduction.

Welcome to the research study!

You will take part to a study which aims to investigate the Informational provision and Charity donations.

The study should take you around 6 minutes to complete, and you will receive **0.60 GBP for your participation**. You will be asked to **perform a task** in which you will earn **1 GBP** upon correct completion.

Your participation in this research is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice.
By clicking the button below, you acknowledge that your participation in the study is voluntary, you are at least 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

Data collected will be used for research purpose only and all published data will be thoroughly anonymized in order to protect your privacy. Data will not be shared with any third party unrelated to the research project.

For any curiosity, doubts or general question about the study, please feel free to contact Costanza Usai at costanza.usai@unifi.it.

- ○ I consent, begin the study
- ○ I do not consent, I do not wish to participate

Record participant IDs

Please enter your Prolific ID.
Please note that this response should auto-fill with the correct ID.

FIGURE A.2: Effort Task.

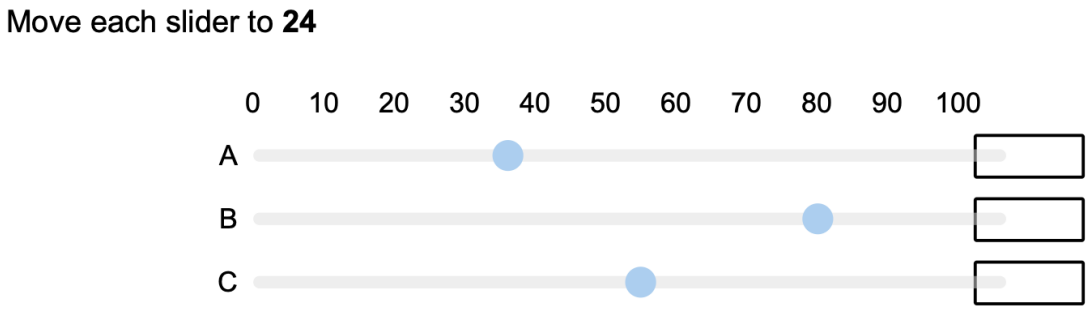


FIGURE A.3: NPO basic info.

FIGURE A.4: Cause Information Treatment.

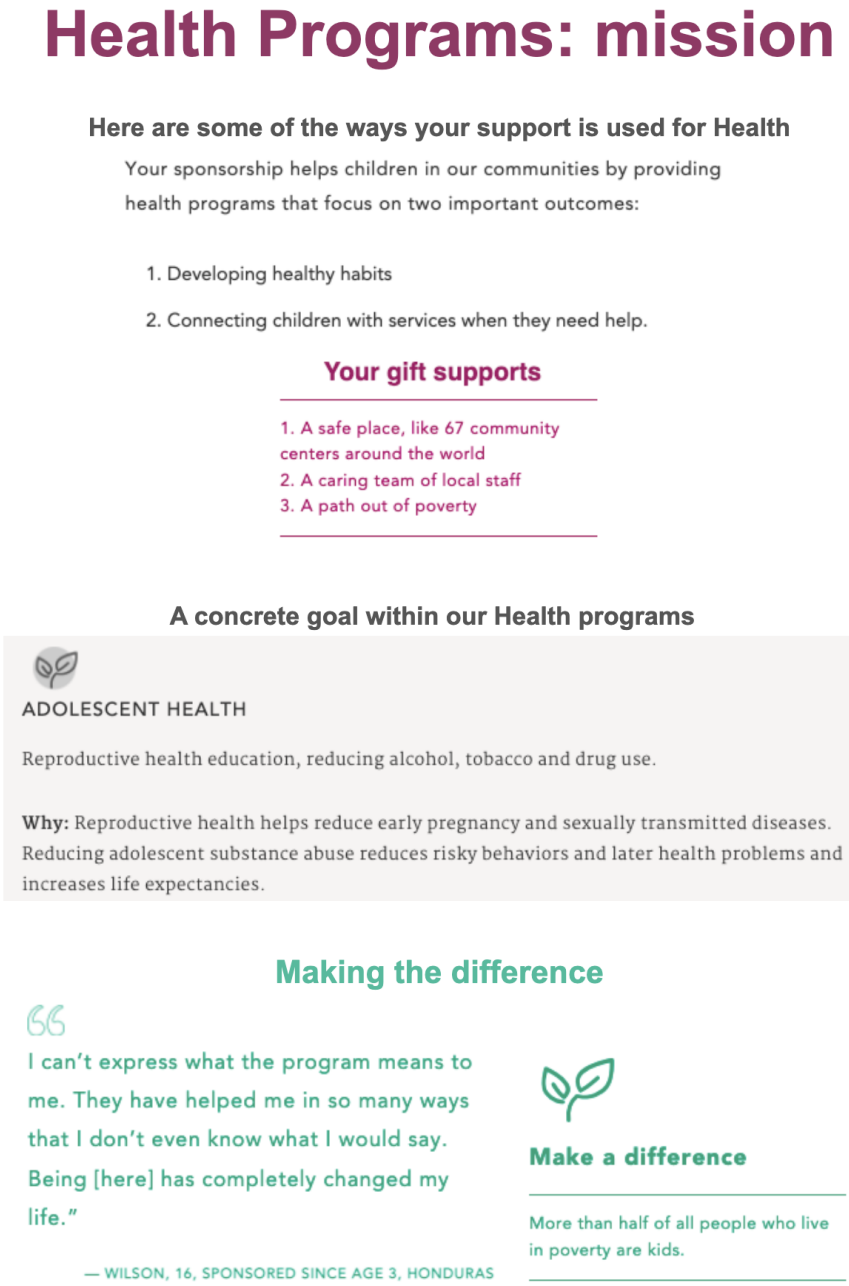
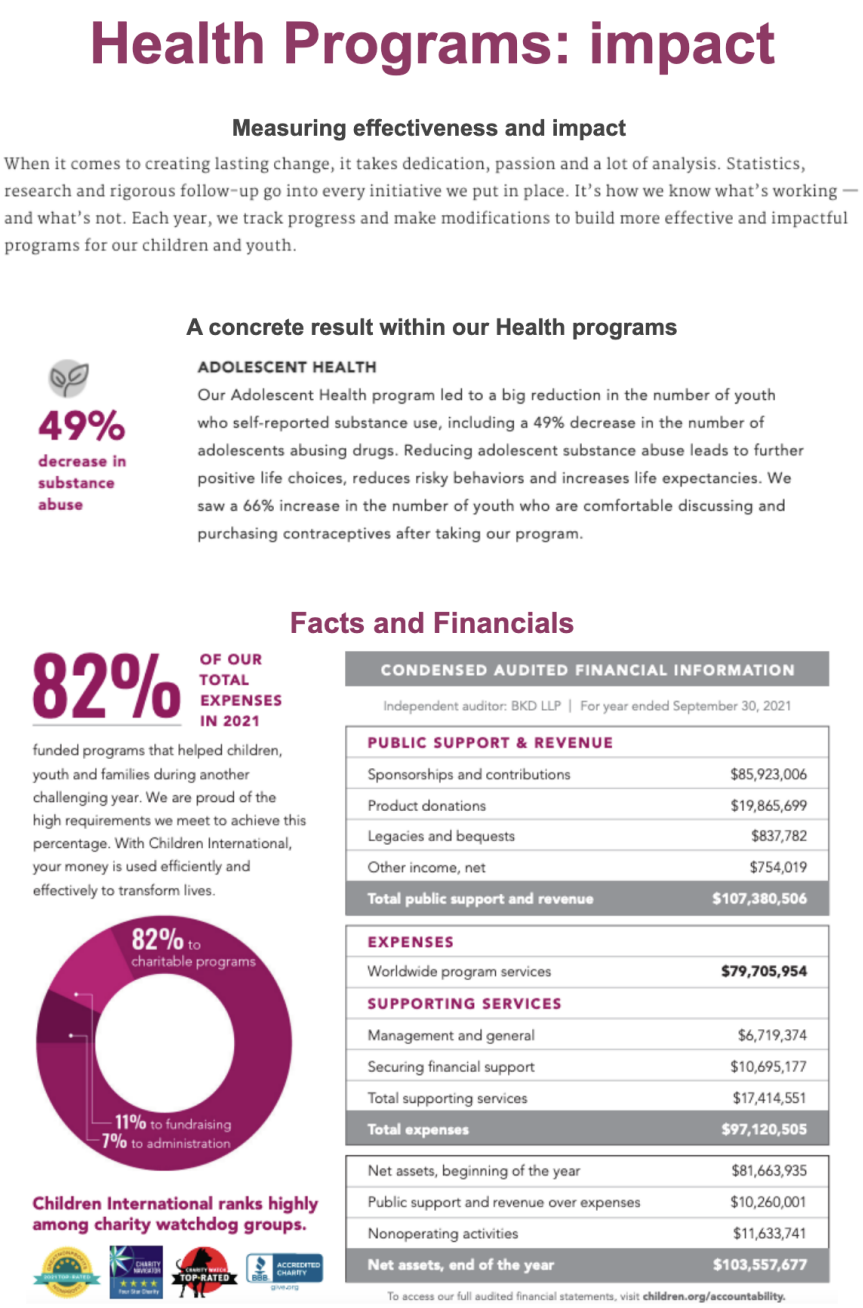


FIGURE A.5: Outcome Information Treatment.



Health Programs: impact

Measuring effectiveness and impact

When it comes to creating lasting change, it takes dedication, passion and a lot of analysis. Statistics, research and rigorous follow-up go into every initiative we put in place. It's how we know what's working — and what's not. Each year, we track progress and make modifications to build more effective and impactful programs for our children and youth.

A concrete result within our Health programs

49%
decrease in substance abuse

ADOLESCENT HEALTH

Our Adolescent Health program led to a big reduction in the number of youth who self-reported substance use, including a 49% decrease in the number of adolescents abusing drugs. Reducing adolescent substance abuse leads to further positive life choices, reduces risky behaviors and increases life expectancies. We saw a 66% increase in the number of youth who are comfortable discussing and purchasing contraceptives after taking our program.

Facts and Financials

82% **OF OUR TOTAL EXPENSES IN 2021**

funded programs that helped children, youth and families during another challenging year. We are proud of the high requirements we meet to achieve this percentage. With Children International, your money is used efficiently and effectively to transform lives.

Children International ranks highly among charity watchdog groups.

CONDENSED AUDITED FINANCIAL INFORMATION

Independent auditor: BKD LLP | For year ended September 30, 2021

PUBLIC SUPPORT & REVENUE	
Sponsorships and contributions	$85,923,006
Product donations	$19,865,699
Legacies and bequests	$837,782
Other income, net	$754,019
Total public support and revenue	**$107,380,506**
EXPENSES	
Worldwide program services	**$79,705,954**
SUPPORTING SERVICES	
Management and general	$6,719,374
Securing financial support	$10,695,177
Total supporting services	$17,414,551
Total expenses	**$97,120,505**
Net assets, beginning of the year	$81,663,935
Public support and revenue over expenses	$10,260,001
Nonoperating activities	$11,633,741
Net assets, end of the year	**$103,557,677**

To access our full audited financial statements, visit **children.org/accountability.**

FIGURE A.6: Donation Question.

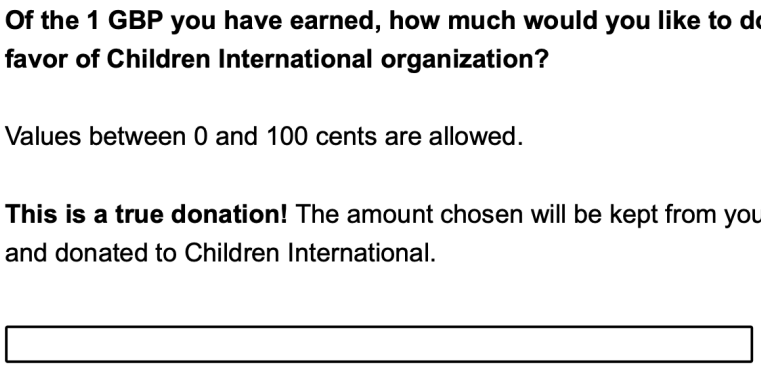


TABLE A.2: Frequency Distribution of Donation Decisions

Amount donated	Frequency	Percent	Cumulative percent
0	58	36.48	36.48
1	9	5.66	42.14
5	1	0.63	42.77
10	6	3.77	46.54
15	1	0.63	47.17
20	6	3.77	50.94
25	8	5.03	55.97
30	1	0.63	56.60
40	4	2.52	59.12
50	34	21.38	80.50
60	4	2.52	83.02
75	3	1.89	84.91
80	3	1.89	86.79
100	21	13.21	100.00

TABLE A.3: Dunn's Pairwise Comparison of Donated by Group

	CI & LWG	**CI & HWG**	**CI & Pure**	**OI& LWG**	**OI& HWG**
CI & HWG	-1.501625				
	(0.0666)				
CI & Pure	-2.831968	-1.446530			
	(0.0023)	(0.0740)			
OI& LWG	0.088625	1.531081	2.817036		
	(0.4647)	(0.0629)	(0.0024)		
OI& HWG	-2.869953	-1.303735	0.309190	-2.837753	
	(0.0021)	(0.0962)	(0.3786)	(0.0023)	
OI& Pure	-2.273580	-0.921301	0.457007	-2.279951	0.206263
	(0.0115)	(0.1784)	(0.3238)	(0.0113)	(0.4183)

TABLE A.4: Dunn's Pairwise Comparison of Donation Category by Group

	CI & LWG	**CI & HWG**	**CI & Pure**	**OI& LWG**	**OI& HWG**
CI & HWG	-1.448936				
	(0.0737)				
CI & Pure	-2.406916	-1.067592			
	(0.0080)	(0.1429)			
OI& LWG	0.160519	1.552966	2.474517		
	(0.4362)	(0.0602)	(0.0067)		
OI& HWG	-2.053281	-0.534972	0.622123	-2.132755	
	(0.0200)	(0.2963)	(0.2669)	(0.0165)	
OI& Pure	-1.871438	-0.564267	0.446123	-1.957139	-0.109445
	(0.0306)	(0.2863)	(0.3278)	(0.0252)	(0.4564)

TABLE A.5: Logistic and Ordered logistic regressions

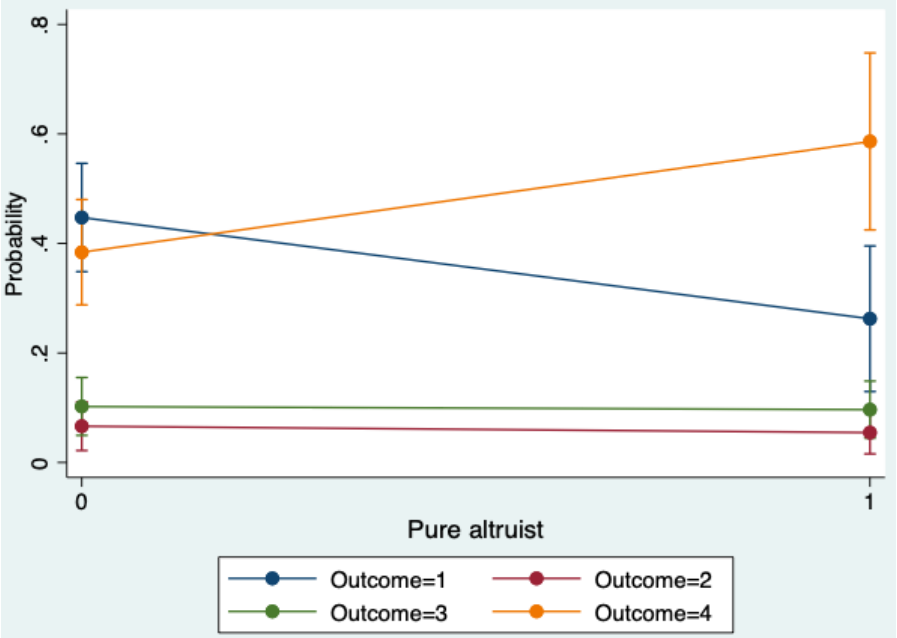
Donor type	Donated		Donation cat.	
	(1)	(2)	(3)	(4)
High WG	1.312***	1.510**	0.932**	1.114**
	(0.435)	(0.623)	(0.402)	(0.502)
Pure altruist	1.962***	2.252***	1.367***	1.350**
	(0.574)	(0.758)	(0.459)	(0.556)
Controls		✓		✓
N	128	107	128	113
Pseudo R^2	0.1008	0.3203	0.0348	0.1776

Notes: Logistic ("Donated") and Ordered logistic ("Donation categories") regressions without (models (1) and (3)) and with controls (models (2) and (4))

TABLE A.6: Predictive effects for binary dependent variable.

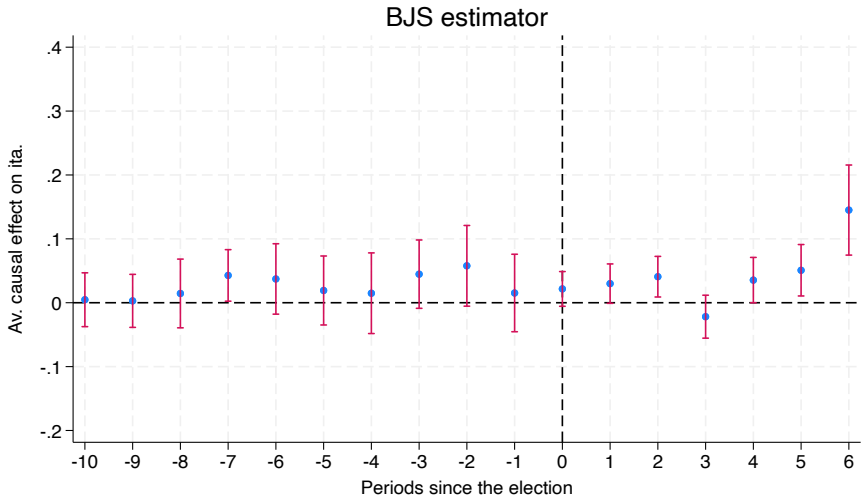
Variables	Margin	SE	z	P-value
Low WG	0.41	0.06	6.39	0.000
High WG	0.72	0.05	13.65	0.000
Pure Altruist	0.77	0.06	12.05	0.000

FIGURE A.7: Plot of ordinal logistic predictive effects - pure altruist.



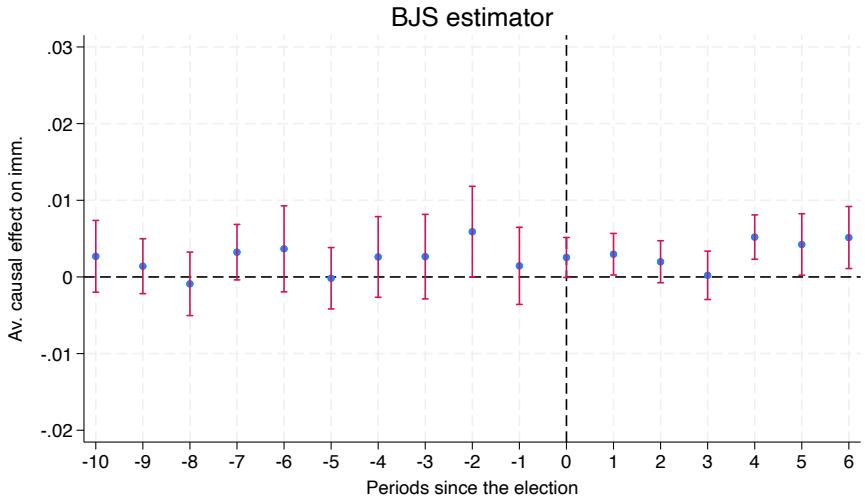
A.2 Chapter 2 Appendix

FIGURE A.8: BJS est. - Average causal effect on Italian donors.



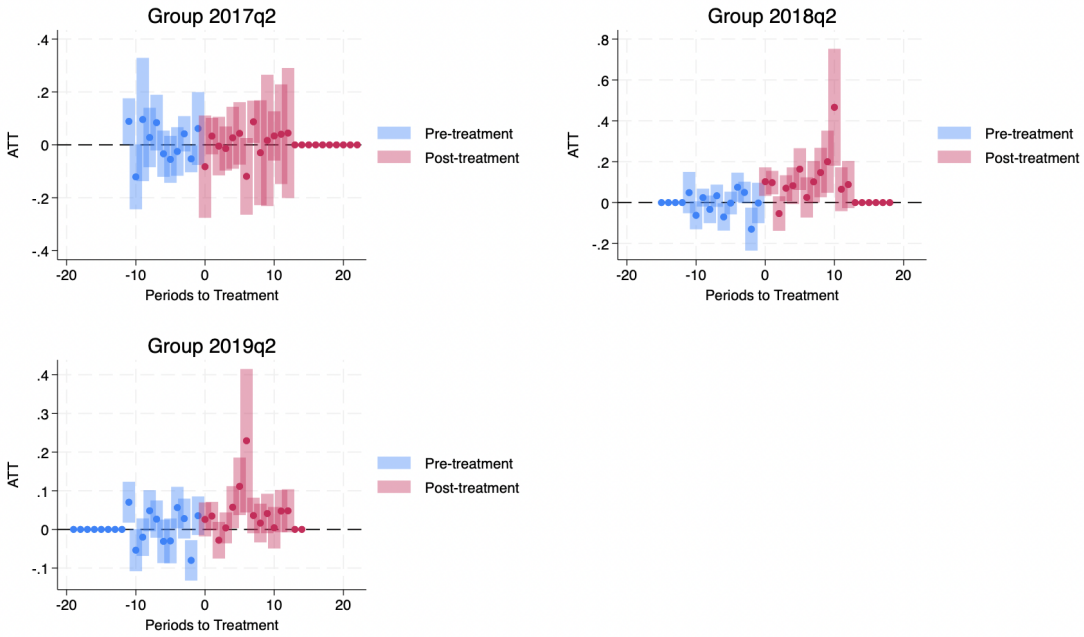
Notes: The bars represent 95 percent confidence intervals. Standard errors are clustered at municipal level.

FIGURE A.9: BJS est. - Average causal effect on immigrant donors.



Notes: The bars represent 95 percent confidence intervals. Standard errors are clustered at municipal level.

FIGURE A.10: CS est. - Average treatment effect by cohorts for Italian donors.



Notes: The bars represent 95 percent confidence intervals. Standard errors are clustered at municipal level.

TABLE A.7: Impact of Far-right Voting Share on Blood Donors Percentage for TWFE and BJS Estimators.

	Italian donors		Immigrant donors	
	TWFE	BJS	TWFE	BJS
Trimester 0	0.030* (0.017)	0.020* (0.016)	0.003** (0.001)	0.002 (0.001)
Trimester 1	-0.069** (0.025)	0.025 (0.016)	-0.001 (0.002)	0.003* (0.001)
Trimester 2	-0.041 (0.023)	0.042** (0.015)	-0.003 (0.002)	0.001 (0.002)
Trimester 3	-0.080*** (0.021)	-0.019 (0.019)	-0.002 (0.002)	0.001 (0.002)
Trimester 4	-0.058** (0.023)	0.034 (0.020)	0.001 (0.001)	0.005** (0.002)
Trimester 5	-0.047* (0.022)	0.052* (0.021)	-0.000 (0.002)	0.005* (0.002)
Trimester 6	0.032 (0.022)	0.161*** (0.039)	0.001 (0.002)	0.006* (0.002)
Trimester -1 (omitted)	-	-	-	-
Trimester -2	0.052*** (0.015)	0.090** (0.030)	0.002* (0.001)	0.009*** (0.003)
Trimester -3	0.056** (0.020)	0.068 (0.040)	0.001 (0.001)	0.006* (0.002)
Trimester -4	0.033 (0.023)	0.034 (0.033)	0.003 (0.002)	0.001 (0.002)
Trimester -5	0.019 (0.017)	0.033 (0.025)	0.002 (0.002)	0.007** (0.002)
Trimester -6	0.017 (0.014)	0.043* (0.021)	0.002 (0.001)	0.004** (0.002)
Trimester -7	0.016* (0.014)	0.043* (0.021)	0.000 (0.001)	0.004** (0.002)
Trimester -8	0.015 (0.012)	0.023 (0.028)	0.002 (0.001)	0.001 (0.002)
Trimester -9	0.006 (0.024)	0.009 (0.022)	0.001 (0.002)	0.002 (0.002)
Trimester -10	0.011 (0.019)	0.033 (0.019)	0.002* (0.002)	0.006** (0.002)
N (Municipality X Periods)	3744		3744	
N (Municipality)	234		234	

Notes: Standard errors in parenthesis.

* $p < .10$, ** $p < .05$, *** $p < .01$

A.3 Chapter 3 Appendix

FIGURE A.11: Blood trends over time.

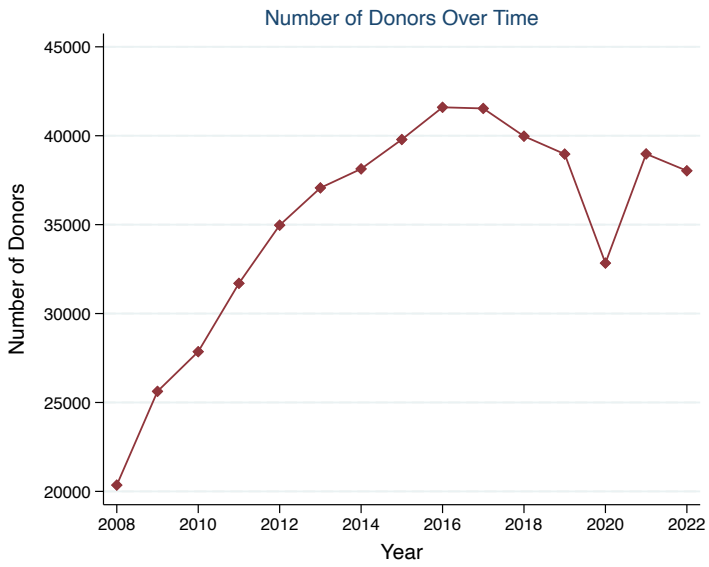


FIGURE A.12: Blood trends by gender.

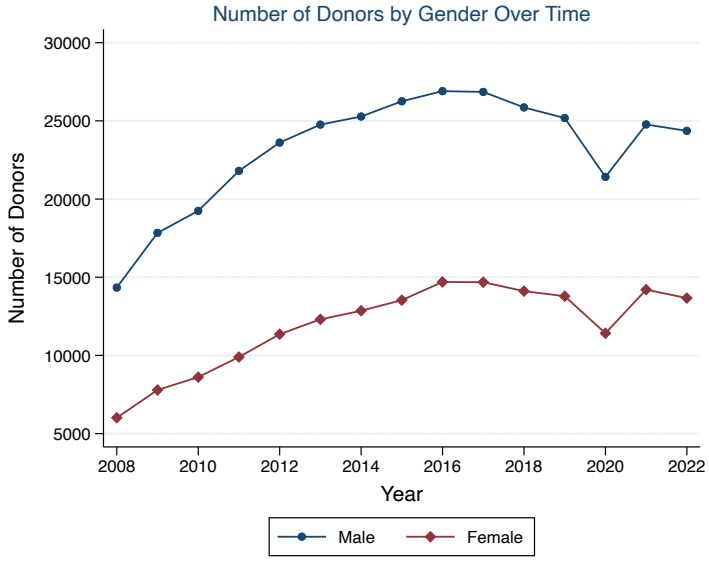


FIGURE A.13: Blood trends by age.

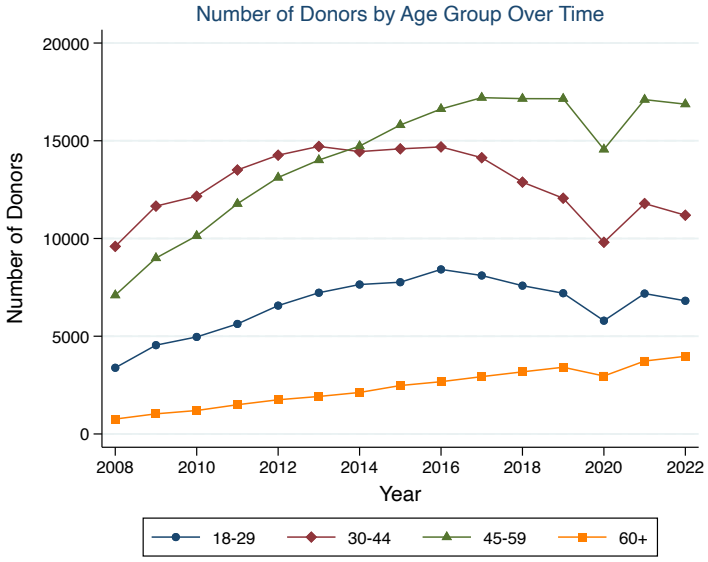


FIGURE A.14: Blood trends by gender and age.

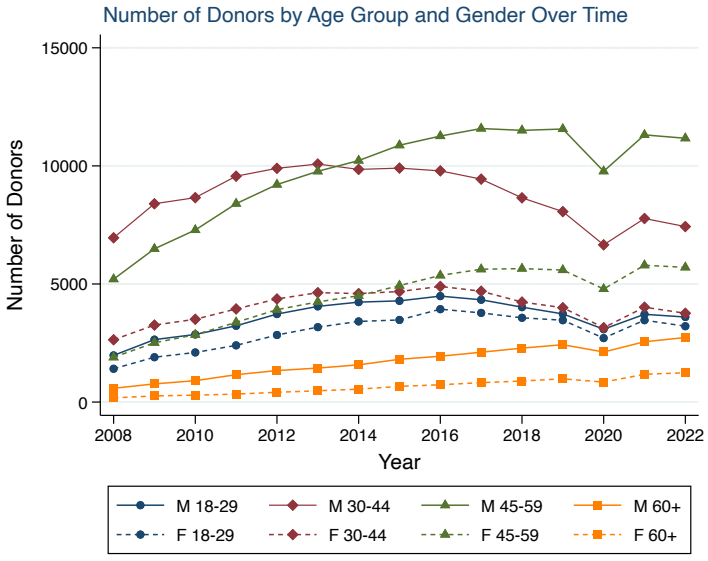


TABLE A.8: Donors by Age Category and Gender

Age category	Males	Females	Total
18-24	10,638	10,321	20,959
	50.76%	49.24%	
25-39	24,441	16,162	40,603
	60.20%	39.80%	
40-59	31,771	17,679	49,450
	64.25%	35.75%	
Over 60	6,674	2,909	9,583
	69.64%	30.36%	
Total	73,524	47,071	120,595
	60.97%	39.03%	

TABLE A.9: Probit Model

	Dep. var.: Drop out			
	(1)	(2)	(3)	(4)
Female	0.123***	0.204***	0.199***	0.203***
	0.013	0.018	0.018	0.018
Distance (log)	0.021***	0.024***	0.025***	0.040***
	0.005	0.005	0.005	0.006
Female × Distance	0.019**	0.016**	0.016**	0.016**
Individ. controls		✓	✓	✓
Municip. controls (socio-econ.)			✓	✓
Municip. controls (geograph.)				✓
Observations	89,860	89,832	89,832	89,832
Pseudo R^2	0.003	0.023	0.029	0.034

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Standard Errors in parenthesis.

TABLE A.10: Poisson Model

	Dep. var.: Number of donations			
	(1)	(2)	(3)	(4)
Female	-0.207***	-0.213***	-0.211***	-0.211***
	(0.003)	(0.005)	(0.005)	(0.005)
Distance (log)	-0.024***	-0.007***	-0.008***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)
Female × Distance	-0.005**	-0.006**	-0.006**	-0.006**
Individ. controls		✓	✓	✓
Municip. controls (socio-econ.)			✓	✓
Municip. controls (geograph.)				✓
Observations	78,279	78,279	78,279	78,279
Pseudo R^2	0.018	0.247	0.249	0.249

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Standard Errors in parenthesis.

TABLE A.11: OLS Model

	Dep. var.: Number of days between donations			
	(1)	(2)	(3)	(4)
Distance (log)	1.42***	1.42***	1.73***	1.56***
	(0.13)	(0.13)	(0.13)	(0.14)
Female	45.76***	45.57***	46.20***	45.95***
	(1.77)	(1.77)	(1.72)	(1.72)
Female × Distance	0.80**	0.80**	0.75**	0.79**
	(0.26)	(0.26)	(0.26)	(0.26)
Individ. controls		✓	✓	✓
Municip. controls (socio-econ.)			✓	✓
Municip. controls (geograph.)				✓
Observations	932,964	932,964	932,964	932,964
Adj. R^2	0.013	0.022	0.028	0.028

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Standard Errors in parenthesis.

TABLE A.12: Duration Model

	Dep. var.: Number of days between donations			
	(1)	(2)	(3)	(4)
Female	0.357***	0.351***	0.346***	0.353***
	(0.01)	(0.01)	(0.01)	(0.01)
Distance	0.006***	0.006***	0.016***	0.018***
	(0.00)	(0.00)	(0.00)	(0.00)
Female × Distance	0.003**	0.003**	0.003*	0.003*
	(0.00)	(0.00)	(0.00)	(0.00)
Individ. controls		✓	✓	✓
Municip. controls (socio-econ.)			✓	✓
Municip. controls (geograph.)				✓
Observations	1,013,121	1,013,121	1,013,121	1,013,121

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Standard Errors in parenthesis.

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